APPENDIX C

Case No.: 10-T-0139

CHAMPLAIN HUDSON POWER EXPRESS, INC.

PROPOSED CERTIFICATE CONDITIONS

February 22, 2012

TABLE OF CONTENTS

February 22, 2012

TABLES:

ATTACHMENTS

A. General Conditions of the Order

The Commission orders:

1. Subject to the Conditions set forth in this Opinion and Order, Champlain Hudson Power Express, Inc. and CHPE Properties, Inc. ("Certificate Holders"), are granted a Certificate of Environmental Compatibility and Public Need ("Certificate"), pursuant to Article VII of the New York Public Service Law ("PSL"), authorizing the construction and operation of an electric transmission facility comprised of the following components: (i) two high-voltage direct current ("HVDC") cables capable of transmitting 1,000 megawatts ("MW") extending from the United States/Canada border east of the Town of Champlain, New York under the waters of Lake Champlain to the Town of Dresden, New York, extending from that point along rights-of-way ("ROW") of existing highways and railroads to the hamlet of Cementon in the Town of Catskill, New York, where the cables will enter the Hudson River and travel to the Town of Stony Point, New York where the cables will exit the water to proceed along existing highways and railroad ROW, as well as under state park land through Horizontal Directional Drill ("HDD") borings, to bypass Haverstraw Bay, reentering the Hudson River at Hook Mountain State Park in Clarkstown, New York and continuing in the waters of the Hudson and Harlem Rivers to a point south of the Willis Avenue Bridge and north of the Bronx Kill, following the railroad ROW in the Bronx and then across the East River to terminate at Astoria, Queens ("the HVDC Line"); (ii) a voltage source converter station to convert HVDC to high voltage alternating current ("HVAC") be constructed at Astoria, Queens, that will be connected to the New York Power Authority ("the Authority" or "NYPA") 345 kV HVAC gas insulated switchgear ("GIS") Substation (the "Converter Station" and,

collectively with the HVDC Line, the "HVDC Transmission System")[1]; and (iii) a HVAC cable circuit extending from NYPA's 345 kV GIS Substation at Astoria, Queens to Con Edison's 345 kV Rainey Substation located on the corner of 36th Avenue and Vernon Boulevard in Queens, New York (the "Astoria-Rainey Cable" and, collectively with the HVDC Transmission Line System, the "Facility").

2. The Facility route is authorized as depicted on a series of maps included in Appendix B to the Joint Proposal.

3. The Facility is defined geographically by a deviation zone ("Allowed Deviation Zone") around a nominal centerline (the "Centerline"), as depicted in Appendix B to the Joint Proposal. For the portion of the Facility located on land, the Allowed Deviation Zone is depicted in Appendix B to the Joint Proposal. For the portions of the HVDC Transmission System located in Lake Champlain and the Hudson, Harlem, and East Rivers, the Allowed Deviation Zone is as specified in Certificate Condition 155.

4. Those portions of the Allowed Deviation Zone that may be affected by construction of the Facility are included in the construction zone ("Construction Zone"), which may also include areas outside the Allowed Deviation Zone that are needed temporarily for site investigation, access, and construction.

5. The portions of the Allowed Deviation Zone to be occupied by the Facility once construction is complete are referred to herein as the Facility ROW. The Certificate Holders shall also acquire and maintain the continuing right to enter onto and use

[1] If Con Edison moves forward with recently announced plans to interconnect a 345 kV phase angle regulating transformer ("PAR") to NYPA's Astoria 345 kV Substation, the Converter Station will also include a four-breaker 345 kV HVAC GIS ring bus. This ring bus will be constructed in a separate building on the same parcel of land as the rest of the Converter Station and is described in detail in Exhibit 125 attached to the Joint Proposal.

certain additional lands immediately adjacent to the Facility ROW needed for repair and maintenance purposes, including preclusion of vegetative encroachment, on terms prohibiting the owners of such land from taking any action on that land that would interfere with such repair and maintenance activities.

6. The Facility may be developed in segments (each, a "Segment") to facilitate construction sequencing and scheduling, including the commencement of construction of overland components thereof, provided that, with the Environmental Management and Construction Plan ("EM&CP") filing regarding the first Segment, the Certificate Holders shall identify the anticipated Segments and include a schedule for their construction and, provided further that the EM&CP filings regarding subsequent Segments shall include updates to the Segment identification and construction schedule.

7. In the event of any conflict between the express provisions of this Certificate and any of the provisions of the Joint Proposal, including the Best Management Practices document ("BMPs") and the Environmental Management and Construction Plan Guidelines document ("EM&CP Guidelines"), both of which are attached as appendices to the Joint Proposal, the express provisions of this Certificate shall govern.

8. The Certificate Holders shall, within thirty (30) days after Commission approval of this Certificate, file with the Secretary to the Public Service Commission ("Commission") either a petition for rehearing or a verified statement that they accept and will comply with this Certificate. Failure to comply with this condition shall invalidate this Certificate.

9. The Certificate Holders shall not commence site preparation or construction of a particular Segment unless and until all the necessary permits and consents referred to in Certificate Condition 16 that pertain to that Segment are received and unless and until the EM&CP for that Segment (each such EM&CP filing for a particular Segment being referred to as a "Segment EM&CP") is approved by the Commission. Copies of all permits/consents required for or obtained in connection with site preparation and construction shall be provided to the Secretary to the Commission ("Secretary") before commencement of any such activity. For the purposes of this Certificate, "construction" shall include site preparation, installation, delivery of equipment and supplies, maintenance of construction equipment during construction, clearing, and grading, but shall not include component manufacture, including cable manufacture.

10. The Certificate Holders shall not commence work on any Segment until they shall have obtained all required interests in real estate, including interests in real estate to be used for access roads (whether obtained through a conveyance, consent, permit, or other approval) as are necessary and applicable for such Segment. Evidence of the obtaining of such interests shall be provided to the Secretary prior to commencement of the work.

11. The Certificate Holders shall not commence construction of the Facility prior to the issuance (i) by appropriate Canadian federal and/or provincial authorities of those approvals and permits necessary in order to allow for the construction of transmission facilities interconnecting with the bulk power system operated by TransÉnergie (or a successor to such organization) and extending to the New York border, (ii) by the United States Department of Energy of an approval pursuant to Executive Orders 10485

and 12038, and (iii) by the United States Army Corps of Engineers ("USACE") of permits pursuant to section 404 of the Federal Clean Water Act and section 10 of the Federal Rivers and Harbors Act. The Certificate Holders shall provide copies of said permits to the Secretary within fifteen (15) days of receipt.

12. The Certificate Holders shall promptly notify the Secretary in writing should they decide not to complete construction of all or any portion of the Facility and shall serve a copy of such notice upon all parties to this proceeding.

13. This Certificate may be vacated on notice to the Certificate Holders if (a) the Certificate Holders have not submitted the EM&CP or the initial Segment EM&CP to the Commission for its review within twelve (12) months of the date upon which Certificate Holders have received all permits and approvals required for the commencement of construction of the Facility from any and all governmental agencies and authorities having jurisdiction with respect thereto, and any finding made or action taken by any such agency or authority that is subjected to administrative and/or judicial review has been conclusively upheld as a result of such review, or the time period for the initiation of any such review has definitively expired, or (b), unless reasonable cause as defined in this Condition is shown, the Certificate Holders have not commenced construction of the Facility on or before the date that is six (6) months following the approval by the Commission of the EM&CP for the initial Segment EM&CP submitted to the Commission, or the date that is eighteen (18) months following the date of the grant of this Certificate, whichever is later. Reasonable cause may include delays in the issuance of permits and approvals required for the Facility by federal agencies and other circumstances beyond the

reasonable control of the Certificate Holders.

14. The Certificate Holders shall integrate and coordinate maintenance of the Facility with that of adjacent facilities, structures, and property in accordance with the EM&CP.

15. a. The Certificate is granted and the required determinations of the need for the Facility and that the Facility will serve the public interest, convenience and necessity are explicitly made contingent on Certificate Holders delivering a minimum of 1,550 MW of energy (including 550 MW of energy not flowing through the HVDC Transmission System) out of NYPA's Astoria substation. The Certificate Holders shall file a report documenting how they will achieve this level of deliverability prior to, or at the time they file their EM&CP for the first segment of the Facility. If the Certificate Holders cannot demonstrate compliance with this deliverability requirement, the Certificate Holders shall file with the Secretary a Request for Reconsideration of the need and public interest, convenience and necessity determinations made with respect to the Facility. The request shall be served on all parties to this proceeding and shall clearly state that all parties may submit comments on the filing within thirty (30) days of service. Such request shall explain why Certificate Holders believe that a lesser amount of energy deliverability is consistent with the Commission's findings that the Facility is needed and will serve the public interest, convenience and necessity. Such request shall include a discussion of each option the Certificate Holders considered as a means of achieving the minimum threshold level of deliverability. The Certificate Holders may not commence construction of the Facility unless and until the Commission has accepted the report or approved the request filed pursuant to this subpart.

b. The Certificate is granted and the required determination that the Facility will serve the public interest, convenience and necessity is explicitly made contingent on the HVDC Transmission System being developed, financed, constructed, and operated on a merchant basis with no reliance on cost-of-service rates set for the Certificate Holders by either a federal or state regulatory entity and on the further condition that all costs associated with the use of the Astoria-Rainey Cable to deliver electric energy and capacity transmitted over the HVDC Transmission System will also be recovered exclusively on a merchant basis with no reliance on cost-of-service rates set for the Certificate Holders by either a federal or state regulatory entity. Accordingly, the Certificate Holders may not change their business model or seek alternative or additional means of financing for the HVDC Transmission System or the cost associated with the use of the Astoria-Rainey Cable to deliver electric energy and capacity transmitted over the HVDC Transmission System until they have received Commission approval. If Certificate Holders seek such an alternative financing method before the start of construction, they shall file with the Secretary a Request for Reconsideration of the determination of public interest, convenience and necessity made with respect to the Facility. The request shall be served on all parties to this proceeding and shall clearly state that all parties may submit comments on the filing within thirty (30) days of service. Such request shall explain how the alternative financing method would be consistent with the Commission's public interest, convenience and necessity determination made in this proceeding. If Certificate Holders seek such an alternative financing method after the commencement of construction, they shall file with the Secretary an Application to

Amend the Certificate, which shall be served on all parties to this proceeding; notice of such application shall be given as required by PSL Section 122(4) and the notice shall specify that comments on such Application may be filed with the Secretary within thirty (30) days after the date on which the notice is published.

c. The Certificate is granted and the required determination that the Facility will serve the public interest, convenience and necessity is explicitly made based on the cost estimate in the evidentiary record of this proceeding. Certificate Holders shall include as part of their EM&CP for the Astoria-Rainey Cable a report providing an updated construction cost estimate for the Astoria-Rainey cable, including supporting documentation. If the updated cost estimate exceeds the cost estimate in the evidentiary record of this proceeding by ten (10) percent or more, the Certificate Holders shall file with the Secretary a Request for Reconsideration of the determination of public interest, convenience and necessity made with respect to the Facility. The request shall be served on all parties to this proceeding and shall clearly state that all parties may submit comments on the filing within thirty (30) days of service. Such request shall explain how such increased cost would be consistent with the Commission's public interest, convenience and necessity determination made in this proceeding.

d. Upon commencement of construction, the Certificate Holders shall file with the Secretary monthly reports showing the costs for the Astoria-Rainey Cable as they occur, broken out as follows: excavation costs, traffic control costs, cable installation costs, splicing costs, thermal back fill, manhole and vault costs, costs relating to damage to other facilities (gas, electric, telephone, fiber optic cables, sewer, water,

etc.), engineering costs, inspector costs, fines, cable costs, and all other costs by category. The reports shall include the names of the individuals responsible for providing the information, along with their contact information, and shall contain all supporting documentation.

e. Except as expressly provided in this Condition 15, nothing contained in this Certificate shall be construed as affecting in any way the rights of Certificate Holders to unilaterally make application to the Federal Energy Regulatory Commission ("FERC") for a change in rates, terms and conditions, charges, classification of service, Service Agreement, rule or regulation under section 205 of the Federal Power Act ("FPA") and pursuant to FERC's rules and regulations promulgated thereunder.

B. Laws and Regulations

16. Each substantive federal, state, and local law, regulation, code, and ordinance applicable to the Facility authorized by this Certificate shall apply except as set forth in Condition 17 below and except and to the extent that the Commission has refused to apply any substantive local ordinances, laws, resolutions, or other actions issued thereunder or local standards or requirements, as being unreasonably restrictive as listed in the Revised and Updated Exhibit 7 to the Application (see Exhibit 115 to the Joint Proposal).

17. No state or municipal legal provision purporting to require any approval, consent, permit, certificate, or other condition for the construction or operation of the Facility authorized by this Certificate shall apply, except (i) those of the PSL and regulations and orders adopted thereunder, (ii) those provided by otherwise applicable state law for the protection of employees engaged in the construction and operation of the Facility, (iii)

those regarding permits issued pursuant to federally approved authority, (iv) those regarding the right to use or occupy state or municipal property (including ROW), and (v) those discussed in Condition 18 below.

18. Subject to the Commission's ongoing jurisdiction, the Certificate Holders shall apply for certain local regulatory permits and approvals, to wit:

    a. The following City of New York ("CNY") regulatory permits and approvals that would be applicable to construction and operation of those portions of the Facility located within the boundaries of CNY in the absence of PSL § 130: building permits, street excavation permits, street closure permits, permits for structural welding, permits under the CNY Fire Code, permits under the CNY Construction Codes and Electrical Code, permits for the discharge of wastewater or stormwater to CNY's sewer system, permits for the use and supply of water, and forestry permits.

    b. If the Certificate Holders believe that any action taken, or determination made, in connection with the permits and approvals referenced in subpart (a) of this Certificate Condition is unreasonable or unreasonably delayed, they may petition the Commission, upon reasonable notice to the permitting authority, to seek a resolution of any such unreasonable requirement or unreasonable delay. The permitting authority may respond to the petition, within ten (10) business days, to address the reasonableness of any requirement or delay.

19. The Certificate Holders shall construct the Facility in a manner that conforms to Good Utility Practice, as herein defined, and all applicable standards of the American National Standards Institute ("ANSI") including, without limitation, the National Electrical Safety

Code ("NESC"), Institute of Electrical and Electronics Engineers ("IEEE"), Standard IEEE C2-2002, and any stricter standards adopted by the Certificate Holders. Upon completion thereof, the Certificate Holders shall certify to the Commission that the Facility was constructed in full conformance with the standards specified herein.

20. For the purposes of this Certificate, "Good Utility Practice" shall include any of the practices, methods or acts engaged in or approved by a significant portion of the electric, gas, steam, water, sewer or telecommunications industries, as applicable, during the relevant time period, including without limitation, the electric, gas, steam, water, sewer or telecommunications utility or utilities in whose service territories the work in question is being performed and/or whose facilities are physically impacted by the work in question and, for the electric power industry only, the New York Independent System Operator ("NYISO"), the New York State Reliability Council ("NYSRC"), the Northeast Power Coordinating Council ("NPCC"), the North American Reliability Corporation ("NERC") and the North American Electric Reliability Organization ("NAERO"), or any successor organizations. Good Utility Practice shall include any of the practices, methods, or acts which, in the exercise of reasonable judgment in light of the facts known at the time the decision was made, could have been expected to accomplish the desired result at a reasonable cost consistent with good business practices, reliability, safety, and expedition. Good Utility Practice is not intended to be limited to the optimum practice, method, or act to the exclusion of all others, but rather to delineate acceptable practices, methods, or acts generally accepted in the region, such as, in the case of the electric power industry only, those practices required by FPA Section 215(a)(4).

C. HVDC-AC Converter Station Design, Interconnection and Construction

21. The Converter Station shall be located along Luyster Creek at 31st Street in the Astoria neighborhood of the borough of Queens.

22. (a) The tallest building serving as part of the Converter Station shall not exceed seventy (70) feet in height above finished grade, as defined below, and the tallest support tower shall not exceed seventy (70) feet above finished grade. The finished grade shall be the grade at the elevation of the 100-year floodplain, and such additional minimal fills as necessary to provide drainage of the site. The height and arrangement of all station facilities shall be indicated in the EM&CP site plan discussed in Section A (1) of the EM&CP Guidelines.

(b) The Converter Station shall be designed to minimize visibility and visual impacts.

(c) The Converter Station design shall use materials that minimize glare and that are neutral in color. The design shall also include appropriate landscaping at the site.

(d) Maintenance and enhancement of the shoreline area vegetative cover between the Converter Station site and the Luyster Creek waterway shall be addressed in the final site plan and station maintenance plans.

(e) Exterior night lighting of the Converter Station shall be designed to provide illumination necessary for worker safety and site security purposes, giving full consideration to energy conservation, glare, and the minimization of light trespass. All such lighting shall be selected and installed to shield the lamp filaments from direct view to the greatest extent possible, which may include the use of full-cutoff fixtures without drop-down optics, use of task lighting for maintenance purposes where feasible, and minimizing upward lighting. Lighting

design shall comply with worker safety requirements.

(f) If Con Edison moves forward with its recently announced plan to interconnect a PAR to NYPA's 345 kV Astoria GIS Substation, the Converter Station will also include a four-breaker 345 kV GIS ring bus, which will be interconnected at 345 kV to the Astoria-Rainey Cable, NYPA's Astoria GIS Substation and the remainder of the Converter Station and which is described in greater detail in Exhibit 125 to the Joint Proposal.

23. The EM&CP Site Plan for the Converter Station site shall include the following:

a. a site plan of sufficient detail to demonstrate conformance with the requirements of this Certificate, the Noise Mitigation Procedures of the CNY, and the EM&CP guidelines.

b. construction drawings including architectural, structural, HVAC, mechanical, electrical, plumbing and fire protection plans for all structures, which drawings shall have been prepared by an architect or engineer licensed by the State of New York and in conformance with the code requirements of the CNY.

c. a review of the sound emissions characteristics of the high-voltage transformers selected for final project design, including typical and maximum noise levels generated at associated operating levels; and a tonal analysis based on one-third octave bands to determine the potential for tonal sound generation, including pure tones.

d. an exterior lighting plan based on illumination requirements for worker safety, which limits off-site glare.

24. In developing the site plan for the Converter Station, Certificate Holders shall consult

with New York State Department of Public Service ("DPS") Staff and the CNY, and share preliminary drawings of foundations, elevations, renderings, stormwater control, and noise control measures, as they become available. Not later than thirty (30) days prior to the date by which Certificate Holders expect to file the EM&CP segment for the Converter Station, they shall file with the same parties a preliminary site plan of sufficient detail to address relevant requirements of this Certificate and the EM&CP guidelines, for their review and comment.

25. Prior to commercial operation of the Converter Station, the Certificate Holders shall obtain from CNY a certificate of occupancy covering the Converter Station. A copy shall be provided to the Secretary.

26. The Converter Station shall have a 345 kV underground Gas Insulated Line connection to the Astoria Annex GIS Substation installed in duct banks.

D. Special Conditions Regarding Co-located Infrastructure and Related Matters

27. The Certificate Holders shall engineer, construct, and install the Facility so as to make it fully compatible with the continued operation and maintenance of Co-located Infrastructure ("CI"), as herein defined, and affected railroads, railways, highways, roads, streets, or avenues. CI shall consist of electric, gas, telecommunication, water, wastewater, sewer, and steam infrastructure and appurtenant facilities and associated equipment, whether above ground, below ground, or submerged that:

a. are located within the Construction Zone approved in the EM&CP for the Facility or a proposed Construction Zone as provided for in Certificate Condition 28(d); and

b. are either owned by a State agency or municipality or a subdivision thereof or

owned or operated for public utility purposes by a regulated electric, gas, telecommunication, water, wastewater, sewer, or steam service provider;

c. but do not include railroads, railways, highways, roads, streets, or avenues.

28. In order to protect CI, Certificate Holders shall:

a. within sixty (60) days of Commission issuance of a Certificate, consult with the owners and/or operators of all known electric, gas, telecommunication, water, wastewater, sewer, and steam infrastructure and appurtenant facilities and associated equipment, whether above ground, below ground or submerged, other than railroads, railways, highways, roads, streets and avenues, located either: (i) within the Allowed Deviation Zone, (ii) within three hundred (300) feet of any location outside the Allowed Deviation Zone where Certificate Holders intend to undertake any pre-construction activities; or (iii) sufficiently close to areas of anticipated pre-construction activities such that Good Utility Practice, as defined in Condition 20 of this Certificate, requires discussion of the impacts of such pre-construction activities between Certificate Holders and the owners and/or operators of such facilities ("Potential CI"). Such consultations shall include discussion of the likely routing of the Facility and the measures that will be employed by Certificate Holders to protect CI, including the studies required by the exercise of Good Utility Practice regarding the manner in which the Facility will be designed and installed wherever they are expected to cross CI or are expected to come in such proximity to CI that Good Utility Practice would require a specific design to be developed. All agreements and requirements resulting from this consultation shall be reflected in the proposal prescribed in subsection

(d) of this Condition and the notice prescribed in subsection (e) of this Condition; and

b. within sixty days (60) of Commission issuance of a Certificate, begin the process of consulting with the owners and/or operators of Potential CI to develop a construction schedule for the Facility that, among other things, coordinates system outage requirements, if any, and avoids conflicts with the internal construction programs of each affected owner and/or operator. This consultation shall continue throughout each phase and portion of the construction of the Facility that affects any CI or Potential CI, as applicable. As a part of this consultation, the Certificate Holders will identify to a reasonable degree of certainty the appropriate representative of the party, whether owner or operator, having primary care, custody, and control of a particular segment of Potential CI or CI (each such representative being a "Designated Representative"). All agreements and requirements resulting from this consultation shall be reflected in the proposal prescribed in subsection (d) of this Condition and the notice prescribed in subsection (e) of this Condition and in the Certificate Holders' EM&CP; and

c. comply with all procedures identified by the Designated Representative(s) of the owners and/or operators of such CI or Potential CI, including, without limitation, application procedures and compliance with requirements for obtaining relevant rights, permission, permits, or authorization, whenever the Certificate Holders seek to undertake any studies, surveys, testing, sampling, preliminary engineering, pre-construction, construction, operation, maintenance, or repair activities that involve CI or Potential CI, except in cases where such actions must be taken on an

expedited basis to protect the public or to ensure reliable operation of the Facility, whereupon Certificate Holders shall provide such Designated Representatives with such notice and obtain such approvals as is reasonable under the circumstances, and except where such procedures are subject to the Commission's jurisdiction and the Commission or its designee finds such procedures to be unreasonable or unduly restrictive. Notwithstanding the foregoing, the Certificate Holders shall not be required to comply with the requirements of subsection (c) of this Condition for the transport or travel over or under CI or Potential CI by the Certificate Holders and their agents, employees, and contractors where such CI or Potential CI is located in, over, or under public waterways, roads, streets, highways, or railroad ROW, unless such transportation would be subject to special approval by state and/or local authorities due to the size or weight of load(s) transported; and

d. provide to the owner(s) and operator(s) of Potential CI or CI, at least one-hundred-and-eighty (180) days prior to the filing of the relevant Segment EM&CP, a proposal for the location and design of the Facility (including a proposed Construction Zone) and the methods of construction to be employed with respect to all locations involving CI ("Proposal"). The Certificate Holders' Proposal must include all studies, calculations, tests, results, explanations, protocols, drawings, proposed construction schedules, and documents developed through the consultations described in subsections (a) and (b) of this Condition, other documentation identified in Condition 162, and any other information that supports the proposal. To the extent that any such Proposal addresses CI that was

not previously identified as Potential CI, the Certificate Holders shall conduct the consultations described in subsections (a) and (b) of this Condition 28 with the Designated Representative(s) of the owner(s) or operator(s) of such CI and shall perform all other activities required by such paragraphs with respect to such CI in as reasonably expeditious a manner as possible and shall provide any resulting studies, calculations, tests, results, explanations, protocols, drawings, proposed construction schedules, and documents to the appropriate Designated Representative in a timely fashion; and

e. advise owner(s) and operator(s) of CI at least thirty (30) days prior to commencing any planned repair, construction, operation, or maintenance activity relating to the Facility affecting or occurring in the vicinity of such owner's or operator's CI, unless such actions must be taken in less than thirty (30) days to protect the public or to ensure reliable operation of the Facility, whereupon Certificate Holders shall provide such notice as is reasonable under the circumstances; provided that, in any event, "vicinity" with respect to CI used to transmit or distribute natural gas shall mean all areas within two hundred (200) feet thereof and with respect to all other CI shall mean all areas within one hundred (100) feet thereof; and

f. immediately upon knowledge or discovery of any damage to or adverse effect on any CI or Potential CI resulting from any studies, surveys, testing, sampling, preliminary engineering, pre-construction activities, construction, operation, maintenance, or repair of the Facility, report to the owners and operators of the affected CI or Potential CI the nature and existence of such damage or effect and

other known facts relating to the cause thereof; and

g. notify the owners or operators of CI or Potential CI as soon as possible in the event of any situation involving imminent risk to health, safety, property, or the environment requiring the Certificate Holders to cross such CI or Potential CI or to use any associated property to address the emergency. Such notice shall not be required for the transport or travel over or under CI or Potential CI by the Certificate Holders or their agents, employees, or contractors where such CI or Potential CI is located in, over, or under public waterways, roads, streets, highways, or railroad ROW unless such transportation would be subject to special approval by state and/or local authorities due to the size or weight of load(s) transported; and

h. include within any Project Segment EM&CP filing relating to the Astoria-Rainey Cable a study demonstrating that the proposed installation of the Astoria-Rainey cable will have not have a negative impact on the continued operation of any Parallel CI. A draft of that study will be included in the materials that Certificate Holders are required to provide to the owner or operator of such CI pursuant to Certificate Condition 28(d) and will be subject to review and comment as provided therein. For purposes of this subsection, Parallel CI means electric transmission facilities that are located in the same public ROW and are generally parallel to the Astoria-Rainey Cable.

29. Reimbursement of Owners or Operators of CI and/or Potential CI for Certain Expenses:

a. Subject to the provisions of subsections (b) and (c) of this Condition, the Certificate Holders shall reimburse owners and/or operators of Potential CI or CI

for the reasonable costs they incur in the following activities:

1. consulting with Certificate Holders as described in Certificate Conditions 28 (a) and (b).
2. reviewing pre-construction activities, designs, construction methods, maintenance and repair protocols, and means of gaining access to Potential CI or CI proposed by Certificate Holders.
3. reviewing studies and design proposals described by Condition 28(d) and the EM&CP filings described in Certificate Condition 162.
4. conducting or preparing such additional studies and designs as may be agreed to by Certificate Holders or approved by the Commission pursuant to Condition 29(a)(3).
5. coordinating with, and monitoring the activities of, the Certificate Holders during pre-construction activities, construction, maintenance and repair of the Facility.
6. conducting maintenance and repair work on CI property or facilities, but only to the extent of increases in such costs that result from the presence of the Facility.
7. repairing damage to Potential CI or CI or associated property caused by Certificate Holders or their representatives in connection with any studies, surveys, testing, sampling, preliminary engineering, pre-construction activities, construction, operation, maintenance or repair of the Facility.
8. scheduling and implementing electric system outages required by any studies, surveys, testing, sampling, preliminary engineering, pre-

construction activities, construction, operation, maintenance, or repair of the Facility.

b. For the purposes of this Certificate Condition 29, cost shall be deemed to be reasonable if in the case of each separate review of a study or design proposal described in subsection (a)(3) of this Certificate Condition, the total cost to be borne by the Certificate Holders is five thousand dollars ($5,000) or less.

c. Certificate Holders' cost responsibility is limited as follows: a Potential CI or CI owner or operator who intends to incur costs as described in subsection (a) of this Certificate Condition 29 for which reimbursement will be sought for activities other than reviewing a study or design proposal described in subsection (a)(3) of this Certificate Condition 29, or for reviewing such a study or design proposal but in an amount greater than five thousand dollars ($5,000), must provide Certificate Holders with a written description of the scope of the planned studies or activities and a good faith estimate of the expected costs, except where such studies or activities are undertaken in a situation involving unscheduled electric outages or an imminent risk to health, safety, property, or the environment, in which case Certificate Holders' reimbursement obligations shall be limited to reasonably incurred costs. Within sixty (60) days of the expenditure by the owners and/or operators of affected Potential CI or CI of any funds which are eligible for re-imbursement by the Certificate Holders under this Certificate, the Potential CI or CI owner or operator shall present Certificate Holders with a final invoice for the actual costs incurred, but not to exceed twenty-five percent (25%) over the good faith estimate unless approved by Certificate Holders in advance in writing or, in

the case of a dispute between the Certificate Holders and the Potential CI or CI owners or operators, by the Commission. Certificate Holders shall pay the authorized invoice amount within thirty (30) days of receipt.

d. Disputes concerning the Certificate Holders' cost reimbursement responsibility shall be brought to the Commission for resolution. The time required to resolve any dispute arising under this Certificate Condition 29 shall not be counted for the purpose of any limitation on the time available for commencement or completion of construction of the Facility.

E. Public Health and Safety

30. The Certificate Holders shall design, engineer, and construct the Facility such that, to the extent applicable, their operation shall comply with the interim electrostatic field standard established by the Commission in Opinion No. 78-13 (issued on June 19, 1978 in Cases 26529 and 26559) and the limit for magnetic fields set in the Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities (issued on September 11, 1990 in Cases 26529 and 26559) or with any standard that has superseded these standards at the time of consideration by the Commission of the EM&CP or a particular Segment EM&CP.

31. Construction work occurring inside the boundaries of the CNY and outside the walls of buildings whose exterior walls and roof are substantially complete shall take place between 7:00 a.m. and 6:00 p.m. as required by Section 24-222 of the CNY City Administrative Code. For certain construction phases and activities, additional work hours may be necessary. Nothing herein shall preclude the Certificate Holders from making necessary arrangements for the extension of additional work hours with

appropriate authorities of the CNY. Noise mitigation procedures shall follow those set forth in the approved EM&CP and shall not be less stringent than the citywide Construction Noise Mitigation Procedures provided by the CNY. DPS Staff shall be notified at least twenty four (24) hours in advance if planned weekend, evening, or holiday construction becomes necessary. This condition is not intended to prohibit nighttime construction reasonably necessary to comply with restrictions on daytime construction on or along roadways or public access areas or to require the cessation of construction activities that require a continuous work effort once started. Furthermore, construction vehicles used in CNY will be outfitted with smart back up alarms.

32. Deliveries occurring inside the boundaries of the CNY and related to construction activities shall take place between 7:00 a.m. and 6:00 p.m., except that, to the extent required to accommodate oversized delivery pursuant to a New York City Department of Transportation ("NYCDOT") permit, the Certificate Holders shall be exempt from restrictions limiting delivery to 7:00 a.m. to 6:00 p.m. This condition is not intended to prohibit nighttime deliveries reasonably necessary to facilitate compliance with restrictions on daytime construction in or along roadways or public access areas or to require the cessation of construction activities that require a continuous work effort once started.

33. The Certificate Holders shall provide timely information to adjacent property owners and/or their tenants regarding planned construction activities and schedules. The Certificate Holders shall notify these persons of construction work within one hundred (100) feet of their property at least two (2) weeks prior to the commencement of construction in these areas and provide copies of all correspondence to the DPS Staff.

34. The Certificate Holders shall keep local fire department and emergency management teams apprised of on-site chemicals and waste and shall also advise owners and operators of CI as to on-site chemicals and waste stored within one hundred (100) feet of their CI. In the case of CI located within the CNY, the Certificate Holders shall advise CI owners and operators of on-site chemicals and waste stored within three hundred (300) feet of such facilities. All chemicals shall be secured in a locked and controlled area(s).

35. The Certificate Holders shall notify DPS Staff and the New York State Department of Environmental Conservation ("NYSDEC") immediately of any petroleum product spills. The Certificate Holders shall also notify owners and operators of CI of any petroleum product spills within one hundred (100) feet of their CI, provided however that in the case of CI located within CNY, the Certificate Holders shall advise CI owners and operators of petroleum product spills within three hundred (300) feet of such facilities.

36. The Certificate Holders shall comply with the requirements for the protection of underground facilities set forth in 16 N.Y.C.R.R. Part 753, entitled "Protection of Underground Facilities."

37. Parking for construction workers shall be in designated areas that do not interfere with normal traffic, cause a safety hazard, or interfere with existing land uses, including CI.

38. Direct disturbance to properties shall be avoided by accessing the overland Construction Zone from existing roadways or approved access roads where feasible. The Certificate Holders, in undertaking the Facility, shall not violate the property rights of individual landowners and shall not commit trespass upon their lands. Before the Certificate Holders attempt to enter private property that they do not have the legal right to enter, they shall first obtain the permission of the landowner and shall abide by all conditions

on such permission that the landowner may impose. If the Certificate Holders rely on a document as evidence of their easement or other right to access land owned in fee by an individual landowner, they shall provide a copy of such document to the landowner upon his or her request.

39. For each location where the Facility involves construction across or within the ROW limits of a road, street, highway or public thoroughfare, the Certificate Holders shall implement a Maintenance and Protection of Traffic ("MPT") plan that identifies procedures to be used to maintain traffic and provide a safe construction zone for those activities within the roadway ROW. The Certificate Holders shall also prepare MPT plans for each location where construction vehicles will access the Construction Zone from a local roadway. The MPT plans shall address temporary signage, lane closures, placement of temporary barriers, and traffic diversion.

a. All signage utilized shall comply with the New York State Department of Transportation ("NYSDOT") Manual of Uniform Traffic Control Devices (Manual No. 7155) and, within State highway ROW, a Highway Work Permit issued by NYSDOT. Placement of signs shall be determined in consultation with the jurisdictional agency. At a minimum, signs shall be placed at the following distances:

(1) Signs announcing construction at five hundred (500) feet and one thousand (1,000) feet;

(2) Signs depicting workers at three hundred (300) feet; and

(3) Where blasting is to take place within fifty (50) feet of a road, a blast-warning sign at one thousand (1,000) feet.

b. Flagmen shall be present at all times when equipment is crossing or entering any road, when equipment is being loaded or unloaded, and when two-lane traffic has been reduced to one lane. All flagging operations shall comply with 17 N.Y.C.R.R. Part 131.

40. To the extent required in connection with the delivery of oversized components, the Certificate Holders or their suppliers shall obtain any necessary permits from applicable state agencies and provide copies of such permits to the Secretary.

F. Notices and Public Complaints

41. The Certificate Holders shall make available to the public a toll-free or local phone number of an agent or employee who will receive complaints, if any, during the construction of the Facility. In addition, the phone number of the Secretary and the phone number of the Commission's Environmental Compliance Section shall be provided. A log shall be maintained that lists at least the date of any complaint, identity and contact information for the complaining party, the date of the Certificate Holders' response, and a description of the outcome. Phone logs shall be made available to DPS Staff upon request. The Certificate Holders shall report to DPS Staff every complaint that cannot be resolved after reasonable attempts to do so. Any such report shall be made within three (3) business days after receipt of the complaint.

42. No less than two (2) weeks before commencing site preparation, the Certificate Holders shall:

(1) provide notice to local officials and emergency personnel in the area where they will be working on the Facility; and

(2) provide notice to the owners of property identified in Condition 33 herein;

and

(3) provide such notice for dissemination to local media and display in public places (such as general stores, post offices, community centers, and conspicuous community bulletin boards); and

(4) in the event that the site preparation is delayed after notice is given, additional notice as set forth above shall be provided before site preparation is resumed.

The notice shall be written in language reasonably understandable to the average person and shall contain:

(1) a map and a description of the Construction Zone in the local area; and

(2) the anticipated date for start of construction in the local area; and

(3) the name, address, and local or toll-free telephone number of an employee or agent of the Certificate Holders who will receive complaints, if any, during the construction of the Facility; and

(4) a statement that the Facility, as applicable, is under the jurisdiction of the Commission, which is responsible for enforcing compliance with environmental and construction conditions and which may be contacted at an address and telephone number to be provided in the notice.

Upon distribution, a copy of such notice shall be filed with the Secretary.

43. The Certificate Holders shall provide the Engineering, Procurement, and Construction Contractor retained to undertake construction of the Facility and their other construction Contractors ("Contractors" or "EPC Contractors") with complete copies of this Certificate and any and all permits, certificates, and approvals required to initiate

and/or complete construction of the Facility, including, without limitation, approved Segment EM&CPs and governmental approvals issued pursuant to § 401 and § 404 of the Federal Clean Water Act, and § 10 of the Federal Rivers and Harbors Act. To the extent that the listed documents are available before contracts for construction services are executed, such copies shall be provided to the Contractors prior to the execution of such contracts.

44. The Certificate Holders shall notify all Contractors that the Commission may seek to recover penalties for violation this Certificate and other Orders issued in this proceeding, not only from the Certificate Holders, but also from their Contractors, and that Contractors also may be liable for other fines, penalties, and environmental damage.

45. No later than three (3) days after completion of the transaction(s) pursuant to which the costs of construction of the Facility are funded ("Closing"), the Certificate Holders shall notify the Secretary of the date of such Closing.

46. The Certificate Holders shall inform the Secretary and NYSDEC at least five (5) days before commencing site preparation for the Facility.

47. The Certificate Holders shall provide DPS Staff, NYSDOT, and NYSDEC with bi-weekly status reports summarizing construction and indicating construction activities and locations scheduled for the next month.

48. Within ten (10) days of the completion of final restoration activities, the Certificate Holders shall notify the Secretary that all restoration has been completed in compliance with this Certificate and the Order(s) approving the EM&CP.

49. Within sixty (60) days of completing construction of the HVDC Transmission System, the Certificate Holders shall consult with the New York State Office of

General Services ("OGS") Bureau of Land Management regarding specifications for providing as-built information and mapping of the submerged portions of the HVDC Transmission System in conformance with the requirements of the OGS Bureau and 9 N.Y.C.R.R. Part 271. Within sixty (60) days of that consultation, the Certificate Holders shall provide to the OGS as-built information and mapping complying with its specifications (including shapefile information compatible with ArcView® GIS software), and shall file with the Secretary copies of the as-built information and mapping and proof of filing with the OGS.

50. No later than three (3) days after the date on which the Facility commences commercial operation ("COD") of the Facility, the Certificate Holders shall notify NYSDOT, NYSDEC, and the Secretary of the date of such commencement.

51. The Certificate Holders shall promptly notify DPS Staff and NYSDEC if a New York State listed species of special concern is observed to be present in the Facility area.

52. The Certificate Holders shall promptly notify DPS Staff, NYSDEC and the United States Fish and Wildlife Service ("USFWS") or National Marine Fisheries Service ("NMFS") (if applicable) if any threatened or endangered wildlife species under 6 N.Y.C.R.R. Part 182 ("TE species") or any rare, threatened or endangered plant species under 6 N.Y.C.R.R. Part 193 ("RTE plants") are observed to be present in the Facility area so as to determine the appropriate measures to be taken to avoid or minimize impacts to such species. If necessary to avoid or minimize impacts to such species or as directed by DPS Staff, the Certificate Holders shall stabilize the area and cease construction or ground-disturbing activities in the Facility area until DPS Staff have determined that appropriate protective measures have been implemented.

G. Environmental Supervision

53. a. The Certificate Holders shall employ at least six (6) inspectors on the HVDC Transmission System (or at least five (5) inspectors if the Certificate Holders elect to use the same individual as both environmental inspector ("Environmental Inspector") and agricultural inspector ("Agricultural Inspector")) as follows: (i) an Environmental Inspector employed full-time on the HVDC Transmission System; (ii) a construction inspector employed full-time on the HVDC Transmission System during construction of overland portions of the HVDC Transmission System, including construction of the Converter Station ("Construction Inspector"); (iii) an aquatic inspector employed full-time on the HVDC Transmission System ("Aquatic Inspector"); (iv) an Agricultural Inspector; (v) a safety inspector employed full-time on the HVDC Transmission System ("Safety Inspector"); and (vi) a part-time quality assurance inspector who will inspect the work site from time to time ("Quality Control and Quality Assurance Inspector").

b. The Certificate Holders shall employ the following inspectors in connection with the Astoria-Rainey Cable: (i) an Environmental Inspector; (ii) a Construction Inspector; (iii) a Safety Inspector; and (iv) a Quality Control and Quality Assurance Inspector.

c. During periods of relative inactivity on the Facility, the number of inspectors and the extent of their presence at the Facility construction site may be temporarily decreased commensurate with the decline in activity levels; likewise, during periods of relatively high activity on the Facility, the number of inspectors and the extent of their presence at the Project site may be temporarily increased

commensurate with the increase in activity levels.

d. The Certificate Holders shall provide to DPS Staff a weekly schedule of the Environmental Inspector and the Construction Inspector and their cell phone numbers.

e. The Environmental Inspector and Construction Inspector shall be equipped with sufficient documentation, transportation, and communication equipment to effectively monitor each Contractors' compliance with the provisions of every Order issued in this proceeding and applicable sections of the PSL, New York State Environmental Conservation Law ("ECL"), the Water Quality Certification ("WQC") issued in connection with the Facility pursuant to section 401 of the Federal Clean Water Act and the approved EM&CP.

f. The Agricultural Inspector shall be available to provide site-specific agricultural information as necessary for development of the proposed EM&CP through field review, as well as to have direct contact with affected farm operators, County Soil and Water Conservation Districts, and the New York State Department of Agriculture and Markets ("Ag & Mkts"). The Agricultural Inspector shall maintain regular contact with the Environmental Inspector and the Construction Inspector throughout the construction phase. The Agricultural Inspector shall also maintain regular contact with the affected farmers and County Soil and Water Conservation Districts concerning farm resources and management matters pertinent to the agricultural operations and the site-specific implementation of the approved EM&CP.

g. The names and qualifications of the Environmental Inspector and the

Construction Inspector shall be submitted to DPS Staff and NYSDEC at least two (2) weeks prior to the start of construction.

h. The Environmental Inspector's qualifications shall satisfy those of a "Qualified Inspector" pursuant to the NYSDEC State Pollutant Discharge Elimination System ("SPDES") General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-10-001) ("SPDES General Permit").

i. The Certificate Holders' employees, Contractors, and subcontractors shall be properly trained in the construction, operation, and maintenance of the Facility.

54. The authority granted to the Certificate Holders in this Certificate and any subsequent Order(s) in this proceeding is subject to the following conditions necessary to ensure compliance with such Order(s):

a. The Certificate Holders shall regard DPS Staff representatives (authorized pursuant to PSL § 8) as the Commission's designated representatives in the field. In the event of any emergency resulting from the specific construction or maintenance activities that violate or may violate the terms of this Condition, the WQC, or any other Order in this proceeding, either the Certificate Holders' Environmental Inspector or DPS Staff may issue a stop work order for that location or activity.

b. A stop work order issued by DPS Staff shall expire twenty four (24) hours after issuance unless confirmed by a single Commissioner. If a stop work order is confirmed, the Certificate Holders may seek reconsideration from the confirming Commissioner or the whole Commission. If the emergency prompting the issuance of a stop work order is resolved to the satisfaction of the Commissioner

or the Commission, the stop work order will be lifted. If the emergency has not been satisfactorily resolved, the stop work order will remain in effect.

c. Stop Work Authority will be exercised sparingly and with due regard to potential environmental impact, economic costs involved, possible impact on construction activities, and whether an applicable statute or regulation is or is claimed to be violated. Before exercising such authority, DPS Staff will consult (wherever practicable) with the Environmental Inspector. Within reasonable time constraints, all attempts will be made to address any issue and resolve any dispute in the field. In the event the dispute cannot be resolved, the matter will be brought immediately to the attention of the Certificate Holders' construction manager and the Director of the DPS Office of Energy Efficiency and the Environment. In the event that DPS Staff issues a stop work order, neither the Certificate Holders nor the Contractor will be prevented from undertaking any safety-related activities that they deem necessary and appropriate under the circumstances. The issuance of a stop work order or the implementation of measures as described below may be directed at the sole discretion of the DPS Staff during these discussions.

d. Exercise of Stop Work Authority: If DPS Staff or the Environmental Inspector discovers a specific activity that represents a significant environmental threat that is or immediately may become a violation of this Condition, the WQC, or any other Order in this proceeding, and on-site construction personnel refuse to take appropriate action after being advised of the threat, DPS Staff and/or the Environmental Inspector may direct the field crews to stop the specific potentially

harmful activity immediately. If the direction to stop work is issued by DPS Staff and Certificate Holders' responsible personnel are not on site, the DPS Staff will immediately thereafter inform the Construction Inspector and/or the Environmental Inspector of the action taken. The stop work order will be lifted by the DPS Staff when the situation prompting its issuance has been resolved.

e. DPS Staff's Implementation of Specific Measures to Protect the Public and the Environment: If DPS Staff determines that a significant threat exists such that protection of the public or the environment at a particular location requires the immediate implementation of specific measures, the DPS Staff may, in the absence of the Environmental Inspector and the Construction Inspector, or in the presence of such personnel who, after consultation with the DPS Staff, refuse to take appropriate action, direct the Certificate Holders or their Contractors to implement the corrective measures identified in the approved EM&CP. The field crews shall comply with the DPS Staff's directive immediately. DPS Staff will immediately thereafter inform the Certificate Holders' Construction Inspector and/or Environmental Inspector of the action taken.

f. DPS Staff or the Environmental Inspector will promptly notify the appropriate NYSDEC representative of any activity that is a significant environmental threat to a State-regulated wetland or its adjacent area, a protected stream or other waterbody, a TE species, or a State- or Federally- identified hazardous waste site or that may become a violation of this Condition, WQC, or any other Order issued in this proceeding pursuant to subsection (d) of this Certificate Condition 54.

55. The Certificate Holders shall organize and conduct site-compliance audit inspections for

DPS Staff as needed, but not less frequently than once per month during the site preparation, construction, and restoration phases of the Facility and at least annually for two (2) years after the COD.

a. The monthly inspections shall include a review of the status of compliance with all conditions contained in this Certificate, the WQC, and any other Order issued in this proceeding, and with other legal requirements and commitments, as well as a field review of the construction site, if necessary. The inspections may also include:

(1) review of all complaints received, and their proposed or actual resolutions; and

(2) review of any significant comments, concerns, or suggestions made by the public, local governments, or other agencies; and

(3) review of the status of the Facility in relation to the overall schedule established prior to the commencement of construction; and

(4) other items the Certificate Holders or DPS Staff consider appropriate.

b. The Certificate Holders shall provide a written record of the results of the inspection, including resolution of issues and additional measures to be taken, to agencies involved in the inspection audit.

56. Nothing herein shall be deemed to limit the right of any jurisdictional agency to enter and inspect the Facility to assess compliance with any permit issued by such agency or any applicable substantive statute or regulation under such agency's jurisdiction; provided, however, that such inspection shall, to the extent possible, be coordinated with the DPS Staff (authorized pursuant to PSL § 8).

57. Nothing in this Certificate shall restrict NYSDOT's authority over Certificate Holders' use of state highways, including without limitation NYSDOT's authority to place inspectors on site to monitor and observe the Certificate Holders' activities on state highways and/or to request the presence of state or local police to assure the safety of freeway travelers at such times and for such periods as NYSDOT deems appropriate.

H. Overland Installation[2]

58. At least two (2) weeks prior to the start of overland construction, the Certificate Holders shall hold a preconstruction meeting to which they shall invite DPS Staff, NYSDOT, and NYSDEC. The agenda, location, and attendee list for this meeting shall be agreed upon between DPS Staff and the Certificate Holders. The Certificate Holders shall supply draft minutes from this meeting to all attendees. The attendees may offer corrections or comments, and thereafter the Certificate Holders shall issue the finalized meeting minutes to all attendees. If, for any reason, the Contractors retained by the Certificate Holders to construct the Facility cannot finish the construction of such facilities, and one or more new construction contractors are needed, there shall be another preconstruction meeting with the same format as outlined above.

59. The Certificate Holders shall confine construction to the Construction Zone and approved additional work areas as detailed in the approved EM&CP. A detailed construction schedule and location timeline shall be provided to DPS Staff prior to construction.

60. The Certificate Holders shall identify encroachments within the Construction Zone and contact individual property owners or occupants to address and seek to rectify such potential encroachments on a case-by-case basis. The Certificate Holders shall report to

[2] The term "overland" is used to describe the portions of the Project constructed on land because this is the term used by the United States Army Corps of Engineers to describe such areas.

DPS Staff the result of efforts to address and rectify encroachments in the Construction Zone periodically, but in no event less than quarterly.

61. The Facility may not be located beneath existing buildings, footings, or foundations, except as authorized in the EM&CP, and all excavations shall be in accordance with all applicable standards and specifications, including:

    a. the Building Code of New York State, including Section 1803 and other relevant sections; and

    b. the Occupational Safety and Health Administration ("OSHA") Technical Manual ("OTM"), including Section V: Chapter 2 and other relevant sections; and

    c. OSHA Regulations, including Part Number 1926, Standard Number 1926.651, and other applicable provisions.

62. Except as authorized in any Segment EM&CP, the Certificate Holders shall not construct or allow their Contractors to construct any new, or improve any existing access roads for the construction, operation, or maintenance of the Facility.

63. Before construction begins on any Segment, the boundaries of the Construction Zone shall be delineated in the field. Also, the Certificate Holders shall stake and flag all access roads and extra workroom areas to be used in constructing that Segment.

64. The Certificate Holders shall adopt appropriate measures to minimize fugitive dust and airborne debris from construction activity and details of measures to be implemented shall be described in the proposed Segment EM&CP. If contamination in the ground is detected during overland construction and such contamination is of the kind that will lead to volatilization or off-gassing of such contamination or chemical constituents thereof, the Certificate Holders shall contact the New York State Department of Health

("NYSDOH"), NYSDEC, and DPS Staff prior to further disturbance. Additionally, the Certificate Holders shall conform to practices and procedures described in the DER-10/Technical Guidance for Site Investigation and Remediation and the NYSDOH Generic Community Air Monitoring Plan ("CAMP"), to the extent applicable. Nothing in this Certificate shall have the effect of diminishing, enlarging, or altering in any way the obligations of any party that may be triggered in the event a spill of petroleum or a release of hazardous substances to the environment ("Reportable Event") is detected within the Construction Zone by the Certificate Holders and/or their contractors and other representatives during overland construction of the Facility, including, without limitation, any obligation the Certificate Holders may have to report such Reportable Event to the NYSDEC Oil and Hazardous Materials Spills Hotline (800/518-457-7362).

65. Disposal of trees and woody material:

a. The Certificate Holders shall negotiate in good faith with each landowner the purchase of rights to all logs over six (6) inches in diameter at the small end and eight (8) feet or longer ("merchantable logs") to be cleared from the Construction Zone. Certificate Holders shall not leave any permanent slash piles or log piles along passenger railroad routes or public highways. The Certificate Holders' removal of the merchantable logs resulting from clearing the Construction Zone shall be based on factors such as the attributes of the site, outcome of landowner negotiations, and attributes of the logs, and the Certificate Holders shall explain these factors in detail in the proposed EM&CP.

b. The Certificate Holders shall comply with the provisions of 6 N.Y.C.R.R. Part 192, Forest Insect and Disease Control.

c. The Certificate Holders shall prepare a plan for removal, reuse, recycling, and disposal of all woody material. Logs and woody material that cannot be reused or sold shall be either chipped on site, stacked along the edge of the Final Layout Area (as defined below at Condition 139), hauled to a NYSDEC approved landfill or other suitable off-site location, or buried on the Final Layout Area with landowner agreement. The Certificate Holders shall not leave any logs or other woody material in any designated floodway or other flood hazard area.

66. All trees over two (2) inches in Diameter at Breast Height or shrubs over four (4) feet in height damaged or destroyed by activities during construction, operation, or maintenance, regardless of where located, shall be replaced within the following year by the Certificate Holders with the equivalent type of trees or shrubs except if:

a. other arrangements are specified in the approved EM&CP; or

b. equivalent type replacement trees or shrubs would interfere with the proper clearing, construction, operation, or maintenance of the Facility or would be inconsistent with State-invasive species policy; or

c. replacement would be contrary to sound ROW management practices, or to any approved long-range ROW management plan applicable to the Facility or adjoining ROW; or

d. the owner of land where the damaged or destroyed trees or shrubs were located (or other recorded easement or license holders with the right to control replacement) declines replacement.

67. The Certificate Holders shall provide detailed soil erosion and sediment control plans in a Stormwater Pollution Prevention Plan ("SWPPP"), which shall be included with the first

Segment EM&CP associated with the overland route of the Facility. Soil and sediment control measures shall be implemented early in the construction process and be installed prior to, and maintained in acceptable condition for the duration from any clearing or earthmoving operations through to the permanent stabilization of the soil. Erosion and sediment control devices shall be installed in accordance with the New York State Standards and Specifications for Erosion and Sediment Control ("SSESC"), the approved EM&CP Plan and Profile drawings, permit conditions, regulatory approvals, and as otherwise necessary or directed by the Environmental Inspector to prevent adverse impacts to environmentally sensitive areas. The SWPPP shall include a schedule for necessary inspections at all control measure locations. The SWPPP shall be available at the construction site and available to the public upon five (5) days written notice.

68. The Certificate Holders shall coordinate with DPS Staff and NYSDOT regarding all plans and work to be performed in State-owned ROW under NYSDOT's supervision and management. Prior to filing any Segment EM&CP involving any such state-owned ROW, the Certificate Holders shall provide DPS Staff and NYSDOT Staff with a preliminary design marked to avoid conflict with potential transportation projects that NYSDOT Staff may seek to undertake in the future and shall offer to consult with NYSDOT Staff concerning any comments it may offer and shall use reasonable efforts to accommodate any NYSDOT concerns.

69. a. In preparing the proposed EM&CP, the Certificate Holders shall consult with each transportation department or agency having jurisdiction over any roads, related structures, and components that will be crossed by the Facility or used for direct access to the Construction Zone. If the access road takes direct access

from, or lies within the limits of, such roads, the Certificate Holders shall notify each relevant transportation department or agency of the approximate date when work will begin.

b. Infrastructure subject to the requirements of Condition 69(a) include: movable bridges over the Harlem River and their associated apparatus, including any cables, chains or other apparatus allowing for their operation; and a planned pedestrian and bicycle pathway and associated infrastructure, including landscaping, lighting, rail crossings, fences, railroad gates, and stormwater retention facilities, and associated subsurface components, to be constructed under and in the vicinity of the Hells Gate Bridge in the Bronx, whether constructed or designed at the time of the EM&CP development. The procedures and protections outlined in Conditions 27 through 29 shall apply to the movable bridges and other apparatus, and, if they are in place at the time of construction of the Facility, the aforementioned infrastructure associated with the pedestrian and bicycle pathway.

70. Construction access to the Construction Zone at controlled-access highways shall be provided from off-highway locations.

71. The Certificate Holders shall minimize the impact of construction of the Facility on traffic circulation. Traffic control personnel and safety signage shall be employed to facilitate safe and adequate traffic flow when secondary roadways are affected by construction.

72. The Certificate Holders shall consult periodically with state and municipal highway transportation agencies about traffic conditions near the site of the Facility and shall

notify each such transportation agency of the approximate date work will begin in its jurisdiction and Construction Zone access points that connect with the highways in that jurisdiction.

73. The Certificate Holders shall be responsible for checking all culverts and assuring that they are not crushed or blocked during construction and restoration of the Facility and, if a culvert is blocked or crushed, taking immediate steps to replace or repair the culvert in accordance with applicable state or local standards.

74. Disturbed areas, ruts, and rills shall be restored to original grades and conditions with permanent revegetation and erosion controls appropriate for those locations. Disturbed pavement, curbs, and sidewalks shall be restored to their original preconstruction condition or improved.

I. Agricultural Lands

75. The Certificate Holders shall design the Facility to the extent possible to avoid crop fields or other active agricultural land.

76. During the acquisition of rights to use lands comprising the Construction Zone, the Certificate Holders shall ask the owners of such lands that appear to be either undeveloped or used as active agricultural land whether such lands are presently being used for agricultural purposes and, if so, whether such lands are being operated, in whole or in part, by third parties. During the preparation of the EM&CP, the Certificate Holders shall use this information, along with any additional information received during consultation with Ag & Mkts, to identify land within the Construction Zone reasonably believed to be active agricultural land. The Certificate Holders shall provide the owners and identified operators of such land with a telephone number to facilitate direct contact

with the Certificate Holders and the Agricultural Inspector(s).

77. Where construction entrances are required from public roadways to the Construction Zone across agricultural fields, temporary access shall use matting or road installation. The use of topsoil stripping for construction access, as opposed to matting, shall only be allowed with approval from DPS Staff in consultation with Ag & Mkts. For matting, the mats shall be layered where necessary to provide a level access surface. For road installation and topsoil stripping, an underlayment of durable, geotextile fabric shall be placed over the exposed subsoil surface prior to the use of temporary gravel access fill material. Complete removal of the construction entrance upon completion of the Facility and restoration of the affected site is required prior to topsoil replacement. Segments of farm roads utilized for access shall be improved as necessary following consultation with the farm operator and Ag & Mkts prior to use, subject to the Commission's ongoing jurisdiction.

78. The Certificate Holders shall provide a monitoring and remediation period of two (2) years following completion of Construction Zone restoration in active agricultural areas. The Certificate Holders shall retain the services of the Agricultural Inspector through this period. The monitoring and remediation phase shall be used to identify any remaining agricultural impacts associated with construction of the Facility that are in need of mitigation and to implement the follow-up restoration. During the monitoring and remediation period, on site monitoring shall be conducted at least three times during each growing season and shall include a comparison of growth and yield for crops within and outside the Construction Zone. When subsequent crop productivity within the Construction Zone is less than that of the adjacent unaffected agricultural land, the

Agricultural Inspector, in conjunction with the Certificate Holders and in consultation with other appropriate organizations including Ag & Mkts, shall help to determine the appropriate rehabilitation measures for the Certificate Holders to implement (soil de-compaction, topsoil replacement, etc.). During the various stages of construction of the Facility, all affected farm operators shall be periodically apprised of the duration of remediation by the Agricultural Inspector. Because conditions that require remediation may not be noticeable at or shortly after the completion of construction, the signing of a release form prior to the end of the remediation period shall not obviate the Certificate Holders' responsibility to fully redress all impacts caused by construction of the Facility. After completion of the specific remediation period, the Certificate Holders shall continue to respond to the requests of the farmland owner/operators to correct adverse impacts to agricultural resources caused by construction of the Facility.

79. The Agricultural Inspector shall work with farm operators during the planning phase to develop a plan to delay pasturing of livestock in the Construction Zone, work areas, access roads, or staging areas following construction until pasture areas are adequately revegetated. The Certificate Holders shall be responsible for maintaining temporary fencing on the Construction Zone, work areas, access roads, or staging areas until the Agricultural Inspector determines that the vegetation in the Construction Zone is established and able to accommodate grazing. At such time, the Certificate Holders shall be responsible for removal of the fences.

80. On affected farmland, restoration practices shall be postponed until favorable (workable, relatively dry) topsoil/subsoil conditions exist. Restoration shall not be conducted while soils are in a wet or plastic state. Stockpiled topsoil shall not be re-graded until plasticity,

as determined by the Atterberg field test, is significantly reduced. No Facility restoration activities shall occur in agricultural fields in the months of October through May unless DPS Staff has determined after consultation with Ag & Mkts that favorable soil moisture conditions exist. The Certificate Holders shall monitor and advise Ag & Mkts and DPS Staff regarding tentative restoration planning.

J. Herbicide Use

81. The application of herbicides shall be made under the direct supervision of a NYSDEC Certified Applicator ("Applicator") who shall own or be employed by a NYSDEC-registered business. The supervising certified Applicator shall be familiar with and understand the Conditions of this Certificate, the approved EM&CP, and any other pertinent Orders issued in this proceeding and shall be present in the field to ensure compliance with provisions in such documents for targeting species and for proper application of authorized herbicides.

82. All herbicides used shall have valid registrations under applicable state and federal laws and regulations.

83. Application of herbicides shall conform to all label instructions and all applicable federal and state laws and regulations. Herbicides shall not be applied within one hundred (100) feet of any public water supply (reservoirs and wellheads) or any private well-head of which Certificate Holders have actual knowledge. Applicators shall reference maps that indicate treatment areas, and wetland and adjacent area boundaries, prior to treating. Applications required in seasonally flooded freshwater wetlands shall be undertaken during a dry season.

84. The Certificate Holders shall notify DPS Staff and the appropriate NYSDEC Regional

Natural Resource Supervisor(s) and Pesticide Control Specialist fourteen (14) days prior to the commencement of any herbicide application on the Facility.

K. Building Code and Inspections – Converter Station and Related Buildings

85. Prior to the commencement of construction of the Converter Station and related buildings, the Certificate Holders shall first obtain review and written certification by the CNY Department of Buildings that the construction plans for the Converter Station are in compliance with the New York City Electrical Code ("NYCEC"), the New York City Fire Code ("NYCFC"), and Title 28 of the New York City Administrative Code, including the New York City Construction Codes ("NYCCC"). Within ten (10) days of receiving any written certification, the Certificate Holders shall file a copy of such certification with the Secretary and shall serve a copy on the Director of the Office of Energy Efficiency and the Environment.

86. During construction of the Converter Station and related buildings, the Certificate Holders shall obtain periodic inspections of the construction work by the CNY Department of Buildings for compliance with the NYCFC, NYCEC and NYCCC.

87. Prior to the use or occupancy of the Converter Station and related buildings, the Certificate Holders shall first obtain written certification by the CNY Department of Building that the construction was completed in compliance with the NYCFC, NYCEC, and the NYCCC. Within ten (10) days of receiving any written certification, the Certificate Holders shall file a copy of such certification with the Secretary and shall serve a copy on the Director of the Office of Energy Efficiency and the Environment.

L. Overland Restoration

88. At the conclusion of all Facility construction, Construction Zone areas, work areas,

access roads, and/or staging areas shall be thoroughly cleared of debris such as wood, nuts, bolts, spikes, wire, pieces of steel, and other assorted items.

89. The Certificate Holders shall, on completion of construction of the Facility:

a. provide an assessment of the need for landscape improvements, including vegetation planting, earthwork, or installed features to screen or landscape with respect to road crossings, residential areas, parks, highways, converter stations, and substations; and

b. prepare plans for any visual mitigation found necessary, considering removal, rearrangement, and supplementation of existing landscape improvements or plantings; and

c. consult with DPS Staff on the content and execution of their landscape improvement assessment, resultant landscaping plan specifications, and materials list; details shall include measures for controlling maintenance and third party or wildlife damage to any landscape or vegetation plantings; and

d. assure the reduction or elimination of net storm water runoff within or immediately adjacent to the Construction Zone and any contribution to sources of non-point pollution resulting from the finished condition; and

e. present assessments and plans for DPS Staff review within one (1) year of the date the Facility is placed in service.

M. Overland Habitat Areas

90. The Certificate Holders shall incorporate the measures described in the *Karner blue butterfly (Lycaeides melissa samuelis) Impact Avoidance and Minimization Report* (Exhibit 109 to the Joint Proposal) into the EM&CP. Prior to the commencement of

construction, the Certificate Holder shall arrange a "walk through" of the Construction Zone where lupine habitat has been identified for representatives of the DPS Staff, NYSDEC, the EPC Contractor, and others as deemed appropriate to discuss and review these measures including the location of the flagging of lupine and nectar patches of potential and occupied butterfly habitat. The flagging shall be maintained until construction has been completed and all disturbed areas have been restored to their final grade.

91. Within six (6) months after the commencement of commercial operations of the Facility, the Certificate Holders shall provide a ROW maintenance plan for the Facility ROW from Route Mile 145**,** south of Scout Road in the Town of Wilton, New York to Route Mile 180, north of County Line Road in the Town of Rotterdam, New York. This plan shall include but not be limited to methods of maintenance, access routes to the ROW, seasonal construction windows, and the education of all company employees and contractors regarding all measures to avoid occupied habitat associated with Karner blue butterfly and frosted elfin butterfly. The plan shall also provide requirements for notification of the DPS Staff and NYSDEC of any planned maintenance or repair work within, or in the vicinity of occupied habitat that requires excavation or ground disturbance.

N. Underwater Cable Installation

92. All of the terms and conditions of the WQC are incorporated by reference into this Certificate as though fully set out herein. Any changes to the WQC shall be governed by the provisions of Condition 158 of this Certificate.

93. Construction within navigable waters and pre-installation route clearing activities (pre-

lay grapnel run and associated obstruction and debris removal) shall occur within the construction time frames set forth in Table 1 below. After consultation with DPS Staff, the New York State Department of State ("NYSDOS"), and NYSDEC, the Certificate Holders may seek an appropriate modification of the time frames, either in the proposed EM&CP or subject to the provisions of Condition 158 of this Certificate.

Table 1: Underwater Construction Windows in Lake Champlain, The Hudson, Harlem, and East Rivers

River Mile	Route Mile	Location	Construction Windows
	Lake Champlain		
	0 to 73	US/Canada Border to Crown Point	May 1 to August 31
	73 to 101	Crown Point to Dresden	September 1 to December 31
	Hudson River, Harlem River, East River		
107-68	229 to 269	Cementon – New Hamburg	Aug 1 - Oct 15
68-41	269 to 296	New Hamburg – Stony Point	Sep 15 - Nov 30
41-33	296 to 303	Stony Point - Rockland Lake State Park	OVERLAND
33-14	303 to 324	Rockland Lake State Park – Harlem River	Jul 1 - Oct 31
all	324 to 330	Harlem River – East River	May 15 - Nov 30

94. Commencement of in-river work within one (1) mile south of the designated Significant Coastal Fish and Wildlife Habitats ("SCFWHs") at Haverstraw Bay shall occur during the high, or flood, tide condition in order to avoid and/or minimize impacts from resuspended sediments to the SCFWH habitat of Haverstraw Bay.

95. The Certificate Holders shall use installation techniques for underwater cable installation activities that are appropriate for the prevailing substrate conditions.

a. Cable installation in the Hudson, Harlem, and East Rivers shall be designed and installed to meet the following criteria:

(i) Where the cables shall be located within the limits of the maintained Federal Navigation Channels in the Harlem, Hudson, and East Rivers, the Certificate Holders shall install the cables to a depth of at least fifteen (15) feet below the federally-authorized depth of the Federal Navigation Channel;

(ii) and where the cables shall be located outside the limits of the maintained Federal Navigation Channels in such rivers, the Certificate Holders shall install the cables to the maximum depth achievable that would allow each pole of the bi-pole to be buried in a single trench using a jet-plow, which is expected to be at least six (6) feet below the sediment water interface or, if sand waves are present, the trough of said waves, or as authorized by DPS Staff, NYSDEC, and NYSDOS as discussed in condition 95(a) (iii), below the existing riverbed outside maintained Federal Navigation Channels, except where utility lines or other infrastructure are crossed or where geologic or topographic features prevent burial at such depth.

(iii) No changes in the installation technology or burial depth shall be allowed without a written statement from NYSDOS stating that the deviation would not result in coastal effects that differ significantly from the coastal effects reviewed by NYSDOS in Certificate Holders' original federal coastal consistency certification ("Coastal Consistency Certification"). In the event that NYSDOS determines that such deviation would result in

coastal effects that differ significantly from those reviewed in the Coastal Consistency Certification, the Certificate Holders shall seek a written concurrence from NYSDOS for any such project changes that would require an amendment to the Certificate Holders' Coastal Consistency Certification. Nothing in this Certificate shall be construed to limit or expand any rights Certificate Holders may have to seek administrative or judicial review of any action or inaction by NYSDOS relating to any such deviation.

b. Cable installation in Lake Champlain shall be designed and installed to meet the following criteria:

(i) in locations where the water depth is less than one hundred fifty (150) feet, the target burial depth is three (3) to four (4) feet below the sediment surface, except where the cables cross other utility lines or other infrastructure or where geologic or bathymetric features prevent burial at such depth, and adequate measures for cable and infrastructure protection are provided;

(ii) in locations where water depth is one hundred fifty feet (150) or greater, the target burial depth is three (3) to four (4) feet below the sediment surface, however the cables may be buried at shallower depths or laid on the lake bed where Certificate Holders provide a report prepared by a recognized authoritative technical consultant demonstrating and concluding that public health and safety can be appropriately protected without such burial, and the proposed installation method is approved by

the Commission in the Segment EM&CP.

(iii) Where the cables shall be located in the portion of Lake Champlain south of Crown Point (Route Mile 73), the Certificate Holders will rely on the shear plow installation method or, when reliance on such method is infeasible, an alternative method that avoids environmental impacts to a substantially equivalent degree. Where cables shall be located in the portion of Lake Champlain north of Crown Point, the Certificate Holders shall rely on a jet-plow or shear plow or, in deeper waters, either a self-propelled remotely operated vehicle ("ROV") that shall bury the cables using water jetting after the initial surface lay of the cables from the lay vessel.

c. Utility and other infrastructure crossings shall be executed consistent with site-specific design measures for each such crossing as specified in the approved EM&CP.

96. In the event that the target depth of cover (consistent with the requirements of Condition 95) has not been substantially achieved in an area due to geologic or topographic features and not due to limitations associated with a utility crossing, following the post-installation inspection provided for in Condition 161, the Certificate Holders shall report the actual depth of cover, and propose a plan, with a reasonable schedule, consistent with Good Utility Practice whose definition is provided in Condition 20, for achieving an adequate burial depth or protection level given the location to NYSDEC, NYSDOS and DPS Staff for review and comment.

97. As long as the Certificate Holders comply with the requirements of Condition 96, failure

to achieve the depth of cover consistent with the requirements of Condition 95 shall not be a basis for an order to cease installation of the remaining cable sections, an order not to energize, or an order to cease operation. An order not to energize or to cease operation will be issued only after affording the Certificate Holders an opportunity to show cause why such order should not be issued.

98. The Certificate Holders shall employ HDD and dredging to install the proposed underwater cables from the proposed cable landfall locations to avoid disturbance to near shore sediments. The exit pit of each HDD borehole shall be installed within temporary dredged cofferdams or into a steel casing rise pipe. The walls of each temporary cofferdam shall extend above mean high water during dredging to contain suspended sediments associated with dredging activities and hence limit the dispersion of the suspended sediments to the interior footprint of the temporary cofferdam.

99. As part of the planning process for dredging, consultations with NYSDEC and USACE shall occur, at which time the specific practices to be employed shall be discussed. All cofferdams and any other dredged area shall be backfilled with clean material. The dredging practices and procedures to be utilized by the Certificate Holders shall be specified in the EM&CP and shall include:

a. A closed (i.e., sealed) environmental (clamshell) bucket with sealing gaskets or an overlapping sealed design at the jaws and seals or flaps positioned at locations of vent openings, approved by the Commission, shall be used to minimize sediment suspension at the dredging site for fine grained unconsolidated (silty) sediments and for dredging across or within Federal Navigation Channels. Seals or flaps designed or installed at the jaws and locations of vent openings must tightly cover

these openings while the bucket is lifted through the water column and into the barge, and the closed environmental (clamshell) bucket dredge shall be equipped with sensors to ensure complete closure of the bucket before lifting through the water.

b. Dredging Practices: The following practices shall be applied to all activities to ensure that large amounts of sediment are not released into the water column:

(1) Hoist speed shall be limited so that the bucket is raised through the water column at a rate of two (2) feet per second or less. The bucket shall be lifted in a continuous motion through the water column and into the barge;

(2) The dredge shall be operated to control the rate of the descent and to maximize the depth of penetration without overfilling the bucket;

(3) Washing of the gunwales of the dredge scow shall be avoided except to the extent necessary to ensure the safety of workers; and

(4) The bucket shall be lowered to the level of the barge gunwales prior to release of the load and the dredged material shall be placed deliberately and in a controlled manner;

(5) Operations shall be suspended until all necessary repairs or replacements are made when a significant loss of water and visible sediments from the bucket are observed; and

(6) Dredged material shall not be side cast or returned to the water.

c. Barge overflow is prohibited.

d. Barge/Scow Type: Barges or scows shall be of solid hull construction or be sealed.

e. Dredging Monitoring: An on-board Aquatic Inspector(s) shall be present at all times during dredging operations.

f. Dredging Windows: Dredging shall occur within the underwater construction windows identified in Table 1 of Condition 93.

g. Decanting Operations: Decanting of barges shall be approved by DPS Staff in consultation with NYSDEC prior to implementation. Barges may not be decanted before twenty-four (24) hours of settlement within the scow.

h. Only barges in good operating condition shall be used. Deck barges shall not be used, unless modified to allow no barge overflow and as approved by the Aquatic Inspector and DPS Staff in consultation with NYSDEC.

i. The Aquatic Inspector shall inspect all dredging equipment prior to use and shall perform periodic inspections of all such equipment no less than once per week. The contractor shall demonstrate to the Aquatic Inspector that the bucket dredge operator has sufficient control over the bucket depth in the water and bucket closure.

j. All sediments excavated during cofferdam construction and transition activities at the landfall location must be disposed of at a State-approved upland disposal site. All contaminated sediments excavated during placement in the navigation channel shall be disposed of in a State-approved upland disposal site.

k. During dredging operations, the Certificate Holders shall provide weekly reports on progress to date, document compliance with Certificate requirements, and such other information as determined necessary based on consultation with DPS Staff, NYSDEC, and NYSDOS.

l. All cofferdams and any other dredged area shall be backfilled using imported clean material, as needed, to restore the stream, lake, or riverbed to preconstruction contours. This work shall be completed in accordance with the relevant approved Segment EM&CP.

m. In no instance shall excavated contaminated sediment be placed back into a waterbody.

100. Underwater activities shall be undertaken in a manner that minimizes the potential for interference with navigation.

101. The Certificate Holders shall coordinate with NYSDOT on cable construction and maintenance activities within Lake Champlain that may affect construction, operation, maintenance, and inspection of the Crown Point Bridge in Lake Champlain.

O. Water Supply Intakes

102. The Certificate Holders shall review the pre-installation marine sediment survey to determine if the location of any public water supply ("PWS") structure along the HVDC Transmission System route can be identified.

103. The Certificate Holders shall provide notice that the EM&CP is available for review to operators of PWS facilities located within one (1) mile of the in-water facility. The notice shall include, in plain language: (i) details about the planned work; (ii) hours and duration of activities; (iii) provisions for protection of facilities, if applicable; (iv) identification of locations where additional information and copies of the EM&CP are available; (v) contact information for Certificate Holders' personnel, including a toll-free number; and (vi) instructions on how comments regarding construction plans and mitigation measures may be filed with the Secretary, indicating appropriate deadlines for

commenting and contact information. Proof of notice shall be provided to the Secretary.

104. The Certificate Holders shall notify operators of PWS facilities of construction work within one (1) mile of their intake structure(s) at least thirty (30) days prior to the commencement of any underwater work (including but not limited to grapnel, pre-construction, and construction activities) in these areas or within the time period requested by the systems operators during the consultation process detailed in Condition 150. Such notice shall be in the form of a written letter as well as any other method identified during the consultation process detailed in Condition 150. The Certificate Holders shall provide copies of all written correspondence to DPS Staff.

105. Operational Control: The schedule of grapnel/debris removal and all phases of construction shall be coordinated in consultation with each PWS facility. Construction and pre-construction operations within one (1) mile of an intake shall be performed at night or another scheduled time when systems are not operating to the extent reasonably possible.

106. PWS Sampling during Grapnel/Debris Removal and Construction Operations: The Certificate Holder shall establish a fund that provides for each of the PWS facilities identified by the NYSDOH as being within one (1) mile of the underwater cable facility to enable completion of the following testing, with payment for this work being based on the mechanism established during the consultation provided for by Certificate Condition 150:

    a. One (1) pre-construction raw water sample collected no more than twelve (12) hours prior to in-water operations occurring in proximity to the intake structure. Samples collected shall be analyzed for total metal concentrations with United

States Environmental Protection Agency ("EPA") Method 200.8. Raw water samples collected from PWS facilities located along the Hudson River shall also be analyzed for polychlorinated biphenyls ("PCBs") with EPA Method 508A. All pre-construction raw water samples collected from the PWS facilities should be reported using a twenty-four (24) hour turnaround.

b. Two (2) sets of post-construction raw water and finished water (post-treatment) samples from the PWS facility. The first set shall be collected immediately following operations occurring in proximity to the intake structure and the second set shall be collected approximately twelve (12) hours after conclusion of operations.

c. Post-construction raw water samples from all PWS facilities shall be analyzed for total metal concentrations with EPA Method 200.8. Raw water samples collected from PWS facilities located along the Hudson River shall also be analyzed for PCBs with EPA Method 508A. All post-construction raw water samples collected from the PWS facilities shall be reported using a twenty-four (24) hour turnaround. Finished water samples shall be held at the laboratory.

d. If raw water sample results suggest any significant water quality impacts associated with any pre-construction or construction operations, the finished water samples shall be analyzed: (a) for total metal concentrations with EPA Method 200.8 and, (b) if collected from PWS facilities located along the Hudson River, for PCBs with EPA Method 508A. All finished water samples submitted for analysis shall be reported using a twenty-four (24) hour turnaround. The decision

to analyze the finished water samples shall be made by DPS Staff in consultation with the NYSDOH.

e. If analysis of finished water sample results indicates that there has been a maximum contaminant level ("MCL") violation caused by the installation activities, the Certificate Holders shall employ the mitigation measures prescribed in accordance with Condition 14(c) of the WQC in all locations where cable installation operations are within one (1) mile of a water intake structure. If the Certificate Holders propose to employ mitigation measures not otherwise provided for in accordance with Condition 14(c) of the WQC, they must first consult with the DPS Staff, NYSDEC, and the Aquatic Inspector. In the event that DPS Staff determines that the mitigation techniques are unable to mitigate the MCL violation(s), underwater cable installation shall be suspended, and the Certificate Holders shall consult with DPS Staff, NYSDOH, and NYSDEC regarding alternative cable installation techniques and propose such changes to the approved EM&CP in accordance with Condition 158 as may be necessary.

f. The Certificate Holders shall provide copies of all laboratory data reports for samples collected from each PWS facility located along the Hudson River to NYSDOH and DPS Staff.

P. Cultural Resources

107. The Certificate Holders shall:

a. avoid creating adverse impacts on heritage resource sites, archeological sites, historic structures, and underwater cultural resources in the vicinity of the Facility by implementing location, design, vegetation management, resource protection,

and construction scheduling measures as shall be specified in the approved EM&CP; and

b. provide cultural and heritage resource impact mitigation measures as specified in the approved EM&CP or facility management and restoration plan(s).

108. The Certificate Holders shall refrain from undertaking construction in areas where archeological surveys have not been completed and until such time as the appropriate authorities, including New York State Office of Parks Recreation & Historic Preservation ("OPRHP") and DPS Staff, have reviewed the results of any additional historic properties and archeological surveys that are required. These archeological surveys may be segmented in conjunction with the preparation of the EM&CP to permit the review, approval, and commencement of any circuit or converter station improvements prior to review and approval for the remaining portions of the Facility.

109. The Certificate Holders shall develop a Cultural Resources Management Plan ("CRMP") as described below. The CRMP shall be developed in consultation with the OPRHP Field Services Bureau, Indian tribes, the Advisory Council on Historic Preservation ("Council"), the U.S. National Park Service, DPS Agency Preservation Officer, and other stakeholders (as appropriate). The CRMP shall provide for the identification, evaluation, and management of historic properties within the Area of Potential Effects ("APE") of the Facility. The CRMP shall also outline the processes for resolving adverse effects on historic properties within the APE and determining the appropriate treatment, avoidance, or mitigation of any effects of the Facility on these resources.

110. Should archeological materials be encountered during construction, the Certificate Holders shall stabilize the area and cease all construction activities in the immediate

vicinity of the find, and protect the site from further damage. Within twenty-four (24) hours of such discovery, the Certificate Holders shall notify and seek to consult with DPS Staff and OPRHP Field Services Bureau to determine the best course of action. No ground-disturbing activities shall be permitted in the vicinity of the archeological materials until such time as the significance of the resource has been evaluated and the need for and scope of impact mitigation have been determined.

111. Should human remains or evidence of human burials be encountered during the conduct of archeological data recovery fieldwork or during construction, all work in the vicinity of the find shall be halted immediately and the site shall be protected from further disturbance. Within twenty-four (24) hours of any such discovery, the Certificate Holders shall notify the DPS Staff and OPRHP Field Services Bureau. Treatment and disposition of any human remains that may be discovered shall be managed in a manner consistent with the Native American Graves Protection and Repatriation Act ("NAGPRA"); the Council's Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects (February 2007); and OPRHP's Human Remains Discovery Protocol. All archaeological or remains-related encounters and their handling shall be further reported in the status reports summarizing construction activities and reviewed in the site-compliance audit inspections.

112. The Certificate Holders shall have a continuing obligation during the life of the Facility to respond promptly to complaints of negative archeological impacts and to consult with OPRHP, the Council, Indian tribes, and other appropriate parties identified in the CRMP to resolve adverse effects on historic properties and determine the appropriate avoidance, treatment, or mitigation measures.

Q. Waterbodies and Regulated Wetlands

113. The Certificate Holders shall minimize disruption to regulated wetlands during the construction, operation, and maintenance activities of the Facility.

a. Regulated wetland locations shall be delineated in the field and indicated on the proposed EM&CP drawings for the Construction Zone and any access roads. Such delineations shall be delivered for review to DPS Staff, NYSDOS, and NYSDEC and, for wetlands within the Adirondack Park, to the Adirondack Park Agency ("APA"), at least thirty (30) days prior to the filing of the proposed EM&CP.

b. Any activities that may affect regulated wetlands shall be designed and controlled to minimize adverse impacts, giving due consideration to the environmental features and functions of the regulated wetlands and the one hundred (100) foot adjacent area associated with any State-regulated wetlands ("adjacent area").

c. The Certificate Holders shall, to the maximum extent practicable, avoid direct impacts to regulated wetlands and construct access roads outside regulated wetlands and adjacent areas. Any direct impacts that are not avoided shall be minimized and appropriately mitigated.

d. Construction through regulated wetlands or adjacent areas shall be done with tracked equipment or on temporary mats or geotextile/gravel access roads and shall be restricted to access roads and work areas set forth on the approved EM&CP drawings, provided that the Certificate Holders' use of geotextile and gravel for access roads shall not contravene the requirements set forth in Condition 77 of this Certificate.

e. Clearing of existing vegetation in wetlands or in or near waterbodies shall be limited to that material necessary to allow completion of construction activities and to allow for reasonable access for long-term maintenance so as to reduce the amount of activity and disturbance to the wetland and adjacent area.

f. Equipment or machinery shall not be washed in any regulated wetland or adjacent area, and runoff resulting from washing operations shall not be permitted to directly enter any regulated wetland or protected stream or waterbody.

g. Excavated material shall be stockpiled outside regulated wetland areas and all excess material shall be disposed of in approved overland locations.

114. The Certificate Holders shall minimize disruption to streams and waterbodies during construction, operation, and maintenance of the Facility. Measures to protect such streams and waterbodies from runoff and sedimentation during construction (other than installation of underwater cables in navigable waters) shall include:

a. The development of an inventory that includes for each Segment: (i) a listing of waterbodies within the Construction Zone, including associated stream width, NYSDEC classification, proposed crossing method, and any potential construction schedule window developed during the preparation of the proposed EM&CP; (ii) a spreadsheet that contains the GPS coordinates (latitude and longitude) of each waterbody; (iii) a digital photograph of each waterbody, cross-referenced to its GPS coordinates; and (iv) a wetland delineation shape-file. This inventory shall be delivered for review to DPS Staff, NYSDOS, and NYSDEC and, for waterbodies within the Adirondack Park, to APA, at least thirty (30) days prior to the filing of the proposed EM&CP;

b. Limitation of construction vehicle access across streams and waterbodies to existing bridges and culverts and to temporary crossings installed in accordance with the provisions set forth in the approved EM&CP;

c. Construction of equipment crossings to allow for unrestricted flow and to prevent soil from entering streams and waterbodies. Temporary crossings shall be designed and constructed to withstand the two (2) year flood event at a minimum;

d. Except where an access path is necessary, a fifteen (15) foot wide buffer zone shall be maintained at all waterbody crossings along any railroad ROW;

e. Prohibition of vehicular access where alternative access can be provided;

f. Restriction of equipment and materials (including fill, construction materials, or debris) from being deposited, placed, or stored in any waterbody;

g. Prohibition during overland construction refueling of equipment, storage mixing, or handling of open containers of pesticides, chemicals labeled "toxic," or petroleum products, within one hundred (100) feet of a stream or waterbody or wetland. Field personnel and Contractors shall be trained in spill response procedures, including the deployment and maintenance of spill response materials;

h. Employment of precautions, when not feasible to move the affected vehicle or equipment from an environmentally sensitive area to a suitable access area (i.e., pumping equipment), to prevent petroleum products or hazardous materials from being released into the environment. These precautions include (but are not limited to) deployment of portable basins or similar secondary containment devices, use of ground covers (such as plastic tarpaulins), and precautionary

placement of floating booms on nearby surface waterbodies;

i. Implementation of EM&CP procedures for erosion and sediment control (in accordance with the SWPPP to be included with the proposed EM&CP) early in the construction process and prior to the start of grading and excavation activities; such procedures shall be maintained throughout the construction period and in accordance with SSESC;

j. Pumping of water from dewatering operations into a temporary straw bale or silt fence barrier or filter bag to settle suspended silt material prior to discharge. Direct discharge of sediment laden water to state- and/or federally- regulated wetlands and to streams and stormwater systems shall be avoided;

k. Runoff resulting from equipment or machinery washing operations shall be prevented from directly entering any State-regulated wetland or protected stream or waterbody;

l. Development and implementation of spill response and cleanup procedures to minimize and respond to any accidental spills of petroleum producing chemicals or hazardous liquids that occur during construction;

m. A requirement that, during the performance of any HDD waterbody crossing, contractors monitor the use of inert biodegradable drilling solution and, in the event of a detected release of fluid, implement the procedures specified in the approved EM&CP. For any release occurring in a waterbody, the Certificate Holders shall immediately notify DPS Staff and NYSDEC of details of the release and the course of action they recommend taking;

n. Monitoring of the status of each HDD waterbody crossing while construction

activities are underway until the crossing has been completed and the stream and stream banks have been restored. In the event of any potential or actual failure of the crossing, the Certificate Holders shall have adequate staff and equipment available to take necessary steps to prevent or avoid adverse environmental impacts;

o. Completion of backfilling operations and of cleanup and restoration of the stream crossing, banks, and bank approaches (at least fifty (50) feet adjacent to each bank) within twenty-four (24) hours. If needed, stream banks shall be re-established to original grade immediately after stream bank work is completed. The banks shall then be permanently stabilized by seeding with native grasses, mulching, and, if needed, planting native shrub seedlings.

115. The Certificate Holders shall notify DPS Staff and NYSDEC at least five (5) days prior to construction involving protected stream crossings.

116. NYSDEC field representatives will notify the DPS Staff representative and the Certificate Holders' appropriate representative and, for wetlands within the Adirondack Park, APA of any activities that violate or may violate either the terms of this Certificate or the ECL. DPS Staff, NYSDEC field representatives, and, for wetlands within the Adirondack Park, the APA will consult in assessing site conditions and determining whether a recommendation should be made to DPS Staff to exercise its stop work authority or, alternatively, whether the Certificate Holders should be directed to take action to minimize further impacts to streams and regulated wetlands as appropriate.

117. The Certificate Holders shall establish and implement a program to monitor the success of wetland and stream restoration upon completion of construction and restoration

activities. The success of wetland revegetation shall be monitored and recorded annually for the first two (2) years (or as required by any applicable permit) after construction, or longer, until wetland re-vegetation is successful. Wetland re-vegetation will be considered successful when the vegetative cover is at least eighty (80) percent of the type, density, and distribution of the vegetation in adjacent wetland areas that were not disturbed by construction. If re-vegetation is not successful at the end of two (2) years, the Certificate Holders shall develop and implement (in consultation with a professional wetland ecologist) a plan to actively revegetate the wetland with native wetland herbaceous plant species.

118. If DPS Staff, in consultation with NYSDEC, determines that restoration of damage to wetlands caused by use of temporary road mats has not been adequate, the Certificate Holders shall prepare a mitigation plan for impacts arising from the use of temporary road mats. Such plan shall provide for compensatory mitigation in the form of a proposed project to address the loss of wetland functions, such as vegetation plantings or a project to address invasive species in wetlands.

R. Transmission System Reliability

119. This section of this Certificate deals with the interconnection of the Facility to the New York State Bulk Power System ("NYSBPS") and with certain aspects of the operation of the Facility while interconnected with the NYSBPS. Some of these matters may also be subject to regulation by the FERC under the FPA. Nothing contained in this section shall be construed as limiting or waiving Certificate Holders rights under the FPA in any way. In the event that Certificate Holders petition a tribunal of competent jurisdiction to determine whether any of the conditions and/or requirements established within this

Transmission System Reliability section are regulated within the scope of FERC's exclusive jurisdiction under the FPA, Certificate Holders will provide a copy of such petition to DPS Staff within three days of filing. If determined by such tribunal to be within FERC's exclusive jurisdiction, Certificate Holders' compliance with FERC's requirements applicable to such matters (including without limitation any requirements established in any tariff or service agreement accepted for filing by FERC) shall be regarded as full and complete compliance with any such conditions and/or requirements established in this section.

120. The Certificate Holders are authorized to construct and agree to design, engineer, and construct the HVDC Transmission Facility's Attachment Facilities (as defined in the Open Access Transmission Tariff ("OATT") of the NYISO, as provided in the Optional Interconnection Study ("OIS") and System Reliability Impact Study ("SRIS") approved by NYISO, NYISO's Transmission Planning and Advisory Subcommittee ("TPAS"), and NYISO's Operating Committee ("OC"), the applicable NYISO Class Year Annual Transmission Reliability Assessment Study ("ATRAS"), and the Facility's Interconnection Agreement with the applicable parties, which may include the NYPA, the Consolidated Edison Company of New York, Inc. ("Con Edison") and NYISO (the "IA"). The Certificate Holders shall utilize Good Utility Practice as described in Condition 20, in the design, engineering, and construction of the HVDC Transmission System's Attachment Facilities.

121. The Certificate Holders shall connect the HVDC Transmission System to the 345 kV Astoria bus owned by NYPA at 345 kV, as shown in Appendix B. Certificate Holders shall connect the Astoria-Rainey Cable to the 345 kV Astoria bus owned by NYPA and

to the 345 kV Rainey bus owned by Con Edison as shown in Appendix B.

122. The Certificate Holders shall work with NYPA and Con Edison, and any successor Transmission Owner(s) ("TOs") (as defined in the NYISO Agreement) to ensure that the Facility has a power system relay protection and appropriate communication capabilities to ensure that operation of the electric transmission system is adequate under NPCC Bulk Power Protection Criteria, and meets the protection requirements at all times of the NERC, NPCC, NYSRC, NYISO, Con Edison, and NYPA and any successor organizations. The Certificate Holders shall ensure that their power system relay protection and communication capabilities comply with applicable NPCC criteria and shall be responsible for the costs to verify that their relay protection system is in compliance with applicable NERC, NPCC, NYISO, NYSRC, Con Edison and NYPA criteria.

123. The following requirements apply:

a. The Certificate Holders shall be responsible for the Facility's share of the cost of System Upgrade Facilities (as that term is defined in the OATT) as determined by NYISO in accordance with its FERC approved tariffs, rules, and procedures.

b. The Certificate Holders shall be responsible for the cost of interconnection facilities as they are defined in Attachment S of the OATT, and to the extent set forth in the IA.

c. Payments from the Certificate Holders to NYPA and/or Con Edison of the amounts contemplated in this Certificate Condition shall be made in accordance with the terms of the IA.

d. The Certificate Holders shall maintain the Facility in accordance with the

approved tariffs and applicable rules and protocols of NYPA, Con Edison, NYISO, NYSRC, NPCC, NERC, and NAERO, and successor organizations.

e. The Certificate Holders shall obey operational orders and dispatch instructions issued by NYISO or its agent or successor pursuant to applicable tariffs, manuals, rules, protocols, and other relevant documents applicable to the Facility. In the event that the NYISO System Operator encounters communication difficulties, the Certificate Holders shall obey dispatch instructions issued by the Con Edison Energy Control Center, or its successor(s), pursuant to applicable tariffs, manuals, rules, protocols, and other relevant documents applicable to the Facility in order to maintain reliability of the transmission system.

124. The Certificate Holders shall fully comply with the applicable reliability criteria of NYPA, the Commission, Con Edison, NYISO, NPCC, NYSRC, NERC, NAERO and their successors. If the Facility fails to meet such reliability criteria at any time, the Certificate Holders shall notify NYISO immediately, in accordance with NYISO requirements, and shall simultaneously provide the Commission, NYPA and Con Edison with a copy of the NYISO notice.

125. The Certificate Holders shall file a copy of the following documents with the Secretary and provide any updates to the documents throughout the life of the Facility:

a. all facilities agreements with Con Edison, NYPA, and successor Transmission Owners (as defined in the NYISO agreement);

b. any documents submitted to the NYSRC, including but not limited to, any updates issued by the NYSRC;

c. the SRIS or any OIS or the Systems Impact Study ("SIS") approved by the

NYISO Operating Committee, and the Final Class Year Facilities Study. Should the Certificate Holders apply in the future to NYISO for additional Capacity Resource Interconnection Service ("CRIS") rights for the Facility, they shall file with the Commission copies of all documents submitted to NYISO, provided however that in the case of documents containing confidential information of the NYISO, Certificate Holders shall not be obligated to file any materials that NYISO refuses to authorize Certificate Holders to file. Certificate Holders shall file such documents with the Commission, even if they choose not to fund construction of the System Deliverability Upgrades (as that term is defined in the OATT) required to obtain such additional CRIS rights;

d. the Relay Coordination Study (which shall be filed not later than six (6) months prior to the projected date for circuit energization or testing and commissioning activities of the Facility, and shall be performed in concert with Con Edison and NYPA, and the results of which shall be provided to Con Edison and NYPA);

e. a copy of the IA(s) and all updates thereto throughout the life of the Facility;

f. a copy of the facilities design studies, including all associated drawings and support documentation and a copy of the manufacturer's "terminal facilities design characteristics" of the equipment installed (including test and design data); updates thereto throughout the life of the Facility; and

g. if any equipment or control system with different characteristics is to be installed, the Certificate Holders shall provide that information to the Commission, NYPA and Con Edison before any such change is made at least three (3) months in advance so that it can be reviewed prior to installation (throughout the life of the

Facility).

126. Within five (5) business days of any failure of equipment causing a reduction of more than ten (10) percent in the capability of the Facility to transmit electric power, the Certificate Holders shall promptly provide to DPS Staff, NYPA, and Con Edison copies of all notices, filings, and other substantive written communications with NYISO as to such reduction, any plans for making repairs to remedy the reduction, and a proposed schedule for any such repairs. The Certificate Holders shall provide monthly reports to DPS Staff, Con Edison, and NYPA on the progress of any repairs until completed. The report shall contain, when available, copies of applicable drawings, descriptions of the equipment involved, a description of the incident, and a discussion of how future occurrences will be avoided. The Certificate Holders shall work cooperatively with NYPA, Con Edison, and NYISO to avoid any future occurrences. If such equipment failure is not completely repaired within nine (9) months of its occurrence, the Certificate Holders shall provide a detailed report to the Secretary within nine (9) months and two (2) weeks after the equipment failure, setting forth the progress on the repairs and indicating whether the repairs will be completed within three (3) months. If the repairs will not be completed within three (3) months, the Certificate Holders shall explain the circumstances contributing to the delay and demonstrate why the repairs should continue to proceed.

127. The Certificate Holders shall include in the Facilities Study for the HVDC Transmission System prepared by NYISO, and request that NYISO identify, the additional facilities required for the Certificate Holders to provide Black Start service, as well as the cost of those facilities. If the Certificate Holders subsequently decide to participate in the

NYISO's Black Start program, they shall demonstrate annually that the Facility can be black started. The Certificate Holders shall schedule with the NYISO, Con Edison, and NYPA the black start test and demonstrate black start procedures. If the Black Start Test fails, the Certificate Holders shall produce a report describing the test, detailing the cause (including copies of diagrams, photos, details of the test, and illustrations of the fail test) and what actions or changes are being made to the black start procedures. A copy of the report shall be submitted to Con Edison, NYPA, the Commission, and the NYISO. The Certificate Holders will provide the opportunity for DPS Staff to observe the black start testing and to attend all meetings related to Black Start. The Certificate Holders shall effectuate a successful black start annually to qualify for the Black Start program.

128. The Certificate Holders shall coordinate with NYPA and Con Edison system planning and system protection engineers to evaluate the characteristics of the transmission system before purchasing any system protection and control equipment related to the electrical interconnection of the Facility to NYPA's and Con Edison's transmission facilities. This discussion is designed to ensure that the equipment purchased will be able to withstand most system abnormalities.

129. The technical considerations of interconnecting the Facility to NYPA's and Con Edison's transmission facilities shall be documented by the Certificate Holders and provided to Staff of the Bulk Power Systems Section of DPS, Con Edison, and NYPA prior to the installation of transmission equipment. Updates to the technical information shall be furnished as available throughout the life of the Facility.

130. The Certificate Holders shall work with NYPA and Con Edison engineers and safety personnel on testing and energizing equipment and develop a start-up testing protocol

providing a detailed description of the steps that they will take to limit system impacts prior to and during testing of the Facility. Such protocol shall be provided to NYISO, Con Edison, and NYPA for review and comment and, following the review and comment phase, a copy of such protocol shall be provided to Staff of the Bulk Electric System Section of the DPS. The Certificate Holders shall comply with this protocol once established, unless NYISO provides written authorization to Certificate Holders to deviate from that protocol. The Certificate Holders shall make a good faith effort to notify DPS Staff of meetings related to the electrical interconnection of the Facility to NYPA's or Con Edison's transmission system, as applicable, and provide the opportunity for Staff to attend those meetings. The Certificate Holders shall provide a copy of the testing protocol to Staff of the Bulk Electric Systems Section of DPS.

131. The Certificate Holders shall make modifications to the Facility if it is found by the NYISO or the Commission to cause reliability problems to the New York State Transmission System. If NYPA, Con Edison, or the NYISO bring concerns to the Commission, the Certificate Holders shall be obligated to respond to those concerns. The Certificate Holders shall prepare a report within forty-five (45) days of notification by DPS Staff that DPS Staff has determined that a reliability problem exists.

132. No less than sixty (60) days prior to the Facility's anticipated COD, the Certificate Holders shall file with the Secretary, Operation and Maintenance Plan(s) for the Facility's Interconnection Facilities. The plan(s) shall be updated yearly and a copy of the updated plan(s) shall be filed with the Secretary; the plan(s) and updates shall be provided to Con Edison and NYPA.

133. The Certificate Holders shall pursue the implementation of operation measures and file

with the Secretary, no less than sixty (60) days prior to delivery of test energy from the Facility to the Astoria substation and the Rainey Substation, a report regarding implementation of any Special Protection System or other operational measures (collectively, "Operational Measures") designed to mitigate possible overloads from certain transmission outages, as well as copies of all studies, drawings, and backup documentation that support the design of such system. In addition, the Certificate Holders shall provide all documentation for the design of any such operational measures, with a complete description of all components and logic diagrams. Prior to delivery of test energy to the Astoria substation, the Certificate Holders shall provide documentation to DPS Staff that any Operational Measures to be used by the Facility have received all required approvals from all applicable authorities, including without limitation NYISO and NPCC.

134. In the event the HVDC Transmission System trips offline (other than as a result of any Operational Measures), the Certificate Holders shall notify DPS Staff, within one (1) hour of the incident. Following the incident, the Certificate Holders shall notify DPS Staff, NYPA, and Con Edison of the cause of the trip, and what actions, if any, the Certificate Holders are taking to rectify the cause. The Certificate Holders shall call and report to the Staff of the Bulk Electric Systems Section of the DPS within six (6) hours of any transmission related incident that affects the operation of the Facility. The Certificate Holders shall submit a report on any such incident within seven (7) days to the Bulk Electric System Staff, Con Edison, and NYPA. The report shall contain, when available, copies of applicable drawings, descriptions of the equipment involved, a description of the incident and a discussion of how future occurrences will be prevented. The

Certificate Holders shall work cooperatively with Con Edison, NYPA, NYISO, NPCC, NYSRC, NERC, and DPS Staff to prevent any future occurrences.

135. If there is a failure of one of the Facility's cables, the Certificate Holders shall report, within one (1) day of determining the location of the fault, to Bulk Electric System Section of DPS Staff, Con Edison, and NYPA as well as the likely location of and schedule for repairs. Any changes in the schedule shall be reported to DPS Staff, Con Edison, and NYPA.

136. The Certificate Holders shall provide the Bulk Electric System Section of DPS with a copy of their emergency procedures and contacts, and an updated copy shall be provided with documentation of any modifications.

137. The Certificate Holders shall report any theft of materials related to the Facility with a value in excess of ten thousand dollars ($10,000) to the DPS Representative within one (1) business day of the time when the theft comes to the attention of the Certificate Holders. The Certificate Holders shall provide the DPS Representative with a list of the stolen items to the extent known and a copy of any police report.

S. Mapping, Land Acquisition, and As-built Drawings for the Facility

138. Each Segment EM&CP shall include a detailed map or maps showing (a) the boundaries of the Construction Zone associated with the work to be performed in connection with such Segment, including access routes, laydown and storage areas, sampling locations, and other relevant places, and (b) the anticipated ultimate location and the anticipated boundary of the Facility ROW and, (c) in the case of overland ROW, areas associated therewith, as follows:

(i) areas within which periodic vegetative management may be necessary in

order to prevent significant intrusion of tree roots into the Facility ROW,

(ii) areas within which future ground alteration, structural construction, or other permanent installations by others generally should be precluded in order to protect the Facility and ensure appropriate access thereto for the purposes of repair and maintenance, and,

(iii) areas offering (a) continuous longitudinal access along and (b) intermittent linking access from public roads and highways or established railroad access routes to the Facility ROW.

139. Following final completion of construction of a particular Segment, the Certificate Holders shall prepare and provide to the DPS the as-built design drawings, which shall include a detailed map or maps showing:

(a) the boundary of the permanent Facility ROW and areas that will be subject to periodic vegetation management ("Final Layout Area"),

(b) the location of the Facility as installed ("As-built Design Drawings"). All As-built Design Drawings provided to DPS pursuant to this condition shall include shapefile information compatible with ArcView® GIS Software, and

(c) With respect to As-built Design Drawings that relate to installation of the Project on lands owned or controlled by the Canadian Pacific Railway, such As-built Design Drawings shall be provided to DPS staff within ninety (90) days of the completion of construction and shall conform with Section 5.5.5 of the American Railway Engineering and Maintenance-of-Way Association ("AREMA") Manual for Railway Engineering, taking into account the fact that such standard is specifically addressed to fiber optic infrastructure. With respect to As-built

Design Drawings that relate to installation of the HVDC Transmission System on lands owned or controlled by the CSX Transportation, such As-built Design Drawings shall be provided to DPS staff within ninety (90) days of the completion of construction and shall conform to an appropriate standard that is substantially equivalent in terms of detail to the AREMA standard referenced, and

(d) With respect to As-built Design Drawings that relate to submerged portions of the HVDC Transmission System, such As-build Design Drawings shall indicate areas in which the cables are laid in deep waters without cover and areas in which the cables are laid on the bottom but covered, in which case(s) the type of cover (i.e., natural bed material, rip-rap or concrete mattress cover) shall also be described.

140. Each edge of the permanent overland Facility ROW shall be no closer than (a) when located entirely within lands owned or controlled by a railroad company or a public highway, six (6) feet to the outer surface of the nearest installed cable and (b), in all other areas, eight (8) feet to the outer surface of the nearest installed cable.

141. The Certificate Holders shall acquire control of all lands within the overland Final Layout Area by fee, easement, or other appropriate interest and shall perfect, in accordance with New York State law relating to the official recordation of instruments related to land and other possessory interests, their rights to use and occupy such lands for the life of the Facility, as appropriate.

142. For each Segment EM&CP that involves municipal lands with respect to which the Certificate Holders cannot acquire control by fee or easement, the Certificate Holders shall provide to the Commission an instrument or instruments confirming that the affected municipality has consented to the use of such lands and shall in any and all

events comply with PSL § 68 with respect to exercise of rights conferred pursuant to such consents.

143. For all rights concerning property comprising the Facility ROW, the Construction Zone, off-rights-of-way access, storage or staging areas, or the like, to be acquired, the Certificate Holders shall cause an examination of title (title search) to be conducted in the same manner as would be conducted by a reputable title insurance company to identify all of-record owners, mortgagees, lienholders, leaseholders, or others with an interest in such property rights to be acquired. The Certificate Holders shall serve written notice(s) of the EM&CP filing on each such person identified, and on any person owning the land underlying an affected easement or leasehold interest of record. Such notice would include, at a minimum, the procedures and deadlines for submitting comments.

144. The Certificate Holders shall not commence any proceedings under the New York State Eminent Domain Procedure Law ("EDPL") to acquire any part of the Facility ROW areas temporarily-needed areas within the Construction Zone, or off-ROW access until the Commission has approved the relevant Segment EM&CP. To calculate the three-year period for acquisition of property pursuant to the EDPL, the date of Commission approval of a Segment EM&CP covering the affected parcel shall be regarded as the date on which this Article VII proceeding was completed. The Certificate Holders retain all rights afforded them by the New York Transportation Corporations Law and the EDPL.

T. Environmental Management and Construction Plan

145. Except where the provisions of this Certificate require otherwise, the environmental protection measures contained in the Joint Proposal and the Certificate Holders' Article VII Application, the WQC, the approved EM&CP Guidelines, and the approved BMPs

shall be incorporated into the proposed EM&CP and applied during construction, operation, and maintenance of the Facility. Applicable Conditions of this Certificate, approved EM&CP, and orders approving the EM&CP and any Segment EM&CP shall be included in any design, construction, ownership, or maintenance contracts associated with the Facility.

146. The Certificate Holders shall provide, as a part of the proposed EM&CP, a final design plan that conforms with the design of the Facility set forth in this Certificate, applicable federal, state, and local requirements (including, but not limited to, applicable regulations administered by or in connection with the OSHA, NYSDEC, OPRHP, Ag & Mkts, the APA, the Commission, NYSDOT, the Bureau of Alcohol, Tobacco and Firearms, the New York State Department of Labor, and hazardous materials, chemical and waste-storage use and handling regulations).

147. The proposed EM&CP shall identify details of nearby electric, gas, telecommunication, water, wastewater, steam, sewer, and related facilities (whether underground, aboveground or underwater) and Measures to protect the integrity, operation, and maintenance of those facilities shall be presented in the EM&CP for each Segment, which shall explain the safety procedures that will be implemented during construction of the Facility.

148. With respect to each Segment EM&CP filed with the Commission and prior to the filing of the same, the Certificate Holders shall:

a. conduct a pre-installation survey that will document the location and condition of CI within the Construction Zone that is the subject of the Segment EM&CP and identify the parties owning and operating such CI and the agencies exercising

regulatory jurisdiction over the same;

b. include the results of such survey as a part of such filing;

c. provide a detailed plan setting forth the measures that will be taken by the Certificate Holders to avoid damage to CI documented in connection with the filing and explaining how any reasonably foreseeable contingency will be met.

149. The Certificate Holders shall identify black cherry trees located in the Construction Zone near active livestock use areas during the development of each proposed Segment EM&CP. During the clearing phase, such vegetation shall be disposed of in a manner that prevents access by livestock.

150. In preparing the proposed EM&CP, the Certificate Holders shall consult with the NYSDOH to identify all PWS systems within one mile of the HVDC Transmission System facilities. The Certificate Holders shall consult with the operators or other representatives of each system to obtain information on the location of intake structures(s), plant operations, raw water quality parameters of concern including turbidity, and appropriate notification procedures. The results of that consultation shall be reported in the proposed EM&CP. The Certificate Holders shall include in their proposed EM&CP justification for any cable installation proposed to occur within five hundred (500) feet of a PWS intake and a description of alternative cable installation methods or modified methods (i.e., reduced speed and pressure) of trenching for cable installation in such areas as determined necessary based on information obtained from the PWS.

151. The Certificate Holders shall file copies of the proposed EM&CP as directed by the Secretary, and serve five (5) hard copies and two (2) copies on CD-ROMS on DPS Staff,

two (2) copies on the Staff of the NYSDEC in the Central Office in Albany, one (1) copy on each Regional Office of NYSDEC where the Facility is located, one (1) copy on the Commissioner of OPRHP, one (1) copy on staff of the Palisades Interstate Park Commission (if the Segment EM&CP relates to construction that may take place in Rockland County), one (1) copy on the Staff of Ag & Mkts., one (1) copy on NYSDOT in the Central Office in Albany and one (1) copy on each municipality and Regional Office of NYSDOT where the relevant portion of the Facility is located (if requested by such municipality or NYSDOT), one (1) copy on NYSDOS, one (1) copy on any other New York State agency (and its relevant regional offices) that requests the document, and one (1) copy on active parties on the service list who request the document (in the case of a municipality, such service shall be directed to the Chief Executive Officer thereof). Service upon state agencies shall be in the same manner and at the same time as filing with the Secretary. The Certificate Holders also shall place electronic or hard copies for inspection by the public on an internet website and in at least one (1) public library or other convenient location in each municipality in which the construction authorized in that portion of the EM&CP will take place. Contemporaneously with the filing and service of the proposed EM&CP, the Certificate Holders shall provide notice, in the manner specified below, that the proposed EM&CP has been filed.

152. The Certificate Holders shall serve written notice(s) of the filing of the proposed EM&CP or Segment EM&CP on all parties to this proceeding, as well as the relevant railroads and CI owners whose facilities, properties, and/or structures within the geographic scope of that portion of the EM&CP that may be impacted,, including but not limited to tracks and devices, and shall attach a copy of the notice so served to each copy of the proposed

EM&CP or Segment EM&CP. Further, the Certificate Holders shall publish the notice(s) in a newspaper or newspapers of general circulation in the vicinity of the Segment(s) to which the EM&CP relates.

153. The Certificate Holders shall provide notice that the EM&CP is available for review to the chief executive officer of each affected municipality and to residents, businesses, and building, structure, and facility owners and, to the extent known, operators of the same when such land uses are located within one hundred (100) feet of the HDD staging areas, off-ROW construction access roads, and the overland components of the Facility. The notice shall include, in plain language: (i) details about the planned work locations; (ii) hours and duration of activities; (iii) provisions for protection of properties, if applicable; (iv) provisions for maintenance and protection of pedestrian and vehicle access to buildings and properties; (v) identification of locations where additional information and copies of the EM&CP are available; (vi) contact information for Certificate Holders personnel, including a toll-free number; and (vii) instructions on how comments regarding construction plans and mitigation measures may be filed with the Secretary, indicating appropriate deadlines for commenting and contact information. The Certificate Holders shall also provide a hard copy synopsis of any approved Segment EM&CP for residents owning property located within one hundred (100) feet of the Construction Zone as delineated therein. Such synopsis shall include a hard copy page(s) from the approved Segment EM&CP that may have relevance to the resident's property. Proof of notice to residents, businesses, and building and structure owners shall be provided to the Secretary.

154. (a) The Certificate Holders shall provide notice to residents, businesses, and building,

structure, and facility (including underground, aboveground and underwater facilities) owners and operators within one hundred (100) feet of any HDD staging area or trenching activity with an offer to inspect foundations before, during, and after construction. The notice provided shall include the following provisions: (i) an offer to inspect building, facility, and structure foundations before, during, and after construction; (ii) an explanation of the benefits of such inspections and what documentation will be provided to building or facility or structure owners and operators; and (iii) proof of notice to residents, businesses, and building, facility, and structure owners and operators shall be provided to the Secretary. Proof of notice shall accompany filing of the proposed EM&CP.

(b) Inspections of building foundations conducted for residents, businesses, and building, facility, or structure owners or operators, or for which Certificate Holders reimburse such costs expended by any such individuals for this purpose, shall (i) provide each building, facility, or structure owner or, to the extent known, operator with documented conditions at each significant stage of construction; (ii) include photographs of any existing and post-construction damage and document measurements of foundation crack lengths during each inspection phase; (iii) provide each building, facility, and structure owner/operator a report detailing foundation condition findings; and (iv) provide a copy of each prepared report to DPS Staff within thirty (30) days of completion.

(c) HDD site preparation or trench excavation work shall not commence until all building, facility, and structure owners and operators provided with notice under sub-part (b) above have accepted or declined inspection offers, or a response has

not been received within two (2) weeks from service.

155. (a) The written notice(s) and the newspaper notice(s) of filing the proposed EM&CP or Segment EM&CP shall contain, at a minimum, the following:

(1) a statement that the proposed EM&CP has been filed;

(2) a general description of the Facility and the proposed EM&CP;

(3) with respect to the written notice(s) for identified persons with a record interest in property to be acquired or significantly disturbed by construction, a specific description of the ROW of the Facility, as applicable, temporarily needed areas within the Construction Zone, or off-ROW access to be acquired;

(4) a listing of the locations where the proposed EM&CP is available for public inspection;

(5) a statement that any person desiring additional information about a specific geographical location or specific subject may request it from the Certificate Holders;

(6) the name, address, and telephone numbers of an appropriate Certificate Holders representative;

(7) the address of the Secretary; and

(8) a statement that any person may be heard by the Commission on any matter or objection regarding the proposed EM&CP by filing written comments with the Secretary and the Certificate Holders within thirty (30) days of the date the proposed EM&CP was filed with the Commission (or within thirty (30) days of the date of the newspaper notice, whichever is

later).

(b) A certificate of service indicating upon whom all EM&CP notices and documents were served and a copy of the written notice shall be filed with the Secretary at the time the proposed EM&CP is filed, and shall be a condition precedent to approval of the EM&CP.

156. (a) For the overland portions of the Facility, construction outside the Allowed Deviation Zone, to the minimum extent necessary, as detailed and justified in an EM&CP submittal, shall be allowed for appropriate environmental or engineering reasons, except where a conflict with a specific provision of this Certificate would be created.

(b) For the HVDC Transmission System installed in Lake Champlain and the Hudson and Harlem Rivers, the Allowed Deviation Zone shall be anywhere within those bodies of water where the water depth exceeds twenty (20) feet at mean low water, and where installed in the East River the Allowed Deviation Zone for the HVDC Transmission System shall be anywhere where the water depth exceeds ten (10) feet at mean low water, provided however that:

(1) Where the HVDC Transmission System Centerline enters any of the Exclusion Zones identified on the maps contained in Appendix B to the Joint Proposal, the Allowed Deviation Zone shall be limited to one hundred and fifty (150) feet on either side of the Facility Centerline. The Certificate Holders' rights to enter into such Exclusion Zones are as follows: Prior to installation in these areas, the Certificate Holders shall provide in the EM&CP an analysis as to whether there are any reasonable

and feasible underwater alternatives outside of the Exclusion Zones that would allow for burial at the target depth of six (6) feet. No deviation in the Centerline may cause the HVDC Transmission System to enter into any of the Exclusion Zones identified in that Appendix B without (a) the Certificate Holders providing in the EM&CP an analysis that there are no other reasonable and feasible alternatives that would allow for achieving the target burial depth of six (6) feet and (b) the written consent of NYSDEC. In the event the Certificate Holders are unable to agree on a change to the Centerline governed by this subpart, the Certificate Holders shall be free to file an application for an amendment to this Certificate setting out their proposed new Centerline and the environmental and engineering considerations underlying that proposal;

(2) No deviation of over one hundred fifty (150) feet in the Centerline may cause the HVDC Transmission System to come within one hundred sixty (160) feet of any instance of "Lake Champlain Maritime Museum ("LCMM")/CHPE Marine Route Survey Cultural Resources" identified in Appendix B to the Joint Proposal without (a) the Certificate Holders providing in the EM&CP an analysis that there are no other reasonable and feasible alternatives; and (b) the written consent of the New York State Historic Preservation Office ("NYSHPO"). In the event that the Certificate Holders and NYSHPO are unable to agree on a change to the Centerline governed by this subpart, the Certificate Holders shall be free to file an application for an amendment to this Certificate setting out their

proposed new Centerline and the environmental and engineering considerations underlying that proposal; and

(3) No deviation of more than one hundred and fifty (150) feet in the Centerline may cause the Facility to be located or re-located within any Significant Coastal Fish & Wildlife Habitat identified in the NYS Coastal Management Program without:

a. the Certificate Holders providing in the EM&CP an analysis that there are no other reasonable and feasible alternatives that would allow for achieving the target depth of cover of six (6) feet;

b. the written consent of NYSDEC. In the event that the Certificate Holders and NYSDEC are unable to agree to a change in the Centerline governed by this subpart, the Certificate Holders shall be free to file an application for an amendment to this Certificate setting out their proposed new Centerline and the environmental and engineering considerations underlying that proposal;

c. a written statement from NYSDOS stating that the deviation would not result in coastal effects that differ significantly from the coastal effects reviewed by NYSDOS in Certificate Holders' original federal Coastal Consistency Certification. In the event that NYSDOS determines that such deviation would result in coastal effects that differ significantly from those reviewed in the Coastal Consistency Certification, the Certificate Holders shall seek a written concurrence from NYSDOS for any such project changes

that would require an amendment to the Certificate Holders' Coastal Consistency Certification. Nothing in this Certificate shall be construed to limit or expand any rights Certificate Holders may have to seek administrative or judicial review of any action or inaction by NYSDOS relating to any such deviation; and

(4) No significant increase in adverse effects to CI or other infrastructure results from proposed facility re-location.

157. All deviations from the design depth, height, and location of facilities or structures shall be presented in the proposed EM&CP for approval. An explanation for the proposed deviations shall be provided, with supporting documentation. Deviations shall be allowed for appropriate environmental or engineering reasons without modification to this Certificate, except where a conflict with a specific provision of this Certificate would be created. If a deviation is proposed after approval of the EM&CP, the procedures contained in Condition 158 of this Certificate shall apply.

158. The EM&CP approved by the Commission may incorporate modifications from the EM&CP proposed by the Certificate Holders. No change to the approved EM&CP may thereafter be made except in accordance with the following procedures:

a. For a proposed change that:

(i) would involve a site listed or eligible for listing on the New York State or National Register of Historic Places, the Certificate Holders shall give at least two (2) weeks prior notice to the Field Service Bureau of OPRHP.

(ii) would involve any State-regulated wetland or protected stream or water body, the Certificate Holders shall give at least two weeks prior notice to

NYSDEC, and, if within the Adirondack Park, to APA.

(iii) would affect the occupied habitat of a TE species, the Certificate Holders shall give at least two weeks prior notice to NYSDEC and to the USFWS or NMFS (where applicable) prior to providing notice to DPS staff of the proposed change.

(iv) would affect the individual or habitat supporting RTE plants, the Certificate Holders shall give at least two (2) weeks prior notice to NYSDEC and DPS.

(v) would involve agricultural land, the Certificate Holders shall give at least two (2) weeks prior notice to Ag & Mkts.

(vi) would involve the herbicides planned for use (including mixed proportions, additives or method of application), the Certificate Holders shall give at least thirty (30) days prior notice to NYSDEC.

(vii) would affect land or water owned or controlled by CNY, the Certificate Holders shall give at least two (2) weeks prior notice to CNY.

b. The Certificate Holders shall report any proposed changes to the EM&CP to DPS Staff. DPS Staff will refer to the Commission for approval any proposed changes that cause a substantial increase in environmental impact, after consultation with NYSDEC, any proposed changes that relate to contested issues decided during the proceeding, and any proposed changes affecting State highways (but need not do so if the report indicates NYSDOT's agreement to such proposed changes). DPS Staff is authorized to approve all other proposed changes, in accordance with the procedure outlined herein, and will submit

reports of such changes to the Secretary or the Secretary's designee, which reports will be posted on the Commission's website under this case number.

c. Upon being advised that DPS Staff will refer a proposed change to the Commission, the Certificate Holders shall notify all active parties that have requested to be so notified, as well as property owners or lessees whose property is affected by the proposed change. The notice shall:

(i) describe the original conditions and the requested change;

(ii) provide documents supporting the request; and

(iii) state that persons may comment by writing to the Commission within twenty one (21) days of the notification date.

d. The Certificate Holders shall not execute any proposed change until they receive written approval from the Commission (if Commission approval is required pursuant to subparagraph (a) of this paragraph) or oral or written approval from DPS Staff (in the case of a change that Staff has authority to approve) except in emergency situations threatening personal injury, property damage, or severe adverse environmental impact, or as specified in the EM&CP. When the Certificate Holders have obtained oral approval from DPS Staff for a change, DPS Staff will confirm such approval in writing within ten (10) business days.

159. The EM&CP and, as and when appropriate, a Segment EM&CP and any proposal to modify the EM&CP or a Segment EM&CP shall address, but not be limited to, the following information:

a. details of work site dimensions; construction ROW and off-ROW access needs and locations; locations and descriptions of work scheduled or planned by others

in the vicinity of the construction identified after consulting relevant federal, state, and city agencies; and measures to protect adjacent facilities, structures and vegetation;

b. documentation of methods to meet the requirements of this Certificate and incorporation of appropriate engineering standards, regarding existing road, bridge, and culvert conditions;

c. location of the utility, water, steam, sewer, and wastewater crossings and other nearby utility facilities, including CI facilities, and methods for protecting the cable and other facilities, including CI facilities, at those crossings and nearby locations; the plan shall include detailed construction techniques, methods, and equipment descriptions for the protection of existing utilities including, but not limited to, how damage to existing utilities will be avoided and how any contingency will be met in case damage does occur, and for coordination with utilities and public service providers;

d. detailed construction schedule and coordination plans, including those in connection with other utility owners and operators with respect to any work on the Facility for which coordination is required by this Certificate or other related agreement(s), including construction calendar;

e. each construction activity as discussed in Condition 58;

f. a comprehensive plan to identify encroachments within the Construction Zone as discussed in Condition 60;

g. an HDD work packet providing planning, installation controls, and site measures that will be taken in accordance with good engineering practices; including

relevant information and deliverables described in Section 8.1 of the BMPs;

h. jet plow and shear plow techniques and adjustments, including details related to crossing existing underwater facilities and infrastructure;

i. a work plan for dredging activities including specific practices to be used during dredging, dredged materials management plans, and proof of the ability to provide proper disposal;

j. drawings and specifications of any closed environmental bucket or other dredging equipment, including specifications demonstrating that appropriate design considerations are incorporated in equipment selected for deployment;

k. a pre-installation and post-energizing sediment sampling and monitoring plan, which plan will be subject to review and comment by NYSDEC and NYSDOS and will adhere to the following specifications: the plan will correspond to Attachment 2 of this Certificate, Benthic and Sediment Monitoring Scope of Study. The plan submitted to DPS Staff for approval shall include the results of the consultation with NYSDEC and NYSDOS;

l. details of cable pulling and splicing plans that include locations of any spare conduits that will be installed;

m. night time construction provisions, including lighting and noise control, and mitigation measures, including conditions when night time construction will be undertaken;

n. public road traffic control and public safety and the MPT plans as discussed in Condition 39;

o. details regarding street work, including provisions for minimizing the duration

and extent of open excavation, traffic disruptions, and work within and adjoining public streets and public street ROW;

p. public safety control provisions including practices for work near residential and publicly accessible sites; fencing around open work areas, and provisions for through traffic, and alternative access;

q. designated parking areas and equipment storage and staging locations;

r. details for drainage line repair procedure and drawings in the event of a crushed or severed drain lines;

s. provision for submission of a certification by a professional engineer licensed by the State of New York stating that, if constructed in accordance with the final design plans, the Facility shall, to the extent applicable, comply with the interim electrostatic field standard established by the Commission in Opinion No. 78-13 (issued on June 19, 1978 in Cases 26529 and 26559) and the limit for magnetic fields set in the Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities (issued on September 11, 1990 in Cases 26529 and 26559) or with any standard test that has superseded these standards at the time of consideration by the Commission of the EM&CP or a particular Segment EM&CP;

t. a work plan for reducing magnetic fields, which will include documentation of the calculation of anticipated average magnetic field levels, overland and underwater with the Facility in operation;

u. impact avoidance and/or minimization measures for regulated wetlands, streams, and other environmental resources including any maps and plan drawings of

streams, regulated wetlands, and sensitive habitat crossing locations, site-specific stream-crossing techniques for the construction of the Facility and for the construction of any access roads to be used for such construction, and selective vegetation-clearing techniques in areas near streams or regulated wetlands;

v. measures consistent with this Certificate, the Joint Proposal, the BMPs, and the EM&CP Guidelines to avoid and/or minimize impacts to TE species and RTE plants and their occupied habitat;

w. work plan for measures to be taken for protection of vegetation and visual resources of the Lakes to Locks Passage Scenic Byway (State Highway 22);

x. a notice of intent to exercise authority under the SPDES General Permit for construction activities;

y. details of erosion control plans, including grading and filling at the overland Construction Zone, Converter Station, and substation, so as to provide for the control of discharges incidental to the construction of the Facility, including to stormwater, groundwater, and surface waters, and meet applicable water quality standards;

z. methods to avoid the effects of sediment on nearby facilities and infrastructure, including avoidance techniques with respect to the clogging of outfalls and diffusers;

aa. spoil control plans for excavations, including for any materials proposed for use as backfill in the underwater or overland route, identification of its source and the evaluation of its suitability;

bb. a blasting plan that includes the information described in the BMPs;

cc. work plan for storage of all petroleum products and hazardous chemicals which may be used during, or in connection with, the construction, operation, or maintenance of the Facility, fuel and fluids spill prevention and control plans;

dd. work plans for responding to and remediating the effects of any spill of petroleum products or hazardous substances that occurs during construction of the Facility on land or in the water in accordance with applicable federal and state laws, regulations, and guidance, which shall include proposed methods of handling spills of petroleum products and any chemicals that may be stored or utilized during the construction, operation, or maintenance of the Facility;

ee. plans for pre- and post-installation bathymetry, sediment, benthic invertebrate, fish, temperature, and magnetic field surveys as described in Condition 163, and mitigation;

ff. a plan for suspended sediment and water quality monitoring consistent with Attachment 1 of this Certificate, Suspended Sediment and Water Quality Plan Scope of Study, for jet and shear plow activities, as well as removal of large debris with an area greater than nine hundred (900) square feet or longer than thirty (30) feet in any direction;

gg. invasive species control measures during construction;

hh. appropriate measures as proposed in *Karner blue butterfly (Lycaeides melissa samuelis) Impact Avoidance and Minimization Report* attached to the Joint Proposal as Exhibit 109;

ii. United States Coast Guard Notice(s) to Mariners during the occupation of any surface waters of the State of New York which may present a hazard or obstacle

to safe navigation;

jj. other mitigation measures as appropriate to demonstrate compliance with other permits and approvals;

kk. plans and specifications for site and pavement restoration, including pre-existing drainage systems;

ll. noise mitigation plan for noise sensitive sites showing the locations of residential areas and other noise-sensitive areas along the proposed ROW of the Facility and the specific procedures to be followed to minimize noise impacts related to ROW clearing, facility construction, and operation for the Facility;

mm. mitigation measures that will be employed should significant concentrations of waterfowl be encountered during fall migration when construction is proposed near the following SCFWH: Germantown-Clermont Flats, The Flats, Roundout Creek, Esopus Meadows, Vanderburgh Cove and Shallows, Constitution March, and Iona Island Marsh;

nn. plans for use of roadways for the delivery of oversized loads in the event that transportation of oversize loads by road is required. The Certificate Holders shall obtain any necessary governmental permits associated with transport of such oversized loads and provide copies of such permits to the Secretary;

oo. a plan for responding to and remediating the effects of any spill of petroleum or any hazardous substances that occurs during the construction of the Facility, in accordance with applicable state and federal law and regulations. Such plan shall be developed in accordance with such applicable laws and regulations and relevant official guidance and shall include proposed methods of handling spills

of petroleum products and any hazardous substances which may be stored or utilized during construction, operation, or maintenance of the Facility;

pp. For excavations in close proximity to buildings, walls, or other structures:

i. a description of the support system method for each such location where support is determined to be necessary;

ii. the rationale for each such location where it is determined that support systems are unnecessary; and

iii. support system designs for each location where it is determined that support is necessary; designs shall demonstrate approval by a registered professional engineer licensed in New York State.

qq. For excavations that will be below the level of the base or footing of any foundation or retaining wall:

i. a list of all locations where excavation below the base or footing of any structure is considered necessary;

ii. a description of the support system method for each such location where support is determined to be necessary;

iii. the rationale for each such location where it is determined that support systems are unnecessary per OSHA Requirements 1926.651(i)(2)(ii), 1926.651(i)(2)(iii), and 1926.651(i)(2)(iv); and

iv. support system designs for each location where it is determined that support is necessary; designs shall demonstrate approval by a registered professional engineer licensed in New York State.

160. The Certificate Holders shall also include in the proposed EM&CP a compliance

assurance plan that includes but is not limited to:

a. The name(s) of the inspector(s) selected under Condition 53 and a statement of qualifications for each inspector demonstrating sufficient knowledge and experience in environmental and construction matters to complete the inspections and audits;

b. Provision for deployment of more than one of a particular type of inspector (or types of inspectors, when appropriate) in the event that two or more major construction operations are undertaken simultaneously in areas separated by ordinary highway driving of more than three (3) hours, such that at least one inspector of a particular type shall be assigned to each such separated construction area;

c. A proposed checklist of matters to inspect for compliance, including the specific items or locations to be inspected, the inspection to be employed such as visual, auditory, testing by instrument, and acceptability criteria to be applied by the inspector(s);

d. A procedure setting forth how the Certificate Holders shall respond to and correct problems found by the inspector(s);

e. A procedure setting forth how the Certificate Holders shall respond to and correct problems identified by any utility owners or operators whose property has been damaged in any material way as a result of the construction, operation, or maintenance of the Facility;

f. A schedule for monthly environmental audits during construction and submission of audit checklists, together with a written explanation of problem(s), signed by

the independent inspectors and an authorized representative of the Certificate Holders, to DPS Staff and NYSDEC; and

g. A schedule for submission of annual environmental audits during the first two (2) years of operation of the Facility to DPS Staff, NYSDEC, and specified state and municipal agencies.

161. The Certificate Holders shall also include in the EM&CP:

a. An immediate post-installation inspection plan that shall include at a minimum: (i) the method for determining the actual cable location and actual burial depth of the cable upon completion of installation; (ii) standards to be used to determine what remedial actions are warranted consistent with Good Utility Practices (e.g., additional burial and/or protection efforts) in all locations where the cable burial depth is less than the applicable target burial depth; (iii) standards to be used to determine if any damage has been or will be caused to any pre-existing facility and/or infrastructure as a result of cable installation, operation, or maintenance, and remedial measures therefore; and (iv) the method and timing for undertaking such efforts; and

b. A maintenance and emergency action plan that shall include, at a minimum, (i) a schedule for periodic verifications, not to exceed three (3) years for overland locations and five (5) years for underwater locations, of the depth of burial of the cable and the standard to be used to determine, based upon inspection results, whether, and if so, what relocation, reburial, and/or added protection measures for the cable or pre-existing facilities or infrastructure are required; (ii) ROW vegetation maintenance plan; (iii) provisions for stabilizing erosion and resolving

drainage problems; and (iv) control of access to the ROW and facility components.

162. In order to protect CI described in Condition 27, the Certificate Holders shall include in the EM&CP:

a. an interference study, conforming to industry standards and performed by an individual or individuals with suitable qualifications to conduct such study, with respect to each location at which the Facility crosses CI or comes into such proximity to CI that an interference study is warranted by Good Utility Practices, and specifying any proposed mitigation measures;

b. a study to determine whether the Facility may have corrosive effects on any CI, conforming to industry standards and performed by individual(s) with suitable qualifications to conduct such study, and specifying any proposed mitigation measures;

c. detailed cable ampacity and thermal calculations and documentation demonstrating that CI will not be adversely affected by the construction, operation, or maintenance of the Facility; such documentation shall include study results, calculations, and underlying assumptions used in the analysis and also to include, but not be limited to, cable specification, installation cross sections, thermal resistivity (tested or assumed) and, in the case of alternating current ("AC") lines only, magnetic field studies;

d. detailed calculations and documentation demonstrating that CI will not be adversely affected by the weight and installation methodology of the Facility's cables; such calculations and documentation shall respond to and address study

results and shall set forth the underlying assumptions used in the analysis and shall also include, but not be limited to, cable specification, installation cross sections, geotechnical data (tested or assumed), and proposed mechanical protection;

e. in the event that a Segment EM&CP proposes that the HVDC Transmission System is to cross CI located on or below the beds of the Hudson, Harlem, or East Rivers or Lake Champlain ("Submerged CI"), any such Segment EM&CP shall include:

i. a technical and economic analysis and documentation (including supporting information) comparing the installation of the Facility both over and beneath such Submerged CI;

ii. a detailed explanation of Certificate Holders' plans for maintaining the existing mechanical protection of any Submerged CI during and after installation of the HVDC Transmission System's cables, including a discussion of the type and replacement of thermal sands;

iii. a demonstration based on the final design of the HVDC Transmission System of the manner in which the owners or operators of such Submerged CI would have access to repair and/or maintain its Submerged CI;

iv. where requested by the Designated Representative of the owner(s) or operator(s) of such Submerged CI, Certificate Holders shall make reasonable efforts to ensure that the route of the HVDC Transmission System is designed to cross such Submerged CI at an angle which is as

close to a right angle on the horizontal as is practicable having due regard to other route requirements; and

f. documentation showing that there will be no material interference with the ability of the owners and/or operators of any CI crossed by, or in proximity to, the Facility, to repair, operate, or maintain such CI as a result of the construction, operation, or maintenance of the Facility;

g. a full description of all measures that will be employed by Certificate Holders to protect all CI that may be affected by the construction, operation, or maintenance of the Facility, including, but not limited to, detailed construction techniques and methods, equipment descriptions, an explanation of how any contingency will be met in case damage does occur, and procedures for coordination with utilities and public service providers;

h. protocols for performing repair and maintenance work on the Facility in proximity to CI;

i. documentation showing agreement by the owners and/or operators of affected CI with both Certificate Holders' construction schedule for operations in the vicinity of such CI and the measures described in the EM&CP documents relating to such CI or a description of those aspects of the proposal that are disputed, and a discussion of the positions taken by the Certificate Holders and the owners and/or operators of the CI;

j. documentation showing agreement by CNY that CI owned or operated by CNY, whether located within the boundaries of CNY or elsewhere, has been adequately identified and protected or a description of those aspects of Certificate Holders'

proposal that are disputed and a discussion of the positions taken by the Certificate Holders and CNY; and

k. A decommissioning plan setting forth steps to be taken in the event that the Facility is permanently de-energized.

163. Within six (6) months after issuance of this Certificate, the Certificate Holders shall submit to the DPS Staff for review, comment, and approval in consultation with NYSDEC and the NYSDOS, detailed Standard Operating Procedures ("SOP") for compliance monitoring studies to be conducted in the Hudson River. The SOPs shall be consistent with the Scopes of Study attached to this Certificate:

- Benthic and Sediment Monitoring Scope of Study (Attachment 2 to this Certificate)
- Bathymetry, Sediment Temperature and Magnetic Field Scope of Study (Attachment 3 this Certificate)
- Atlantic Sturgeon Pre-Installation and Post-Energizing Hydrophone Scope of Study (Attachment 4 to this Certificate)

164. The approved SOPs required by Condition 163 shall be incorporated into the EM&CP or first Segment EM&CP that proposes to perform cable installation in the Hudson River and completion of the studies as defined by the approved SOPs shall be a requirement of this Certificate.

U. Environmental Trust

165. The Certificate Holders shall establish the Hudson River and Lake Champlain Habitat Enhancement, Restoration, and Research/Habitat Improvement Project Trust ("the Trust") solely for the purposes of protecting, restoring, and improving aquatic habitats

and fisheries resources in the Hudson River Estuary, the Harlem and East Rivers, Lake Champlain, and their tributaries, in order to minimize, mitigate, study, and/or compensate for the short-term adverse aquatic impacts and potential long-term aquatic impacts and risks to these water bodies from Facility construction and operation and for the administration of the Trust to the extent expressly authorized in these Certificate Condition.

(a) Certificate Holders shall file an agreement providing for the establishment of the Trust (the "Trust Agreement") within sixty (60) days after issuance of this Certificate. The trustee selected by Certificate Holders to oversee the Trust (the "Trustee") shall be a bank accredited by and doing business in the State of New York. Both the Trust Agreement and the selection of the Trustee shall be subject to review and approval by the Commission (in consultation with NYSDEC) and, if required, the New York State Comptroller, and Attorney General.

(b) Within thirty (30) days of the Closing, the Certificate Holders shall endow the Trust with an interest-bearing account established at the Trustee bank, with a first payment of $2.5 million. Within one (1) month of the COD, the Certificate Holders shall make a second payment of $7.21 million (the "Second Payment") into the Trust. Certificate Holders shall thereafter make annual payments to the Trust, adjusted as described below in Table 2 attached hereto, of $2.15 million on or before each anniversary of the date of the Second Payment for a period of thirty five (35) years. On the fifth (5^{th}) anniversary of the Second Payment, Certificate Holders shall make a payment to the Trust of $5 million in addition to the annual payment. On each of the seventh (7^{th}), ninth (9^{th}), eleventh (11^{th}),

thirteenth (13th) and fifteenth (15th) anniversaries of the Second Payment, Certificate Holders shall make a payment to the Trust of $1 million in addition to the annual payment described above.

(c) Within thirty (30) days of the Closing, Certificate Holders shall prepare and file with the Commission for its approval a written agreement to govern the administration and operation of the Trust (the "Governance Agreement"). The Governance Agreement shall:

(i) provide that the funding commitments of the Certificate Holders will be fixed in accordance with Table 2 attached hereto and the terms stated in this condition, and that they will not be increased for any reason or decreased except as provided for in subsections (d)(vii) and (d)(ix) of this Certificate Condition;

(ii) establish a Governance Committee consisting of: Certificate Holders; DPS Staff; NYSDEC; NYSDOS; CNY; APA; the New York State Council of Trout Unlimited; Riverkeeper, Inc.; and Scenic Hudson, Inc.;

(iii) authorize the Governance Committee to meet prior to COD to perform the preliminary work required to implement the Trust, including consideration of whether to use a third-party administrator (the "Administrator") to assist in the conduct of its business and for the administration of the Trust for tasks including but not limited to developing: (A) cash flow schedules for the Trust expenditures; (B) measures to track administrative costs; and (C) associated auditing and reporting tasks;

(iv) permit the Governance Committee to retain an Administrator, if desired by the Governance Committee, and to compensate the Administrator (if any) from monies available in the Trust;

(v) provide that members of the Governance Committee other than Certificate Holders will not be obligated to pay into the Trust and that no member of the Governance Committee, including Certificate Holders, shall be obligated to directly fund or perform any of the responsibilities of the Trustee, including compensation of the Trustee or the Administrator;

(vi) obligate the Trust to indemnify and hold harmless all members of the Governance Committee, including Certificate Holders, from liability for any and all actions and/or inactions of the Trustee, the Administrator (if any), or any representative(s) of any of them;

(vii) provide that the studies, projects and activities listed in Attachment 5 hereto totaling approximately $ 32.4 Million (the "Priority Projects") satisfy the requirements of this Certificate Condition and shall be implemented by the Administrator (or by the Trustee if no Administrator has been selected) pursuant to a schedule to be developed by the Governance Committee in order to meet the primary objectives of the Trust during its initial implementation phase. The Governance Committee, by a three quarters vote, may determine, on the basis of changed circumstances, that a Priority Project should not be implemented; and

(viii) provide that the Governance Committee shall be empowered to approve all expenditures of the monies of the Trust, provided however that no more than 75% of the monies to be provided by Certificate Holders to the Trust in any year may be designated for such Priority Projects during the first fifteen (15) years of the Trust's existence or until the Priority Projects have been completed; and

(ix) require the Administrator (or the Trustee if no Administrator has been selected) to maintain a clear written record identifying any criteria and justification for the decisions of the Governance Committee and for all expenditures by the Trust itself.

(d) The Governance Agreement shall further require that:

(i) the Governance Committee shall manage the Trust so that, over the life of the Facility, the monies of the Trust will be able to support additional studies, projects, or activities that may result from (A) the Priority Projects, (B) studies to be agreed to at a later time by the Governance Committee, or (C) information produced by the Governance Committee, consistent with the criteria set forth in this Condition 165 below;

(ii) the Governance Committee shall manage the Trust so that money remains available for future projects that were not identified in this Certificate and, from time to time, project ideas shall be solicited from the Governance Committee's members, other Federal and State Agencies or municipalities, individuals, and organizations located along the route of

the Facility, provided these ideas are consistent with the purposes of the Trust and approved by the Governance Committee;

(iii) projects and activities approved by the Governance Committee for funding shall not replace natural resource management programs funded by the General Fund of the State of New York or NYSDEC Environmental Programs, meet an obligation of the State of New York or any other party to this proceeding, or replace funding for the operation and maintenance of any project not previously funded by the Trust. The Governance Committee may, however, authorize the Administrator (or the Trustee if no Administrator has been selected) to use the monies of the Trust to carry out additional or new activities that are part of or are consistent with applicable State and Federal resource management and land use plans;

(iv) studies, projects or activities to be financed by the Trust shall have a nexus to the Facility and shall include, but not be limited to: (A) habitat restoration, enhancement, or protection; (B) habitat research; (C) fish and wildlife species restoration, enhancement, or protection; (D) stewardship activities including additional or new activities, formally adopted by the Governance Committee, that are part of or are consistent with applicable State and Federal resource management and land use plans; (E) water quality improvement (excluding projects eligible for funding under the Clean Water State Revolving Fund); and (F) scientific or administrative support to ensure coordination of Trust projects with each other and externally funded research, restoration, and stewardship projects; delivery

of final products; review of reports, data sets, and metadata; and placement of project results and data to insure public access in appropriate digital and hard copy media;

(v) prior to funding any studies, projects or activities, the Governance Committee must find that such studies, projects or activities have been proven: (A) to make a contribution to the long-term protection and enhancement of fish and wildlife species and habitats in the Hudson River Estuary, the Harlem and East Rivers, and/or Lake Champlain and their tributaries; (B) to have a strong scientific foundation; (C) to achieve identified environmental goals; (D) to be consistent with applicable State and Federal natural resource management plans; (E) to address impacts associated with the construction, operation, maintenance or security of the Facility; and, (F) to be feasible from an engineering perspective;

(vi) the Governance Committee shall give preference to projects that: (A) achieve multiple environmental goals; (B) involve multi-stakeholder collaboration; (C) feature matching funds; and/or, (D) are cost effective;

(vii) the Administrator (or the Trustee if no Administrator has been selected) shall pay any administrative costs associated with the establishment and maintenance of the Trust from any accrued interest on monies of the Trust or, if adequate interest is not accrued, such administrative costs shall be borne by the Trust, provided however that the monies of the Trust shall not be used to compensate any party, including Certificate Holders, for

participation in the Governance Committee or to reimburse any such party for any expenses incurred in such participation;

(viii) Certificate Holders' obligation to make the payments into the Trust set out above and in Table 2 attached hereto shall terminate upon receipt by the Administrator (or the Trustee if no Administrator has been selected) of documentation from the NYISO or DPS stating that the Facility has ceased commercial operation. Should the Facility resume operations, the Certificate Holders shall resume the payments to the Trust on January 1st of the following year;

(ix) if the Facility ceases permanent operation for any reason, payments owed to the Trust as of the date of the final termination and the balance of unused monies in the Trust, plus any accrued interest and minus any administrative cost, shall be retained in the Trust and administered by the Governance Committee until completely expended;

(x) the Trustee, Administrator (if any) and the Governance Committee shall all be prohibited from directly or indirectly bonding or pledging any funds to be provided by the Certificate Holders at any future date; and

(xi) in the event that any department, agency, authority, office or other instrumentality or subdivision of the State of New York shall claim ownership or control of the Trust or any of the funds paid into the Trust by Certificate Holders or any interest thereon, the Trustee shall immediately return all monies held in the name of the Trust to Certificate Holders.

Table 2: Summary of the Payment Stream for the Champlain Hudson Environmental Research and Development Trust ($ millions)

Nominal $	$117.15
2% Escalator	
Financial Close	$2.5
COD	$7.21
2	$2.15
3	$2.19
4	$2.24
5	$7.81
6	$2.14
7	$3.33
8	$2.23
9	$3.47
10	$2.32
11	$3.61
12	$2.41
13	$3.75
14	$2.51
15	$3.90
16	$2.61
17	$2.66
18	$2.71
19	$2.77
20	$2.82
21	$2.88
22	$2.94
23	$3.00
24	$3.06
25	$3.12
26	$3.18
27	$3.24
28	$3.31
29	$3.37
30	$3.44
31	$3.51
32	$3.58
33	$3.65
34	$3.73
35	$3.80

Attachment 1

CHAMPLAIN HUDSON POWER EXPRESS

SUSPENDED SEDIMENT / WATER QUALITY MONITORING PLAN SCOPE OF STUDY

1.0 Introduction

Suspended sediment and water quality sampling and monitoring (hereinafter referred to as "water quality monitoring") will be conducted during jet plow and shear plow pre-installation trials, and during cable installation. Water quality sampling and monitoring will consist of collecting water samples for analysis of turbidity, total suspended solids (TSS) and chemical constituents at specified transects and real-time monitoring for turbidity. Jet plow trials will be conducted in the Hudson River and Lake Champlain and shear plow trials will occur in the south lake area of Lake Champlain. Trial runs shall evaluate operational modifications including speed and pressure reduction and their influence on resuspension, to the extent possible given that operational changes will have different effects depending on sediment types and hydrodynamics. Water quality monitoring for physical and chemical constituents will take place over the entire in-water cable route in Lake Champlain, the Hudson River, Harlem River and East River.

Within 6 months of the effective date of the 401 Water Quality Certificate, CHPE shall submit a draft "Suspended Sediment / Water Quality Monitoring Plan" for review, comment, and approval to the New York State Department of Public Service ("DPS") Staff in consultation with the New York State Department of Environmental Conservation ("NYSDEC"). The work plan will provide specifications for the following program elements.

2.0 General Sampling and Monitoring Procedures

The physical and chemical characteristics of the ambient background water conditions and the sediment re-suspended by the installation equipment will be determined through water sampling at selected transects and subsequent laboratory analysis. Sampling will be conducted downcurrent of the installation equipment and at upcurrent control (i.e., background) stations.

TSS and turbidity monitoring will use a similar upcurrent and downcurrent transect approach. Samples will be collected along transects approximately 500 feet upcurrent and 500 feet downcurrent of the installation equipment. A combination of calibrated acoustic (ADCP) and optical backscatter (OBS) instruments will be used to measure water column TSS and turbidity on selected transects. Companion water samples will be collected and analyzed for TSS and turbidity. The OBS will be mounted on a datasonde measuring conductivity (salinity) and temperature. The laboratory derived TSS data will be used to calibrate the ADCP and OBS instrumentation during jet plow trials of selected operating conditions and to provide a calibration check during cable installation.

3.0 Water Quality Sampling – Pre-Installation

Water Column Sampling

Water column sampling stations will be distributed at one mile intervals along the proposed Project route within all SB and I waters. Sampling will occur during the season where it is expected that cable installation will occur in these water bodies. All monitoring and sampling methods will be performed in accordance with an approved Quality Assurance Project Plan (QAPP) or referenced standard operating procedures (SOPs).

Water quality samples will be collected and analyzed for the chemical parameters identified in Condition 14 of the 401 Water Quality Certification. Samples will be collected at near-surface, mid-depth, and near-bottom. An elevated level of care will be exercised during the collection of mercury samples to preclude contamination of either the samples or the field blanks. Mercury samples will be collected in accordance with EPA method 1669 or another method agreed upon by CHPE, NYSDEC, and NYSDPS. Water samples for the required parameters will be sent to a New York State Certified Laboratory for analysis in accordance with the methods prescribed in Condition 14 of the 401 Water Quality Certification.

Pre-Installation Trials

As detailed in Section 5 below, Pre-installation trials of the jet plow and shear plow equipment will be conducted to simulate cable installation and refine operating configurations. During these trials within all SB and I waters, water quality samples will be collected and analyzed for the chemical parameters identified in Condition 14 of the 401 Water Quality Certification. The collection procedures followed will be the same as those for the cable installation water quality sampling, which is described in Section 4.0 below.

Water samples for the required parameters will be sent to a New York State Certified Laboratory for analysis in accordance with the methods prescribed in Condition 14 of the 401 Water Quality Certification. Water samples will be delivered to the laboratory within 24 hours or in accordance with allowable holding times of the applicable method, whichever is shorter.

4.0 Water Quality Sampling – Cable Installation

Water quality samples will be collected and analyzed for the chemical parameters identified in Condition 14 of the 401 Water Quality Certification.

Water samples will be collected along transects approximately 500 feet upcurrent and 500 feet downcurrent of the installation equipment in the Hudson River where tidal currents dominate water movement. In Lake Champlain, the distribution of transects will reflect water movement patterns detected by the ADCP, which provides current direction and velocity. The backscatter data from the ADCP will be used to identify the likely area for re-suspended sediment for water quality sampling. Samples will be collected at near-surface, mid-depth, and near-bottom at 500 feet upcurrent and downcurrent from the installation equipment at each sampling location. Water samples will be collected at the same location where the TSS water samples are taken (where the highest acoustic backscatter intensity was observed to the extent practicable in the

field). An elevated level of care will be exercised during the collection of mercury samples to preclude contamination of either the samples or the field blanks. Mercury samples will be collected in accordance with EPA method 1669 or another method agreed upon by the Certificate Holder, New York State Department of Conservation (NYSDEC) and New York State Department of Public Service (NYSDPS).

Water samples for the required parameters will be sent to a New York State Certified Laboratory for analysis in accordance with the methods prescribed in Condition 14 of the 401 Water Quality Certification. Water samples will be delivered to the laboratory within 24 hours or in accordance with allowable holding times of the applicable method, whichever is shorter. Laboratory processing will be completed in 72 hours from laboratory receipt. The analytical results will be reviewed by the Certificate Holders and the results submitted to NYSDEC, New York State Department of State (NYSDOS), New York State Department of Health (NYSDOH), and NYSDPS within one day of receipt from the laboratory via email. The Certificate Holders will provide quality control analysis to the NYSDEC, NYSDOS, NYSDOH, and NYSDPS via email within fourteen days of laboratory receipt.

5.0 TSS Sampling and Monitoring – Pre-Installation Trials

Pre-installation trials of the jet plow and shear plow equipment will be conducted to simulate cable installation and refine operating configurations. These trials will be conducted in actual field conditions within representative sections or areas proximate to the proposed underwater cable route in Lake Champlain and the Hudson River. The trial will include approximately 1,000 feet of jet plow operations and 1,000 feet of shear plow operations within the dominant sediment types (e.g. sand, silt) to simulate actual cable installation to design burial depth. Re-suspended sediment (i.e., the sediment plume) associated with the trials will be monitored using the ADCP, OBS vertical profiles and water samples as described above. Trials will allow the testing of equipment operation settings in order to minimize resuspension of sediments while achieving target burial depth. In addition, the trials will provide an opportunity to refine suspended sediment monitoring procedures including the calibration of acoustic, optical backscatter and water sampling equipment, as well as communication and safety protocols between the monitoring and installation crews. Procedures for TSS monitoring may be modified based on the findings of the pre-installation trial. Modifications may include adjustment of transect locations, number of water samples collected, methods for deploying equipment, and the procedures for correlating water samples with instrument monitoring. Any modification to this monitoring plan would be coordinated with NYSDEC and NYSDPS and then be submitted to NYSDPS for approval.

Water samples will be collected at multiple points in the tidal cycle in the Hudson River to generate data required to develop curves for calibration of the ADCP and OBS sensors. The calibration will consist of a regression type analysis. Once calibration procedures have been completed, a calibration curve will be generated and provided to NYSDEC Staff and NYSDPS Staff prior to the commencement of cable installation. The calibration curves will be updated based on data collected during the cable installation.

If the jet plow or shear plow trials demonstrate that the preferred operating conditions result in

real-time TSS concentrations, measured 500 feet down-current of the jet plow in the Hudson River and northern portion of Lake Champlain, exceeding the TSS concentrations at an up-current background station by more than 200 mg/L, the Certificate Holder shall report such conditions to the Aquatic Inspector and work with the Staffs of NYSDPS and NYSDEC to evaluate and implement modifications to the plow operating conditions to further reduce *in-situ* sediment suspension associated with the single pass installation procedure. If the shear plow trials demonstrate that the preferred operating conditions result in real-time TSS concentrations, measured 500 feet down-current of the southern portion of Lake Champlain (south of Crown Point), exceeding the TSS concentrations at an up-current background station by more than 100 mg/L, the Certificate Holder shall report such conditions to the Aquatic Inspector and work with the Staffs of NYSDPS and NYSDEC to evaluate and implement modifications to the plow operating conditions to further reduce in-situ sediment suspension associated with the single pass installation procedure. The Certificate Holders shall not utilize the jet plow or shear plow until they have successfully demonstrated their ability to achieve the TSS standards established in the 401 Water Quality Certification. Review of this information by NYSDPS and NYSDEC staffs shall not unreasonably delay the commencement of installation of the underwater cable system.

6.0 TSS Monitoring – Cable Installation

TSS monitoring will be conducted in accordance with procedures established during jet plow and shear plow trials and will be modified as needed during installation operations. Water samples collected for TSS analysis will be sent to the laboratory within 24 hours of collection. TSS samples will not be batched since the results will be used during installation to update calibration curves. Laboratory TSS results will be available 24 hours after receipt by the laboratory. The calibration curves will be updated based on laboratory results on a daily basis.

Sediment resuspension during embedment will be monitored along transects oriented perpendicular to the direction of current flow. The characteristics of the suspended sediment plume created by jet plow/shear plow embedment will be monitored in real-time using an ADCP and a CTD-OBS vertical profiler. Water samples for laboratory analysis of TSS will also be collected from a designated location at each transect. The ADCP and CTD-OBS instruments will be calibrated to measure suspended sediment concentrations during embedment through quantitative relationships between the ADCP, CTD-OBS, and TSS established during Pre-Installation Trials and updated and refined throughout the embedment monitoring. Monitoring of the suspended sediment plume will be conducted twice daily. In the tidal portion of the Hudson River, monitoring will be conducted once during ebb tide and once during flood tide.

Real-time monitoring will consist of ADCP measurements and CTD-OBS profile measurements taken along two route-perpendicular transects. The first transect will be conducted approximately 500 feet up-current of the operating jet plow/shear plow (or at reasonable safe survey distance up-current of the plow) to measure ambient or background TSS conditions. The down-current transect will be conducted 500 feet down-current of the installation device.

Along each transect, the ADCP will provide horizontal and vertical profiles of current velocities and acoustic backscatter intensity at the point of measurement. At the conclusion of each transect a CTD-OBS vertical profiler system will be deployed and collected at the location where

the highest acoustic backscatter intensity was observed by the ADCP. Water samples will also be collected at this location for laboratory measurement of TSS from three depths (near-surface, mid-depth, and near bottom). Water samples will be shipped to a New York State Department of Health certified laboratory for analyses.

If, during underwater cable installation, (1) TSS concentrations monitored or measured at 500 feet down-current of the jet plow in the Hudson River and Lake Champlain north of Crown Point exceed TSS concentrations at an up-current background station by more than 200 mg/L at the corresponding depth; or (2) TSS concentrations monitored or measured at 500 feet down-current of the shear plow in Lake Champlain south of Crown Point) exceed TSS concentrations at an up-current background station by more than 100 mg/L at the corresponding depth, then the Aquatic Inspector shall be immediately notified. The Certificate Holders also must attempt to notify the NYSDEC and NYSDPS within 24 hours of any such TSS exceedance. The Certificate Holders shall employ the mitigation measures prescribed in accordance with Condition 14(c) of the WQC. If the Certificate Holders propose to employ mitigation measures not otherwise provided for in accordance with Condition 14(c) of the WQC, they must first consult with the NYSDPS, NYSDEC, and the Aquatic Inspector. In the event that NYSDPS determines that the mitigation techniques are unable to reduce TSS concentrations below the maximum allowable threshold, underwater cable installation will be suspended and the Certificate Holders shall consult with NYSDPS and NYSDEC regarding alternative cable installation techniques. Nothing in this subsection is intended to require that cable installation methods be modified in a manner that would inhibit the cable installer from burying the cable to the depths specified herein through a single installation pass.

7.0 Sampling and Monitoring Schedule

Water quality and TSS field monitoring will be conducted continuously during cable installation in Lake Champlain, the Hudson River, and Harlem River (and East River, as appropriate) during hours of operation. Monitoring will be conducted for the duration of the cable installation. Based on a review of the methodology and results of the installation monitoring program, a monitoring program for potential cable repair in the future will be developed.

8.0 Reporting

A report of the results of the pre-installation water quality sampling will be provided with the applicable Project segment of the proposed EM&CP. The report will include any recommendations for modifying the action levels contained in Condition 14 of the 401 Water Quality Certification.

Results of the pre-installation trials will be summarized along with any findings or recommendations for procedures to be followed during cable installation. These results will be summarized in a brief letter report and provided to the NYSDEC, NYSDOS, NYSDOH, and NYSDPS prior to in-water installation of the cables. The final report will include the correlations between optical and acoustical backscatter data and corresponding TSS results from water samples.

Once cable installation activities begin, available monitoring data results will be reported daily.

After completion of cable installation activities, a final report will be prepared that will include a description of procedures followed during the monitoring program, field data results, analytical testing data results, and accompanying QA/QC data. The final report will include the correlations between optical and acoustical backscatter data and corresponding TSS results from water samples. The report will also include a comparison of TSS results to permit-required thresholds and a comparison of water quality results to relevant water quality standards. The final report summarizing the results of the suspended sediment/water quality monitoring program will be submitted to the Secretary of the New York State Public Service Commission (PSC), NYSDEC, NYSDOS, NYSDOH, and NYSDPS within one year of the completion of installation.

Within one year of project completion, an analysis comparing the actual TSS results obtained during installation to the previous model TSS concentration predictions will be submitted to the Secretary of the PSC, NYSDEC, NYSDOS, NYSDOH, and NYSDPS. This analysis will include a table and a quantitative analysis (statistical analysis if possible) comparing the actual and predicted results. This comparison should be conducted in a section of the Lake and the River for jet plow operations and in the southern portion of the Lake for shear plow operations.

Attachment 2

CHAMPLAIN HUDSON POWER EXPRESS

BENTHIC AND SEDIMENT MONITORING SCOPE OF STUDY

1.0 Introduction

Pre- and Post-Energizing Benthic Monitoring and Sediment Sampling programs will be developed based on final Certificate Condition 163. For each program, pre-installation surveys will be conducted. Benthic post-energizing surveys will be conducted: (1) three (3) years after installation, assuming cable energizing; and (2) when the transmission system is operating at 500 to 1,000 MW if it is not doing so three years after installation. Sediment post-energizing sampling will be conducted three (3) years after installation at the same time as the first benthic sampling event. The benthic macroinvertebrate and sediment sampling locations will be selected so as to represent the primary sediment environments and characteristic sediment types traversed by the cable.

The Pre- and Post-Energizing Benthic Monitoring Program and the Sediment Sampling Program activities will include:

- Development of monitoring Work Plans,
- Sample Collection and Laboratory Analysis, and
- Development of Draft and Final Reports.

2.0 Development of Pre- Installation and Post-Energizing Monitoring Work Plans

The work plans for both benthic macroinvertebrate sampling and sediment chemistry will be developed based on the Article VII Certificate Conditions. Once the work plans are developed, they will be submitted to the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of State (NYSDOS) for review and comment. The plans will then be submitted to the New York State Department of Public Service (NYSDPS) for approval and the submission will include the results of the consultation with the NYSDEC and NYSDOS.

3.0 Benthic Sample Collection and Laboratory Analysis

Benthic sampling will occur in Lake Champlain and the Hudson River. The methodology of Maher and Cerrato (2006) will be used to refine the sampling effort for each biotope selected for benthic macroinvertebrate monitoring, where previously collected geophysical data is used to direct subsequent environmental and faunal sampling.

In Lake Champlain, geophysical surveys and sediment cores were collected in the Spring 2010 marine route study (as described in Attachment E of the Supplement to the Champlain Hudson Power Express Article VII Application). Geophysical surveys described surficial sediments as relatively fine grained, with some areas containing coarse grain surficial sediments. A review of existing literature may allow for additional stratification of potential sample locations but it is anticipated up to 30 samples will be collected within Lake Champlain.

In the Hudson River (from Cementon to Yonkers, excluding Haverstraw Bay), sediment characteristics will be based on the sediment provinces identified by the NYSDEC Benthic Mapping Project (Bell et al. 2006). Because this reach of the estuary spans the lower freshwater segment and a gradient of salinity from the transition between fresh and low salinity water to relatively high salinity, for study design purposes the study reach will be divided into three (3) salinity zones: freshwater, low salinity and high salinity, to reflect the expected benthic faunal differences associated with the salinity gradient.

The sampling locations will be selected so that the primary sediment environments encompassing a range of substrate types (i.e. grain size) traversed by the cable will be sampled in the three salinity zones, if they occur there. The sediment environments of the Hudson Estuary have been grouped into three (3) principal types: erosion, deposition and dynamic, and further categorized into sub-types within each principle type. The distribution of these sediment environments are such that many are not traversed by the cable. For example, erosional environments, which cover relatively infrequently, were avoided to the extent possible, during siting of the cable route so that the cable would not traverse exposed rock. In addition, some sediment environment subtypes are associated with inshore areas while the cable was sited in relatively deep water.

Based on this approach, benthic samples will be collected at each of the following sediment environments and substrate types based on the current Project route. This listing will be updated once the final routing has been selected based on the construction marine route survey. The sampling locations will be situated such that the samples are representative of a specific biotope, i.e., an area with homogenous environmental and biotic characteristics. The sampling locations will avoid transitional areas between sediment environments.

Salinity Zone	Sediment Environment	Substrate Types
Freshwater	Dynamic-Waves	sand
	Deposition-Unrestricted Thickness	muddy sand
	Dynamic-Scour	sand
	Deposition-Thin	muddy sand
	Dynamic Lineation	muddy sand
Low Salinity	Dynamic-Waves	sandy mud
	Deposition-Thin	mud
	Dynamic-Drift	sandy mud
	Dynamic-Scour	sandy mud
High Salinity	Dynamic-Scour	gravelly mud
	Dynamic-Waves	sand
	Dynamic-Drift	sandy mud
	Deposition-Unrestricted Thickness	mud

Approximately ten (10) samples will be collected at each location during the pre- and post-energizing programs. Maher and Cerrato (2006) found in a study to estimate benthic sampling

effort needed to define species richness that coarser bottom types with low biodiversity may require less sampling effort than finer-grained more diverse biotopes. Samples will be allocated among disturbed (i.e., within 100 feet of the proposed cable route) and undisturbed (i.e., outside of the proposed cable route) locations for suitable comparison. Benthic grabs will be obtained with a $0.1m^2$ Smith-McIntyre Grab. Sampling will take place during late spring and early summer for the pre-installation survey and as close as possible to this time for the post-energizing survey to allow for comparison.

Benthic grab samples will be split in two and analyzed for species composition and abundance and sediment grain size. One half will be used for sediment grain size and the other half will be brought back to the laboratory where organisms will be sorted, identified and enumerated. If the number of organisms in a sample is large (>500), the samples will be sub-sampled. Replicate samples will be collected and archived. Archived samples will be analyzed if needed based on power analysis and Maher and Cerrato (2006) method.

The sediment samples will be sorted into standard phi sizes (Wenthworth, C. K., 1922) and the mean and standard deviation will be determined. The final report will include a table showing the percentage value of each phi class present in each sample (percentages total 100%). Along with biological and grain size analysis for each station, water quality parameters (i.e., salinity, dissolved oxygen, conductivity, temperature and total suspended solids) will be measured at each sampling location.

Upon collection of the benthic macroinvertabrates, a stringent Quality Control (QC) program will be followed during sample sorting, enumeration, identification, and water quality parameters to ensure accuracy.

4.0 Sediment Sample Collection and Laboratory Analysis

Sediment surveys will be conducted to characterize existing and post-energizing sediment conditions proximate to the cable in Lake Champlain, Hudson River, Harlem River, and East River. Sediment collections in Lake Champlain and the Hudson River will be made at or near the benthic macroinvertebrate sampling stations as described above. In the Harlem River and East River, it is anticipated up to three samples will be collected during each sample event. Sediment sampling locations will be recorded using a Global Positioning System (GPS) unit and brought into a Geographic Information System spatial database. The post-energizing survey will occur following cable installation and sampling locations will be made at or near pre-installation survey locations.

Surficial sediment grabs will take, as nearly as possible, the upper two (2) centimeters of the substrate, and three (3) samples will be obtained at each location; one (1) sample will be collected along the Project route and one (1) sample will be collected approximately one-hundred (100) feet from each side of the Project route for a total of three (3) samples per location.

Laboratory analysis of sediments in Lake Champlain will include the following parameters: arsenic and copper. Laboratory analysis of the sediments in the Hudson River, Harlem River and East River will include the following parameters; arsenic, cadmium, copper, lead, mercury, zinc, total PCBs (22 congeners), and total PAHs. The sampling protocols will reference the

USACE/Environmental Protection Agency Regional Testing Manual for Dredged Materials,

Upon collection of the sediment samples, a stringent Quality Control (QC) program will be followed during laboratory analyses, where one (1) QC sample will be analyzed for every ten (10) samples collected.

5.0 Development of Draft and Final Reports

A report will be prepared for each the pre- and post-energizing sampling programs. These final reports will include a description of procedures followed during the monitoring program, field sampling results, analytical testing data results, and accompanying QA/QC data and interpretation. The post-energizing final report will also include a comparison of existing and post-energizing benthic communities and sediment characteristics.

Benthic community biodiversity will be measured via taxa richness, the Shannon-Wiener Diversity Index, and evenness (or equitability). Benthic community comparisons will be made using Analysis of Variance (ANOVA) to test for significant differences among groups of sample means. A Before-After-Control-Impact design will be used to test for a significant interaction effect between Period (i.e., Before and After) and Location (i.e., Control and Impacted) (Thomas et al. 1978, Green 1979, Smith et al. 1993, Smith 2002).

As benthic community composition, abundance and diversity are highly dependent on water quality and sediment properties, a multivariate discriminant analysis (MDA) will also be used as appropriate to analyze the physical and chemical data collected regarding water quality and sediment temperature. Sediment characteristics will also be compared to applicable standards or criteria.

The final reports summarizing the results of the Pre- and Post-Energizing Benthic Monitoring and Sediment Sampling programs will be submitted to the NYSDEC, NYSDOS, NYSDPS Staff, and the Secretary of the New York State Public Service Commission within one (1) year of completing the sample collection.

6.0 References

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Attachment 3

CHAMPLAIN HUDSON POWER EXPRESS

BATHYMETRY, SEDIMENT TEMPERATURE, AND MAGNETIC FIELD SCOPE OF STUDY

1.0 Introduction

Cable installation and burial in Lake Champlain, Hudson River, Harlem River and East River would temporarily disturb and/or alter the sediment and bottom substrates. The bulk of the sediment disturbed will resettle in the trench created by the jet plow or shear plow, with some sediment potentially accumulating along the trench edge. Natural processes that control scour and deposition are expected to re-establish the original bottom contours along the cable route. The rate of recovery of the bottom contours will vary by sediment type and the hydrodynamic factors in different parts of the lake and river bottom. Post-installation bathymetric surveys will be used to monitor recovery of the bottom substrate.

The energized transmission cables have the potential to impact magnetic fields in the near vicinity of the cable and dissipate heat to the surrounding substrate. Modeling of magnetic fields and sediment temperature has predicted small changes to these physical conditions. Monitoring will provide measurement of magnetic field and sediment temperature for comparison with modeling predictions and conditions prior to cable operation.

2.0 Bathymetric Monitoring

High resolution multibeam sonar and side scan sonar will be used to survey a 30-foot wide swath centered on the cable route prior to installation. The bathymetry survey will be repeated one year after the cable installation and then three years after cable installation. Initially (year one), the entire cable route will be surveyed to compare with the bottom elevations of the pre-installation survey. Where the substrate has returned to the pre-installation configuration, these segments will not be resurveyed during any subsequent survey. If a cable segment has not returned to pre-installation condition after three years it will be resurveyed after five years (eight years after cable installation). This survey will provide a check on the long-term stability of the substrate on the cable route. The surveyed route will be recorded so that the past installation surveys for physical conditions can follow the cable route and can return to any selected survey locations.

Bathymetric surveys will result in a horizontal grid of water bottom elevations with a grid spacing of one meter. Elevations of the water bottom should be reported relative to NAVD88 and Mean Lower Low Water (MLLW) National Tidal Datum Epoch (1983-2001). Surveys will be conducted so as to achieve 100% coverage in the survey area with at least one depth reading for every square meter. Navigation shall be conducted so as to achieve or exceed the resultant elevation/depth accuracy, the horizontal positioning system accuracy, and reported feature horizontal

location accuracy described for general surveys and studies in Army Corps of Engineers Manual 1110-2-1003 (ACOE manual) (http://140.194.76.129/publications/eng-manuals/em1110-2-1003/toc.htm). This is substantially the same horizontal position accuracy as described in NOAA NOS Hydrographic Surveys Specifications and Deliverables (2008) (NOS manual) (http://www.nauticalcharts.noaa.gov/hsd/specs/specs.htm). If these two manuals indicate conflicting specifications, the New York State Department of Public Service (NYSDPS) in consultation with the New York State Department of Environmental Conservation (NYSDEC) and the Certificate Holders shall determine which specification applies. Since models for the tidal variations in the estuary are not adequate to predict tidal variations for survey purposes, real-time kinematic (RTK) differential global positioning system (DGPS) techniques are necessary to meet the required standard.

3.0 Magnetic Field Survey

At selected locations along the cable route a pre-installation and post-energizing magnetometer survey will be conducted. These locations will include sensitive habitats where the cable route encroaches into small portions of Significant Coastal Fish and Wildlife Habitats (SCFWH) and designated exclusion zones indentified during the settlement discussions for the cable route corridor. The cable avoids all shallow water SCFWH's with an upland route in the upper estuary and is confined to relatively deep water in the middle and lower estuary. In Lake Champlain, the monitoring sites will include deep water areas of the central lake and shallow water in the south lake area. The post-energizing survey will occur three (3) years after installation, assuming cable energizing, or when the transmission system is operating at 500 to 1,000 MW if it is not doing so three years after installation. The post-installation survey will be conducted within the same season as the pre-installation survey.

The Certificate Holders will develop a study plan on the magnetic field survey. The study plan will provide a discussion of the width of the survey corridor as well as the grid size necessary to allow for adequate comparison of natural conditions (including natural anomalies and noise) against magnetic field effects due to cable installation. The study plan will also include a recommendation on appropriate survey equipment, which may include but is not limited to surface-towed magnetometer, bottom-towed magnetometer, or magnetic gradiometer. Once the study plan is developed, they will be submitted to the NYSDEC and New York State Department of State (NYSDOS) for review and comment. The plans will then be submitted to the NYSDPS for approval and the submission will include the results of the consultation with the NYSDEC and NYSDOS.

4.0 Sediment Temperature Survey

The Certificate Holders will survey sediment temperature and thermal resistivity along the cable route both pre-installation and post-energizing at select locations. Sediment temperature will be measured directly with a temperature probe inserted into the bottom. Temperature measurements will be made one foot above the cable, at the mid-point between the cable and sediment/water interface and at the sediment/water interface. Measurements will be taken at the same depth at horizontal distances of 3 ft. and 6 ft. from the centerline of the cable. The post-energizing survey will occur three (3) years after completion of cable installation, assuming cable energizing, or when the transmission system is operating at 500 to 1,000 MW if it is not

doing so three years after installation. The post-energizing survey will be conducted during the same season as the pre-installation survey.

At shallow water stations, a diver will be used to operate the temperature probe. At deep water sites, a small platform containing the temperature probe will be lowered to the bottom over the cable and at the selected distances from the cable. The depth of the probe will be controlled from the survey vessel. At each measurement point the probe will be allowed to equilibrate before recording the reading.

The sediment temperature and thermal resistivity sampling survey locations will include the locations where prior magnetometer readings have been collected, though the temperature survey may not be completely duplicative of such area. Because temperature is a point reading, the measurement site will avoid areas that may correspond to a transition point in substrate types. The sediment temperature readings at any site will be in uniform substrate conditions. In selecting survey locations, a variety of substrate types will be included.

The Certificate Holders will develop a study plan on the sediment temperature and thermal resistivity survey. The study plan will provide the locations of where surveys will be completed and provide recommendation on appropriate survey equipment. Once the study plan is developed, they will be submitted to the NYSDEC and NYSDOS for review and comment. The plans will then be submitted to the NYSDPS for approval and the submission will include the results of the consultation with the NYSDEC and NYSDOS.

5.0 Development of Draft and Final Reports

Separate reports will be prepared for each bathymetric, magnetic field and sediment temperature sample event. These final reports will include a description of procedures followed during the monitoring program, field data results, and accompanying QA/QC data. The post-installation final reports will also include a comparison of bathymetric, magnetic field and sediment temperature characteristics pre- and post-installation. Each report will be submitted to the Secretary of the PSC, NYSDEC, NYSDOS, and NYSDPS within one years of completing the field work.

Attachment 4

CHAMPLAIN HUDSON POWER EXPRESS

ATLANTIC STURGEON
PRE- AND POST-ENERGIZING SCOPE OF STUDY

1.0 INTRODUCTION

A Pre- and Post-energizing hydrophone study ("Study") to determine the movements of adult Atlantic sturgeon in the Hudson Estuary will be developed based on Certificate Condition 163. The Study will compare Atlantic sturgeon movement patterns in the following programs: 1) a pre-energizing monitoring event, and 2) a post-energizing monitoring event with the same type of equipment in the same area as the pre-energizing monitoring event. The pre-energizing monitoring event may occur prior to cable installation to accommodate the overall project schedule; however, it should occur no sooner than three (3) years before the anticipated post-energizing monitoring. The Study will be conducted as part of the Certificate Holders' compliance monitoring requirements to document Atlantic sturgeon movements in relation to cable operation. The Study will be designed so as to allow for integration with similar research in the area.

Study activities will include:

- Development of a work plans for all three program elements;
- Equipment deployment and maintenance;
- Analysis of data; and
- Report preparation.

2.0 DEVELOPMENT OF WORK PLAN

The study program work plan will be coordinated with New York State Department of Environmental Conservation (NYSDEC) and will be revised following comments and consultation with NYSDEC. The draft plan will then be submitted to New York State Department of Public Service (NYSDPS) for approval with a summary of the consultation with NYSDEC. The work plan will provide specifications for the following program elements.

Equipment

The work plan will provide a recommendation for the acoustic transmitters which will be surgically implanted into the fish based on factors including but not limited to signal strength, design life, ability to provide 3-D positioning, compatibility with similar ongoing research and longevity in the field. Acoustic transmitters must be compatible with acoustic equipment currently in use by the NYSDEC Hudson River Fisheries Unit. The acoustic tags will broadcast

a unique MAP (CDMA) acoustic signal at a pre-selected frequency and period. It is anticipated that up to 50 adult sturgeon would be collected at a location in the lower estuary (e.g., Haverstraw Bay) or in the spawning area (near Hyde Park) and implanted with the acoustic tags. The final numbers of fish to be tagged will be developed as part of the work plan. Twenty-two Atlantic Sturgeon are presently carrying long term (5 year) transmitters, in addition to 20 fish with short term transmitters. Fish were tagged by NYSDEC during 2006-2008 tagging and active tracking efforts. The long-term tags are expected to continue transmitting until 2013.

The work plan will also provide recommendations for the fixed receivers based on factors including but not limited to anticipated deployment depth, battery life, field longevity, and potential for remote data downloading. Each fixed receiver consists of a hydrophone (underwater microphone element) and a co-located signal processor and data storage and batteries, which together are referred to as a submersible data logger (SDL). The SDLs will be moored off the bottom in a stable, upright position. The details of the mooring equipment and the calibration of the units will be included in the plan.

Placement of SDLs

To determine movement patterns of Atlantic sturgeon within the designated study area, SDLs will be deployed to five (5) known Atlantic sturgeon congregation areas in the Hudson River estuary; the general study area is bounded by Crum Elbow to the south and Rondout Creek to the North (see Figure 1). One area would be located at Crum Elbow; one will be located north of Crum Elbow; one will be located at Esopus Meadows, one would be located near Dinsmore Point and the remaining area will each be south of Indian Kill. This will divide the estuary width at each transect into several north-south segments as determined by shoreline/channel width along the study area reach (and therefore, the final number of SDLs deployed along each transect) and will divide the longitudinal reach into five segments. The pre-installation study of sturgeon distribution across these areas will be compared to sturgeon distribution after the cable is energized. By comparing the distribution of sturgeon in areas containing the cable with areas without the cable, one could determine if sturgeon demonstrate preference, avoidance or no response to the presence of the cable.

Based on expectations of effective detection range from studies in comparable estuarine conditions, it is anticipated that up to approximately 10 to 12 (twelve) SDLs will be deployed in each area or array (Figure 1) to allow for effective trilateration, as a means of documenting movement patterns within and across each area. SDLs would be positioned so as to maximize the potential for any tagged sturgeon passing through the instrumented area to be detected by at least three (3) SDLs (at least 50 SDLs deployed in total).

While previous studies using comparable equipment in large rivers or estuaries have indicated a potential operational distance of up to 300+ meters between trilaterating SDLs, a number of environmental and operational constraints (e.g., weather, passing vessels, conductivity, temperature, depth) may determine the optimal spacing and orientation of SDLs within the designated study area. The final number of SDLs to be deployed within each area may be less or more than twelve (12), depending on channel width, depth profiles of the channel along each transect, and the results of initial range testing. SDLs will be placed within close proximity to each

other such that 100% overlap in detection range is exceeded, to account for worst case conditions. The actual orientation and position of SDL arrays would also be optimized through review of available information from NYSDEC on potential sturgeon aggregation zones within the designated study area, as determined by active-tracking studies conducted during 2006-2008.

3.0 EQUIPMENT DEPLOYMENT AND MAINTENANCE

SDL arrays will be installed in April and removed in October by the Applicants to prevent ice damage to the equipment and allow for safe installation. The timing of the deployment of SDLs will be coordinated with NYSDEC and NYSDOS in each year. Range testing will need to be conducted in advance of actual SDL deployments, either during April of the anticipated study year(s) or during the preceding summer/fall, to allow for optimization of SDL placement and proper equipment calibration.

Adult Atlantic sturgeon will be tagged in coordination with NYSDEC to provide target fish for the study. The timing and location of sturgeon tagging will be coordinated with NYSDEC. Atlantic sturgeon is a candidate species for listing as threatened or endangered under Section 7 of the Endangered Species Act, thereby requiring consultation with National Oceanic and Atmospheric Administration, National Marine Fisheries Service, and United States Fish and Wildlife Service.

Deployment of the SDL arrays will be integrated with the data management and analysis team. The SDLs will be configured for local conditions (echo filter settings, symbol definition files assigned, duty cycles set, and tested for reception in real time). The SDL receivers are initially clock-synchronized upon deployment (using the SDL host software). Retrieved data is processed to track differential clock drift between the receivers as a post-processing operation. Fixed underwater beacons (e.g. a fixed transmitter) will be used to synchronize time settings and clock accuracy for post-processing tracking data within sub-meter accuracy. Fixed transmitter locations will be determined during study program work plan development.

Each hydrophone position will be logged with a differential GPS (surveyed). As part of study mobilization, an initial subset of SDLs will be range tested prior to deployment of a full array of SDLs along designated areas.

Data recovery and equipment maintenance will be based on manufacturer specifications on the lifespan of the batteries and the storage capacity of the data storage unit. However, data will be downloaded from the initial array within three weeks of deployment to check on data recovery. NYSDEC will assume ownership and maintenance of acoustic equipment following the post-energizing study.

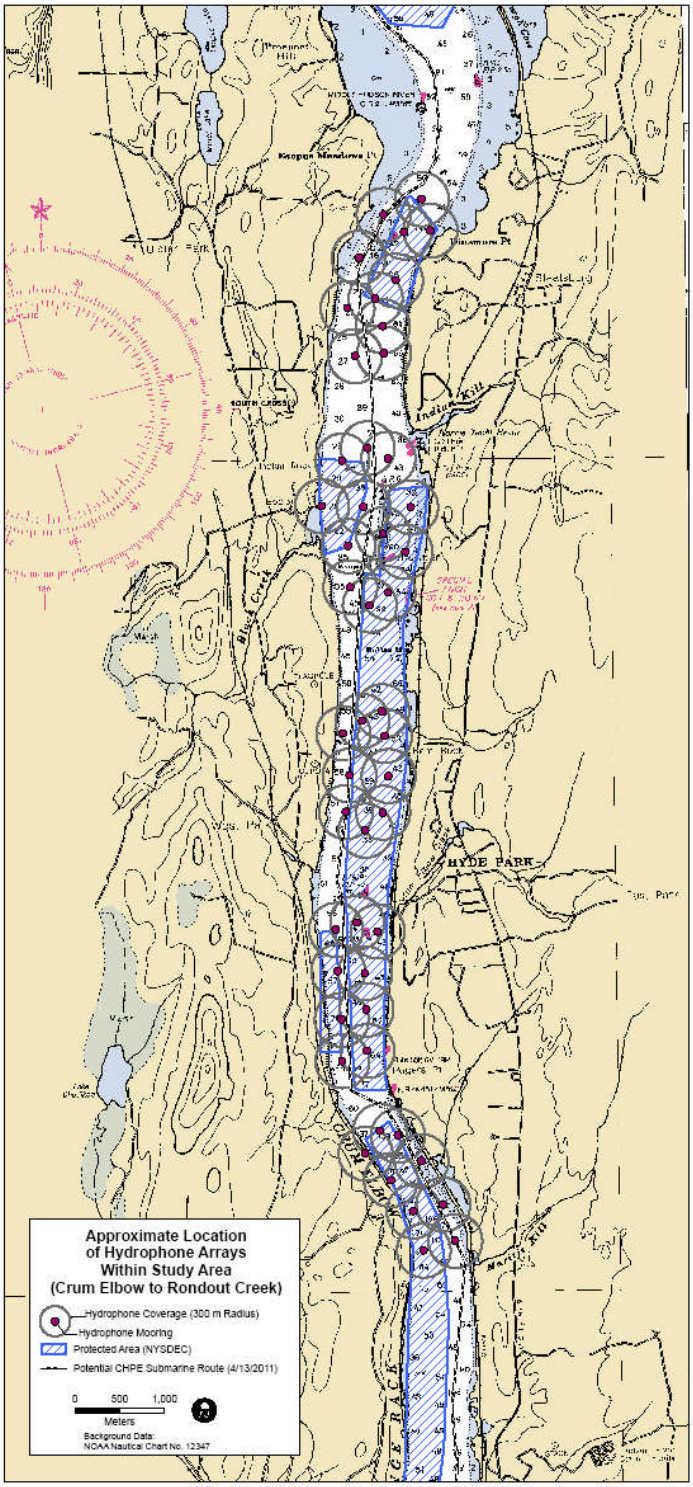
4.0 DATA ANALYSIS

The primary output from each element of the program will be plots of sturgeon movements to determine if there is a discernable response to the presence of the cable.

5.0 REPORTING

A report of the pre- and post-energizing monitoring events will be submitted within three months of the completion of each field season after consultation with the NYSDEC, New York State Department of State (NYSDOS), and NYSDPS. These reports will include a description of procedures followed during the program and field data results. The reports will also provide recommendations as appropriate for improving the design and implementation of the study. Each report will be submitted to the New York State Public Service Commission Secretary, NYSDEC, NYSDOS, and NYSDPS.

Figure 1. Proposed location of hydrophone transects within the designated study area (Crum Elbow Creek to Esopus Meadows).



Attachment 5

List of Approved Projects for the Champlain Hudson Environmental Research and Development Trust

First Priority Hudson River Projects

1. Field sampling and analysis of adult and juvenile resident and migratory fish habitat distributions

Description: This project will identify important habitat areas for resident and migratory adult and juvenile fish within the upper Hudson River Estuary. A variety of habitat types over a large region in the river will be sampled including shallow vegetated and unvegetated areas, shoals, open channel and backwaters. Juvenile and adult fish community composition and abundance will be compared across all habitat types to determine relative importance of each habitat to each fish species and community. This work will lead to identifying specific locations that will serve as reference sites for developing design parameters and target conditions for restoration sites throughout the region.

2. Analysis of preferred habitat characteristics for migratory and resident larval and juvenile fish

Description: This project is an in-depth study of the biotic and abiotic characteristics of important habitats identified in project #1 and similar ongoing research on larval fish. Plant communities, water chemistry, benthic fauna, sediment characteristics, flow regimes, along with a variety of other measures will increase our understanding of the preferred habitat types and how they function. This information will be used to guide the design of future projects that restore similar types of habitats. There will be fewer, but more intensively studied sites than in project #1.

3. Analysis and summary of existing tracking and mapping data

Description: This project involves combining data gathered by three separate and existing

projects: high resolution, deepwater benthic mapping and Atlantic sturgeon and American shad tracking information collected by the NYSDEC. Position data on individual fish collected as part of on-going fish telemetry work will be spatially referenced to benthic mapping data. Statistical analysis of how spatial distributions of classes of benthic environment are related to spatial distributions of tagged fish will be done. Project will seek to identify deep water habitat (as defined by sediment environment and sediment type) preferences throughout the river for sturgeon and shad.

4. Modeling transport of upper estuary fine grain sediment and contaminants

Description: Model transport of upper estuary fine grain sediment and contaminants to predict how habitat restoration designs will affect sediment management and contaminant distribution in the upper estuary. This information is needed to guide design of restoration projects that will benefit migratory fish species while minimizing impact to sediment management plans and contaminant distribution in the estuary. Modeling work will address three challenges: 1) to effectively predict local conditions at the scale of ~10 meters while at the same time including significant factors throughout the estuary watershed that might affect local conditions; 2) to model ice scour, and 3) to properly model fine-grained sediment transport and deposition which include some physical properties not found in coarser-grained sediment transport. This last is important in that contaminants are generally associated with fine-grained mud.

5. & 5a. Hudson River Habitat Restoration plan- Implementation of a migratory fish spawning and juvenile refuge habitat restoration project.

Description: A secondary channel refuge habitat restoration project will be implemented in the upper estuary consistent with the goals of the Draft Hudson River Habitat Restoration Plan. The restoration project will be implemented consistent with the Society of Ecological Restoration International's (SER) "Guidelines for developing and managing ecological restoration projects, 2nd Edition", (2005). Total project costs may include baseline and post construction monitoring of restoration and reference sites, design, implementation and land acquisition costs. Mitigation funding may be used for any part of the project cost,

or used as matching funds for state or federal habitat restoration grants.

Second Priority Hudson River Projects

6. Atlantic and shortnose sturgeon tracking

Description: This project entails tagging juvenile and adult life stages of Atlantic and shortnose sturgeon with acoustic tags, and tracking fish movements using mobile hydrophones mounted on boats. Deploy and use arrays of fixed receivers to monitor habitat utilization at high resolution within the array study area. Tag 30 to 40 fish for each life stage for each species each year. The purpose of this work is to expand knowledge of how individual fish species use different parts of the Hudson River Estuary's varied habitat (in terms of water depth, salinity, and bottom type) at different times of the year and at different life stages.

7. Adult American shad tagging and tracking

Description: Tag adult American shad with acoustic tags and track fish movements in the estuary using mobile hydrophones mounted on boats. Deploy and use arrays of fixed receivers to determine habitat utilization by the tagged fish at high resolution within the array study area. Tag and monitor 30 to 40 fish each year. The purpose of this work is to expand knowledge of how individual fish species use different parts of the Hudson River Estuary's varied habitat (in terms of water depth, salinity, and bottom type) at different times of the year and at different life stages.

Third Priority Hudson River Projects

8. Shallow water mapping

Description: Complete shallow water benthic mapping to map the bathymetry and sediment environment of the waters less than 4 meters deep in the Hudson River Estuary from the harbor at New York City to Troy. The purpose of this project is to develop a detailed

description of the physical environment in which fish live, and to support management activities related to fish and wildlife management and contaminant transport. Project will include development of databases and products consistent with techniques used in prior Hudson River shallow water mapping, building on the Hudson River benthic mapping project, including use of several different types of sonar to measure water depth and sediment character at 1-meter horizontal resolution, supplemental sediment cores and grabs, and sediment profile imagery, to create detailed bathymetric maps and interpretive maps of sediment type and sediment environment.

9. Hudson River Estuarium

Description: Provide funding for the construction and operation of the Hudson River Estuarium, a field research station currently being developed at Pier 26 in Manhattan. The facility will house and support scientists performing field studies within the estuary, and will serve as a hub for the collection and transmission of remote sensing data.

10. Hudson River habitat restoration plan- Implement a second migratory fish spawning and juvenile refuge habitat restoration project

Description: Implement a secondary channel refuge habitat restoration project in the upper estuary consistent with the goals of the Draft Hudson River Habitat Restoration Plan. Restoration project will be implemented consistent with the Society of Ecological Restoration International's (SER) "Guidelines for developing and managing ecological restoration projects, 2nd Edition", (2005). Total project costs may include baseline and post construction monitoring of restoration and reference sites, design, implementation and land acquisition costs. Available mitigation funding may be used as matching funds for state or federal restoration grant applications.

Fourth Priority Hudson River Projects

11. Sturgeon habitat and forage

Description: Project will include field studies to determine dietary habits of sturgeon and the

relationship between benthic biota and benthic characteristics. Sturgeon will be captured and stomach contents sampled, on location prior to release. Location information will be spatially referenced to Benthic Mapping data identifying benthic characteristics (sediment composition and dynamics). Evaluation of benthic fauna using shallow cores collected in the field will correlate benthic community compositions with sediment environment and observed dietary preferences of the target species. Project will help identify priority areas and habitat type for feeding sturgeon.

12. Recreation fishery survey

Description: Project will include field survey of anglers utilizing the Hudson River Estuary to identify catch composition, total catch, total effort, and catch rates during ice free season. Fish populations and fisheries are likely to respond to any construction or operational impacts. A fishery survey is an economical way to assess change to a wide range of fished species. Earlier surveys will be used as a baseline for change analysis, post- installation.

13. Hudson River habitat restoration plan- Implement a third migratory fish spawning and juvenile refuge habitat restoration project.

Description: Implement a secondary channel refuge habitat restoration project in the upper estuary consistent with the goals of the Draft Hudson River Habitat Restoration Plan. Restoration project will be implemented consistent with the Society of Ecological Restoration International's (SER) "Guidelines for developing and managing ecological restoration projects, 2nd Edition", (2005). Total project costs may include baseline and post construction monitoring of restoration and reference sites, design, implementation and land acquisition costs. Available mitigation funding may be used as matching funds for state or federal restoration grant applications.

First Priority Bronx, Harlem and East River Projects

1. Bronx Kill Habitat Restoration

Description: Restore habitats in and along the Bronx Kill by softening the shoreline, creating wetlands, and removing flow impediments in order to benefit migratory and resident species

affected by cable construction and operation.

2. Bronx River Fish Passage

Description: Implement dam removal or bypass projects along the Bronx River to improve fish migration, in order to benefit migratory and resident species affected by cable construction and operation.

3. Harlem River Designing the Edge Project

Description: Reconfigure existing vertical shoreline structures along the Harlem River to create habitat complexity, and provide refugia for migratory and resident fish species in order to compensate for habitat disturbance associated with cable construction and operation.

4. Oyster Bed Development and Restoration

Description: Oysters are "ecosystem engineers," creating a complex environment that supports a diversity of aquatic organisms. Oysters help to moderate the concentration of phytoplankton in the water, thereby benefitting other marine life by reducing the competition for dissolved oxygen. Once ubiquitous in the Hudson-Raritan Estuary and New York Harbor, decades of overfishing, disease and pollution almost eliminated the oysters that once blanketed those areas. Recent water quality improvements have enabled efforts to restore this vital element of the Estuary.

Restoration of oyster beds in New York waters, including areas of the Hudson River, is one of the key targets in the Army Corps of Engineers' Comprehensive Restoration Plan for the Hudson-Raritan Estuary. Pilot oyster reefs were constructed as part of the Oyster Restoration Research Project ("ORRP"), a partnership of more than 30 entities. Ongoing two-year studies of the pilot reefs conducted by the ORRP have shown positive results that warrant further investigation consistent with the Corps of Engineers' Comprehensive Restoration Plan. The initial two-year studies of pilot oyster reefs are expected to be completed in the spring of 2012. An infusion of funds from the Trust would allow the City to conduct additional studies of existing pilot oyster reefs consistent with the Corps of Engineers' Comprehensive Restoration Plan, including (i) a comprehensive evaluation of the ecosystem services and water quality benefits that the oyster reefs provide, and (ii) an examination of oyster larval development,

disease resistance, and obstacles to oyster reproduction. Also, ongoing studies of the pilot oyster reefs have demonstrated that larval oysters "planted" at the reefs may be lost to hydraulic transport. With the Trust funding, new methods to reduce such losses would be studied within the existing footprint of the Soundview Park pilot reef in the Upper East River in the Bronx. If approved as presently proposed, the HVDC Transmission Facility will be installed in the bed of the East River as the cables are laid between the Hudson River and the East River.

Timing: Data collected from the two-year pilot oyster reef study to be completed in the spring of 2012 will be used to evaluate the feasibility of oyster reef expansion, particularly at the Soundview Park in the Bronx. This evaluation of the pilot project studies, together with any additional data or other relevant information obtained during the period between completion of the initial pilot oyster reef studies and CHPE Project construction financial closing, will be reviewed again at Project construction financial closing. If warranted by that review, and approved by the Trust Governance Committee, the process necessary to enable pilot oyster reef expansion may be initiated.

5. New York Harbor Contaminated Sediment Assessment

Description: Sediments in the Hudson River and New York Harbor are contaminated with many harmful chemicals, including polychlorinated biphenols (PCB)s. The disturbance (*i.e.* dredging) and disposal of contaminated material is problematic, as it is harmful to the environment, and expensive. Since sediment contamination may impact benthic communities and other aquatic species, it should be considered and evaluated as part of certain restoration and remediation projects. An understanding of how sediment contaminant levels change over time is important for a variety of purposes, including the conduct and evaluation of sediment remediation efforts and informing policies on where and how to dispose of contaminated dredged material. The contaminated sediment assessment project will develop, update and refine our understanding of how the quality of dredged sediments level of sediment contamination changes over time by efforts including, for example: (a) collecting sediments and quantifying contaminant levels, including the levels of substances of concern for dredged material management; (b) determining which sediment areas are currently toxic and the identity and level of their contaminants; and (c) how the quality of dredged sediments may change over time, including, for example, by burial by cleaner sediments entering the system or transport to other

parts of the system. The project initially will focus on contaminant load in, and transport through, the Hudson, Harlem and East Rivers. These areas include part of the present configuration for the route of the CHPE cables. This project will be conducted over a period of approximately two (2) years. The information produced from this project will be presented in a final report that will inform the Design Guidelines for Shoreline Enhancements project, for example, by factoring information regarding the nature and extent of contamination into shoreline restoration projects, as well as future efforts to restore or enhance aquatic habitat in the study areas.

6. Develop design guidelines for shoreline enhancements

Description: The shoreline and shallow areas of the waters surrounding New York City have been heavily altered over the centuries to meet human demands. These alterations were driven almost exclusively by engineering and economic considerations with little regard to the ecological needs of those waters, aquatic species and the aquatic habitat. As a result, the City's shoreline has a significantly reduced capacity to provide important habitat for aquatic species, to reduce wave energy, and limit nutrient and sediment delivery from the watershed to the Harbor Estuary. This proposal is based on the observation that new designs for engineered structures in the shore zone that meet engineering and economic requirements, and that enhance and rehabilitate ecologically-degraded shore-zone ecosystems are necessary to guide shoreline restoration projects.

To increase our understanding of the ecological functions of shore zone ecosystems, to facilitate future shoreline restoration projects, including those upriver shoreline projects that are currently in progress, and to enhance and protect aquatic habitat and aquatic species in City waters, this project will develop: (a) a classification scheme specific to the urban shoreline habitats of New York City; (b) a comprehensive shoreline and shallow waters characterization and habitat map; and (c) design guidelines and recommendations for managing the City's shoreline and shallow waters to enhance the ecological function of City waters. This work will be conducted over a period of approximately three (3) years and will create a final report that will be used to guide the design and location of shoreline enhancement projects.

The design guidelines presented in the report may be evaluated and/or otherwise implemented at locations along the shorelines of the Hudson, East and Harlem Rivers. Shoreline

areas near the Project may also be the subject of potential future funding requests, if determined to be feasible, to enhance habitat or water quality in the Project area. Such activities along those rivers may include, for example: (a) selection of one or more locations that would be suitable for a pilot or larger-scale project that would demonstrate and study the effectiveness of ecological enhancement measures identified in the guidelines (such potential sites may include, for example, open space located at the mouth of the Harlem River and Roberto Clemente State Park); (b) monitoring and evaluating the effectiveness of existing shoreline enhancement measures (*e.g.*, Harlem River Park); and (c) incorporating shoreline enhancements into certain CNY permitting processes for shoreline construction projects. This project will build off, and complement, the Sustainable Shorelines effort underway north of New York City. The two projects share similar goals and, where practical, can exchange information and coordinate efforts.

First Priority Lake Champlain Projects

1. Development and Implementation of Fish Population and Recreational Fisheries Surveys

Description: The shallow, eutrophic South Lake section of Lake Champlain favors warmwater species and is the primary area of concern for potential impacts from cable installation. An increase in turbidity due to construction activities is the main concern for the South Lake fish community. Eggs and larval and juvenile fish are the most susceptible life stages to increases in turbidity, therefore impacts to adult populations and sportfisheries resulting from construction activities may not be evident for several years. In order to gauge the potential impacts of cable installation on the Lake's warmwater fish community, a comprehensive monitoring program for the lake, with an emphasis in South Lake, should be developed and implemented. The monitoring program should be comprised of studies focused on: 1) obtaining up to date angler creel and opinion information; 2) assessing the characteristics and potential impacts of black bass tournaments; 3) the status of important sport- and panfish populations such as walleye, yellow perch, black bass, northern pike, and muskellunge; 4) the status and ecology of Species of Greatest Conservation Need such as sauger and mooneye; and 5) assessing the fish community dynamics for the lake, including assessments of forage and invasive fish populations. These studies will aid in the development and implementation of management recommendations for the

aforementioned species. The monitoring program will be consistent with the guiding principles, nearshore fish community sub-goals, and information priorities in the Strategic Plan for Lake Champlain Fisheries (Fisheries Technical Committee 2009).

2. Fish Habitat Assessments

Description: Protecting and restoring fish habitats is critical to the proper management of fish populations in Lake Champlain and is a guiding principle in the Strategic Plan for Lake Champlain Fisheries (Fisheries Technical Committee 2009). In addition, habitat quality and connectivity are important criteria in determining the potential impacts of certain stressors, such as expansion of invasive species or increases in turbidity. In Lake Champlain, there is a need to identify locations and characteristics of important habitats for critical life stages of a number of migratory and resident fish species. Habitat assessments should focus on percids, esocids, black bass, rainbow smelt, lake trout, landlocked salmon, steelhead, lake sturgeon, and mooneye. In addition, there should be an assessment of the links between deep water benthic habitats and the pelagic fish community. This will involve an assessment of mysid shrimp abundance and the impacts that invasive fish such as alewife may be having on these organisms. Information will be used to document current habitat suitability and connectivity, and identify habitat restoration goals for restoring and managing resident and migratory fish.

3. Critical Habitat Restoration

Description: Restoration and maintenance of critical fish habitats is essential to improve and sustain productive fisheries and is a key component of fish community conservation. Management actions to increase fish production and expand distribution should incorporate identification, protection and restoration of spawning, nursery, or other critical habitats (Fisheries Technical Committee 2009). Lake Champlain has experienced substantial habitat degradation due to the damming of rivers, nuisance invasive species, loss of shoreline wetlands, and sedimentation and contamination from adjacent land use practices. Habitat restoration goals and target restoration areas will be identified in the Fish Habitat Assessment project (Project 2). This project will involve the implementation of priority critical habitat restoration projects identified in Project 2. The selected restoration projects will be consistent with the guiding principles and

healthy fish community sub goals of the Strategic Plan for Lake Champlain Fisheries. Projects will need to include intensive pre and post condition monitoring to identify project outcomes and adaptive management opportunities. Projects may include, but are not limited to, installation of reefs, improving connectivity between habitats (including fish passage) and submerged aquatic vegetation restoration and will provide benefits to both the resident and migratory fish communities. Priority will be given to projects benefiting lake sturgeon, sauger, whitefish, landlocked salmon and other rare or game fish species.

4. Aquatic Invasive Species Management

Description: Aquatic invasive species can have tremendous ecological impacts (e.g., dense water chestnut growth limits littoral habitat in the South Lake and expanding alewife populations may prevent successful natural reproduction of walleye). Also, combining invasives with other stressors that impair habitat quality can have profound detrimental effects on fish populations and has resulted in the declines of several species native to Lake Champlain that are now listed as endangered, threatened, or of special concern (Fisheries Technical Committee 2009). Controlling aquatic invasive species is a means to improve habitat quality, manage existing habitats, and reduce risks to important fish populations. Management activities may include removal of aquatic invasive plants, developing a program to minimize the risk for introduction of invasives via the Champlain Canal and other connecting waters, recreational boats, and fishing practices, and developing and implementing research, monitoring, and control programs for invasive species such as spiny water flea, zebra and quagga mussels, sea lamprey, and alewife. Removal of aquatic invasive plants will result in changes to the plant communities of managed areas. Aquatic plant community responses should be assessed in these areas.