

LONG ISLAND POWER AUTHORITY

EXHIBIT 4 - ENVIRONMENTAL IMPACT

PREPARED PURSUANT TO SECTION 86.5

Public Service Commission
Case No. 99-T-1423
Date 1/20/00
Ex. No. 4

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EXHIBIT 4

ENVIRONMENTAL IMPACT

This exhibit has been prepared to be responsive to both the information required in Section 86.3(a)(1) and (2) (which is graphically shown in Attachments A-D of Exhibit 2 and the information required by Section 86.5.

I. Existing Conditions

A. Introduction

Sections B-D below provide the baseline information for the land use, historic resources, vegetation and wildlife for the Proposed Route, Alternate Route 1 and Alternate Route 2, respectively. Each of the major subject areas are divided into methodology and results. Section I of this Exhibit describes existing conditions along the Proposed and Alternate Routes. The impacts of the proposed Project are set forth in Section II of this Exhibit.

PSC Article VII regulations generally provide for a corridor study width of three miles from either side of a proposed transmission line. However, the line under consideration is inherently designed to be low impact both in construction and operation. For example, as an underground line, the facility will be invisible once installed. Because of this, and since a three-mile corridor would extend in certain areas into the Atlantic Ocean and Peconic Bay, the study corridor was narrowed where appropriate to conform with the physical placement realities of the Project. In general, cultural and historic resources were examined within three miles of either side of the Proposed Route. Land use characteristics were evaluated on a variable corridor width, but certainly sufficient to encompass any possible impacts of the Project. Vegetation and wildlife zones of study extended approximately one mile on either side of the corridor, but more in some areas where the vegetative communities were homogeneous for greater distances. In all cases, the study area widths were more than sufficient to be inclusive of all expected or potential impacts.

Baseline data and impact assessments that are common to all routes are provided in the Proposed Route discussions and only differences are set forth in the Alternate Route discussions.

B. Proposed Route

1. Land Use

a. Methodologies

The land use survey was conducted by first examining 1 inch = 200 feet February 1999 aerial photographs of the entire Proposed Route. The land use information obtained from the aerials was recorded on tax maps of the entire route. These data were verified during two field surveys, September 21, 1999 and September 27, 1999. The field surveys provided clarification and specific details not shown on the aerial photography. Figures 4.1-6 depict the results of the land use survey.

In addition to the aerial and field programs, planning departments in the Village and Town of Southampton were contacted for concerns about land use along the Proposed Route and Alternate Routes, and any current land use issues in their respective municipalities. The Town of Southampton Comprehensive Plan Update (1997) was also reviewed.

b. Summary of Findings

This section focuses on the identification of land use resources adjacent to the proposed electric transmission line construction Project. The land use resources include agricultural, residential, commercial, institutional, industrial, conservation, and recreational. Noise-sensitive receptors, such as hospitals or schools, were identified, as well as water recharge zones and special groundwater districts were also listed. Please refer to Exhibit 2 of Attachment C for a graphic representation of the finding.

1) Agricultural

Adjacent to the Proposed Route on Speonk-Riverhead Road on the west-side of Suffolk County Community College is approximately 217 acres of agricultural land. Approximately 82.6 acres of agricultural land are located on the south side of the LIRR ROW, approximately one mile west of the Southampton Substation. Approximately 45.5 acres of agricultural land are located 0.5 miles west of the Southampton Substation, adjacent on the north side to the LIRR ROW.

2) Residential

Approximately 70% of the Proposed Route is not adjacent to any residential areas. Residential parcels become a common land use adjacent to the route in the vicinity of Exit 65 on Route 27.

The Proposed Route is adjacent to ten different Town of Southampton residential zoning districts (see Zoning map and Table 4.1). It is also adjacent to three different Village of Southampton residential zoning districts (see Zoning map and Table 4.2).

3) Commercial

The Proposed Route is adjacent to four Town of Southampton and two Village of Southampton commercial/business districts (see Zoning map). These commercial districts are primarily south of the route beginning in and east of Hampton Bays, and are not directly on the Proposed Route.

4) Noise-Sensitive Receptors - Institutional

United Methodist Church and Saint Rosalie Roman Catholic Church, both in Hampton Bays, are located approximately 600 feet south of Route 27.

Long Island University - Southampton College is adjacent on the south side of the LIRR ROW, between Black Watch Court and Tuckahoe Road.

Suffolk County Community College is on Speonk-Riverhead Road.

Southampton Montessori School is located on St. Andrews Road in Southampton, approximately 75 feet north of the LIRR ROW. A Greek Orthodox Church is southerly adjacent to the LIRR ROW, south of County Road 39 in Southampton.

Southampton Full Gospel Church is located on County Road 39, approximately 0.35 miles north of the LIRR ROW.

5) Industrial

The Proposed Route is adjacent to two Town of Southampton light industrial zoning districts (see Zoning and Land Use maps). These include primarily sand mines and junk yards.

6) Conservation

The Proposed Route is adjacent to property designated Open Space Conservation in the Town of Southampton Zoning Code (see Land Use map). The land adjacent to the LIPA ROW that is southeast of the Riverhead Substation consists of Cranberry Bog County Park.

The south side of County Road 51, along the Proposed Route, contains a fenced in Water Recharge Protection Area, designed to recharge collected water into the aquifer. This area is also part of the Suffolk County Parks Nature Preserve.

Maple Swamp County Park is approximately 0.5 miles north of the Proposed Route, on the north side of Route 27. Birch Creek Owl Pond County Park is within 1.25 miles of the Project route, also on the north side of Route 27.

The Nature Conservancy-Shinnecock Hills Preserve encompasses approximately 61 acres of land adjacent on the north side to the LIRR tracks between Arbutus Road on the west side and Tuckahoe Road on the east side.

7) Shinnecock Indian Reservation

The primary Shinnecock Indian Reservation is located approximately 0.6 miles south of the LIRR ROW and approximately four miles east of Shinnecock Canal. The Shinnecock Indians also own approximately 161 acres of land west of the Canal and north of Route 27.

8) The Pine Barrens

Dwarf Pine Plains County Nature Preserve is located on the southern side of Route 27 west of Exit 63, immediately south of where the transmission line will be buried. The David A. Sarnoff State Pine Barrens Preserve is approximately 400 feet north of the Proposed Route, on the north side of Route 27, roughly between Quogue Riverhead Road and Speonk Riverhead Road.

The Proposed Route is within the grassy shoulder alongside the roads within the Central Pine Barrens. The Central Pine Barrens encompass nearly 100,112 acres of land on Long Island. The lands within the Central Pine Barrens encompass five land-use categories including:

- Core Preservation Area (CPA), which promotes compatible agricultural, horticultural and open space recreational uses, but prohibits or redirects new construction or development.
- Compatible Growth Areas, which discourage piecemeal and scattered development but allow appropriate patterns of compatible residential, commercial, agricultural and industrial development.
- Critical Resource Areas.
- Planned Development Districts, which can function as receiving sites for development rights or Pine Barrens credits. These areas are also known as Transfer Development Rights ("TDR") areas.
- As-of-Right Residential Receiving Areas, which identify receiving sites for development rights or Pine Barrens credits.

The Proposed Route is within the Pine Barrens CPA from the Riverhead substation to the vicinity of Exit 65 on Route 27 in Hampton Bays. The route exits the CPA and runs through several hundred yards of CGA and TDR Areas to points where it exits the Central Pine Barrens Area.

9) Hydrologic Zones

In the Pine Barrens, precipitation percolates into the ground to recharge aquifers at a rate of 350 billion gallons of water annually. To ensure the protection of this resource, the Long Island Comprehensive Waste Treatment Management Plan introduced the concept of hydrologic zones based upon different flow patterns. The two basic zone types are those areas that contribute to deep-water recharges and those that contribute to shallow water recharges or transmit water to recharge surface waters. Eight specific hydrologic zones (Hydrologic Zones I through VIII) have been identified on Long Island.

The Proposed Route is within Hydrologic Zone III from the Riverhead Substation to just past Exit 65 on the Sunrise Highway (Route 27) in Hampton Bays. Zone III is an area that has good groundwater quality in both the Upper Glacial and Magothy aquifers and has been designated as a major deep recharge zone. The remainder of the route lies within Zone IV which is characterized by shallow flow systems that discharge directly into streams and marine waters.

10) Special Groundwater Protection Area

According to the 1992 Long Island Regional Planning Board - The Long Island Comprehensive Special Groundwater Protection Area Plan, nine Special Groundwater Protection Areas (SGPAs) were created on Long Island to "present a unique, final opportunity for comprehensive, preventive management to preclude or minimize land use activities that can have a deleterious impact on groundwater". Goals of the SGPA legislation include maintaining the volume of water recharge into the aquifer system, insure the chemical quality of the water recharge, and to maintain existing wetlands.

The route is within the Central Suffolk SGPA from the Riverhead substation to the vicinity of Exit 65 on Route 27 in Hampton Bays. The remainder of the route, to its terminus in Southampton, is not within a designated SGPA.

11) Critical Environmental Areas

Pursuant to the New York State Environmental Quality Review Act (SEQRA), 6 NYCRR 617.14(g), both County and local governmental agencies can designate lands with exceptional or unique characteristics as Critical Environmental Areas (CEAs). According to the New York State Department of Environmental Conservation (NYSDEC), there are ten CEAs either designated as CEAs or designated for acquisition in the Town of Southampton. The Dwarf Pine Plains area in Westhampton, Central Pine Barrens, Sears Bellows addition, and Central Suffolk SGPA are the only CEAs through which the Proposed Route passes.

12) Recreational

A review of the Proposed Route and appropriate area maps indicate that there are recreational land uses along the route. Specifically, approximately 750 feet east of the route on County Road 51 is the entrance to Hampton Hills Golf and Country Club. Sears Bellows County Park is approximately 1,000 feet north of the route. Shinnecock Canal is also along this route. National Golf Links of America and Shinnecock Hills Golf Courses are both approximately one mile north of the LIRR ROW in Southampton, east of the Canal. Southampton Golf Club is located on County Road 39 approximately 330 feet north of the LIRR ROW along the route. Southampton Golf Range on County Road 39 is adjacent on the north side to the LIRR ROW.

2. **Cultural Resources**

a. Methodologies

An inquiry was made to New York State Office of Parks, Recreation, and Historic Preservation ("NYSOPRHP") for a State listing of any historic and cultural resources along the Proposed Route. The Suffolk County Historical Society was also contacted to address any local concerns and obtain a similar listing of historic and cultural resources along the Proposed Route. The Southampton Colonial Society was also contacted.

b. Summary of Findings

1) Historical Resources

No National Historic Landmarks were located within three miles of the Proposed Route.

The NYSOPRHP stated in its letter dated October 13, 1999 (Attachment 1), that with regard to potential impacts to historic structures, no such impact is anticipated for the proposed underground route. The October 12, 1999 (Attachment 2) response from the Suffolk County Historical Society states that there would not be impacts to historic resources as a result of this project, since the trench will follow along established roadways and rail road tracks. The Southampton Colonial Society stated there are visually no historic structures that would be impacted as a result of this project. According to the Southampton Comprehensive Plan (1997),

the National Register of Historic Places indicates the nearest listing to the Proposed Route is the William Merritt Chase Homestead, on the north side of Montauk Highway, west of Sugar Loaf Road, Shinnecock Hills, which is approximately 0.6 miles south of Long View Road, east of Shinnecock Canal.

2) Archaeological Resources

The NYSOPRHP was contacted regarding archaeological resources along the Proposed Route and stated in an attachment to its letter dated October 13, 1999, that the OPRHP recommends a Phase 1 archaeological survey is warranted unless previous substantial ground disturbance can be documented. The October 12, 1999 response from the Suffolk County Historical Society states that there would not be impacts to archaeological resources as a result of this project, since the trench will follow along established roadways and rail road tracks. The Southampton Colonial Society was contacted regarding the project and stated there may be archaeological resources along the route. According to the Town of Southampton Comprehensive Plan, the eastern half of the Proposed Route lies within a significant archaeological concentration area, which begins approximately one mile west of Shinnecock Canal and continues approximately four miles east of the Canal.

Dr. David Bernstein of SUNY Stony Brook will be retained to provide archeological assessment services to ensure that the Project does not disturb areas of archeological significance.

3. Vegetation

a) Methodologies

The vegetation survey was conducted by first examining large scale 1999 aerial photographs of the entire planned Proposed Route. Each major vegetation type was labeled and transferred to the GIS base map utilized for the Project. The major vegetative classifications referenced were based upon the New York Natural Heritage Program, "Ecological Communities of New York State", (Reschke, 1990). After the aerial interpretation was completed, a series of ground truthing field trips were conducted to verify the results obtained. The ground truthing also provided some additional details not included in the photo interpretation.

Aerial photographs (1996 and 1999) were reviewed for aerial photo-

interpretation of vegetative cover types existing on the Proposed Route and the areas surrounding them. The Suffolk County Soil Survey was reviewed and correlated to aerial photographs for site interpretation. Reschke's (1990) *Ecological Communities of New York State* was used to characterize the vegetative cover types on the Proposed Route.

In addition to the aerial and field programs, an inquiry was sent to the NYSDEC, Natural Heritage Program (NHP), for a listing of rare and endangered species that may occur in the Proposed Route. The U.S. Fish and Wildlife Service (F&WS) was also contacted for similar information that may reside in federal files.

Figures 4.7-12 depict the results of the Vegetation Survey.

b. Summary of Findings

The Proposed Route is dominated by a Pitch Pine-Oak Forest that can be found from the Riverhead Substation to Route 27 (along both the Proposed and the Alternate Routes). In addition, there are patches of transitional Pitch Pine-Oak-Heath Woodland, Pitch Pine-Heath Barrens, and Pitch Pine-Scrub Oak Barrens along the Proposed Route. There are also large areas of Dwarf Pine Plains on the eastern portion of the Project area along Route 27, adjacent to the route, outside the construction zone.

Along the Proposed Route, a community described as mowed roadside/pathway exists. The Proposed Route is adjacent to residential and commercial properties in some areas, and many of these properties are described as mowed lawn with trees (or residential/landscaped). There are areas along the Proposed Route where groundwater recharge basins have been excavated (particularly along Sunrise Highway, Route 27). These areas are classified as water recharge basins. Finally, the Proposed Route joins the LIRR tracks and leads to the Southampton Substation. This community has been defined as herbicide-sprayed roadside/pathway. These vegetative communities are discussed in further detail below.

There are three areas along the Proposed Route as well as the Alternate Routes where the cables would be installed within the proximity of freshwater wetlands, as defined by the NYSDEC. These wetlands also fall under the Town of Southampton's wetland regulations. The two communities, which describe the vegetation on these wetlands, are Pine Barrens Vernal Pond (along the Proposed

Route south of the Riverhead Substation) and Pine Barrens shrub swamp (along the LIRR tracks).

- 1) Pitch Pine-Oak Forest - The Pitch Pine-Oak Forest is represented on site by dominant indicator species including pitch pine (*Pinus rigida*), scarlet oak (*Quercus coccinea*), and to a lesser extent, white oak (*Quercus alba*). This mixed forest community typically occurs on well-drained sandy soils of glacial outwash plains or moraines (Reschke, 1990). The density of pitch pines in this community varies widely across the subject site. The pitch pine is the dominant species along the Proposed Route, and is also dominant along much of the roads and highways along the Proposed Route. Fire typically maintains a variety of successional stages within pitch pine-oak woodlands and allows the pines to perpetuate in the stand (Kricher & Morrison, 1988 and Reschke, 1990). The site reconnaissance revealed evidence of recent fires within the pine stands along both Route 27 (between exits 62 and 64) and the southern portion of Speonk-Riverhead Road. Throughout the length of the Proposed Route, oaks dominate the canopy layer, with pitch pines being more thinly distributed. Here, scarlet oak forms the primary canopy, with white oak representing a secondary canopy.

The understory vegetation shifts slightly across the site as well. Throughout the pine-dominated stands, various oaks and heath grow as dense scrub. Throughout the site, there are large pine-dominated stands where the understory is almost completely dominated by scrub oak. This occurs throughout the areas that have been burned by fires or disturbed by other means. Black huckleberry (*Gaylussacia baccata*) and low-bush blueberry (*Vaccinium angustifolium*) can be found in the understory of the pitch pine and oak forest in some percentage throughout almost the entire Proposed Route. Another less dominant understory species that was identified often in the Pitch Pine-Oak Forest community was sweet fern (*Comptonia peregrina*).

- 2) Dwarf Pine Plains - The Dwarf Pine Plains community is represented on site by the dominant indicator species of dwarf pitch pine and scrub oak (*Quercus ilicifolia*). This community occurs on soils that are infertile, coarse textured sands that are excessively well-drained. The canopy of dwarf pitch pines and scrub oaks was observed to be from 6 to 10 feet tall in the area along Route 27 where this community can be found. This community was observed to include a dense understory of black huckleberry, blueberry,

hudsonia (*hudsonia ericoides*), and bearberry. The Dwarf Pine Plains community can be found in large areas between Exit 63 and Exit 65 on Route 27. The Proposed Route does not impinge upon the Dwarf Pine Plains community.

- 3) Mixture of Pitch pine-scrub oak barrens, Pitch pine-oak-heath-woodland, and Pitch pine-heath barrens - Along almost the entire stretch of the Proposed Route (and the two Alternate Routes), the communities can be described as a mixture of these three communities, all varying slightly in successional structure and, therefore, different dominant vegetation (namely, different percent cover of pitch pine versus various oak varieties in the canopy). The Pitch pine-scrub oak barrens is a shrub-savanna community that occurs on well-drained, sandy soils that have developed on sand dunes, glacial till, and outwash plains. The Pitch pine-oak-heath woodland is described as a Pine Barrens community that occurs on well-drained, infertile, sandy soils. The structure of this community is intermediate between a shrub-savanna and a woodland. Finally, the Pitch pine-heath barrens is described as a shrub-savanna community that occurs on well-drained, sandy or rocky soils. This is a broadly defined community with several regional variants. All of these communities indicate the dominant tree species as being pitch pine, and then each community has varying percent covers of different oak (white, scarlet, black, red, and scrub) species for the canopy. The most dominant oak species observed along both Proposed Route is the scarlet oak, which accounts for approximately 80% of the oaks along the Proposed Route.

The understory of these three communities all include heath species, such as blueberry, huckleberry, and bearberry. Scrub oak, sweet fern, wintergreen, and bearberry are also included in most of these communities. Adjacent to the Proposed Route, the percent cover of the groundcover varied depending on factors including how recently the area was last disturbed (by fire, mowing, or other means), how often the area is disturbed, and the different soil types that are evident.

These three communities (and also Pitch pine-oak forest community) were all evident and mix frequently adjacent to the Proposed Route. This mixing is dependent upon varying factors including how recently the area was last disturbed (by fire, mowing, or other means), how often the area is disturbed, and the different soil types that are evident.

4) Mowed lawn with trees - The Proposed Route contain adjacent residential or commercial areas which have an ecological community described as "mowed lawn with trees". This community is described as residential, recreational, or commercial land in which the groundcover is dominated by clipped grasses and forbs, and is shaded by at least 30% with trees. The eastern part of the Proposed Route (east of Route 24, Exit 65 on Route 27) contains the largest percent of this community.

5) Unpaved Road/Path - An unpaved path exists along sections of the Proposed Route on the south edge of Route 27, but within the NYSDOT ROW. This is an ecological community described by Reschke (1990) as a sparsely vegetated road or pathway of bare soil that are maintained by regular trampling or scraping of the land surface. Path rush (*Juncus tenuis*), various grasses, mugwort (*Artemisia vulgaris*), and ragweed (*Ambrosia artemisiifolia*) are the common vegetation that were observed in these areas. Common saplings included winged sumac (*Rhus copallina*), black cherry (*Prunus serotina*), and black locust (*Robinia pseudoacacia*).

The Proposed Route has vegetative communities that reflect disturbed and periodically maintained areas. The ROW that stretches from the Riverhead Substation to County Road 51 is dominated by a mix of bearberry, scrub oak, Hudsonia, sweet fern, and greenbrier.

The area adjacent to the Proposed Route along Route 27 consists of vegetation such as scrub oak, pitch pine saplings, mugwort, ragweed, low bush blueberry and black huckleberry.

6) Water recharge basin - Several basins are located along the Proposed Route. This community is described as the aquatic community of a constructed depression near a road or development that receives runoff from paved surfaces and allows the water to percolate through to the groundwater, thereby recharging the groundwater. These basins are intermittently flooded during periods of heavy precipitation. Vegetation that can be expected in these areas is common reed (*Phragmites australis*) and red maple.

7) Successional old field - This community is described as a meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed (for farming and development), and then abandoned. Characteristic herbs which were identified in the areas

of the Proposed Route include goldenrods (*Solidago sp.*), hawkweeds (*Hieracium sp.*), ragweed (*Ambrosia artemisiifolia*), Queen Anne's lace (*Daucus corota*), and dandelion (*Taraxacum officinale*). Characteristic shrubs that were identified in the areas of the proposed and alternate routes include arrowwood (*Viburnum recognitum*) and eastern red cedar. This community occurs in small areas throughout the Proposed Route, usually a few hundred feet from the existing roadways.

- 8) Herbicide-sprayed roadside/pathway - The vegetation along the LIRR tracks is indicative of a Herbicide-sprayed roadside/pathway as described by Reschke (1990). This community is described as a narrow strip of low-growing vegetation along LIRR ROW such as railroad tracks that is maintained by spraying herbicides. The vegetation along the slopes adjacent to the LIRR tracks consists of invasive, pioneer trees and shrubs that are found in disturbed areas. Vegetation included winged sumacs, black cherry, asiatic bittersweet (*Celastrus orbiculatus*), poison ivy (*Rhus radicans*), fox grape (*Vitis labrusca*), mugwort and ragweed. There were also areas where pitch pine and eastern red cedar saplings were growing, along with areas dominated by bayberry.

The vegetation past the steep slopes of the LIRR tracks included bayberry (*Myrica pensylvanica*), asiatic bittersweet, red cedar (*Juniperus virginiana*), and beach plum in the shrub and small tree layer. Goldenrod (*Solidago spp.*) and mixed grasses are dominant in the herbaceous community.

The vegetation is thick in some areas with vines (asiatic bittersweet, fox grape, greenbrier, and poison ivy), and dense shrubbery. However, much of the area north and south of the LIRR tracks has been developed and the vegetation is very sparse in these areas.

- 9) Mowed roadside/pathway - The vegetation along Route 27 and Speonk-Riverhead Road and County Road 51 is typical for highway areas on Long Island and has been defined as mowed roadside/pathway. This community is described as a narrow strip of mowed vegetation along the side of a road. The vegetation in these mowed strips is described as being dominated by grasses, sedges, and rushes; or it may be dominated by forbs, vines, and low shrubs that can tolerate infrequent mowing. Highway turfgrass establishment typically utilizes seed mixtures which incorporate various cool season grasses (i.e., bluegrass, perennial ryegrass)

along with a nitrogen-fixing legume (i.e., clover, birdsfoot trefoil). The NYSDOT Current Standard Specifications (January 1990) call for the following seed mixtures for areas proposed for turf establishment:

- a) Red fescue, perennial ryegrass, and white clover;
- b) Tall fescue, fine-leaved fescue, and perennial ryegrass;
- c) Kentucky bluegrass, fine-leaved fescues, and perennial ryegrass

In addition, NYSDOT also permits a mixture of warm season grasses and legumes as follows:

- a) Sand lovegrass, switchgrass, indian grass, little bluestem, sand bluestem, big bluestem and a nurse crop (i.e., winter rye or spring oats).
- b) Flatpea, birdsfoot trefoil, and switchgrass.

Past highway corridor turfgrass seed mixtures may also have included other species, such as weeping lovegrass, as evident along south-facing highway embankments along highways such as Route 27.

Tree, shrub and groundcover plantings which occur along highway corridors generally incorporate a wide variety of ornamental species which are tolerant of urban conditions (e.g., poor air quality, soil compaction, drought conditions). Within the past decade or so, NYSDOT has shifted emphasis from ornamental plants to more native species, wherever practical and available. Thus, highway plantings may include a wide array of species, incorporating ornamentals such as Norway maples, honey locust, ginkgo, littleleaf linden, hawthornes, flowering crab apples, forsythia, and several species of spruces and pines; to utilizing the more native species shadbush, flowering dogwood, eastern red cedar, white pine, beach plum, bayberry, and mountain laurel. Over time, highway plantings have also shifted species of emphasis due to pests or diseases that have created significant damages to standing stock. Some of the species that may have been prevalent in historical plantings and may still be evident on highway corridors, are no longer being planted or established except in isolated numbers and locations, including Japanese black pines, Austrian pine, autumn olive, and various hawthornes.

- 10) Pine barrens shrub swamp - This community is described as a shrub-dominated wetland that occurs in shallow depressions in the coastal plain. Characteristic shrub species include leatherleaf (*Chamaedaphne calyculata*) and highbush blueberry (*Vaccinium corymbosum*). *Sphagnum* dominates the groundlayer with small patches of sundews. A freshwater wetland is located along both sides of LIRR tracks, west of Southampton College. This wetland is dominated by tree species such as red maple, sour gum, and sassafras. The shrubs, which were identified in this wetland, include leatherleaf, buttonbush, and Northern arrowwood.
- 11) Pine Barrens vernal pond - This community is described as a seasonally fluctuating, groundwater-fed pond that occurs in pine barrens, either in low areas of the coastal plain, or between dunes. Characteristic species include leatherleaf, black huckleberry, and peat moss. Stunted trees may be present on hummocks within the wetland; characteristic trees include red maple and pitch pine. Two of these wetland areas can be found along the existing LIPA ROW immediately south of Route 24. Wetland trees such as red maple and oak dominate this wetland. Another wetland is located along the existing LIPA ROW between Route 24 and County Road 51. This wetland is dominated by vegetative species such as leatherleaf, high-bush blueberry, sphagnum moss, and sundews.

4. Wildlife

a. Methodologies

The wildlife survey was conducted by literature research and on-site field investigations.

A field survey of the route was conducted in order to identify the bird population along the Proposed Route. Binoculars were used to aid identification of species. Birds were also identified by sound. Herpetiles (amphibians and reptiles) on the Project site were recorded during the site surveys. Debris, rocks, plastic or metal objects were turned over in search of herpetile habitats. Herpetiles seek such habitats for many reasons including protection, food and, in the case of metal and plastics, for warmth.

A survey of both small and large mammals was also conducted on the ROW. Direct sightings, spores and tracks identified the resident

wildlife. The presence of burrows or ground nests was also a fingerprint to classify species.

b. Summary of Findings

1) Wildlife - General

The Proposed Route between the Riverhead and Southampton Substations traversed numerous different habitat types including red maple - hardwood, pine barrens - shrub, successional old field, pitch pine - scrub oak barrens, pitch pine - oak-heath woodlands, pitch pine - oak forest, and mowed roadside/pathways. These habitat classifications are consistent with *Ecological Communities of New York State* (Reschke) 1990.

These habitats have the potential to support numerous wildlife species. Lavine, 1998, reports 451 avian species from New York State; Conant and Collins, 1991, identifies 33 herpetile (reptile and amphibian) occurring on Long Island; and Connor, 1971, identifies 35 mammalian species from Long Island. A discussion regarding each wildlife group and the individuals anticipated to occur within the power line corridor is as follows.

2) Avifauna

Of the 451 avian species reported to occur in New York State, half are migratory (approximately 230 species) which pass through Long Island while en route during the spring and fall migrations. Approximately 125 species breed in the vicinity of the corridors, and the remaining 96 species either breed elsewhere on Long Island or utilize habitats (e.g., oceans, beaches, etc.). Most are not present in the study area.

The species most likely to be encountered will be those that utilize the forest edge and are considered to be habitat generalist. The term habitat generalist applies to species that are not restricted to a particular habitat type and are capable of utilizing the habitat that is available. Some of the more common species anticipated to be encountered include: the red-tailed hawk (*Buteo jamaicensis*), gray catbird (*Dumetella carolinensis*), American robin (*Turdus migratorius*), common yellowthroat (*Geothlypis trichas*), yellow warbler (*Dendroica petechia*), mourning dove (*Zenaida macroura*), bluejay (*Cyanocitta cristata*), black-capped chickadee (*Parus atricapillus*), tufted titmouse (*Parus bicolor*), northern mockingbird

(*Mimus polyglottos*), rufous-sided towhee (*Pipilo erythrophthalmus*), and northern cardinal (*Cardinalis cardinalis*), along with the typical alien species, such as the house sparrow (*Passer domesticus*), European starling (*Sturnus vulgaris*), and the rock dove (*Columba livia*).

It should be noted that the habitats transversed also support several avian species considered to be of special concern by the NYSDEC. In particular, areas of successional old field have been documented to support species such as the eastern bluebird (*Sialia sialis*), grasshopper sparrow (*Ammodramus savannarum*), and vesper sparrow (*Pooecetes gramineus*). These species have been observed in the vicinity of County Road 51 (Andrele and Carroll, 1988). The various pine barren habitats also support a species of special concern: the common nighthawk (*Chordeiles minor*), as well as forest interior species such as the red-breasted nuthatch (*Sitta canadensis*), pine warbler (*Dendroica pinus*), ovenbird (*Seiurus aurocapillus*), and the black and white warbler (*Mniotilta varia*). All of these species are common in Long Island's pine oak forest, but declining throughout the United States (Planning Department, Town of East Hampton, 1999). Conservation groups are concerned with the protection of the habitats that support these species.

3) Herpetiles

In general, the presence of reptiles and amphibians is not detected as they are typically very secretive, small, well camouflaged, slow moving, and solitary. The only time some species become more conspicuous is during breeding season when certain species (e.g., frogs) congregate and begin calling.

Of the 33 species of herpetiles identified, approximately three-quarters (23 species) are found either in or in close association with wetland habitat. A list of these species is presented as Table 4.3. Of these species, several are listed by NYSDEC as either endangered, threatened, or as a species of special concern.

The tiger salamander is listed as endangered; the cricket frog and mud turtle are considered to be threatened, and the southern leopard frog, blue-spotted salamander and spotted salamander are species of special concern.

The remaining species are all upland forms and are likely to be present in a variety of habitats. A list of these species is presented on Table 4.4.

Of the upland species, only the eastern hognose snake is listed as a species of special concern.

4) Mammalian Species

A total of approximately 30 mammalian species have the potential to utilize the habitats found along the corridor pathway. Table 4.5 presents those species.

While the most commonly observed species would include the opossum, eastern cottontail, woodchuck, red fox, raccoon, and white-tailed deer (which have been observed at dusk along the roadside in eastern Long Island), they are not the most abundant. The most abundant species are the small secretive insectivores and rodents, such as the short-tailed shrew, eastern chipmunk, white-footed mouse, meadow vole, pine vole, house mouse, and Norway rat. These species are ubiquitous and abundant throughout Long Island.

The most common bat species are the little brown bat and red bat. These species are also common throughout the area

In general, the majority of the mammalian species identified are not restricted by habitat type. Although certain species may have a habitat preference, they are capable of utilizing several different habitat types. The most restricted species are those that are aquatic in nature and are only found in the wetland habitat. The only two species identified on the list considered to be aquatic in nature are the muskrat and the mink.

5) Insects

In addition to the previously discussed wildlife species, the corridor supports a great number of insect species, which in turn provide a food source for the higher trophic levels.

Some of these insects, in particular butterflies and moths, are considered to be rare in New York State. The buckmoth (*Hemileuca maia*) is listed as a species of special concern by the NYSDEC. Buckmoths are typically found in association with recent burns or

other cleared areas in the Pine Barrens where scrub oak is present. The buckmoth has been reported to be common in the dwarf pine forest found in Westhampton. Additional rare species found in the pine barren habitat, but are not listed by the NYSDEC, include butterfly species, such as the Edward's hairstreak (*Satyrium edwardsii*) and the frosted elfin (*Incisalia irus*) and a moth species, the aureolaria seed borer (*Rhodoecia aurantigo*). The Edward's hairstreak is typically found in close association with scrub oak, while the other species are more generalistic and found throughout the Pine Barrens.

5. Endangered and Threatened Species

a. Methodologies

The NYSDEC Natural Heritage Program was contacted to perform a computerized search of the Project area for the presence of threatened, endangered, protected, rare, and species of special concern. The NYSDEC Breeding Bird Atlas was also consulted for rare species known to breed within the Project vicinity. The U.S. Fish and Wildlife Service was contacted for any information concerning endangered and/or threatened species on or in the vicinity of the Project area.

b. Summary of Findings

The New York State Department of Environmental Conservation Natural Heritage Program (NYSDECNHP) stated in its letters dated September 28, 1999 and October 5, 1999 (Attachments 3 and 4) that their databases had been reviewed with respect to the location of the line (both the Proposed and alternative routes). Below is a list of rare or state-listed wildlife and vegetation species, significant natural communities, and other significant habitats which the NYSDECNHP databases indicate occur, or may occur, on the corridors or in the immediate vicinity of the corridors.

Rare or State-listed Wildlife Species

Species Common Name	Species Latin Name	NY Legal Status & Heritage Ranks	Year Last Seen
Yellow-Spotted Graylet	<i>Hyperstrotia flaviguttata</i>	Unprotected	1996
Dusted Skipper	<i>Atrytonopsis hianna</i>	Unprotected	1996
Packard's Lichen Moth	<i>Cisthene packardii</i>	Unprotected	1996
Coastal Barrens Buckmoth	<i>Hemileuca maia maia</i>	Unprotected-Special Concern	1984
A Noctuid Moth	<i>Euxoa pleuritica</i>	Unprotected	1993
Violet Dart	<i>Euxoa violaris</i>	Unprotected	1987
Herodias Underwing	<i>Catocala herodias gerhardi</i>	Unprotected	1996
Jair Underwing	<i>Catocala jair ssp 2</i>	Unprotected	1996
Pink Sallow	<i>Psectraglaea camosa</i>	Unprotected	1996

Species Common Name	Species Latin Name	NY Legal Status & Heritage Ranks	Year Last Seen
Barrens Itame	Itame sp. 1	Unprotected	1996
Pine Barrens Zale	Zale sp. 1	Unprotected	1995
A Slug Moth	Chaetoglaea cerata	Unprotected	1986
Spiny Oakworm	Anisota stigma	Unprotected	1996
Tiger Salamander	Ambystoma tigrinum	Unprotected	1991
A Tiger Beetle	Cicindela abdominalis	Unprotected	1913
Doll's Merolonche	Merolonche dolli	Unprotected	1931
Source: NYSDEC Division of Fish, Wildlife & Marine Resources - New York Natural Heritage Program, Sept. 1999			

Rare or State-listed Vegetative Species

Species Common Name	Species Latin Name	NY Legal Status & Heritage Ranks	Year Last Seen
Hop Sedge	Cyperus lupulinus ssp	Unprotected	1950
New England Blazing-Star	Liatis scariosa var novae-angliae	Rare	1919
Short-fruit Rush	Juncus brachycarpus	Unprotected	1943
Ipeca Spurge	Euphorbia ipecacuanhae	Unprotected	1918
Swamp Pink	Arethusa bulbosa	Rare	1925
Stargrass	Aletris farinosa	Unprotected	1949
Fibrous Bladderwort	Utricularia striata	Rare	1972
Spotted Pondweed	Potamogeton pulcher	Unprotected	1952
Virginia False Gromwell	Onosmodium virginianum	Rare	1927
Fewflower Nutrush	Cscleria pauciflora var caroliniana	Threatened	1950
Flax-leaf Whitetop	Aster solidagineus	Unprotected	1996
Sandplain Wild Flax	Linum intercursum	Threatened	1992
Showy aster	Aster spectabilis	Unprotected	1996
Small White Snakeroot	Eupatorium aromaticum	Unprotected	1992
Evening Primrose	Oenothera oakesiana	Unprotected	1952
Atlantic White Cedar	Chamaecyparis thyoides	Rare	1997
Nantucket Juneberry	Amelanchier nantucketensis	Endangered	1997
Bushy Rokrose	Helianthemum dumosum	Threatened	1998
Possum-haw	Viburnum nudum	Threatened	1926
Slender Beadgrass	Paspalum setaceum var psammaphilum	Unprotected	1923
Source: NYSDEC Division of Fish, Wildlife & Marine Resources - New York Natural Heritage Program, Sept. 1999			

The United States Fish and Wildlife Service (USF&WS) stated in their letter dated October 7, 1999 (Attachment 5) that except for occasional transient individuals, no Federally listed or proposed endangered or threatened species under the USF&WS jurisdiction are known to exist in the respective project impact areas.

No rare and endangered species or State listed species were located during the field vegetation and wildlife surveys on the Proposed Route or Alternate Routes.

6. Soils

a. Methodologies

The soil survey was conducted by literature search and on-site field investigations.

The Soil Survey of Suffolk County, New York, published by the United States Department of Agriculture Soil Conservation Service, was consulted to determine the various soil associations and specific soil names encountered along the Proposed Route.

A field survey of the route was conducted to verify general soil conditions and slopes encountered.

b. Summary of Findings

In general, the soils encountered along the Proposed Route fall within one of four soil associations, according to the Soil Survey of Suffolk County. These associations are as follows:

Plymouth Carver association, rolling and hilly. These soils are deep, excessively drained, coarse-textured soils on moraines. They are present primarily on the western portion of the Proposed Route, in the areas of Flanders, Hampton Bays, and Shinnecock Hills.

Plymouth Carver association, nearly level and undulating. These soils are deep, excessively drained, coarse-textured soils on outwash plains. They are present primarily on the western portion of the Proposed Route, in the area of Westhampton, west of Exit 64 on Route 27.

Montauk, sandy variant-Plymouth association. These soils are deep, rolling and hilly, excessively drained, coarse-textured soils on moraines. They are present on the eastern portion of the Proposed Route, from Shinnecock Hills to east of Southampton College.

Bridgehampton-Haven association. These soils are deep, nearly level to gently sloping, well drained to moderately well drained, medium-textured soils on outwash plains. They are present on the eastern portion of the Proposed Route, in the vicinity of Southampton Village.

The complete list of soils encountered along the Proposed Route is as follows:

CpC - Carver and Plymouth Sands -	3 - 15% slopes
CpA - Carver and Plymouth Sands -	0 - 3% slopes
CpE - Carver and Plymouth Sands -	15 - 35% slopes
At - Atsion Sand - Only one spot on LIPA ROW n/o Route 51	
MnC - Montauk Loamy Sand, sandy variant -	8 - 15% slopes
PIB - Plymouth Loamy Sand -	3 - 8% slopes
PIC - Plymouth Loamy Sand -	8 - 15% slopes
RdB - Riverhead Sandy Loam -	3 - 8% slopes
HaB - Haven Loam -	2 - 6% slopes
HaA - Haven Loam -	0 - 2% slopes
RdA - Riverhead Sandy Loam -	0 - 3% slopes
PIA - Plymouth Loamy Sand -	0 - 3% slopes
CuB - Cut and Fill Sand -	Gently sloping
Su - Sudbury Sandy Loam - only one spot at Route 113	
RdC - Riverhead Sandy Loam -	8 - 15% slopes
CuE - Cut and Fill Sand -	Steep
Mu - Muck - Only one spot located south of Bellows Pond	
MnB - Montauk Loamy Sand, sandy variant -	3 - 8% slopes
MfC - Montauk Fine Sandy Loam -	8 - 15% slopes
Gp - Gravel pits - located east of Southampton College	
BgA - Bridgehampton Silt Loam - immediately west of Southampton Substation	0 - 2% slopes
Bm - Bridgehampton Silt Loam - west of Southampton Substation -	Graded

NOTE: The soils encountered along Alternate Route 1 are the same as those for the Proposed Route.

C. Alternate Route 1

The only difference between Alternate Route 1 and the Proposed Route is the section from the NYSDOT maintenance facility on Route 27 to County Road 39 to Tuckahoe Road to the LIRR ROW. From an environmental perspective, only the land use distinctions need separate discussion, since the other environmental sections are applicable to Alternate Route 1.

Alternate Route 1 follows a commercial corridor along Route 27 and County Road 39, passing store fronts and other commercial establishments instead of the more residential Long View Road and subsequent LIRR ROW. The alternate route begins where Route 27 and County Road 39 meet, and two eastbound lanes merge into one, creating a significant amount of traffic during peak hours year-round. There is no shoulder and sidewalks are immediately adjacent to the road. County Road 39 has already been widened; however, traffic congestion is steadily increasing. This route runs through a commercial strip, which includes two motels, two gas stations, boat and mechanic shops, a few retail stores, and a few restaurants. The significant differences in environmental impacts between Alternate Route 1 and the Proposed Route are discussed in Section II of this Exhibit.

D. Alternate Route 2

1. Introduction

Alternate Route 2 has been discussed in Exhibit 3. Briefly, it follows LIPA's existing 69kV double-circuit transmission line across private properties (via easements) to Exit 65 on Sunrise Highway (Route 27). It then transitions to an overhead line to LIPA's Tiana Substation where it joins the LIRR ROW. The following environmental characteristics of the route are presented insofar as they differ from those of the Proposed Route.

2. Land Use

a. Agricultural

Approximately 82.6 acres of agricultural land is located on the south side of the LIRR ROW, approximately one mile west of the Southampton Substation. Approximately 45.5 acres of agricultural land is 0.5 miles west of the Southampton Substation, adjacent on the north side to the LIRR ROW.

b. Residential

Alternate Route 2 is adjacent to ten different Town of Southampton residential zoning districts (see Zoning map and Table 3). It is also adjacent to three different Village of Southampton residential zoning districts (see Zoning map and Table 4).

c. Commercial

Alternate Route 2 is adjacent to five Town of Southampton and two Village of Southampton commercial/business districts (see Zoning map). These commercial districts are primarily along the route in and east of Hampton Bays.

d. Noise Sensitive Receptors - Institutional

Long Island University - Southampton College is adjacent on the south side to the LIRR tracks, between Black Watch Court and Tuckahoe Road.

Southampton Montessori School is located on St. Andrews Road, approximately 200 feet north of the LIRR ROW. Southampton Full

Gospel Church is located on County Road 39, approximately 0.38 miles north of the LIRR ROW. A Greek Orthodox Church is southerly adjacent to the LIRR ROW, south of County Road 39 in Southampton.

e. Industrial

Alternate Route 2 is adjacent to one Town of Southampton light industrial zoning district (see Zoning and Land Use maps). These include primarily sand mines and junk yards.

f. Conservation

The Project route is adjacent to land designated Open Space Conservation in the Town of Southampton Zoning Code. The land adjacent to the LIPA ROW that is southeast of the Riverhead Substation consists of Cranberry Bog County Park.

Maple Swamp County Park is approximately 0.5 miles north of the Project route, on the north side of Route 27. Birch Creek Owl Pond County Park is within 1.25 miles of the Project route, also on the north side of Route 27.

The Nature Conservancy-The Shinnecock Hills Preserve encompasses approximately 61 acres of land on the north side of the LIRR tracks roughly between Arbutus Road on the west side and Tuckahoe Road on the east side.

Alternate Route 2, from the Riverhead Substation to where it exits the CEAs in the vicinity of Exit 65 on the Sunrise Highway (Route 27) in Hampton Bays, follows the previously cleared LIPA-owned transmission line ROW.

The David A. Sarnoff State Pine Barrens Preserve is approximately 400 feet north of Alternate Route 2, in the land on the north side of Route 27, roughly between Quogue Riverhead Road and Speonk Riverhead Road.

g. Shinnecock Indian Reservation

A Shinnecock Indian Reservation Parcel is approximately 0.5 miles north of the route, west of the Shinnecock Canal. The main Shinnecock Indian Reservation is 0.5 miles south of the route, east of the Canal.

h. Recreational

A review of Alternate Route 2 and the appropriate area maps indicates that there are recreational land uses along the route. Specifically, approximately 750 feet east of the route on County Route 51 is the entrance to Hampton Hills Golf and Country Club. This route crosses through the southern portion of Sears Bellows County Park. Shinnecock Canal is also along this route. Traveling east from the Canal, National Golf Links of America, Shinnecock Hills, and Southampton Golf Club Golf Course are all within approximately 0.25 miles of the route, north of the LIRR ROW. Southampton Golf Range is adjacent on the north side of the LIRR ROW.

3. Vegetation

Alternate Route 2 bisects, in part, central core areas of the Pine Barrens as it traverses within the existing LIPA easement. Because of this, the adjacent vegetation is more typical of the mature pine-oak communities than the ecotones and transitional vegetative communities found along the Proposed Route areas, such as Route 27.

There is a large stretch of this pine oak community along the existing LIPA ROW from the Hampton Hills Golf and Country Club to Route 24 (Exit 65 on Route 27). This community would be indicative of an area where a fire has not occurred in several years, which has led to the oaks out-competing the pitch pines for sunlight.

The overstory vegetation along Alternate Route 2 is a combination of pitch pine and various oak (red, black, scarlet and white) species. The dominance of these trees changes throughout the corridor, and depends on the frequency of disturbance (e.g., fire or clearing) in the area. Approximately 75% of the various oak species in this corridor consists of scarlet oak. The understory along this corridor is mostly low-bush blueberry and huckleberry. Along the edge between the pitch pine-oak habitat and Alternate Route 2 there are scattered areas of sweet fern, pitch pine saplings and bayberry. The vegetation along the Alternate Route 2 consists of a combination of scrub oak, low-bush blueberry, huckleberry and bearberry. The vegetation along Alternate Route 2 that intersects the Hampton Hills Golf and Country Club appears to have been allowed to grow more dense than the rest of the routes studied for this project. This corridor consists of pitch pine saplings (between two and six feet tall) and various species of oak saplings (mostly scarlet oak). Also, the topography through this corridor is more dynamic and appears to have

allowed the growth of species such as eastern red cedar, sweet fern, bearberry and golden heather along Alternate Route 2.

The vegetation along the LIRR tracks in Southampton consists of plants, shrubs and trees, which are typical for areas that are sprayed and maintained with herbicide on Long Island. In the sandy soils adjacent to the ballast area, scattered eastern red cedar, pitch pine, sarsaparilla, winged sumacs, black cherry, tree of heaven and various species of oak (red, black, white, scarlet and scrub) saplings can be found. These saplings are clearly not thriving in this area, as it is an area of high and frequent disturbance. Shrubs such as bayberry, mugwort, ragweed, beach plum, low-bush blueberry and huckleberry can be found in this area. The ground cover in this habitat consists mostly of vines (asiatic bittersweet, wild grape, greenbrier, poison ivy and Virginia creeper), various grasses (switchgrass, bluegrass, crabgrass, etc.) and sedges. Larger eastern red cedar, tree of heaven, pitch pin and oak trees can be found amongst smaller shrubs, vines and grasses further away from the tracks (greater than 20 feet from the centerline of the tracks). These trees are generally spare in this area. Beyond this community, much of the corridor along the LIRR tracks is developed by either paved roads, buildings, or other maintained areas.

4. Soils

In addition to the general soil associations described above, the complete list of soils encountered along Alternate Route 2 is as follows:

CpC	- Carver and Plymouth Sands -	3 - 15% slopes
CpA	- Carver and Plymouth Sands -	0 - 3% slopes
CpE	- Carver and Plymouth Sands -	15 - 35% slopes
At	- Atsion Sand - only one spot on LIPA ROW n/o Route 51	
MnC	- Montauk Loamy Sand, sandy variant -	8 - 15% slopes
PIA	- Plymouth Loamy Sand -	0 - 3% slopes
PIB	- Plymouth Loamy Sand -	3 - 8% slopes
CuB	- Cut and Fill Sand -	Gently sloping
RdA	- Riverhead Sandy Loam -	0 - 3% slopes
PIC	- Plymouth Loamy Sand -	8 - 15% slopes
MnB	- Montauk Loamy Sand, sandy variant -	3 - 8% slopes
MfC	- Montauk Fine Sandy Loam - west of Southampton College	8 - 15% slopes
HaA	- Haven Loam -	0 - 2% slopes
Gp	- Gravel pits - located east of Southampton College	
RdB	- Riverhead Sandy Loam -	3 - 8% slopes

BgA	- Bridgehampton Silt Loam - immediately west of Southampton Substation	0 - 2% slopes
Bm	- Bridgehampton Silt Loam - Immediately west of Southampton Substation	Graded
RdC	- Riverhead Sandy Loam -	8 - 15% slopes

It should be noted that, after reviewing the soil survey maps and surveying the Proposed and Alternate Routes, it is apparent that the slopes encountered along Alternate 2, specifically along the LIPA easement west of Sears Bellows Park, are significantly greater than those encountered along the Proposed Route.

II. Environmental Impacts

The Proposed Route and construction methods for this Project have been chosen so as to have as little impact as possible on the physical environment. The Proposed Route and the Alternate Routes have been reviewed with respect to potential impacts to existing and future land uses, critical environmental areas, vegetation, wildlife, water resources, transportation, and cultural, historical and archaeological resources. Impacts will be temporary and transient in nature as they essentially will be restricted to construction activities. The size of the trenches and the amount of vegetation cleared or trimmed will be kept to the absolute minimum size required to safely install the cables. Trenches will be backfilled immediately after installation of the conduit and soil stabilization steps will be taken immediately. Where feasible, trenchless technologies will be utilized to traverse road crossings and environmentally sensitive areas such as freshwater wetlands. There will be no significant permanent impact since no herbicides will be used and only manhole areas will require minimal maintenance.

The following sections discuss possible impacts of the proposed Project and alternates.

A. Proposed Route

1. Land Use

a. Agricultural

Since the Project will occur in grassy shoulders, agricultural properties will not be impacted by the Proposed Route.

b. Residential

Construction activities will occur during daylight hours through residential sections. Since cable laying is essentially a moving process, disturbances are expected to be transient, i.e., a matter of hours to a few days, to any one receptor. Public notice will be given as to the scheduling of construction activities, and every effort will be made to accommodate special needs of residents along the route.

c. Commercial

Since there are no commercial properties, e.g., retail stores and restaurants on the Proposed Route, there will be no impacts to commercial properties during construction phases.

d. Institutional - Noise Sensitive Receptors

Learning institutions and places of worship along the Project route, primarily east of Hampton Bays, will be temporarily impacted by noise during construction. However, since the activities are continually moving, impacts will be transient, typical of road construction projects. Every effort will be made to avoid or minimize construction activities at these locations.

e. Industrial

Industrial properties, e.g., salvage yards and sand mines, will not be impacted by the Project.

2. **Conservation**

a. Critical Environmental Areas Mitigation Measures

As previously discussed in Section I, the CEAs along the Proposed Route includes the Central Pine Barrens, Hydrologic Zones III and IV, and SGPA. The primary concern with respect to the Central Pine Barrens is to protect the unusual flora and fauna as well as to protect the underlying aquifer system. Protection of groundwater quality is also the primary concern of the Hydrologic Zones and SGPA. This route transverses the CEAs from its beginning point at the Riverhead substation to the vicinity of Exit 65 on Route 27 in Hampton Bays. None of the CEAs extend an appreciable distance south or east of this intersection.

The primary environmental concerns for the CEAs transversed by the proposed Project will be: 1) protect the flora of the Pine Barrens and 2) protect the underlying aquifer system. The only period of time that the proposed Project could potentially impact these two areas of concern are during the construction phase of the Project. There will be no operational environmental impacts from the Project since the construction materials are inert (no leachable components).

b. Protection of the Pine Barrens

The Proposed Route avoids impact to undisturbed areas of the Pine Barrens. The work will be conducted along previously cleared rights-of-way either along LIPA-owned transmission lines or the shoulders of roadways. The most significant potential impact to the Pine Barrens from the Project will be from potential erosion and sedimentation during rainfall events during the construction of the transmission line trench. The construction will be accomplished by stand-alone work crews who, in a continuous process at each site, will:

- Excavate the transmission line trench.
- Place sections of the HDPE conduit.
- Immediately backfill the trench, regrade the soil and stabilize the soil via hydroseeding or mulch.
- Install electrical cables from manhole locations placed approximately 2,500 feet apart.

By necessity, there will be a temporary open excavation, associated soil pile, and unvegetated strip of disturbed soil in the vicinity of each working crew. Generally, the trench will be backfilled immediately upon the installation of the HDPE conduit. Excess soils will be removed periodically to eliminate erosion concerns and no extensive or long-term stockpiles of soils will occur. Although disturbed, the sandy nature and high porosity of the extant soils, as well as the level topography, will not be conducive to sheet run-off or erosion except in an extremely severe storm. Nevertheless, temporary Best Management Practices ("BMPs") such as filter-cloth fences and hay bales will be utilized in all areas stripped of vegetation to protect the nearby Pine Barrens environment. These BMPs will remain in place until the disturbed soils are successfully re-vegetated with appropriate flora.

Vegetation impact assessments were made by a combination of aerial photography, field verification and estimation techniques. Aerials and field techniques were used to determine the length of several sections

within the Proposed route. The sections were separated by several factors, including vegetative community differences, tree spacing, and varying differences in the required width of the ROW.

Along most of the length of the proposed route, the line will be placed along the grassy shoulder of Route 27. The line will also be placed in the shoulder, and, if necessary, in the traffic lane, of Speonk-Riverhead Road. Though some tree trimming will be necessary along Speonk-Riverhead Road, no tree loss is expected for the entire length of the proposed route until some areas east of Exit 65 (Route 24). Along County Road 51, the line will be in the median (as discussed previously) and will not affect any trees. Where necessary, the line will be placed closer (less than 30 feet) to the paved road (and steel plated for safety) in order to avoid the clearing of trees.

In sections east of Exit 65 on Route 27, there will be some tree clearing necessary (particularly along the LIRR). However, as discussed previously, these trees are species which typically grow along herbicide-maintained railways and alongside roadways and it is expected there would be no clearing of Pitch pine-oak species. A minimum additional clearing of approximately 5 feet would be necessary along the LIRR and along roadsides from Route 27 to the LIRR. The maximum additional clearing would be approximately 15 feet. Areas that are impacted by clearing will be restored by selective re-vegetation based on consultation with environmental agencies, advisory groups and neighboring property owners.

c. Freshwater Wetlands

As described earlier, the Project passes within the regulated area of three freshwater wetlands, as defined by the NYSDEC and Town of Southampton. These wetlands will not be adversely impacted by this Project. A small wetland exists about 100 feet west of LIPA's cleared ROW north of Nugent Drive and will not be impacted by construction activities. A second wetlands exists on LIPA's ROW south of Nugent Drive north of Route 51. A third freshwater wetland exists on the LIRR ROW west of Southampton College. There will be no impact to the second and third wetlands since the line will be directionally drilled under them. Entry and exit pits for the drilling operation will be located upland of the wetland. For all three wetland areas, the Applicant will ensure compliance with applicable requirements of the NYSDEC and consult with the Town of Southampton. KeySpan Energy's Wetland Construction Guideline, which will be part of the Environmental Management & Construction Plan (to be submitted on or about

November 30, 1999), will be utilized on the Project and Project monitors will ensure that construction activities will not encroach upon the wetlands.

d. Protection of the Underlying Aquifer System

Review of the available data indicates that groundwater occurs at depths 20 feet below ground surface (bgs) or greater for the majority of both the Proposed Route (and Alternate Routes); therefore, groundwater will not be encountered during excavation activities. The data becomes somewhat equivocal in the vicinity of the Shinnecock Canal; however, if the bottom elevation of the trenches is at 15 feet or more above mean sea level, groundwater should not be encountered. Groundwater is expected to be encountered at between five and six feet bgs in the immediate vicinity of the Riverhead substation. However, installation of the transmission line is not expected to require dewatering activities.

As the Project involves a buried electric transmission line that is constructed with inert non-leachable materials, there will be no potential impacts to the underlying aquifer system and groundwater quality once the construction phase of the Project is completed. During the construction phase of the Project, the primary concern for environmental impacts will be the potential release of liquid fuels (gasoline and diesel) from trucks and equipment, hydraulic fluid and oil from equipment, and existing subsurface oil lines.

To mitigate the potential for fuel and oil releases from the construction crews vehicle and equipment, there will be no temporary fuel storage tanks stored along the Proposed Route. All refueling will be conducted on protective barriers. In addition, each apparatus will be inspected prior to the beginning of each workday to ensure that it is free from leaks. Any piece of apparatus observed to be leaking will be immediately taken out of service and repaired. The construction crews will also be fully briefed on the potential environmental impacts of their actions and will receive specific training on fuel handling procedures to minimize the potential for the release of fuel, hydraulic fluid, or oil. Should a spill or release occur, any impacted soils will immediately be placed on impermeable plastic, the NYSDEC Spills Unit notified, and appropriate remedial action taken to mitigate the release.

3. Highway Land Use (Transportation Corridor)

Since the transmission line will be installed within the shoulders of highways, there will be minimal temporary impact and no permanent impact to adjacent properties. Temporary interference with access to these properties may be necessary during construction activities. Impacts will be minimized by strictly adhering to all NYSDOT requirements and close communication with involved local agencies and adjacent property owners.

There will be no impact to utilization of land suitable for future use, primarily due to the Project's construction in the shoulders of highways. Some clearing will take place where there is invasive vegetation closer to the roadway, predominantly east of Exit 65 on Route 27.

Possible impacts to the shoulders of highways are restricted to construction related impacts, temporary disruption to manmade features (i.e., sidewalks, guide rails, curbs, utilities, etc.), and temporary noise interference to adjacent properties. Construction-related impacts, such as noise, dust, dirt, and disturbance of traffic flow, will be minimized by following the applicable procedures in the Environmental Management and Construction Plan (EM&CP) to be filed on or about November 30, 1999. No blasting operations are anticipated. Additionally, impacts will be mitigated by adherence to Keyspan Energy's Standard Specification and applicable State requirements for construction along the shoulders of the highways, and close communication with local agencies.

Temporary disturbances to existing sidewalks, pavements, guide rails, and other utilities will be mitigated by complying with all applicable requirements. Traffic flow will be disturbed as little as possible by adhering to the traffic control measures specified by the NYSDOT and by close communication with local agencies. In addition, construction activities will be sequenced to avoid impacts on key road corridors during the tourist season.

4. Cultural & Historical Resources

The electric transmission line route's selection and construction methods have been developed and designed to minimize impacts to cultural and historical resources. For example, since the entire route will be installed within County and Town road, State highway, LIPA or LIRR ROWs, which are previously disturbed corridors, and based on literature investigations, there will be no anticipated impact to cultural resources during construction.

5. Archaeological Resources

The response from NYSOPRHP dated October 13, 1999 states that there are a number of archaeological sites in or adjacent to the project corridor. Therefore, the NYSOPRHP recommends that a Phase 1 archaeological survey is warranted unless substantial ground disturbance can be documented. The Phase 1 Survey is divided into two progressive units of study including a Phase 1A sensitivity assessment and initial project area field inspection, and a Phase 1B subsurface testing program for the project area. A professional archaeologist will be retained, as appropriate, in the event that these resources are encountered in the Project Route. The archaeologist will conduct a site survey and test digs will be performed in the upper soil strata to ensure that no disturbances are made to Native American or other artifacts.

6. Vegetation

a. Methodologies

Impacts to vegetation were derived by computing the total area to be cleared during construction and then parceling the total among the various vegetative groupings as provided by the overall vegetative map. For the analysis, a temporary construction disturbance of 25 feet was assumed.

b. Vegetation Impacts

The Proposed Route avoids impacts to undisturbed areas of the Pine Barrens. The Applicant is working closely with NYSDOT and SCDPW on the exact location of the line along the Proposed Route in order to mitigate impacts to vegetation. Indeed, the potential for the Proposed Route to cause any significant impacts to vegetation has been greatly minimized as a result of these discussions. As discussed in Exhibit 2, the route will largely avoid densely treed areas along roadways.

The side of Speonk-Riverhead Road is not sufficiently wide to accommodate the construction activities and some vegetation will need to be trimmed. Based upon field observations made along the Proposed Route on the east side of Speonk-Riverhead Road, the flora within the targeted 15-foot wide strip is already impacted and stressed due to previous road construction activities, debris ejected from passing motorists, and normal road runoff (e.g., salt, oil, and sand). Therefore, there will be no additional significant impact to "pristine"

Pine Barrens flora along Speonk-Riverhead Road by Project-related activities.

Along NYS Route 27, the Proposed Route will be placed in the disturbed, grassy area for its entire length. As a result, there will be no, or minimal, disturbances to trees west of Exit 65. Thus, the trees that border the southern portion of NYS Route 27 (e.g., the Dwarf Pine Barrens) will not be impacted by the Proposed Route. As the NYS Route 27 grassy shoulder narrows east of Exit 65, until the Shinnecock Canal, tree growth becomes closer to the roadway and the available disturbed grassy area becomes less and some tree disturbance (e.g., trimming or removal) will be necessary. This portion of the Project is outside the Coastal Pine Barrens. Nevertheless, the Applicant will take all practical and reasonable steps to minimize impact to the trees.

Post construction, the area will be seeded with a suitable ground cover (e.g., eastern red cedars, grasses) east of Exit 65. It is anticipated that a limited access area around the newly installed manholes will be maintained on a periodic basis, approximately every five years through minor vegetation cutting. No herbicides will be utilized.

As discussed, the Proposed Route is close to three wetland areas. The plan is to route around the wetlands at a sufficient distance to avoid any possible impacts or to directionally drill under the wetlands, again avoiding possible impacts.

Other segments of the route will not cause any measurable vegetation impacts since they cover grass areas or scrub vegetation not conducive to valuable habitat functions.

7. Wildlife

a. Methodologies

The wildlife impact was assumed to be concomitant with the vegetative analysis conducted as above. The conservative assumption was made that wildlife would be eliminated in the same proportion as the vegetation; that is, the adjacent habitats were at carrying capacity and wildlife would not be relocated.

b. Wildlife Impacts

1) Avifauna

As previously stated, it is anticipated that the corridor will be established adjacent to or within designated rights-of-way associated with the roadways and the railroad line. These areas are already disturbed and impacted. Species associated with such habitats are considered to be habitat generalist, ubiquitous throughout the area and tolerant of human disturbances. Therefore, little or no impact is anticipated to occur to the species that are considered to be interior species or utilize the adjacent habitat. Any disturbances will be extremely localized and limited to the duration of the construction. Species composition will return to current as the area begins to re-vegetate after the completion of the Project.

2) Herpetiles

Of the species identified, the greatest potential for impact will be those associated with the wetlands, in particular, the endangered tiger salamander and the threatened cricket frog and mud turtle, but only if filling of the wetlands occurs. However, the plan is to avoid the wetlands or cross beneath them by means of directional drilling.

No impact is anticipated to occur to the remaining upland species, as they are not expected to be encountered in any significant numbers along the edge of the habitat.

3) Mammalian Species

No long-term impacts are anticipated to occur to the mammalian species identified occurring along the Project corridor. Any potential impacts are likely to be very localized and last only for the duration of the Project. Areas currently maintained as rights-of-way will over time return to the vegetative state they are maintained in providing similar habitat to what is currently available. Since most of the species identified do utilize the edges of habitat, any additional clearing will merely offset the edge and will be quickly utilized. Finally, most of the identified species are tolerant of human disturbances and will not be severely impacted by the construction.

4) Insects

As with the other species, all impacts are anticipated to be short-term and localized. Species such as the buckmoth and Edward's hairstreak are likely to benefit from the construction, as the scrub oak will most likely colonize the cleared areas first, providing good habitat for these species.

8. Soils

In general, the potential for erosion along the Proposed Route is relatively low, as most of the soils are well drained and slopes are minimal. The predominant soil types along this route are Carver and Plymouth Sands with slopes of 0-15 %. They are coarse textured soils and have a very low available moisture capacity and high permeability, thereby minimizing the potential for sheet runoff. A very thin organic layer is present. Potential for erosion is moderate to severe only in those areas where slopes are in the 15-35% range (CpE), which are minimal along the route.

The potential for erosion is minimized also by the proposed construction practice of backfilling the cable trenches immediately after installation of the conduits. It is not anticipated at this time that there will be a need to stockpile soil along the route. Work locations will be regraded promptly to return disturbed soils back to original contours. Prompt soil stabilization by means of hydro-seeding and/or the application of mulch will also aid in minimizing soil erosion.

B. Alternate Route 1

The only significant difference in impacts between this route and the Proposed Route would be potential interference with traffic on Route 27 and County Road 39 east of the Shinnecock Canal Bridge. While construction activities could be scheduled to lessen this impact to the extent possible, note should be made that this route is in a densely trafficked corridor, particularly during rush hours and seasonal weekend and holiday periods. Lane closures would be necessary during construction operations and access to business disrupted. Any exacerbation of these existing traffic conditions would lead to a decrease in a level of service, and likely a strong negative response from the affected communities and commercial interests.

C. Alternate Route 2

Alternate Route 2 has greater impacts compared to the Proposed Route along the segment adjacent to the LIRR ROW. The LIRR segment is four miles longer and 25 feet wider. Alternate Route 2 has no Route 27 component, except for a single crossing. Unlike the Proposed Route, Alternate 2 cuts through the central core of the Pine Barrens along an existing overhead LIPA transmission line ROW/easement.

1. Visual Aesthetics

Alternate Route 2 differs from the Proposed Route and Alternate Route 1 in having a segment of the line running from the Tiana Substation to the Southampton Substation. This alternate would have an overhead line from Exit 65 on Route 27 to the Southampton Substation. An environmental impact of this line would be visual intrusion resulting from the overhead lines and towers, which would be considerably higher than the surrounding vegetation and noticeable to the communities at large. The overhead segment of Alternate Route 2 also would be visible from LIRR trains, sections of Route 27 and other adjacent roadways.

2. Cultural Resources

Since a portion of this route would consist of above ground structures, NYSOPRHP stated in their letter dated October 13, 1999 that a survey and evaluation of structures over 50 years of age in the areas of above ground utility lines will be warranted. In many locations, existing utilities will make the addition of new lines of negligible impact. Areas where utilities of similar scale now exist may be excluded from the survey, with prior agreement by NYSOPRHP. The Suffolk County Historical Society stated that no historic structures would be impacted by this route.

3. Vegetation

This route does not run along Sunrise Highway but rather along an existing transmission line ROW/easement. The transmission line corridor would need widening because over time vegetation has grown into the existing LIPA ROW and tree losses could approach the number in the Proposed Route or even be higher. Widening of the existing corridor would also increase the separation of the parcels in the interior sections of the Pine Barrens.

Vegetation impact assessments were made by a combination of aerial photography, field verification and estimation techniques. Aerials and

field techniques were used to determine the length of several sections within the Alternate Route 2. The sections were separated by several factors, including vegetative community differences, tree spacing, and varying differences in the required width of the ROW.

As the existing LIPA ROW from County Road 51 to Exit 65 on Route 27 is on average 58 feet in width, an additional clearing of between 2 feet and 8 feet would be necessary. This would be necessary due to electrical clearance requirements that require construction to be no closer than 20-22 feet from the centerline of the existing conductors. This requirement places the cable trench about 24 to 26 feet from the centerline of the existing ROW. Beyond this, an additional cleared access of 12 feet for construction equipment and materials is necessary. There are also areas along this Route which contain scenic vegetative buffers at roadway intersections which would need to be cleared. Finally, the access to the existing ROW is limited, so Alternate Route 2 would probably require one or two more lateral access roads for equipment and materials.

From an ecological perspective, widening corridors through mature forested areas such as the Pine Barrens is not particularly desirable. In the Proposed Route, some clearing will be necessary, but this is nominally in the disturbed areas alongside Route 27 (east of Exit 65, which is out of the Core Pine Barrens Region). Alternate Route 2 would require clearing of areas in the central Pine Barrens, a much greater impact than the transitional areas along Route 27. In addition, this now wider corridor would contribute to fragmentation of the Pine Barrens ecosystems and, possibly, facilitate human and vehicular intrusion and corresponding wildlife disturbance.

Substantial evidence exists supporting the argument that large tracts of forests support greater habitat for wildlife and vegetation than fragmented forests. Alternate Route 2 would require further fragmentation of an ecosystem which is already fragile. One of the great attributes of the central Pine Barrens is its continuous forest habitat, which is rare on Long Island. Though there are benefits to edge habitats for an increase in the number and diversity of wildlife and vegetation, an edge habitat already exists on both sides of Alternate Route 2, and extending the width between these two edge habitats would not serve an equal ecological benefit as would leaving the existing interior forest undisturbed.

For the segment along the LIRR ROW, Alternate Route 2 will require a new corridor to the north of the tracks and considerable clearing of existing vegetation for construction. Unlike the underground cable in the

Proposed Route, this segment will be overhead and would require periodic clearing and tree trimming for the life of the project.

3. Soils

As indicated on the soil survey maps, Alternate Route 2 has a higher incidence of significant slopes than that of the Proposed Route. Carver and Plymouth Sands - 15-35% slopes (CpE) are encountered quite frequently along the route. Disturbing these soils could create a somewhat greater erosion hazard than the same soil with a gentler slope.

As stated above, this route does not run along Sunrise Highway but rather along an existing transmission right-of-way/easement. Significant widening of the existing corridor may be required in some areas which would mean that in addition to the soils disturbed for cable trenches, additional soil would be disturbed as a result of tree removal.

Although the proposed construction practices described above would help minimize erosion, there is potential for significant long term erosion due to the slopes encountered along much of the LIPA right-of-way/easement. This potential for erosion is exacerbated by unauthorized vehicular traffic along the route. Because of this situation, underground cables could possibly be unearthed sometime in the future.

Exhibit 4
Attachment 1Bernadette Castro
CommissionerNew York State Office of Parks, Recreation and Historic Preservation
Historic Preservation Field Services Bureau
Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

October 13, 1999

Kerry Ehlinger
Historian
Allee, King, Rosen & Fleming, Inc.
117 East 29th Street
New York, New York 10016-8022Re: PSC/MTA
Keyspan, Riverhead to Southampton Line
T/Riverhead & Southampton, Suffolk Co.
99PR3184

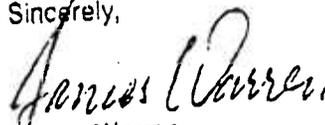
Dear Ms. Ehlinger:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have begun to review the project in accordance with Section 106 of the National Historic Preservation Act of 1966 and the relevant implementing regulations.

With regard to potential impacts to historic structures, no such impact is anticipated for the initially proposed underground route. Alternatives I and II, which are to be above ground in whole or part, have the potential to impact above-ground cultural resources. Our effort to survey and identify National Register of Historic Places eligible properties is not complete in the Towns of Riverhead and Southampton in the proposed corridors. A survey and evaluation of structures over 50 years of age in the areas of above ground utility lines will be warranted. In many locations, existing utilities will make the addition of new lines of negligible impact. Areas where utilities of similar scale now exist may be excluded from survey, with prior agreement by our office.

Attached please find additional comments by SHPO staff archeologist Douglas Mackey. Please address any questions regarding the need for archeological survey to Mr. Mackey at extension 3291. If you have any other questions, please call me at (518) 237-8643, extension 3283.

Sincerely,


James Warren
Historic Preservation
Program Analyst

Encl: "Archeology Comment"

ARCHAEOLOGY COMMENTS

99PR3184

Based on reported resources, there are a number of archeological sites in or adjacent to your each of the proposed project corridors. Therefore, the Office of Parks, Recreation and Historic Preservation (OPRHP) recommends that a Phase I archeological survey is warranted unless substantial ground disturbance can be documented. OPRHP understands that each of these corridors runs primarily within existing Right of Ways (ROW), however, the presence of a ROW does not necessarily mean that the area has been previously disturbed. OPRHP will review the recommendation for survey if you can provide evidence of prior disturbance for part or all of the corridors.

A Phase I survey is designed to determine the presence or absence of archeological sites or other cultural resources in the project's area of potential effect. The Phase I survey is divided into two progressive units of study including a Phase IA sensitivity assessment and initial project area field inspection, and a Phase IB subsurface testing program for the project area. The OPRHP can provide standards for conducting cultural resource investigations upon request. Cultural resource surveys and survey reports that meet these standards will be accepted and approved by the OPRHP.

Our office does not conduct cultural resources surveys. A 36 CFR 61 qualified archeologist should be retained to conduct the Phase I survey. Many archeological consulting firms advertise their availability in the yellow pages. The services of qualified archeologists can also be obtained by contacting local, regional, or statewide professional archeological organizations. Phase I surveys can be expected to vary in cost per mile of right-of-way or by the number of acres impacted. We encourage you to contact a number of consulting firms and compare examples of each firm's work to obtain the best and most cost-effective product.

Documentation of ground disturbance should include a description of the disturbance with confirming evidence. Confirmation can include current photographs and/or older photographs of the project area which illustrate the disturbance (approximately keyed to a project area map), past maps or site plans that accurately record previous disturbances, or current soil borings that verify past disruptions to the land. Agricultural activity is not considered to be substantial ground disturbance and many sites have been identified in previously cultivated land.

If you have any questions concerning archeology, please call Douglas Mackey at (518) 237-8643 ext. 3291.



SUFFOLK COUNTY HISTORICAL SOCIETY

300 West Main Street
Riverhead, New York 11901-2894
Tel: (516) 727-2881 • Fax: (516) 727-3467

Exhibit 4
Attachment 2

~~September~~ 22, 1999
Oct. 12

Ms. Kerry Ehlinger, Historian
Allee King Rosen & Flemming, Inc.
117 East 29th Street
New York, NY 10016-8022

Dear Ms. Ehlinger:

Thank you for your letters of Sept. 15th and Sept. 22nd, and for including the maps that indicate the path of the proposed underground transmission line. I've looked everything over and I do not know of any historic or archaeological resources that would suffer in any of three proposals. For the most part it appears to me that the trench will follow long established roadways and rail road tracks.

I do wonder about the first stretch of the original proposal, which goes south from the Riverhead Substation. That's an environmentally sensitive area. I believe it is in the Core Preservation Area of the pine barrens. I also note that it is marked as LIPA Right-of-Way, which I guess means exactly what the phrase implies, that LIPA has the right to use it. You might want to check with the pine barrens commission. In case you don't have it, the director's name is Ray Corwin, his telephone number is 516-563-0385.

Will the path of the first proposal take it near the Rogers Homestead, the Thomas Halsey Homestead and the Parish Art Museum? I can't tell from the map. If it will, I imagine you will want to contact those institutions. I will send a Long Island Museum Association brochure under separate cover.

As far as Alternatives I and II are concerned, I don't see particular problems with either of these either, except from an environmental standpoint. It seems a shame to go right through Wildwood Lake, the NYS Conservation Area to the east of Wildwood Lake, Maple Swamp, and Sears-Bellows County Park. Does this fall within the LIPA Right-of-Way too? As far as the differences between I and II, I don't feel qualified to comment on the difference between above ground and buried wires. Buried sounds better to me.

Since I am not an authority on historic and archaeological resources I feel that you should consider contacting some other people for their input:

Justine Wells
Riverhead Town Historian
Riverhead Town Hall

200 Howell Ave.
Riverhead, NY 11901
516.369.9717

Ms. Wells is generally in her office on Wed. mornings

Dr. Henry Moeller
President of the Suffolk County Archaeological Association
P.O. Box 995
516.728.6291

Dr. Moeller will be going out of town for at least a month at the beginning of Nov. 1999

Dr. Gaynel Stone
RR 2 Box 205
Wading River, NY 11792
516.929.8725

Dr. Stone is an officer of the Suffolk County Archaeological Association and is extremely knowledgeable about historical and archaeological resources. Her address may have changed although I know she has not moved, but she may not receive her mail via RR# since Riverhead Town has assigned all residents house numbers.

Emily Oster
Southampton Town Historian
Southampton Town Hall
116 Hampton Road
Southampton, NY 11968
516.283.6000 ext. 231

Ms. Oster is in the office Mon., Tue. And Wed., 8:30 a.m. to 4 p.m.

I am sending you a copy of something called *Landmarks of Long Island*, for your reference. The original is too large to fax. It is a little difficult for me to compare your map with locations in *Landmarks*. This publication has been out of print for years. It is useful because it lists many of the historic sites on Long Island, but it needs to be updated to reflect additional sites. The phone numbers are probably not current either.

Thank you very much for contacting me about this project. If there is anything further I can do to help please let me know.

Sincerely,

Wallace W. Broege
Wallace W. Broege
Director

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
Wildlife Resources Center - New York Natural Heritage Program
700 Troy-Schenectady Road, Latham, New York 12110-2400
Phone: (518) 783-3932 FAX: (518) 783-3916



John P. Cahill
Commissioner

September 28, 1999

Exhibit 4
Attachment 3

Thomas Young
EEA Inc
55 Hilton Avenue
Garden City, NY 11530

Dear Mr. Young:

In response to your recent request, we have reviewed the New York Natural Heritage Program databases with respect to the proposed Keyspan 20 mile underground electric Transmission Line, area as indicated on the maps you provided, located in the County of Suffolk.

Enclosed is a report of rare or state-listed animals and plants, of significant natural communities, and of other significant habitats, which our databases indicate occur, or may occur, on your site or in the immediate vicinity of your site. The information contained in this report is considered sensitive and may not be released to the public without permission from the New York Natural Heritage Program. The Breeding Bird Atlas data you requested is also enclosed.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, of significant natural communities, and of other significant habitats. For information regarding regulated areas or permits that may be required under state law (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

Sincerely,

Teresa Mackey
Teresa Mackey, Information Services
NY Natural Heritage Program

Encs

cc: Reg. 1, Wildlife Mgr.
Reg. 1, Fisheries Mgr.
Reg. 1, Bureau of Habitat
Peter Nve. Endangered Species Unit, Delmar

New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources
Wildlife Resources Center - New York Natural Heritage Program
700 Troy-Schenectady Road, Latham, New York 12110-2400
Phone: (518) 783-3932 FAX: (518) 783-3916



John P. Cahill
Commissioner

October 5, 1999

Exhibit 4
Attachment 4

Thomas Young
EEA Inc
55 Hilton Ave
Garden City, NY 11530

OCT - 5 1999

Dear Mr. Young:

In response to your recent request, we have reviewed the New York Natural Heritage Program databases with respect to the proposed ALTERNATIVE Keyspan Electric Undergrand Transmission Line, Towns of Riverhead to Southampton, area as indicated on the map you provided, located in Suffolk County.

Enclosed is a report of rare or state-listed animals and plants, of significant natural communities, and of other significant habitats, which our databases indicate occur, or may occur, on your site or in the immediate vicinity of your site. The information contained in this report is considered sensitive and may not be released to the public without permission from the New York Natural Heritage Program. Also enclosed, is the Breeding Bird Atlas data for the area, you requested.

For most sites, comprehensive field surveys have not been conducted; the enclosed report only includes records from our databases. We cannot provide a definitive statement on the presence or absence of all rare or state-listed species or significant natural communities. This information should not be substituted for on-site surveys that may be required for environmental impact assessment.

Our databases are continually growing as records are added and updated. If this proposed project is still under development one year from now, we recommend that you contact us again so that we may update this response with the most current information.

This response applies only to known occurrences of rare or state-listed animals and plants, of significant natural communities, and of other significant habitats. For information regarding regulated areas or permits that may be required under state law (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

Sincerely,


Teresa Mackey, Information Services
NY Natural Heritage Program

Encs

cc: Reg. 1, Wildlife Mgr.
Reg. 1, Fisheries Mgr.
Reg. 1, Bureau of Habitat
Peter Nye, Endangered Species Unit, Delmar



OCT 12 1999

United States Department of the Interior

FISH AND WILDLIFE SERVICE

3817 Luker Road
Cortland, NY 1304



Exhibit 4
Attachment 5

October 7, 1999

Mr. Thomas Young
Ecologist
EEA, Inc.
55 Hilton Avenue
Garden City, NY 11530

Attention: Mr. Roy Stoecker

Dear Mr. Young:

This responds to your letters of September 16 and September 22, 1999, requesting information on the presence of Federally listed or proposed endangered or threatened species in the vicinity of the following locations for the Keyspan Energy underground electric transmission line:

1. The primary route for the 20-mile line beginning at the Riverhead Substation on Nugent Drive in the Town of Riverhead and ending at the Southampton Substation on North Sea Road in the Village and Town of Southampton, Suffolk County, New York. The primary route parallels major roads.
2. The alternate route for the 20-mile line begins and ends at the locations indicated above. The alternate route follows existing utility or railroad corridors for the most part.

Except for occasional transient individuals, no Federally listed or proposed endangered or threatened species under our jurisdiction are known to exist in the respective project impact areas. Therefore, no Biological Assessment or further Section 7 consultation under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) is required with the U.S. Fish and Wildlife Service (Service). Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered.

The above comments pertaining to endangered species under our jurisdiction are provided pursuant to the Endangered Species Act. This response does not preclude additional Service comments under the Fish and Wildlife Coordination Act or other legislation.

Federally listed endangered and threatened marine species may be found near the project area. These species are under the jurisdiction of the National Marine Fisheries Service. You should contact Mr. Stanley Gorski, Habitat and Protected Resources Division, Area Coordinator, National Marine Fisheries Service, James J. Howard Marine Sciences Laboratory, 74 Magruder Road, Highlands, NJ 07732, for additional information (telephone: [908] 872-3037).

The Nantucket juneberry (*Amelanchier nantucketensis*) is reported from the vicinity of the proposed work. The Nantucket juneberry is considered a species of concern (formerly known as a Category 2 Candidate species) by the Service and its status is being monitored throughout much of its range. Species of concern do not receive substantive or procedural protection under the Endangered Species Act; however, the Service does encourage Federal agencies and other appropriate parties to consider these species in the project planning process.

The Nantucket juneberry is also listed as an endangered species by the New York State Department of Environmental Conservation (State). The State contact for this species is Dr. Kathryn J. Schneider, New York State Department of Environmental Conservation, New York Natural Heritage Program, 700 Troy-Schenectady Road, Latham, New York 12110 (telephone: [518] 783-3932).

For additional information on fish and wildlife resources or State-listed species, we suggest you contact:

New York State Department
of Environmental Conservation
Region 1
Building 40, SUNY
Stony Brook, NY 11794
(516) 444-0200

New York State Department
of Environmental Conservation
Wildlife Resources Center - Information Services
New York Natural Heritage Program
700 Troy-Schenectady Road
Latham, NY 12110-2400
(518) 783-3932

National Wetlands Inventory (NWI) maps may or may not be available for the respective project areas. However, while the NWI maps are reasonably accurate, they should not be used in lieu of field surveys for determining the presence of wetlands or delineating wetland boundaries for Federal regulatory purposes. Copies of specific NWI maps can be obtained from:

Cornell Institute for Resource Information Systems
302 Rice Hall
Cornell University
Ithaca, NY 14853
(607) 255-4864

Work in certain waters and wetlands of the United States may require a permit from the U.S. Army Corps of Engineers (Corps). If a permit is required, in reviewing the application pursuant to the Fish and Wildlife Coordination Act, the Service may concur, with or without stipulations, or recommend denial of the permit depending upon the potential adverse impacts on fish and wildlife resources associated with project implementation. The need for a Corps permit may be determined by contacting Mr. Joseph Seebode, Chief, Regulatory Branch, U.S. Army Corps of Engineers, 26 Federal Plaza, New York, NY 10278 (telephone: [212] 264-3996).

If you require, additional information please contact Michael Stoll at (607) 753-9334.

Sincerely,

Mark W. Clough
ACTING FOR

David A. Stilwell
Field Supervisor

cc: NYSDEC, Stony Brook, NY (Environmental Permits)
NYSDEC, Latham, NY (Attn: Dr. K. Schneider)
NMFS, Highlands, NJ (Attn: S. Gorski)
NMFS, Milford, CT (Attn: M. Ludwig)
COE, New York, NY

Ex.
3