

1.4.2 Onshore Pipeline Construction Procedures

Onshore pipeline construction of the Iroquois Project would typically begin with the marking or staking of the construction ROW. As the marking is completed, it would be followed by these operations: clearing, fencing, grading, trenching, stringing, bending, welding, pipe laying, lowering-in, tie-in, coating, backfilling, testing (hydrostatic), cleanup, and restoration. Areas typically requiring special construction techniques may be one or more of the following: crossings, including road, railroad, or foreign lines (utilities); waterbodies and wetlands; unusual topographies such as unstable soils and trench conditions, residential or urban areas; areas requiring rock removal; and permanent recreation facilities.

1.4.2.1 Marking the ROW

Land survey crews would mark by flags and/or stakes the boundaries of the construction ROW and extra workspaces to show the approved work areas; also paint may be used at road crossings. Also, avoidance areas such as wetland boundaries, cultural resource sites, and sensitive habitat would be marked with appropriate fencing or flagging based on environmental and archaeology surveys.

The centerline for the pipeline would be marked at frequent intervals, at known crossings of foreign lines by the proposed pipeline, and at points of intersection (PI). Pipeline locators and other methods would be used to identify the foreign crossings.

1.4.2.2 Clearing, Grading and Fencing

The construction ROW would be cleared and graded to remove brush, trees, roots and other obstructions such as large rocks and stumps. Non-woody vegetation may be mowed. Temporary fences and gates will be installed as needed.

Timber would be removed only within designated ROW or workspace. Merchantable timber may be limbed, cut, and removed from the ROW. Timber that is not merchantable and other vegetative debris may be chipped or disposed of according to applicable regulations. Stumps and other timber considered to be non-merchantable would be disposed of properly. Disposal of materials taken off-site would be done at commercial facilities or at other locations approved by FERC.

Access to the ROW would normally be obtained via public roads, which may intersect the property indirectly through abutting properties. Permission would be obtained from landowners for the use of access roads across their property to the construction ROW, and also for cutting trees and erecting temporary gates along access roads where necessary. After the ROW has been cleared and the stumps removed, grading may be necessary. Minimal grading would be required in flat terrain. In areas with steep terrain, more extensive grading may be required.

1.4.2.3 Trenching

Backhoes or other mechanical equipment would be used to excavate the trench. The depth of the trench would vary depending on soil type and the class-of-pipe being buried, and would meet or exceed DOT requirements for the depth of trench.

Before construction starts, one-call systems for the states involved would be contacted in order to have buried utilities identified and flagged. Trenching near these foreign utilities would only begin after completing the appropriate procedures. The FERC Upland Erosion Control Plan would be followed to minimize erosion during trenching operations and construction activities.

1.4.2.4 Pipe Laying

Prior to construction, pipe is moved onto the project site by truck and placed in pipe storage yards. The pipe laying or stringing operation involves transporting pipe sections (joints) from pipe storage yards into position along the prepared ROW. Typically, trucks or other vehicles would travel along the ROW and lay or string the individual joints parallel to the centerline of the trench so they are easily accessible to construction personnel. The joints are usually strung on the working side of the trench for bending, welding, coating and lowering-in operations and the associated inspection activities.

1.4.2.5 Bending, Welding, Coating, and Lowering-In

Typically, pipe would be delivered to the construction area in straight sections where it is then bent to conform to changes required for pipeline alignment, and to conform to natural ground contours. Bending of the sections is typically performed by track mounted hydraulic pipe-bending machines.

After the pipe has been bent, it is aligned and welded. The joints would be welded together with assistance of line-up clamps. Each welder would be qualified in accordance with federal regulations by completing a test weld using the approved welding procedures. The pipe joints would be welded together using qualified welding procedures. Qualified inspectors would inspect each pipe weld. Bending, welding, and coating in the field would comply with DOT CFR Title 49, Part 192.

The pipe is protected with an external coating designed to protect the pipe from corrosion. Except for a small area at the end of the pipe joint, this coating is generally applied at the pipe mill before shipment to the site. After welding together in the field, pipe joints are coated with similar or compatible materials. Before lowering-in, the pipe coating is inspected for defects called holidays; detected holidays will be repaired prior to backfilling.

Side boom tractors or cranes are typically used to lower the pipe into the trench. If the bottom of the trench is rocky, methods to protect the pipe will be used including sandbags or support pillows at designated intervals along the trench. Trench dewatering may be required in certain locations in order to prevent the pipe from floating and also to perform certain limited activities in the trench. Trench dewatering would be performed in accordance with FERC Procedures.

1.4.2.6 Backfilling

After lowering the pipe in the trench, the trench would be backfilled using a bulldozer, backhoe, auger-type backfilling machine, mormon board, or other suitable equipment. Backfill usually consists of the material originally excavated from the trench; however, in some cases additional backfill from other sources may be required. Any excess excavated materials or materials unsuitable for backfill would be spread evenly over the ROW or disposed of in accordance with applicable regulations. In areas where topsoil has been

segregated, the subsoil would be placed in the trench first and then the topsoil would be placed over the subsoil. Backfilling would occur to approximate grade and a soil crown will be placed above the trench, at the discretion of the Iroquois inspector to accommodate any future soil settlement.

Iroquois or their inspectors would designate the use of appropriate measures where rocks are encountered of a size or shape that could cause damage to the pipe coating. These measures may include padding material placed around the pipe. During backfilling, rough grading shall take place to restore the approximate natural contour of the ground.

1.4.2.7 Final Tie-Ins

After hydrostatic testing, the line would be dewatered, using dewatering pigs, and then dried. The marine interconnection facility to the existing Iroquois mainline would be made in advance and the proposed pipeline would be tied into the facility.

1.4.2.8 Purge and Load

Typically, there would be minor, temporary emissions associated with the "purge and load" phase of the project. This activity involves removing air from the system and loading the line with natural gas. During this phase, a relatively small amount of air and natural gas mixture would be emitted into the atmosphere at certain points on the pipeline.

1.4.2.9 Clean-up and Restoration

After the completion of backfilling, disturbed areas would be final graded and any remaining trash and debris would be properly disposed of in compliance with federal, state, and local regulations. The ROW would be protected by the implementation of erosion control measures, including site specific contouring, permanent slope breakers, mulching, and reseeding or sodding with soil-holding vegetation. Contouring would be accomplished using acceptable excess soil from construction. If sufficient soil is not available, it would be obtained from approved borrow pits. The erosion control measures used would be in accordance with the Soil and Erosion Control Plans approved by the local soil conservation districts, appropriate state agencies, and FERC's Upland Erosion Control, Revegetation and Maintenance Plan. Land would be revegetated as requested by the landowner.

Cathodic protection test stations, rectifiers, block valves, and pipeline markers would be located along the ROW and installed in accordance with 49 CFR 192. The markers would identify Iroquois as the operator and also list telephone numbers for emergencies and inquiries. These facilities would generally be located at regular intervals adjacent to road crossings and on the permanent ROW. Periodic aerial and/or ground inspections of the ROW would be conducted and further restoration measures would be implemented if necessary.

1.4.2.10 Pipeline Depth

The pipeline would be installed with a depth of burial in accordance with CFR Part 192. Depths typically range from 24 inches of cover in bedrock areas to 36 inches in most other areas.

1.4.2.11 Special Topography Concerns

Unstable Soils

Some parts of the proposed route consist of unstable soils resulting mainly from non-cohesive material and a relatively high water table. For the purposes of this discussion, unstable soils are soils that present instabilities during construction and not to long term instabilities that would affect the integrity of the installed pipeline.

These soil conditions may result in one or more of the following impacts to the project:

additional construction safety hazards that need to be addressed;
the need for supplemental weighting or pipe restraints to provide negative buoyancy;
unstable trench and excavation side slopes resulting in wide trench widths and bore-pit excavations and extensive dewatering to inspect the pipe trench; and,
complicated road bores.

Iroquois and Iroquois' construction contractors would consider the use of the following specialized construction procedures to mitigate the effects of unstable soils. These techniques include:

- 1) Specialized dewatering techniques such as well points or vacuum well points may be utilized in high water table areas where entry into a trench is required. The use of well points represents considerable time and expense and accordingly is limited to use in small discrete areas such as borepits for road crossings. Any necessary approvals for discharge of the collected groundwater as well as the use of appropriate erosion control measures to mitigate impacts associated with discharge would be acquired.
- 2) Weighting of the pipe utilizing concrete coating or set-on weights has been the traditional manner in which negative buoyancy has been achieved. However, anchoring methods that provide the same or greater degree of pipe support have been used successfully in the past.

Accordingly, efforts would be made to avoid unstable areas or to mitigate the instabilities with adequate workspace wherever practicable.

1.4.2.12 Specialized Techniques

In some areas, the new pipeline must be routed through residential areas or parklands because no other routes are available. Temporary impacts on residential properties could include: disturbance to lawns; removal of fences, mailboxes, and other minor residential accessory structures; removal of ornamental shrubs; the loss of shade trees; the cutting of streets, driveways, and sidewalks; disruption of household utilities; altered traffic patterns; and the noise and general annoyance of construction activities.

Special residential construction techniques, as summarized below and in other places in this document, would be attempted to minimize the extent of the disturbance. Following construction, residential areas and parklands would be restored, and Iroquois would exercise special care during construction, clean up.

- drag section construction would be considered to reduce working space requirements. Drag section construction involves welding two or more sections of pipe together in an area away from residences and then carrying the joined pipe into place for installation. Drag section construction reduces both the amount of work space needed near a residence and the time residential property must be disturbed for construction; and
- “stovepipe” construction may be used in very sensitive areas. Stovepipe construction involves installing one or two joints of pipe at a time. The pipeline ditch is dug just ahead of construction. One or two joints of pipe are carried into place, lowered into the ditch, and welded. The ditch is immediately backfilled. Stovepipe construction significantly reduces the amount of property disturbed but tends to be slower and more expensive than other construction techniques. It is best suited for situations where the available workspace is extremely limited.

1.4.2.13 Road Crossings

The impact upon traffic and transportation facilities and public inconvenience at crossings would be minimized to the extent practicable. Appropriate safety procedures would be implemented to protect workers and the public. Traffic warning signs, detour signs, and other traffic control devices would be used where required by federal, state, and local Departments of Transportation and other regulating bodies. Road crossings would be completed in accordance with the requirements of road crossing permits.

In most good soil conditions, Iroquois anticipates that hard surfaced roads could be crossed by boring. During boring operations the road would remain open to traffic. A boring machine would make a hole beneath the roadbed for the pipe. If required, it would be necessary to excavate a site on one side of the road large enough to handle the boring equipment and a receiving pit on the opposite side of the road. Some transportation authorities may require the use of casing in which a sleeve is inserted in the hole and the pipeline placed within.

Where ground conditions are unsuitable for boring and where allowed by regulatory agencies, roads would be open-cut. This would involve crossing the road in stages such that at least a single lane of traffic is maintained. During construction, efforts would be made to minimize delays, public inconvenience, and disruption of traffic flow. At these crossings, appropriate safety precautions would be taken as required by regulatory agencies, such as the use of flag men, night flashers, and markers. Open-cut roads would be reconstructed properly and inspected to ensure the stability of the roadway.

Other underground utilities would be identified and located to the greatest extent practical prior to construction. Care would be taken to avoid damage to and disruption of other utility services.

Iroquois is considering the use of rapid set flowable fill (ACI 229R-99) which would allow open cutting of more significant roadways with minimal disruption.

1.4.2.14 Blasting

Installing the pipe may require blasting in some areas such as those with rock outcrops. Blasting methods will meet or exceed applicable federal, state, and local requirements covering the use of explosives.

By construction standards, the volume of rock to be blasted in a pipeline excavation is small and can be safely controlled using recognized industry practices.

Vibrations produced by blasting events are mainly of concern to manmade structures. Allowable limits for blast vibrations have been developed to protect adjacent structures from potential damage due to excessive blast vibrations. Where there are residences and other structures in the surrounding area, controlled blasting techniques would be used to limit vibrations to the extent possible.

1.4.2.15 Wetland Crossing Construction

Pipeline construction across wetlands would be performed in accordance with the FERC Wetland and Waterbody Construction and Mitigation Procedures (FERC Procedures). Construction would also follow the Spill Prevention, Containment, and Control Plan (SPCC Plan) and the Stormwater Pollution Prevention Plan (SWPP Plan), which Iroquois would develop prior to construction in accordance with applicable requirements. Resource Report 3 identifies wetlands along the ELI pipeline alignment, and identifies what crossing technique is proposed for each.

1.4.2.16 Waterbody Crossing Construction

The ELI Project involves a crossing of the Peconic River and Carmans River. Iroquois proposes to construct the pipeline across the Peconic River using either open cut techniques or boring beneath the river (if flowing), and the Carmans River using a horizontal directional drill. Construction across both rivers would be performed in accordance with the FERC Procedures, the SPCC Plan, and the SWPP Plan to protect in-stream water quality and riparian habitat. Both techniques are described below.

Open Cut or Bored Crossing

The pipeline alignment crosses the Peconic River immediately adjacent to the east side of the William Floyd Parkway partially within the BNL. Because the river is intermittent, is not expected to be flowing at the time of construction. The Peconic River is culverted under the William Floyd Parkway where the pipeline is proposed to cross. Due to the engineering conditions prevalent at this location, the crossing of the Peconic River will be conducted by either a bore or conventional open cut method depending on the existing elevation of the culvert. Following a detailed design, Iroquois would file a proposed crossing method to FERC prior to construction.

Horizontal Directional Drill

The proposed pipeline alignment crosses the Carmans River on the southern side of Long Island Expressway, where the river abuts the Southhaven County Park. Iroquois proposes to cross the Carmans River using the horizontal directional drilling (HDD) technique, which is expected to avoid surface impacts to the river and surrounding riparian habitats. Appendix H contains a conceptual HDD crossing plan.

The drill length would be approximately 1,330 feet long. Iroquois has developed a contingency plan that identifies an alternative crossing technique to be used should the HDD be unsuccessful (see Resource Report 10). Iroquois believes a HDD would be feasible given the deep depth, and the HDD would be in proximity to a KeySpan Energy Delivery gas main that was also installed under the river using the same

technique. Iroquois would consult with state and county officials to minimize disturbance at each river crossing.

1.4.3 Hydrostatic Testing

Testing of newly constructed natural gas pipelines is required by 49 CFR Part 192 - Transportation of Natural and Other Gas by Pipeline: Minimum Federal Safety Standards. Iroquois anticipates that the testing medium for the ELI Project would be sea water from the Long Island Sound for the offshore section and either seawater or freshwater for the onshore section. Iroquois expects to arrange for delivery of freshwater from municipal water systems in accordance with appropriate terms and restrictions. If it is not possible to discharge water into properly prepared discharge areas in upland sites using erosion controls, freshwater would be discharged into a municipal storm water drainage in accordance with agreements with municipal officials and applicable federal, state, and local requirements. Seawater is proposed to be taken from Long Island Sound and discharged back into the Sound upon completion of the tests.

During detailed design, a testing plan would be developed that identifies the number and location of test sections. Determination of the exact locations of test sections depend on a number of factors including pipeline class location, elevation differences along the route, available water sources, and construction constraints.

Prior to hydrostatic testing, a sizing plate or similar device may be installed on a pig and pushed through the pipeline. A pig is a device, which can attain a sufficient seal inside the pipeline such that pressure behind the pig would propel it forward in the pipeline. The diameter of the sizing plate is normally a small percentage less than the inside diameter of the pipeline. This plate would verify that the pipeline did not sustain any unforeseen damage during the installation process. Filtered seawater may be used to propel the sizing plate pig and to fill the pipeline for the hydrostatic test. After the testing is complete, the water in the pipeline would be discharged with two or more dewatering pigs.

Test water intake and discharge would be in accordance with applicable state and federal discharge regulations. Test water would be obtained only from appropriate and approved sources, would be screened to prevent entrainment of fish, and would be withdrawn at a rate that would not draw down the source to an abnormal level. Every reasonable attempt would be made to discharge the water from offshore hydrotests into the source from which it was obtained.

The following additives may be used, for the purposes indicated:

- Corrosion inhibitor: coats inside steel surface to inhibit normal corrosion process.
- Oxygen scavenger: removes oxygen from test water, greatly reducing corrosion rate.
- Micro-biocide: removes bacteria that might pose a corrosion hazard from substances secreted.

The ends of the test section would be fitted with hydrotest heads. These allow insertion and removal of pigs for filling with test water, emptying, measurement of pressure and temperature, and other tasks. Pigs are short cylinders having a diameter just smaller than the pipeline. Iroquois anticipates running a series of pigs prior to putting the line in service.

The pipeline may be left filled with water until the entire onshore and offshore sections are ready for commissioning, depending on the overall construction schedule. Dewatering is achieved by driving "batching" or similar pigs through the pipeline with compressed air.

1.4.4 Meter Station Construction

The ELI Project would involve the construction of one meter station. Meter station construction would typically include the following sequence of activities:

- A permanent access road or driveway would be constructed to the site;
- The site would be cleared and graded;
- Utilities would be installed and foundations built;
- Below ground piping would be installed;
- Building(s) would be erected and equipment installed;
- Prefabricated meter skid would be installed;
- All pressure gas piping would be tested to a pressure greater than the maximum allowable operating pressure in accordance with 49 CFR 192;
- The construction site would be final graded, fencing constructed, and parking areas paved or graveled; and,
- Final site cleanup would be followed by landscaping, as appropriate.

1.4.5 Receiver Facility Construction

Typically, the receiver barrel would be pre-fabricated off-site and transported to the installation sites in segments. The sequence of events at the installation sites would generally be as follows:

- If necessary, a permanent access road would be constructed to the site. Typically these facilities are located immediately adjacent to existing access roads if possible;
- The site would be cleared and graded and erosion control devices would be installed;
- The site would be excavated;
- Foundations for the receiver barrels would be installed;
- Below ground piping would be installed;
- Prefabricated barrels would be installed;
- All pressure gas piping would be tested to a pressure greater than the maximum allowable operating pressure in accordance with 49 CFR 192;
- The construction site would be final graded and fencing would be constructed; and,
- Final site cleanup would be followed by landscaping, as appropriate.

1.5 CONSTRUCTION SCHEDULE

1.5.1 Pipeline Construction

The anticipated construction period for the offshore portion of the proposed project is anticipated to begin in the fall of 2003 ending in the winter or spring of 2003/4. Iroquois expects the offshore construction to be completed by March 1, 2004 and has summarized impacts to environmental resources based on this construction schedule. Completing construction by March 1, 2004 will minimize impacts during construction. However, if construction extends into the spring due to unexpected delays Iroquois has included potential impacts to environmental resources in subsequent Resource Reports and the Biological Assessment if this should occur. After receiving all regulatory permits and approvals, the anticipated start of construction for the

onshore pipeline on Long Island and upstream facilities is anticipated to begin in the spring of 2004 and completed by the in-service date of November 1, 2004.

1.6 OPERATION AND MAINTENANCE

Iroquois would operate and maintain the proposed facilities in accordance with standard procedures designed to ensure the integrity of the pipeline, to minimize any potential for pipe failure, and to provide its customers and the general public with a safe and dependable natural gas supply. Iroquois facilities would be designed, constructed, and operated in accordance with requirements of the FERC, the DOT (OPS), industry-proven practices and techniques, and other federal, state, and local requirements as applicable. Responsibilities of Iroquois would include:

- 1) operation and maintenance of pipeline and aboveground facilities safely to provide the required gas flow;
- 2) inspection and maintenance of the pipeline system;
- 3) regular monitoring of the ROW;
- 4) development and implementation of an ongoing program of safety and environmental compliance;
- 5) regulatory compliance maintenance inspections;
- 6) regular maintenance of compressor stations;
- 7) administration; and,
- 8) landowner relations.

Project facilities would be marked and identified in accordance with applicable regulations. Liaison would be maintained with the public as well as with government agencies having jurisdiction over areas traversed by the pipeline. In accordance with 49 CFR Part 192, the pipeline would be inspected for leakage as part of scheduled operations and maintenance.

Overall, maintenance activities would be in compliance with requirements of the FERC Upland Erosion Control, Revegetation, and Maintenance Plan, as well as other applicable regulatory requirements.

1.6.1 Pipeline Facilities

Routine Patrols

The pipeline ROW would be marked at public roads, navigable water crossings, and in other areas as necessary. This would reduce the possibility of damage or interference as a result of third party construction activities, and would allow the rapid identification of the pipeline during periodic surveillance. Periodic patrols would be conducted to visually inspect for the following: possible leaks, evidence of excavation activity on or near the permanent ROW, erosion and wash-out areas, areas of sparse vegetation, damage to permanent erosion control devices, exposed pipe, and other potential concerns that may affect the safety and operation of the pipeline. Population changes would also be monitored and class locations changed as necessary. Pipeline markers and signs would be inspected, maintained and replaced as necessary. Necessary repairs to the ROW may include regrading and reseeding with appropriate plant species or installing other soil stabilization measures.

Corrosion Prevention/Detection

Periodic surveys would also be conducted to ensure the continuity of the cathodic protection system and to indicate where possible corrective action is required. Any required repairs to the pipe would be made promptly, or if necessary, the pipe would be replaced. In making repairs, safety precautions would be observed.

Cathodic protection would typically be provided by ground beds located on the pipeline easement and may be supplemented at some locations with magnesium/zinc anodes or similar facility attached to the pipe. Iroquois would keep detailed records and supplement the corrosion protection program as necessary to meet the requirements of 49 CFR Part 192. The pipeline would be inspected by crews conducting pipe-to-soil potential surveys.

Vegetation Management

Iroquois is required by federal law to maintain its operation ROW to allow for timely visual inspections and maintenance activities. In most cases, such as agricultural areas, the ROW would be returned to its previous use. However, in areas where the ROW crosses forested land, an easement would be maintained as grassland. Mechanical vegetation control would be used to maintain a grassy cover on the ROW and to prevent the growth of trees in these areas. Where necessary, a pipeline integrity corridor ten inches in width, centered over the pipeline would be maintained in an herbaceous state to facilitate pipeline inspection and maintenance.

1.6.2 Meter Stations

The proposed meter station would be designed for unattended operation and to operate 24 hours per day, year round. The meter station, flow control valves, and selected mainline valves would be remotely controlled and monitored through a communications network 24 hours per day. Routine maintenance and operations procedures would be followed to ensure that the meter stations operate correctly and in a safe manner. The operation of the meter stations would be coordinated with gas supply transporters and end-user customers.

Normal inspection of each facility would be completed on a regular basis. Active corrosion, leakage, encroachments, soil erosion, ground movements, missing or damaged markers, or other changes requiring attention would be reported and the necessary repairs made as required. Operation and maintenance of valves and valve operators would be performed in accordance with standard procedures. Vegetation growing up through the gravel within the fenced aboveground facility sites may be controlled by mechanical means or with herbicides. Any herbicides used would be applied in compliance with applicable laws and regulations.

1.6.3 Operations Monitoring and Records

The ELI pipeline facilities would be remotely monitored using SCADA systems manned 24 hours per day. Operation and maintenance records would be maintained per the requirements of 49 CFR Part 192.

1.7 PLANS FOR FUTURE SYSTEM

Iroquois currently has no plans for future expansion of the facilities proposed in this docket. If the future expansion of facilities is required due to additional demand for natural gas service, such expansion would likely involve pipeline segments and compression and cooling facilities. Any such future facilities would be designed to be compatible with Iroquois' existing facilities and planned and sited in a manner that is environmentally prudent.

1.8 AGENCY/LANDOWNER CONSULTATION

This section describes the public involvement program activities undertaken to date by Iroquois for the project. On-going activities and activities planned to reach out to the public, as well as organizations and institutions with particular interests in Long Island Sound are also described. The public involvement program has been designed to provide opportunities for meaningful public participation concerning the project, in accordance with the requirements of the FERC.

Consistent with the FERC's endorsement of the use of collaborative procedures in developing new pipeline projects, Iroquois endeavored to include in the early planning stages of the project landowners, government agencies, environmental groups, and others. As discussed below, landowners, and federal, state, and local agencies and environmental groups were contacted during the planning stages of the pipeline for their input and involvement regarding the best possible route for the pipeline.

1.8.1 Public Consultations

Iroquois intends to hold of open houses, community board meetings, and public meetings, in Milford, Connecticut and Brookhaven, New York, to solicit input for the project. Meeting minutes and matrices of issues will be prepared to identify the issues that were raised as a result of the public outreach program and will be submitted to FERC at a later date.

1.8.2 Agency/NGO Consultations

In conjunction with the extensive effort to notify and inform the public of the project, Iroquois initiated an effort to work with federal, state, and local regulatory agencies as well as environmental groups in Connecticut and New York and those agencies/groups with an interest in Long Island Sound. A copy of the contact database is provided in Appendix F.

Iroquois worked with the regulatory agencies and non-governmental organizations (NGO) early in the process to provide them copies of the study areas and to solicit input and provide guidance to ensure the system incorporated sound environmental siting criteria. The results of these meetings, as well as meeting notes, and agency correspondence are provided in Appendix D and E (Volume V), respectively.

1.8.3 Landowner Consultations

The project area for the ELI Project has few private landowners, as much of pipeline alignment crosses the Long Island Sound, county and state transportation rights-of-way and parkland, the KeySpan property, and

the Brookhaven National Laboratory. Iroquois has contacted landowners, and has appraised them of the potential project impact on their property. Negotiations are ongoing at this time.

Iroquois is following the guidelines of the FERC's Notice of Proposed Rulemaking issued in Docket No. RM98-17-000. Landowner Notification, Expanded Categorical Exclusions, and Other Environmental Filing Requirements, 87 FERC 61,105 (1999), with respect to notifying landowners that its filing has been submitted to the Commission. Iroquois is mailing a package via first class mail to landowners it bELives are directly affected by its proposal. This package is comprised of the following items:

- A letter explaining the project which describes its general route and its proposed schedule;
- A fact sheet describing Iroquois as a company;
- A listing of public locations where a copy of the Iroquois application can be viewed;
- A fact sheet with the FERC docket number, FERC contact numbers, and Iroquois contact numbers;
- An overall project map;
- A USGS map section which more specifically orients Iroquois' nearby proposed facilities to the landowner's property; and,
- A copy of the Commission's brochure "An interstate natural gas pipeline on my land? What do I need to know?"

1.8.4 Status of Environmental Surveys

Iroquois has conducted on-site environmental surveys in accordance with applicable federal and state established procedures for portions of the project area, where landowner survey permission has been received. Table 1.8.4-1 summarizes the status of environmental surveys.

**TABLE 1.8.4-1
STATUS OF ENVIRONMENTAL SURVEYS**

Proposed Facility	Location	Mileposts	Comments
Pipeline			
	LILCO Powerline and William Floyd Parkway	18.6-18.7	No survey permission has been granted in this area.
	William Floyd Parkway	18.7 to 26.0	Onshore environmental surveys conducted by ENSR in September and October of 2001.
	AVR Realty	26.0-26.9	No survey permission has been granted in this area.
	Long Island Expressway	26.9-28.6	Onshore environmental surveys conducted by ENSR in September and October of 2001.
	Donald Zucker	28.6 to 29.0	No survey permission has been granted in this area.

TABLE 1.8.4-1 (continued)
STATUS OF ENVIRONMENTAL SURVEYS

Proposed Facility	Location	Mileposts	Comments
	LILCO, Sills Road Associates, Brookhaven Energy, LTD		Onshore environmental surveys conducted by ENSR in September and October of 2001.
Compressor Station	Brookfield, CT	N/A	Environmental survey conducted by ENSR in August 2001.
Compressor Station	Milford, CT	N/A	Environmental survey conducted by ENSR in September 2001.
Compressor Station	Dover, NY	N/A	Environmental (wetlands) survey conducted by LA Group, Inc. in November 1999. Bog turtle habitat assessment conducted by ENSR in October 2001.

Note: Table summarizes field surveys performed as of October, 2001.

See Cultural Resources Survey Report, marked "Privileged and Confidential" attached to this filing under a separate cover for the status of Cultural Resource Surveys.

1.9 PERMITS AND APPROVALS

The Iroquois project would entail numerous and extensive regulatory reviews and approvals. Table 1.9-1 provides a summary of the major permits and expected dates to file those permits.

We have also worked closely with other federal non-land managing agencies such as the USCOE, NMFS, FWS, as well as state agencies and environmental organizations through public meetings and one-on-one meetings to review the route, survey results, and permitting strategy. These federal agencies requested that permit applications not be filed until the NEPA process has commenced.

Iroquois has contacted the coastal zone management programs in Connecticut and New York. The Connecticut Department of Environmental Protection – Office of Long Island Sound Program (OLISP) states that they want Iroquois to file the coastal zone consistency information concurrently with their Structures, Dredging, and Fill permit application, which would not be submitted until final design is complete. The New York State Department of State (NYS DOS) states that they do not want Iroquois to file the coastal zone consistency information until FERC has issued the Final Environmental Impact Statement for the project. Similarly, the NYS DEC has indicated that because Iroquois proposes to plow the proposed pipeline in Long Island Sound, that modeling for water column impacts associated with sediment plumes from construction is not needed at this time.

To comply with the FERC's minimum requirements regarding the Endangered Species Act (ESA), Iroquois has consulted with the National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS), and the state agencies in Connecticut and New York to:

- 1) determine the potential list of species present in the project area;
- 2) complete habitat and listed species surveys where permission was granted; and
- 3) summarize the results of the surveys and assess the impacts to listed species.

Iroquois has assessed potential suitable habitat along the proposed project, and has included this information in Resource Report 3 for the onshore component and the Biological Assessment for the offshore component.

DESCRIPTION OF NON-JURISDICTIONAL FACILITIES

The ELI Project is designed to serve markets on the eastern end of Long Island. The proposed delivery point of the natural gas to be transported by Iroquois would be a newly proposed interconnect with the facilities of KeySpan Gas East Corporation ("KeySpan") at or near Yaphank, New York. KeySpan is a local distribution company regulated by the New York Public Service Commission serving customers on Long Island. In order to receive the gas from Iroquois, a new meter and regulating station would have to be constructed. KeySpan would be responsible for constructing that portion of the meter station facilities necessary to enable it to receive the gas from Iroquois. These facilities would not be subject to Commission approval, but rather would be reviewed by the relevant state agencies.

These are the only facilities known to Iroquois at this time. Given the minor nature of these facilities, environmental review is outside the scope of the Commission's review in this proceeding.

AGENCY REVIEW OF NON-JURISDICTIONAL FACILITIES

Section 380.12(c)(2)(ii) of the Regulations set forth four factors the FERC would use to determine whether there is sufficient Federal control and responsibility over a project as a whole to warrant environmental analysis of project-related non-jurisdictional facilities. The factors are:

- A. Whether or not the regulated activity comprises "merely a link" in a corridor type project (e.g., a transportation or utility transmission project).
- B. Whether there are aspects of the non-jurisdictional facility in the immediate vicinity of the regulated activity which uniquely determine the location and configuration of the regulated activity.
- C. The extent to which the entire project would be within the FERC's jurisdiction.
- D. The extent of cumulative Federal control and responsibility.

Based on these factors, Iroquois contends that only limited FERC environmental review would be necessary for the relatively minor project-related non-jurisdictional facilities, which have been proposed.

An analysis of the four factors leads to the conclusion that while the FERC would exercise jurisdiction over Iroquois' pipeline, the FERC's control and responsibility over the non-jurisdictional lateral facilities is minimal. These facilities would be subject to permitting by the state. Construction of the non-jurisdictional laterals in association with Iroquois' project should not rise to the level of a Federal action for purposes an environmental review. Therefore, environmental review of the non-jurisdictional pipeline lateral is beyond the scope of the DEIS.

The ELI Project is designed to serve markets on the eastern end of Long Island. The proposed delivery point of the natural gas to be transported by Iroquois would be a newly proposed interconnect with the facilities of KeySpan Gas East Corporation ("KeySpan") at or near Yaphank, New York. KeySpan is a local distribution company regulated by the New York Public Service Commission serving customers on Long

Island. In order to receive the gas from Iroquois, a new meter and regulating station would have to be constructed. KeySpan would be responsible for constructing that portion of the meter station facilities necessary to enable it to receive the gas from Iroquois. These facilities would not be subject to Commission approval, but rather would be reviewed by the relevant state agencies. These are the only facilities known to Iroquois at this time. Given the minor nature of these facilities, environmental review is outside the scope of the Commission's review in this proceeding.

**TABLE 1.9-1
POSSIBLE REQUIRED PERMITS FOR THE PROPOSED EASTERN LONG ISLAND EXTENSION PROJECT**

Agency	Permit/Approval/ Confirmation	Activity	Submission Date
<u>Federal</u>			
Federal Energy Regulatory Commission	Certificate of Public Convenience and Necessity	Construction and operation of natural gas facilities. Requires site and record surveys, and review, approvals, and consultations with various agencies responsible for wetlands; water use and quality; vegetation and wildlife; cultural and geological resources; soils; land use, recreation and aesthetics; air and noise quality; Native American impacts, and other resources.	November 2001
U.S. Army Corps of Engineers (USCOE)	Nationwide Permit(s)	Section 404/Section 10 Permit	March 2002
U.S. Fish and Wildlife Service	Confirmation that endangered or threatened species are not impacted	General construction and operation of the proposed project.	July and September 2001
<u>State – Connecticut</u>			
Connecticut Department of Environmental Protection – Office of Long Island Sound Programs	Structures, Dredging, and Fill permit	Construction of pipeline in Long Island Sound.	March 2002
	Coastal Zone consistency certification	Confirmation that project is consistent with the state of Connecticut Coastal Zone Management Program.	March 2002
	Hydrostatic Test Discharge permit	Discharge of hydrostatic test water to the Long Island Sound.	July 2002
<u>State – New York</u>			
New York State Department of Environmental Conservation (NYSDEC)	Permits to Construct/Certificate(s) to operate air contamination sources.	Air quality permit to construct and operate a stationary natural gas turbine compressor driver and emergency electrical power generator engine.	March 2002

TABLE 1.9-1 (continued)
POSSIBLE REQUIRED PERMITS FOR THE PROPOSED EASTERN LONG ISLAND EXTENSION PROJECT

Agency	Permit/Approval/ • Confirmation	Activity	Submission Date
	State Environmental Quality Review Act (SEQRA)	Environmental Assessment Form (EAF) review of project. Also required for air permit approval.	March 2002
	General permit to discharge stormwater	Temporary construction area disturbance of greater than five acres.	Two days prior to construction
	Section 401 Water Quality Certification	Water quality certification if Individual Permit from the USCOE is required.	March 2002
	State Pollution Discharge Elimination System Permit or waiver	Hydrostatic test water discharge (if applicable).	July 2002
	State Historic Preservation Office confirmation that significant cultural resources are not impacted.	General construction and operation of compressor station Cultural Resources Investigations	November 2001
	Stream and Wetland Permit	Crossing streams and wetlands.	March 2002
	Review of state protect species	Construction in protected habitats.	October 2001
New York State Department of State	Coastal Zone consistency certification	Confirmation that project is consistent with the state of New York Coastal Zone Management Program.	March 2002
<u>Regional – New York</u> Central Pine Barren Planning Commission	Hardship Permit	Construction in a core preservation area.	March 2002

TABLE 1.9-1 (continued)
POSSIBLE REQUIRED PERMITS FOR THE PROPOSED EASTERN LONG ISLAND EXTENSION PROJECT

Agency	Permit/Approval/ Confirmation	Activity	Submission Date
<u>Local- Connecticut</u> ¹			
City of Milford	Building Permit Septic System Permit	Local approvals for construction of Devon compressor station. May include sketch plan review, site plan approval, building height variance, excavation and fill permits, and septic system.	July 2002
Town of Brookfield	Building Permit Septic System Permit	Local approvals for construction of Brookfield compressor station. May include sketch plan review, site plan approval, building height variance, excavation and fill permits, and septic system.	July 2002
<u>Local- New York</u> ¹			
Town of Brookhaven	Building Permit	Local approvals for construction of meter stations. May include sketch plan review, site plan approval, excavation and fill permits.	July 2002
Town of Dover	Building Permit	Local approvals for adding gas cooler at Dover compressor station. May include sketch plan review, site plan approval, building height variance, excavation and fill permits, and septic system.	July 2002

¹ Local towns have various permitting requirements. Iroquois plans to coordinate with the Towns and the Counties, and to comply with State and local laws, to the extent that compliance would not conflict or be inconsistent with FERC authorizations, certifications, or schedules.

IROQUOIS GAS TRANSMISSION SYSTEM, L.P.

**EASTERN LONG ISLAND PROJECT: PIPELINE SECTION
RESOURCE REPORT 3**

VEGETATION AND WILDLIFE

Prepared for:

Iroquois Gas Transmission System, L.P.
One Corporate Drive, Suite 600
Shelton, CT 06484

SUMMARY OF FILING INFORMATION		
INFORMATION	Included in ER	To be filed
<ul style="list-style-type: none"> Classify the fishery type of each surface water body that would be crossed, including fisheries of special concern. 	✓	
<ul style="list-style-type: none"> Describe the effects of construction and operation procedures on the fishery resources and proposed mitigation measures. 	✓	
<ul style="list-style-type: none"> Describe terrestrial, aquatic, and wetland wildlife and habitats that would be affected by the project. 	✓	
<ul style="list-style-type: none"> Evaluate the potential for short-term, long-term, and permanent impact on the wildlife resources caused by construction and operation of the project and proposed mitigation measures. 	✓	
<ul style="list-style-type: none"> Describe the major vegetative cover types that would be crossed and provide the acreage of each vegetative cover type that would be affected by construction. 	✓	
<ul style="list-style-type: none"> Identify all federally listed or proposed endangered or threatened species and state-listed endangered or threatened species that potentially occur in the vicinity of the project. For each species, describe potential impact and any mitigation proposed to avoid or minimize impact. Identify and address all recommendations of the FWS, National Marine Fisheries Service (NMFS), and appropriate state agencies. 	✓	
<ul style="list-style-type: none"> Provide copies of all survey reports, written correspondence, and records of telephone communications with the FWS, NMFS, and respective state agencies regarding federally listed or proposed and state-listed endangered or threatened species. (Clearance letters must be less than 1 year old.) 	Volume V – Appendix F	
<ul style="list-style-type: none"> Provide a table identifying all wetlands, by milepost and length, crossed by the project (including abandoned pipeline), and the total acreage and acreage of each wetland type that would be affected by construction. 	✓	
<ul style="list-style-type: none"> Provide original National Wetland Inventory (NWI) maps that show all proposed facilities and include milepost locations for proposed pipeline routes. 	Provided Separately	
<ul style="list-style-type: none"> Provide a wetland delineation report that identifies all wetlands affected by the proposed facilities, including temporary work areas. 	✓	
<ul style="list-style-type: none"> Discuss construction and restoration methods proposed for crossing wetlands. Consider using our Wetland and Water body Construction and Mitigation Procedures, or propose alternative measures that would ensure an equal or greater level of protection to wetlands. 	✓	
<ul style="list-style-type: none"> If forested wetlands would be affected, describe proposed measures to restore forested wetlands following construction. If wetlands would be filled or permanently lost, describe proposed measures to compensate for permanent wetland losses (<i>e.g.</i>, land acquisition, research project funding). 	Not applicable	
<ul style="list-style-type: none"> Describe any significant biological resources that would be affected (see text). Describe impact and any mitigation proposed to avoid or minimize that impact. 	✓	

SUMMARY OF FILING INFORMATION		
INFORMATION	Included in ER	To be filed
<ul style="list-style-type: none"> Provide copies of all written correspondence and records of telephone communications with Federal, state, or local agencies, or private conservation organizations regarding significant resources that would be affected. 	Volume V – Appendix F	

IROQUOIS GAS TRANSMISSION SYSTEM, L.P.

RESOURCE REPORT 3 VEGETATION AND WILDLIFE

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
3.0 INTRODUCTION	3-1
3.1 EXISTING CONDITIONS	3-1
3.1.1 Fisheries Resources	3-1
3.1.1.1 Long Island Sound	3-1
3.1.1.2 Peconic River	3-2
3.1.1.3 Carmans River	3-4
3.1.2 Vegetative Resources	3-4
3.1.2.1 Pipeline	3-4
3.1.2.2 Aboveground Facilities	3-7
3.1.3 Wildlife Resources	3-7
3.1.3.1 Pipeline	3-7
3.1.3.2 Aboveground Facilities	3-9
3.1.4 Threatened and Endangered Species	3-9
3.1.4.1 Long Island Sound	3-10
3.1.4.2 Long Island	3-11
3.1.5 Wetlands	3-16
3.1.5.1 Pipeline	3-17
3.1.5.2 Aboveground Facilities	3-19
3.1.6 Significant Habitats and Vegetative Communities	3-19
3.1.6.1 Federally-Designated Significant Habitats	3-19
3.1.6.2 State Designated Significant Habitats	3-23
3.2 CONSTRUCTION AND OPERATION IMPACTS	3-24
3.2.1 Fisheries Resources	3-25
3.2.1.1 Pipeline	3-25
3.2.1.2 Aboveground Facilities	3-26
3.2.2 Vegetative Resources	3-26
3.2.2.1 Pipeline	3-26
3.2.2.2 Aboveground Facilities	3-27
3.2.3 Wildlife Resources	3-28
3.2.3.1 Pipeline	3-28
3.2.3.2 Aboveground Facilities	3-29
3.2.4 Threatened and Endangered Species	3-29
3.2.4.1 Federally-Listed Species	3-29
3.2.4.2 State Listed Species	3-30

IROQUOIS GAS TRANSMISSION SYSTEM, L.P.

**RESOURCE REPORT 3
VEGETATION AND WILDLIFE**

TABLE OF CONTENTS (continued)

Section

3.2.5	Wetlands	3-31
3.2.5.1	Pipeline	3-31
3.2.5.2	Aboveground Facilities	3-32
3.2.6	Significant Habitats and Vegetative Communities	3-32
3.3	LITERATURE CITED	3-34

LIST OF TABLES

3.1.4.2-1	Federal and State Listed Species Potentially Occurring within 0.25 Miles of the Eastern Long Island Extension Project	3-12
3.1.5.1-1	Jurisdictional Wetlands Crossed by the Eastern Long Island Extension Project.....	3-19
3.2.2.1-1	Major Vegetative Communities Affected by the Pipeline Construction of the Eastern Long Island Extension Project	
3.2.2.2-	Major Vegetative Communities Affected by the Proposed Aboveground Facilities of the Eastern Long Island Extension Project	3-28
3.2.5.1-1	Jurisdictional Wetlands Affected by the Eastern Long Island Extension Project.....	3-32

LIST OF FIGURES

3.1.1.1-1	Cultivated Shellfish Beds along the Eastern Long Island Extension Project	3-3
3.1.5.1-1	State Mapped Wetlands along the Eastern Long Island Extension Project.....	3-18
3.1.6-1	Federal Designated Significant Habitats along the Eastern Long Island Extension Project.....	
3.1.6-2	State Designated Significant Habitats along the Eastern Long Island Extension Project	

3.0 INTRODUCTION

This resource report describes existing conditions of fisheries, major vegetative communities, significant habitats, wildlife resources, and wetlands within the project area of the Eastern Long Island (ELI) Extension Project. Iroquois proposes to construct the ELI Project in accordance with the FERC (1994) Upland Erosion Control and Revegetation Plan (Plan), the FERC (1994) Wetland and Waterbody Construction and Mitigation Procedures (Procedures), and Iroquois' Spill Prevention, Control, and Contaminant (SPCC) Plan. The assessment of project-related effects on fisheries, wildlife, vegetation, and wetland resources are the opinions of ENSR environmental scientists, and are based on the assumption that the FERC (1994) Plan and Procedures, and Iroquois' SPCC Plan are implemented properly.

Much of the existing conditions and impact analysis has been derived from offshore and onshore biological field surveys, which have been conducted along a majority of the proposed construction corridor, and the Biological Assessment (BA) (Volume III of this filing). Refer to Table 1.8.4-1 in Resource Report 1 regarding survey locations.

3.1 EXISTING CONDITIONS

3.1.1 Fisheries Resources

The proposed ELI pipeline alignment crosses approximately 17.1 miles of Long Island Sound, and has onshore crossings of the Peconic River and the Carmans River in the Town of Brookhaven, New York. Fishery resources associated with each of these waters are described below. None of the proposed onshore aboveground facilities (i.e. three onshore mainline valves, contractor pipeyard, receiver facility, and one meter station – see Resource Report 1) are located within 100 feet of any fisheries resource.

3.1.1.1 Long Island Sound

The proposed ELI Project crosses Long Island Sound for a distance of 17.1 miles beginning in Connecticut State waters off the coast of Milford, Fairfield County, Connecticut (MP 0.0) and ending at the Village of Shoreham, Suffolk County, New York (MP 17.1). Long Island Sound is an estuary with a productive benthic community that supports various shellfish, crustacean, and finfish resources, many of which are recreationally and/or commercially important. The Connecticut Department of Environmental Protection (CTDEP, 1998a) and the New York State Department of Environmental Conservation (NYSDEC, 1977) identify Long Island Sound as a class SA water. Proposed activities that can impair Long Island Sound's fishery use are generally prohibited by the CTDEP and the NYSDEC through the Section 401 Water Quality Certification programs.

The BA, written for the ELI Project, describes the communities potentially affected by the project including benthic infaunal and epifaunal community, the epifaunal crustacea community, the infaunal shellfish community, and the demersal, pelagic, and anadromous finfish communities. It also provides representative species of each community that commonly occur in Long Island Sound that have commercial, recreational, or ecological significance. A general description of significant commercial and recreational fisheries is provided below.

Shellfish

The proposed ELI pipeline alignment would cross a portion of one cultivated shellfish bed (i.e. clams, oysters) in Connecticut State waters from MP 0.0 to MP 0.2 (936 ft). This bed is leased from the State of Connecticut to the Fairhaven Clam and Lobster Company, LLC (Lease No. L580) (Figure 3.1.1.1-1). The proposed subsea tap is expected avoid other shellfish beds located closer to the Connecticut shore. The ELI pipeline alignment does not cross any cultivated shellfish beds in New York State waters.

Crustacean

The Long Island Sound lobster population is the second most valuable commercial fishery within Long Island Sound, second only to oysters. Lobsters (*Homarus americanus*) are found throughout Long Island Sound during all seasons. Lobster abundances are highest in eastern and central Long Island Sound, including where the pipeline alignment is located. Coastal lobsters are generally concentrated in mud substrates suitable for burrowing.

Finfish

A large number of commercially and recreationally important fish species occur within Long Island Sound, a majority of which are estuary-dependent at some stage of their life cycle. The bulk of the summer commercial fishery consists of scup (*Stenotomus chrysops*), butterfish (*Peprilus triacanthus*), striped bass (*Morone saxatilis*), weak fish (*Cynoscion regalis*), summer flounder (*Paralichthys dentatus*), and menhaden (*Brevoortia tyrannus*). The winter flounder (*Pseudopleuronectes americanus*) and window pane flounder (*Scophthalmus aquosus*) support the winter trawl fishery in Long Island Sound. Bottom trawling activities occur during the winter and spring in the area of the proposed pipeline. Essential Fish Habitats for these and other species are described in the BA, which is included in Volume III of this filing.

3.1.1.2 Peconic River

The ELI pipeline alignment crosses the Peconic River on the eastern side of the William Floyd Parkway, on Brookhaven National Laboratory property. The New York water quality regulations list the Peconic River as a class C water, which shall be suitable for fish propagation and survival. The New York State Department of State (NYS DOS, 1987a) identifies the entire length of the river as a productive warmwater fishery, with naturally reproducing populations of largemouth bass (*Micropterus salmoides*), chain pickerel (*Esox niger*), swamp darter (*Etheostoma fusiforme*) and banded sunfish (*Enneacanthus obesus*). In addition to naturally producing populations of fish species, the NYSDEC stocks the river with yearling and older brown trout in March and April.

The project area crosses the Peconic River where it is fully culverted along the eastern side of the William Floyd Parkway. This segment of the river is presumed to be intermittent and serves as its headwaters for the perennial segment located further to the east. No water was flowing in the open channel, which begins east of the project area, during the time field surveys were conducted in this area in August 2001.

This page involves pipeline location information and is not available at this Internet site due to homeland security-related considerations. This portion of the Islander East consistency appeal administrative record may be reviewed at NOAA's Office of General Counsel for Ocean Services, 1305 East-West Highway, Silver Spring, Maryland.

3.1.1.3 Carmans River

The proposed ELI pipeline alignment crosses the Carmans River south of the Long Island Expressway on the Southaven County Park property. The Carmans River is a perennial coldwater fishery that supports the largest naturally reproducing population of brook trout on Long Island. In addition, the NYSDEC stocks the river with yearling and older brown trout and rainbow trout in March and April (NYSDOS 1987b). Accordingly, the New York water quality regulations list the Carmans River as a class C(TS) water, which shall be suitable for fish propagation and survival, and trout propagation.

3.1.2 Vegetative Resources

This section describes vegetation communities located within the ELI pipeline corridor and aboveground facility locations. Iroquois assessed the vegetative communities in the project area using aerial photography, existing reports, and biological field surveys. Defining what vegetative communities are located in the project area is necessary to assess the potential presence of wildlife, threatened and endangered species and their communities, as well as other ecologically sensitive areas.

3.1.2.1 Pipeline

The pipeline corridor on Long Island contains several major vegetative communities; no marine vegetative communities, such as eelgrass meadows or vegetated tidal wetlands would be crossed by the project in the Long Island Sound (up to the mean high sea elevation). Community types were characterized according to the classification system proposed by the New York Natural Heritage Program (Reschke 1990). The forest classification system proposed by Greller (1977) was also reviewed.

Pitch pine-oak forest is the dominant vegetative community in the pipeline corridor. Other upland habitats include maritime beach, oak hardwood forests, conifer plantations, mowed roadsides, cropland/field crops, and excavated water control structures. Vegetated wetland habitats are primarily red maple swamps with smaller areas of scrub-shrub wetlands and sedge meadows.

Maritime Beach

The proposed pipeline alignment would cross the maritime beach, where it comes ashore from Long Island Sound in Shoreham (MP 17.1). The beach has a sparsely vegetated community that occurs on an unstable sand shore above mean high tide, where the shore is modified by storm waves and wind erosion. The beach lacks a pronounced dune formation, with the ground surface generally sloping up from the intertidal zone over a gently sloping (3 to 8 percent) gradient. ENSR field surveys found vegetation at the beach to consist primarily of beach grass (*Ammophila breviligulata*). In the project corridor, this maritime beach habitat is bound to the south by pitch pine-oak forest habitat.

Pitch Pine-Oak Forest

The pitch pine-oak forest community is found along the ELI pipeline corridor on the KeySpan property (approximate MP 17.2 to MP 18.6), adjacent to the William Floyd Parkway and mowed roadsides (approximate MP 18.7 to MP 25.9), and north of the Long Island Expressway (MP 25.97 to MP 26.92). This upland forest community is an important component of the Central Pine Barrens ecosystem. The percentage of pitch pines vary throughout the corridor canopy, with pines being absent in several areas. In general, tree oaks become more common and pitch pine less common, as fire severity and frequency

decrease. For this report, relatively small areas of American hemlock (*Tsuga Americana*) dominated woodlands and oak tree canopies under mowed lawn, which occur on several residential properties along the William Floyd Parkway, have been included in the pitch pine – oak forest community for impact calculation purposes.

Canopy trees include pitch pine (*Pinus rigida*), scarlet oak (*Quercus coccinea*), black oak (*Quercus velutina*), and white oak (*Quercus alba*) with a canopy cover of 40% to 50% and average diameters of 8 to 12 inches. Estimated heights were 65 ft. to 70 ft. Associated tree species within the canopy include red maple (*Acer rubrum*), sassafras (*Sassafras albidum*), black cherry (*Prunus serotina*), and hickory (*Carya* spp.). Tupelo (*Nyssa sylvatica*), eastern red cedar (*Juniperus virginiana*), and black locust (*Robinia pseudoacacia*) occur infrequently within the interior and along the forest edge. The presence of a well developed, often-continuous low shrub layer is a distinctive feature of the pitch pine-oak forest habitat identified by Greller (1977) and Reschke (1990). Shrub dominants include black huckleberry (*Gaylussacia baccata*) and lowbush blueberries (*Vaccinium pallidum* and *V. angustifolium*). Associated shrubs include highbush blueberry (*Vaccinium angustifolium*), scrub oak (*Quercus ilicifolia*), bayberry (*Myrica pensylvanica*), arrowwood (*Viburnum dentatum*), and staggerbush (*Lyonia mariana*). The herbaceous community is relatively sparse with bracken fern (*Pteridium aquilinum*), spotted wintergreen (*Chimaphila maculata*), indianpipe (*Monotropa uniflora*), and Pennsylvania sedge (*Carex pensylvanica*), being most prevalent. Greenbrier (*Smilax* spp.), wild grape (*Vitis labrusca*), and blackberry (*Rubus* sp.) vines were infrequent to common.

Oak-Hardwood Forest

Oak forest is present in the pipeline corridor on the Southhaven County Park property leading to the wetland associated with the Carmans River (MP 27.1 to MP 27.6). Canopy trees include mature specimens of scarlet oak, black oak, and white oak with an estimated canopy cover of 40% to 50%. Mature specimen trees average 12 to over 16 inches in diameter. The understory layer is sparse or absent within the oak woodland. Herbaceous ground cover species were also sparse to absent in the community. Ground cover consists of loose, leaf litter.

Pine Plantation

Several pine plantations were identified adjacent to the proposed pipeline corridor on the Brookhaven National Laboratory property (MP 22.7 to MP 26.0). White pine (*Pinus strobus*) was the dominant species noted in these plantations along the corridor. Mature oak specimens were also recorded in the canopy in the pine plantations. Reschke (1990) identifies the pine plantation as a terrestrial cultural habitat. Disturbed areas occupied by stands of young pitch pines were recorded in a single area along the proposed pipeline corridor.

Cropland/Field Crops

The ELI pipeline corridor crosses cropland/field crops on the southern side of the Long Island Expressway between Yaphank Avenue east to near the point of the project terminus (MP 27.9 to MP 28.61). Reschke (1990) identifies field crop habitats as an agricultural field planted in field crops such as alfalfa, wheat, timothy, and oats. This community includes hayfields that are rotated to pasture. Results of surveys in this area determined the fields to contain corn and pumpkins, as well as portions being fallow.

Red Maple Swamp and Associate Wetlands

Red maple and tupelo were dominant canopy species identified within the forested wetland identified along the ELI pipeline alignment adjacent to the Carmans River (approximate MP 27.4 to MP 27.5). Shrub dominants included sweet pepperbush (*Clethra alnifolia*), highbush blueberry, elderberry (*Sambucus canadensis*), spicebush (*Lindera benzoin*), swamp azalea (*Rhododendron viscosum*), arrowwood, and poison sumac (*Rhus vernix*). Herbaceous layer species included starflower (*Trientalis borealis*), Canada mayflower (*Maianthemum canadense*), skunk cabbage (*Symplocarpus foetidus*), netted chain-fern (*Woodwardia areolata*), cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), and vines of greenbrier, dewberry (*Rubus hispidus*), and grape.

The vegetative community adjacent to Carmans River includes a bordering community of willow (*Salix* sp.), with rice cut-grass (*Leersia oryzoides*), common reedgrass (*Phragmites australis*), and tussock sedge (*Carex stricta*) at the base of the bank. Banks have been armored to reduce erosion and provide fish habitat. The substrate consists of coarse sand and gravel at the proposed pipeline crossing. Exotic species along the stream bank include Oriental bittersweet (*Celastrus orbiculatus*) and Japanese honeysuckle (*Lonicera japonica*).

The open sedge meadow community associated with Carmans River includes scattered clusters of bayberry and highbush blueberry with a dense herbaceous layer. Goldenrods including Coastal Plain Flat-topped goldenrod (*Euthamia tenuifolia*), grass-leaf goldenrod (*Euthamia graminifolia*), and rough goldenrod (*Solidago rugosa*) are dominant. Common species include soft rush (*Juncus effusus*), Canada rush (*Juncus canadensis*), chairmaker's rush (*Scirpus americanus*), beaked rush (*Rhynchospora capitellata*), sedge (*Carex* sp.), hyssop-leaf boneset (*Eupatorium hyssopifolium*), and little bluestem grass (*Schizachyrium scoparium*).

Mowed Roadside

The project corridor contains mowed roadside, which Reschke (1990) identifies as a distinct terrestrial cultural habitat, along the William Floyd Parkway (MP 18.7 to MP 26.0). The mowed roadside in this area ranges from five feet in width to a width greater than the 75-foot wide construction corridor, although the median width is approximately twenty feet. The mowed roadside is predominantly bordered to the east by pitch pine-oak forest.

Species recorded in the mowed road shoulder within the proposed pipeline corridor are adapted to frequent mowing and exposure. Species associated with disturbed areas and waste places were common with the native plants. Dominant grass species include bent-grass (*Agrostis* sp.), poverty grass (*Danthonia spicata*), lovegrass (*Eragrostis* sp.), panic grass (*Panicum* sp.), and little bluestem grass. Other common species recorded regularly in the mowed roadside environment were common St. John's-wort (*Hypericum perforatum*), orangegrass (*Hypericum gentianoides*), Queen Anne's Lace (*Daucus carota*), bushy rockrose (*Helianthemum canadense*), English plantain (*Plantago lanceolata*), knapweed (*Centaurea jacea*), sweet everlasting (*Gnaphalium obtusifolium*), tick-trefoil (*Desmodium* spp.), bush clover (*Lespedeza* sp.), bushy aster (*Aster lateriflorus*), and Maryland golden aster (*Chrysopsis mariana*).

Successional Old Field

Successional old field habitat is located on one property located along the pipeline alignment from MP 26.1 to MP 26.3. This property has been previously cleared and appears that it will be used in the

future for various developments, but is now in a successional, open field stage of vegetative growth. Reschke (1990) has defined this community type as meadows dominated by forbs and grasses that occur on sites that have been cleared and plowed for farming and/or development. This is a relatively short-lived vegetative community that succeeds rather quickly to a shrub-scrub community, then to a woodland/forest community if not maintained. Dominant vegetative species include Queen Anne's Lace (*Daucus carota*), bushy aster (*Aster lateriflorus*), lovegrass (*Eragrostis* sp.) panic grasses (*Panicum* spp.), black-eyed susan (*rudbeckia serotina*), brome grasses (*Bromus* spp.), and goldenrods (*Solidago* spp.).

3.1.2.2 Aboveground Facilities

The various aboveground facilities associated with the proposed ELI Project contain several major vegetative communities including upland oak-hardwood forest, pitch pine-oak forest, mowed roadsides, and open space.

Meter Station

The proposed meter station located at the project terminus (MP 29.1) is comprised of upland oak-hardwood forest as the dominant vegetative community existing over the entire site. This meter station measures 100 feet by 100 feet. Similarly, the receiver facility site, which is planned to be housed within this meter station, would be located within upland oak-hardwood forest.

Mainline Valves

Three mainline valves (MLV) are associated with the onshore portion of the proposed ELI pipeline alignment. The first mainline valve (MLV-2) is located at approximate MP 17.5. This valve site will be located in a pitch pine-oak forest vegetative community type. The second mainline valve (MLV-3) is located at approximate MP 22.7 and has old successional field as its major vegetative community type. MLV-4 is located at the project terminus (MP 29.1) and will be associated with the meter station at this same location.

Contractor Pipeyard

The proposed pipeyard, located at approximate MP 26.6, which will be used to store pipe and other construction materials, will be located in an old successional field community type dominated by grasses, forbs, and other herbaceous vegetation.

3.1.3 Wildlife

This section discusses wildlife resources that may be expected to inhabit Long Island Sound, and the major vegetative communities located in the ELI pipeline corridor on Long Island.

3.1.3.1 Pipeline

Long Island Sound

Marine mammals do not regularly occur in Long Island Sound. However, harbor porpoises (*Phocoena phocoena*), gray seals (*Halichoerus grypus*), and harbor seals (*Phoca vitulina*) are occasionally observed in Long Island Sound during the winter months (Gilbert 2001). None of these marine mammals

are currently listed under the Endangered Species Act, although the harbor porpoise is a federal candidate species and a New York Species of Concern. The gray seal, harbor seal, and harbor porpoise are afforded protection under the Marine Mammal Protection Act.

Migratory birds are protected pursuant to the Migratory Bird Treaty Act of 1918 and implementing conventions with Canada, Japan, Mexico, and Russia. This act decrees that all migratory birds and their parts (including eggs, nests, and feathers) are fully protected. There are 31 bird species protected by the treaty that potentially occur in or near the project area (Migratory Bird Management Office 1999). These protected birds include those wintering and migrating waterfowl that inhabit bays along the north shore of Long Island, including Greater Scaup (*Aythya marila*), American Black Duck (*Anas rubripes*), American Wigeon (*Anas americana*), Canvasback (*Aythya valisineria*), Red-Breasted Merganser (*Mergus serrator*), Mallard (*Anas platyrhynchos*), Canada Goose (*Branta canadensis*), Common Goldeneye (*Bucephala clangula*), Bufflehead (*Bucephala albeola*), and Oldsquaw (*Clangula hyemalis*).

Long Island

Wildlife that may be affected by the ELI Project may generally be characterized according to the major habitat types in the project area. While some species have very specific habitat needs, other wildlife is able to use a variety of different habitat types for nesting, bedding, and foraging. Habitat use may vary seasonally as well.

Maritime Beach

In general, the maritime beach habitat may be important nesting grounds for migratory shorebird species such as the Piping Plover (*Charadrius melodus*), as well as other species such as the Least Tern (*Sterna antillarum*), Common Tern (*Sterna hirundo*), and Roseate Tern (*Sterna dougallii*). The United States Fish and Wildlife Service (USFWS) has specifically indicated that the beach at Shoreham is potential nesting habitat for the piping plover, a federally threatened species. The NYSDEC has also indicated that the beach is potential habitat for the Least Tern, a state threatened species.

Pitch Pine–Oak Forest/Oak Hardwood Forest/Conifer Plantation

The wildlife community may vary dramatically as this dry forest type varies from pine-dominated to oak-dominated. Nevertheless, some wildlife species are found throughout these communities. According to Reschke (1990), common birds that occur in this habitat type include Rufous-Sided Towhee (*Pipilo erythrophthalmus*), Common Yellowthroat (*Geothlypis trichas*), Field Sparrow (*Spizella pusilla*), Prairie Warbler (*Dendroica discolor*), Pine Warbler (*Dendroica pinus*), Bluejay (*Cyanocitta cristata*), and Whip-poor-will (*Caprimulgus vociferus*). Other bird species observed during the field surveys were Common Grackle (*Quiscalus quiscula*), Gray Catbird (*Dumatella carolinensis*), Tufted Titmouse (*Baeolophus bicolor*), Northern Cardinal (*Cardinalis cardinalis*), Red-Eyed Vireo (*Vireo olivaceus*), American Crow (*Corvus brachyrhynchos*), and Red-Tailed Hawk (*Buteo jamaicensis*). Mammal sightings or evidence include white-tailed deer (*Odocoileus virginianus*), woodchuck (*Marmota monax*), raccoon (*Procyon lotor*), gray squirrel (*Sciurus carolinensis*), plus eastern cottontail rabbit (*Sylvilagus floridanus*) and eastern chipmunk (*Tamias striatus*) being known to inhabit upland forests. Observations of amphibian species include only green frogs (*Rana clamitans melanota*) observed in a pool of water at the concrete headwall at the Peconic River. Reptile observations include a dead eastern box turtle (*Terrepenne carolina carolina*) recorded adjacent to the William Floyd Parkway just north of the Interstate 495 interchange.

Red Maple Swamps and Associated Wetlands

The red maple swamp provides important habitat for a wide variety of migratory insectivorous birds, which use the deciduous swamps during their spring and fall movements. The early flowering red maple attracts a rich insect life which is used by vireos (*Vireonidae*), warblers (*Emberizidae*), thrushes (*Muscicapidae*) and many others, including dozens of species of birds which winter in the tropics (Central Pine Barrens Joint Planning and Policy Commission 1995). During the colder months, kinglets (*Sylviidae*), nuthatches (*Sittidae*), woodpeckers (*Picidae*), titmice and chickadees (*Paridae*), and Brown Creepers (*Certhia familiaris*) forage for insect larvae in the many dead trees in these swamps. Field surveys noted sightings of Common Yellowthroat in the shrub portion.

The red maple swamps also provide habitat for a variety of mammals, reptiles, and amphibians. The Central Pine Barrens Comprehensive Land Use Plan (1995) cites the four-toed salamander (*Hemidactylium scutatum*) as being known to breed in the upper reaches of the Carmans River.

Cropland/Field Crops

Canada geese, white-tailed deer, Mourning Dove (*Zenaida macroura*), raccoons, American Crows, blackbirds (*Icteridae*), European Starlings (*Sturnus vulgaris*) and English Sparrows (*Passer domesticus*) all forage in cultivated farmlands. Killdeer (*Charadrius vociferus*), Horned Larks (*Eremophila alpestris*), Water Pipits (*Anthus spinoletta*) and other birds use the bare earth of fallow fields as foraging grounds.

Mowed Roadside

The mowed roadside lawns may provide feeding habitat for birds, such as blackbirds, starlings, American Robins (*Turdus migratorius*) and Northern Flickers (*Colaptes auratus*). Deer and geese may graze on the larger mowed grass areas found along several parts along the William Floyd Parkway.

Successional Old Field

Successional old fields provide foraging breeding habitats for many of the same species mentioned within the mowed roadside and/or cropland field crop vegetative community type.

3.1.3.2 Aboveground Facilities

Wildlife that may be observed at the various aboveground facilities include many of the same species as discussed in the oak-hardwood, pitch pine-oak forest, or old successional field vegetative community types above. Because the meter station, mainline valves and contractor pipeyard will be located within one of these community types, it is expected that these species may potentially occur at these locations as well.

3.1.4 Threatened and Endangered Species

The federal government protects threatened and endangered species under the Endangered Species Act of 1973 (ESA, 16 U.S.C.A. 1531-1543, P.L. 93-205) and Marine mammals are protected under the Marine Mammal Protection Act of 1972 (MMPA, 16 USC), as reauthorized in 1994. Section 7 of the ESA requires a federal agency to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of a federally-listed endangered or threatened species, or result

in the destruction or adverse modification of the designated critical habitat of a federally-listed species.

Threatened and Endangered species are defined as “species of fish, wildlife and plants [that] have been so depleted in numbers that they are in danger of or threatened with extinction”. The act also describes these species as having aesthetic, ecological, educational, historical, recreational, and scientific value. There are numerous situations defined by the ESA that may result in a species being listed as threatened or endangered. The factors most often cited for causing a species decline include habitat destruction or modification, over utilization, disease, predation, and lack of regulatory mechanisms. Species in jeopardy of becoming threatened or endangered are listed as rare, protected, or of special concern. In addition to protecting individual plant and animal species, vegetative communities of special concern are also recognized and protected.

Pursuant to Section 7 of the ESA and the MMPA, Iroquois has initiated information consultation with the USFWS, National Marine Fisheries Service (NMFS), CTDEP and the NYSDEC to assist the Federal Energy Regulatory Commission (FERC) in meeting requirements of the ESA and the MMPA regarding the occurrence of threatened and endangered species along the proposed pipeline alignment. Iroquois has received written correspondence from the USFWS, CTDEP and the NYSDEC regarding federally and state listed threatened and endangered species potentially occurring within a 0.25-mile radius of the proposed pipeline alignment (see Volume V - Appendix F for all request letters and agency responses). In its letter dated October 22, 2001, the NYSDEC has also provided mapping showing the locations of listed species located within a 0.25-mile wide radius of the proposed pipeline alignment. This mapping shows several plant species occurring in wetlands located adjacent to the Carmans River. Because of the sensitivity of this mapping, a copy of this mapping has only been included in Volume V – Appendix I to select agencies.

3.1.4.1 Long Island Sound

Listed species that occur within the marine portion of the proposed project alignment are discussed in detail in the BA (Volume III of this filing).

Federally-Listed Species

The NMFS has the primary federal responsibility for the conservation, management, and development of living marine resources and for the protection of certain marine mammals and endangered species under numerous federal laws. To date, Iroquois has not received a response from the NMFS regarding potential protected marine species that may occur in Long Island Sound. This information has been derived from the Draft Environmental Impact Statement (DEIS) for the Eastchester Extension Project (FERC Docket No. CP00-232-000 and -001), which also covers Long Island Sound. The DEIS identifies five federally threatened or endangered marine species occurring in the Long Island Sound: the Atlantic green turtle, Kemp’s Ridley turtle, leatherback turtle, loggerhead turtle, and the shortnose sturgeon. These species and specific measures that are expected to avoid or minimize potential impacts to these species are discussed in detail in the BA.

None of the identified marine species should be located in Long Island Sound during the winter months, when Iroquois proposes to construct the offshore pipeline section. The four sea turtles do not maintain breeding populations in Long Island Sound, and their occurrence is limited to the warmer seasons of the year when their primary activity is feeding. The shortnose sturgeon inhabits the nearshore marine, estuarine, and riverine habitats of large river systems and occurring primarily in the lower portion of the

Hudson River (from the southern tip of Manhattan to the Federal Dam in Troy, New York) and in the Connecticut River, which are outside of the project area.

State Listed Species

The CTDEP and NYSDEC did not identify any additional state listed species that may potentially occur in Long Island Sound.

3.1.4.2 Long Island

Qualified biologists from ENSR conducted biological field surveys along the proposed pipeline corridor in areas for which survey permission was granted (Table 1.8.4-1 of Resource Report 1). The species and suitable habitats that were surveyed for were based on a species list provided by the NYSDEC Natural Heritage Program and included in Resource Report 3 of the Islander East Pipeline Project (Islander East) (Docket No. CP01-384-000). The Islander East Project generally follows the same pipeline corridor on Long Island (except for one lateral) as the proposed ELI Project and, therefore, the species list for both projects was assumed to be identical. The Islander East report identified 19 plants, one invertebrate, and one amphibian species as potentially occurring along that project's pipeline route. Thus, Iroquois adopted this list and subsequently surveyed for these species during field surveys conducted in August and September of 2001.

Results of the field surveys conducted by ENSR did not identify any of the 19 plant species within the ELI Project corridor that were listed in the Islander East report. Similarly, these surveys did not identify the listed invertebrate (coastal barrens buckmoth) or amphibian species (tiger salamander) within the pipeline corridor. ENSR found that the only suitable habitat in the ELI pipeline corridor for several of the listed plant species was the Carmans River wetland. ENSR inspected the 200-foot wide survey corridor in the Carmans River wetland for freshwater plants such as button sedge and purple everlasting that were identified in the species list used in the Islander East report. ENSR did not find any of these species occurring within the survey corridor in this wetland. All the other plant species identified in the Islander East report occur in habitats that are not in the project area, such as ponds, sandy pond shore habitat, and salt marshes.

On October 22, 2001, Iroquois received a project-specific species list from the NYSDEC Natural Heritage Program for the ELI Project that identified state listed species that may potentially occur within approximately 0.25 miles of the ELI pipeline alignment. Iroquois requested that the NYSDEC identify species within a 0.25-mile corridor of the pipeline alignment to ensure that all proposed additional workspace areas, such as the contractor pipeyard and staging areas, be covered. Table 3.1.4.2-1 lists all plant and animal species identified on the October 22, 2001 correspondence from the NYSDEC. This list comprised of 44 listed plant and animal species that included two birds, one amphibian, three invertebrates, and 38 plant species. Of the 38 plant species, only 12 were cited in the Islander East report and subsequently surveyed for during ENSR's August and September 2001 field surveys. The remaining 26 plant species have not been surveyed for, but include two species that occur in wetlands (will not be impacted due to an HDD being used to cross the only wetland within the project corridor), two species that potentially occur in open, upland habitats in areas where survey permission has not been granted (ENSR will survey these areas at a later date), one species which occurs in the pine barrens, and the remaining 21 species are generally salt marsh and upland species associated with the Wading River Marsh area. The salt marsh adjacent to the Wading River is approximately 400 feet east of the ELI Project corridor and Wading River itself is located approximately 2,000 feet to the east of the project corridor.

**TABLE 3.1.4.2-1
FEDERAL AND STATE LISTED SPECIES POTENTIALLY OCCURRING WITHIN 0.25
MILES OF THE EASTERN LONG ISLAND EXTENSION PROJECT**

Common Name (Scientific Name)	Federal Status	CT Status	NY Status	General Habitat
Vascular Plants				
Button Sedge (<i>Carex bullata</i>) ¹			E	Mucky banks
Rose coreopsis (<i>Coreopsis rosea</i>)			R	Shallow pond and margins
Three-Ribbed Spikerush (<i>Eleocharis tricostata</i>)			E	Ponds and margins
Purple Everlasting (<i>Gnaphalium purpureum</i>)			E	Wet disturbed pine barrens
Clustered Bluets (<i>Oldenlandia uniflora</i>)			E	Coastal plain pond margins
Water-Thread Pondweed (<i>Potamogeton diversifolius</i>)			E	Open water/pond habitat
Silverweed (<i>Potentilla anserina egedii</i>) ¹			T	Salt marsh
Few-Flowered Nutrush (<i>Scleria pauciflora v. caroliniana</i>)			E	Pond margins
Whip Nutrush (<i>Scleria triglomerata</i>)			T	Pond margins
Small Floating Bladderwort ¹ (<i>Utricularia radiata</i>)			T	Open water/ponds
Fibrous Bladderwort (<i>Utricularia striata</i>) ¹			T	Open water/ponds
Dwarf Hawthorne (<i>Crataegus uniflora</i>)			E	Dry woodlands and barrens
Slender Blue Flag (<i>Iris prismatica</i>) ²		--	T	Rich meadows
White Boneset (<i>Eupatorium album v. subvenosum</i>) ²			T	Pond margins
Slender Pinweed (<i>Lechea tenuifolia</i>) ³			T	Woods, pine barrens, sandy soils in woods
Silvery Aster (<i>Aster concolor</i>) ³			E	Dry, sandy soils, woods-pine barrens
Huckleberry (<i>Gaylussacia dumosa v. bigeloviana</i>) ⁴			E	Bogs or barrens
Northern Blazing Star (<i>Liatrix borealis</i>) ⁵			T	Dry sandy soil
Small White Snakeroot (<i>Eupatorium aromaticum</i>) ⁵			E	Dry open woods

TABLE 3.1.4.2-1 (continued)
FEDERAL AND STATE LISTED SPECIES POTENTIALLY OCCURRING WITHIN 0.25
MILES OF THE EASTERN LONG ISLAND EXTENSION PROJECT

Common Name (Scientific Name)	Federal Status	CT Status	NY Status	General Habitat
Round-Leaf Boneset (<i>Eupatorium rotundifolium</i> v. <i>rotundifolium</i>) ⁵	--	--	E	Woods and open fields
Virginia Ground Cherry (<i>Physalis virginiana</i>) ⁵			E	Dry fields
Scirpus-Like Rush (<i>Juncus scirpoides</i>) ⁵			E	Pond and river margins
Farwell's Water-Milfoil (<i>Myriophyllum farwellii</i>) ⁵			T	Rivers and ponds
Wright's Panic Grass (<i>Panicum wrightianum</i>) ⁵			E	Open fields
Flax-Leaf Whitetop (<i>Aster solidagineus</i>) ⁵			T	Dry woodlands and open fields
Swamp Pink (<i>Arethusa bulbosa</i>) ⁵			T	Bogs and wet meadows
Heath Aster (<i>Aster pilosus</i> v. <i>pringlei</i>) ⁵			T	Open fields and roadsides
Erect Knotweed (<i>Polygonum erectum</i>) ⁵			E	Open fields, disturbed areas
Spotted Pondweed (<i>Potamogeton pulcher</i>) ⁵			T	Acidic ponds and muddy shores
Wafer-Ash (<i>Ptelea trifoliata</i>) ⁵			E	Woods and roadsides
Short-Beaked Bald-Rush (<i>Rhynchospora nitens</i>) ⁵			T	Wet sandy soils and bogs
Giant Beardgrass (<i>Saccharum giganteum</i>) ⁵			U	Open fields and roadsides
Sea Purslane (<i>Sesuvium maritimum</i>) ⁵			E	Salt marsh
Coastal Goldenrod (<i>Solidago elliotii</i>) ⁵			E	Marshes and wet meadows
Rough Goldenrod (<i>Solidago rugosa</i> ssp <i>aspera</i>) ⁵			E	Open fields and roadsides
Swamp Oats (<i>Sphenopholis pensylvanica</i>) ⁵			E	Wooded swamps and wet meadows
Rough-Hedge Nettle (<i>Stachys hyssopifolia</i>) ⁵			T	Sandy pond margins
Primrose-Leaf Violet (<i>Viola primulifolia</i>) ⁵			T	Moist meadows and pond margins
<u>Invertebrates</u>				
Herodias Underwing (<i>Catocala herodias gerhardi</i>)			U	Open fields and roadsides
Mottled Duskywing (<i>Erynnis martialis</i>)			U	Meadows
Persius Duskywing (<i>Erynnis persius persius</i>)			E	Pine oak forest

TABLE 3.1.4.2-1 (continued)
FEDERAL AND STATE LISTED SPECIES POTENTIALLY OCCURRING WITHIN 0.25
MILES OF THE EASTERN LONG ISLAND EXTENSION PROJECT

Common Name (Scientific Name)	Federal Status	CT Status	NY Status	General Habitat
<u>Amphibians/Reptiles</u>				
Tiger Salamander (<i>Ambystoma tigrinum</i>)	--	--	E	Open water/pond margins
<u>Birds</u>				
Piping Plover (<i>Charadrius melodus</i>)	E		E	Maritime beach
Least Tern (<i>Sterna antillarum</i>)			T	Maritime beach

Source: Mackey (2001) and Stilwell (2001).

Key: E= Endangered; T = Threatened; U = Unprotected; R = Rare.

- 1 = These species occurred on the NYSDEC list provided to Islander East and adopted by Iroquois for the ELI Project field surveys.
- 2 = These species occurred on the October 22, 2001 list provided to Iroquois by NYSDEC, but were not surveyed for during August and September, 2001 field surveys. These plants potentially occur in the Carmans River wetland, but will not be impacted due to an HDD of this area.
- 3 = These species occurred on the October 22, 2001 list provided to Iroquois by NYSDEC, but were not surveyed for during August and September, 2001 field surveys. These plants occur in open, upland habitats in the Yaphank area in locations where survey permission was not granted. ENSR will survey for these species once landowner permission is granted.
- 4 = This species occurs in pine barrens habitat within BNL, and was surveyed for, but not identified during the August and September field surveys within BNL property.
- 5 = These species (21) are generally located in salt marsh and upland habitat along the Wading River area.

Federally-Listed Species

Piping Plover

The maritime beach, which the ELI pipeline alignment crosses where it comes ashore from Long Island Sound, is potential habitat for the Piping Plover. This species nests above the high tide line on coastal beaches, sand flats, at the end of sand spits and barrier islands, gently sloping foredunes, blowout areas behind primary dunes, sparsely vegetated dunes, and washover areas cut into or between dunes. This species generally arrives on their breeding grounds beginning in early to mid-March. Nesting generally commences in late March or early April, and may often last until late August. Egg laying occurs from May to June. By mid-September, both adults and young plovers will have departed for their wintering areas (Stilwell 2001). Feeding areas include intertidal portions of ocean beaches, washover areas, mudflats, sandflats, wrack lines and shorelines of coastal ponds, lagoons, or salt marshes.

Field surveys of the beach in September 2001 identified several natural features that make this habitat suitable for plover nesting and foraging. The beach is sandy with no pronounced dune along the mean high water line. This species inhabits gently sloping areas (such as this beach), because it affords an unobstructed view around the nest to watch for predators. Iroquois will follow the USFWS recommendations of scheduling the construction activities at the beach, which are expected to avoid adverse impacts to plover mating and brood rearing as well as impacts to this species habitat.

State Listed Species

Plants

The ELI Project corridor is not believed to contain any of the 48 plant species listed in Table 3.1.4.2-1, as determined from field surveys that searched for rare plant species in suitable habitat in the project corridor. The 12 species that were identified for the Islander East report and subsequently adopted and surveyed for by ENSR were not identified within the project corridor. The rare species associated with salt marsh habitat, such as silverweed is not expected to occur along the pipeline corridor due to the absence of salt marsh habitat. The absence of freshwater ponds and sandy pond shore habitat along the pipeline corridor limits the probability of occurrence for species such as rose coreopsis, whip nutrush, few-flowered nutrush, clustered bluets, and three-ribbed spike rush, which occur in these environments. Similarly, rare freshwater aquatic species such as water-thread pondweed, small floating bladderwort, and fibrous bladderwort, are similarly expected to be absent due to the absence of suitable open water habitat. Field surveys of the Carmans River wetland did not identify any rare species including button sedge and purple everlasting in the sedge meadow habitat located adjacent to the Carmans River.

The remaining plants that were not a part of the list submitted in Islander East report included 26 plant species. Of this total, two potentially occur in wetlands (slender blueflag and white boneset), two potentially occur in open, upland locations (slender pinweed and silvery aster), one species (huckleberry) occurs in pine barrens habitat of the BNL, and the remaining 21 species generally occur in the salt marsh habitats adjacent to the Wading River (Table 3.1.4.2-1).

Slender blueflag and white boneset potentially occur in the wetlands. Although these species have not been surveyed for, they may occur in the wetland associated with the Carmans River, which will be crossed by employing HDD technology. Slender pinweed and silvery aster have also not been surveyed for. These species generally occur in the Yaphank area (~MP 27.9) of the proposed pipeline alignment, in areas where survey permission has not been granted. These species will be surveyed for once landowner permission has been granted. The listed huckleberry potentially occurs in the pine barrens habitat within the BNL. Although this species did not occur on the initial species list provided to Islander East and adopted by Iroquois, ENSR surveyed the BNL portion of the project corridor and did not identify the listed species of huckleberry, but rather a more common species of huckleberry occurred in this area.

The remaining 21 plant species generally occur in salt marsh and upland habitat. These species would most likely occur in the salt marshes and adjacent upland areas around the Wading River. The salt marsh adjacent to the Wading River is located approximately 400 feet east of the proposed pipeline alignment corresponding to approximate MP 17.2, and the Wading River itself is located approximately 2,000 feet east of the proposed pipeline alignment.

Tiger Salamander

The ELI pipeline corridor crosses pine barren areas that may provide habitat for the tiger salamander, although no potential breeding pools are located in or adjacent to the project area. Field surveys conducted by ENSR did not identify any suitable breeding habitat or individuals along the proposed pipeline alignment. The tiger salamander is one of the largest terrestrial salamanders in the United States, averaging seven to eight inches in length. Although this species is primarily subterranean, individuals emerge from burrows in February or March on Long Island to migrate at night, usually in the rain, to temporary or permanent pools for breeding. Females lay egg masses and attach them to twigs and

weed stems. Hatching occurs four weeks later. Larvae remain in the ponds until late July or early August. Larvae then transform into air breathing sub-adults and leave the ponds to live underground. According to the October 22, 2001 species list provided by NYSDEC, the closest recorded breeding ponds of the tiger salamander are located west of the William Floyd Parkway, and are not near the project area.

Least Tern

The maritime beach may also provide habitat for the Least Tern. This species has similar distribution, breeding seasons, and habitat requirements to that of the Piping Plover. Piping Plovers and Least Terns often nest colonially.

Invertebrates

The initial species list provided to Islander East from the NYSDEC only listed one invertebrate species, the coastal barrens moth, as potentially occurring along the proposed route. At the time of the August/September field surveys, this species was not identified along the proposed route. According to the October 22, 2001 NYSDEC species list, the coastal barrens moth was not included, but three other listed moth species (mottled duskywing, persius duskywing, and herodias underwing) occurred on this list. The mottled duskywing and herodias underwing occur in open spaces such as meadows and open fields. These two species are not listed as threatened or endangered and therefore are not protected by the State of New York. The persius duskywing is a state protected species that inhabits pine/oak forest along the proposed pipeline route, which was identified during the August/September field surveys.

3.1.5 Wetlands

This section discusses existing conditions of wetlands located in the ELI pipeline corridor. Wetlands are transitional areas between uplands and water; as such, they perform critical functions including specialized flood control, pollutant filtering, and critical habitat for numerous wildlife species. Proposed activities in wetlands are regulated at both the federal and state level.

Jurisdictional wetlands and waters of the United States are regulated by the United States Army Corps of Engineers (USCOE) pursuant to Section 404 of the Clean Water Act (Environmental Laboratory 1987). Wetlands are the collective term for swamps, marshes, bogs, wet meadows, and similar areas that are often located between open water and dry land. Wetlands are often a valuable natural resource that, depending upon the wetlands characteristics, could help to improve water quality, reduce flood and storm damage, provide fish and wildlife habitat, and support outdoor recreational activities. The limits of federal jurisdictional wetlands are determined in accordance with the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987).

The NYSDEC wetland mapping identifies jurisdictional wetlands protected by state wetland regulations. The state has prepared maps showing all freshwater wetlands that are 12.4 acres in size or greater and subject to the Freshwater Wetland Regulation (6 NYCRR Part 663). These freshwater regulations also assert jurisdiction over lands located within 100 feet of state wetlands. For tidal wetlands, the NYSDEC has prepared maps showing areas subject to jurisdiction pursuant to Tidal Wetlands Land Use Regulations (6 NYCRR Part 661). Under these regulations, the NYSDEC also regulates activities located up to 300 feet away from tidal wetlands.

In September 2001, Iroquois performed biological field surveys to identify and delineate federal jurisdictional wetlands located in the ELI pipeline corridor. Federal jurisdictional areas were delineated in accordance with the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987). The field surveys involved marking the wetland boundaries with pink flags labeled with a descriptive designation, and using Global Positioning System (GPS) equipment to survey the flag locations. Information on the dominant vegetative species in each layer, soils, and surface hydrology indicators was recorded and used to complete USACE Routine Wetland Determination Data Forms for each wetland/upland boundary. The wetland classification system established by Cowardin et al. (1979) was used to classify major wetland community types.

Iroquois has not surveyed the project corridor for wetlands in areas identified in Table 1.8.4-1 (Resource Report 1) because survey permission from the respective landowners has not been granted. For these areas, a preliminary determination of wetlands has been based on National Wetland Inventory (NWI) mapping for the project area. These maps show approximate wetland locations and associated cover types based on stereoscopic analysis of high altitude aerial photographs. Copies of NWI maps for the project area are provided as an attachment to this filing. Iroquois will provide the FERC with survey results for these areas, upon completion.

3.1.5.1 Pipeline

The results of wetland field surveys in the pipeline corridor are summarized in Table 3.1.5.1-1 and described below. State mapped wetlands along the ELI pipeline route are shown on Figure 3.1.5.1-1.

Long Island Sound

The nearshore of Long Island is identified on NWI mapping as an "Estuary, Intertidal Beach/Sand Bar", and NYSDEC mapping as a "Littoral Zone" tidal wetland. Neither mapping type of the nearshore is vegetated. An estuarine system consists of deepwater tidal habitats and adjacent tidal wetlands that are usually semi-enclosed by land but have open, partially obstructed, or sporadic access to the open ocean, and in which ocean water is at least occasionally diluted by freshwater runoff from the land (Cowardin et al. 1979). The Littoral Zone is defined in Section 6 NYCRR 661.4(hh)(4) as lands under tidal wetlands not included in other categories to a depth of six feet below mean low water. This wetland occurs below the mean high sea elevation and is included in the description of federal navigable waters in Resource Report 2.

Wetland LIE-1

Wetland LIE-1 is a red maple swamp with smaller areas of shrub swamp and wet meadow located adjacent to both sides of the Carmans River (MP 27.5) south of the Long Island Expressway. The boundaries of this wetland were demarcated in the field with pink flags labeled LIE-1-100 to 111, and LIE-1-200 to 208. According to Cowardin et al. (1979), this wetland is classified as a palustrine, forested, scrub-shrub, emergent (PFO/PSS/PEM) complex. The inclusions of PEM and PSS habitat are located primarily on the eastern side of the river. Wetland LIE-1 is a NYSDEC Class I freshwater wetland (B-2), which is the highest quality classification assigned to wetlands by the NYSDEC.

This page involves pipeline location information and is not available at this Internet site due to homeland security-related considerations. This portion of the Islander East consistency appeal administrative record may be reviewed at NOAA's Office of General Counsel for Ocean Services, 1305 East-West Highway, Silver Spring, Maryland.

**TABLE 3.1.5.1-1
 JURISDICTIONAL WETLANDS CROSSED BY THE EASTERN LONG ISLAND
 EXTENSION PROJECT PIPELINE ALIGNMENT**

Milepost	Field Survey I.D. #	Cowardin et. al Classification	State Wetland I.D.	Crossing Length
	LIS	E2BBP	Littoral Zone	
	LIE-1	PFO/PSS/PEM	B-2	

Keys:

E2BBP = Estuarine, Intertidal, Beach/Bar (Unconsolidated shore), Irregular

PFO = Palustrine, forested

PSS = Palustrine, scrub-shrub

PEM = Palustrine, emergent

* = The pipeline is proposed to be installed under Wetland LIE-1 using HDD technology, therefore, no surface impacts are anticipated.

3.1.5.2 Aboveground Facilities

Field surveys have been completed in all three aboveground facility sites. No federal or state wetlands are located within 100 feet of these areas.

3.1.6 Significant Habitats and Vegetative Communities

The proposed pipeline alignment crosses habitats designated by federal and state governments as valuable to fisheries, wildlife, and scientific research. Many governmental designations of these habitats overlap. This section describes what government programs were reviewed to identify significant habitats and vegetative communities in the pipeline corridor and aboveground facility locations. Federally designated significant habitats along the proposed ELI Project are presented in Figure 3.1.6-1 while all state designated significant habitats along the proposed pipeline are presented in Figure 3.1.6-2.

3.1.6.1 Federally-Designated Significant Habitats

Essential Fish Habitats

Pursuant to the Magnuson-Stevens Fishery Conservation and Management Act of 1976, the New England Fishery Management Council, Mid-Atlantic Fishery Management Council, the South Atlantic Fishery Management Council, and the NMFS has designated Essential Fish Habitats (EFH) for fish species in the Long Island Sound. EFH includes those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. The Magnuson-Stevens Act establishes measures to protect the EFH. The NMFS must coordinate with all other federal agencies to conserve and enhance EFH, and federal agencies must consult with NMFS on all activities, or proposed activities, authorized, funded, or undertaken by the agency that may adversely affect EFH. In turn, NMFS must provide recommendations to federal and state agencies on such activities to conserve EFH.

This page involves pipeline location information and is not available at this Internet site due to homeland security-related considerations. This portion of the Islander East consistency appeal administrative record may be reviewed at NOAA's Office of General Counsel for Ocean Services, 1305 East-West Highway, Silver Spring, Maryland.

To implement the EFH program, the National Oceanic and Atmospheric Administration (NOAA) divided Long Island Sound into 10- by 10-minute blocks and identified the life stages of each species occurring within each block (NOAA 1999). The proposed ELI pipeline alignment would cross three of these blocks, which are numbered 20, 21, and 34. The BA provides a list of managed species with their specific life stages known to occur within these blocks.

Critical Habitats Pursuant to Endangered Species Act of 1973

The proposed pipeline alignment does not cross any federally designated "critical habitats". Critical habitats for federally threatened and endangered species includes designated geographic areas essential to the conservation of the species and which may require special management considerations or protection. The USFWS has stated that "no habitat in the project area is currently designated or proposed critical habitat in accordance with the provisions of the Endangered Species Act" (Stilwell 2001)

USFWS Management Study Areas

The USFWS has two major management studies that involve identified habitats in and near the proposed alignment. These studies are for management purposes only, and do not entail regulatory authorities.

USFWS Significant Habitats of the New York Bight Watershed

In 1997, the USFWS published the final draft of Significant Habitats and Habitat Complexes of the New York Bight Region. The objective of this study was to identify regionally significant habitats and species populations in the New York Bight watershed and New York - New Jersey Harbor that would provide local, state, and federal resources agencies, planning agencies, conservation organizations, and the public with information essential to making informed land use decisions (USFWS 1997). The report emphasizes the recognition and delineation of large habitat complexes linking similar or related habitat types and local species populations into larger ecological assemblages on a landscape basis. The ELI pipeline corridor would cross two habitat complexes identified in this report: the Long Island Pine Barrens-Peconic River Complex and the Great South Bay

The project is located within the Long Island Pine Barrens-Peconic River Complex from approximate MP 18.7 to MP 26.9, along the William Floyd Parkway, and MP 27.1 to MP 27.6, in the vicinity of the Carmans River. The boundary of the habitat complex generally follows the outer boundary of the 40,470-hectare (100,000-acre) Central Pine Barrens zone designated by the state of New York in 1993. Specific areas cited by the USFWS Report that are important to fish and wildlife resources, include unique plant communities, regional biological diversity including the Peconic River and its headwaters and associated coastal plain ponds, dwarf pine plains, Flanders Bay wetlands and coastal plain pond complex, and Cranberry Bog. The ELI Project corridor does not contain any of these habitats, and would cross the Peconic River where it is culverted.

The project is located within the Great South Bay Complex from approximate MP 27.1 to MP 27.6, which includes the Carmans River and adjacent wetlands. The boundaries of the Great South Bay Complex and the Long Island Pine Barrens-Peconic River Complex both overlap in the area of the Carmans River. The estuary component of the Carmans River watershed is the area of focus in the USFWS Report, although the watershed is important for supporting migratory birds, rare habitat

communities, and water quality (USFWS 1997). Iroquois proposes to horizontal direction drill under the Carmans River and adjacent wetlands from MP 27.4 to MP 27.7, which is expected to avoid a majority of surface impacts within the Great South Bay Complex associated with construction of the project.

USFWS Northeast Coastal Areas Study

In 1990, the USFWS received funding from the United States Congress to conduct the Northeast Coastal Areas Study (NECAS). This study involved identifying those areas in southern New England and Long Island Sound in need of protection for fish and wildlife habitat and the preservation of natural diversity. In its final report to Congress, the USFWS (1991) identified 40 significant coastal habitat complexes and recommended protective measures that should be facilitated to restore, maintain, enhance, and protect these unique habitats. These complexes generally encompass two or more significant habitat areas that are either contiguous or in relatively close proximity.

The ELI Project corridor is not located in a NECAS complex, although it is in close proximity to the Peconic River-Pineland Complex, which begins approximately 600 feet east of the William Floyd Parkway. The project is even further away from the three significant habitat areas of this complex: the Peconic River Headwaters, Dwarf Pine Plains, and the Bald Hill Pine Plains.

3.1.6.2 State Designated Significant Habitat

Significant Coastal Fish and Wildlife Habitat

The NYSDEC evaluates coastal fish and wildlife habitats and, from their recommendation, the NYDOS designates and maps coastal habitats found to be significant. As part of the policies established in New York State's Coastal Management Program (CMP), proposed activities in the coastal zone must demonstrate that significant coastal fish and wildlife habitats would be protected. The NYSDEC has assigned significance value scores for each habitat; and higher habitat significance value/score indicates that these areas are more valuable and that alterations of these habitats are highly unlikely.

Two significant coastal fish and wildlife habitats have been identified in and near the ELI Project corridor: the Wading River and Carmans River. The NYSDOS has designated a significant habitat for the Peconic River that is over two miles east of the project corridor.

Wading River

The ELI Project corridor at MP 17.2 is located approximately 2,000 feet west of the Wading River Marsh habitat, which consists of approximately 200 acres of undeveloped salt marsh that borders the Wading River. Despite developments adjacent to the area, Wading River Marsh continues to provide habitat for a variety of fish and wildlife species, particularly those that are characteristic of Long Island's coastal marshes (NYSDOS 1987c). The NYSDOS notes that elimination of salt marsh vegetation would result in a direct loss of valuable habitat area. Because of the project's distance from this habitat, impacts are not expected to occur in this area.

Carmans River

The ELI Project corridor crosses the Carmans River habitat in the approximate area of MP 27.5. Despite the presence of small dams on the river, it is expected to be an outstanding fish and wildlife habitat

in the region. The entire length of the river encompassed by the habitat has been designated by the New York State as either a 'Scenic River' or "Recreational River" to encourage preservation and restoration of its natural scenic and recreational qualities (NYS DOS 1987b). Iroquois proposes to employ HDD technology to cross the Carmans River and adjacent wetlands from MP 27.4 to MP 27.7, thus surface impacts are expected to be avoided within the Carmans River habitat.

Central Pine Barrens

The ELI Project corridor located between MP 18.7 to MP 26.9 along the William Floyd Parkway and MP 27.1 to MP 27.6, along the Long Island Expressway is located within the Central Pine Barrens. This 100,000-acre area covers portions of the towns of Brookhaven, Riverhead and Southampton, and small portions of the villages of Quogue and Westhampton Beach. This region is protected under the Long Island Pine Barrens Protection Act of 1993 (Chapters 262 and 263 of the New York State laws of 1993) codified in New York Environmental Conservation Law (the "ECL") article 57, and is overseen by the Central Pine Barrens Joint Planning and Policy Commission.

The relatively undeveloped Central Pine Barrens is reported to be important due to the regionally rare wetland and upland communities contained within it and because it supports the highest diversity of rare species in New York State (USFWS 1997). The Central Pine Barrens Comprehensive Land Use Plan (1995) lists the following eight occurrences of rare natural communities in the pine barrens, which support an unusual diversity of rare species with 147 species of special emphasis:

- Coastal plain pond shores;
- Coastal plain pond;
- Coastal plain poor fen;
- Coastal Plain Atlantic white cedar swamp;
- Pine barrens shrub swamp;
- Dwarf pine plain;
- Pitch pine-oak-heath woodland; and
- Salt panne.

The Pine Barrens Protection Act defines two geographic areas: the overall Central Pine Barrens (CPB) zone and the smaller 52,500-acre Core Preservation Area (CPA), contained within the larger area. Those portions of the Central Pine Barrens, which are not within the Core Preservation Area, are referred to as the Compatible Growth Area (CGA, approximately 47,500 acres). The proposed ELI Project would cross both the CPA and CGA. Resource Report 8 discusses in detail the project's relationship to standards set forth in the Central Pine Barrens Comprehensive Land Use Plan for activities in the CPA and CGA.

3.2 CONSTRUCTION AND OPERATION IMPACTS

This section addresses potential project-related impacts to fisheries, wildlife, and vegetative resources from the construction and operation of the ELI pipeline, considering construction and mitigation measures that Iroquois is proposing to employ, which are expected to avoid or minimize potential project-related impacts.

3.2.1 Fisheries Resources

This section describes the potential impacts from construction and operation to fisheries resources associated with the ELI pipeline and aboveground facilities. Mitigation that is expected to avoid and/or minimize potential adverse impacts are also discussed.

3.2.1.1 Pipeline

Long Island Sound

It is expected that impacts to fishery resources would be negligible. Potential effects on shellfish, crustacean, and finfish species from activities associated with construction and operation of the proposed pipeline may come from temporary, lowered water quality due to trenching, burial, or the release of drilling fluids, emplacement of pipelines, coastal habitat degradation, and fuel spills. Many finfish, crustacean, shellfish, pelagic and demersal fish species are estuary dependent, and because of this, any coastal environmental degradation resulting from the proposed pipeline construction, although indirect, could have the potential to adversely affect these species. Potential impacts to these fishery resources are most likely to occur to the habitats of these species. For additional information on impacts from the proposed pipeline construction on the habitats of adult demersal and pelagic finfish, spawning and nursery areas, and shellfish, refer to Section 3.2.1 (Essential Fish Habitat) of the BA (Volume III).

Impacts to fishery resources are expected to only occur during the construction process. The trenching process is expected to produce a low plume of suspended sediment particles that could impact the area around the pipe; however, the waters of western Long Island Sound are characteristically turbid and the animals in the area have adapted to a certain level of suspended sediments in the water column. Over time, natural processes would backfill the trench created around the pipe. Impacts to fishery resources are not expected to occur from the pipeline's operation.

Peconic River

No direct or indirect impacts to the Peconic River are expected to occur from pipeline construction. Iroquois would install the pipeline under the existing Peconic River culvert, with no expected impacts to the downstream channel or associated water quality. Iroquois would install erosion control barriers in accordance with FERC's Procedures and would stabilize and restore the ground cover in accordance with the FERC Plan, which should protect the rivers from potential erosion of soils disturbed during construction. The crossing of the Peconic River will be conducted by either employing a typical bore or by an open cut method of pipeline installation, depending on the existing elevations.

Carmans River

No direct or indirect impacts to the Carmans River are expected to occur from pipeline construction. Iroquois is proposing to install the pipeline under the Carmans River and adjacent wetlands by employing HDD techniques, which is expected to avoid direct surface impacts. Iroquois would install erosion control barriers in accordance with FERC's Procedures and would stabilize and restore the ground cover in accordance with FERC's Plan, which should protect the river from potential erosion of soils disturbed during construction.

3.2.1.2 Aboveground Facilities

All aboveground facilities are located over 100 feet from any wetland or watercourses, and are not expected to have an effect on fishery resources.

3.2.2 Vegetative Resources

This section describes the potential impacts from construction and operation to the vegetative resources associated with the ELI pipeline and aboveground facilities on Long Island. Mitigation measures to avoid and/or minimize potential adverse impacts are also discussed.

3.2.2.1 Pipeline

Iroquois has sited the proposed pipeline and related workspaces to minimize short-term, long-term, and cumulative impacts to vegetative communities, and would adhere to FERC's Plan and Procedures during construction and restoration activities. For siting, Iroquois has used the following methods, which are expected to minimize impacts to vegetative communities:

- Minimize overland construction distance;
- Avoid rare vegetative communities;
- Co-locate with existing transportation and utilize rights-of-way, where possible; and
- Use specialized crossing techniques.

The routing of the proposed 29.1-mile long pipeline alignment and design of the construction workspace reflects this effort. The use of Long Island Sound has reduced the onshore component of the project and potential impacts to vegetative communities to approximately 12.2 miles, by far the least of any alternative routes (see Resource Report 10 for alternatives). The selected route avoids rare natural communities in the Central Pine Barrens, and allows approximately 90 percent of the onshore alignment crossing forestland to be co-located with existing rights-of-way (ROW), thereby minimizing forest fragmentation. Co-locating approximately 20 feet of the 75-foot wide construction ROW with the William Floyd Parkway ROW has minimized encroachment into the adjacent pitch pine-oak forest community. The design of the workspace layout places the permanent ROW alongside the William Parkway in the mowed roadside community to the extent possible, minimizing the amount of adjacent forestland included in the permanent ROW. The HDD of the Carmans River is expected to avoid direct impacts to approximately 1,330 feet of upland and wetland forest habitat.

Table 3.2.2.1-1 summarizes the acreage of vegetative communities potentially affected by the pipeline construction and operation. The construction of the ELI Project is expected to impact approximately 74.5 acres of upland forestland (pitch pine-oak forest, oak hardwood forest, coniferous plantation, and red maple swamp). Of this amount, 47.6 acres are located in the temporary ROW and extra workspace areas and, after construction, these areas would undergo natural successional processes and eventually revert back to forestland. The remaining 26.7 acres are located in the 50-foot wide operational ROW, and would be maintained in an herbaceous/low shrub cover characteristic of a successional old field community. Reschke (1990) defines this community as a meadow dominated by forbs and grasses that occur on sites that have been cleared, and then abandoned. The other vegetative communities affected by construction (mowed roadside, cropland, maritime beach) are expected to revert to pre-project conditions relatively quickly, with no long-term alterations from pipeline ROW maintenance.

**TABLE 3.2.2.1-1
MAJOR VEGETATIVE COMMUNITIES AFFECTED BY THE CONSTRUCTION OF THE
EASTERN LONG ISLAND EXTENSION PROJECT**

Facility/State	Maritime Beach (acres)		Forest (acres) ¹		Cropland/Field Crops (acres)		Open Space (acres) ²	
	Const.	Oper.	Const.	Oper.	Constr.	Oper.	Const.	Oper.
New York Onshore	3.2	0.4	47.8	26.7	7.7	4.3	77.8	41.3
Total (acres)	3.2	0.4	47.8	26.7	7.7	4.3	77.8	41.3

¹ = Includes all forest types: Pitch Pine Oak Forest, Oak hardwood Forest, Pine Plantation, and Red maple Swamp.

² = Includes all non-forested agricultural open land and overgrown scrub-shrub fields. Also includes existing road crossings and mowed highway ROWs and shoulders.

The clearing and subsequent restoration of vegetation in the construction ROW would be performed in accordance with the FERC Plan. The operation and maintenance of the project ROW is expected to have little additional impact after site clearing and ROW restoration is completed. Maintenance would include surveillance of the permanent ROW, which would be maintained to ensure access and comply with requirements of 49 CFR, Part 192. Regeneration of large woody vegetation would be prevented on permanent ROW to ensure safe pipeline operation. The frequency of ROW maintenance activities would vary with environmental conditions and the rate of vegetative growth.

3.2.2.2 Aboveground Facilities

Iroquois has sited the proposed aboveground facilities to minimize short-term, long-term, and cumulative impacts to vegetative communities. For siting, Iroquois has used the methods described above for the pipeline facilities, which are expected to minimize overall impacts to vegetative communities along the proposed pipeline route. A permanent conversion of forested land to non-forested land will result from the construction of the meter station and mainline valves, but the adjacent workspaces will be allowed to revert back to pre-construction vegetative cover. Similarly, the proposed pipelayard will be temporary, and the vegetative cover will be allowed to revert to pre-construction conditions. Iroquois will adhere to FERC's Plan and Procedures during construction and restoration activities. No vegetative communities of significance nor rare/threatened plant communities exist within any aboveground facility. Table 3.2.2.2-1 summarizes the acreage of vegetative communities potentially affected by the construction and operation of the proposed aboveground facilities of the ELI Project.

**TABLE 3.2.2.2-1
MAJOR VEGETATIVE COMMUNITIES AFFECTED BY THE PROPOSED
ABOVEGROUND FACILITIES OF THE EASTERN LONG ISLAND PROJECT¹**

Facility	Milepost	Maritime Beach (acres)	Forest (acres)	Cropland /Field Crops (acres)	Mowed Road Shoulder (acres)
MLV-2 ²	17.5	0.0	NA	0.0	0.0
MLV-3 ²	22.7	0.0	0.0	0.0	NA
MLV-4 ²	29.1	0.0	NA	0.0	0.0
Meter Station	29.1	0.0	3.86 (0.23)	0.0	0.0
Pig Receiver ³	29.1	0.0	0.2 (0.2)	0.0	0.0
Total (acres)		0.0	3.86 (0.23)	0.0	0.0

¹ = First acreage shown is size affected by construction; acreage in parentheses is permanent impact.

² = No additional impacts are anticipated during construction and operation of the MLVs. Construction will occur within the construction ROW and when in operation, all MLVs will be inside permanent ROW.

³ = This acreage is combined with impacts for the meter station. Pig receiver will exist within meter station.

3.2.3 Wildlife Resources

3.2.3.1 Pipeline

Long Island Sound

Construction disturbances associated with the proposed project are not anticipated to impact marine mammals because construction is scheduled to occur when few marine mammals are likely to be present within Long Island Sound. Although construction may result in minor modifications of movement patterns of the few sea mammals that may be present during the marine construction period, the project is not expected to result in habitat modification or degradation that significantly impairs essential behavior patterns or results in death or injury of sea mammals. Should there be any impact, it would primarily be the temporary disturbance of foraging and displacement of animals near the construction area (Gilbert 2001). Additionally, no marine blasting is anticipated.

The construction of the pipeline during the winter months at the maritime beach and Long Island Sound should avoid impacts to migratory birds, which typically utilize these areas during warmer months.

Long Island

Construction and operation of the proposed Iroquois project is expected to result in temporary and permanent alteration of wildlife habitat, as well as direct impact on wildlife including disturbance, displacement, and mortality. The impact to non-forested habitat types along the pipeline alignment and associated wildlife species should be relatively minor and short-term. Forest habitat within the temporary ROW and extra workspace areas would be allowed to revert back to pre-construction conditions and associated wildlife habitat conditions, which may take 40 to 60 years depending on site conditions. The only proposed long term alterations in wildlife habitat would occur from the maintenance of the operational ROW that would permanently convert upland forest habitat to successional old field habitat. These alterations would favor some species, and negatively impact others. The use of the HDD is expected to avoid any alterations to watercourses and riparian habitat in the project corridor.

In the Core Preservation Area (CPA) of the Central Pine Barrens, the ELI Project will be fully co-located with existing road and utility rights-of-way and; therefore, is not expected to result in any new fragmentation of habitats in the CPA. The concern of fragmented habitats from contiguous forested tracts into isolated remnant patches is a concern stated in the Central Pine Barrens Comprehensive Plan Use Plan (Section 5.10, Ecological Principles of Conservation Reserve Design). The proposed project would result in a long-term movement of the forest edge inward approximately 30 feet along the William Floyd Parkway (assuming a 20-foot wide mowed roadside, as part of the 50-foot wide permanent ROW), but would not create new fragmentation or associated edge habitat. The affects of the edge movement, both positive and negative, on wildlife should be localized because of the linear shape of the project and the expansive undeveloped forestland adjacent to the project area.

3.2.3.2 Aboveground Facilities

Many of the same potential impacts to wildlife occurring along the pipeline facilities may occur to the wildlife at the locations of aboveground facilities of the ELI Project. Although some wildlife habitat will be permanently converted due to the construction of these facilities, no significant wildlife area is located within 100 feet of any aboveground facility location. Iroquois would adhere to the FERC Plan and Procedures during construction and restoration activities to return the landscape to pre-construction conditions to allow for wildlife habitat to regenerate.

3.2.4 Threatened and Endangered Species

This section describes the potential affects of the ELI Project on the federal and state listed species identified in Section 3.1.4.

3.2.4.1 Federally-Listed Species

Atlantic Kemp's Ridley Turtle, Atlantic Green Turtle, Leatherback Turtle, Loggerhead Turtle

The construction of the marine portion of the proposed pipeline is scheduled to occur in the winter months. Marine turtles are most commonly found in the coastal waters of Connecticut and New York during the warmer months of the year (June through November). Construction disturbances associated with the project, including shore-term elevation of noise levels and sediment resuspension are not anticipated to adversely impact the four species of marine turtles because the proposed marine construction will occur when few, if any, sea turtles are likely to be present. Although the proposed construction may result in minor modifications of movement patterns of the few turtles that may be present during the marine construction period, the project is not expected to result in habitat modification or degradation that significantly impairs essential behavior patterns or results in their death or injury. Iroquois representatives would coordinate directly with the NMFS regarding the protection of these species.

Shortnose Sturgeon

Impacts to shortnose sturgeon are not anticipated because they occur primarily in the lower portion of the Hudson River and in the Connecticut River; of which both areas are outside of the project area. Because this species prefers estuarine environments rather than open marine environments, such as the Long Island Sound, they are not likely to be found in the project area. Because of their mobility, should shortnose sturgeon enter the project area during construction activities, they would likely avoid the

construction area. Therefore, it is not anticipated that the project would result in habitat modification or degradation for this species or result in their death or injury.

Piping Plover

Iroquois' schedule to construct the pipeline at the Shoreham beach and the Long Island Sound between 17.1 and 17.2 meets the USFWS requirement that work in piping plover habitat be conducted outside of April 1 to September 1. This construction schedule should avoid potential adverse impacts to the plover during mating and brood rearing. Following construction, Iroquois will restore contours and vegetation at the beach in accordance with the FERC Plan and applicable permit conditions. The beach does not possess dune features nor is it densely vegetated, therefore, Iroquois is highly confident that the beach may successfully be restored to pre-project conditions. Because construction will not occur when plovers would typically utilize the beach, and because the beach would be restored following construction, it is anticipated that the project would not result in habitat modification or degradation for the plover, or result in their death or injury. Iroquois representatives would coordinate directly with the USFWS regarding the protection of this species.

3.2.4.2 State Listed Species

Plants

The construction of the pipeline is not anticipated to impact any of the 38 state listed plant species that potentially occur in pine barrens habitat, within the Carmans River and its associated wetland floodplain or in the open, upland areas where survey permission has not been granted. None of the 12 species that were surveyed for during the August/September field surveys were identified. The freshwater wetland located in the project corridor and adjacent to Carmans River is suitable habitat for several of these listed plants such as button sedge and purple everlasting. Field surveys were conducted in this wetland with the express intent of identifying listed species. However, the results of these surveys did not identify any of these plants. Suitable habitat for the other listed plant species, such as open water habitats, pond margins, and salt marsh, do not generally occur in the project corridor and, therefore, these species are not likely to occur in the project corridor. Similarly, these plants were not observed during the field surveys. Based on the absence of suitable habitat for a majority of these species and the results of field surveys performed where suitable habitat exists, it is anticipated that no adverse impacts to the state listed plant species should result from construction and operation of the ELI Project. Although the NYSDEC has identified several listed plant species in the Carmans River wetland, this area will be crossed using HDD technology, thus avoiding direct impacts to the listed species that potentially occur in this area.

According to the October 22, 2001 species list from the NYSDEC, an additional 26 species appeared, which were not surveyed for during the August/September 2001 field surveys. Although these species were not surveyed for, it is not anticipated that construction and operation of the proposed pipeline will impact these additional species. Of the 26 species, two potentially occur in the wetlands associated with the Carmans River. This wetland will be crossed employing HDD technology, thus avoiding impacts to these species. Another two species occur in open, upland habitats in areas where survey permission has not been granted. ENSR will complete field surveys for these species once landowner permission is received. Furthermore, if these species are identified in future field surveys, Iroquois will work closely with the NYSDEC to mitigate for any potential impact to these species. After the completion of construction, the construction and permanent ROW is expected to revert back to pre-construction conditions.