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NATURAL RESOURCES**

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Biotic Communities Tables

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TABLE 1
PHYTOPLANKTON TAXONOMIC GROUPINGS COLLECTED IN THE
ARTHUR KILL, APRIL-OCTOBER 1988

Order	Species
Bacillariophyta	<i>Asterionella japonica</i> <i>Chaetoceras</i> sp. <i>Cyclotella atomus</i> <i>Cyclotella meneghiniana</i> <i>Cyclotella</i> sp. <i>Gomphonema</i> sp. <i>Gyrosigma</i> sp. <i>Rhizoselenia</i> sp. <i>Skeletonema</i> sp. <i>Thalassiosira</i> sp. Unidentified Diatoms
Chlorophyta	<i>Ankistrodesmus falcatus</i> <i>Carteria</i> sp. <i>Chlamydomonas</i> sp. <i>Closterium</i> sp. Unidentified Greens
Chrysophyta	Unidentified Chrysophyte
Cryptophyta	<i>Chroomonas</i> sp. <i>Cryptomonas</i> sp. <i>Rhodomonas minuta</i> <i>Rhodomonas</i> sp. Unidentified Cryptophyte
Cyanophyta	Unidentified blue-green
Euglenophyta	<i>Euglena</i> sp. <i>Lepocinclis</i> sp.
Pyrrophyta	Unidentified Dinoflagellate

Source: EA, 1989.

TABLE 2
ABUNDANCE AND SPECIES COMPOSITION OF
MICROZOOPLANKTON COLLECTED IN THE ARTHUR KILL,
APRIL-OCTOBER 1988

Phylum	Taxon	Number Collected	Percent Composition
Cnidaria	Hydrozoa	<1	<0.1
Rotifera	<i>Asplanchna</i> sp.	154	2.1
Nematoda	Nematoda	1	<0.1
Annelida	Polychaeta	854	11.6
Arthropoda (Crustacea)	<i>Neopanope texana sayi</i> (Decapoda)	1	<0.1
	<i>Crangon septemspinosa</i> (Decapoda)	6	0.1
	Copepoda nauplii (Copepoda)	2,089	28.3
	<i>Acartia</i> (Copepoda)	1,484	20.1
	<i>Eurytemora</i> (Copepoda)	438	5.9
	<i>Harpacticoida</i> (Copepoda)	165	2.2
	<i>Pseudodiaptomus</i> (Copepoda)	74	1
	<i>Temora</i> (Copepoda)	10	0.1
	<i>Cyclops</i> (Copepoda)	73	1
	<i>Cyclopoida</i> (Copepoda)	349	4.7
	<i>Neomysis Americana</i> (Mysidicea)	1	<0.1
	Barnacle nauplii (Thoracica)	1,606	21.7
	<i>Daphnia</i> (Cladocera)	1	<0.1
	<i>Podon</i> sp. (Cladocera)	34	0.5
	Ostracoda	1	<0.1
Mollusca	Gastropoda (veliger)	27	0.4
	Bivalvia	1	<0.1
Chordata	Ascidiacea (larvae)	17	0.2
Total		7,383	100

Source: EA, 1989.

TABLE 3
ABUNDANCE AND SPECIES COMPOSITION OF MACROZOO-
PLANKTON COLLECTED IN THE ARTHUR KILL,
APRIL-OCTOBER 1988

Phylum	Taxon	Number Collected	Percent Composition
Cnidaria	Anthozoa	9	<0.1
	Scyphozoa (Semaestomatae)	16	<0.1
	Hydrozoa (Hydromedusae)	948	1.9
Annelida	Oligochaeta	48	0.1
	Polychaeta	484	1
	Polychaeta epitoke	470	0.9
	<i>Polydora</i> sp. (Spionidae)	3	<0.1
	Polynoidae	4	<0.1
Arthropoda (Crustacea)	Amphipoda	10	<0.1
	<i>Ampelisca</i> sp. (Amphipoda)	55	0.1
	Caprellidae (Amphipoda)	8	<0.1
	<i>Corophium</i> sp. (Amphipoda)	28	0.1
	<i>Gammarus</i> spp. (Amphipoda)	150	0.3
	<i>Gammarus mucronatus</i> (Amphipoda)	4	<0.1
	<i>Leptocheirus pinguis</i> (Amphipoda)	3	<0.1
	<i>Melita nitida</i> (Amphipoda)	67	0.1
	<i>Parametopella cypris</i> (Amphipoda)	109	0.2
	<i>Unciola serrata</i> (Amphipoda)	6	<0.1
	Brachyuran megalop (Decapoda)	8	<0.1
	Crab megalop (Decapoda)	96	0.2
	Brachyuran zoea (Decapoda)	1	<0.1
	Xanthidae zoea (Decapoda)	9,015	18.3
	<i>Neopanope texana savi</i> zoea (Decapoda)	14,374	28.9
	<i>Uca</i> spp. zoea (Decapoda)	345	0.7
	<i>Panopeus herbstii</i> zoea (Decapoda)	871	1.8
	<i>Pinnixa</i> spp. zoea (Decapoda)	1	<0.1
	<i>Pinnixa</i> spp. juvenile (Decapoda)	2	<0.1
	<i>Rhithropanopeus harrissi</i> zoea (Decapoda)	6,595	13.3
	Shrimp zoea (Decapoda)	318	0.6
	<i>Crangon septemspinosa</i> zoea (Decapoda)	2,737	5.5
	<i>Palaemonetes</i> spp. (Decapoda)	4	<0.1
	<i>Palaemonetes</i> spp. zoea (Decapoda)	5,596	11.3
	<i>Pagurus</i> spp. zoea (Decapoda)	1,596	3.2
	<i>Pagurus</i> spp. megalop (Decapoda)	19	<0.1
	<i>Leucon americanus</i> (Cumacea)	27	<0.1
	<i>Oxyurostylis smithi</i> (Cumacea)	4	<0.1
	Copepoda (parasitic)	10	<0.1
	<i>Edotea triloba</i> (Isopoda)	27	0.1
	<i>Lironeca ovalis</i> (Isopoda)	10	<0.1
	<i>Neomysis americana</i> (Mysidacea)	5,160	10.4
	Pycnogonida (Arachnida)	10	<0.1

TABLE 3 (CONTINUED)
ABUNDANCE AND SPECIES COMPOSITION OF
MACROZOOPLANKTON COLLECTED IN THE ARTHUR KILL,
APRIL-OCTOBER 1988

Phylum	Taxon	Number Collected	Percent Composition
Mollusca	Gastropoda	345	0.7
	Bivalvia	15	<0.1
Chaetognatha	<i>Sagitta</i> sp.	20	<0.1
Total		49,718	100

Source: EA, 1989.

TABLE 4
**BENTHIC INVERTEBRATE TAXA COLLECTED FROM ARTHUR KILL,
 OLD PLACE CREEK, GOETHALS BRIDGE, 1988 AND 1995**

Phylum	Species	Arthur Kill	Old Place Creek	Goethals Bridge
Cnidaria	Actiniaria			X
Rhynchocoela	Nemertea	X		
Aschelminthes	Nematoda		X	X
Annelida	<i>Polydora</i> sp.		X	X
	<i>Scoloplos</i> sp.	X	X	X
	<i>Sabellaria vulgaris</i>	X		
	<i>Nereis succinea</i>		X	X
	<i>Scolecopelidis viridis</i>	X		X
	<i>Diopatra cuprea</i>	X		
	<i>Spiophanes bombyx</i>	X		
	Syllidae		X	X
	<i>Phyllodoce</i> sp.	X		
	Nereididae		X	X
	<i>Harmothoe imbricata</i>		X	X
	<i>Capitella capitata</i>			X
	Oligochaeta	X	X	X
	<i>Streblospio benedicti</i>	X	X	X
	<i>Pectinaria gouldii</i>	X		
	<i>Nephtys</i> spp.	X		
	Ophellidae	X		
	<i>Eteone</i> spp.			X
	<i>Eteone heteropoda</i>			X
	Paraonidae	X	X	
<i>Glycera</i> sp.	X			
Arthropoda	<i>Crangon septemspinosus</i>			X
	<i>Uca</i> sp.		X	
	<i>Leucon americanus</i>	X		
	<i>Oxyurostylis smithii</i>	X		
	<i>Melita nitida</i>	X		
	<i>Corophium</i> sp.	X		
	<i>Gammarus</i> sp.	X		
	<i>Edotea triloba</i>	X		
	<i>Limnoria lignorum</i>	X		
	<i>Ampelisca abdita</i>	X		
	<i>Cyathura polita</i>	X	X	
	<i>Balanus</i> sp.	X		
	<i>Palaemonetes pugio</i>		X	X
	<i>Callinectes sapidus</i>		X	X
	<i>Dyspanopeus sayi</i>		X	X
<i>Rithropanopeus harrisi</i>		X	X	
Mollusca	<i>Mya arenaria</i>	X	X	
	<i>Mulinia lateralis</i>	X	X	
	<i>Tellina</i> sp.	X		
	<i>Retusa</i> sp.	X		
Chordata	<i>Mogula manhattensis</i>	X	X	X

Source: LBA 1992; LMS 1996.

TABLE 5
**LIST OF EPIBENTHIC SPECIES COLLECTED IN NEW YORK/
 NEW JERSEY HARBOR SYSTEM, 1998 TO 2000.**

Phylum	Species	Phylum	Species
Porifera	<i>Haliclona oculata</i>	Arthropoda	<i>Listriella</i> spp.
	<i>Haliclona loosanoffi</i>		<i>Microdeutopus gryllotalpa</i>
	<i>Microcionia prolifera</i>		<i>Melita nitida</i>
Cnidaria	<i>Tubularia</i> spp.		<i>Leptocheirus pinguis</i>
	<i>Diadumene lineata</i>		<i>Gammarus</i> spp.
	<i>Metridium senile</i>		<i>Jassa falcata</i>
Platyhelminthes	<i>Euplana gracilis</i>		<i>Ampelisca abdita</i>
Bryozoa	<i>Alcyonidium polyoum</i>		<i>Parametopella cypris</i>
	<i>Electra monostachys</i>		<i>Pleustidae</i> unid. sp.
Annelida	<i>Pectinaria gouldii</i>		<i>Photidae</i> unid. sp.
	<i>Asabellides oculata</i>		<i>Ampithoidae</i> unid. sp.
	<i>Sabellaria vulgaris</i>		<i>Edotea</i> spp.
	<i>Sabella</i> spp.		<i>Limnoria lignorum</i>
	<i>Ampharete arctica</i>		<i>Cyathura polita</i>
	<i>Tharyx</i> spp.		<i>Semibalanus balanoides</i>
	<i>Lepidonotus</i> spp.		<i>Palaemonetes</i> spp.
	<i>Harmothoe imbricata</i>		<i>Pagurus</i> spp.
	<i>Polydora cornuta</i>		<i>Ovalipes ocellatus</i>
	<i>Streblospio benedicti</i>		<i>Callinectes sapidus</i>
	<i>Nereis</i> spp.		<i>Carcinus maenas</i>
	<i>Paranaitis speciosa</i>		<i>Dyspanopeus sayi</i>
	<i>Nephtys</i> spp.		<i>Rithropanopeus harrisi</i>
	<i>Ophelia</i> spp.		<i>Crepidula fornicata</i>
	<i>Leitoscoloplos</i> spp.		<i>Crepidula plana</i>
	<i>Mediomastus ambiseta</i>		<i>Acteocina canaliculata</i>
	<i>Heteromastus</i> spp.		<i>Hydrobia totteni</i>
	<i>Oligochaeta</i> unid. sp.		<i>Nudibranchia</i> unid. sp.
	<i>Capitella capitata</i>		<i>Mytilus edulis</i>
	<i>Eteone</i> spp.		<i>Mya arenaria</i>
<i>Hydroides dianthus</i>	<i>Macoma balthica</i>		
Arthropoda	<i>Pycnogonida</i> unid. sp.	<i>Ensis directus</i>	
	<i>Calanoida</i> unid. sp.	<i>Ilyanassa obsoleta</i>	
	<i>Cyclopoida</i> unid. sp.	<i>Ilyanassa trivittata</i>	
	<i>Harpacticoida</i> unid. sp.	<i>Rictaxis punctostriatus</i>	
	<i>Caprella penantis</i>	<i>Buccinum undatum</i>	
	<i>Unciola irrorata</i>	<i>Molgula manhattensis</i>	
	<i>Corophium insidiosum</i>	<i>Styela clava</i>	
	<i>Phoxocephalus holbolii</i>	<i>Botryllus schlosseri</i>	
		Chordata	

Source: Zappala 2001.

TABLE 6
VEGETATION OBSERVED IN THE PRIMARY STUDY AREA

Trees		Study Area	
Scientific Name	Common Name	New Jersey	New York
<i>Acer platanoides</i>	Norway maple		√
<i>Acer rubrum</i>	red maple		√
<i>Ailanthus altissima</i>	tree-of-heaven	√	√
<i>Betula alba</i>	white birch		√
<i>Calalpa speciosa</i>	catalpa		√
<i>Diospyros virginiana</i>	persimmon		√
<i>Fraxinus pennsylvanica</i>	Green ash		
<i>Malus</i> sp.	crabapple		√
<i>Morus</i> sp.	mulberry	√	√
<i>Paulownia tomentosa</i>	royal paulowina		√
<i>Pinus sylvestris</i>	scotch pine	√	√
<i>Polygonum orientale</i>	princess-feather		√
<i>Populus deltoids</i>	cottonwood	√	
<i>Populus tremuloides</i>	quacking aspen	√	√
<i>Prunus serotina</i>	black cherry	√	√
<i>Robinia pseudoacacia</i>	black locust	√	√
<i>Salix</i> sp.	willow	√	√
<i>Sassafras albidum</i>	sassafras		√
<i>Rhus copallinum</i>	winged sumac	√	√
<i>Tilia americana</i>	American basswood		√
<i>Quercus rubra</i>	red oak		√
<i>Nyssa sylvatica</i>	black gum		√
<i>Quercus stellata</i>	post oak		√
<i>Ulmus rubra</i>	slippery elm		√
<i>Alnus rugosa</i>	speckled alder	√	√
<i>Gleditsia triacanthos</i>	honey locust		√
<i>Quercus bicolor</i>	swamp white oak		√
<i>Quercus palustris</i>	pin oak	√	√
<i>Quercus velutina</i>	black oak		√
<i>Crataegus</i> sp.	hawthorn		√
<i>Liquidambar styraciflua</i>	sweet gum		√

Shrubs/Vines		Study Area	
Scientific Name	Common Name	New Jersey	New York
<i>Rubus</i> sp.	raspberry	√	√
<i>Baccharis halimifolia</i>	groundsel bush	√	√
<i>Berberis thunbergii</i>	barberry		√
<i>Celastrus orbiculata</i>	Asia bittersweet		√
<i>Elaeagnus angustifolium</i>	Russian olive	√	√
<i>Iva frutescense</i>	marsh elder	√	√
<i>Lonicera japonica</i>	Japanese honeysuckle	√	√
<i>Myrica pensylvanica</i>	northern bayberry		√

TABLE 6 (CONTINUED)
VEGETATION OBSERVED IN THE PRIMARY STUDY AREA

<i>Parthenocissus quinquefolia</i>	Virginia creeper	√	√
<i>Rhus copallina</i>	dwarf sumac	√	√
<i>Rhus typha</i>	staghorn sumac		√
<i>Rosa multiflora</i>	multi-flora rose	√	√
<i>Rubus flagellus</i>	dewberry		√
<i>Sambucus Canadensis</i>	elderberry		√
<i>Toxodendron radicans</i>	poison ivy	√	√
<i>Vitis aestivalis</i>	fox grape		√
<i>Ampelopsis brevipedunculata</i>	porcelain berry	√	√
<i>Cornus alternifolia</i>	alternate-leaf dogwood		√
<i>Viburnum recognitum</i>	northern arrowwood		√
<i>Smilax rotundifolia</i>	geenbriar		√
<i>Lindera benzoin</i>	spicebush		√
<i>Vaccinium corymbosum</i>	highbush blueberry		√
<i>Cornus amomum</i>	silky dogwood		√

Herbaceous		Study Area	
Scientific Name	Common Name	New Jersey	New Jersey
Chlorophyta	algae	√	√
<i>Achillea millefolium</i>	yarrow	√	√
<i>Allium vineale</i>	field garlic		√
<i>Ambrosia trifida</i>	giant ragweed	√	√
<i>Ammophila breviligulata</i>	beach grass		√
<i>Andropogon scoparius</i>	little bluestem grass		√
<i>Andropogon virginicus</i>	broomsedge		√
<i>Apocynum cannabinum</i>	hemp dogbane	√	√
<i>Arctium minus</i>	burdock	√	√
<i>Artemisia vulgaris</i>	mugwort	√	√
<i>Asclepias syriaca</i>	milkweed	√	√
<i>Aster</i> sp.	aster	√	√
<i>Atriplex patula</i>	sparscale		√
<i>Bidens frondosa</i>	devil's beggarticks		√
<i>Centaurea nigra</i>	knapweed	√	√
<i>Chenopodium album</i>	lamb's quarters		√
<i>Chicorium intybus</i>	chicory	√	√
<i>Commelina virginica</i>	dayflower		√
<i>Coronilla varia</i>	crown vetch	√	√
<i>Danthonia spicata</i>	daygrass		√
<i>Datura stramonium</i>	jimson weed		√
<i>Daucus carota</i>	wild carrot	√	√
<i>Digitaria</i> sp.	crabgrass	√	√
<i>Distichlis spicata</i>	spike-grass		√
<i>Fucus</i> sp.	rockweed	√	√
<i>Impatiens capensis</i>	jewelweed	√	√

TABLE 6 (CONTINUED)
VEGETATION OBSERVED IN THE PRIMARY STUDY AREA

<i>Juncus gerardii</i>	black-grass		√
<i>Lactuca serriola</i>	prickly lettuce		√
<i>Lepidium</i> sp.	pepper grass		√
<i>Lespedeza capitata</i>	bush clover	√	√
<i>Linaria vulgaris</i>	butter and eggs	√	√
<i>Lotus corniculatus</i>	birdsfoot trefoil	√	√
<i>Lynchis alba</i>	white cockle	√	
<i>Oenothera</i> sp.	evening primrose	√	√
<i>Panicum virgatum</i>	Panic grass		√
<i>Phragmites australis</i>	common reed	√	√
<i>Phytollaca americana</i>	pokeweed	√	√
<i>Plantago minor</i>	plantain	√	√
<i>Poa pretense</i>	timothy	√	√
<i>Polygonum cuspidatum</i>	Japanese knotweed	√	√
<i>Rumex crispus</i>	dock	√	√
<i>Salicornia europa</i>	gasswort		√
<i>Solanum dulcamara</i>	climbing nightshade		√
<i>Solidago sempervirens</i>	seaside goldenrod		√
<i>Solidago</i> sp.	goldenrod	√	√
<i>Spartina alterniflora</i>	saltmarsh cordgrass		√
<i>Spartina patens</i>	saltmeadow cordgrass		√
<i>Verbascum thapsus</i>	mullein	√	√
<i>Xanthium pensylvanicum</i>	cocklebur		√
<i>Saponaria officinalis</i>	bouncing bet	√	√
<i>Taxodium distichum</i>	dandelion	√	√
<i>Pluckia purpurascens</i>	Saltmarsh Camphor-weed		√
<i>Apocynum cannabinum</i>	dogbane	√	√
<i>Vicia</i> sp.	vetch		√
<i>Amaranthus cannabinus</i>	water hemp		√
<i>Ageratina</i> sp.	snake root		√
<i>Lythrum salicaria</i>	purple loosestrife		√
<i>Carex</i> sp.	umbrella sedge	√	√
<i>Daucus carota</i>	wild carrot	√	√
<i>Rumex acetosella</i>	sheep sorrel		√
<i>Dactylic glomerata</i>	orchard grass	√	√
<i>Plantago lanceolata</i>	English plantain		√
<i>Osmunda cinnamomea</i>	cinnamon fern		√
<i>Osmunda regalis</i>	royal fern		√
<i>Dennstaedtia punctilobula</i>	hayscented fern		√
<i>Tanacetum vulgare</i>	common tansy	√	√
<i>Althaea officinalis</i>	marsh mallow		√
<i>Solanum carolinense</i>	horse nettle		√

Source: The Louis Berger Group, Inc., 2005.
LMS, 2005.

**TABLE 7
BIRD SPECIES LIKELY TO USE THE PRIMARY STUDY AREA**

Common Name	Scientific Name	LMS (2004) Individuals Observed	Breeding Birds (2000-2004) Individuals Observed	LMS (1994) Individuals Observed	Harbor Herons (1990) Individuals Observed	Bernick (2002- 2004) Individuals Observed
Pied-billed grebe	<i>Podilymbus podiceps</i>			X	X	
Double-crested cormorant	<i>Phalacrocorax auritus</i>	X		X	X	
Great blue heron	<i>Ardea herodias</i>	X		X	X	X
Green-backed heron	<i>Butorides striatus</i>	X	X	X	X	
Little blue heron	<i>Egretta caerulea</i>				X	
Cattle egret	<i>Bulbucus ibis</i>				X	
Great egret	<i>Casmerodius albus</i>	X		X	X	X
Snowy egret	<i>Egretta thula</i>	X		X	X	X
Black-crowned night heron	<i>Nycticorax nycticorax</i>	X	X	X	X	X
Yellow-crowned night heron	<i>Nycticorax violacea</i>	X	X	X	X	X
Least bittern	<i>Ixobrychus exilis</i>				X	
American bittern	<i>Botaurus lentiginosus</i>				X	
Glossy ibis	<i>Plegadis falcinellus</i>	X		X	X	
Louisiana heron	<i>Hydranassa tricolor</i>				X	
White-faced ibis	<i>Plegadis chihi</i>				X	
Brant goose	<i>Branta bernicla</i>				X	
Canada goose	<i>Branta canadensis</i>	X	X	X	X	X
Mallard	<i>Anas platyrhynchos</i>	X	X	X	X	X
Black duck	<i>Anas rubripes</i>	X	X	X	X	X
Gadwall	<i>Anas strepera</i>	X	X	X	X	X
Northern pintail	<i>Anas acuta</i>				X	
Ruddy duck	<i>Oxyura jamaicensis</i>				X	

TABLE 7 (CONTINUED)
BIRD SPECIES LIKELY TO USE THE PRIMARY STUDY AREA

Common Name	Scientific Name	LMS (2004) Individuals Observed	Breeding Birds (2000-2004) Individuals Observed	LMS (1994) Individuals Observed	Harbor Herons (1990) Individuals Observed	Bernick (2002- 2004) Individuals Observed
Canvasback	<i>Aythya valisineria</i>				x	
Lesser scaup	<i>Aythya affinis</i>				x	
Greater scaup	<i>Aythya marila</i>				x	
Green-winged teal	<i>Anas crecca</i>			x	x	x
Blue-winged teal	<i>Anas discors</i>			x	x	
American wigeon	<i>Anas americana</i>			x	x	
Northern shoveler	<i>Anas clypeata</i>				x	
Wood duck	<i>Aix sponsa</i>		x		x	
Bufflehead	<i>Bucephala albeola</i>				x	
Hooded merganser	<i>Lophodytes cucullatus</i>			x	x	
Red-breasted merganser	<i>Mergus serrator</i>				x	
Mute swan	<i>Cygnus olor</i>		x			
Whistling swan	<i>Cygnus olor columbianus</i>				x	
Turkey vulture	<i>Cathartes aura</i>	x	x	x		
Cooper's hawk	<i>Accipiter cooperii</i>		x			
Sharp-shinned hawk	<i>Accipiter striatus</i>			x	x	
Red-tailed hawk	<i>Buteo jamaicensis</i>	x	x	x	x	
Northern harrier	<i>Circus cyaneus</i>		x	x	x	
Rough-legged hawk	<i>Buteo lagopus</i>				x	
Osprey	<i>Pandion haliaetus</i>		x		x	
Peregrine falcon	<i>Falco peregrinus</i>	x	x	x	x	
Merlin	<i>Falco columbarius</i>			x		

TABLE 7 (CONTINUED)
BIRD SPECIES LIKELY TO USE THE PRIMARY STUDY AREA

Common Name	Scientific Name	LMS (2004) Individuals Observed	Breeding Birds (2000-2004) Individuals Observed	LMS (1994) Individuals Observed	Harbor Herons (1990) Individuals Observed	Bernick (2002- 2004) Individuals Observed
American kestrel	<i>Falco sparverius</i>		X	X	X	
Ring-necked pheasant	<i>Phasianus colchicus</i>		X	X	X	
King rail	<i>Rallus elegans</i>				X	
Clapper rail	<i>Rallus longirostris</i>		X	X	X	X
Virginia rail	<i>Rallus limicola</i>		X	X	X	X
Sora	<i>Porzana carolina</i>				X	
Common moorhen	<i>Gallinula chloropus</i>		X	X	X	
American coot	<i>Fulica americana</i>				X	
Semipalmated plover	<i>Charadrius semipalmatus</i>			X		X
Killdeer	<i>Charadrius vociferous</i>	X	X	X	X	X
American woodcock	<i>Scolopax minor</i>		X	X	X	X
Common snipe	<i>Gallinago gallinago</i>				X	X
Wilson's snipe	<i>Gallinago delicata</i>		X			
Spotted sandpiper	<i>Actitis macularia</i>	X	X	X	X	X
Solitary sandpiper	<i>Tringa solitaria</i>			X	X	
Greater yellowlegs	<i>Tringa melanoleuca</i>			X	X	X
Lesser yellowlegs	<i>Tringa flavipes</i>			X	X	X
Pectoral sandpiper	<i>Calidris melanotos</i>			X	X	
Least sandpiper	<i>Calidris minutilla</i>			X		X
Semipalmated sandpiper	<i>Calidris pusilla</i>			X	X	
Black-bellied plover	<i>Pluvialis squataroia</i>				X	
Red knot	<i>Calidris canutus</i>				X	

TABLE 7 (CONTINUED)
BIRD SPECIES LIKELY TO USE THE PRIMARY STUDY AREA

Common Name	Scientific Name	LMS (2004) Individuals Observed	Breeding Birds (2000-2004) Individuals Observed	LMS (1994) Individuals Observed	Harbor Herons (1990) Individuals Observed	Bernick (2002- 2004) Individuals Observed
Sanderling	<i>Calidris alba</i>				x	
Dowitcher sp.	<i>Limnodromus</i> sp.				x	
Short-billed dowitcher	<i>Limnodromus griseus</i>					x
Wilson's phalarope	<i>Steganopus tricolor</i>				x	
Great black-backed gull	<i>Larus marinus</i>	x		x	x	
Herring gull	<i>Larus argentatus</i>	x	x	x	x	
Ring-billed gull	<i>Larus delawarensis</i>	x		x	x	
Laughing gull	<i>Larus atricilla</i>	x		x	x	
Bonaparte's gull	<i>Larus philadelphia</i>				x	
Common tern	<i>Sterna hirundo</i>				x	
Roseate tern	<i>Sterna dougallii</i>				x	
Least tern	<i>Sterna albifrons</i>				x	
Black skimmer	<i>Rynchops niger</i>	x			x	x
Rock dove	<i>Columba livia</i>	x	x	x	x	
Mourning dove	<i>Zenaida macroura</i>	x	x	x	x	
Monk parakeet	<i>Myiopsitta monachus</i>		x			
Yellow-billed cuckoo	<i>Coccyzus americanus</i>			x		
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>		x			
Common barn-owl	<i>Tyto alba</i>		x	x	x	x
Screech-owl	<i>Otus asio</i>				x	
Great horned owl	<i>Bubo virginianus</i>				x	
Snowy owl	<i>Nyctea scandiaca</i>				x	

TABLE 7 (CONTINUED)
BIRD SPECIES LIKELY TO USE THE PRIMARY STUDY AREA

Common Name	Scientific Name	LMS (2004) Individuals Observed	Breeding Birds (2000-2004) Individuals Observed	LMS (1994) Individuals Observed	Harbor Herons (1990) Individuals Observed	Bernick (2002- 2004) Individuals Observed
Short-eared owl	<i>Asio flammeus</i>				x	
Common nighthawk	<i>Chordeiles minor</i>					x
Ruby-throated hummingbird	<i>Archilochus colubris</i>				x	
Chimney swift	<i>Chaetura pelagica</i>	x	x	x		
Belted kingfisher	<i>Ceryle alcyon</i>	x	x	x	x	
Northern flicker	<i>Colaptes auratus</i>	x	x	x	x	
Hairy woodpecker	<i>Picoides villosus</i>			x	x	
Downy woodpecker	<i>Picoides pubescens</i>	x	x	x		
Eastern kingbird	<i>Tyrannus tyrannus</i>	x	x	x	x	x
Flycatcher sp.	<i>Empidonax</i> sp.			x	x	
Great crested flycatcher	<i>Myiarchus crinitus</i>		x	x	x	
Eastern phoebe	<i>Sayornis phoebe</i>			x		
Eastern wood-pewee	<i>Contopus virens</i>			x	x	
Willow flycatcher	<i>Empidonax traillii</i>		x	x		x
Tree swallow	<i>Iridoprocne bicolor</i>	x	x	x	x	x
Bank swallow	<i>Riparia riparia</i>			x	x	
Southern rough-winged swallow	<i>Stelgidopteryx ruficollis</i>			x		
Northern rough-winged swallow	<i>Stelgidopteryx serripennis</i>		x			
Barn swallow	<i>Hirundo rustica</i>	x	x	x	x	x
Blue jay	<i>Cyanocitta cristata</i>		x	x	x	
American crow	<i>Corvus brachyrhynchos</i>	x	x	x	x	

TABLE 7 (CONTINUED)
BIRD SPECIES LIKELY TO USE THE PRIMARY STUDY AREA

Common Name	Scientific Name	LMS (2004) Individuals Observed	Breeding Birds (2000-2004) Individuals Observed	LMS (1994) Individuals Observed	Harbor Herons (1990) Individuals Observed	Bernick (2002- 2004) Individuals Observed
Fish crow	<i>Corvus ossifragus</i>	X	X	X	X	
Black-capped chickadee	<i>Parus atricapillus</i>		X	X	X	
Tufted titmouse	<i>Parus bicolor</i>			X		
House wren	<i>Troglodytes aedon</i>	X	X	X	X	
Carolina wren	<i>Thryothorus ludovicianus</i>		X	X		
Marsh wren	<i>Cistothorus palustris</i>	X	X	X	X	X
Northern mockingbird	<i>Mimus polyglottos</i>	X	X	X	X	X
Gray catbird	<i>Dumetella carolinensis</i>	X	X	X	X	
Brown thrasher	<i>Toxostoma rufum</i>		X	X	X	
American robin	<i>Turdus migratorius</i>	X	X	X	X	X
Wood thrush	<i>Hylocichla mustelina</i>		X	X		
Veery	<i>Catharus fuscescens</i>			X	X	
Golden-crowned kinglet	<i>Regulus satrapa</i>			X	X	
Ruby-crowned kinglet	<i>Regulus calendula</i>			X		
Cedar waxwing	<i>Bombycilla cedrorum</i>	X	X	X		
European starling	<i>Sturnus vulgaris</i>	X	X	X	X	
White-eyed vireo	<i>Vireo griseus</i>		X			
Warbling vireo	<i>Vireo gilvus</i>		X			
Solitary vireo	<i>Vireo solitarius</i>			X		
Red-eyed vireo	<i>Vireo olivaceus</i>			X	X	
Black-&-white warbler	<i>Mniotilta varia</i>			X	X	
Nashville warbler	<i>Vermivora ruficapilla</i>			X		

TABLE 7 (CONTINUED)
BIRD SPECIES LIKELY TO USE THE PRIMARY STUDY AREA

Common Name	Scientific Name	LMS (2004) Individuals Observed	Breeding Birds (2000-2004) Individuals Observed	LMS (1994) Individuals Observed	Harbor Herons (1990) Individuals Observed	Bernick (2002- 2004) Individuals Observed
Northern parula	<i>Parula americana</i>			X		
Yellow warbler	<i>Dendroica petechia</i>	X	X	X		
Magnolia warbler	<i>Dendroica magnolia</i>			X	X	
Yellow-rumped warbler	<i>Dendroica coronata</i>	X		X	X	
Chestnut-sided warbler	<i>Dendroica pensylvanica</i>			X		
Bay-breasted warbler	<i>Dendroica castanea</i>			X		
Blackpoll warbler	<i>Dendroica striata</i>			X		
Palm warbler	<i>Dendroica palmarum</i>			X		
Ovenbird	<i>Seiurus aurocapillus</i>			X		
Common yellowthroat	<i>Geothlypis trichas</i>	X	X	X	X	
American redstart	<i>Setophaga ruticilla</i>			X	X	
Connecticut warbler	<i>Oporornis agilis</i>				X	
Blue-winged warbler	<i>Vermivora pinus</i>				X	
Bobolink	<i>Dolichonyx oryzivorus</i>				X	
Eastern meadowlark	<i>Sturnella magna</i>			X		
Red-winged blackbird	<i>Agelaius phoeniceus</i>	X	X	X	X	X
Orchard oriole	<i>Icterus spurius</i>		X			
Baltimore oriole	<i>Icterus galbula</i>	X	X	X	X	
Boat-tailed grackle	<i>Quiscalus major</i>	X				
Common grackle	<i>Quiscalus quiscula</i>	X	X	X	X	
Brown-headed cowbird	<i>Molothrus ater</i>	X	X	X		
Scarlet tanager	<i>Piranga olivacea</i>			X		

TABLE 7 (CONTINUED)
BIRD SPECIES LIKELY TO USE THE PRIMARY STUDY AREA

Common Name	Scientific Name	LMS (2004) Individuals Observed	Breeding Birds (2000-2004) Individuals Observed	LMS (1994) Individuals Observed	Harbor Herons (1990) Individuals Observed	Bernick (2002- 2004) Individuals Observed
Northern cardinal	<i>Cardinalis cardinalis</i>	x	x	x	x	
Rose-breasted grosbeak	<i>Pheucticus ludovicianus</i>			x		
Indigo bunting	<i>Passerina cyanea</i>			x		
House finch	<i>Carpodacus mexicanus</i>	x	x	x		
Common redpoll	<i>Carduelis flammea</i>				x	
American goldfinch	<i>Carduelis tristis</i>	x	x	x	x	
Eastern towhee	<i>Pipilo erythrophthalmus</i>	x	x	x	x	x
Savannah sparrow	<i>Passerculus sandwichensis</i>			x		
American tree sparrow	<i>Spizella arborea</i>			x	x	
Chipping sparrow	<i>Spizella passerina</i>	x				
Field sparrow	<i>Spizella pusilla</i>			x		
White-crowned sparrow	<i>Zanotrichia leucophrys</i>			x		
White-throated sparrow	<i>Zanotrichia albicollis</i>			x	x	
Seaside sparrow	<i>Ammodramus maritimus</i>		x			
Saltmarsh sharp-tailed sparrow	<i>Ammodramus caudacutus</i>		x		x	
Lincoln's sparrow	<i>Melospiza lincolni</i>			x		
Swamp sparrow	<i>Melospiza georgiana</i>	x	x	x	x	x
Song sparrow	<i>Melospiza melodia</i>	x	x	x	x	x
House sparrow	<i>Passer domesticus</i>	x	x	x	x	
<i>Number of species:</i>		56	73	116	125	

Sources: Bernick 2005, LMS Data (2004; 1997), NYSDEC 2004, The Trust for Public Land 1990.

TABLE 8
PERCENT COMPOSITION OF BIRD GROUPS FOUND IN THE PRIMARY STUDY AREA

Group	Current Study (June-July 2004)		Breeding Birds (2000-2004)		Andrew Bernick PhD research (2002-2004)		LMS (1994)		Harbor Herons (1990)		All Surveys (1990-2004)	
	Percent of Total	(no. of species)	Percent of Total	(no. of species)	Percent of Total	(no. of species)	Percent of Total	(no. of species)	Percent of Total	(no. of species)	Percent of Total	(no. of species)
Passerines	50.0%	(28)	52.8%	(38)	31.4%	(11)	55.7%	(64)	34.1%	(42)	44.4%	(76)
Shorebirds	3.6%	(2)	5.6%	(4)	25.7%	(9)	8.7%	(10)	10.6%	(13)	9.9%	(17)
Gulls and Terns	8.9%	(5)	1.4%	(1)	2.9%	(1)	3.5%	(4)	7.3%	(9)	5.3%	(9)
Waterfowl	7.1%	(4)	8.3%	(6)	14.3%	(5)	7.0%	(8)	15.4%	(19)	11.7%	(20)
Hérons, Ibis and New World Vultures	14.3%	(8)	5.6%	(4)	14.3%	(5)	7.0%	(8)	10.6%	(13)	8.2%	(14)
Raptors	3.6%	(2)	8.3%	(6)	0.0%	(0)	5.2%	(6)	5.7%	(7)	5.3%	(9)
Grebes	0.0%	(0)	0.0%	(0)	0.0%	(0)	0.87%	(1)	0.81%	(1)	0.58%	(1)
Cormorants	1.8%	(1)	0.0%	(0)	0.0%	(0)	0.87%	(1)	0.81%	(1)	0.58%	(1)
Gamebirds	0.0%	(0)	1.4%	(1)	0.0%	(0)	0.87%	(1)	0.81%	(1)	0.58%	(1)
Woodpeckers	3.6%	(2)	2.8%	(2)	0.0%	(0)	2.6%	(3)	1.6%	(2)	1.8%	(3)
Pigeons and Doves	3.6%	(2)	2.8%	(2)	0.0%	(0)	1.7%	(2)	1.6%	(2)	1.2%	(2)
Cuckoos	0.0%	(0)	1.4%	(1)	0.0%	(0)	0.87%	(1)	0.0%	(0)	1.2%	(2)
Hummingbirds and Swifts	1.8%	(1)	1.4%	(1)	0.0%	(0)	0.87%	(1)	0.81%	(1)	1.2%	(2)
Kingfisher	1.8%	(1)	1.4%	(1)	0.0%	(0)	0.87%	(1)	0.81%	(1)	0.58%	(1)
Rails, Gallinules and Coots	0.0%	(0)	4.2%	(3)	5.7%	(2)	2.6%	(3)	4.9%	(6)	3.5%	(6)
Owls	0.0%	(0)	1.4%	(1)	2.9%	(1)	0.87%	(1)	4.1%	(5)	2.9%	(5)
Goatsuckers	0.0%	(0)	0.0%	(0)	2.9%	(1)	0.0%	(0)	0.0%	(0)	0.58%	(1)
<i>Total</i>		56		72*		35		115		123		171*

* - Does not include observations of monk parakeet

Sources: LMS Data (2004; USCG, 1997); NYSDEC 2004; Bernick (2005); The Trust for Public Land 1990.

TABLE 9
NESTING PAIRS OF WADING BIRDS IN ARTHUR KILL/KILL VAN KULL ROOKERIES
1990 TO 2004
NUMBER OF NESTING PAIRS ON SHOOTERS ISLAND

Species	1990		1994		1999		2001		2002		2003		2004	
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
Black-crowned night heron	93	32%	215	80%	0	0%	180	69%	0	0%	0	0%	0	0%
Yellow-crowned night heron	2	1%	11	4%	1	100%	1	0%	0	0%	0	0%	0	0%
Great egret	26	9%	85	32%	0	0%	40	15%	0	0%	0	0%	0	0%
Snowy egret	62	21%	3	1%	0	0%	11	4%	0	0%	0	0%	0	0%
Little blue heron	1	0%	0	0%	0	0%	1	0%	0	0%	0	0%	0	0%
Tricolored heron	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Cattle egret	36	12%	3	1%	0	0%	0	0%	0	0%	0	0%	0	0%
Green-backed heron	6	2%	6	2%	0	0%	0	0%	0	0%	0	0%	0	0%
Glossy ibis	35	12%	22	8%	0	0%	23	9%	0	0%	0	0%	0	0%
Unknown	32	11%	24	9%	0	0%	4	2%	0	0%	0	0%	0	0%
<i>Total</i>	293		269		1		261		0		0		0	

Source: Kerlinger, 2004.

TABLE 10
NESTING PAIRS OF WADING BIRDS IN ARTHUR KILL/KILL VAN KULL ROOKERIES
1990 TO 2004
NUMBER OF NESTING PAIRS ON PRALLS ISLAND

Species	1990		1994		1999		2001		2002		2003		2004	
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
Black-crowned night heron	124	31%	38	15%	0	0%	0	0%	0	0%	0	0%	0	0%
Yellow-crowned night heron	1	0%	7	3%	0	0%	0	0%	0	0%	0	0%	0	0%
Great egret	13	3%	4	2%	0	0%	0	0%	0	0%	0	0%	0	0%
Snowy egret	75	19%	52	21%	0	0%	0	0%	0	0%	0	0%	0	0%
Little blue heron	1	0%	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Tricolored heron	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Cattle egret	62	16%	51	21%	0	0%	0	0%	0	0%	0	0%	0	0%
Green-backed heron	1	0%	3	1%	0	0%	0	0%	0	0%	0	0%	0	0%
Glossy ibis	105	27%	57	23%	0	0%	0	0%	0	0%	0	0%	0	0%
Unknown	12	3%	33	13%	0	0%	0	0%	0	0%	0	0%	0	0%
<i>Total</i>	394		246		0		0		0		0		0	

Source: Kerlinger, 2004.

TABLE 11
NESTING PAIRS OF WADING BIRDS IN ARTHUR KILL/KILL VAN KULL ROOKERIES
1990 TO 2004
NUMBER OF NESTING PAIRS ON ISLE OF MEADOWS

Species	1990		1994		1999		2001		2002		2003		2004	
	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%	Total	%
Black-crowned night heron	208	44%	142	28%	389	51%	0	0%	0	0%	0	0%	0	0%
Yellow-crowned night heron	1	0%	2	0%	1	0%	0	0%	0	0%	0	0%	0	0%
Great egret	10	2%	34	7%	95	12%	0	0%	0	0%	0	0%	0	0%
Snowy egret	43	9%	36	7%	94	12%	0	0%	0	0%	0	0%	0	0%
Little blue heron	1	0%	4	1%	2	0%	0	0%	0	0%	0	0%	0	0%
Tricolored heron	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Cattle egret	54	12%	87	17%	3	0%	0	0%	0	0%	0	0%	0	0%
Green-backed heron	1	0%	0	0%	1	0%	0	0%	0	0%	0	0%	0	0%
Glossy ibis	102	22%	165	32%	155	20%	0	0%	0	0%	0	0%	0	0%
Unknown	49	10%	40	8%	22	3%	0	0%	0	0%	0	0%	0	0%
<i>Total</i>	469		510		762		0		0		0		0	

Source: Kerlinger, 2004.

TABLE 12
RARE SPECIES DOCUMENTED IN UNION COUNTY, NEW JERSEY

Common Name	Scientific Name	NJ State Status; Global Rank; State Rank	Habitat Preference ¹	Habitat Present on Project Site
Birds				
Upland sandpiper	<i>Bartramia longicauda</i>	E; G5; S1B	Resides in grasslands, fallow fields, and meadows associated with pastures, farms, or airports. Nest in upland meadows and short-grass grasslands. Require early successional habitat.	No
Savannah sparrow	<i>Passerculus sandwichensis</i>	T/T; G5; S2B, S4N	Breeds in hay and alfalfa fields, fallow fields, grasslands, upland meadows, airports, pastures, and vegetated landfills. When not breeding, reside in coastal dunes, dry areas in salt marshes, roadsides, agricultural and fallow fields, pastures, airports, vegetated landfills and golf courses.	No
Least tern	<i>Sterna antillarum</i>	E; G4; S1B	In NJ, nesting colonies are found mainly along barrier island beaches or mainland beach strands, as well as on sandy dredge disposal sites. Typically prefer bare to sparsely vegetated sandy areas just beyond the reach of spring tides. Forage in bays, lagoons, estuaries, rivers and lakes along the coast.	No
Barred owl	<i>Strix varia</i>	T/T; G5; S3B	In northern NJ, reside in hemlock ravines and mixed deciduous wetland or riparian forests. In northern NJ, often favored sites that were at least 500m from human habitation.	No
Reptiles				
Wood turtle	<i>Clemmys insculpta</i>	T; G4; S3	Requires freshwater streams, brooks, creeks, or relatively remote rivers. Sometimes found on abandoned rail beds or agricultural fields and pastures. Usually occur in areas that are over half of a mile away from populated areas.	No
Bog turtle	<i>Clemmys muhlenbergii</i>	E; G3; S2	Found in limestone fens, sphagnum bogs, and wet grassy pastures with soft, muddy bottoms and perennial groundwater seepage. Usually in well drained areas; bask and nest in open areas	No
Amphibians				
Longtail salamander	<i>Eurycea longicauda longicauda</i>	T; G5T5; S2	Reside in clean, limestone, spring-fed seepages, spring kettleholes, swampy floodplains, artesian wells, and spring-fed ponds. Sometimes found in abandoned mines or caves with calcareous groundwater.	No

TABLE 12 (CONTINUED)
RARE SPECIES DOCUMENTED IN UNION COUNTY, NEW JERSEY

Common Name	Scientific Name	NJ State Status; Global Rank; State Rank	Habitat Preference ¹	Habitat Present on Project Site
Invertebrates				
Triangle floater	<i>Alasmidonta undulata</i>	T; G4; S3	Generalist; found in various freshwater stream and river habitats ¹	No
A Borer moth	<i>Papaipema aerata</i>	Not listed; GH; SH	No information available.	Unknown
Long dash	<i>Polites mystic</i>	Not listed; G5; S3?	Found in open, moist areas; meadows, marshes, streamsides and wood edges ³ .	Unlikely
Checkered white	<i>Pontia protodice</i>	T; G4; S1	Reside in open areas, including savannahs, old fields, vacant lots, and power line right of ways; sometimes found at forest edges ¹	Urban vacant lot community
Plants				
Bebb's sedge	<i>Carex Bebbii</i>	Not listed; G5; S2	Found in wet, often calcareous, open soils of watersides, low meadows, and swales.	No
Variable sedge	<i>Carex polymorpha</i>	E; G3; S1	Found in dry, open woods and shaded edges, and meadows; usually sandy soils.	No
Wild comfrey	<i>Cynoglossum virginianum</i> var. <i>virginianum</i>	Not listed; G5T5; S2	Found in well-drained open areas, and thin deciduous woods; usually on trap rock.	No
Pale duckweed	<i>Lemna valdiviana</i>	E; G5; S1	Aquatic plant. Found on still waters in ponds, streams and swamps.	Unlikely
Northern blazing-star	<i>Liatrix scariosa</i> var. <i>novae-angliae</i>	E; G5?T3; SH	Grows on open, dry and sandy soils in thin woods and shaded areas.	No

Source: New Jersey Natural Heritage Program

¹Beans, B.E. and L. Niles. *Endangered and Threatened Wildlife of New Jersey*. New Jersey: Rutgers University Press. 303pp. 2003.

²Hough, M.Y. *New Jersey Wild Plants*. New Jersey: Harmony Press. 414pp. 1983.

³Struttman, J. 2005. Butterflies of North America-Long dash. USGS Northern Prairie Research Center. Available:

<http://www.npwrc.usgs.gov/resource/distr/lepid/bflyusa/usa/546.htm>.

TABLE 12 (CONTINUED)
RARE SPECIES DOCUMENTED IN UNION COUNTY, NEW JERSEY

Notes:

Global Ranks

- G3:** Either very rare and local throughout its range or found locally (even abundantly at some of its locations) in a restricted range or because of other factors making it vulnerable to extinction throughout its range; with the number of occurrences in the range of 21 to 100.
- G4:** Apparently secure globally; although it may be quite rare in parts of its range, especially at the periphery
- G5:** Demonstrably secure globally; although it may be quite rare in parts of its range, especially at the periphery
- GH:** Of historical occurrence throughout its range i.e., formerly part of the established biota, with the exception that it may be rediscovered.

State Ranks

- S1:** Critically imperiled in NJ because of extreme rarity (5 or fewer occurrences or very few remaining individuals or acres). Often restricted to very specialized conditions or habitats and/or restricted to an extremely small geographical area of the state. These are elements for which, even with intensive searching, sizable additional occurrences are unlikely to be discovered.
- S2:** Imperiled in NJ because of rarity (6 to 20 occurrences). Historically many of these elements may have been more frequent but are now known from very few extant occurrences, primarily because of habitat destruction. Diligent searching may yield additional occurrences.
- S3:** Rare in state with 21 to 100 occurrences (plants in this category only have 21 to 50 occurrences). Includes elements which are widely distributed in the state but with small populations/acreage or elements with restricted distribution, but locally abundant. Not yet imperiled in the state but may soon be if current trends continue. Searching often yields additional occurrences.
- S4:** Apparently secure in state, with many occurrences
- SH:** Elements of historical occurrence in NJ. Despite searching of historical occurrences and/or potential habitat, no extant occurrences are known.

T: Element ranks containing a "T" indicate that the infraspecific taxon is being ranked differently than the full species.

B: Refers to the breeding population of the element in the state

N: Refers to the non-breeding population of the element in the state

?: Either it has not been determined if the record is indicative of significant habitat or the identification of the species or community may be confusing or disputed

TABLE 13
ENDANGERED, THREATENED, OR WILDLIFE SPECIES OF SPECIAL CONCERN
IN THE PRIMARY STUDY AREA

Common Name	Scientific Name	Federal	New York	New Jersey	Comments	Habitat Requirements ^{I,II}	Breeding Habitat Present	Foraging Habitat Present
Pied-billed grebe ²	<i>Podilymbus podiceps</i>	-	T	E/SC	Breeding populations are endangered in NJ/Non-breeding populations are of special concern in NJ	Typically construct floating nests in well-vegetated lakes, ponds, sluggish streams and marshes in open water among reeds or rushes. Feed primarily by diving under water for aquatic insects. They also feed on snails, fish, frogs, and incidental aquatic vegetation	Yes	Yes
Great blue heron ^{1,2}	<i>Ardea herodias</i>	-	-	SC	Only breeding populations are listed	Breed in freshwater and brackish marshes, swamps, lakes, rivers and mangroves. Builds nests in deciduous trees. Opportunistic species; feed primarily on fish, but also eat aquatic invertebrates, small vertebrates, human scraps, nestlings, and small mammals.	Yes	Yes
Black-crowned night heron ^{1,2}	<i>Nycticorax nycticorax</i>	-	-	T	Only breeding populations are listed	Breed in marshes, swamps, ponds, lakes, lagoons, mangroves, and occasionally grasslands and rice fields. Construct nests in deciduous trees and sometimes shrubs. Diet consists mainly of fish, but can also include insects, eggs, young birds, small mammals, amphibians, and other vertebrates.	Yes	Yes

TABLE 13 (CONTINUED)
ENDANGERED, THREATENED, OR WILDLIFE SPECIES OF SPECIAL CONCERN
IN THE PRIMARY STUDY AREA

Common Name	Scientific Name	Federal	New York	New Jersey	Comments	Habitat Requirements ^{I,II}	Breeding Habitat Present	Foraging Habitat Present
Yellow-crowned night heron ^{1,2}	<i>Nycticorax vidaceus</i>	-	-	T		Breed in marshes, swamps, lakes, lagoons, tidal mud flats, rocky shores and mangroves. Construct nests in deciduous trees in wooded habitats near water; also in parkland and suburbs. Feed primarily on crustaceans, particularly crayfish and crabs; also feed on lower vertebrates, fish, insects, leeches, and young birds.	Yes	Yes
Sharp-shinned hawk ²	<i>Accipiter striatus</i>	-	SC	SC		Breed in woodlands, and mountainous coniferous/deciduous forests. Construct nests primarily in coniferous trees, and occasionally in deciduous trees. Feeds primarily on birds which are obtained in flight. Rarely feed on small mammals, frogs, lizards and insects.	No	No
Northern Harrier ²	<i>Circus cyaneus</i>	-	T	E/SC	Hunts in marsh. Breeding populations are listed as endangered in NJ/Non-breeding populations are listed as special concern in NJ	Breed in prairies, savannas, sloughs, wet meadows, and marshes. Construct flimsy nests on slightly elevated ground or in thick vegetations. Occasionally builds nests in shrubs. Feed mainly on small mammals, and also on small vertebrates, insects, and carrion. Searches for prey in low flights.	Yes	Yes

TABLE 13 (CONTINUED)
ENDANGERED, THREATENED, OR WILDLIFE SPECIES OF SPECIAL CONCERN
IN THE PRIMARY STUDY AREA

Common Name	Scientific Name	Federal	New York	New Jersey	Comments	Habitat Requirements ^{I,II}	Breeding Habitat Present	Foraging Habitat Present
Peregrine Falcon ^{1,2,3}	<i>Falco peregrinus</i>	-	E	E	Nests under Goethals Bridge	Mainly breed in open habitats but also utilizes open forests and tall buildings. Construct nests on cliffs and ledges; rarely will use an old tree nest or cavity. Feeds primarily on birds which are obtained in flight.	Yes	Yes
American kestrel ²	<i>Falco sparverius</i>	-	-	SC	Only breeding populations are listed	Breed in open or partly open habitats with scattered trees and also in cultivated and urban areas. Construct nests primarily in snags and sometimes on cliffs. Feeds mainly on terrestrial invertebrates but sometimes on small vertebrates and small mammals.	Yes	Yes
Spotted sandpiper ^{1,2}	<i>Actitis macularia</i>	-	-	SC	Only breeding populations are listed	Breed in many different types of habitats. Construct nests on elevated grounds in grass, among rocks, within moss, forbs, shrubs etc. Feed primarily on terrestrial invertebrates especially flying insects; occasionally feed on aquatic invertebrates.	Yes	Yes
Black skimmer ¹	<i>Rynchops niger</i>	-	SC	E/T	Breeding populations listed as endangered in NJ/ non-breeding populations listed as threatened in NJ	Breed on coastal beaches, sandbars, shell banks, islands, salt marshes, and sometimes on gravel rooftops. Nests are unlined scrapes among shells. Feed primarily on fish, and sometimes on aquatic invertebrates.	Yes	Yes

TABLE 13 (CONTINUED)
ENDANGERED, THREATENED, OR WILDLIFE SPECIES OF SPECIAL CONCERN
IN THE PRIMARY STUDY AREA

Common Name	Scientific Name	Federal	New York	New Jersey	Comments	Habitat Requirements ^{I,II}	Breeding Habitat Present	Foraging Habitat Present
Common barn-owl ²	<i>Tyto alba</i>	-	-	SC		Breed in open and partly open habitats, especially grasslands, farmlands. Often breed in or near towns. Mainly build nests in snags, and also are known to use buildings, cliff crevices, and caves. Feed mainly on small mammals (mostly rodents) and occasionally on birds. Rarely feed on amphibians, reptiles and insects.	Yes	Yes
Veery ²	<i>Catharus fuscescens</i>	-	-	SC	Only breeding populations are listed	Breed in shaded moist woodlands that have understories. Primarily construct nests on the ground and sometimes in shrubs. Feed mainly on terrestrial invertebrates and sometimes on fruit.	No	No
Solitary vireo ²	<i>Vireo solitarius</i>	-	-	SC	Only breeding populations are listed	Breed in coniferous to deciduous woodlands. In the east, usually construct nests in coniferous trees; sometimes will use deciduous trees. Feed almost entirely on insects and on some fleshy fruits (mostly in January).	No	No
Northern parula ²	<i>Parula americana</i>	-	-	SC	Only breeding populations are listed	Breed mainly in open coniferous and deciduous woods. Construct nests in deciduous trees. Feed almost entirely on insects.	No	Yes

TABLE 13 (CONTINUED)
ENDANGERED, THREATENED, OR WILDLIFE SPECIES OF SPECIAL CONCERN
IN THE PRIMARY STUDY AREA

Common Name	Scientific Name	Federal	New York	New Jersey	Comments	Habitat Requirements ^{I,II}	Breeding Habitat Present	Foraging Habitat Present
Eastern meadowlark ²	<i>Sturnella magna</i>	-	-	SC	Only breeding populations are listed	Breed in grasslands, savannahs, and fields. Construct nests in natural or scraped depressions on the ground in dense cover. Feed primarily on terrestrial invertebrates and occasionally on seeds and fruit.	No	No
Savannah sparrow ²	<i>Passerculus sandwichensis</i>	-	-	T	Only breeding populations are listed	Breed in grasslands, meadows, tundra, marshes, bogs, and cultivated grassy areas. Construct nests in natural or excavated depressions on the ground in areas that are well concealed by vegetation. Feed primarily on terrestrial invertebrates, and sometimes on grass seeds and snails.	Yes	Yes
Northern diamondback terrapin ^{1,2}	<i>Malaclemys t. terrapin</i>	-	-	SC		Habitat is coastal marshes, tidal flats, coves, estuaries, and inner edges of barrier beaches. Prefers sheltered and unpolluted bodies of salt or brackish water. Feeds on fish, crustaceans, mollusks, and insects.	Yes	Yes
Fowler's toad ²	<i>Bufo woodhousii fowlen</i>	-	-	SC		Habitat is mainly sandy areas near marshes, around shores of lakes or in river valleys.	Yes	Yes

Notes:¹ - Observed by LMS 2004² - Observed by LMS 1994 (USCG, 1997).³ - Listed by the NY Natural Heritage Program

E = Endangered

T = Threatened

SC = Special Concern

BCC=Bird of Conservation Concern

Sources:

I. Ehrlich, P.R., D.S. Dobkin, and D. Wheye. The Birders Handbook. A Field Guide to the Natural History of North American Birds. New York: Simon and Schuster. 785pp. 1988.

II. Conant, R. and J.T. Collins. Peterson Field Guide to the Reptiles and Amphibians of Eastern and Central North America. New York: Houghton Mifflin Company. 616pp. 1998

Appendix H.2
Wetland Data Forms

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: A8
Field Investigators: C. Hanlon/E. McTague	Date: 9/30/04
Project/Site: Goethals Bridge	County: Richmond
Applicant/Owner: Port Authority of NY/NJ	State: NY

Wetland: SP-1 **Upland: SP-2**

Wetland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Phragmites australis</i>	H	FACW
2	<i>Baccharis halmifolia</i>	S	FACW
3			
4			
5			
6			
7			
8			

Upland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Cornus amomum</i>	S	FACW
2	<i>Baccharis halmifolia</i>	S	FACW
3	<i>Parthenocissus quinquefolia</i>	V	FACU
4	<i>Rhus copallina</i>	S	NI
5	<i>Robinia pseudoacacia</i>	T	FACU-
6	<i>Phragmites australis</i>	H	FACW
7			
8			

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-20	10YR1/1			organic

Upland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-4	10YR2/1			silty sand
4-10	10YR3/3			silty sand
10-16	10YR5/6			sand
16-20	10YR3/3	5YR5/6	10	silty sand

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Rationale: Low chroma values

Rationale: High chroma values

Wetland Hydrology

Ground Surface Inundated? Yes Depth (Inches): 12"
 Soil Saturated? Yes Depth to Saturation (Inches): 0
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: Drainage patterns

Upland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? Yes Depth to Saturation (Inches): 14
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? Yes

Comments: Disturbed fill material present in upland.

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: B20
Field Investigators: C. Hanlon/E. McTague	Date: 10/01/04
Project/Site: Goethals Bridge	County: Richmond
Applicant/Owner: Port Authority of NY/NJ	State: NY

Wetland: SP-3 **Upland: SP-4**

Wetland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Phragmites australis</i>	H	FACW
2	<i>Baccharis halmifolia</i>	S	FACW
3	<i>Distichilis spicata</i>	H	FACW+
4			
5			
6			
7			
8			

Upland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Rhus copallinum</i>	H	NI
2	<i>Solidago</i> spp.	H	--
3	<i>Saponaria officinalis</i>	H	FACU-
4	<i>Phragmites australis</i>	H	FACW
5	<i>Poa</i> spp.	H	--
6	<i>Panicum</i> spp	H	--
7			
8			

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-3	10YR4/4			sand
3-11	7.5YR5/6	10YR4/6	10	sandy silt
11-18	2.5YR4/6	10YR5/8	15	silty sand

Upland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-10	10YR3/4			silty sand
10-20	7.5YR4/6			sand

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Rationale: mottling

Rationale: High chroma values
No mottling

Wetland Hydrology

Ground Surface Inundated? Yes Depth (Inches): 10
 Soil Saturated? Yes Depth to Saturation (Inches): 0
 Depth to Free-standing Water in Probe Hole (Inches): 0
 Field Evidence of Hydrology: Open water
Old Place Creek streambed

Upland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? No Depth to Saturation (Inches): ---
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? No

Comments: _____

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: E17
Field Investigators: C. Hanlon/E. McTague	Date: 10/04/04
Project/Site: Goethals Bridge	County: Richmond
Applicant/Owner: Port Authority of NY/NJ	State: NY

Wetland: SP-5 **Upland: SP-6**

Wetland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Spartina alterniflora</i>	H	OBL
2	<i>Spartina patens</i>	H	FACW+
3	<i>Pluchea purpurascens</i>	H	OBL
4	<i>Phragmites australis</i>	H	FACW
5			
6			
7			
8			

Upland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Phragmites australis</i>	H	FACW
2	<i>Ailanthus altissima</i>	T	NI
3			
4			
5			
6			
7			
8			

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling %	Texture
0-20	10YR2/1		muck

Upland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling %	Texture
0-4	10YR3/3		sandy silt
>4	auger refusal		

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Rationale: Low chroma values

Rationale: High chroma values, no mottling.

Wetland Hydrology

Ground Surface Inundated? Yes Depth (Inches): 1
 Soil Saturated? Yes Depth to Saturation (Inches): 0
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: water stained vegetation, inundation drainage patterns

Upland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? No Depth to Saturation (Inches): ---
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? Yes

Comments: upland soil point in fill

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: G10
Field Investigators: C. Hanlon/E. McTague	Date: 10/05/04
Project/Site: Goethals Bridge	County: Richmond
Applicant/Owner: Port Authority of NY/NJ	State: NY

Wetland: SP-7 **Upland: SP-8**

Wetland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Tilia americana</i>	T	FACU
2	<i>Quercus rubra</i>	T	FACU-
3	<i>Prunus serotina</i>	T	FACU
4	<i>Polygonum cuspidatum</i>	H	FACU-
5	<i>Parthenocissus quinquefolia</i>	V	FACU
6	<i>Toxicodendron radicans</i>	V	FAC
7	<i>Tartarian honeysuckle</i>	V	FACU
8			

Upland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Phragmites australis</i>	H	FACW
2	<i>Tilia americana</i>	T	FACU
3			
4			
5			
6			
7			
8			

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-2	10YR3/2			muck
2-18	10YR3/1			muck

Upland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-3	10YR3/2			loamy sand
3-18	10YR3/8			silty sand

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Rationale: low chroma values

Rationale: high chroma values, no mottling

Wetland Hydrology

Ground Surface Inundated? Yes Depth (Inches): 1
 Soil Saturated? Yes Depth to Saturation (Inches): 0
 Depth to Free-standing Water in Probe Hole (Inches): 0
 Field Evidence of Hydrology: water stained vegetation, inundation drainage patterns

Upland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? No Depth to Saturation (Inches): ---
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? Yes

Comments: upland is fill material

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: I15
Field Investigators: C. Hanlon/E. McTague	Date: 10/06/04
Project/Site: Goethals Bridge	County: Richmond
Applicant/Owner: Port Authority of NY/NJ	State: NY

Wetland: SP-9 **Upland: SP-10**

Wetland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Phragmites australis</i>	H	FACW
2	<i>Baccharis halmifolia</i>	S	FACW
3			
4			
5			
6			
7			
8			

Upland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Phragmites australis</i>	H	FACW
2	<i>Baccharis halmifolia</i>	S	FACW
3	<i>Panicum</i> spp.	H	--
4	<i>Elaeagnus angustifolia</i>	S	FACU
5			
6			
7			
8			

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-16	10YR2/1			org. loamy sand
16-18	10YR5/1			sand

Upland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-4	10YR2/1			loamy sand
4-6	7.5YR4/4			sandy silt
6-16	10YR3/4			sand
16-18	10YR5/3			sand

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)
 Rationale: low chroma values

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)
 Rationale: high chroma values, no mottling

Wetland Hydrology

Ground Surface Inundated? no Depth (Inches): ---
 Soil Saturated? Yes Depth to Saturation (Inches): 2
 Depth to Free-standing Water in Probe Hole (Inches): 0
 Field Evidence of Hydrology: saturation
drainage patterns

Upland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? No Depth to Saturation (Inches): ---
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? Yes Comments: Island adjacent to Arthur Kill, dredged spoil

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: K4
Field Investigators: C. Hanlon/E. McTague	Date: 10/08/04
Project/Site: Goethals Bridge	County: Union
Applicant/Owner: Port Authority of NY/NJ	State: NJ

Wetland: SP-11 **Upland: SP-12**

Wetland Vegetation

Upland Vegetation

Wetland Vegetation			Upland Vegetation		
Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 <i>Phragmites australis</i>	H	FACW	1 <i>Apocynum sibiricum</i>	H	FAC
2 <i>Poa</i> spp.	H	FACW	2 <i>Poa</i> spp.	H	FACW
3			3 <i>Vicia sativa</i>	H	FACU-
4			4		
5			5		
6			6		
7			7		
8			8		

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Upland Soils

Soil Series/Phase: Urban land
 Is the Soil Listed as Hydric? N

Soil Series/Phase: Urban land
 Is the Soil Listed as Hydric? N

Depth (Inches)	Matrix	Mottling	%	Texture
0-2	10YR3/1			clay silt
2-12	5YR3/3			silty clay
>12	auger refusal			

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Rationale: low chroma values, Fe redox

Rationale: high chroma values, no mottling

Wetland Hydrology

Upland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? Yes Depth to Saturation (Inches): 13
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: Saturation

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? No Depth to Saturation (Inches): ---
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? Yes Comments: road embankment-upland

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: L2
Field Investigators: C. Hanlon/E. McTague	Date: 10/08/04
Project/Site: Goethals Bridge	County: Union
Applicant/Owner: Port Authority of NY/NJ	State: NJ

Wetland: SP-13 **Upland: SP-14**

Wetland Vegetation

Upland Vegetation

Wetland Vegetation			Upland Vegetation		
Dominant Plant Species	Stratum	Indicator Status	Dominant Plant Species	Stratum	Indicator Status
1 <i>Phragmites australis</i>	H	FACW	1 <i>Phragmites australis</i>	H	FACW
2 <i>Lonicera japonica</i>	H	FAC-	2 <i>Poa</i> spp.	H	---
3 <i>Rhus copallinum</i>	S	NI	3		
4			4		
5			5		
6			6		
7			7		
8			8		

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Upland Soils

Soil Series/Phase: Urban Land
 Is the Soil Listed as Hydric? N

Soil Series/Phase: Urban Land
 Is the Soil Listed as Hydric? N

Depth (Inches)	Matrix	Mottling	Mottling %	Texture
0-6	10YR4/1			organic loam
6-10	10YR4/2	10YR6/8	10	gravel sandy loam
10-18	10YR4/2	5YR4/5	20	gravelly loam

Depth (Inches)	Matrix	Mottling	Mottling %	Texture
	Fill debris			

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)
 Rationale: low chroma values, mottling, iron redox

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)
 Rationale: _____

Wetland Hydrology

Upland Hydrology

Ground Surface Inundated? no Depth (Inches): ---
 Soil Saturated? yes Depth to Saturation (Inches): 12
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: water stained vegetation saturation

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? No Depth to Saturation (Inches): ---
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? Yes

Comments: fill in uplands

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: M6
Field Investigators: C. Hanlon/E. McTague	Date: 10/08/04
Project/Site: Goethals Bridge	County: Union
Applicant/Owner: Port Authority of NY/NJ	State: NJ

Wetland: SP-15 **Upland: SP-16**

Wetland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Phragmites australis</i>	H	FACW
2	<i>Toxicodendron radicans</i>	V	FAC
3			
4			
5			
6			
7			
8			

Upland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Populus deltoides</i>	H	FAC
2	<i>Polygonum cuspidatum</i>	H	FACU-
3	<i>Parthenocissus quinquefolia</i>	V	FACU
4	<i>Artemisia vulgaris</i>	V	NI
5			
6			
7			
8			

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Soil Series/Phase: Urban Land

Is the Soil Listed as Hydric? N

Depth (Inches)	Matrix	Mottling	%	Texture
0-8	10YR3/2			loamy clay
8-12	7.5YR3/2	7.5YR5/6	20	silty sand
12-18	5YR3/4			clayey silt

Upland Soils

Soil Series/Phase: Urban Land

Is the Soil Listed as Hydric? N

Depth (Inches)	Matrix	Mottling	%	Texture
	Fill debris			

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)
 Rationale: low chroma values, mottling

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)
 Rationale: _____

Wetland Hydrology

Ground Surface Inundated? Yes Depth (Inches): 1
 Soil Saturated? Yes Depth to Saturation (Inches): 0
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: drainage patterns
inundation

Upland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? No Depth to Saturation (Inches): ---
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? Yes Comments: upland is fill/debris

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: H-10
Field Investigators: C. Hanlon/E. McTague	Date: 10/18/04
Project/Site: Goethals Bridge	County: Richmond
Applicant/Owner: Port Authority NY/NJ	State: NY

Wetland: SP-17 **Upland: SP-18**

Wetland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Acer rubrum</i>	T	FAC
2	<i>Viburnum recognitum</i>	S	FACW-
3	<i>Osmunda cinnamomea</i>	H	FACW
4	<i>Phragmites australis</i>	H	FACW
5			
6			
7			
8			

Upland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Viburnum recognitum</i>	S	FACW-
2	<i>Lindera benzoin</i>	S	NI
3	<i>Nyssa Sylvatica</i>	T	FAC
4	<i>Prunus serotina</i>	T	FACU
5	<i>Acer rubrum</i>	T	FAC
6			
7			
8			

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling %	Texture
0-18	10YR3/1		muck

Upland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling %	Texture
0-2			organic duff
2-4	10YR2/1		sandy loam
4-12	7.5YR3/4		loamy sand
12-16	7.5YR3/4		sand
16-18	7.5YR4/6		sand

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)
 Rationale: low chroma values

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)
 Rationale: high chroma values, no mottling

Wetland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? Yes Depth to Saturation (Inches): 0
 Depth to Free-standing Water in Probe Hole (Inches): 0
 Field Evidence of Hydrology: drainage patterns, water stained veg

Upland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? Yes Depth to Saturation (Inches): 16
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? No

Comments: _____

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: P10
Field Investigators: C. Hanlon/E. McTague	Date: 10/18/04
Project/Site: Goethals Bridge	County: Richmond
Applicant/Owner: Port Authority of NY/NJ	State: NY

Wetland: SP-19 **Upland: SP-20**

Wetland Vegetation

Upland Vegetation

Wetland Vegetation			Upland Vegetation		
Dominant Plant Species	Stratum	Indicator Status	Dominant Plant Species	Stratum	Indicator Status
1 <i>Acer rubrum</i>	T	FAC	1 <i>Acer rubrum</i>	T	FAC
2 <i>Phragmites australis</i>	H	FACW	2 <i>Prunus serotina</i>	T	FACU
3			3 <i>Viburnum recognitum</i>	S	FACW-
4			4 <i>Rhus copallina</i>	S	NI
5			5 <i>Dactylis glomerata</i>	H	FACU
6			6 <i>Linaria vulgaris</i>	H	NI
7			7		
8			8		

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Upland Soils

Soil Series/Phase: Booton-Haledon Complex
 Is the Soil Listed as Hydric? N

Soil Series/Phase: Booton-Haledon Complex
 Is the Soil Listed as Hydric? N

Depth (Inches)	Matrix	Mottling %	Texture
0-3	10YR2/1		muck
3-12	10YR6/1		loamy sand
12-18	10YR6/1		sand

Depth (Inches)	Matrix	Mottling %	Texture
0-1	10YR3/2		loamy sand
1-10	10YR5/3		sand
10-14	10YR6/3		sand
14-18	10YR6/3	5YR5/6	10 sand

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Rationale: low chroma values, sulfur odor

Rationale: high chroma values

Wetland Hydrology

Upland Hydrology

Ground Surface Inundated? Yes Depth (Inches): 1
 Soil Saturated? Yes Depth to Saturation (Inches): 0
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: drainage patterns, inundation

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? No Depth to Saturation (Inches): ---
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? No

Comments: _____

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: Q-5
Field Investigators: C. Hanlon/E. McTague	Date: 10/20/04
Project/Site: Goethals Bridge	County: Richmond
Applicant/Owner: Port Authority of NY/NJ	State: NY

Wetland: SP-21 **Upland: SP-22**

Wetland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Baccharhis halmifolia</i>	S	FACW
2	<i>Phragmites australis</i>	H	FACW
3			
4			
5			
6			
7			
8			

Upland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Populus tremula</i>	T	FACU
2	<i>Viburnum recognitum</i>	S	FACW-
3	<i>Rosa multiflora</i>	S	FACU
4	<i>Baccharhis halmifolia</i>	S	FACW
5	<i>Solidago</i>	H	--
6	<i>Lonicera japonica</i>	V	FAC-
7			
8			

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-2	10YR3/2			muck
2-4	10YR4/4			sandy loam
4-8	10YR4/1			sandy silt
8-18	10YR4/1	10YR3/6	5	clay loam

Upland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-10	10YR3/4			loamy sand
10-14	5YR4/4			laomy sand
14-16	5YR3/4			clay loam
16+	auger refusal			

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Rationale: low chroma values, mottling

Rationale: high chroma values, no mottling

Wetland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? Yes Depth to Saturation (Inches): 0
 Depth to Free-standing Water in Probe Hole (Inches): 2
 Field Evidence of Hydrology: drainage patterns, water stained veg

Upland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? No Depth to Saturation (Inches): ---
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? No

Comments: _____

FIELD DATA FORM

Job Number: JR2663
 Field Investigators: C. Hanlon/E. McTague
 Project/Site: Goethals Bridge
 Applicant/Owner: Port Authority of NY/NJ

Nearest Wetland Flag: R-11
 Date: 10/20/04
 County: Richmond
 State: NY

Wetland: SP-23

Upland: SP-24

Wetland Vegetation

Upland Vegetation

	Dominant Plant Species	Stratum	Indicator
			Status
1	<i>Quercus palustris</i>	T	FACW
2	<i>Phragmites australis</i>	H	FACW
3	<i>Spartinapatens</i>	H	FACW+
4			
5			
6			
7			
8			

	Dominant Plant Species	Stratum	Indicator
			Status
1	<i>Quercus palustris</i>	T	FACW
2	<i>Morus alba</i>	T	UPL
3	<i>Lonicera japonica</i>	V	FAC-
4	<i>Viburnum recognitum</i>	S	FACW-
5	<i>Phragmites australis</i>	H	FACW
6	<i>Poa</i> spp.	H	--
7			
8			

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Upland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-15	10YR2/1			muck
15-24	G1 2.5 10Y			silty sand

Depth (Inches)	Matrix	Mottling	%	Texture
0-2	10YR3/1			loamy sand
2-6	10YR4/4			sandy loam
6-11	7.5YR4/6			sandy silt
11-18	10YR6/4			sand

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Rationale: low chroma values, gleying
sulfur odor

Rationale: high chroma values, no mottling

Wetland Hydrology

Upland Hydrology

Ground Surface Inundated? Yes Depth (Inches): 8
 Soil Saturated? Yes Depth to Saturation (Inches): 0
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: inundation, incoming tide

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? No Depth to Saturation (Inches): ---
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? No

Comments: _____

FIELD DATA FORM

Job Number: JR2663	Nearest Wetland Flag: S-10
Field Investigators: C. Hanlon/E. McTague	Date: 10/21/04
Project/Site: Goethals Bridge	County: Richmond
Applicant/Owner: Port Authority of NY/NJ	State: NY

Wetland: SP-25 **Upland: SP-26**

Wetland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Phragmites australis</i>	H	FACW
2			
3			
4			
5			
6			
7			
8			

Upland Vegetation

	Dominant Plant Species	Stratum	Indicator Status
1	<i>Daucus carota</i>	H	NI
2	<i>Poa sp.</i>	H	-
3	<i>Artemisia vulgaris</i>	H	NI
4	<i>Agropyron repens</i>	H	FACU-
5	<i>Plantago lanceolata</i>	H	UPL
6	<i>Ambrosia artemisifolia</i>	H	FACU
7			
8			

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

>50% FAC or Wetter, or Prevalence Index <3?
 Yes (Hydrophytic Vegetation Criterion Met)
 No (Hydrophytic Vegetation Criterion Not Met)

Wetland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-1	10YR2/1			organic loam
1-6	10YR5/2	10YR7/8	10	sandy loam
6-10	10YR6/2	10YR6/4	5	sand
10-14	10YR5/2	7.5YR4/6	30	sandy silt
14-18	10YR5/3	7.5YR4/6	20	silty clay

Upland Soils

Soil Series/Phase: Ipswich-Pawcatuck-Matunuck mucky peats
 Is the Soil Listed as Hydric? Y

Depth (Inches)	Matrix	Mottling	%	Texture
0-3	10YR2/1			loamy silt
3-16	10YR3/2			loamy sand
16-18	10YR6/3	10YR7/8	20	silt

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Hydric Soil Criterion Met?
 Yes (Hydric Soil Criterion Met)
 No (Hydric Soil Criterion Not Met)

Rationale: low chroma values, mottling

Rationale: high chroma values

Wetland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? Yes Depth to Saturation (Inches): 0
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: drainage patterns, water stained veg

Upland Hydrology

Ground Surface Inundated? No Depth (Inches): ---
 Soil Saturated? No Depth to Saturation (Inches): ---
 Depth to Free-standing Water in Probe Hole (Inches): ---
 Field Evidence of Hydrology: None

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Evidence of Prolonged Saturation and/or Inundation?
 Yes (Wetland Hydrology Criterion Met)
 No (Wetland Hydrology Criterion Not Met)

Atypical Situation in Upland and/or Wetland? No

Comments: _____

Appendix H.3
Wetland Functions and Values

WETLAND FUNCTIONS AND VALUES

The functions and values of the wetlands within the Primary Study Area were identified using a descriptive methodology, developed by the U.S. Army Corps of Engineers, New England Regulatory Division (USACE, 1995) for use with highway planning and engineering and the National Environmental Policy Act (NEPA). The method considers eight wetland functions and five wetland values that are part of the USACE's Section 404 wetland permit process (see Table 1). A number of function-specific considerations (ranging from eight to 32, depending on the function or value) are used to identify whether the function or value is occurring within the wetland. Once identified, the dominant or principal functions are determined. Functions and values are considered principal if they are an important physical component of a wetland ecosystem, and/or are considered of special value to society, from a local, regional, and/or national perspective (USACE, 1995). Identifying dominant wetland functions within a given wetland complex can be used to guide future mitigation efforts to replace those functions lost or diminished as a result of construction activities.

The individual wetlands were categorized into five wetland areas based on similarity of type (tidal versus non-tidal) and their location within the Primary Study Area (see Table 2). The first area is the Old Place Creek wetland complex and the adjacent Arthur Kill (Wetlands A, B, C, D, E and F). The second area includes the wetlands associated with Goethals Bridge Pond and those to the west of the Travis Branch of the Staten Island Railroad Company railroad grade (Wetlands G and H). The third area includes tidal wetlands connected to Old Place Creek via culverts within the Route 440 and I-278 medians (Wetlands P, Q, R, S and T). The fourth wetland area includes the four isolated non-tidal common reed wetlands located inland near the New Jersey Turnpike (Wetlands K, L, M and N). The fifth wetland area, Wetland O, is associated with the interpier area, west of the Arthur Kill.

The wetland function-value evaluation forms were prepared using field notes, site photographs, wetland maps, prior site investigations, and additional information (e.g., NYCDPR SMRT data) to identify wetland functions and values of the five wetland areas (data forms are herein provided in Appendix H.3). Each form identifies which function(s)/value(s) occur, listing the components of the wetland function(s)/value(s), and identifying the principal function(s)/values(s) present. Comments were also included citing specific reasons (e.g., sightings of threatened or endangered species) why each function or value is or is not performed by the wetland. The functions and values identified for each of the wetland areas are discussed below and summarized in Table 2.

Area One (Wetlands A, B, C, D, E and F)

Three principal functions were identified for the Area One wetlands (Old Place Creek and associated tidal wetlands from the Arthur Kill, east to the Gulf Avenue culvert): fish/shellfish habitat; sediment/shoreline stabilization and wildlife habitat.

Fish/shellfish habitat. Evaluations identified the wetlands as part of the larger New York/New Jersey Harbor Estuary, providing tidal creeks, saltmarsh vegetation, and mudflat habitat to support fish and shellfish populations. Water quality, food production, and the size of the wetland areas were considered sufficient to support forage fish and invertebrates, as well as young-of-year gamefish (e.g., bluefish, striped bass) and blue crab.

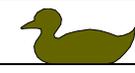
Wildlife habitat. Foraging and resting habitat for waterfowl, herons, egrets and shore birds was identified as the second principal function performed by the Wetland Area One. The tidal creek, mudflats, and saltmarsh areas provide foraging habitat for a number of wading bird species. The seasonal use of the areas by over-wintering, migratory and breeding bird species, as well as the interspersed saltmarsh vegetation, mudflats, and open water, were also considered important characteristics of the wetlands. The wetlands are included as part of the larger Harbor Heron Rookery Complex identified in the USFWS Significant Coastal Habitats Study.

TABLE 1
WETLAND FUNCTIONS AND VALUES CONSIDERED FOR
THE DESCRIPTIVE APPROACH METHODOLOGY

	FUNCTION/VALUE	DEFINITION
	Groundwater Recharge/Discharge	This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. Recharge should relate to the potential for the wetland to contribute water to an aquifer. Discharge should relate to the potential for the wetland to serve as an area where groundwater can be discharged to the surface.
	Floodflow Alteration (Storage & Desynchronization)	This function considers the effectiveness of the wetland in reducing flood damage by attenuation of floodwaters for prolonged periods following precipitation events.
	Fish and Shellfish Habitat	This function considers the effectiveness of seasonal or permanent waterbodies associated with the wetland in question for fish and shellfish habitat.
	Sediment/Toxicant/Pathogen Retention	This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens.
	Nutrient Removal/Retention/Transformation	This function relates to the effectiveness of the wetland to prevent adverse effects of excess nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.
	Production Export (Nutrient)	This function relates to the effectiveness of the wetland to produce food or usable products for humans or other living organisms.
	Sediment/Shoreline Stabilization	This function relates to the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.
	Wildlife Habitat	This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered. Species lists of observed and potential animals should be included in the wetland assessment report.
	Recreation (Consumptive and Non-Consumptive)	This value considers the effectiveness of the wetland and associated watercourses to provide recreational opportunities such as canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive activities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland, whereas non-consumptive activities do not.
	Educational/Scientific Value	This value considers the effectiveness of the wetland as a site for an “outdoor classroom” or as a location for scientific study or research.
	Uniqueness/Heritage	This value relates to the effectiveness of the wetland or its associated waterbodies to produce certain special values. Special values may include such things as archaeological sites, unusual aesthetic quality, historical events, or unique plants, animals, or geologic features.
	Visual Quality/Aesthetics	This value relates to the visual and aesthetic qualities of the wetland.
ES	Threatened or Endangered Species Habitat	This value relates to the effectiveness of the wetland or associated waterbodies to support threatened or endangered species.

Source: USACE, New England Regulatory Division, 1995.

**TABLE 2
WETLAND FUNCTION AND VALUE EVALUATION:
PRIMARY STUDY AREA WETLANDS**

WETLAND FUNCTION/ VALUE	STUDY AREA WETLAND AREAS				
	<u>Area One</u> (A,B,C,D,E,F) Old Place Creek	<u>Area Two</u> (G, H) Goethals Bridge Pond & west	<u>Area Three</u> (P, Q, R, S, T) Route 440 & I-278	<u>Area Four</u> (K, L, M, N) NJ Turnpike	<u>Area Five</u> (O) NJ side of Arthur Kill
Groundwater Recharge/Discharge	NA	NA	NA	NA	NA
Floodflow Alteration					
Fish and Shellfish Habitat				NA	
Sediment/Toxicant Retention				NA	
Nutrient Removal				NA	
Production Export				NA	
Sediment/Shoreline Stabilization		NA	NA	NA	NA
Wildlife Habitat					
Recreation	NA	NA	NA	NA	NA
Education/Scientific Value				NA	NA
Uniqueness/Heritage				NA	
Visual Quality/Aesthetics	NA	NA	NA	NA	NA
Endangered Species Habitat	ES	ES	ES	NA	ES

 = Principal valuable function NA indicated the function was not identified or not applicable.

Source: USACE, New England Regulatory Division, 1995.

Sediment/shoreline stabilization. The vegetative banks of the Arthur Kill and Old Place Creek provide shoreline protection from wave and tidal flows. Because the area is inundated twice daily, these vegetative banks are subject to frequent erosive forces. The vegetation's (saltmarsh cordgrass) roots anchor soil/sediment and prevent erosion of stream banks and the tidal marsh edge.

The wetlands in Area One also provide seven additional functions/values, but were not principal functions. These include: floodflow alteration; sediment/toxicant retention; nutrient removal; production export; education/scientific value; uniqueness heritage and endangered species habitat.

Other functions that are not present or are performing at some level of impairment include: groundwater recharge/discharge; recreation; and visual quality/aesthetics. Because the wetlands/watercourses are inundated regularly through tidal action, groundwater recharge/discharge is not applicable.

Area Two (Wetlands G and H)

Area Two consists of tidal wetlands north of the Port Authority's Goethals Bridge Administration Building (Goethals Bridge Pond) and tidal wetlands west of the Travis Branch of the Staten Island Railroad Company berm. One principal function, wildlife habitat, was identified for the Area Two wetlands.

Wildlife habitat. As stated in the Area One narrative, foraging and resting habitat for waterfowl, herons, egrets and shore birds was identified as a principal function performed by both wetland areas. The tidal creek, mudbank, and saltmarsh areas provide foraging habitat for a number of wading bird species. The seasonal use of the areas by over-wintering, migratory and breeding bird species, as well as the interspersions of saltmarsh vegetation, mudbank, and open water, were also considered important characteristics of the wetlands. These wetland areas are also included as part of the larger Harbor Heron Rookery Complex identified in the USFWS Significant Coastal Habitats Study.

The wetlands in Area Two also provide eight additional functions/values, but were not principal functions. These include: floodflow alteration; fish and shellfish habitat; sediment/toxicant retention; nutrient removal; production export; education/scientific value; uniqueness heritage; and endangered species habitat.

Other functions which are not present or are performing at some level of impairment include: groundwater recharge/discharge; sediment/shoreline stabilization; and visual quality/aesthetics. Because the wetlands/watercourses are inundated regularly through tidal action, groundwater recharge/discharge is not applicable.

Area Three (Wetlands P, Q, R, S and T)

Area Three consists of tidal wetlands connected by culverts to Old Place Creek located within the medians of Route 440 and I-278. As with Area Two, one principal function, wildlife habitat, was identified for the wetlands.

Wildlife habitat. As with Areas One and Two, foraging and resting habitat for waterfowl, herons, egrets and shore birds was identified as a principal function performed by these wetland areas. The tidal creek, mudflat, and saltmarsh areas provide foraging habitat for a number of wading bird species. The seasonal use of the areas by over-wintering, migratory and breeding bird species, as well as the interspersions of saltmarsh vegetation, mudflat, and open water, were also considered important characteristics of the wetlands.

The wetlands in Area Three also provide eight additional functions/values, but were not principal functions. These include: floodflow alteration; fish and shellfish habitat; sediment/toxicant retention;

nutrient removal; production export; education/scientific value; uniqueness heritage; and endangered species habitat.

Other functions which are not present or are performing at some level of impairment include: groundwater recharge/discharge; sediment/shoreline stabilization; and visual quality/aesthetics. Because the wetlands/watercourses are inundated regularly through tidal action, groundwater recharge/discharge is not applicable.

Area Four (Wetlands K, L, M and N)

Wetlands K, L, M and N are low in value as they are small and isolated from other wetlands and water sources; surrounded by development; and consist of a monoculture of common reed. Based on the September and October 2004 field studies, typical wetland functions (wildlife habitat, food production, education and research, aesthetic appreciation and recreation) are lacking. The main function of these wetlands is floodflow retention during storm events. Runoff from the existing network of highways, access ramps, and secondary roads drain into these wetlands; some infiltration and absorption of nutrients/sediments presumably occur prior to discharge into the Arthur Kill.

Floodflow retention. Collection of stormwater from nearby highways and paved surface areas was cited in the functions evaluation. The proximity of the wetlands near these paved areas and observations of standing or ponded water provided evidence for floodflow retention as the principal function. Dense vegetation (specifically common reed) also provides for the potential uptake and assimilation of nutrients derived from roadway and urban runoff.

Area Five (Wetland/Open Water O)

Fish/shellfish habitat. Wetland O is part of the larger New York/New Jersey Harbor Estuary, providing tidal creeks, saltmarsh vegetation, and mudflat habitat to support fish and shellfish populations. Water quality, food production, and the size of the wetland/open water area were considered sufficient to support forage fish and invertebrates, as well as young-of-year gamefish (e.g., bluefish, striped bass) and blue crab.

Wetland O also provides seven additional functions/values which are not considered to be principal functions. These include: floodflow alteration; sediment/toxicant retention; nutrient removal; production export; uniqueness heritage; wildlife habitat; and endangered species habitat.

Other functions which are not present or are performing at some level of impairment include: groundwater recharge/discharge; sediment/shoreline stabilization; recreation; education/scientific value; and visual quality/aesthetics. Because the wetlands/watercourses are inundated regularly through tidal action, groundwater recharge/discharge is not applicable.

WETLAND EVALUATION FORM
PROJECT: Goethals Bridge Replacement

WETLAND I.D. **A,B,C,D,E,F** LOCATION: **New York** INVESTIGATORS: **Hanlon** FIELD DATE: **September 2004**

Approx. Wetland Area:	Geomorphology: Estuarine
Wetland Classes: (Circle Dominant): Tidal Marsh	Drainage System: Newark Bay
Mapping Classification	Contiguous Waterbody for Evaluation: Arthur Kill, Old Place Creek
NWI: E1UBL, E2EM1Pd, E2EM1N	Inlets: Old Place Creek Outlets: Arthur Kill
	Wildlife Observed: gulls, sparrows, brown snake, blue crabs
Vegetation: Species Richness: L Density: H	
Interspersion: Veg/Water: H Class/Class: L	
Surrounding Lands (%): 30% Industrial, 70% Roads	

	FUNCTIONAL ASSESSMENT	Occurrence		Rationale* (Question No.)	Principal		Comments
		Yes	No		Yes	No	
	Groundwater recharge						
	Groundwater discharge		X	3,7,8,15			Areas inundated, with no groundwater discharge.
	Floodflow alteration	X		1, 3, 4, 5, 6, 7, 13, 14, 18		X	Soils inundated twice a day.
	Fish and shellfish habitat	X		1, 2, 3, 4, 5, 6	X		Stream habitat suitable for fish and shellfish (marine)
	Sediment/toxicant/pathogen retention	X		2,3,4,5,7,8,10,11,12,13, 15,16		X	Sediments can drop out during slack tide
	Nutrient removal/retention/transformation	X		1,2,3,4,5,6,7,8,9, 10,11,12,13,14		X	Thick wetland vegetation growth can remove nutrients from upstream urban-industrial area
	Production export (nutrient)	X		1,2,4,5,6,7,10,11,13,14		X	Wetland vegetation produce seed for animal consumption
	Sediment/shoreline stabilization	X		1,3,6,7,9,11,12,15		X	Low flow gradient, low erosion
	Wildlife habitat	X		6,8,9,10,11,12,13,16,17, 18,19,21,22	X		Although highly disturbed upland area adjacent to wetland, high numbers of wildlife species use
	Recreation	X		1,2,5,7,8,9,12		X	Potential exists for recreation, but site access and security inhibit use
	Education/scientific value	X		1,5,6			No easy site access. Site controlled- security issues
	Uniqueness/heritage	X		1,3,5,6,7,12,13,14, 17,22,24,25,27,28		X	Area is identified as local significant resource (NYCDEP)
	Visual quality/aesthetics		X	1,2,3,6,8			Wetland altered by ditching. Surrounding land use inhibits visual quality.
ES	Endangered species habitat	X		1,2		X	Special status species present

* Refer to Wetland Function Rationale List

WETLAND EVALUATION FORM
PROJECT: Goethals Bridge Replacement

WETLAND I.D. **G,H** LOCATION: **New York** INVESTIGATORS: **Hanlon** FIELD DATE: **October 2004**

Approx. Wetland Area:	Geomorphology: Estuarine (Wetland G= Goethals Bridge Pond)
Wetland Classes: (Circle Dominant): Estuarine	Drainage System: Old Place Creek
Mapping Classification	Contiguous Waterbody for Evaluation:
NWI: E2EM1N6, E2EM5P6	Inlets: N/A Outlets: Unnamed tributary to Old Place Creek
Vegetation: Species Richness: M Density: M	Wildlife Observed: gulls, sparrows, great blue heron
Interspersion: Veg/Water: M Class/Class: L	
Surrounding Lands (%): Roads 40, Commercial 60	

	FUNCTIONAL ASSESSMENT	Occurrence		Rationale* (Question No.)	Principal		Comments
		Yes	No		Yes	No	
	Groundwater recharge		X	3,7,8,9,10,15			Areas inundated, with no groundwater discharge.
	Groundwater discharge		X	3,7,8,9,10,15			
	Floodflow alteration	X		1,3,4,5,6,7,13,14,15,16,18		X	Soils inundated twice a day.
	Fish and shellfish habitat	X		1,2,4		X	Constricted outlet inhibits fish-shellfish
	Sediment/toxicant/pathogen retention	X		2,3,4,5,7,8,10,11,12,14,15,16		X	Sediments can drop out during slack tide
	Nutrient removal/retention/transformation	X		1,2,3,4,5,6,7,8,9,10,11,12,13,14		X	Thick wetland vegetation growth can remove nutrients from upstream urban-industrial area
	Production export (nutrient)	X		1,2,4,5,7,10,11,13,14		X	Wetland Vegetation produce seed for animal consumption
	Sediment/shoreline stabilization		X	1,3,7,9,10,12,13,15			Low flow gradient, low erosion
	Wildlife habitat	X		6,8,9,11,12,13,16,17,18,19,21,22	X		Although highly disturbed upland area adjacent to wetland, high numbers of wildlife species use
	Recreation	X		1,5,7,12		X	Private or restricted access
	Education/scientific value	X		1,5,6		X	Private or restricted access
	Uniqueness/heritage	X		1,3,5,6,7,12,13,14,17,22,24,25,26,27		X	Area is identified as local significant resource (NYCDEP)
	Visual quality/aesthetics		X	1,2,3,6,8			Wetland altered by ditching. Surrounding land use inhibits visual quality.
ES	Endangered species habitat	X		1,2		X	Special status species present

* Refer to Wetland Function Rationale List

WETLAND EVALUATION FORM
PROJECT: Goethals Bridge Replacement

WETLAND I.D. **K,L,M,N** LOCATION: **New Jersey** INVESTIGATORS: **Hanlon** FIELD DATE: **October, 2004**

Approx. Wetland Area:	Geomorphology: Depression
Wetland Classes: (Circle Dominant): Emergent scrub shrub	Drainage System: Arthur Kill
Mapping Classification	Contiguous Waterbody for Evaluation:
NWI: PEM1, PSS1	Inlets: None Outlets: None
	Wildlife Observed: sparrows
Vegetation: Species Richness: L Density: H	
Interspersion: Veg/Water: L Class/Class: L	
Surrounding Lands (%): 100 Roads	

	FUNCTIONAL ASSESSMENT	Occurrence		Rationale* (Question No.)	Principal		Comments
		Yes	No		Yes	No	
	Groundwater recharge						
	Groundwater discharge		X	4,6			Isolated depressional wetlands
	Floodflow alteration	X		2,3,4,5,9,18	X		Able to retain stormwater.
	Fish and shellfish habitat		X				No watercourse present or open water
	Sediment/toxicant/pathogen retention		X	1,2,4,5,9			Depressional wetlands adjacent to roadway
	Nutrient removal/retention/transformation		X	3,7,8,9,10			Small size of wetlands inhibit this function
	Production export (nutrient)		X	1,2,7			No outlet present
	Sediment/shoreline stabilization		X	3			No stream present
	Wildlife habitat	X		8,13		X	Small size, isolated area between roadways
	Recreation		X				Small size, restricted areas
	Education/scientific value		X	9			Small size, restricted areas
	Uniqueness/heritage		X	1,17			Small size, restricted areas
	Visual quality/aesthetics		X	6			Small size, restricted areas
ES	Endangered species habitat		X				No threatened or endangered species present

* Refer to Wetland Function Rationale List

WETLAND EVALUATION FORM
PROJECT: Goethals Bridge Replacement

WETLAND I.D. **P,Q,R,S,T** LOCATION: **New York** INVESTIGATORS: **Hanlon** FIELD DATE: **October, 2004**

Approx. Wetland Area:	Geomorphology: Estuarine
Wetland Classes: (Circle Dominant): Tidal Marsh	Drainage System: Old Place Creek
Mapping Classification	Contiguous Waterbody for Evaluation:
NWI: E2EM5P	Inlets: N/A Outlets: Old Place Creek
Vegetation: Species Richness: L Density: H	Wildlife Observed: gulls, sparrows, crabs
Interspersion: Veg/Water: M Class/Class: L	
Surrounding Lands (%): Industrial 10, Roads 90	

	FUNCTIONAL ASSESSMENT	Occurrence		Rationale* (Question No.)	Principal		Comments
		Yes	No		Yes	No	
	Groundwater recharge		X	3,7,8,9,15			Areas inundated, with no groundwater discharge.
	Groundwater discharge		X	3,4,5,6,7,13,14,15,16,18			
	Floodflow alteration	X		3,4,5,6,7,13,14,15,16,18		X	Soils able to hold stormwater.
	Fish and shellfish habitat	X		1,2,4		X	Constricted outlet inhibits fish/ shellfish
	Sediment/toxicant/pathogen retention	X		2,3,4,5,7,8,9,10,11,12,13,14,15,16		X	Sediments can drop out during slack tide
	Nutrient removal/retention/transformation	X		2,3,4,5,6,7,8,9,10,11,12,13,14		X	Thick wetland vegetation growth can remove nutrients from upstream urban-industrial area
	Production export (nutrient)	X		1,2,4,5,7,10,11,13,14		X	Wetland vegetation produce seed for animal consumption
	Sediment/shoreline stabilization		X	7,9,10,12,13,15		X	Low flow gradient, low erosion
	Wildlife habitat	X		6,8,9,11,13,16,17,18,19,21,22	X		Although highly disturbed upland area adjacent to wetland, high numbers of wildlife species use
	Recreation		X	5,12			Private or restricted access
	Education/scientific value	X		1,5		X	Private or restricted access
	Uniqueness/heritage	X		1,5,6,7,12,13,22,24,27,28		X	Area is identified as local significant resource (NYCDEP)
	Visual quality/aesthetics		X	1,2,3,6,8			Wetland altered by ditching. Surrounding land use inhibits visual quality.
ES	Endangered species habitat	X		1,2		X	Special status species present

* Refer to Wetland Function Rationale List

Wetlands Plant Species List

Wetlands A, B, C, D, E, F	Abundance*
<i>Phragmites australis</i>	A
<i>Baccharis halmifolia</i>	A
<i>Distichlis spicata</i>	A
<i>Spartina alterniflora</i>	A
<i>Spartina patens</i>	A
<i>Pluchea purpurascens</i>	A
<i>Toxicodendron radicans</i>	C
<i>Ampelopsis brevipedunculata</i>	C
<i>Cornus amomum</i>	C
<i>Populus tremuloides</i>	I
<i>Betula populifolia</i>	I
<i>Sambucus canadensis</i>	C
<i>Lonicera japonica</i>	C
Wetlands G,H	
<i>Tilia americana</i>	C
<i>Quercus rubra</i>	C
<i>Prunus serotina</i>	A
<i>Polygonum cuspidatum</i>	A
<i>Parthenocissus quinquefolia</i>	A
<i>Toxicodendron radicans</i>	A
<i>Lonicera tatarica</i>	A
<i>Acer rubrum</i>	A
<i>Viburnum recognitum</i>	A
<i>Osmunda cinnamomea</i>	C
<i>Phragmites australis</i>	A
<i>Lonicera japonica</i>	A

Wetlands K,L,M,N	Abundance*
<i>Phragmites australis</i>	C
<i>Poa spp.</i>	C
<i>Lonicera japonica</i>	C
<i>Rhus copallinum</i>	C
<i>Toxicodendron radicans</i>	C
Wetlands P,Q,R,S,T	
<i>Acer rubrum</i>	C
<i>Phragmites australis</i>	A
<i>Baccharis halmifolia</i>	A
<i>Quercus palustris</i>	I
<i>Spartina patens</i>	A
<i>Viburnum recognitum</i>	C
<i>Osmunda cinnamomea</i>	C
<i>Nyssa Sylvatica</i>	C
<i>Rosa multiflora</i>	C
<i>Populus tremuloides</i>	I
<i>Liquidambar styraciflua</i>	C
<i>Polygonum cuspidatum</i>	C
<i>Toxicodendron radicans</i>	C
<i>Ampelopsis brevipedunculata</i>	
<i>Pluchea purpurascens</i>	I
<i>Myrica pensylvanica</i>	I
<i>Onoclea sensibilis</i>	C
<i>Sambucus canadensis</i>	C
<i>Fraxinus Pennsylvanica</i>	C

* A = Abundant, C = Common, I = Infrequent

Appendix H.4 Essential Fish Habitat (EFH) Assessment

NOTE: While the DEIS included a Draft EFH Assessment for all Build Alternatives, the Final EFH Assessment was officially submitted to the National Marine Fisheries Service (NMFS) for review now that the Preferred Alternative has been identified. Therefore, such document is undergoing its own independent review, and it is then not herein included in this FEIS. Such consultation will be completed and reported in the USCG's Record of Decision (ROD).

Appendix H.5
Agency Correspondence

Overall Timeline of Ecological Resources Correspondences for GBR EIS

1. 08/26/2004* USDC, NOAA's NMFS Response Letter regarding federally listed threatened or endangered species.
2. 09/08/2004 – USDO, FWS Response Letter regarding the review of the Notice of Intent to prepare a DEIS and review of a Draft Scoping Document.
3. 09/13/2004* USDOT, FAA Response Letter regarding the review of the Draft Scoping Document.
4. 11/05/2004 – DOA, New York District Corps of Engineers Response Letter regarding request for comments received at the inter-agency scoping meeting held on 09/14/2004.
5. 11/08/2004 – NJDEP, Environmental Regulation, Office of Pollution Prevention and Right to Know, Response Letter regarding review of the Draft Scoping Document.
6. 11/09/2004 – NYSDEC, DFWMR, NYNHP Response Letter regarding list of rare or state-listed animals and plants, significant natural communities, and other significant habitats near the project site.
7. 11/29/2004 – NJDEP, Division of Parks and Forestry, Office of Natural Lands Management, Natural Heritage Program, Response Letter regarding rare species and natural community information request.
8. 12/02/2004* USDC, NOAA's NMFS Response Letter regarding federally listed threatened or endangered species.
9. 12/08/2004 – USEPA, New York - New Jersey Harbor Estuary Program Office, Response Email regarding wetland data and potential wetland mitigation sites in the vicinity of the Goethals Bridge.
10. 12/08/2004 – USDO, FWS Response Letter regarding federally listed or proposed endangered or threatened species.
11. 03/16/2005 – USDO, FWS Response Letter regarding the review of “Task I – Alternative Actions and Screening” in preparation for the DEIS.
12. 05/23/2005 - NYCDPR, Natural Resources Group, Response Letter regarding FOIA request for data and maps of restored wetlands in the vicinity of the Goethals Bridge.
13. 08/17/2006 –NYCDEP Phone Conversation with HDR/LMS regarding information on the Peregrine Falcons near the Goethals Bridge.
14. 11/13/2006* USDC, NOAA's NMFS Response Letter regarding federally listed threatened or endangered species.
15. 12/10/2007 –HDR/LMS Email response regarding Peregrine Falcon information for 2007.
16. 09/11/2008 –NYCDEP Email response regarding the status of the Peregrine Falcon activity in the New York State.
17. 07/15/2009 - NJDEP, Division of Parks and Forestry, Office of Natural Lands Management, Natural Heritage Program, Response Letter regarding rare species and natural community information request.
18. 07/21/2009 - USDC, NOAA's NMFS Response Letter regarding Endangered Species Act, Fish and Wildlife Coordination Act and Magnuson-Stevens Fishery Conservation and Management Act.
19. 07/23/2009 - NYSDEC, DFWMR, NYNHP Response Letter regarding list of rare or state-listed animals and plants, significant natural communities, and other significant habitats near the project site.
20. 12/01/2009 - USDO, FWS, NJ Field Office website search in December 2009 regarding New Jersey Threatened and Endangered Species list by County and Municipality.
21. 01/13/2010 - USDO, FWS NY Field Office website search in January 2010 regarding New York State County list of Threatened, Endangered and Candidate Species.

* Indicates that the correspondence letter is undated and the received date is noted.

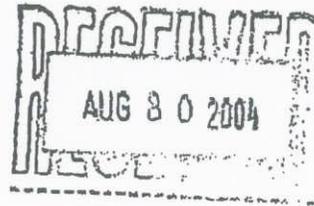
Abbreviations: United States Coast Guard (USCG); United States Department of Commerce (USDC); National Oceanic and Atmospheric Administration (NOAA); National Marine Fisheries Service (NMFS); United States Department of the Interior (USDO); Fish and Wildlife Service (FWS); Draft Environmental Impact Statement (DEIS); New Jersey Department of Environmental Protection (NJDEP); New York State Department of Environmental Conservation (NYSDEC); Division of Fish, Wildlife & Marine Resources (DFWMR); New York Natural Heritage Program (NYNHP); Department of the Army (DOA); United States Environmental Protection Agency (USEPA); United States Department of Transportation (USDOT); New York City Department of Environmental Protection (NYCDEP); New York City Department of Parks and recreation (NYCDPR); Freedom Of Information Act (FOIA).



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
One Blackburn Drive
Gloucester, MA 01930-2298

Gary Kassof
Bridge Program Manager, First Coast Guard District
US Department of Homeland Security
US Coast Guard
One South Street
Battery Building
New York, New York 10004

AUG 26 2004



Dear Mr. Kassof,

This is in response to your letter dated August 20, 2004 regarding a Draft Environmental Impact Statement (DEIS) being prepared by the US Coast Guard (USCG) for a proposed new bridge to replace the Goethals Bridge, which crosses the Arthur Kill between Staten Island, New York and Elizabeth, New Jersey.

While several species of listed sea turtles are known to be seasonally present in New York waters, including New York Harbor, and a population of the federally endangered shortnose sturgeon (*Acipenser brevirostrum*) is known to exist in the Hudson River, no listed species are known to occur in the Arthur Kill where the project is located. As such, no consultation under the provisions of Section 7 of the Endangered Species Act of 1973, as amended, is necessary. Should project plans change or new information become available that changes the basis for this determination, consultation should be initiated. As there are no listed species that will be impacted by the proposed project, the Protected Resources Division respectfully declines your invitation to attend the interagency scoping meeting to be held on September 14, 2004. Please note that these comments only apply to species protected under the Endangered Species Act and are offered in addition to any comments you may receive from the National Marine Fisheries Service's Habitat Conservation Division. If you have any questions regarding these comments, please contact Julie Crocker at (978)281-9328 x6530.

Sincerely,

Mary A. Colligan
Assistant Regional Administrator
for Protected Resources

Cc: Rusanowsky, F/NER4

File Code: Sec 7 - ACOB NSP New York





(ER-04/592)

United States Department of the Interior

FISH AND WILDLIFE SERVICE

3817 Luker Road
Conland, NY 13045

LMS

September 8, 2004

Mr. Gary Kassof
Bridge Program Manager
United States Coast Guard
First Coast Guard District
One South Street, Battery Building
New York, NY 10004

Dear Mr. Kassof:

This responds to your August 20, 2004 request to the U.S. Fish and Wildlife Service (Service) for review of a Notice of Intent (NOI) to prepare a Draft Environmental Impact Statement (DEIS) (Federal Register, Vol. 69, No. 153, Aug. 10, 2004), and review of a draft Scoping Document, regarding the Goethals Bridge Modernization Program (GBMP). Both the NOI and the draft Scoping Document were prepared pursuant to the National Environmental Policy Act (NEPA) of 1969 as amended (83 Stat. 852; 42 U.S.C. 4321 *et seq.*).

The GBMP is proposed by the Port Authority of New York and New Jersey (PANYNJ). The United States Coast Guard (USCG) is the lead federal agency for NEPA compliance, as the proposed project would require a USCG permit pursuant to the General Bridge Act of 1946 (P.L. 79-601, Title V, 60 Stat. 847). In addition to a USCG permit, the proposed project may require Department of the Army permits from the U.S. Army Corps of Engineers, New York District (Corps) pursuant to Section 404 of the Clean Water Act (33 U.S.C. 1344 *et seq.*) and/or Section 10 of the Rivers and Harbors Act (30 Stat. 1151, as amended; 33 U.S.C. 403 *et seq.*).

Built in the 1920s, the existing Goethals Bridge spans the Arthur Kill to connect Elizabeth, Union County, New Jersey, with Staten Island, Richmond County, New York. Through the NEPA scoping process, the USCG and the PANYNJ will identify and screen various structural and non-structural alternatives to address traffic, safety, security, and other concerns with the existing bridge. Currently, the PANYNJ's preferred alternative is replacement of the existing bridge south of or within the existing alignment.

Authority

This response is provided pursuant to NEPA; Section 7 the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species; and the Migratory Bird Treaty Act (40 Stat. 755 as amended; 16 U.S.C. 703-712); and is consistent with the intent of the Service's Mitigation Policy (Federal Register, Vol. 46, No. 15, Jan. 23, 1981). These comments do not preclude separate review and comments

by the Service as afforded by the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 *et seq.*), or comments on future NEPA documents.

Threatened and Endangered Species

The New York State Department of Environmental Conservation (NYSDEC) and the New Jersey Division of Fish and Wildlife request that you be advised that the peregrine falcon (*Falco peregrinus*), listed as endangered by the State of New York, is known to occur in the vicinity of the proposed project. The project should, therefore, be coordinated with the both states. The New York contact for the peregrine falcon is Mr. Peter Nye, Endangered Species Unit, NYSDEC, 625 Broadway, Albany, NY 12233 (telephone: 518-402-8859). The New Jersey contact is Ms. Kathleen Clark, Endangered and Nongame Species Program, Division of Fish and Wildlife, Tuckahoe Wildlife Management Area, 2201 Route 631, Woodbine, New Jersey 08270.

Except for occasional transient individuals, no other federally listed or proposed endangered or threatened flora or fauna under Service jurisdiction are known to occur within the vicinity of the proposed project site. If additional information on federally listed species becomes available, or if project plans change, this determination may be reconsidered. Because this project will be developed over several years, and because our records are regularly updated with new information, the Service recommends that the project sponsors contact the Service on an annual basis.

Federally listed endangered and threatened marine species may be found near the project area. These species are under the jurisdiction of the National Oceanic and Atmospheric Administration / Fisheries (NOAA/F). We recommend that you continue to coordinate with Mr. Stanley Gorski, Habitat Conservation Division, Field Offices Supervisor, NOAA/F, James J. Howard Marine Sciences Laboratory, 74 Magruder Road, Highlands, NJ 07732 (telephone: 732-872-3037), for additional information on these species and NOAA/F-designated Essential Fish Habitat.

State-listed species may also be present in the project area. Wetlands along Morses Creek in New Jersey are classified by the New Jersey Department of Environmental Protection as foraging habitat for the New Jersey-listed (threatened) black-crowned night-heron (*Nycticorax nycticorax*) and yellow-crowned night heron (*Nyctanassa violaceus*), as well as other colonial nesting waterbirds. Project sponsors should contact the New Jersey Endangered and Nongame Species Program, Division of Fish and Wildlife, P.O. Box 400, Trenton, NJ 08625, for additional information.

Service Comments

The Service provides the following preliminary comments to assist the USCG and the PANYNJ in the NEPA scoping process.

Project Coordination

The Service strongly recommends that project sponsors work closely with other planned and ongoing transportation projects in the New York-New Jersey Harbor region to avoid overlapping efforts and to ensure the most current information is used in the DEIS. In particular, the Comprehensive Port Improvement Plan (CPIP) and the Cross Harbor freight rail project are highly relevant to the GBMP. In fact, one of the Cross Harbor alternatives would involve twinning the rail bridge immediately north of the Goethals Bridge. The Cross Harbor project and

planning within the CPIP could significantly influence the demand for truck crossings of the Goethals Bridge. In addition, the Service recommends that alternatives considered in the DEIS include bridge designs capable of carrying various types of cables (e.g., communication, energy), so that this type of infrastructure can be routed across the Arthur Kill in the future without further aquatic resource impacts.

Aquatic Resources

In New Jersey, a significant expanse of emergent wetlands is located within 0.5 mile south of the Goethals Bridge, along Morses Creek. Smaller wetland areas are mapped near the intersection of Interstate 278 and the New Jersey Turnpike. In Staten Island, important wetland resources in the project area include tidal and non-tidal wetlands associated with Old Place Creek and wetland mitigation projects managed by the New York City Department of Environmental Protection. In the highly urbanized landscape of the project area, wetlands such as these provide important habitats for resident and migratory birds and other wildlife. Many of the wetlands that historically occurred in the project area have been impacted by dredging and filling. Tiner (2000) estimated that nearly two-thirds of Staten Island's tidal wetlands have been filled and 300 formerly tidal wetlands have been converted to freshwater wetlands by tidal restrictions or the elimination of tidal flow. The project sponsors should include a detailed analysis of the direct, indirect, and cumulative wetland impacts associated with the project. Additional information that may be useful in the cumulative effects analysis for the New York portion of the project area is provided in Tiner (2000).

The Service's key recommendation for GBMP project sponsors is to expressly consider avoidance and minimization of wetland impacts during the development and screening of alternatives, and to reject any alternative with unacceptably high wetland impacts. In accordance with the Service's Mitigation Policy, top priority should be afforded to the highest quality wildlife habitats. (*)

Compensatory mitigation options are limited in urban landscapes as available undeveloped land is in relatively short supply and upland areas adjacent to wetlands are important buffers protecting the wetland from inputs of sediment, contaminants, and debris. The project documents mentioned the use of mitigation banks as potential compensatory mitigation options. This option is limited by the lack of approved banks in the immediate project area and should only be considered when all other on-site wetland creation or restoration options have been exhausted. ✓
not true

In anticipation of reviewing USCG and Corps permit applications pursuant to the Fish and Wildlife Coordination Act, the Service is available to provide limited technical assistance to the proposed Interagency Mitigation Group during the NEPA process (i.e., scoping, DEIS development), within the limits of available staff time and agency resources. Consistent with the draft Scoping Document, the Service's priority will be avoidance of impacts to the highest value wetlands in the area, followed by minimization and compensation for unavoidable impacts.

Migratory Birds

All native migratory birds are afforded protection under the Migratory Bird Treaty Act. Migratory birds are a federal trust resource responsibility, and the Service routinely works with project proponents to minimize human-induced causes of bird mortality. Collisions with man-made structures such as communication towers, glass windows, and power lines kill millions of

birds each year (U.S. Fish and Wildlife Service, 2002). Tall, lighted structures with support wires are associated with high collision rates (Manville, 2000). The Service recommends that project proponents evaluate bird collision mortality at the existing Goethals Bridge, and include measures to reduce mortality in the design of all alternatives considered in the DEIS.

The Service appreciates the opportunity to review the NOI and draft Scoping Document for the GBMP. If you have any questions regarding the above Service comments, please contact Alex Chmielewski at the Service's New York Field Office (telephone: 607-753-9334). For specific questions regarding fish and wildlife impacts in New Jersey, please contact John Staples or Wendy Walsh of the New Jersey Field Office at 609-646-9310, extensions 18 and 48, respectively.

Sincerely,



David A. Stilwell
Field Supervisor

References

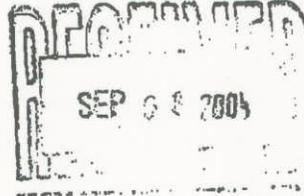
- Manville, A.M., II. 2000. The ABCs of avoiding bird collisions at communication towers: the next steps. Proceedings of the Avian Interactions Workshop, December 2, 1999, Charleston, South Carolina. Electric Power Research Institute. 15 pp.
- Tiner, R.W. 2000. Wetlands of Staten Island, New York: valuable vanishing urban wildlands. U.S. Department of the Interior, Fish and Wildlife Service, Ecological Services, Hadley, Massachusetts. 19 pages.
- U.S. Fish and Wildlife Service. 2002. Migratory bird mortality: Many human-caused threats afflict our bird populations. U.S. Department of the Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 2 pp. <http://birds.fws.gov>.
- cc: NYSDEC, Long Island City, NY (Env. Permits)
NYSDEC, Albany, NY (P. Nye)
NJDFW, Woodbine, NJ (K. Clark)
NJDEP, Trenton, NJ
NOAA/F, Highlands, NJ (S. Gorski)
EPA, Chief, Water Programs Division, New York, NY
USACE, New York, NY (R. Tomer)
BFA (ERT), OEPC, Wash., DC (E. Smith)
FWS, NJFO, Pleasantville, NJ (W. Walsh)



U.S. Department
of Transportation
Federal Aviation
Administration

Eastern Terminal
Operations Area

1 Aviation Plaza
Jamaica, NY 11434



United States Coast Guard
First Coast Guard District
One South Street, Battery Building
New York, New York 10004

Dear Mr. Kassoff:

RE: Goethals Bridge Modernization Program EIS

We have received the Draft Scoping Document for the Goethals Bridge Modernization Program. The FAA has no comments on environmental issues; however, we are concerned about the projects impact to navigable airspace.

The FAA conducts aeronautical studies on proposal under 14 CFR, Federal Aviation Regulations, Part 77. This review does not constitute study under Part 77. Please have the proponents of this project complete the enclosed Notice of Proposed Construction or Alteration (FAA Form 7460-1), giving exact location and height of the project, including all appurtenances or construction equipment to be used. We will conduct an aeronautical study upon receipt of this information to determine if there is any impact to navigable airspace and if marking and lighting will be necessary.

If we may be of further assistance, please contact Mr. Robert P. Alexander at 718-553-4546.

Sincerely,

Diana Crean
Manager, Airspace Branch



DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

November 5, 2004

REPLY TO
ATTENTION OF:

Regulatory Branch

SUBJECT: Application No. 2004-00712-Y6, by the Port Authority of New York and New Jersey - Goethals Bridge Modernization Program

United States Coast Guard
Attn: Mr. Ernie Feemster
One South Street
Battery Park Bldg.
New York, New York 10004-1466

Dear Mr. Feemster:

This letter is in regards to the request for comments we received at the inter-agency scoping meeting held on September 14, 2004, for the purpose of gathering information for use in preparing a final scope of work for the Draft Environmental Impact Statement (DEIS).

The subject of this meeting was a proposal to replace the existing Goethals Bridge. The existing bridge crosses over the Arthur Kill, Old Place Creek, at the Borough of Staten Island, Richmond County, New York, and the City of Elizabeth, Union County, New Jersey. At this time we have not received a permit application for activities associated with this project. Therefore, we will offer general comments related to the regulatory authority by which we view this type of project.

As stated in the U.S. Coast Guard (USCG) Notice of Intent to process a Draft Environmental Impact Statement:Goethals Bridge Modernization Program, dated August 20, 2004, the USCG is the lead agency on this action. If the U.S. Army Corps of Engineers (USACE) is a NEPA cooperating agency, we would participate in the preparation of the DEIS, consistent with the extent of our jurisdiction for this project. Title 33 of the Code of Federal Regulations (CFR) Part 230.16(b), copy enclosed, describes the USACE' area of expertise as cooperating agency.

In accordance with the Notice of the Federal Register/Vol. 67, No. 10 dated Tuesday, January 15, 2002, copy enclosed, discharges of dredged or fill material incidental to the construction of bridges across navigational waters of the United States, that meet applicable requirements, may be authorized by Nationwide Permit number 15. Please note that causeways and approach fills are not authorized in this nationwide permit; those activities and other work that is not authorized under the Nationwide Permit Program requires a Department of the Army individual permit, pursuant to Section 404 of the Clean Water Act.

Title 33 CFR Part 323.1, copy enclosed, discusses permits for discharges of dredged or fill material into waters of the United States. As we do not have the proposed project plans at this time, we will be unable to address what impacts to navigation would result from the construction and completion of the proposed new bridge. However, all construction practices that could potentially disrupt navigation, particularly within the Federal navigation channel, should be discussed, along with alternatives that would not result in such disruption.

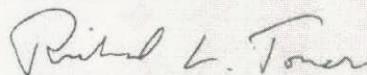
Waterways and wetlands are vital areas that constitute productive and valuable public resources. Please be advised that impacts to wetlands should also include every activity that would destroy or degrade wetlands and other waters of the United States on a temporary or permanent basis. This includes, but is not limited to, areas that would be permanently or temporarily filled, adversely impacted by the presence of mechanized equipment, excavated, degraded or destroyed, flooded, drained, and/or indirectly impacted by the manner in which the proposed work would be conducted. Federal regulations state that filling of these resources shall not be permitted unless the applicant clearly demonstrates that the project has been designed and constructed to avoid and minimize adverse effects to waters of the United States to the maximum extent practicable and that a practicable alternative to the proposed discharge is not available. You will need to focus on how you have avoided impacts to waters of the United States, or why other sites or construction alternatives are not practicable; and how you have minimized unavoidable impacts.

The USACE is committed to protect waters of the United States and supports the national policy for "no overall net loss" of wetlands. Therefore you will be required to provide a detailed analysis on how you would mitigate for unavoidable impacts. The analysis should include information as to the size of the area proposed for filling, the type of wetlands to be impacted, and an assessment of their functional value. Mitigation will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

Once a complete application package is received, the USACE' formal review process will begin. Please use the above referenced application number when requesting information concerning your project. This number will be used on any further correspondence.

Please contact Ms. Mary Ann Miller, of my staff, at (212) 264-3740 if you have any questions.

Sincerely,



Richard L. Tomer
Chief, Regulatory Branch

Enclosures



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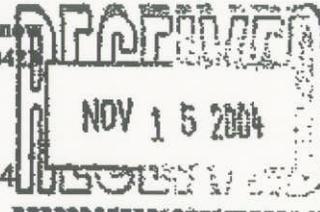
State of New Jersey

James E. McGreevey
Governor

Department of Environmental Protection
Environmental Regulation

Bradley M. Campbell
Commissioner

Office of Pollution Prevention and Right To Know
401 E. State St., 3rd floor, Trenton, NJ 08625-0421
Tel. (609) 292-3600
Fax. (609) 777-1330



November 8, 2004

Mr. Gary Kassof
Bridge Program Manager
First Coast Guard District
One South Street
Battery Building
New York, NY 10004

RE: **Goethals Bridge Modernization Program EIS
Scoping Document Comments**

Dear Mr. Kassof:

The Office of Permit Coordination and Environmental Review of the New Jersey Department of Environmental Protection (NJDEP) has completed its review of the Draft Scoping Document for the Goethals Bridge Modernization Program EIS. We offer the following comments for your consideration.

Regulatory Requirements

The bridge is located within the New Jersey Coastal Zone. The replacement would be regulated under the Coastal Permit Program Rules at N.J.A.C. 7:7.3 for all activity up to a distance of 500 feet from the mean high water line of the Arthur Kill. A review by the NJDEP's Bureau of Tidelands Management reveals that there is currently no riparian instrument in force for the existing crossing. Accordingly, an instrument will be required for activity at or below the New Jersey Tidelands Claims Line as shown on map 651-2124. The claims line has been superimposed on the Department's 2002 aerial photography and enclosed with this memorandum. Compliance with the Coastal Zone Management Rules (N.J.A.C. 7:7e) will need to be demonstrated.

Wetlands at this location would be regulated under the Freshwater Wetlands Protection Act (N.J.S.A. 13:9B-1 et seq.). Wetlands would potentially be jointly regulated by both the Land Use Regulation Program and the New York District, United States Army Corps of Engineers up to a distance of one thousand feet from the mean high water line of the Arthur Kill. There are no wetlands mapped under the Coastal Wetlands Act of 1970 at this location.

The NJDEP's Transportation Group of the Land Use Regulation Program will be the reviewer for the bridge modernization program project. Please contact Robert Cubberley of the Land Use Regulation Program by phone at 609-984-2532 or by email at robert.cubberley@dep.state.nj.us if you have any questions regarding the above noted regulatory requirements.

Air Quality

The NJDEP's Bureau of Air Quality Planning's (AQP) review of the scoping document notes that the EIS should indicate how Transportation Conformity has been addressed for this proposed project. The Transportation Conformity rules are located at USEPA 40 CFR 93. The Metropolitan Planning Organization (MPO) that would include this proposed project in its Transportation Conformity determinations is the North Jersey Transportation Planning Authority (NJTPA). MPO's are responsible for periodically demonstrating that their Transportation Plans (TP) and Transportation Improvement Programs (TIP) conform to the State Implementation Plans in Nonattainment areas. The NJDEP could not find this proposed project in the current NJTPA TP or TIP.

Please contact the Bureau of Air Quality Planning (Amy Hillman at 609-633-1220) if you have any question regarding the above comments.

Natural Resources

This serves to inform you of the Division of Fish and Wildlife's [DFW] comments and concerns about the subject document "Draft Scoping Document; Goethals Bridge Replacement" for the preparation of an Environmental Impact Statement. Our concerns are directed to the specific impact areas noted below.

Alternatives:

Upon review of the data presented and with deference to the agencies involved, the DFW agrees that some type of replacement is warranted for the Goethals Bridge. However, we strongly suggest the following alternative be given careful consideration. The DFW suggests that a double-tiered bridge, similar to the George Washington Bridge in design, be considered.

This alternative would allow for construction to take place while the existing bridge remains in service and would reduce environmental impacts (e.g. in-water fill) that would result from the proposed construction of two bridges. Strong consideration should also be given to the possibility of incorporating commuter transit lines into the basic bridge design, if warranted, similar to those on the Benjamin Franklin Bridge over the Delaware River.

Additionally, truck traffic could be limited to one level possibly reducing the upper level width. This innovative design would reduce costs and potentially reduce shading impacts of the water over the two (2) bridge alternative. The DFW will

rely on other "expert engineers" outside of the division to determine the feasibility of this alternative design.

If this alternative were determined to be inappropriate, a replacement within the existing footprint or to the north or south would be the DFW's choice, not knowing what the impacts to wildlife would be on the New York side of the Arthur Kill. This potential impact appears to be substantial on the south side.

Fisheries Impacts:

Species of concern: The DFW's Bureau of Marine Fisheries has concerns about the inadequacy of the proposed 2 to 3-day sampling that is proposed to address migratory and resident species potentially present on the proposed site at various times of the year. The DFW has information that the following species of concern are in the project area during various times of the year: anadromous fish (American shad and river herring), striped bass, winter flounder and both species of sturgeon [Atlantic and Shortnose] along with various other species of lesser concern.

Seasonal restrictions: The DFW recommends a timing restriction from 1/1 - 6/30 be imposed on any in-water work, blasting and/or sediment generating activity. Recognizing the importance and the enormity of the project, the DFW recommends that any work that would be covered by the timing restriction be done behind cofferdams installed before the start of the timing restriction and not removed until after the end of the timing restriction. Construction activities could continue within the cofferdams during the timing restriction.

Intertidal shallows impacts: If an alternative is chosen that would result in the elimination of the existing bridge piers, the DFW requests that a portion of those near-shore piers be left above the bottom to provide habitat diversity in the water column. The DFW realizes the resulting remnant should be designed to eliminate any hazard to navigation; the remnant structure and its attached organisms would benefit marine bio-diversity.

Solid Waste Management:

Mr. William Figley from the DFW's Bureau of Marine Fisheries should be contacted at 609-748-2020 about the possibility of placing clean materials on an artificial reef site offshore.

Recreational Fishing Access:

Some type of fishing access should be developed within or near the footprint of the bridge; types of recreational fishing access would be a fishing pier and/or a boat ramp. The current administration is very supportive of recreational fishing access for the public.

Wildlife Impacts:

A search of the NJDEP's Landscape Project V2 and the Heritage database revealed no areas of concern on the New Jersey side for any threatened and/or endangered species. The DFW does recommend that the consultant do a search of the surrounding two (2) mile area using i-MapNJ (www.nj.gov/dep and click on the i-MapNJ magnifying glass logo) to assist with the generation of any T&E species list associated with the project area and the immediate vicinity.

The DFW has the same concerns that were expressed under the Fisheries concerns about the degree of the proposed sampling for species in the area. Various species of waterbirds, for instance, use this area depending upon the weather and the status of their migration; a 2 to 3-day survey is unacceptable to identify project area species. Other methodologies should be explored to determine species presence.

Interagency Program:

Don Byrne from the DFW's Bureau of Marine Fisheries [(609)748-2020] would be willing to assist the committee with any marine fisheries questions and/or concerns.

If there are any questions concerning these comments please feel free to contact Donald Wilkinson of the DFW at 856-785-2711.

Historic Preservation

The NJDEP's Historic Preservation Office (HPO) has reviewed the Draft Scoping Document and attended the public information center in Elizabeth on 10/6/2004. Their two primary concerns are:

- (1) The Goethals Bridge was determined individually eligible to be listed in the New Jersey and National Registers of Historic Places by both the New York and New Jersey State Historic Preservation Offices. According to the New Jersey DSHPO Opinion of 2/14/1995, the Goethals Bridge is eligible under National Register Criteria A and C. Built in 1918-1927 and designed by JAL Waddell with Othmar Ammann, the Goethals Bridge was intended by the Port Authority of New York and New Jersey to alleviate the congested ferry system to Staten Island as well as provide the first link for vehicular traffic between Staten Island and the New Jersey mainland (Criterion A). The bridge consists of a high 672-foot-long main span formed by a cantilever steel through truss and long elevated steel girder approaches (Criterion C). It is clearly a significant and prominent landmark in the region. Means to preserve this important structure need to be explored.
- (2) The previously preferred alternative involved the sensitive rehabilitation of the eligible Goethals Bridge and the introduction of a parallel structure to the south - the two bridges would function as a pair of one-way structures. However, in the current project the preferred alternative involves the wholesale demolition

and replacement of the eligible Goethals Bridge. To date no adequate explanation has been offered to explain this radical change. The HPO presumes that eventually an alternatives analysis report will be circulated that satisfactorily addresses this issue and have provided the Coast Guard and the environmental consultant with a copy of the historic bridge alternatives analysis outline developed by the HPO (please find copy attached). The HPO suggested that they begin working towards this in their NEPA work to ensure that one document can serve multiple regulatory functions and avoid duplication of effort.

It should be noted that while the above two issues are of urgent concern, they are not the only cultural resource issues posed by the proposed project. In addition there are:

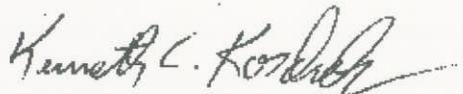
(a) As a federal agency, the United States Coast Guard is subject to Section 106 review in accordance with the National Historic Preservation Act. Current regulations require the initiation of consultation during the earliest stages of project planning. I strongly encourage the Coast Guard to begin this process to best ensure that their regulatory responsibilities are well coordinated and efficiently executed.

(b) Three additional resources were identified as eligible during consultation for the Staten Island Bridges Program: the Staten Island Railroad Vertical Lift Bridge, the Staten Island Railroad (portion in New Jersey), and the Scherzer Rolling Vertical Lift Bridge over the Elizabeth River.

Should you have any follow up questions please contact Andrea Tingey, Principal Historic Preservation Specialist, at 609-984-0539

Thanking for the opportunity to be part of the scoping process for this project.

Sincerely,



Kenneth C. Koschek
Supervising Environmental Specialist
Office of Permit Coordination
and Environmental Review

C: Robert Cubberley, NJDEP - LURP
Andrea Tingey, NJDEP - HPO
Dorothy Guzzo, NJDEP - HPO
Martin McHugh, NJDEP - LURP
Donald Wilkinson, NJDEP - LURP
Mark Morellio, NJDEP - LURP
Amy Hilliman, NJDEP - Air Quality
Sandy Krietzman, NJDEP - Air Quality



651-2124

April 19, 1994

Historic Bridge Alternatives Analysis Report Outline

- I. Table of Contents
- II. Executive Summary
- III. Introduction
Explain the reasons this report is being written. Explain the Section 106 process.
- IV. Location
Project location should be described in the narrative and illustrated with a labeled USGS Quad map
 - A. Describe surrounding natural environment
 - B. Describe surrounding built environment
 - 1. listed or eligible National Register buildings, sites, objects, structures and/or districts in the area
 - 2. Urban/rural character
- IV. The Structure
 - A. Technical Information
 - 1. Bridge type
 - 2. Explanation of functions of parts
 - 3. Materials
 - B. History/Significance
 - 1. Date of Construction
 - 2. Designer
 - a. Patented Design
 - b. Construction Details
 - 3. Fabricator/Builder
 - C. Identify character defining features of historic bridge
 - D. Integrity: the extent to which the character defining features have survived
 - E. Condition
 - 1. A narrative description of existing conditions
 - 2. Photos with captions keyed to an elevation plan of the entire structure
 - 3. The order of the following bridge components reflect the descending urgency of any deterioration. In other words, those areas with the lowest sufficiency ratings should appear first in the report
 - a. Substructure/abutments
 - b. superstructure
 - c. electrical and mechanical systems
 - d. support structures and buildings
- VI. Project Need - explain the problems with current conditions
 - A. Bridge Condition, (if appropriate, explain why the conditions which were

- illustrated above are unacceptable)
- B. Traffic Volume, both current and future (cite sources and methodologies)
 - C. Geometrics
 - D. Accident history
 - E. Safety features such as railings, etc.
- VII. **Explanation of Alternatives: all alternatives must include explicit information regarding cost; impacts to nearby cultural resources if existing; impacts to social and economic conditions of surrounding environment**
- A. No Build: standard maintenance procedures on existing structure
 - B. Other means of addressing project need
 - 1. Demand dampening
 - 2. Alternate crossings
 - 3. Traffic management
 - C. Rehabilitation according to Secretary of Interior's Standards for Rehabilitation
 - D. Modified Rehabilitation: Preserving the character defining elements of the bridge while introducing significant changes (ex. widening a metal truss bridge) if previous consultation with the HPO has resulted in the identification of eligible or listed archaeological sites, then project impacts on the sites should be described and evaluated
 - E. Replacement: cost information must include demolition costs; If previous consultation with the HPO has resulted in the identification of eligible or listed archaeological sites, then project impacts on the sites should be described and evaluated
 - 1. Alternative alignments
 - 2. Alternative replacement structure types
- V. **Selection of Preferred Alternative: must include a fully justified rationale, justification must be derived from information previously presented in the report**
- A. Narrative justification of selection of preferred alternative
 - B. Matrix which compares how each alternative meets project goals
 - 1. Historic Preservation
 - 2. Cost
 - 3. Geometrics
 - 4. Traffic Capacity
 - 5. Safety
 - 6. Environmental concerns (e.g. wetlands)
 - 7. Construction constraints
- VI. **Conclusion**
- A. Recommended finding of effect (no effect, no adverse effect, adverse effect)
 - B. If the recommended finding is for an adverse effect, then suggested mitigation measures should be included.

VII. Appendices

- A. Schedule for completion of preferred alternative
- B. Copy of most recent bridge inspection report
- C. Letters from local officials and citizens expressing their concerns and/or opinions regarding the existing problem (s) and proposed solution
- D. Police accident reports
- E. Vitae of persons involved in writing report

State of New Jersey
Department of Environmental Protection
Division of Environmental Management & Research
600 Mt. Pleasant Ave.
P.O. Box 201
Trenton, NJ 08646-0201

STATE OF NEW JERSEY

DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF ENVIRONMENTAL MANAGEMENT & RESEARCH

**New York State Department of Environmental Conservation
Division of Fish, Wildlife & Marine Resources**

New York Natural Heritage Program

625 Broadway, Albany, New York 12233-4757

Phone: (518) 402-8935 • **FAX:** (518) 402-8925

Website: www.dec.state.ny.us



Erin M. Crotty
Commissioner

November 9, 2004

Jennifer Curran
Lawler, Matusky & Skelly Engineers
1 Blue Hill Plaza, Box 1509
Pearl River, NY 10965

Dear Ms. Curran:

In response to your recent request, we have reviewed the New York Natural Heritage Program databases with respect to an Environmental Assessment for the proposed Goethals Bridge Modernization Program, area as indicated on the map you provided, linking Staten Island, NY with Elizabeth, NJ.

Enclosed is a report of rare or state-listed animals and plants, significant natural communities, and 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.

PLEASE NOTE: This project is near the Harbor Heron Bird Conservation Area Wildlife Management Area.

This project location is adjacent to a designated Significant Coastal Fish and Wildlife Habitat. This habitat is part of New York State's Coastal Management Program (CMP), which is administered by the NYS Department of State (DOS). Projects which may impact the habitat are reviewed by DOS for consistency with the CMP. For more information regarding this designated habitat and applicable consistency review requirements, please contact:

Jeff Zappieri or Vance Barr - (518) 474-6000
NYS Department of State
Division of Coastal Resources and Waterfront Revitalization
41 State Street, Albany, NY 12231

The presence of rare species may result in your project requiring additional permits, permit conditions, or review. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

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.

Sincerely,



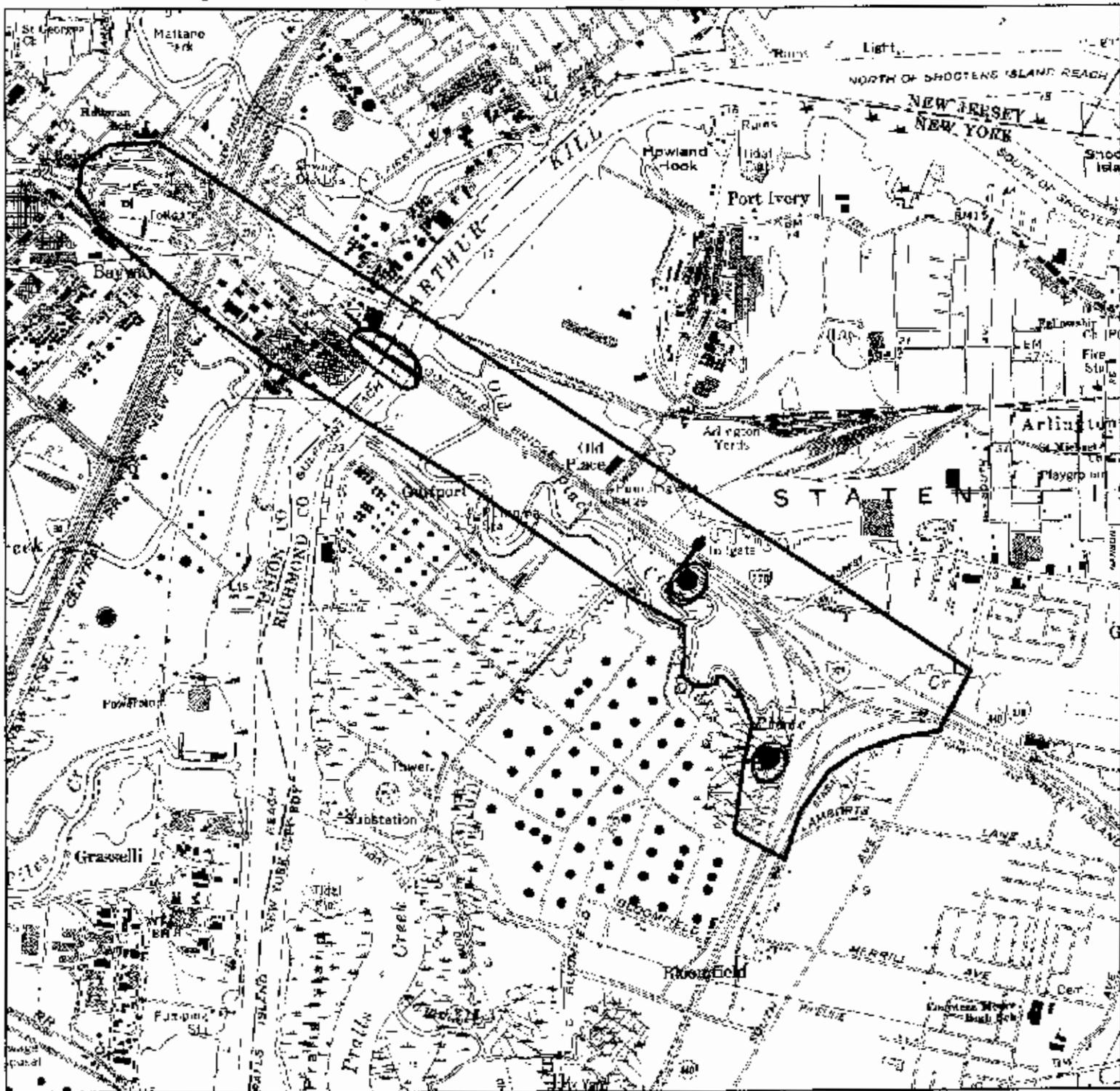
Betty A. Ketcham
Information Services
NY Natural Heritage Program

Encs.

cc: Reg. 2, Wildlife Mgr.
Reg. 2, Fisheries Mgr.
Peter Nye, Endangered Species Unit, Albany

Natural Heritage Map of Rare Species and Ecological Communities

Prepared November 8, 2004 by NY Natural Heritage Program, NYS DEC, Albany, New York



 **Project Site**

Scale: 1:24000

NY Natural Heritage Program Database Records*

 **Plant**

0.5 0 0.5 1 Miles

 **Animal**

 **Animal Concentration Area**

 **Community**

* The locations that are displayed are considered sensitive and cannot be released to the public without permission. We do not provide map locations for all records. Please see report for details.



Natural Heritage Report on Rare Species and Ecological Communities

NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor,
Albany, NY 12233-4757
(518) 402-8935



Location displayed on map

This report contains SENSITIVE information that may not be released to the public without permission from the NY Natural Heritage Program. Refer to the User's Guide for explanations of codes, ranks and fields.
-Location maps for certain species and communities may not be provided if 1) the species is vulnerable to disturbance, 2) the location and/or extent is not precisely known, and/or 3) the location and/or extent is too large to display.

BIRDS

Falco peregrinus

Peregrine Falcon

NY Legal Status: Endangered

NYS Rank: Vulnerable

Office Use

Federal Listing:

Global Rank: Apparently secure

4064

Last Report: **

EO Rank: **

ESU

County: Richmond

Town: City Of New York

Location: [REDACTED]

Directions: [REDACTED]

General Quality and Habitat: [REDACTED]

REPTILES

Kinosternon subrubrum

Eastern Mud Turtle

NY Legal Status: Endangered

NYS Rank: Critically imperiled

Office Use

Federal Listing:

Global Rank: Demonstrably secure

1480

Last Report: **

EO Rank: **

M

County: Richmond

Town: City Of New York

Location: [REDACTED]

Directions: [REDACTED]

General Quality and Habitat: [REDACTED]

ESU

VASCULAR PLANTS

Diospyros virginiana

Persimmon

NY Legal Status: Threatened

NYS Rank: Imperiled

Office Use

Federal Listing:

Global Rank: Demonstrably secure

7825

Last Report: [REDACTED]

EO Rank: Fair

S

County: Richmond

Town: City Of New York

Location: [REDACTED]

Directions: [REDACTED]

General Quality and Habitat: [REDACTED]

Records Processed

USERS GUIDE TO NY NATURAL HERITAGE DATA

New York Natural Heritage Program, 625 Broadway, 5th Floor, Albany, NY 12233-4757 phone: (518) 402-8935

NATURAL HERITAGE PROGRAM: The NY Natural Heritage Program is a partnership between the NYS Department of Environmental Conservation (NYS DEC) and The Nature Conservancy. Our mission is to enable and enhance conservation of rare animals, rare plants, and significant communities. We accomplish this mission by combining thorough field inventories, scientific analyses, expert interpretation, and the most comprehensive database on New York's distinctive biodiversity to deliver the highest quality information for natural resource planning, protection, and management.

DATA SENSITIVITY: The data provided in the report are ecologically sensitive and should be treated in a sensitive manner. The report is for your in-house use and should not be released, distributed or incorporated in a public document without prior permission from the Natural Heritage Program.

EO RANK: A letter code for the quality of the occurrence of the rare species or significant natural community, based on population size or area, condition, and landscape context.

- A-E = Extant: A=Excellent, B=Good, C=Fair, D=Poor, E=Extant but with insufficient data to assign a rank of A-D.
- F = Failed to find. Did not locate species during a limited search, but habitat is still there and further field work is justified.
- H = Historical. Historical occurrence without any recent field information.
- X = Extirpated. Field/other data indicates element/habitat is destroyed and the element no longer exists at this location.
- U = Extant/Historical status uncertain.
- Blank = Not assigned.

LAST REPORT: The date that the rare species or significant natural community was last observed at this location, as documented in the Natural Heritage databases. The format is most often YYYY-MM-DD.

NY LEGAL STATUS – Animals:

Categories of Endangered and Threatened species are defined in New York State Environmental Conservation Law section 11-0535. Endangered, Threatened, and Special Concern species are listed in regulation 6NYCRR 182.5.

E - Endangered Species: any species which meet one of the following criteria:

- Any native species in imminent danger of extirpation or extinction in New York.
- Any species listed as endangered by the United States Department of the Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.

T - Threatened Species: any species which meet one of the following criteria:

- Any native species likely to become an endangered species within the foreseeable future in NY.
- Any species listed as threatened by the U.S. Department of the Interior, as enumerated in the Code of the Federal Regulations 50 CFR 17.11.

SC - Special Concern Species: those species which are not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York. Unlike the first two categories, species of special concern receive no additional legal protection under Environmental Conservation Law section 11-0535 (Endangered and Threatened Species).

P - Protected Wildlife (defined in Environmental Conservation Law section 11-0103): wild game, protected wild birds, and endangered species of wildlife.

U - Unprotected (defined in Environmental Conservation Law section 11-0103): the species may be taken at any time without limit; however a license to take may be required.

G - Game (defined in Environmental Conservation Law section 11-0103): any of a variety of big game or small game species as stated in the Environmental Conservation Law; many normally have an open season for at least part of the year, and are protected at other times.

NY LEGAL STATUS – Plants:

The following categories are defined in regulation 6NYCRR part 193.3 and apply to NYS Environmental Conservation Law section 9-1503.

E - Endangered Species: listed species are those with:

- 5 or fewer extant sites, or
- fewer than 1,000 individuals, or
- restricted to fewer than 4 U.S.G.S. 7 ½ minute topographical maps, or
- species listed as endangered by U.S. Department of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.

T - Threatened: listed species are those with:

- 6 to fewer than 20 extant sites, or
- 1,000 to fewer than 3,000 individuals, or
- restricted to not less than 4 or more than 7 U.S.G.S. 7 and ½ minute topographical maps, or
- listed as threatened by U.S. Department of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.

R - Rare: listed species have:

- 20 to 35 extant sites, or
- 3,000 to 5,000 individuals statewide.

continued on back

V - **Exploitably vulnerable**: listed species are likely to become threatened in the near future throughout all or a significant portion of their range within the state if causal factors continue unchecked.

U - **Unprotected**; no state status.

FEDERAL STATUS (PLANTS and ANIMALS): The categories of federal status are defined by the United States Department of the Interior as part of the 1974 Endangered Species Act (see Code of Federal Regulations 50 CFR 17). The species listed under this law are enumerated in the Federal Register vol. 50, no. 188, pp. 39526 - 39527. The codes below without parentheses are those used in the Federal Register. The codes below in parentheses are created by Heritage to deal with species which have different listings in different parts of their range, and/or different listings for different subspecies or varieties.

(blank) = No Federal Endangered Species Act status.

LE = The element is formally listed as endangered.

LT = The element is formally listed as threatened.

PE = The element is proposed as endangered.

PT = The element is proposed as threatened.

C = The element is a candidate for listing.

LE,LT = The species is formally listed as endangered in part of its range, and as threatened in the other part; or, one or more subspecies or varieties is listed as endangered, and the others are listed as threatened.

LT,PDL = Populations of the species in New York are formally listed as threatened, and proposed for delisting.

(LE) = If the element is a full species, all subspecies or varieties are listed as endangered; if the element is a subspecies, the full species is listed as endangered.

LT,T(S/A) = One or more subspecies or populations of the species is formally listed as threatened, and the others are treated as threatened because of similarity of appearance to the listed threatened subspecies or populations.

PS = Partial status: the species is listed in parts of its range and not in others; or, one or more subspecies or varieties is listed, while the others are not listed.

GLOBAL AND STATE RANKS (animals, plants, ecological communities and others): Each element has a global and state rank as determined by the NY Natural Heritage Program. These ranks carry no legal weight. The global rank reflects the rarity of the element throughout the world and the state rank reflects the rarity within New York State. Intraspecific taxa are also assigned a taxon rank to reflect the infraspecific taxon's rank throughout the world. ? = Indicates a question exists about the rank. Range ranks, e.g. S1S2, indicate not enough information is available to distinguish between two ranks.

GLOBAL RANK:

G1 - Critically imperiled globally because of extreme rarity (5 or fewer occurrences), or very few remaining acres, or miles of stream) or especially vulnerable to extinction because of some factor of its biology.

G2 - Imperiled globally because of rarity (6 - 20 occurrences, or few remaining acres, or miles of stream) or very vulnerable to extinction throughout its range because of other factors.

G3 - Either rare and local throughout its range (21 to 100 occurrences), or found locally (even abundantly at some of its locations) in a restricted range (e.g. a physiographic region), or vulnerable to extinction throughout its range because of other factors.

G4 - Apparently secure globally, though it may be quite rare in parts of its range, especially at the periphery.

G5 - Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.

GH - Historically known, with the expectation that it might be rediscovered.

GX - Species believed to be extinct.

NYS RANK:

S1 - Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream, or some factor of its biology making it especially vulnerable in New York State.

S2 - Typically 6 to 20 occurrences, few remaining individuals, acres, or miles of stream, or factors demonstrably making it very vulnerable in New York State.

S3 - Typically 21 to 100 occurrences, limited acreage, or miles of stream in New York State.

S4 - Apparently secure in New York State.

S5 - Demonstrably secure in New York State.

SH - Historically known from New York State, but not seen in the past 15 years.

SX - Apparently extirpated from New York State.

SZ - Present in New York State only as a transient migrant.

SxB and SxN, where Sx is one of the codes above, are used for migratory animals, and refer to the rarity within New York State of the breeding (B)populations and the non-breeding populations (N), respectively, of the species.

TAXON (T) RANK: The T-ranks (T1 - T5) are defined the same way as the Global ranks (G1 - G5), but the T-rank refers only to the rarity of the subspecific taxon.

T1 through T5 - See Global Rank definitions above.

Q - Indicates a question exists whether or not the taxon is a good taxonomic entity.



State of New Jersey

Department of Environmental Protection

Division of Parks and Forestry
Office of Natural Lands Management
Natural Heritage Program

P.O. Box 404
Trenton, NJ 08625-0404
Tel. #609-984-1339
Fax. #609-984-1427

November 29, 2004

Richard J. Codey
Acting Governor

Bradley M. Campbell
Commissioner

Mark Renna
The Louis Berger Group, Inc.
100 Halsted Street
East Orange, NJ 07018

Re: Goethals Bridge Replacement

Dear Mr. Renna:

Thank you for your data request regarding rare species information for the above referenced project site in Elizabeth City, Union County.

Searches of the Natural Heritage Database and the Landscape Project (Version 2) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

Neither the Natural Heritage Database nor the Landscape Project has records for any rare wildlife species on the referenced site.

We have also checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat within 1/4 mile of the referenced site. Please see the table below for species list and conservation status.

Species within 1/4 mile of referenced site.

Common Name	Scientific Name	Federal Status	State Status	Grank	Srank
black-crowned night-heron foraging habitat	<i>Nycticorax nycticorax</i>		T/S	G5	S3B,S4N
colonial waterbird foraging habitat					
yellow-crowned night-heron foraging habitat	<i>Nyctanassa violacea</i>		T/T	G5	S2B

We have also checked the Natural Heritage Database for occurrences of rare plant species or natural communities. The Natural Heritage Data Base does not have any records for rare plants or natural communities on or within 1/4 mile of the site.

Attached is a list of rare species and natural communities that have been documented from Union County. If suitable habitat is present at the project site, these species have potential to be present.

Status and rank codes used in the tables and lists are defined in the attached EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive I-Map-NJ website at the following URL, <http://www.state.nj.us/dep/gis/imapnj/imapnj.htm> or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program.

PLEASE SEE THE ATTACHED 'CAUTIONS AND RESTRICTIONS ON NHP DATA'.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

Herbert A. Lord

Herbert A. Lord
Data Request Specialist

cc: Robert J. Cartica
Lawrence Niles
NHP File No. 04-4007462

UNION COUNTY
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
BARTRAMIA LONGICAUDA	UPLAND SANDPIPER		E		G5	S1B
CLEMmys INSCULPTA	WOOD TURTLE		T		G4	S3
CLEMmys MUELEBERGII	BOG TURTLE	LT	E		G3	S2
EURYCEA LONGICAUDA LONGICAUDA	LONGTAIL SALAMANDER		T		G5T5	S2
PASSERCULUS SANDWICHENSIS	SAVANNAH SPARROW		T/T		G5	S2B, S4N
STERNA ANTILLARUM	LEAST TERN		E		G4	S1B
STRIX VARIA	BARRED OWL		T/T		G5	S3B
TRAPROCK GLADE/ROCK OUTCROP COMMUNITY	TRAPROCK GLADE/ROCK OUTCROP COMMUNITY				G2	S1
ALASMIDONTA UNDULATA	TRIANGLE FLOATER		T		G4	S3
PAPAIPEMA AERATA	A BORER MOTH				GH	SH
POLITES MYSTIC	LONG DASH				G5	S3?
PONTIA PROTODICE	CHECKERED WHITE		T		G4	S1
COASTAL HERON ROOKERY	COASTAL HERON ROOKERY				GU	S3
CAREX BEBBII	BEBB'S SEDGE				G5	S2
CAREX POLYMORPHA	VARIABLE SEDGE		E		G3	S1
CYNOGLOSSUM VIRGINIANUM VAR VIRGINIANUM	WILD COMFREY				G5T5	S2
LEMNA VALDIVIANA	PALE DUCKWEED		E		G5	S1
LIATRIS SCARIOSA VAR NOVAE-ANGLIAE	NORTHERN BLAZING-STAR		E		G5T3	SH

*** Vertebrates

*** Ecosystems

*** Invertebrates

*** Other types

*** Vascular plants

30 AUG 2004

UNION COUNTY
 RARE SPECIES AND NATURAL COMMUNITIES PRESENTLY RECORDED IN
 THE NEW JERSEY NATURAL HERITAGE DATABASE

NAME	COMMON NAME	FEDERAL STATUS	STATE STATUS	REGIONAL STATUS	GRANK	SRANK
MIMULUS ALATUS	WINGED MONKEY-FLOWER				G5	S3
MONARDA CLINOPODIA	BASIL BEEBALM		E		G5	SH
MUHLENBERGIA CAPILLARIS	LONG-AWN SMOKE GRASS		E		G5T?	S1
PHLOX PILOSA	DOWNY PHLOX		E		G5T5	SH
RANUNCULUS FUSILLUS VAR PUSILLUS	LOW SPEARWORT				G5T4?	S2
VIOLA CANADENSIS	CANADIAN VIOLET		E		G5T?	S1

24 Records Processed

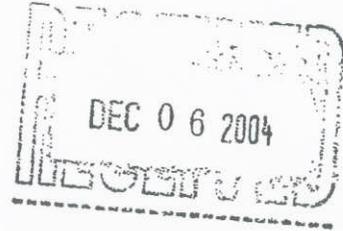


UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
One Blackburn Drive
Gloucester, MA 01930-2298

Gary Kassof
First Coast Guard District
One South Street
Battery Building
New York, NY

DEC -2 2004

Attn: Mark Renna



Dear Mr. Kassof,

This is in response to your letter dated November 18, 2004 in regards to the Goethals Bridge Replacement project proposed by the United States Coast Guard and the Louis Berger Group Inc. in which you requested information on the presence of any federally listed threatened or endangered species in the vicinity of the proposed project. The site of the proposed project is the Arthur Kill waterway in Staten Island, NY and Elizabeth, NJ.

While several species of listed sea turtles are known to be seasonally present in the New York/New Jersey Harbor complex, and federally endangered shortnose sturgeon (*Acipenser brevirostrum*) are known to be present in the lower Hudson River, no listed species are expected to be present in the project area and no farfield effects of the project are likely to affect any listed species present in the Harbor Complex or the Hudson River. As such, no consultation under the provisions of Section 7 of the Endangered Species Act of 1973, as amended, is necessary. Should project plans change or new information become available that changes the basis for this determination, consultation should be initiated. If you have any questions regarding these comments, please contact Sara McNulty at (978)281-9328 x6520.

Sincerely,

Mary A. Colligan
Assistant Regional Administrator
for Protected Resources

Cc: Rusanowsky, F/NER4 - Milford

File Code: Sec 7 - USCG NSP New York



Magron, Jean Philippe

From: Renna, Mark
Sent: Wednesday, December 08, 2004 9:31 AM
To: jreiden@louisberger.com; Magron, Jean Philippe
Cc: Bach, James; Marc Helman; Hess, Kenneth
Subject: FW: Goethals Bridge mitigation

-----Original Message-----

From: Renna, Mark
Sent: Wednesday, December 08, 2004 9:30 AM
To: 'Nyman.Robert@epamail.epa.gov'
Subject: RE: Goethals Bridge mitigation

Bob:

Thank you for the information. We will review and incorporate into the EIS as appropriate. We would welcome the opportunity to meet with the Habitat Work Group and will contact you in the near future.

Mark

-----Original Message-----

From: Nyman.Robert@epamail.epa.gov [mailto:Nyman.Robert@epamail.epa.gov]
Sent: Wednesday, December 08, 2004 9:16 AM
To: Renna, Mark
Subject: Goethals Bridge mitigation

Mark,

I am responding to a November 18, 2004 letter from Gary Kassof of the Coast Guard regarding potential Goethals Bridge mitigation sites. The Habitat Work Group of the New York - New Jersey Harbor Estuary Program has compiled a list of over 160 sites that it recommends for acquisition and restoration around the harbor, some of which are in close proximity to the Goethals Bridge. There is a link to an interactive map showing their locations on our website www.harborestuary.org. Many of the sites were nominated by citizens and thus, the associated background material on the sites varies in completeness.

I would like to invite you, when the time is appropriate, to make a presentation on the project to the Habitat Work Group. Generally, these meetings are held at the Hudson River Foundation in lower Manhattan. Perhaps members of the group can provide you with some additional local insight.

Thanks, Bob

Robert M. Nyman, Director
New York - New Jersey Harbor Estuary Program Office
U.S. Environmental Protection Agency
290 Broadway, 24th Floor
New York, NY 10007

212-637-3809 Phone
212-637-3889 Fax



United States Department of the Interior

FISH AND WILDLIFE SERVICE

3817 Luker Road
Cortland, NY 13045



December 8, 2004

Ms. Jennifer Curran
Senior Environmental Scientist
Lawler, Matusky & Skelly Engineers LLP
P.O. Box 1509
Pearl River, NY 10965

Dear Ms. Curran:

This responds to your letter of October 12, 2004, requesting information on the presence of Federally listed or proposed endangered or threatened species in the vicinity of the proposed modernization of the Goethals Bridge over the Arthur Kill, Staten Island, Richmond County, New York.

Except for occasional transient individuals, no Federally listed or proposed endangered or threatened species under our jurisdiction are known to exist in the project impact area. In addition, no habitat in the project impact area is currently designated or proposed "critical habitat" in accordance with provisions of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.). Therefore, no further Endangered Species Act coordination or consultation with the U.S. Fish and Wildlife Service (Service) is required. Should project plans change, or if additional information on listed or proposed species or critical habitat becomes available, this determination may be reconsidered. The most recent compilation of Federally listed and proposed endangered and threatened species in New York* is available for your information. If your project is not completed within one year from the date of this determination, we recommend that you contact us to ensure that the listed species presence/absence information for your proposed project is current.

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 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 Oceanic and Atmospheric Administration/Fisheries (NOAA/F). You should contact Mr. Stanley Gorski, Habitat Conservation Division, Field Offices Supervisor, NOAA/F, James J. Howard Marine Sciences Laboratory, 74 Magruder Road, Highlands, NJ 07732, for additional information (telephone: [732] 872-3037).

For additional information on fish and wildlife resources or State-listed species, we suggest you contact the appropriate New York State Department of Environmental Conservation regional office(s),* and:

New York State Department of Environmental Conservation
New York Natural Heritage Program Information Services
625 Broadway
Albany, NY 12233-4757
(518) 402-8935

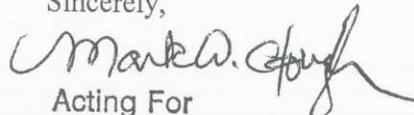
Since wetlands may be present, you are advised that National Wetlands Inventory (NWI) maps may or may not be available for the project area. However, while the NWI maps are reasonably accurate, they should not be used in lieu of field surveys for determining the presence of wetlands or delineating wetland 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 14853-5601
(607) 255-6520
web: <http://iris.css.cornell.edu>
email: cornell-iris@cornell.edu

Work in certain waters of the United States, including wetlands, 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 recommending additional permit conditions, or recommend denial of the permit depending upon potential adverse impacts on fish and wildlife resources associated with project construction or implementation. The need for a Corps permit may be determined by contacting the appropriate Corps office(s).*

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

Sincerely,



Acting For
David A. Stilwell
Field Supervisor

*Additional information referred to above may be found on our website at:
<http://nyfo.fws.gov/es/esdesc.htm>.

cc: NYSDEC, Long Island City, NY (Environmental Permits)
NYSDEC, Albany, NY (Natural Heritage Program)
NYSDEC, New Paltz, NY (Hudson River Fisheries Unit, Attn: K. Hatalla)
NOAA/F, Highlands, NJ (Attn: S. Gorski)
NOAA/F, Milford, CT (Attn: M. Ludwig)
COE, New York, NY



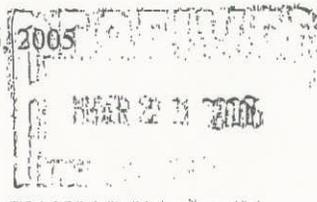
United States Department of the Interior



FISH AND WILDLIFE SERVICE

3817 Luker Road
Corland, NY 13045

March 16, 2005



Mr. Gary Kassof
Bridge Program Manager
United States Coast Guard
First Coast Guard District
One South Street, Battery Building
New York, NY 10004

Dear Mr. Kassof:

This responds to your March 3, 2005, request to the U.S. Fish and Wildlife Service (Service) as a member of the Environmental Task Force (ETF) to review "Task 1 - Alternative Actions and Screening," in preparation for the Goethals Bridge Replacement (GBR) Draft Environmental Impact Statement (EIS), pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (83 Stat.852; 42 U.S.C. 4321 *et seq.*).

This response is provided pursuant to the NEPA; Section 7 of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*), to ensure the protection of endangered and threatened species; and, the Migratory Bird Treaty Act (MBTA) (40 Stat. 755 as amended; 16 U.S.C. 703-712), and is consistent with the intent of the Service's Mitigation Policy (Federal Register, Vol. 46, No. 15, January 23, 1981). These comments do not preclude separate review and comments by the Service as afforded by the Fish and Wildlife Coordination Act (48 Stat. 401; 16 U.S.C. 661 *et seq.*), or comments on future NEPA documents.

The Goethals Bridge Replacement is proposed by the Port Authority of New York and New Jersey. Built in the 1920s, the existing Goethals Bridge spans the Arthur Kill to connect Elizabeth, Union County, New Jersey, with Staten Island, Richmond County, New York. The U.S. Coast Guard (USCG) is the lead Federal agency for NEPA compliance, as the proposed project would require a USCG permit, pursuant to the General Bridge Act of 1946 (P.L. 79-601, Title V. 60 Stat. 847). The Service, in reviewing "Task 1 - Alternative Actions and Screening" (Task 1), would like to provide the following comments to assist the USCG in the preparation of the Draft EIS.

As identified in the Service's September 8, 2004, letter reviewing the draft Scoping Document, our fish and wildlife resources of concern included threatened and endangered species, aquatic resources, and migratory birds. Reflected in the Task 1 Criterion CS-4 (*An alternative should seek to minimize potential adverse environmental effects*), is the inclusion of several of these resources of concern for environmental evaluation and consideration.

The Service would like to see the inclusion of an evaluation measure characterizing the potential adverse effects to migratory and wintering waterfowl that use the associated and adjacent wetlands. All native migratory birds are afforded protection under the MBTA. Of primary significance in this location is the presence of major nesting colonies and foraging areas of herons, egrets, and ibises in a complex of closely associated natural habitats occurring within a major metropolitan area. Three island colonies, or heronries, were established in the 1970s. In 1995, these heronries collectively contained nearly 1,400 nesting pairs of colonial wading birds of special regional emphasis or management concern, including, in declining order of abundance, black-crowned night-heron, glossy ibis (*Plegadis falcinellus*), snowy egret (*Egretta thula*), great egret (*Casmerodius albus*), cattle egret (*Bubulcus ibis*), green-backed heron (*Butorides striatus*), and little blue heron (*Egretta caerulea*) nesting pairs. The freshwater wetland areas and forested buffers are also extremely important as some of the only remaining open space in the urban core suitable as feeding and roosting areas for waterbirds and migratory stopover habitat for songbirds and raptors.

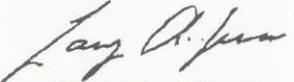
In New Jersey, a significant expanse of emergent wetlands is located within 0.5 miles south of the Goethals Bridge, along Moses Creek. These wetlands are classified by the New Jersey Department of Environmental Protection as foraging habitat for the New Jersey-listed threatened black-crowned night heron (*Nycticorax nycticorax*) and yellow-crowned night heron (*Nyctanassa violaceus*). In Staten Island, important wetland resources in the project area include tidal and non-tidal wetlands associated with Old Place Creek, and wetland mitigation projects managed by the New York State Department of Environmental Conservation. Old Place Creek is the most extensive meandering tidal creek in northern Staten Island, with a narrow strip of intertidal marsh and extensive areas of high marsh. Nesting waterfowl species include American black duck (*Anas rubripes*), gadwall (*Anas strepera*), green-winged teal (*Anas crecca*), blue-winged teal (*Anas discors*), and wood duck (*Aix sponsa*), as well as breeding Virginia rail (*Rallus limicola*), common moorhen (*Gallinula chloropus*), least bittern (*Ixobrychus exilis*), American coot (*Fulica americana*), and pied-billed grebe (*Podilymbus podiceps*). Wintering waterfowl of regional importance occurring in the open waters and marshes in this complex include greater and lesser scaup (*Aythya marila* and *A. affinis*), canvasback (*Aythya valisineria*), brant (*Branta bernicla*), American black duck, bufflehead (*Bucephala albeola*), and American widgeon (*Anas americana*) (U.S. Fish and Wildlife Service 1997).

As a result of the diversity and abundance of migratory bird and wintering waterfowl use of the wetland area, the Service is concerned with the human-induced causes of bird mortality. Migratory birds are a Federal trust resource responsibility, and the Service routinely works with project proponents to minimize human-induced causes of bird mortality. Collisions with man-made structures, such as communication towers, glass windows, and power lines, kill millions of birds each year (U.S. Fish and Wildlife Service 2002). Specifically, tall, lighted structures with support wires are associated with high collision rates (Manville 2000). The Service recommends that project screening criterion include an evaluation of bird collision mortality at the existing Goethals Bridge.

The Service appreciates the opportunity to be a component of the ETF and in the coordination of the Draft EIS for the Goethals Bridge Replacement. If you have any questions regarding our

comments, please contact Ms. Jill Olin at the Service's Long Island Field Office at 631-581-2941.

Sincerely,


David A. Stilwell
Field Supervisor

References

- Manville, A.M., II. 2000. The ABCs of Avoiding Bird Collisions at Communication Towers: The Next Steps. Proceedings of the Avian Interactions Workshop, December 2, 1999. Charleston, SC. Electric Power Research Institute. 15 pp.
- U.S. Fish and Wildlife Service. 2002. Migratory Bird Mortality: Many Human-caused Threats Afflict Our Bird Populations. U.S. Department of the Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, VA. 2 pp. <http://birds.fws.gov>
- U.S. Fish and Wildlife Service. 1997. Significant Habitats and Habitat Complexes of the New York Bight Watershed. Southern New England - New York Bight Ecosystem Program. Charlestown, RI.
- cc: FWS, Pleasantville, NJ (C. Jones)
FWS, Islip, NY



**City of New York
Parks & Recreation**

**Adrian Benepe
Commissioner**

**The Arsenal
Central Park
New York, New York 10021**

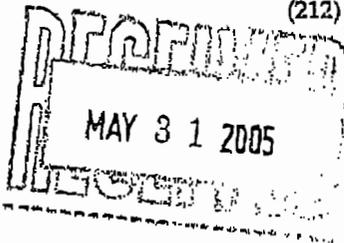
May 23, 2005

Gary Kassoi
Bridge Program Manager
First Coast Guard District
One South Street
Battery Building
New York, NY 10004

Natural Resources Group

**Arsenal North
1234 Fifth Avenue
New York, New York 10029**

**Bill Tai, Director
(212) 360-1425/bill.tai@parks.nyc.gov**



RE: Goethals Bridge Replacement, Request for Data

Dear Mr. Kassoi:

In response to your request for data pursuant to the Freedom of Information Act, Parks is providing the following documents to your consultant, Mark Renna with The Louis Berger Group:

"Results of the Breeding Bird Census' at Saw Mill Creek Marsh and Old Place Creek Marsh";
Christopher D. Aquila, February 1994.

"Results of the Breeding Bird Census' at Saw Mill Creek Marsh and Old Place Creek Marsh";
Christopher D. Aquila, February 1995.

"Winter Bird Inventory at Saw Mill Creek, and Old Place Creek Marsh";
Christopher D. Aquila, 1994.

"Summary of Avian Data Recorded for Old Place Creek Marsh"
Memorandum to Marc Matsil, December 8, 1994.

Maps:

- Winter Bird Inventory 1994, Old Place Creek Marsh, Map #1
- Winter Bird Inventory 1994, Old Place Creek Marsh, Map #2
- Winter Bird Inventory 1994, Saw Mill Creek
- Spring-Summer Breeding Bird Census 1993, Old Place Creek Marsh, Map 1
- Spring-Summer Breeding Bird Census 1993, Old Place Creek Marsh, Map 2
- 3 X Spring-Summer Breeding Bird Census at Old Place Creek Marsh, template
- Spring-Summer Breeding Bird Census 1994, Old Place Creek Marsh, Map 1
- Spring-Summer Breeding Bird Census 1994, Old Place Creek Marsh, Map 2

Please contact Sami Naim in our Law Division at (212) 360-1314, if you have additional questions.

Sincerely,

Bill Tai

cc: Sami Naim, Parks Law w/o attachments
Mark Renna, Louis Berger Group w/ attachments

Phone Conversation with Chris Nadareski on 17 August 2006 (1504 to 1514hrs):

Re: Information on the Peregrine Falcons near the Goethals Bridge

Chris provided the following information for the years after the raccoon climbed the tower constructed for the peregrine falcons that had previously nested on the Goethals Bridge and predated the eggs/young in the nest box. He didn't remember the year but a prior conversation I had with Chris includes that information.

Peregrine falcons are still territorial in the area.

The center of activity appears to be the old RR bridge and not the Goethals Bridge.

The tower has not been used since the raccoon predated the nest box in the tower.

No confirmed production/fledged falcons since the raccoon predated the nest box.

Mating behavior, courtship observed each year.

It is possible the pair is attempting to nest in the box structures of the RR bridge but have not been successful. Egg – nestling mortality before fledging.

The primary foraging areas are over the marshes in the vicinity of the Goethals Bridge/Toll Plaza, the area around and over the Oil Refinery in New Jersey, and the marsh area south of the abandoned RR bridge.

The barn owls are still in the area and probably still nest in the box structures of the RR bridge.

Additional Information and Discussion:

Chris also told me that a pair of great horned owls used the peregrine falcon nest in the tower constructed next to the Outer Bridge a few years ago and that pair of falcons abandoned the territory. The following year, osprey nested on the top of the box on the tower.

I reminded Chris that I called and left a message for him that a pair of falcons nested on the Palisades Cliffs just north of Nyack, NY. I told him they nested behind or on an old stick nest probably an old raven's nest. Chris wasn't aware of this and apparently didn't get the message as he didn't call me back. He didn't believe Barbara Loucks at the NYSDEC was aware of this. We plan to meet and check the area out.

Jack H. Hecht 17 August 2006

Additional thoughts I had on 18 August 2006:

One or two years immediately before construction, there should be surveys to determine if peregrines are territorial in the Goethals Bridge area and if so an attempt to determine if and where they are attempting to nest. If their nesting attempts are unsuccessful at the RR bridge, then they could switch back to the constructed tower and nest box or the Goethals Bridge. Therefore the potential impacts of the project could change immediately prior to construction and mitigation would need to be considered.

If falcons were using the old Goethals Bridge, the start of demolition would need to be restricted during the nesting season until a month or so after the young fledge.

I didn't discuss mitigation with Chris as we don't have specifics. I would consider that the tops of cranes and other construction equipment should have excluders to keep perching falcons out of grease and oils. During the demolition of the old Goethals Bridge accumulations of grease and contaminants on debris should not be exposed so that either falcons or prey (or other wildlife) could be exposed.

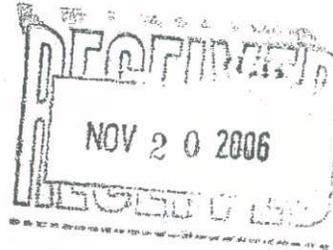
Jack H. Hecht 18 August 2006



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
One Blackburn Drive
Gloucester, MA 01930-2298

Gary Kassof
Bridge Program Manager
First Coast Guard District
1 South Street
Battery Building
New York, New York 10004

NOV 13 2006



Re: Goethals Bridge Replacement

Dear Mr. Kassof,

This responds to a letter dated October 23, 2006 regarding the proposed replacement of the Goethals Bridge located in Staten Island, New York and Elizabeth, New Jersey. The bridge spans the Arthur Kill. While several species of listed sea turtles are known to be seasonally present in Long Island Sound and a population of the federally endangered shortnose sturgeon (*Acipenser brevirostrum*) is known to exist in the Hudson River, no listed species are known to occur in the Arthur Kill where the project is located. As such, no further coordination with the Protected Resources Division of NOAA's National Marine Fisheries Service (NMFS) is required. If you have any questions regarding these comments, please contact Julie Crocker at (978)281-9328 x6530.

Sincerely,

Mary A. Colligan
Assistant Regional Administrator
for Protected Resources

Cc: Rusanowsky, F/NER4

File Code: Sec 7 - NSP New York



From: Curran, Jennifer L. [Jennifer.Curran@hdrinc.com]
Sent: Monday, December 10, 2007 2:07 PM
To: Shinskey, Tom
Cc: VerWeire, Kevin
Subject: FW: Goethals Bridge Peregrine Falcon Information
Tom, see below for the peregrine falcon information for 2007. I'll forward you the information from previous years as well. Or, would you prefer that we update the text?

From: Hecht, Jack H.
Sent: Monday, December 03, 2007 9:35 AM
To: Curran, Jennifer L.
Cc: marc.h.hecht@gmail.com
Subject: FW: Goethals Bridge Peregrine Falcon Information

JC – See below! Single adult, perhaps a potential mate will show up in 2008! -Jack

Jack H. Hecht

Project Manager
HDR and LMS have joined their resources to provide services to our clients as:
HDR | LMS
One Blue Hill Plaza | Pearl River, NY | 10965
Phone: 845.735.8300 ext. 239 | Fax: 845.735.7466 | Email: Jack.Hecht@hdrinc.com
www.hdrinc.com

Please note the change in my return e-mail.

From: Nadareski, Christopher [mailto:CNadareski@dep.nyc.gov]
Sent: Tuesday, November 27, 2007 7:36 AM
To: Hecht, Jack H.
Cc: marc.h.hecht@gmail.com
Subject: RE: Goethals Bridge Peregrine Falcon Information

Jack,

I did not confirm nesting at the Goethals Bridge this year. I inspected both bridges and the falcon nesting tower. I only observed a single bird at the bridge location this year. Chris.

Christopher A. Nadareski, RSII
Section Chief, Wildlife Studies
New York City Department of Environmental Protection
465 Columbus Avenue
Valhalla, New York 10595
Val. (914) 773-4472
Ashokan (845) 657-7082
Pager (914) 445-1572
Cell Phone: (347) 865-1194
e-mail: cnadareski@DEP.NYC.GOV

-----Original Message-----

From: Hecht, Jack H. [mailto:Jack.Hecht@hdrinc.com]
Sent: Monday, November 26, 2007 3:35 PM
To: Nadareski, Christopher
Cc: marc.h.hecht@gmail.com
Subject: Goethals Bridge Peregrine Falcon Information

Chris – Do you have any conformation of nesting or nesting success in 2007? Marc's notes indicate only single adult observed in area of RR Bridge. Has anyone observed a pair, courtship/mating activity, center of activity or potential nesting site in 2007?

Thanks - Jack

Jack H. Hecht

Project Manager

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HDR | LMS

One Blue Hill Plaza | Pearl River, NY | 10965

Phone: 845.735.8300 ext. 239 | Fax: 845.735.7466 | Email: Jack.Hecht@hdrinc.com

www.hdrinc.com

Please note the change in my return e-mail.

From: Nadareski, Christopher [CNadareski@dep.nyc.gov]
Sent: Thursday, September 11, 2008 7:02 AM
To: Shinskey, Tom
Cc: Barbara Loucks; jjpane@gw.dec.state.ny.us
Subject: RE: Goethals Bridge Peregrine Falcon Information

Hi Tom,

We are completing this year's data on the Peregrine Falcon activity in New York State. The only information I have for the Goethals Bridge for the 2008 season is that a single bird was observed in the late spring of 2008. There was no confirmation of nesting this season on the nesting tower, Goethals Bridge, or the Railroad Bridge. Chris.

From: Shinskey, Tom [mailto:TShinskey@louisberger.com]
Sent: Thursday, August 14, 2008 12:44 PM
To: Nadareski, Christopher
Subject: FW: Goethals Bridge Peregrine Falcon Information

Chris,

I am working on the Goethals Bridge EIS and need to update the Peregrine falcon status for the project area for 2008. Is there anything to report?

Regards,

Tom Shinskey
Principal Environmental Scientist
The Louis Berger Group
412 Mount Kemble Avenue
P.O. Box 1946
Morristown, NJ 07962
973-407-1470

From: Curran, Jennifer L. [mailto:Jennifer.Curran@hdrinc.com]
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Cell Phone: (347) 865-1194
e-mail: cnadareski@DEP.NYC.GOV

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Thanks - Jack

Jack H. Hecht
Project Manager
HDR and LMS have joined their resources to provide services to our clients as:
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One Blue Hill Plaza | Pearl River, NY | 10965
Phone: 845.735.8300 ext. 239 | Fax: 845.735.7466 | Email: Jack.Hecht@hdrinc.com
www.hdrinc.com

Please note the change in my return e-mail.



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Parks and Forestry
Office of Natural Lands Management
Natural Heritage Program
P.O. Box 404
Trenton, NJ 08625-0404
Tel. #609-984-1339
Fax. #609-984-1427

JON S. CORZINE
Governor

MARK N. MAURIELLO
Acting Commissioner

July 15, 2009

Thomas Shinskey
The Louis Berger Group, Inc.
412 Mount Kemble Avenue
P.O. Box 1946
Morristown, NJ 07962-1946

Re: Goethals Bridge Replacement Project

Dear Mr. Shinskey:

Thank you for your data request regarding rare species information for the above referenced project site in Elizabeth City, Union County.

Searches of the Natural Heritage Database and the Landscape Project (Version 3 for the highlands region, Version 2.1 elsewhere) are based on a representation of the boundaries of your project site in our Geographic Information System (GIS). We make every effort to accurately transfer your project bounds from the topographic map(s) submitted with the Request for Data into our Geographic Information System. We do not typically verify that your project bounds are accurate, or check them against other sources.

Neither the Natural Heritage Database nor the Landscape Project has records for any rare wildlife species on the referenced site.

We have also checked the Natural Heritage Database and the Landscape Project habitat mapping for occurrences of any rare wildlife species or wildlife habitat within 1/4 mile of the referenced site. Please see the table below for species list and conservation status.

Species within 1/4 mile of referenced site.

Common Name	Scientific Name	Federal Status	State Status	Grank	Srank
black-crowned night-heron	<i>Nycticorax nycticorax</i>		T/SC	G5	S2B,S3N
cattle egret	<i>Bubulcus ibis</i>		SC	G5	S3B,S3N
glossy ibis	<i>Plegadis falcinellus</i>		SC/S	G5	S3B,S4N
least tern	<i>Sterna antillarum</i>		E	G4	S1B,S1N
little blue heron	<i>Egretta caerulea</i>		SC	G5	S3B,S3N
snowy egret	<i>Egretta thula</i>		SC/S	G5	S3B,S4N
tricolored heron	<i>Egretta tricolor</i>		SC/SC	G5	S3B,S3N
yellow-crowned night-heron	<i>Nyctanassa violacea</i>		T/T	G5	S2B,S2N

We have also checked the Natural Heritage Database for occurrences of rare plant species or ecological communities. The Natural Heritage Database does not have any records for rare plants or ecological communities on or within 1/4 mile of the site.

A list of rare plant species and ecological communities that have been documented from Union County can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/countylist.html>. If suitable habitat is present at the project site, the species in that list have potential to be present.

Status and rank codes used in the tables and lists are defined in EXPLANATION OF CODES USED IN NATURAL HERITAGE REPORTS, which can be downloaded from http://www.state.nj.us/dep/parksandforests/natural/heritage/nhpcodes_2008.pdf.

If you have questions concerning the wildlife records or wildlife species mentioned in this response, we recommend that you visit the interactive I-Map-NJ website at the following URL, <http://www.state.nj.us/dep/gis/depsplash.htm> or contact the Division of Fish and Wildlife, Endangered and Nongame Species Program at (609) 292 9400.

PLEASE SEE 'CAUTIONS AND RESTRICTIONS ON NHP DATA', which can be downloaded from <http://www.state.nj.us/dep/parksandforests/natural/heritage/newcaution2008.pdf>.

Thank you for consulting the Natural Heritage Program. The attached invoice details the payment due for processing this data request. Feel free to contact us again regarding any future data requests.

Sincerely,

A handwritten signature in black ink that reads "Herbert A. Lord". The signature is written in a cursive style with a large initial 'H'.

Herbert A. Lord
Data Request Specialist

cc: Robert J. Cartica
NHP File No. 09-4007462-2780

(by Patricia Sziber)

Department of Environmental Protection
 Division of Parks and Forestry
 Office of Natural Lands Management
 PO Box 404 Trenton New Jersey 08625-0404
 (609) 984-1339 FAX (609) 984-1427

Invoice

Invoice

DATE	INVOICE #
July 15, 2009	2780

BILL TO
The Louis Berger Group, Inc. 412 Mount Kemble Avenue P.O. Box 1946 Morristown, NJ 07962-1946

Make check payable to
Office of Natural Lands Management
 and forward with a copy of this statement to
Office of Natural Lands Management
PO Box 404
Trenton, New Jersey 08625-0404

		P.O. NO.	TERMS	PROJECT
QUANTITY (hrs.)	DESCRIPTION	RATE (per hr.)	AMOUNT	
1	Charge for Natural Heritage Database search for rare species and ecological communities locational Information. Project 09-4007462-2780	\$20.00	\$20.00	
Thomas Shinskey Goethals Bridge Replacement Project		Total	\$20.00	



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Habitat Conservation Division
James J. Howard Marine
Sciences Laboratory
74 Magruder Road
Highlands, New Jersey 07732

July 21, 2009

TO: Thomas Shinskey
The Louis Berger Group, Inc.
P.O. Box 1946
Mount Kemble Avenue
Morristown, NJ 07962-1946

SUBJECT: Gosthals Bridge Replacement Project


Karen Greene
(Reviewing Biologist)

We have reviewed the information provided to us regarding the above subject project. We offer the following preliminary comments pursuant to the Endangered Species Act, the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act:

Endangered Species Act

With the exception of occasional transients, no threatened or endangered species under the jurisdiction of the NMFS are known to occur in the project area. As a result, further consultation by the federal action agency is not required. However should project plans change that would change the basis for determination, or if new species or critical habitat is designated, consultation should be reinitiated.

Fish and Wildlife Coordination Act

The Arthur Kill is a migratory pathway, nursery and forage area for anadromous fish including striped bass, alewife, blueback herring and American shad. Because landing statistics and the number of fish observed on annual spawning runs indicate a drastic decline in alewife and blueback herring populations throughout much of their range since the mid-1960's, they have been designated as species of concern by NMFS in a Federal Register Notice dated October 17, 2006 (71 FRN 61022). The project area also provides habitat for a variety of aquatic resources of concern to NMFS including winter flounder, windowpane, bluefish, summer flounder, Atlantic tomcod, bay anchovy, weakfish and spot. In general, in-water work should not occur between January 1 and June 30 of any year to protect winter flounder early life stages and anadromous fish. These recommendations may change depending upon the exact location and nature of the work proposed.

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat

The Arthur Kill has been designated as Essential Fish Habitat (EFH) for one or more species. Further EFH consultation by the federal action agency will be required. For a listing of EFH and further information, please go to our website at: <http://www.nero.noaa.gov/hcd>. If you wish to discuss this further, please call 732-872-3023.



New York State Department of Environmental Conservation

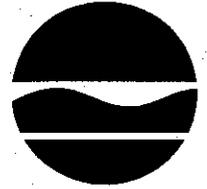
Division of Fish, Wildlife & Marine Resources

New York Natural Heritage Program

625 Broadway, Albany, New York 12233-4757

Phone: (518) 402-8935 • FAX: (518) 402-8925

Website: www.dec.state.ny.us



Alexander B. Grannis
Commissioner

July 23, 2009

Thomas Shinskey
Louis Berger Group, Inc
412 Mount Kemble Avenue, Bx 1946
Morristown, NJ 07960

Dear Mr. Shinskey:

In response to your recent request, we have reviewed the New York Natural Heritage Program databases with respect to an Environmental Assessment for proposed Goethals Bridge Replacement Project, Permit Applications - site as indicated on the map you provided, located between Staten Island and Elizabeth, New Jersey.

Enclosed is a report of rare or state-listed animals and plants, significant natural communities, and 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 should not be released to the public without permission from the New York Natural Heritage Program.

PLEASE NOTE: This Project is NEAR Harbor Heron Bird Conservation Area.

This project location is adjacent to a designated Significant Coastal Fish and Wildlife Habitat. This habitat is part of New York State's Coastal Management Program (CMP), which is administered by the NYS Department of State (DOS). Projects which may impact the habitat are reviewed by DOS for consistency with the CMP. For more information regarding this designated habitat and applicable consistency review requirements, please contact:

Jeff Zappieri - (518) 474-6000
NYS Department of State
Office Coastal, Local Government and Community Sustainability
1 Commerce Plaza, 99 Washington Avenue,
Albany, NY 12231

The presence of rare species may result in your project requiring additional permits, permit conditions, or review. For further guidance, and for information regarding other permits that may be required under state law for regulated areas or activities (e.g., regulated wetlands), please contact the appropriate NYS DEC Regional Office, Division of Environmental Permits, at the enclosed address.

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 Pproject 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.

Sincerely,

Tara Salerno
Information Services
NY Natural Heritage Program

Enc.

cc: Reg. 2, Wildlife Mgr.
Reg. 2, Fisheries Mgr.
Peter Nye, Endangered Species Unit, Albany

Natural Heritage Report on Rare Species and Ecological Communities



NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor, Albany, NY
12233-4757
(518) 402-8935

-This report contains **SENSITIVE** information that should not be released to the public without permission from the NY Natural Heritage Program.
-Refer to the User's Guide for explanations of codes, ranks and fields.
-Location maps for certain species and communities may not be provided 1) if the species is vulnerable to disturbance, 2) if the location and/or extent is not precisely known, 3) if the location and/or extent is too large to display, and/or 4) if the animal is listed as Endangered or Threatened by New York State.

Natural Heritage Report on Rare Species and Ecological Communities



BIRDS

Falco peregrinus

Peregrine Falcon
Breeding

NY Legal Status: Endangered
Federal Listing:
Last Report: **
County: Richmond
Town: City Of New York
Location: At, or in the vicinity of, the project site.
Directions: **
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.

NYS Rank: S3B - Vulnerable
Global Rank: G4 - Apparently secure
EO Rank: **

Office Use
4064
ESU

Ixobrychus exilis

Least Bittern
Breeding

NY Legal Status: Threatened
Federal Listing:
Last Report: **
County: Richmond
Town: City Of New York
Location: At, or in the vicinity of, the project site.
Directions: **
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.

NYS Rank: S3B,S1N - Vulnerable
Global Rank: G5 - Secure
EO Rank: **

Office Use
281
ESU

Podilymbus podiceps

Pied-billed Grebe
Breeding

NY Legal Status: Threatened
Federal Listing:
Last Report: **
County: Richmond
Town: City Of New York
Location: At, or in the vicinity of, the project site.
Directions: **
General Quality and Habitat: **For information on the population at this location and management considerations, please contact the NYS DEC Regional Wildlife Manager for the Region where the project is located.

NYS Rank: S3B,S1N - Vulnerable
Global Rank: G5 - Secure
EO Rank: **

Office Use
4852
ESU

COMMUNITIES



Maritime post oak forest

This occurrence of Maritime Post Oak Forest is considered significant from a statewide perspective by the NY Natural Heritage Program. It is either an occurrence of a community type that is rare in the state or a high quality example of a more common community type. By meeting specific, documented significance criteria, the NY Natural Heritage Program considers this occurrence to have high ecological and conservation value.

Office Use

NY Legal Status: Unlisted	NYS Rank: S2S3	1041
Federal Listing:	Global Rank: G3G4	
Last Report: 1998-11-18	EO Rank:	
County: Richmond		S
Town: City Of New York		
Location: Magnolia Swamp		
Directions: The forest is in the northwest portion of Magnolia Swamp northeast of Bloomfield at the northeast end of Hughes Avenue. The forest is bounded generally by Glen Street and Hughes Avenue (west), South Avenue (east), Merrill Avenue (south), and the abandoned Lamberts Lane (north). From South Avenue, go west on Edward Curry Avenue, north on Glen Street, east on Bloomfield, then north on Hughes Avenue to the end.		

General Quality and Habitat: Small, but unusual, mature occurrence with a minimally disturbed core. Vulnerable in an urban setting with connectivity to only small forested landscape. Needs more critical evaluation of viability. Dry oak-dominated forest with moderate vine layer on deep sands bordering a degraded and formerly estuarine marsh in a small forest complex, regionally moderate-sized for metropolitan New York City. The forest is part of about a 200 acre forested complex bisected by a large secondary road. It is interwoven with red maple-sweetgum swamp to the east and south. It is also bordered by Phragmites marsh to the north, and abandoned filled land, residences and a large highway to the west. Dense urban and industrial development surrounds the forest complex. The large highway has cut off the tidal flow from the part of the marsh adjacent to the forest.

Red maple-sweetgum swamp

This occurrence of Red Maple-Sweetgum Swamp is considered significant from a statewide perspective by the NY Natural Heritage Program. It is either an occurrence of a community type that is rare in the state or a high quality example of a more common community type. By meeting specific, documented significance criteria, the NY Natural Heritage Program considers this occurrence to have high ecological and conservation value.

Office Use

NY Legal Status: Unlisted	NYS Rank: S1S2	5987
Federal Listing:	Global Rank: G4G5	
Last Report: 1997-07-30	EO Rank:	
County: Richmond		S
Town: City Of New York		
Location: Magnolia Swamp		
Directions: The central portion of Magnolia Swamp is east of Bloomfield. The swamp is bounded generally by Lamberts Lane (north), Hughes Avenue and South Avenue (west), Travis Avenue (south), and Graham Avenue and Victory Boulevard (east). From the junction of Richmond Avenue and Victory Avenue, go north on Victory Avenue 0.5 mi to Lander Avenue or Kirshon Avenue. Drive west to the end, turn north (right) on Graham Avenue and park at the dead end. Walk west to a chain link fence, go under the fence at a break.		

General Quality and Habitat: This is a moderate size, mature example with minimally disturbed core and <1% cover of exotic plants. Vulnerable in an urban setting with little connectivity to natural landscape. Sweetgum-dominated swamp in a regionally large swamp complex for metropolitan New York City. The 300 acre wetland also contains small pockets of shallow emergent marsh plus an inundated grove of swamp cottonwood. The swamp is surrounded by narrow strips of upland oak forests then dense urban and industrial development. The swamp occupies about four city blocks of about 30-150 acres and maintains narrow functional corridors to a salt marsh to the southwest and fragmented forests to the southeast.

VASCULAR PLANTS



Amelanchier nantucketensis

Nantucket
Juneberry

NY Legal Status: Endangered

NYS Rank: S1 - Critically imperiled

Office Use
306

Federal Listing:

Global Rank: G3Q - Vulnerable

Last Report: 1997-07-29

EO Rank: Fair

County: Richmond

S

Town: City Of New York

Location: Magnolia Swamp

Directions: Take South Avenue to Edward Curry then go west to a right on Glen. Go right on Bloomfield then left at a horse stable. Go north to the end at old buildings on the left and a sandy open area on the right. One plant is under an oak tree on a small knoll and another is to the southeast where a trail goes into the woods.

General Quality and Habitat: 2 plants in threatened habitat. On the edge of a sandy disturbed area in a maritime post-oak forest. Associated species: *Prunus maritima*, *Quercus stellata*, *Gaylussacia baccata*.

Carex abscondita

Thicket Sedge

NY Legal Status: Threatened

NYS Rank: S1 - Critically imperiled

Office Use
11023

Federal Listing:

Global Rank: G4G5 - Apparently secure

Last Report: 1997-06-17

EO Rank: Extant

County: Richmond

Town: City Of New York

Location: Magnolia Swamp

Directions: From the Goethals Bridge, take South Avenue south to number 1000 which is an office building. The plants were collected in the swamp behind the building.

General Quality and Habitat: Extant. Identified later from the collection bag. The plants are in the red maple sweet gum swamp.

Diospyros virginiana

Persimmon

NY Legal Status: Threatened

NYS Rank: S2 - Imperiled

Office Use
7825

Federal Listing:

Global Rank: G5 - Secure

Last Report: 1997-05-06

EO Rank: Fair

County: Richmond

S

Town: City Of New York

Location: Old Place Creek Woods

Directions: Group 1: The plants are 0.3 mi southwest of the junction of Route 278 and Route 440 on the northwest side of a service road. The trees are in a small grove at the roadside, growing along a service road adjacent to a *Phragmites* filled brackish marsh. Group 2: Take the Forest Avenue exit off Goethals Bridge, go left on Forest Avenue, under the highway, left on Goethals Road, left on Western, under the bridge, left on Gulf Road, then park just east of the toll booths.

General Quality and Habitat: This is a small population at a disturbed site. Disturbed highway margin. Associated species: *Panicum virgatum*, mugwort (*Artemisia vulgaris*), *Bromus tectorum*, *eleagnus*, oriental bittersweet, Japanese honeysuckle, *Galium aparine*, *Tradescantia ohioensis*.



Diospyros virginiana

Persimmon	NY Legal Status: Threatened Federal Listing: Last Report: 1997-05-06 County: Richmond Town: City Of New York Location: Magnolia Swamp Directions: Group 1: Go south on South Avenue to a left on Edward Curry, then right before 440 on Glen Street. Take the first right on Bloomfield, then go left at a horse stable. Go north about 0.1 mile north of Old Merrill Avenue to beat woods on the west side south of an old house (Margaret's Place). Group 2: Plants are on the edge of a marsh and swamp northwest of the 1000 South Avenue building. The plants are on the east side of South Avenue.	NYS Rank: S2 - Imperiled Global Rank: G5 - Secure EO Rank: Poor	Office Use 8280 S
	General Quality and Habitat: There are a few trees in beat woods with future development projects. Small woodlot in old developed area. Landscaped on either side of woods. Associated species: Prunus serotina, Ailanthus, Sassafras, Toxicodendron, Solidago sp., Ranunculus aris.		

Euonymus americanus

American Strawberry-bush	NY Legal Status: Endangered Federal Listing: Last Report: 1997-07-29 County: Richmond Town: City Of New York Location: Magnolia Swamp Directions: From Merrill Avenue, walk northeast to a wet area. The plants are on the south side of the sSwet area.	NYS Rank: S1 - Critically imperiled Global Rank: G5 - Secure EO Rank: Fair	Office Use 2314 S
	General Quality and Habitat: 8 large stems with many smaller trailing stems in fair habitat. In mixed deciduous forest of beech, red oak, sweetgum and Vaccinium corymbosum. Hidden in leaf litter.		

Magnolia virginiana

Sweetbay Magnolia	NY Legal Status: Endangered Federal Listing: Last Report: 1997-05-06 County: Richmond Town: City Of New York Location: Magnolia Swamp Directions: If coming from the west on Route 278, take the Forest Avenue exit to South Avenue. If coming from the east on Route 278, take the South Avenue exit. Go south on South Avenue to the first left after an underpass, Fahy Avenue. Take Fahy Avenue to the first right then go south to the end of the street and park. Walk to the south end of a man-made pond lined with weeping willows then west into the swamp. Follow a chain link fence south to a break in the fence and continue west into the swamp.	NYS Rank: S1 - Critically imperiled Global Rank: G5 - Secure EO Rank: Fair	Office Use 5109 S
	General Quality and Habitat: 5 trees total. Sweetgum swamp with sweetgum, red maple, red oak, Nyssa and swamp white oak as dominants. Also present are grey and black birch. The understory is predominantly Vaccinium corymbosum with Smilax glauca. Skunk cabbage and trout lily in the herbaceous layer.		



Viburnum nudum var. nudum

Possum-haw	NY Legal Status: Endangered	NYS Rank: S1 - Critically imperiled	Office Use 3641
	Federal Listing:	Global Rank: G5T5 - Secure	
	Last Report: 1997-05-06	EO Rank: Fair	
	County: Richmond		S
	Town: City Of New York		
	Location: Magnolia Swamp		
	Directions: Take Forest Avenue to South Avenue, then go south to #1000 South Avenue office building. The plants are about 50 feet south of the entrance to the office building just inside the border of a woods.		
	General Quality and Habitat: 2 plants in fair habitat. Edge of sweetgum swamp. Associated species: <i>Acer rubrum</i> , <i>Liquidambar</i> , <i>Quercus velutina</i> , <i>Quercus palustris</i> , <i>Quercus rubra</i> , <i>Quercus bicolor</i> , <i>Amelanchier canadensis</i> , <i>Clethra alnifolia</i> , <i>Viburnum dentatum var. lucidum</i> , <i>Rhododendron viscosum</i> , <i>Vitis labrusca</i> .		

Viola primulifolia

Primrose-leaf Violet	NY Legal Status: Threatened	NYS Rank: S2 - Imperiled	Office Use 726
	Federal Listing:	Global Rank: G5 - Secure	
	Last Report: 1997-05-06	EO Rank: Fair or Poor	
	County: Richmond		S
	Town: City Of New York		
	Location: Magnolia Swamp		
	Directions: Go to 1000 South Avenue building and park in rear parking lot. Walk to the rear of the parking lot. Some plants are along the north-south chain link fence toward the north side. Climb over fence and walk north along ditch. More plants along bank of ditch north of the parking lot.		
	General Quality and Habitat: 15 plants in disturbed habitat. Artificial openings in red maple-sweetgum swamp. Openings occur along artificial ditch and border of parking lot.		

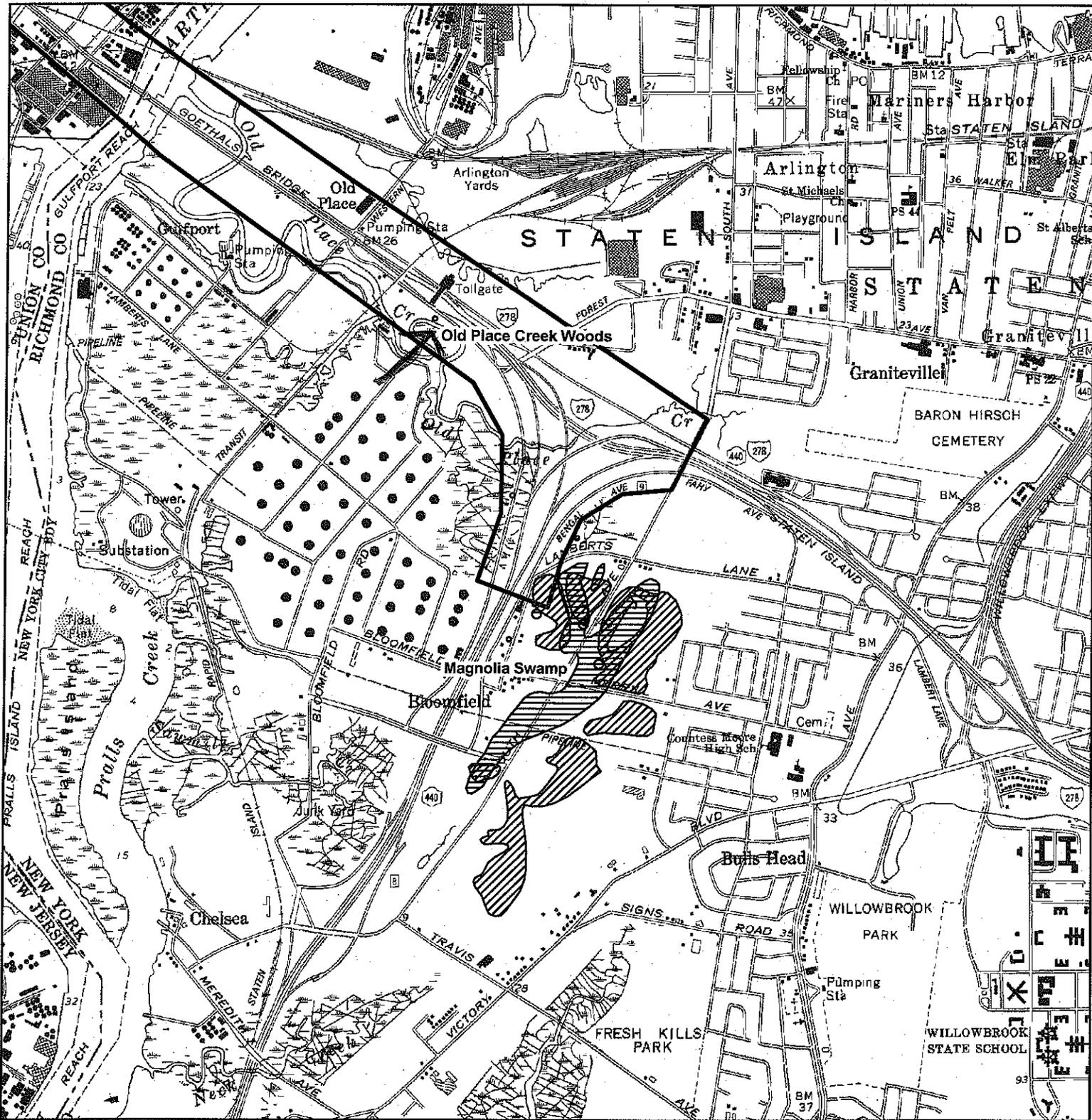
13 Records Processed

More detailed information about many of the rare and listed animals and plants in New York, including biology, identification, habitat, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org, from NatureServe Explorer at <http://www.natureserve.org/explorer>, from NYSDEC at <http://www.dec.ny.gov/animals/7494.html> (for animals), and from USDA's Plants Database at <http://plants.usda.gov/index.html> (for plants).

More detailed information about many of the natural community types in New York, including identification, dominant and characteristic vegetation, distribution, conservation, and management, is available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org. For descriptions of all community types, go to <http://www.dec.ny.gov/animals/29384.html> and click on Draft Ecological Communities of New York State.

Natural Heritage Map of Rare Species and Ecological Communities

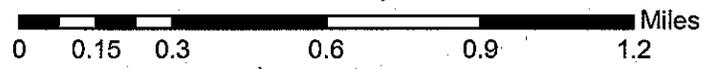
Prepared July 14, 2009 by the NY Natural Heritage Program, NYS DEC Albany, NY



Legend

-  Project Site
- NY Natural Heritage Program Database Records***
-  Plant
-  Community

1:24,000



*The locations that are displayed are considered sensitive and should not be released to the public without permission. We do not provide map locations for all records. Please see report for details.



Natural Heritage Report on Rare Species and Ecological Communities



NY Natural Heritage Program, NYS DEC, 625 Broadway, 5th Floor,
Albany, NY 12233-4757
(518) 402-8935

HISTORICAL RECORDS

The following plants and animals were documented in the vicinity of the project site at one time, but have not been documented there since 1979 or earlier.

There is no recent information on these plants and animals in the vicinity of the project site and their current status there is unknown. In most cases the precise location of the plant or animal in this vicinity at the time it was last documented is also unknown and therefore location maps are generally not provided.

If appropriate habitat for these plants or animals is present in the vicinity of the project site, it is possible that they may still occur there.

Natural Heritage Report on Rare Species and Ecological Communities



DRAGONFLIES and DAMSELFLIES

Ischnura ramburii

Rambur's Forktail NY Legal Status: Unlisted

NYS Rank: S2 - Imperiled

Office Use
12588

Federal Listing:

Global Rank: G5 - Secure

Last Report: 1913-pre

EO Rank: Historical, no recent information

County: Richmond

Town: City Of New York

Location: Staten Island

Directions: Follow Highway 278 southwest from Kings across the Verrazano-Narrows Bridge. The damselfly was found on Staten Island.

General Quality and Habitat: The dragonfly was found on a very large island.

Somatochlora linearis

Mocha Emerald NY Legal Status: Unlisted

NYS Rank: S2S3 - Imperiled

Office Use
12598

Federal Listing:

Global Rank: G5 - Secure

Last Report: 1926-pre

EO Rank: Historical, no recent information

County: Richmond

Town: City Of New York

Location: Staten Island

Directions: Follow Highway 278 southwest from Kings across the Verrazano-Narrows Bridge. The dragonfly was found on Staten Island.

General Quality and Habitat: The dragonfly was captured on a very large island.

REPTILES



Kinosternon subrubrum

Eastern Mud Turtle	NY Legal Status: Endangered	NYS Rank: S1 - Critically imperiled	Office Use 1480
	Federal Listing:	Global Rank: G5 - Secure	ESU
	Last Report: 1900-05-06	EO Rank: Historical, no recent information	
	County: Richmond		M
	Town: City Of New York		
	Location: Old Place Creek		
	Directions: Specimen label; Old Place Creek and salt meadows at Old Place, Staten Island.		
	General Quality and Habitat:		

VASCULAR PLANTS

Dryopteris celsa

Log Fern	NY Legal Status: Endangered	NYS Rank: S1 - Critically imperiled	Office Use 660
	Federal Listing:	Global Rank: G4 - Apparently secure	
	Last Report: 1907-07-17	EO Rank: Failed to find but search more	
	County: Richmond		M
	Town: City Of New York		
	Location: Magnolia Swamp		
	Directions: Rich woods. Richmond. Swamp near South Avenue, Staten Island.		
	General Quality and Habitat: No plants were found. More habitat is available. Need additional searches. Rich woods.		

Platanthera ciliaris

Orange Fringed Orchid	NY Legal Status: Endangered	NYS Rank: S1 - Critically imperiled	Office Use 640
	Federal Listing:	Global Rank: G5 - Secure	
	Last Report: 1905-07-28	EO Rank: Historical, no recent information	
	County: Richmond		M
	Town: City Of New York		
	Location: Magnolia Swamp		
	Directions: 1905: South Avenue. 1890: Lamberts Lane.		
	General Quality and Habitat:		

5 Records Processed

More detailed information about many of the rare and listed animals and plants in New York, including biology, identification, habitat, conservation, and management, are available online in Natural Heritage's Conservation Guides at www.acris.nynhp.org, from NatureServe Explorer at <http://www.natureserve.org/explorer>, from NYSDEC at <http://www.dec.ny.gov/animals/7494.html> (for animals), and from USDA's Plants Database at <http://plants.usda.gov/index.html> (for plants).

USERS GUIDE TO NY NATURAL HERITAGE DATA

New York Natural Heritage Program, 625 Broadway, 5th Floor, Albany, NY 12233-4757 phone: (518) 402-8935



NATURAL HERITAGE PROGRAM: The NY Natural Heritage Program is a partnership between the NYS Department of Environmental Conservation (NYS DEC) and The Nature Conservancy. Our Mission is to facilitate the conservation of New York's biodiversity by providing comprehensive information and scientific expertise on rare species and natural ecosystems to resource managers and other conservation partners. We accomplish this mission by combining thorough field inventories, scientific analyses, expert interpretation, and the most comprehensive database on New York's distinctive biodiversity to deliver the highest quality information for natural resource planning, protection, and management.

DATA SENSITIVITY: The data provided in the report are ecologically sensitive and should be treated in a sensitive manner. The report is for your in-house use and should **not** be released, distributed or incorporated in a public document without prior permission from the Natural Heritage Program.

EO RANK: A letter code for the quality of the occurrence of the rare species or significant natural community, based on population size or area, condition, and landscape context.

- A-E = Extant: A=Excellent, B=Good, C=Fair, D=Poor, E=Extant but with insufficient data to assign a rank of A-D.
- F = Failed to find. Did not locate species during a limited search, but habitat is still there and further field work is justified.
- H = Historical. Historical occurrence without any recent field information.
- X = Extirpated. Field/other data indicates element/habitat is destroyed and the element no longer exists at this location.
- U = Extant/Historical status uncertain.
- Blank = Not assigned.

LAST REPORT: The date that the rare species or significant natural community was last observed at this location, as documented in the Natural Heritage databases. The format is most often YYYY-MM-DD.

NY LEGAL STATUS – Animals:

Categories of Endangered and Threatened species are defined in New York State Environmental Conservation Law section 11-0535. Animals listed as Endangered, Threatened, or Special Concern are protected against taking, importation, transportation, possession, or sale without a permit. Endangered, Threatened, and Special Concern species are listed in regulation 6NYCRR 182.5.

- E - Endangered Species:** any species which meet one of the following criteria:
 - Any native species in imminent danger of extirpation or extinction in New York.
 - Any species listed as endangered by the United States Department of the Interior, as enumerated in the Code of Federal Regulations 50 CFR 17.11.
- T - Threatened Species:** any species which meet one of the following criteria:
 - Any native species likely to become an endangered species within the foreseeable future in NY.
 - Any species listed as threatened by the U.S. Department of the Interior, as enumerated in the Code of the Federal Regulations 50 CFR 17.11.
- SC - Special Concern Species:** those species which are not yet recognized as endangered or threatened, but for which documented concern exists for their continued welfare in New York.
- P - Protected Wildlife (defined in Environmental Conservation Law section 11-0103):** wild game, protected wild birds, and endangered species of wildlife.
- U - Unprotected (defined in Environmental Conservation Law section 11-0103):** the species may be taken at any time without limit; however a license to take may be required.
- G - Game (defined in Environmental Conservation Law section 11-0103):** any of a variety of big game or small game species as stated in the Environmental Conservation Law; many normally have an open season for at least part of the year, and are protected at other times.

NY LEGAL STATUS – Plants:

The following categories are defined in regulation 6NYCRR part 193.3 and apply to NYS Environmental Conservation Law section 9-1503.

- E - Endangered Species:** listed species are those with:
 - 5 or fewer extant sites, or
 - fewer than 1,000 individuals, or
 - restricted to fewer than 4 U.S.G.S. 7 ½ minute topographical maps, or
 - species listed as endangered by U.S. Dept. of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.
- T - Threatened:** listed species are those with:
 - 6 to fewer than 20 extant sites, or
 - 1,000 to fewer than 3,000 individuals, or
 - restricted to not less than 4 or more than 7 U.S.G.S. 7 and ½ minute topographical maps, or
 - listed as threatened by U.S. Department of Interior, as enumerated in Code of Federal Regulations 50 CFR 17.11.

Federally Listed and Candidate Species Occurrences in New Jersey by County and Municipality

County	Municipality	Bog Turtle (T)	Piping Plover (T)	Indiana Bat (E)	Dwarf Wedgemussel (E)	NE Beach Tiger Beetle (T)	Small Whorled Pogonia (T)	Swamp Pink (T)	Knieskern's Beaked Rush (T)	American Chaffseed (E)	Sensitive Joint-vetch (T)	Seabeach Amaranth (T)	Red Knot (C)	Bog Asphodel (C)	Hirsts' Panic Grass (C)
Federal Listing Status: (E)=Endangered, (T)=Threatened, (C)=Candidate															
E = Extant (present), P = Potential (may be present), H = Historic (may still be present), X = Extirpated (no longer present)															
Extant occurrences of Indiana bat: MA = Maternity (April 1 to Sept. 30), HI = Hibernation															
ATLANTIC	Absecon City								P						
ATLANTIC	Atlantic City		P									H	P		
ATLANTIC	Brigantine City		E									E	E		
ATLANTIC	Buena Borough							P	P						
ATLANTIC	Buena Vista Township							P	P	H				P	
ATLANTIC	Corbin City							P	P						
ATLANTIC	Egg Harbor City							P	H	H				P	
ATLANTIC	Egg Harbor Township		E										P		
ATLANTIC	Egg Harbor Township	H						E	E		H				
ATLANTIC	Estell Manor City							P	P		H			P	
ATLANTIC	Folsom Borough							P	P	H				P	
ATLANTIC	Galloway Township		E					P	E	H		E	E	E	E
ATLANTIC	Hamilton Township							P	E	H	H			P	
ATLANTIC	Hammonton Town	H						H	E	H				E	
ATLANTIC	Longport Borough		P									P	P		
ATLANTIC	Margate City		P									P	P		
ATLANTIC	Mullica Township							E	E	H				E	
ATLANTIC	Northfield City								P						
ATLANTIC	Pleasantville City							E							
ATLANTIC	Port Republic City							P	H					E	
ATLANTIC	Somers Point City		H												
ATLANTIC	Ventnor City		P									P	P		
ATLANTIC	Weymouth Township							P	P		H			P	
ATLANTIC	Weymouth Township							E	P					P	
BERGEN	Allendale Borough			P											
BERGEN	Alpine Borough	X		P											
BERGEN	Closter Borough			P		X									
BERGEN	Demarest Borough			P											
BERGEN	Emerson Borough			P											
BERGEN	Englewood City			P											
BERGEN	Franklin Lakes Borough			P		X									
BERGEN	Hackensack City	X													
BERGEN	Harrington Park Borough			P											
BERGEN	Haworth Borough			P	X										
BERGEN	Ho-Ho-Kus Borough			P											
BERGEN	Little Ferry Borough			P											
BERGEN	Mahwah Township			P											
BERGEN	Montvale Borough	X		P											
BERGEN	Moonachie Borough			P											
BERGEN	Northvale Borough	X													
BERGEN	Norwood Borough			P											
BERGEN	Oakland Borough			P											
BERGEN	Old Tappan Borough	X		P											

Federally Listed and Candidate Species Occurrences in New Jersey by County and Municipality

County	Municipality	Bog Turtle (T)	Piping Plover (T)	Indiana Bat (E)	Dwarf Wedgemussel (E)	NE Beach Tiger Beetle (T)	Small Whorled Pogonia (T)	Swamp Pink (T)	Knieskern's Beaked Rush (T)	American Chaffseed (E)	Sensitive Joint-vetch (T)	Seabeach Amaranth (T)	Red Knot (C)	Bog Asphodel (C)	Hirsts' Panic Grass (C)
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BERGEN	Park Ridge Borough			P											
BERGEN	Ramsey Borough			P											
BERGEN	Ridgefield Borough			P											
BERGEN	Ridgewood Village			P											
BERGEN	River Vale Township	X		P											
BERGEN	Saddle River Borough			P											
BERGEN	Tenafly Borough	X		P											
BERGEN	Washington Township			P											
BURLINGTON	Bass River Township	H						P	E		H			E	
BURLINGTON	Bordentown City	X													
BURLINGTON	Bordentown Township	H													
BURLINGTON	Burlington City									X					
BURLINGTON	Burlington Township	E													
BURLINGTON	Chesterfield Township	E													
BURLINGTON	Delanco Township	H													
BURLINGTON	Delran Township	E													
BURLINGTON	Eastampton Township	P						P							
BURLINGTON	Edgewater Park Township	X													
BURLINGTON	Evesham Township	H						E	P						
BURLINGTON	Florence Township	P													
BURLINGTON	Hainesport Township	P						P							
BURLINGTON	Lumberton Township	P						P							
BURLINGTON	Mansfield Township	E													
BURLINGTON	Maple Shade Township							X							
BURLINGTON	Medford Lakes Borough								P						
BURLINGTON	Medford Township	E						E	P					P	
BURLINGTON	Moorestown Township	E						P							
BURLINGTON	Mount Holly Township							P							
BURLINGTON	Mount Laurel Township	H						P							
BURLINGTON	New Hanover Township	E						P	P	P					
BURLINGTON	North Hanover Township	E						P							
BURLINGTON	Pemberton Borough							P	P						
BURLINGTON	Pemberton Township	P						E	P	E				H	
BURLINGTON	Shamong Township	P						P	H	H				E	E
BURLINGTON	Southampton Township	E						E	P	H				H	
BURLINGTON	Springfield Township	E						P							
BURLINGTON	Tabernacle Township	P						E	P	H				E	
BURLINGTON	Washington Township	H						P	E	H	H			E	
BURLINGTON	Westampton Township	E													
BURLINGTON	Woodland Township	P						E	E	E				E	
BURLINGTON	Wrightstown Borough							P	P						
CAMDEN	Audubon Borough	X													
CAMDEN	Berlin Borough							E							

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CAMDEN	Berlin Township							E							
CAMDEN	Camden City									X					
CAMDEN	Cherry Hill Township							P							
CAMDEN	Chesilhurst Borough								P						
CAMDEN	Clementon Borough							H							
CAMDEN	Gibbsboro Borough							E							
CAMDEN	Gloucester Township	H						E							
CAMDEN	Haddonfield Borough							H							
CAMDEN	Lindenwold Borough							E							
CAMDEN	Oaklyn Borough	X													
CAMDEN	Pine Hill Borough	H						E							
CAMDEN	Pine Valley Borough							E							
CAMDEN	Runnemede Borough							X							
CAMDEN	Voorhees Township							E							
CAMDEN	Waterford Township							E	H	H				P	
CAMDEN	Winslow Township							H	E	H				P	
CAPE MAY	Avalon Borough		E									E	E		
CAPE MAY	Cape May City		E							X		P	P		
CAPE MAY	Cape May Point Borough		H					X				P	P		
CAPE MAY	Dennis Township							E	P				E		
CAPE MAY	Lower Township		E					E		H		E	E		
CAPE MAY	Middle Township		E					E		H		P	E		
CAPE MAY	North Wildwood City		E									P	E		
CAPE MAY	Ocean City		E		X							E	P		
CAPE MAY	Sea Isle City		E									E	P		
CAPE MAY	Stone Harbor Borough		E									P	E		
CAPE MAY	Upper Township	H	E					E	P			E	P		
CAPE MAY	Wildwood City		P									P	P		
CAPE MAY	Wildwood Crest Borough		H									P	E		
CAPE MAY	Woodbine Borough							P	P						
CUMBERLAND	Bridgeton City							H							
CUMBERLAND	Commercial Township							P			H		E		
CUMBERLAND	Deerfield Township							P							
CUMBERLAND	Downe Township							E					E		
CUMBERLAND	Fairfield Township							E					E		
CUMBERLAND	Greenwich Township							P							
CUMBERLAND	Hopewell Township	P						H							
CUMBERLAND	Lawrence Township							E					E		
CUMBERLAND	Maurice River Township							E	P	H	E		E		
CUMBERLAND	Millville City							E			P				
CUMBERLAND	Stow Creek Township							H							
CUMBERLAND	Upper Deerfield Township	P						E							
CUMBERLAND	Vineland City							E							

Federally Listed and Candidate Species Occurrences in New Jersey by County and Municipality

County	Municipality	Bog Turtle (T)	Piping Plover (T)	Indiana Bat (E)	Dwarf Wedgemussel (E)	NE Beach Tiger Beetle (T)	Small Whorled Pogonia (T)	Swamp Pink (T)	Knieskern's Beaked Rush (T)	American Chaffseed (E)	Sensitive Joint-vetch (T)	Seabeach Amaranth (T)	Red Knot (C)	Bog Asphodel (C)	Hirsts' Panic Grass (C)
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ESSEX	Cedar Grove Township			P											
ESSEX	Essex Fells Borough			P											
ESSEX	Fairfield Township			HI											
ESSEX	Livingston Township			MA	X										
ESSEX	Millburn Township			MA											
ESSEX	North Caldwell Borough			P											
ESSEX	Roseland Borough			P											
ESSEX	West Caldwell Township			P											
ESSEX	West Orange Township			P											
GLOUCESTER	Clayton Borough							E							
GLOUCESTER	Deptford Township							H							
GLOUCESTER	East Greenwich Township	E						H							
GLOUCESTER	Elk Township	P						E							
GLOUCESTER	Franklin Township							H	P					P	
GLOUCESTER	Glassboro Borough							E							
GLOUCESTER	Greenwich Township	P													
GLOUCESTER	Harrison Township	E						P							
GLOUCESTER	Logan Township	P									H				
GLOUCESTER	Mantua Township	H						H							
GLOUCESTER	Monroe Township							E	P	H				P	
GLOUCESTER	Newfield Borough							H	P						
GLOUCESTER	South Harrison Township	E						E							
GLOUCESTER	Washington Township	H						E							
GLOUCESTER	Wenonah Borough							H							
GLOUCESTER	West Deptford Township							H							
GLOUCESTER	Woodbury Heights Borough							H							
GLOUCESTER	Woolwich Township	E						H							
HUNTERDON	Alexandria Township	E		P											
HUNTERDON	Bethlehem Township	E		P											
HUNTERDON	Bloomsbury Borough			P											
HUNTERDON	Califon Borough			P			P								
HUNTERDON	Clinton Town	P		P											
HUNTERDON	Clinton Township	E		P											
HUNTERDON	Delaware Township			P											
HUNTERDON	East Amwell Township			P											
HUNTERDON	Franklin Township	E		P											
HUNTERDON	Frenchtown Borough			P											
HUNTERDON	Glen Gardner Borough	E		P											
HUNTERDON	Hampton Borough	P		P											
HUNTERDON	High Bridge Borough	P		P											
HUNTERDON	Holland Township	P		P											
HUNTERDON	Kingwood Township	P		P											
HUNTERDON	Lambertville City			P											

Federally Listed and Candidate Species Occurrences in New Jersey by County and Municipality

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HUNTERDON	Lebanon Borough	P		P											
HUNTERDON	Lebanon Township	E		P			P								
HUNTERDON	Milford Borough	P		P											
HUNTERDON	Raritan Township	P		P											
HUNTERDON	Readington Township	E		P											
HUNTERDON	Stockton Borough			P											
HUNTERDON	Tewksbury Township	E		MA			H								
HUNTERDON	Union Township	E		P											
HUNTERDON	West Amwell Township			P											
MERCER	East Windsor Township	E													
MERCER	Ewing Township			P											
MERCER	Hamilton Township	H													
MERCER	Hopewell Township			P											
MERCER	Lawrence Township			P											
MERCER	Princeton Township			P											
MERCER	Robbinsville Township	H													
MERCER	Trenton City				X										
MERCER	West Windsor Township	P		P				H							
MIDDLESEX	Cranbury Township	P		P											
MIDDLESEX	East Brunswick Township	H		P				E							
MIDDLESEX	Edison Township			P				X							
MIDDLESEX	Helmetta Borough	H		P				P							
MIDDLESEX	Middlesex Borough			P											
MIDDLESEX	Monroe Township			P				P							
MIDDLESEX	New Brunswick City			P				X							
MIDDLESEX	North Brunswick Township			P											
MIDDLESEX	Old Bridge Township			P				P							
MIDDLESEX	Perth Amboy City							X							
MIDDLESEX	Piscataway Township			P											
MIDDLESEX	Plainsboro Township	P		P											
MIDDLESEX	Sayreville Borough	X						X							
MIDDLESEX	South Brunswick Township			P											
MIDDLESEX	South Plainfield Borough			P											
MIDDLESEX	Spotswood Borough			P											
MIDDLESEX	Woodbridge Township			P											
MONMOUTH	Aberdeen Township		P										P		
MONMOUTH	Allenhurst Borough		P										P		
MONMOUTH	Asbury Park City		P										P		
MONMOUTH	Atlantic Highlands Borough		P										P		
MONMOUTH	Avon-by-the-Sea Borough		P										E		
MONMOUTH	Belmar Borough		P										E		
MONMOUTH	Bradley Beach Borough		P										E		
MONMOUTH	Brielle Borough							E							

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MONMOUTH	Colts Neck Township							E	E						
MONMOUTH	Deal Borough		P									P			
MONMOUTH	Farmingdale Borough								P						
MONMOUTH	Freehold Borough								P						
MONMOUTH	Freehold Township	E						E	P						
MONMOUTH	Gateway National Recreation Area		E		E							E	P		
MONMOUTH	Highlands Borough		P									P			
MONMOUTH	Howell Township	E						E	E						
MONMOUTH	Keansburg Borough		P									P			
MONMOUTH	Keyport Borough		P									P			
MONMOUTH	Loch Arbour Village		P									P			
MONMOUTH	Long Branch City	X	E									E			
MONMOUTH	Manalapan Township	E						E							
MONMOUTH	Manasquan Borough		P									E			
MONMOUTH	Middletown Township		P									P			
MONMOUTH	Millstone Township	E						E							
MONMOUTH	Monmouth Beach Borough		E									E			
MONMOUTH	Neptune Township		P						H			P			
MONMOUTH	Roosevelt Borough	E						P							
MONMOUTH	Sea Bright Borough		E									E			
MONMOUTH	Sea Girt Borough		E									E			
MONMOUTH	Spring Lake Borough		E									E			
MONMOUTH	Tinton Falls Borough								P						
MONMOUTH	Union Beach Borough		P									P			
MONMOUTH	Upper Freehold Township	E						P							
MONMOUTH	Wall Township	E						H	E						
MORRIS	Boonton Town	P		HI											
MORRIS	Boonton Township	E		HI											
MORRIS	Butler Borough			HI											
MORRIS	Chatham Borough	P		MA											
MORRIS	Chatham Township	E		MA											
MORRIS	Chester Borough	E		MA											
MORRIS	Chester Township	E		HI		P									
MORRIS	Denville Township	H		HI											
MORRIS	Dover Town	H		HI											
MORRIS	East Hanover Township			MA	X										
MORRIS	Florham Park Borough	H		MA											
MORRIS	Hanover Township	H		HI											
MORRIS	Harding Township	E		MA											
MORRIS	Jefferson Township	E		HI		P									
MORRIS	Kinnelon Borough	P		HI		P									
MORRIS	Lincoln Park Borough			HI											
MORRIS	Long Hill Township	E		MA											

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MORRIS	Madison Borough			MA											
MORRIS	Mendham Borough			MA											
MORRIS	Mendham Township	H		HI											
MORRIS	Mine Hill Township	H		HI											
MORRIS	Montville Township	P		HI											
MORRIS	Morris Plains Borough			HI											
MORRIS	Morris Township	E		HI											
MORRIS	Morristown Town			HI											
MORRIS	Mount Arlington Borough			HI											
MORRIS	Mount Olive Township	E		HI				E							
MORRIS	Mountain Lakes Borough	P		HI											
MORRIS	Netcong Borough			HI											
MORRIS	Parsippany-Troy Hills Township	H		HI											
MORRIS	Pequannock Township			HI											
MORRIS	Randolph Township	H		HI				H							
MORRIS	Riverdale Borough			HI											
MORRIS	Rockaway Borough			HI											
MORRIS	Rockaway Township	E		HI											
MORRIS	Roxbury Township	E		HI				H							
MORRIS	Victory Gardens Borough			HI											
MORRIS	Washington Township	E		MA			P								
MORRIS	Wharton Borough	H		HI											
OCEAN	Barneget Light Borough		E									P			
OCEAN	Barneget Township					X		E	E					H	
OCEAN	Bay Head Borough		P									E			
OCEAN	Beach Haven Borough		P									P			
OCEAN	Beachwood Borough							P	P					P	
OCEAN	Berkeley Township		E			X		P	E			E		H	
OCEAN	Brick Township	E	P					P	P			P			
OCEAN	Eagleswood Township							P	E					P	
OCEAN	Harvey Cedars Borough		H									P			
OCEAN	Island Heights Borough								P						
OCEAN	Jackson Township	P						E	H					P	
OCEAN	Lacey Township							E	E					E	
OCEAN	Lakehurst Borough	E						P	P					P	
OCEAN	Lakewood Township							E	P						
OCEAN	Lavallette Borough		P									P			
OCEAN	Little Egg Harbor Township		H			X		E	E				P	P	
OCEAN	Long Beach Township		P									P			
OCEAN	Long Beach Township		H									P			
OCEAN	Long Beach Township		P									E			
OCEAN	Long Beach Township		E			X						E	E		
OCEAN	Manchester Township	E						E	E	P				E	

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OCEAN	Mantoloking Borough		H									E			
OCEAN	Ocean Gate Borough								P						
OCEAN	Ocean Township		H					P	P					E	
OCEAN	Pine Beach Borough								P						
OCEAN	Plumsted Township	E						E	P	P					
OCEAN	Point Pleasant Beach Borough		P			X				X		P			
OCEAN	Seaside Heights Borough		P									E			
OCEAN	Seaside Park Borough		P									P			
OCEAN	Ship Bottom Borough		P									P			
OCEAN	South Toms River Borough							P	P					P	
OCEAN	Stafford Township		H					E	E					E	
OCEAN	Surf City Borough		P									P			
OCEAN	Toms River Township		H					E	P			P		H	
OCEAN	Tuckerton Borough							P	P						
PASSAIC	Bloomington Borough			HI			E								
PASSAIC	Clifton City			P											
PASSAIC	Haledon Borough			P											
PASSAIC	Little Falls Township			P											
PASSAIC	North Haledon Borough			P											
PASSAIC	Pompton Lakes Borough			P			P								
PASSAIC	Ringwood Borough			P			P								
PASSAIC	Totowa Borough			P											
PASSAIC	Wanaque Borough			P			P								
PASSAIC	Wayne Township	X		P											
PASSAIC	West Milford Township	H		HI			P								
PASSAIC	West Paterson Borough			P											
SALEM	Alloway Township	P						E							
SALEM	Elmer Borough							P							
SALEM	Elsinboro Township										H				
SALEM	Lower Alloways Creek Township	P						E			H				
SALEM	Mannington Township	E						P			H				
SALEM	Oldmans Township	P									H				
SALEM	Pennsville Township										H				
SALEM	Pilesgrove Township	E						P							
SALEM	Pittsgrove Township	P						E							
SALEM	Quinton Township	H						E			H				
SALEM	Salem City										H				
SALEM	Upper Pittsgrove Township	E						E							
SALEM	WoodsTown Borough							P							
SOMERSET	Bedminster Township	P		MA											
SOMERSET	Bernards Township	E		MA											
SOMERSET	Bernardsville Borough	P		MA											
SOMERSET	Branchburg Township	P		P											

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SOMERSET	Bridgewater Township	P		P											
SOMERSET	Far Hills Borough	E		MA											
SOMERSET	Franklin Township	H		P											
SOMERSET	Green Brook Township			P											
SOMERSET	Hillsborough Township			P											
SOMERSET	Millstone Borough			P											
SOMERSET	Montgomery Township			P											
SOMERSET	North Plainfield Borough			P											
SOMERSET	Peapack-Gladstone Borough	E		MA											
SOMERSET	Raritan Borough			P											
SOMERSET	Somerville Borough			P											
SOMERSET	Warren Township	E		MA											
SOMERSET	Watchung Borough	X		MA											
SUSSEX	Andover Borough	H		P	P										
SUSSEX	Andover Township	E		HI	P	H									
SUSSEX	Branchville Borough			P	P										
SUSSEX	Byram Township			HI	P										
SUSSEX	Byram Township	E		HI	P	P									
SUSSEX	Frankford Township	E		P	E	P									
SUSSEX	Franklin Borough	E		MA	P	H									
SUSSEX	Fredon Township	E		P	P										
SUSSEX	Green Township	E		P	P										
SUSSEX	Hamburg Borough	E		MA	P										
SUSSEX	Hampton Township	E		MA	E	P									
SUSSEX	Hardyston Township	E		HI	P	H									
SUSSEX	Hopatcong Borough	P		HI	P	P									
SUSSEX	Lafayette Township	E		MA	E	H									
SUSSEX	Montague Township	E		MA	E	E									
SUSSEX	Newton Town	P		MA	P										
SUSSEX	Ogdensburg Borough	E		HI	P	H									
SUSSEX	Sandyston Township	E		P	E	E									
SUSSEX	Sparta Township	E		HI	P	H									
SUSSEX	Stanhope Borough	P		HI	P										
SUSSEX	Stillwater Township	E		P	P	P									
SUSSEX	Sussex Borough	P		MA	P										
SUSSEX	Vernon Township	E		MA	P	P									
SUSSEX	Walpack Township	E		P	E	P									
SUSSEX	Wantage Township	E		MA	P	P									
UNION	Berkeley Heights Township	E		MA											
UNION	Cranford Township			P											
UNION	Mountainside Borough	X		MA											
UNION	New Providence Borough			MA											
UNION	Scotch Plains Township	E		MA											

Federally Listed and Candidate Species Occurrences in New Jersey by County and Municipality

County	Municipality	Bog Turtle (T)	Piping Plover (T)	Indiana Bat (E)	Dwarf Wedgemussel (E)	NE Beach Tiger Beetle (T)	Small Whorled Pogonia (T)	Swamp Pink (T)	Knieskern's Beaked Rush (T)	American Chaffseed (E)	Sensitive Joint-vetch (T)	Seabeach Amaranth (T)	Red Knot (C)	Bog Asphodel (C)	Hirsts' Panic Grass (C)
Federal Listing Status: (E)=Endangered, (T)=Threatened, (C)=Candidate															
E = Extant (present), P = Potential (may be present), H = Historic (may still be present), X = Extirpated (no longer present)															
Extant occurrences of Indiana bat: MA = Maternity (April 1 to Sept. 30), HI = Hibernation															
UNION	Springfield Township			P											
UNION	Summit City	X		MA											
UNION	Westfield Town			P											
WARREN	Allamuchy Township	E		P	E										
WARREN	Alpha Borough			P	P										
WARREN	Belvidere Town	P		P	P										
WARREN	Blairstown Township	H		P	P										
WARREN	Franklin Township	E		P	P										
WARREN	Frelinghuysen Township	E		P	P										
WARREN	Greenwich Township	P		P	P										
WARREN	Hackettstown Town	P		P	P										
WARREN	Hardwick Township	E		P	H		P								
WARREN	Harmony Township	E		P	P										
WARREN	Hope Township	E		P	P										
WARREN	Independence Township	E		P	E										
WARREN	Knowlton Township	P		P	E										
WARREN	Liberty Township	E		P	E										
WARREN	Lopatcong Township			P	P										
WARREN	Mansfield Township	P		P	P										
WARREN	Oxford Township	E		P	P										
WARREN	Phillipsburg Town			P	P										
WARREN	Pohatcong Township			P	P										
WARREN	Washington Borough	P		P	P										
WARREN	Washington Township	E		P	P										
WARREN	White Township	E		P	E										



United States Department of the Interior

FISH AND WILDLIFE SERVICE



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Endangered Species Act List Request Response Cover Sheet

This cover sheet is provided in response to a search of our website* for information regarding the potential presence of species under jurisdiction of the U.S. Fish and Wildlife Service (Service) within a proposed project area.

Attached is a copy of the New York State County List of Threatened, Endangered, and Candidate Species for the appropriate county(ies). The database that we use to respond to list requests was developed primarily to assist Federal agencies that are consulting with us under Section 7(a)(2) of the Endangered Species Act (ESA) (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*). Our lists include all Federally-listed, proposed, and candidate species known to occur, as well as those likely to occur, in specific counties.

The attached information is designed to assist project sponsors or applicants through the process of determining whether a Federally-listed, proposed, or candidate species and/or “critical habitat” may occur within their proposed project area and when it is appropriate to contact our offices for additional coordination or consultation. You may be aware that our offices have provided much of this information in the past in project-specific letters. However, due to increasing project review workloads and decreasing staff, we are now providing as much information as possible through our website. We encourage anyone requesting species list information to print out all materials used in any analyses of effects on listed, proposed, or candidate species.

The Service routinely updates this database as species are proposed, listed, and delisted, or as we obtain new biological information or specific presence/absence information for listed species. If project proponents coordinate with the Service to address proposed and candidate species in early stages of planning, this should not be a problem if these species are eventually listed. However, we recommend that both project proponents and reviewing agencies retrieve from our online database an *updated* list every 90 days to append to this document to ensure that listed species presence/absence information for the proposed project is *current*.

Reminder: Section 9 of the ESA prohibits unauthorized taking** of listed species and applies to Federal and non-Federal activities. For projects not authorized, funded, or carried out by a Federal agency, consultation with the Service pursuant to Section 7(a)(2) of the ESA is not required. However, no person is authorized to “take**” any listed species without appropriate authorizations from the Service. Therefore, we provide technical assistance to individuals and agencies to assist with project planning to avoid the potential for “take**,” or when appropriate, to provide assistance with their application for an incidental take permit pursuant to Section 10(a)(1)(B) of the ESA.

Additionally, endangered species and their habitats are protected by Section 7(a)(2) of the ESA, which requires Federal agencies, in consultation with the Service, to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat. An assessment of the potential direct, indirect, and cumulative impacts is required for all Federal actions that may affect listed species.

For instance, work in certain waters of the United States, including wetlands and streams, 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 (48 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*), the Service may concur, with or without recommending additional permit conditions, or recommend denial of the permit depending upon potential adverse impacts on fish and wildlife resources associated with project construction or implementation. The need for a Corps permit may be determined by contacting the appropriate Corps office(s).*

For additional information on fish and wildlife resources or State-listed species, we suggest contacting the appropriate New York State Department of Environmental Conservation regional office(s) and the New York Natural Heritage Program Information Services.*

Since wetlands, ponds, streams, or open or sheltered coastal waters may be present in the project area, it may be helpful to utilize the National Wetlands Inventory (NWI) maps as an initial screening tool. However, they may or may not be available for the project area. Please note that 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. Online information on the NWI program and digital data can be downloaded from Wetlands Mapper, http://wetlands.fws.gov/mapper_tool.htm.

Project construction or implementation should not commence until all requirements of the ESA have been fulfilled. After reviewing our website and following the steps outlined, we encourage both project proponents and reviewing agencies to contact our office to determine whether an accurate determination of species impacts has been made. If there are any questions about our county lists or agency or project proponent responsibilities under the ESA, please contact the New York or Long Island Field Office Endangered Species Program at the numbers listed above.

Attachment (county list of species)

*Additional information referred to above may be found on our website at:
<http://www.fws.gov/northeast/nyfo/es/section7.htm>

** Under the Act and regulations, it is illegal for any person subject to the jurisdiction of the United States to *take* (includes harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect; or to attempt any of these), import or export, ship in interstate or foreign commerce in the course of commercial activity, or sell or offer for sale in interstate or foreign commerce any endangered fish or wildlife species and most threatened fish and wildlife species. It is also illegal to possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken illegally. "Harm" includes any act which actually kills or injures fish or wildlife, and case law has clarified that such acts may include significant habitat modification or degradation that significantly impairs essential behavioral patterns of fish or wildlife.



Richmond County

Federally Listed Endangered and Threatened Species and Candidate Species

This list represents the best available information regarding known or likely County occurrences of Federally-listed and candidate species and is subject to change as new information becomes available.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Shortnose sturgeon ¹	<i>Acipenser brevirostrum</i>	E
Status Codes: E=Endangered T=Threatened P=Proposed C=Candidate D=Delisted		

¹Primarily occurs in Hudson River. Principal responsibility for this species is vested with the National Oceanic and Atmospheric Administration/Fisheries.

Please visit the following website for more information <http://www.nmfs.noaa.gov/pr/species/esa.htm>.

Information current as of: 1/13/2010

Appendix H.6
Wetland Habitat Shading Analysis

Goethals Bridge Replacement **Wetland Habitat Shading Analysis for Old Place Creek**

Potential indirect impact to wetlands and regulated buffers can also occur due to shading. Factors influencing shading include the width and height of the overhead obstruction, as well as the directional orientation of the shading structure. Depending on the amount of shade involved, impacts to vegetation can range from no discernable effect to complete loss of vegetation. In addition, even minor changes to the degree of shading to a wetland area can potentially improve the competitive advantage of invasive species over natives (Weihe and Neely 1997) or exacerbate other stressors such as water-logging (Lenssen et al 2003), wherein wetland plants are negatively affected by an excess of water. Additionally, shading may adversely affect, or be exploited by, certain fauna that occupy wetland habitats. The effects of structure-induced light attenuation on aquatic and wetland habitats are beginning to be understood as an important anthropogenic environmental stressor. In shallow or intertidal benthic habitats, for example, limited light availability has been observed to limit primary productivity (Struck et al 2004), and to affect the composition of fish communities within shaded areas (Able et al 1995). Furthermore, the general effects of shading on emergent tidal wetland vegetation are reasonably well documented (e.g. Pezeshki et al 1996).

For a bridge or other elevated structures, shading impacts would typically occur if the structure is constructed over a wetland or buffer and where light to the sensitive area is substantially decreased to adversely affect the existing vegetation. As the shadow moves underneath a bridge, different areas of the wetland are shaded for different lengths and periods of time. Shadows from a bridge may reduce the available sunlight and daylight needed to support the primary and secondary productivity of existing wetland vegetation underneath such bridge. Natural wetland functions, including surface climatic, hydrologic, and biological wetland processes, are driven by the net radiation from the sun that reaches the surface of the wetland. For example, salt marsh wetland vegetation composed of *Spartina spp.* has limited shade tolerance, and reaches maximum productivity under full sunlight. Reducing sunlight with shadows may reduce the amount of photosynthesis and transpiration in shaded salt marsh plants, thus affecting the size and weight or biomass of the plants. If the vigor of plants is impacted, species that are less affected may thrive and replace the existing wetland vegetation.

Based on a literature review, qualitative effects of shading are widely known but there has been little apparent effort in broad-based development of objective standards by which the structural parameters of an overhead structure (e.g. height to width ratios, directional orientation, effective opacity, etc.) are conclusively correlated to environmental impacts. However, a recent study from the North Carolina State University (Broome et al., 2005) has undertaken some quantitative steps for establishing a threshold value for height to width (HW) ratios. In that study, seven highway bridges, spanning either salt- or brackish-water estuarine marsh systems in eastern North Carolina, were selected for sampling to determine their effects on marsh productivity. The study noted that bridges spanning estuarine marshes can cause severe localized shading impacts to underlying vegetation, where under extreme circumstances (for the lowest and widest bridges with HW ratio <0.3) shading by bridges would result in a complete loss of vegetation under the bridge.

The study most importantly concluded distinct severities of shading impact based on HW ratios. At HW ratios less than 0.5, bridges were measured to have significant adverse effects on marsh productivity and function. At HW ratios between 0.5 and 0.68, some bridge effects can be detected, although effects are greatly diminished. Above HW ratios of 0.7 the effects from shading by bridges are no longer measurable. In turn, for the sake of this analysis, it can be interpreted that the HW ratio of 0.5 is a threshold for measureable effects; therefore, any bridges above the 0.5-HW ratio threshold do not have the potential for significant adverse impact on the productivity or function of the underlying marsh.

However, nothing on bridge orientation can be interpreted from that study, since it noted that its sample size and distribution of orientation measurements were not large enough to adequately and conclusively assess the impacts of bridge orientation.

Under the Proposed Project, potential shading impacts to vegetated wetlands for all Build Alternatives would relate most importantly to the tidal wetlands along Old Place Creek in New York rather than the few small freshwater wetlands in New Jersey. In a broad sense, reducing sunlight with shadows would potentially reduce the amount of photosynthesis and transpiration in shaded plants, adversely affecting overall wetland functions and productivity. As described in the visual shadow analysis (Section 5.9.4), the proposed replacement bridge would be considerably wider than the existing Goethals Bridge's deck (210 feet compared to 62 feet out-to-out deck width, respectively). As such, the shadows cast by the new bridge would be wider than the existing shadow, and would be particularly perceptible north of the structure in the afternoon hours of all days evaluated (see Appendix F.2), given the approximate east-west orientation of the bridge with respect to the path of the sun in the sky. However, as the shadow cast by the bridge moves, different portions of the surrounding wetlands would be shaded for different lengths of time.

Applying the results of the research regarding HW ratio to the Proposed Project indicates that only the area between Gulf Avenue and the RT Baker Site (in New York) would be a potential concern in terms of shading, as the HW ratio along this approximately 1,000-foot segment would range between 0.2 and 0.50 (with elevations ranging from 40 feet above ground at the eastern end near Gulf Avenue to about 105 feet above the western end of the Baker Site). West of the Baker Site to the maximum bridge elevation of at least 135 feet above the Arthur Kill, the HW ratio of the Proposed Project would be above the 0.5-threshold. In other words, the size of the area in shadow and the duration of the shadow period would be the greatest for the bridge sections with the lowest elevations (which are furthest from the Arthur Kill); while the shadow cast by the highest bridge elevations (nearest to the Arthur Kill, including Old Place Creek wetlands) may be large, but its duration will be minimal given the speed at which the sun travels across the sky.

Along the shading-critical portion of the Proposed Project (i.e., the 1,000-foot segment between Gulf Avenue and the R.T. Baker Site), at least one-half of the total viaduct length for the Southern Alternatives crosses upland associated with Gulf Avenue, the R.T. Baker site, and fill adjacent to the Goethals Bridge. In the case of the Northern Alternatives, the area along this shading-critical segment is almost entirely composed of upland, so shading would not be a factor of concern at all. For the New Alignment South, and to a lesser extent for the Existing Alignment South, approximately 500 feet of the shading-critical portion of the Proposed Project would actually cross wetlands. Based on the total width of the replacement bridge (210 feet), approximately 2.4 acres would be in shadow at any given time during the course of each day. However, the placement of that shadow will vary throughout the day, as indicated in Figure 1. Specifically, Figure 1 depicts shadow sweeps at different times of the day (i.e., 9:00 AM, 12:00 Noon and 3:00 PM) for the New Alignment South, which crosses the most wetlands along this segment. Based on review of these new shadow sweeps associated with the lower deck elevation (i.e., the shading-critical portion of the Proposed Project between Gulf Avenue and the R.T. Baker Site), it is expected that the areas of shading will generally vary sufficiently during the course of a day, so that only a small portion of the wetlands below the approach span would actually be in shadow during most of the day (i.e., greater than six hours per day) while still receiving some level of diffused sunlight. This shaded area, directly below the center of the bridge, would also coincide where the permanent access road and its embankment slopes would be constructed. Since this area is already identified as an area of permanent impact due to the proposed construction of the access road, any additional indirect impact to wetlands due to shading is expected to be minimal.

Overall and as the existing Goethals Bridge would also be removed under any of the Build Alternatives (thus eliminating its existing shadow sweeps as depicted in Figure 1), it is anticipated that wetland habitat shading impacts under the Proposed Project would likely be insignificant.

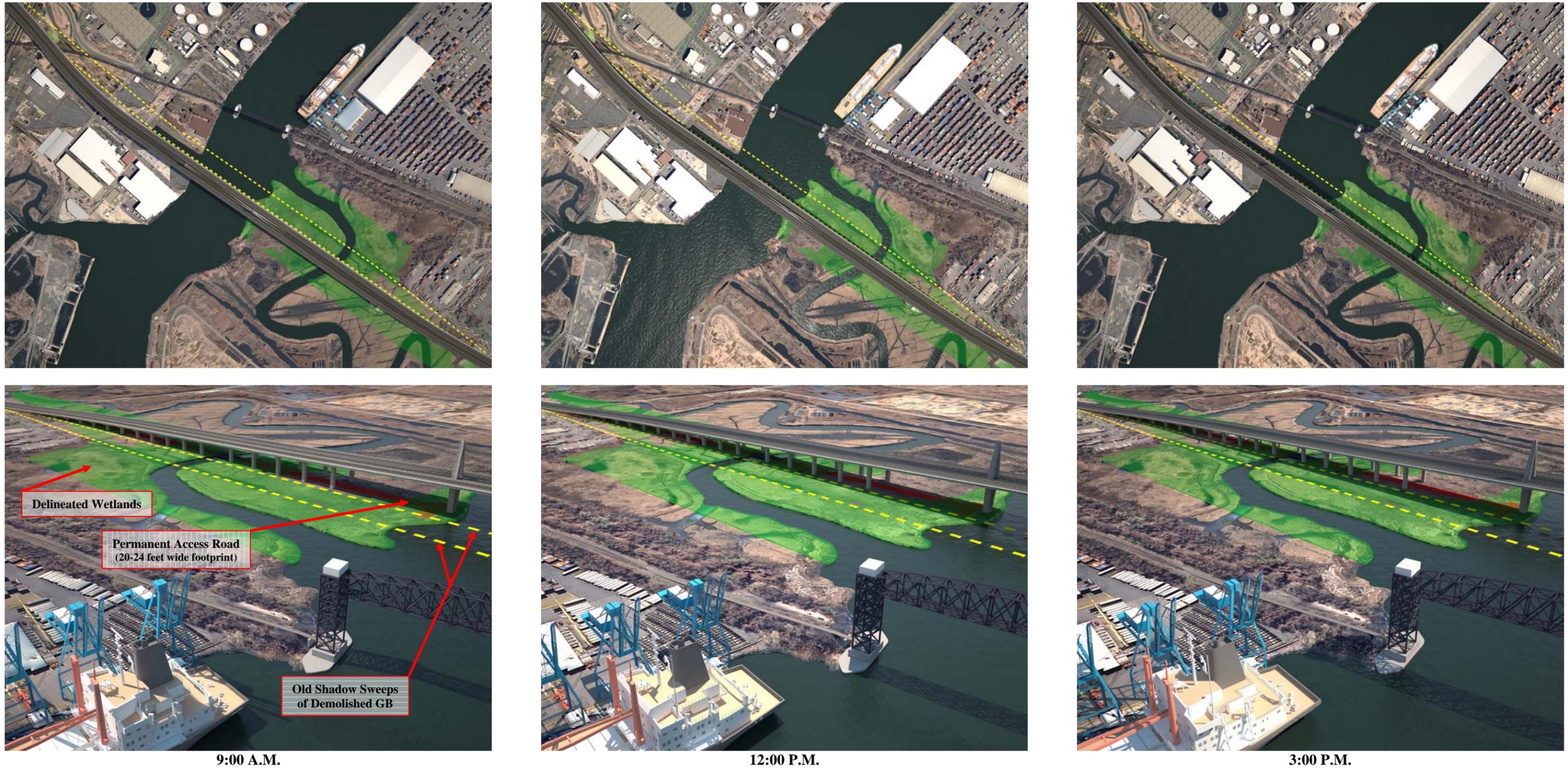


Figure 1 Shadow Sweeps Renderings for the New Alignment South on June 21st (Summer Solstice)

Note:

In these renderings, the three daily time periods (9:00 am, 12:00 noon, 3:00 pm) with the sun at summer solstice (June 21st) were selected since it represents the approximate midpoint of the annual growing season in northern latitudes. Additionally, only the shadow sweeps for the New Alignment South are presented in those renderings since it is not only the Preferred Alternative, but also because each of the Build Alternatives would have similar shadow sweeps given their close proximity to each other.