

**Environmental Assessment
on
Consolidated Implementation
of the
New York and New Jersey Harbor Deepening Project**



**U.S. Army Corps of Engineers
New York District**

January 2004

EXECUTIVE SUMMARY

ES.1 The U.S. Army Corps of Engineers (USACE), New York District (the District) prepared a Limited Reevaluation Report¹ (LRR) to address the consolidation of separately authorized navigation improvement projects² (Predecessor Projects) with the New York and New Jersey Harbor Navigation Project (Recommended Plan), the combination of which to be hereinafter known as consolidated implementation.

ES.2 Alternatives considered included the Without Project (i.e., no action, Recommended Plan without consolidation) and With Project (i.e., proposed action, Recommended Plan with consolidated implementation) alternatives. The Recommended Plan in the *New York and New Jersey Harbor Navigation Study Feasibility Report - December 1999* (the *Feasibility Report*)³ as modified during the Pre-Construction Engineering and Design (PED) phase is considered the without project condition for this EA.

ES.3 The Proposed Action consists of vertical consolidation of construction contract areas. Vertical consolidation combines authorized navigation improvement projects into a single construction effort, directly deepening project channels to final depths authorized in §202 of WRDA 2000 without stopping at the interim depths authorized for the predecessor projects. The LRR recommends the following actions:

- Vertical consolidation of Kill Van Kull Contract Area 4b dredged from 40 ft to 50 ft (KVK Area 4b)
- Vertical consolidation of Kill Van Kull Contract Area 5 dredged from 40 ft to 50ft (KVK Area 5)

ES.4 Because the *Feasibility Report* study area is the same as that for the proposed consolidated implementation plan, this impact assessment of consolidated

¹ U.S. Army Corps of Engineers, *Limited Reevaluation Report on the Consolidated Implementation of the New York and New Jersey Harbor Deepening Project*, (2003).

² Specifically, the Arthur Kill Channel, Howland Hook Marine Terminal, New York and New Jersey; the Kill Van Kull and Newark Bay Channels, New York and New Jersey; and the New York and Adjacent Channels, Port Jersey Channel, New Jersey. They are designated AK-41/40, KVK/NB-45, and PJ-41, respectively, and hereinafter referred collectively to as the “Predecessor Projects”. They are Predecessor Projects in the sense that their complete implementation was assumed as part of the most likely without-project future condition for the New York and New Jersey Harbor Navigation Study.

³ U.S. Army Corps of Engineers, *New York and New Jersey Harbor Navigation Study Feasibility Report*, (December, 1999). Hereinafter the shorthand reference “*Feasibility Report*” will be used to refer to this document and “Recommended Plan” to refer to the plan recommended in the *Feasibility Report* with the modifications that have occurred since the 1999 release of the *Feasibility Report*.



implementation relies on and refers to the socioeconomic, land use, cultural and natural resource information provided in the *Feasibility Report* as updated through the on-going refinements/updates described in the EA. To evaluate the potential impacts of consolidated implementation, additional analyses were conducted on both the information provided in the *Feasibility Report* and the new information collected from monitoring programs (See Appendices B, C, and E).

ES.5 Potential effects attributable to consolidated implementation are limited to those impacts associated with the direct deepening of the identified channels to the authorized depth. A consolidated deepening schedule would reduce the frequency of events (the number of dredging episodes) and the frequency of their associated effects. Overall, project construction duration would be shorter under consolidated implementation, as a separate second-period of drilling, blasting, and dredging, and equipment mobilization and demobilization for each action would not be necessary under consolidated implementation.

ES.6 No significant environmental impacts attributable to consolidated implementation of the authorized harbor deepening projects were identified. Short-term and long-term impacts associated with unconsolidated implementation of the harbor deepening projects (i.e., staged dredging and rock-blasting to interim and final project depths) were evaluated in the *Feasibility Report*. These impacts, along with mitigation measures and best management practices (BMPs) also described in the *Feasibility Report* apply as well to deepening activities undertaken during consolidated implementation.

ES.7 A consolidated implementation schedule would reduce the overall duration of short-term impacts by reducing the total in-water construction period. Because consolidated implementation would realize reductions in overall duration and frequencies in drilling, blasting and dredging events, no significant adverse cumulative impacts to navigation, air quality, water resources, aquatic biological resources, noise, protected species and wildlife, Essential Fish Habitat (EFH) and cultural resources are expected. As the footprint under both plans is the same no additional long term impacts would result from consolidated implementation.

ES.8 During the PED phase, structural and design modifications to the Recommended Plan in the 1999 *Feasibility Report* were identified and assessed in the EA. Such modifications are a result of value engineering studies and ship navigation modeling aimed at increasing navigational safety and efficiency, and do not result in any additional adverse impacts.

ES.9 No new additional mitigation is required due to the consolidated implementation. Mitigation requirements for long-term, unavoidable impacts to aquatic resources identified in the *Feasibility Report* would also apply to any consolidated plan, as the final



channel depths and configurations would be unchanged from the unconsolidated plan. These plans would be applicable to either consolidated or unconsolidated actions.

ES.10 Based on the data collected during the recent aquatic biological sampling programs, the District has reinitiated EFH consultation with the National Marine Fisheries Service (NMFS) to determine what, if any, seasonal restrictions should be recommended on deepening activities to minimize potential adverse impacts during construction of the authorized deepening projects. An assessment on the current data from the most recent aquatic biological sampling programs suggests that seasonal restrictions in some areas of the Harbor may no longer be warranted. This would be true with or without consolidated implementation.

ES.11 In addition, the District and NMFS continue to investigate EFH opportunities in the New York and New Jersey Harbor as both a means of reducing seasonal windows and as a cost effective beneficial use of dredged material (Appendix E). Such opportunities would be the same if the authorized projects were consolidated or not consolidated

ES.12 A comprehensive Harbor Air Mitigation Plan (HAMP) has been developed to address impacts to the air quality in the region. The end result of this multi-agency effort will be not only a no net increase in air pollutants but also a real reduction in these levels both during and after construction under either consolidated or unconsolidated implementation.



**Environmental Assessment on the Consolidated Implementation of the New York
and New Jersey Harbor Deepening Project**

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

GLOSSARY OF ACRONYMS AND TERMS

1	PURPOSE AND NEED FOR THE ACTION	1
	CONSOLIDATED IMPLEMENTATION HISTORY.....	1
2	ALTERNATIVES.....	4
	PROPOSED ACTION.....	4
	NO ACTION (Without Project Condition).....	4
3	PROPOSED CONSOLIDATED IMPLEMENTATION PLAN	4
	NEW INFORMATION	5
	PRE-CONSTRUCTION ENGINEERING AND DESIGN MODIFICATIONS.....	6
4	AFFECTED ENVIRONMENT	9
5	ASSESSMENT OF ENVIRONMENTAL EFFECTS	9
	CONSOLIDATED IMPLEMENTATION.....	10
	NAVIGATION	11
	AIR QUALITY.....	12
	WATER RESOURCES	14
	AQUATIC BIOLOGICAL RESOURCES.....	15
	NOISE	16
	PROTECTED SPECIES AND WILDLIFE	16
	ESSENTIAL FISH HABITAT	17
	CULTURAL RESOURCES.....	18
	CUMULATIVE IMPACTS	19
	NEW INFORMATION AND MODIFIED PROJECT CONDITIONS (With or Without Project Conditions).....	20
	DREDGED MATERIAL MANAGEMENT PLAN (DMMP) AND SEDIMENT CHARACTERIZATION	20
	DESIGN MODIFICATIONS	22
	HABITAT MITIGATION PLAN.....	24

FINDING OF NO SIGNIFICANT IMPACT



**Environmental Assessment on the Consolidated Implementation of the New York
and New Jersey Harbor Deepening Project**

TABLE OF CONTENTS (CON'T)

APPENDICES

A – AIR QUALITY

B – WATER RESOURCES, SHOALING, COASTAL EROSION

C – BIOLOGICAL SAMPLING

C1 – 2001-2002 BIOLOGICAL SAMPLING

C2 – 2002-2003 BIOLOGICAL SAMPLING

C3 – TEMPORAL-SPATIAL DISTRIBUTION PATTERNS AND HABITAT
REQUIREMENTS

C4 – GEAR COMPARISON STUDY

D – HABITAT MITIGATION REPORT

E – ESSENTIAL FISH HABITAT

E1 - ESSENTIAL FISH HABITAT ASSESSMENT

E2 - ESSENTIAL FISH HABITAT ENHANCEMENT

F – CULTURAL RESOURCES

G – COASTAL ZONE CONSISTENCY

G1 – NEW YORK STATE COASTAL ZONE MANAGEMENT POLICIES

G2 – NEW JERSEY COASTAL ZONE MANAGEMENT RULES

H – SECTION 404(b)(1) GUIDELINES EVALUATION



Environmental Assessment on the Consolidated Implementation of the New York and New Jersey Harbor Deepening Project

LIST OF FIGURES

- Figure 2-1 Contract Areas for the New York and New Jersey Harbor Deepening Project
- Figure 2-2 Original Contract Areas for the New York and New Jersey Harbor Deepening Project
- Figure 3-1 Consolidated Implementation Project Plan
- Figure 3-2 Port Jersey Channel: Entrance Channel
- Figure 3-3 Port Jersey Channel: Inner Channel
- Figure 3-4 South Elizabeth Channel
- Figure 3-5 Kill Van Kull - Commerce Street Pier
- Figure 3-6 Arthur Kill Channel
- Figure 5-1 Port Jersey Channel: Inner Channel
- Figure 5-2 Port Jersey Channel: Entrance Channel
- Figure 5-3 South Elizabeth Channel
- Figure 5-4 Arthur Kill Channel

LIST OF TABLES

- Table 5-1 Estimated Timeframe for In-water Work
- Table 5-2 Annual Estimated Project Related Emissions



Glossary of Acronyms	
AK-41/40	Arthur Kill Channel-Howland Hook Marine Terminal
ANCOVA	Analysis Of Covariance
AOQL	Average Outgoing Quality Limit
APE	Area Of Potential Effects
Bmp	Best Management Practices
BMPs	Best Management Practices
CAA	Clean Air Act Amendment
CAFRA	Coastal Area Facility Review Act
CE/ICA	Effectiveness/Incremental Cost Analysis
CEQ	Council On Environmental Quality
CMP	Coastal Management Program
CO	Carbon Monoxide
CPUE	Catch Per Unit Effort
cSOC	Conditional Statement Of Conformity
CSP	Continuous Sampling Plan
DA	Department Of The Army
DMMP	Dredged Material Management Plan
DO	Dissolved Oxygen
EA	Environmental Assessment
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ELMR	Estuarine Living Marine Resources
EPA	Environmental Protection Agency
ER	Engineering Regulation
EWG	New York And New Jersey Harbor Navigation Study Environmental Work Group
FMC	Fisheries Management Councils
FMCs	Fishery Management Councils
FMP	Fishery Management Plans
FMPs	Federal Fishery Management Plans
GCR	General Conformity Rule
GCR	General Conformity Rule
HAMP	Harbor Air Management Plan
HAPC	Habitat Areas Of Particular Concern
HARS	Historic Area Remediation Site
HUs	Habitat Units
KVK/NB-45	Kill Van Kull/Newark Bay
LRR	Limited Reevaluation Report
LWRP	The Local Waterfront Revitalization Program
MARMAP	Marine Resources Monitoring, Assessment And Prediction
MLW	Mean Low Water
MOA	Memoranda Of Understanding



Consolidated Implementation of the New York and New Jersey Harbor Deepening Project

Glossary of Acronyms	
MOTBY	Military Ocean Terminal At Bayonne
MSFCMA	Magnuson-Stevens Fishery Conservation And Management Act
MVEI	Marine Vessels Emissions Inventory
NCSS	Number Cruncher Statistical System
NED	National Economic Development
NEPA	National Environmental Policy Act
NJDEP	New Jersey Department Of Environmental Protection
NJSHPO	New Jersey State Historic Preservation Officer
NMFS	National Marine Fisheries Service
NOAA	National Oceanic And Atmospheric Administration
NOx	Oxides Of Nitrogen
NRHP	National Register Of Historic Places
NYD	New York District
NY-NJ	The New York-New Jersey
NYNJCTNA	New York Northern New Jersey Connecticut Nonattainment Area
NY-NJHNP	New York-New Jersey Harbor Navigation Project
NYSDEC	New York State Department Of Environmental Conservation
NYSDOS	New York State Department Of State
NYSHPO	New York State Historic Preservation Officer
OCS	Outer Continental Shelf
ORCA	Ocean Resources Conservation And Assessment
PA	Programmatic Agreement
PANYNJ	Port Authority Of New York And New Jersey
PCA	Project Cooperation Agreement
PED	Pre-Construction Engineering And Design
PJ-41	Port Jersey Channel
QC	Quality Control
RAT	The Regional Air Team
ROD	Record Of Decision
SFA	Sustainable Fisheries Act
SHPO	New York State Historic Preservation Office
SIPs	State Implementation Plans
SOC	Statement Of Conformity
STD	Standard
TC	Tickler Chain
The District	New York District
TSS	Total Suspended Solids
UID	Unidentified
USACE	U.S. Army Corps Of Engineers
VE	Value Engineering
VOC	Volatile Organic Carbons
VTSNY	Vessel Traffic Service In New York



Glossary of Acronyms	
WRDA	Water Resources Development Act
YOY	Young-Of-Year



1 PURPOSE AND NEED FOR THE ACTION

1.1 The U.S. Army Corps of Engineers (USACE), New York District (the District) prepared a Limited Reevaluation Report¹ (LRR) to address the consolidation of separately authorized navigation improvement projects² (Predecessor Projects) with the New York and New Jersey Harbor Navigation Project (Recommended Plan). The action that is the subject of this Environmental Assessment (EA) is the proposed consolidated implementation of the Harbor Deepening Project (HDP) with the Predecessor Projects as recommended in the LRR. The purpose and need of the HDP is to allow access by modern marine cargo vessels to the cargo-handling facilities of the Port of New York and New Jersey (the Port) in an efficient, safe and environmentally sound manner. The environmental impacts of each individual predecessor project and the HDP were documented in various National Environmental Policy Act (NEPA) and feasibility documents prepared for each of the authorized navigation projects the most recent being the *New York and New Jersey Harbor Navigation Study Feasibility Report* and its accompanying Final Environmental Impact Statement – *December 1999* (the *Feasibility Report*)³. The Recommended Plan in the *Feasibility Report*, as modified during the Pre-Construction Engineering and Design (PED) phase, is considered the “Without Project Condition” for this EA, that is individual implementation of each of the projects without consolidation. This EA provides analysis of the potential environmental effects specific to (1) new information and modifications to the Recommended Plan that have occurred since the 1999 release of the *Feasibility Report* and (2) consolidated implementation.

CONSOLIDATED IMPLEMENTATION HISTORY

1.2 Between 1986 and 1999, the District prepared separate LRRs to deepen select channels in the New York and New Jersey Harbor. After construction authorization, the District executed Project Cooperation Agreements (PCAs) to begin construction of the following authorized projects:

- *Kill Van Kull* (hereafter referred to as KVK/NB-45), deepens the Kill Van Kull and Newark Bay Channels to 45 feet at mean low water (MLW) from its eastern juncture with the Anchorage Channel, to its juncture with the Newark

¹ U.S. Army Corps of Engineers, *Limited Reevaluation Report on Consolidated Implementation on the Harbor Deepening Project*, (2003).

² Specifically, the Arthur Kill Channel, Howland Hook Marine Terminal, New York and New Jersey; the Kill Van Kull and Newark Bay Channels, New York and New Jersey; and the New York and Adjacent Channels, Port Jersey Channel, New Jersey. They are designated AK-41/40, KVK/NB-45, and PJ-41, respectively, and hereinafter referred collectively to as the “Predecessor Projects”. They are Predecessor Projects in the sense that their complete implementation was assumed as part of the most likely without-project future condition for the New York and New Jersey Harbor Navigation Study.

³ U.S. Army Corps of Engineers, *New York and New Jersey Harbor Navigation Study Feasibility Report*, (December, 1999). Hereinafter the shorthand reference “*Feasibility Report*” will be used to refer to this document and “Recommended Plan” to refer to the plan recommended in the *Feasibility Report* with the modifications that have occurred since the 1999 release of the *Feasibility Report*.



Bay Channel near Bergen Point, turning north to Port Newark. This project was initially authorized in WRDA 1986, §202(a);

- *Arthur Kill Channel – Howland Hook Marine Terminal*, (hereafter referred to as AK-41/40), deepens the part of the Arthur Kill Channel beginning at its confluence with the Kill Van Kull and Newark Bay Channels and extending southwesterly to the Howland Hook Marine Terminal in Staten Island, New York to 41 feet at MLW and continuing southwesterly to the oil refining facilities, formerly known as Tosco and GATX, to 40 feet at MLW. This project was initially authorized in WRDA 1986, §202(b); and
- *Port Jersey Channel*, (hereafter referred to as PJ-41), deepens the existing, angled non-federal Channel to 41 feet at MLW from its juncture with the Anchorage Channel through the berthing areas at the Global Marine Terminal including a turning basin at the western end of the channel. This project was initially authorized in WRDA 1986, §202(b).

1.3 In 1999, the District completed the *Feasibility Report* which recommended additional navigation channel improvements to the nine major channels in the Harbor that provide access to the five main existing or proposed container terminals – Port Newark/Elizabeth Marine Terminal, Howland Hook Marine Terminal, Global Marine Terminal on the Port Jersey Peninsula, the former Military Ocean Terminal at Bayonne (MOTBY), and the South Brooklyn Marine Terminal. The *Feasibility Report* identified the National Economic Development (NED) Plan, which consists of the following primary elements:

- Construction of a 53 foot deep at MLW navigation channel to deepen the entire length of the existing Ambrose Channel;
- Construction of a 50 foot deep at MLW (52 feet in rock or otherwise hard material) navigation channel to deepen portions of the existing Anchorage Channel, from the Narrows to 1000 feet past its juncture with the Port Jersey Channel;
- Construction of a 50 foot at MLW (52 feet in rock or otherwise hard material) navigation channel to deepen the existing Port Jersey Channel, from its juncture with Anchorage Channel to the Global Terminal and MOTBY facilities;
- Construction of a 50 foot at MLW (52 feet in rock or otherwise hard material) navigation channel to deepen the existing Kill Van Kull, from its juncture with Anchorage Channel to the Arthur Kill;
- Construction of a 50 foot at MLW (52 feet in rock or otherwise hard material) navigation channel to deepen the existing Newark Bay Channel, from its



juncture with the Kill Van Kull to the juncture with the Elizabeth Channel, and including deepening the existing Elizabeth, South Elizabeth, and Elizabeth Pierhead Channels to 50 foot at MLW (52 feet in rock or otherwise hard material);

- Construction of a 50 foot at MLW (52 feet in rock or otherwise hard material) navigation channel to deepen the existing Arthur Kill, from its juncture with the Kill Van Kull and Newark Bay to the southernmost berth at the Howland Hook Marine Terminal;
- Construction of a 50 foot at MLW (52 feet in rock or otherwise hard material) navigation channel to deepen the existing Bay Ridge Channel, from its juncture with Anchorage Channel to the South Brooklyn Marine Terminal, subject to commitment to rehabilitate the South Brooklyn Marine Terminal and transportation infrastructure needed to realize project benefits; and
- Mitigation measures for unavoidable impacts to 6.26 acres⁴ of littoral zone habitat.

1.4 In January 2001, the Port Authority of New York and New Jersey (PANYNJ) and the District executed a Design Agreement and began the PED phase. During the PED phase, but prior to its completion, intervening appropriation legislation⁵ directed the Secretary of the Army to combine the Predecessor Projects with the Recommended Plan into a single Project and to determine if any substantial cost/time savings could be realized by consolidating the dredging of one or more channels so that they are dredged directly to their final authorized depth under one dredging operation, with no interim depths (e.g. KVK/NB directly to 50 ft. instead of 45 ft. first than 50 ft.).

1.5 The form of this determination regarding cost/time savings of consolidation is the accompanying LRR. The LRR serves as a decision document for budgeting for and construction of the New York and New Jersey Harbor Deepening Project. It presents relevant changes in the existing condition that have occurred since the *Feasibility Report* was completed in 1999. It demonstrates that the plan recommended in the *Feasibility Report* and in the *Report of the Chief of Engineers on the New York and New Jersey Harbor Navigation Study*⁶ (*Chief's Report*) is economically justified, environmentally acceptable, and in accordance with policy. It also serves as the basis for a Project Cooperation Agreement (PCA) between the Government and the Non-Federal Sponsor (in this case, the PANYNJ), to implement deepening projects in the Port, and includes a recommendation as to the crediting of work performed by the non-Federal sponsor in advance of the PCA.

⁴ (N.B.: Mitigation acreage should not be confused with acreage of unavoidable impacts.)

⁵ The Conference Report on the Energy and Water Appropriations Act of 2002.

⁶ *Report of the Chief of Engineers on the New York and New Jersey Harbor Navigation Study*, May 2, 2000.



1.6 In addition, during the PED phase, some design modifications were made to improve navigational safety and efficiency. New information was also collected as part of ongoing resource inventories. These changes and new information apply to both the consolidated and unconsolidated implementation, and are assessed in this EA.

1.7 This EA provides the necessary NEPA documentation and assessment of potential environmental effects specific to (1) new information and modifications to the Recommended Plan that have occurred since the 1999 release of the *Feasibility Report* and (2) consolidated implementation.

2 ALTERNATIVES

Since the 1999 *Feasibility Report*, (during PED analyses) new information and modified conditions have evolved. The new information and modified conditions are presented for evaluation in both the Proposed and No Action (Without Project Condition) alternatives.

PROPOSED ACTION

2.1 The Proposed Action is the consolidated implementation of authorized deepening (Predecessor) projects in New York and New Jersey Harbor (AK-41/40, KVK/NB-45, PJ-41, and the Recommended Plan), incorporated with the new information and modified conditions that have occurred since the 1999 release of the *Feasibility Report* (See Figure 2-1).

NO ACTION (Without Project Condition)

2.2 The No Action alternative is Recommended Plan without consolidated implementation with the Predecessor Projects (i.e., AK-41/40, KVK/NB-45, and PJ-41). Thus, the Recommended Plan in the *Feasibility Report*, along with the new information and modified conditions that have occurred since the 1999 release of the *Feasibility Report*, forms the Without Project Condition evaluated in this EA (See Figure 2-2).

3 PROPOSED CONSOLIDATED IMPLEMENTATION PLAN

3.1 Opportunities for consolidated implementation combines authorized navigation improvement projects into a single construction effort, directly deepening selected project channels to final depths authorized in §202 of WRDA 2000.

3.2 The consolidated implementation recommended in the LLR consists of:

- Vertical consolidation of Kill Van Kull Contract Area 4b to dredge from 40-50 feet (KVK Area 4b); and



Consolidated Implementation of the New York and New Jersey Harbor Deepening Project

Figure 2-1 Contract Areas for the New York and New Jersey Harbor Deepening Project

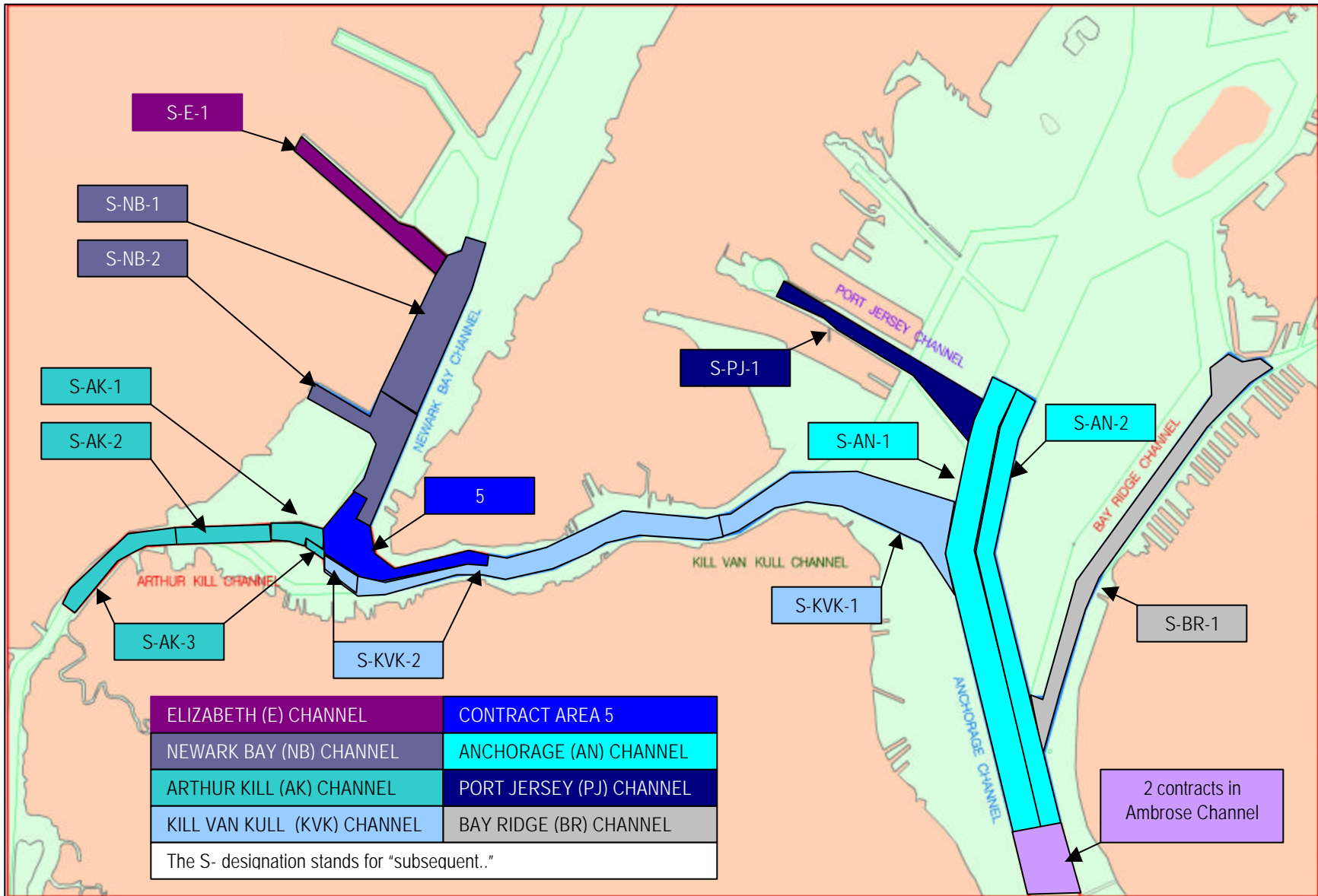
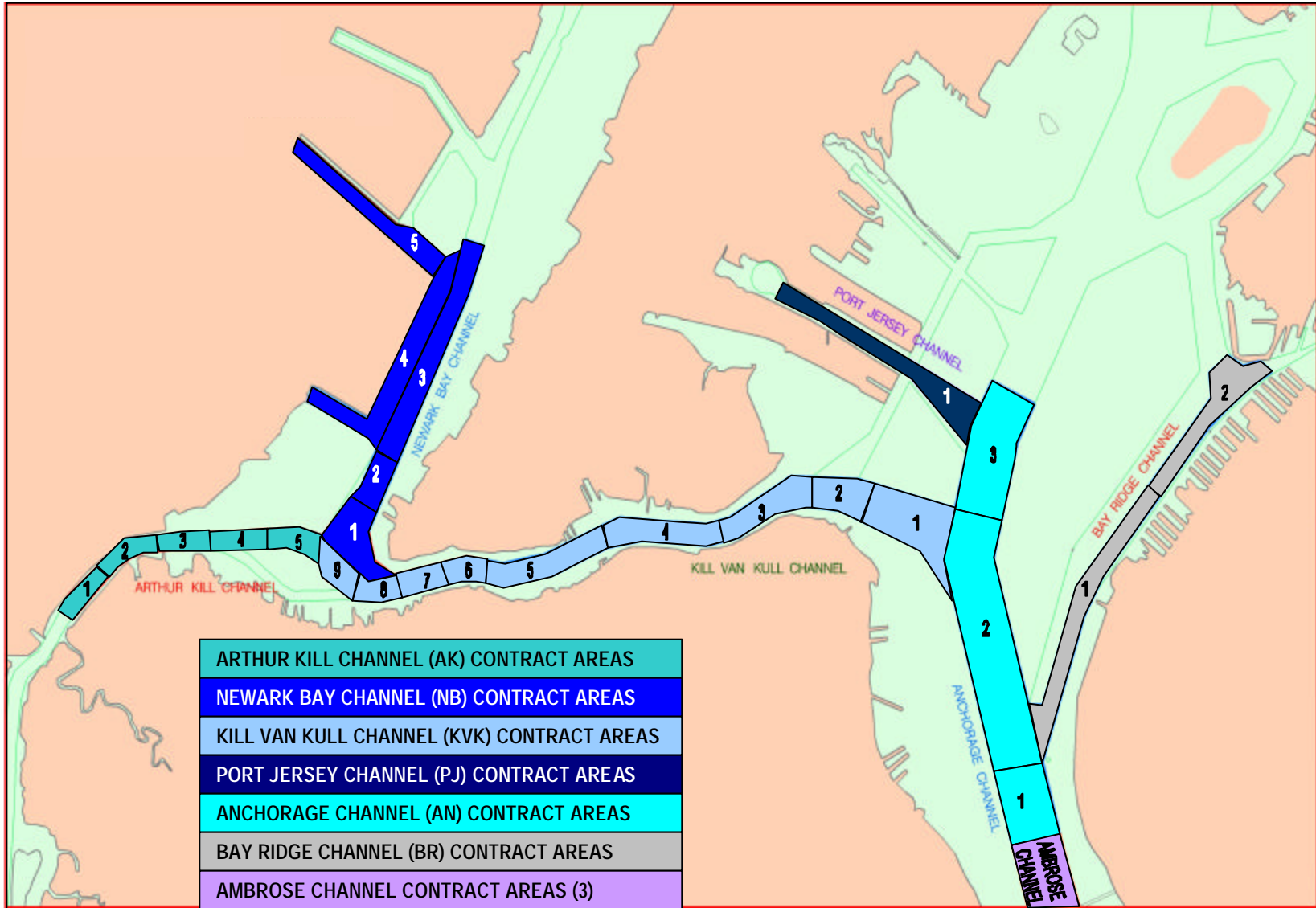


Figure 2-2 Original Contract Areas for the New York and New Jersey Harbor Deepening Project



- Vertical consolidation of Kill Van Kull Contract Area 5 to dredge from 40-50 feet (KVK Area 5)

3.1 KVK Area 4b is located east of Shooters Island, along the north shore of Staten Island (See Figure 3-1). The contract area is an irregularly shaped polygon, approximately 57.2 acres in size. Under the consolidation plan, this portion of the Kill Van Kull Channel would be dredged from existing depths (40 feet) directly to the authorized 50-foot depth under a single contract. This involves removal of approximately 379,000 cubic yards of rock and sediment. The material to be removed consists of: approximately 111,000 cubic yards of diabase rock; approximately 120,000 cubic yards of Holocene fine-grained sediment; approximately 50,000 cubic yards of Pleistocene red-brown clay and approximately 98,000 cubic yards of glacial till. Glacial till is a Pleistocene red-brown sand and gravel deposit with a range of grain sizes, including pebbles, cobbles, boulders, silt, and clay.

3.2 KVK Area 5 is located at the Bergen Point turn between the western Kill Van Kull and the southern portion of Newark Bay (See Figure 3-1). The PANYNJ received a Department of the Army (DA) permit to undertake drilling, blasting and dredging activities to deepen and widen the Federal navigation channel in this area to 50 feet at MLW. The KVK Area 5 Environmental Assessment¹ was prepared by the PANYNJ for this action. The work under the consolidation plan deepens the area from existing depths (40 feet) to the authorized 50-foot depth under a single contract. This involves removal of approximately 1,500,000 cubic yards of rock and sediment. The material removed consists of: approximately 1,186,000 cubic yards of diabase rock and 314,000 cubic yards of sediment. The sediments removed consist of: approximately 43,000 cubic yards of Pleistocene red-brown clay, approximately 206,300 cubic yards of glacial till, and approximately 64,700 cubic yards of Holocene fine-grained sediment with sand and gravel.

3.3 Horizontal consolidation does not result in any impacts since it is only the re-delineation/combination of smaller contract areas to larger contract areas. Consequently, all discussions of consolidated impacts in this EA refer to vertical consolidation.

NEW INFORMATION

3.4 Since 1999, several inventories have been undertaken to add to the data describing natural resources within the Study area. Specifically, these include:

- New York and New Jersey Harbor Navigation Project – Supplemental Sampling Program 2000 – 2001²

¹ U.S. Army Corps of Engineers, *Environmental Assessment for Application No. 2001-01360-J2 by the Port Authority of New York & New Jersey (Contract Area 5)* (August 2002).

² U.S. Army Corps of Engineers, *New York and New Jersey Harbor Navigation Project – Supplemental Sampling Program 2000 – 2001* (February 2002).



- New York and New Jersey Harbor Navigation Project – Aquatic Biological Sampling Program 2001-2002³
- New York and New Jersey Harbor Navigation Project – Aquatic Biological Survey Program 2002-2003⁴
- New York and New Jersey Harbor Deepening Project – Hydrodynamic and Water Quality Modeling⁵
- New York and New Jersey Harbor Navigation Project – Essential Fish Habitat Enhancement Program⁶

PRE-CONSTRUCTION ENGINEERING AND DESIGN MODIFICATIONS

3.5 During the Pre-Construction Engineering and Design (PED) stage, several structural and design modifications were proposed for the navigation channel improvements. These changes would apply regardless of consolidation and include:

PORT JERSEY

- An increase of approximately 7.6 acres to the footprint of the outer channel of the Port Jersey Channel has been proposed for the Recommended Plan for safer transiting from Anchorage to Port Jersey Channel for vessels using the 50 foot channel. This additional dredging would occur in previously dredged channel bringing its depth from 35 feet to 50 feet at MLW (See Figure 3-2; area designated as 7.6 acres).
- As a result of the combination of PJ-41 with the Recommended Plan, the turning basin (approximately 28.8 acres) and approximately 16.3 acres of the southern section of the outer channel, which in the *Feasibility Report* are specified to be dredged to 41 feet at MLW, will be permanently deferred (i.e., eliminated from deepening) and will remain at approximately 35 feet at MLW. In combination with the 7.6 acre increase described above, this results in an overall reduction in area dredged in the Port Jersey Outer Channel (Upper Bay) of about 37.5 acres of deep water (35 feet) habitat (See Figures 3-2 and 3-3).

An approximately 6 acre area at the western end of Port Jersey Channel's inner channel (See Figure 3-3) is proposed to be temporarily deferred in PJ-41. As this

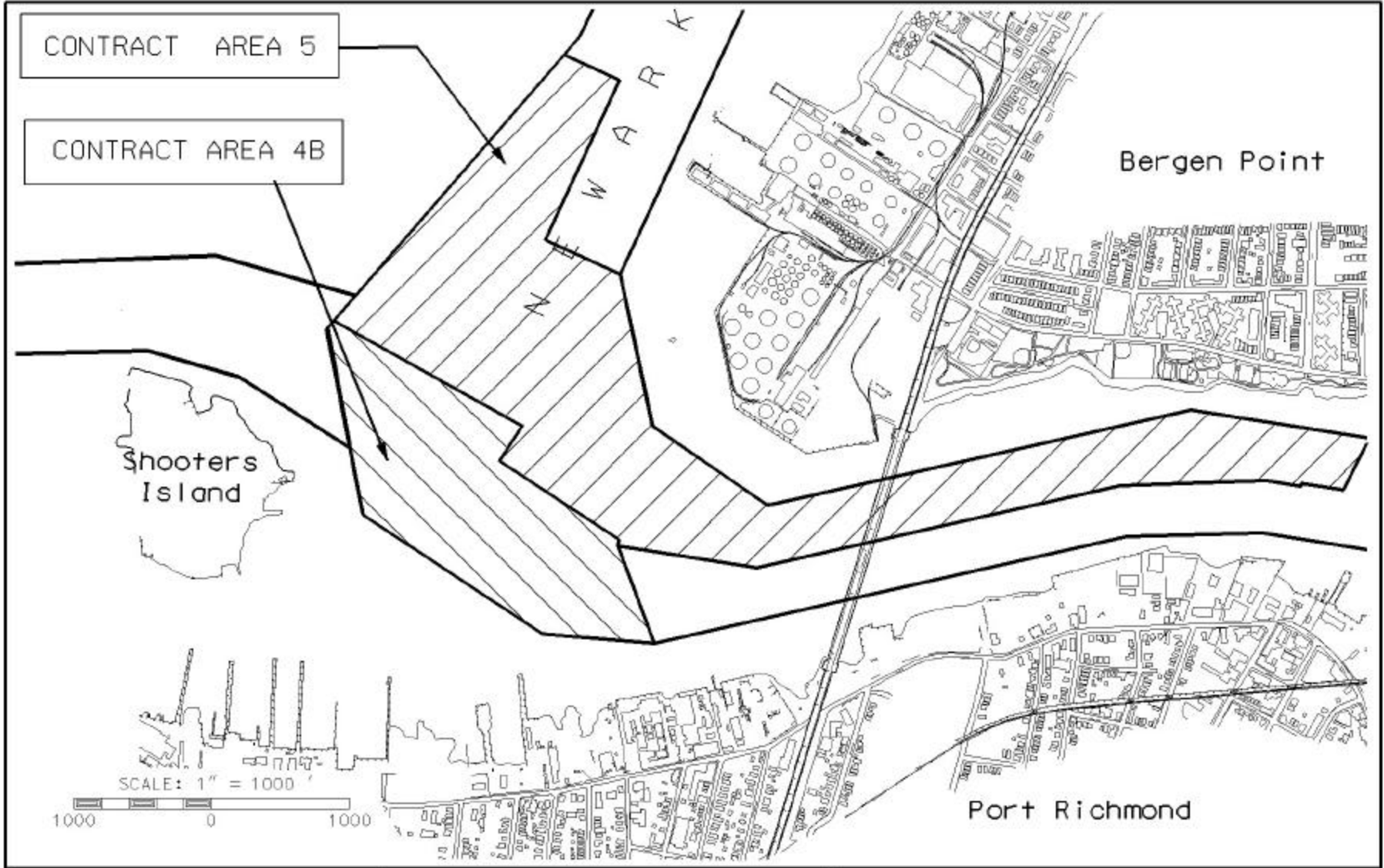
³ U.S. Army Corps of Engineers, *New York and New Jersey Harbor Navigation Program – Aquatic Biological Sampling Program 2001–2002* (August 2003).

⁴ U.S. Army Corps of Engineers, *New York and New Jersey Harbor Navigation Project – DRAFT Aquatic Biological Survey Report 2002–2003* (October 2003).

⁵ U.S. Army Corps of Engineers, *New York and New Jersey Harbor Deepening Project – DRAFT Hydrodynamic and Water Quality Modeling and Sediment Transport and Coastal Erosion Evaluation* (October 2003).

⁶ U.S. Army Corps of Engineers, *New York and New Jersey Harbor Navigation Project – DRAFT Essential Fish Habitat Enhancement Program* (October 2003).





CONTRACT AREA 5

CONTRACT AREA 4B

Shooters Island

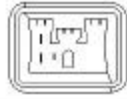
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Bergen Point

SCALE: 1" = 1000'

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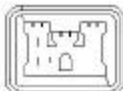
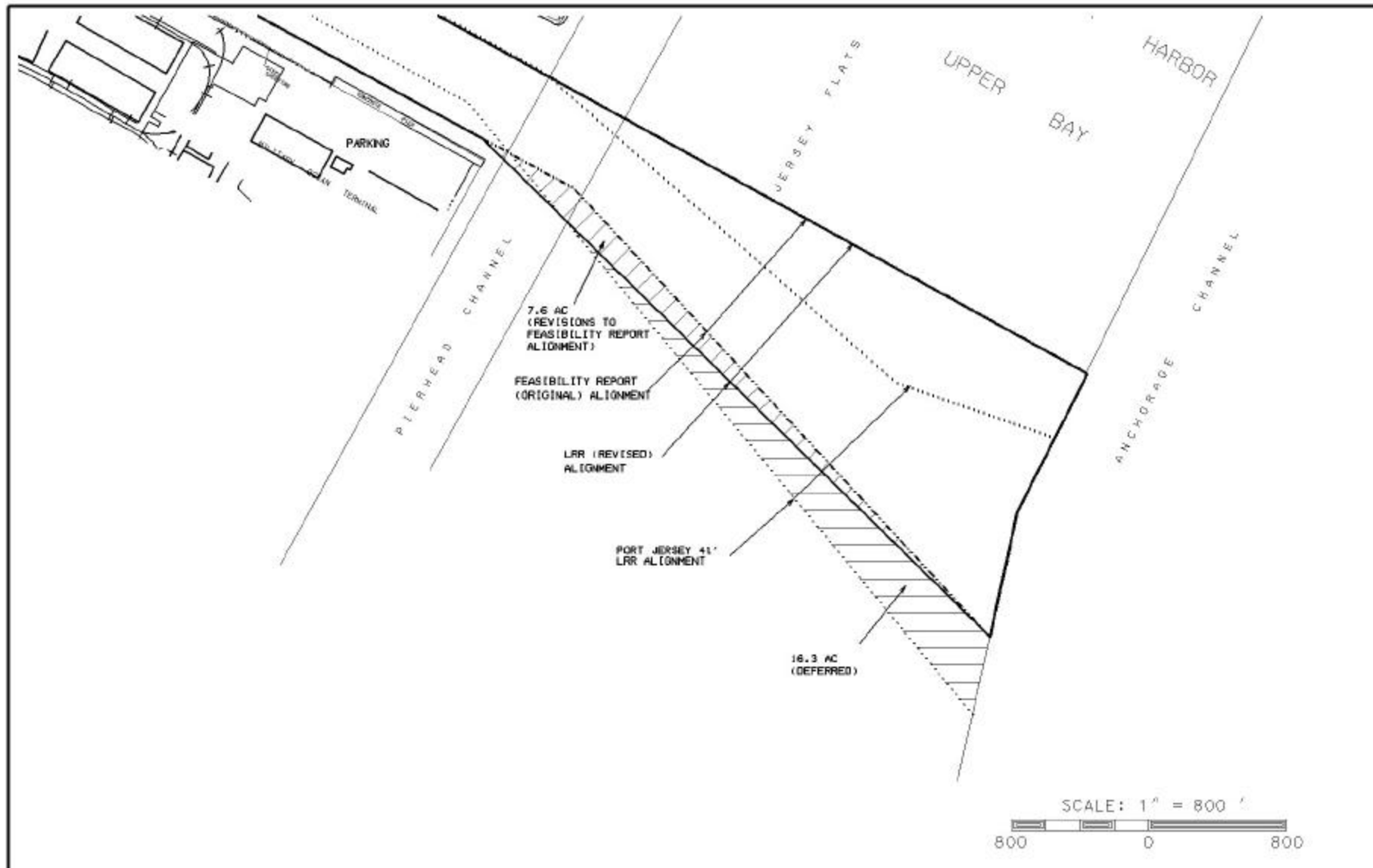
Port Richmond



U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
NEW YORK, NEW YORK

NEW YORK AND NEW JERSEY HARBOR
NAVIGATION STUDY

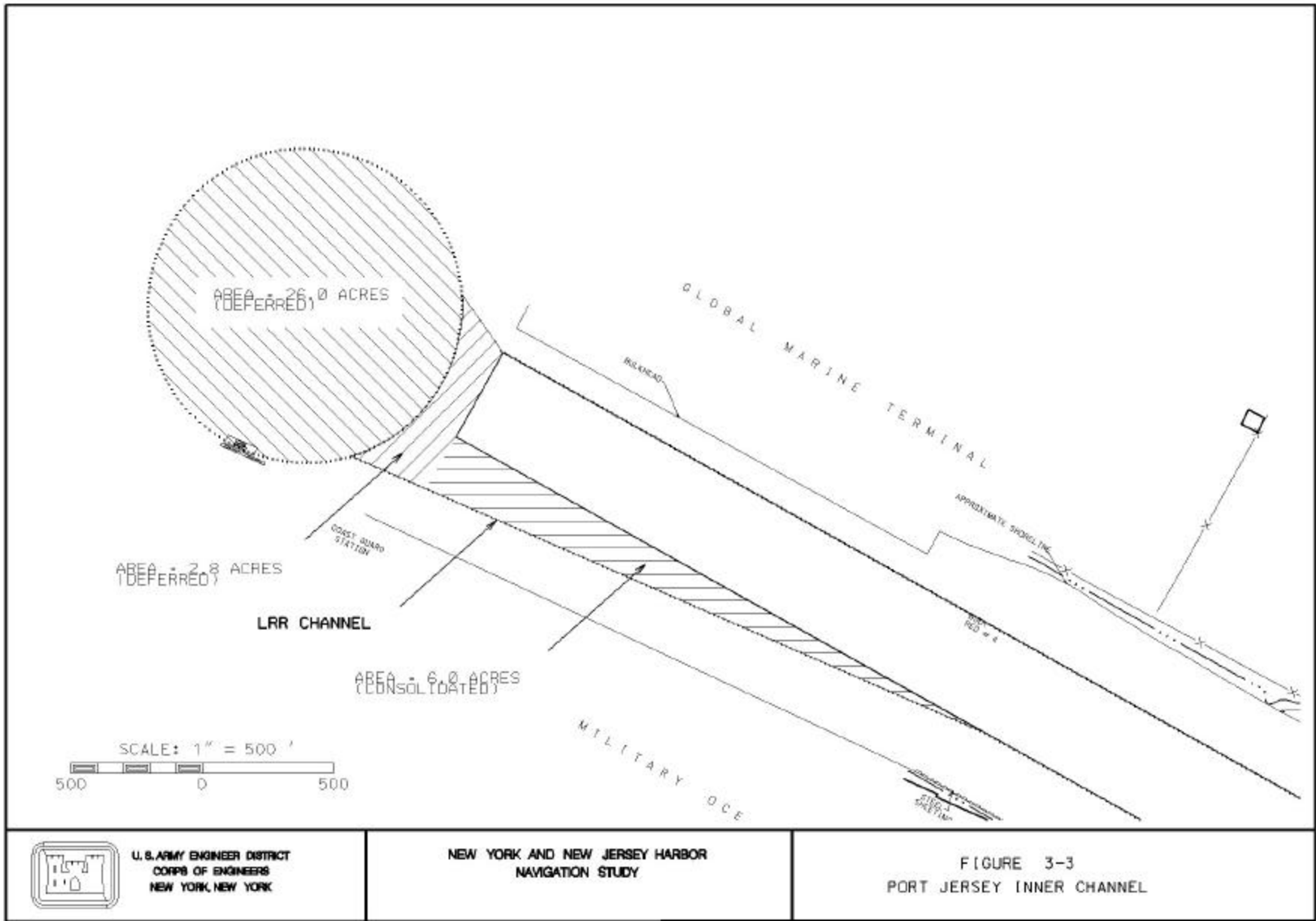
FIGURE 3-1
KILL VAN KULL



U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
NEW YORK, NEW YORK

NEW YORK AND NEW JERSEY HARBOR
NAVIGATION STUDY

FIGURE 3-2
PORT JERSEY ENTRANCE CHANNEL



- area lies within the Recommended Plan's footprint and as a result of this deferment, this area will be dredged directly from 35 feet to 50 feet at MLW, in effect serving as an environmental consolidation, by reducing dredging in the inner channel.

SOUTH ELIZABETH CHANNEL

- Approximately 4.4 acres of the southeastern end of the channel is proposed to be deepened to allow for safer transiting from Newark Bay Channel into South Elizabeth Channel for ships that will use the 50 foot depth (See Figure 3-4). The 4.4 acres proposed for deepening is sublittoral zone habitat. Sublittoral zone habitat is defined in this EA as the aquatic habitat deeper than 6 feet at MLW.
- The Allied Signal Pier, immediately south of South Elizabeth Channel, is proposed to be removed in its entirety as the unstable structure lies within the Recommended Plan's side slope. This abandoned and unstable structure is approximately 20' by 345' in dimension (6,900 sq. ft.), supported by woodpile groups. Depending on the owner of the facility, the decking of the pier and approximately 650 wood piles would be either removed or replaced (See Figure 3-4 and the LRR's Structural Appendix: Photo and Facility Number 8).

KILL VAN KULL

- Rip-rap placement identified in the Feasibility Report along the north shore of Staten Island in the vicinity of Richmond Terrace and the Atlantic Salt property has been proposed to be permanently deferred (i.e. eliminated from placement).
- A portion of the Commerce Street Pier is proposed to be removed as approximately 1/3rd of the area of the structure lies within the Recommended Plan's dredging slope. The area of pilings for the entire pier is approximately 70' by 280' (19,600 sq. ft.). This no longer used and dilapidated structure is essentially a pile field with no decking. Approximately 170 pilings (4,000 sq. ft.) of the pier fall within the dredging slope footprint and are proposed to be removed (See Figure 3-5 and the LRR's Structural Appendix: Photo and Facility Number 4).

ARTHUR KILL

- The Proctor and Gamble Pier located on the north shore of Staten Island at Port Ivory is proposed to be removed as the abandoned and unstable structure lies within the Recommended Plan's dredging slope. The pier dimensions are approximately 50' by 350' (17,500 sq. ft.). Approximately 60 feet (3,750 sq. ft.) of the seaward most portion of the pier lies within the footprint of the dredging slope and is proposed to be removed. This would entail removing decking and



approximately 225 wood piles. (See Figure 3-6 and the LRR's Structural Appendix: Photo and Facility Number 9).

- Realignment of the Arthur Kill Channel is proposed to reduce the Recommended Plan's footprint in two locations (See Figure 3-6). This realignment would decrease the footprint on the western side of the channel by approximately 28.4 acres. This habitat is currently classified as deepwater sublittoral and will remain so.

RE-CLASSIFICATION OF HABITAT TYPES

- As part of the updating of information for this EA, a portion of the project area's 1999 habitat characterization in the vicinity of Bridge Creek in the Arthur Kill and on the southwestern section of the South Elizabeth Channel have been re-classified in terms of habitat type. Specifically, a portion of the project area designated as littoral zone in the Arthur Kill has now been identified as intertidal habitat and a portion of the project area designated as sub-littoral in South Elizabeth has been identified as littoral.

MITIGATION SITE

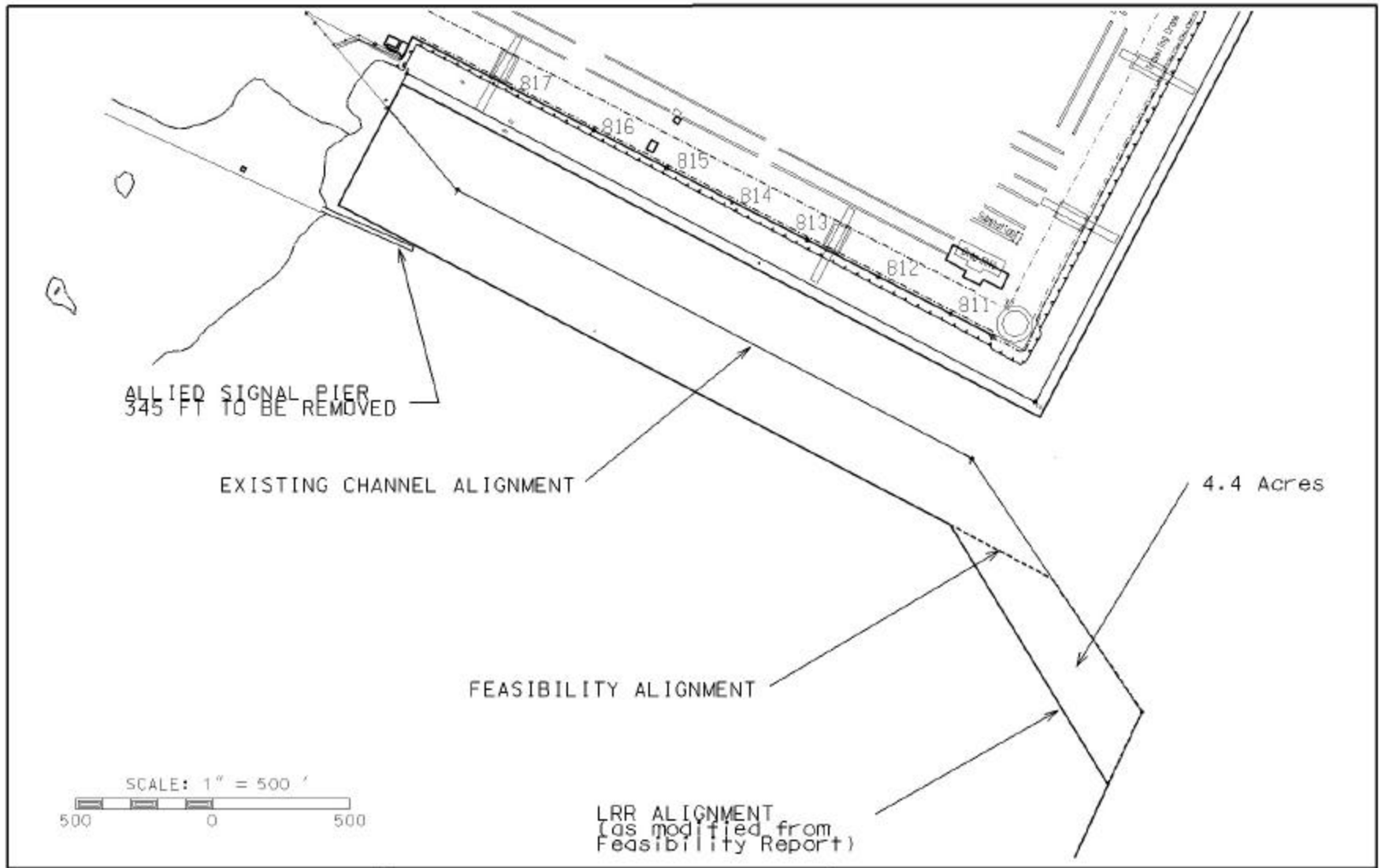
- The mitigation site Mariner's Marsh, Staten Island has been removed from the recommended mitigation plan at the request of New York State Department of Environmental Conservation (NYSDEC) and replaced with a site at Old Place Creek, Staten Island (See Appendix D)

RE-DELINEATION OF CONTRACT AREAS

Contract areas have been re-delineated. These re-delineations are listed as below:

- Ambrose Channel contract areas are re-delineated within authorized project footprints. The number of contracts in Ambrose Channel has decreased from 3 contracts to 2 contracts.
- Anchorage Channel contract areas are re-delineated within authorized project footprints. The number of contracts in Anchorage Channel has decreased from 3 contracts to 2 contracts.
- Newark Bay and Kill Van Kull contract areas are re-delineated within authorized project footprints. The number of contracts in Newark Bay and Kill Van Kull has decreased from 14 contracts to 6 contracts.
- Arthur Kill Channel contract areas are re-delineated within authorized project footprints. The number of contracts in the Arthur Kill Channel has decreased from 5 contracts to 3 contracts.

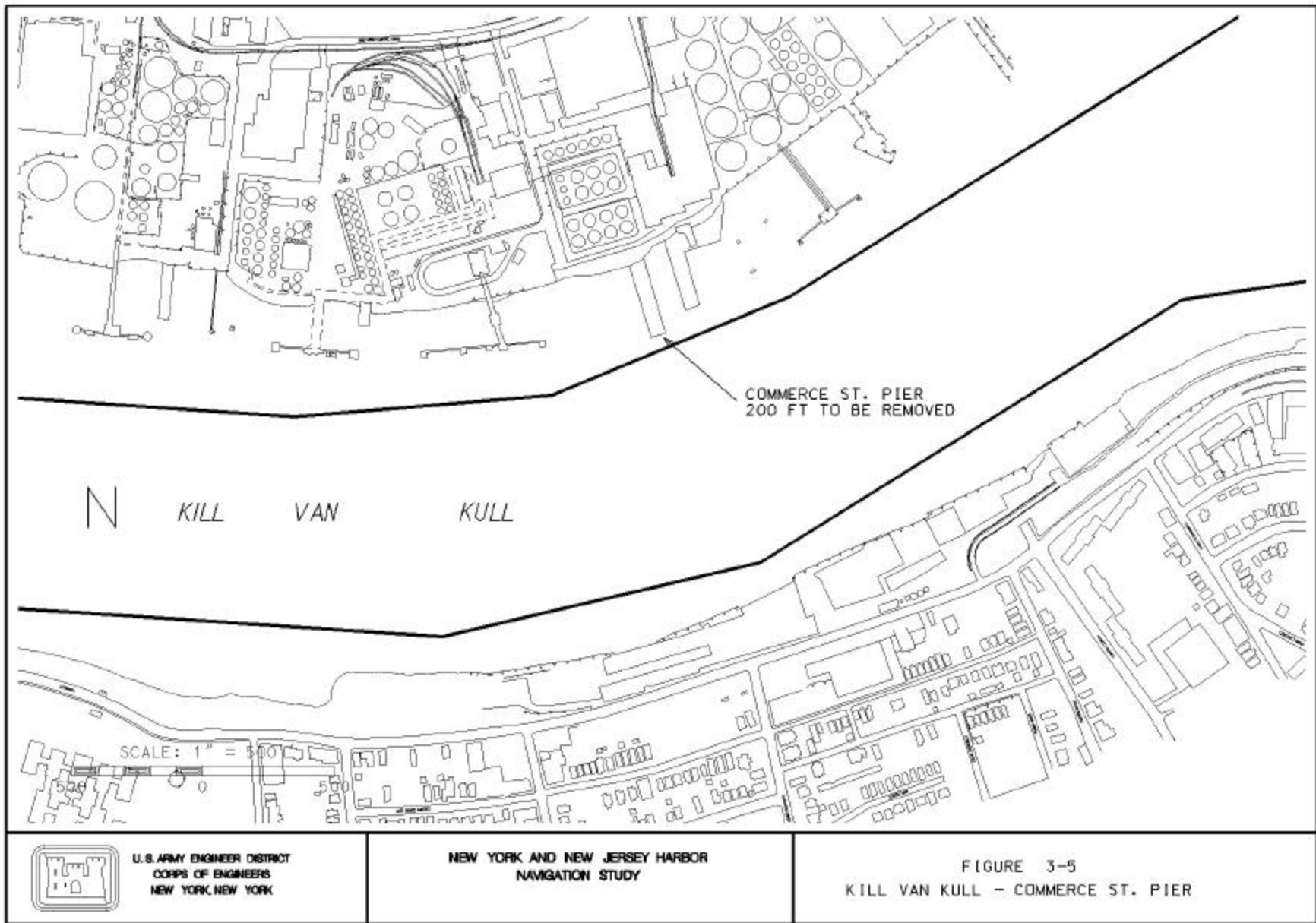


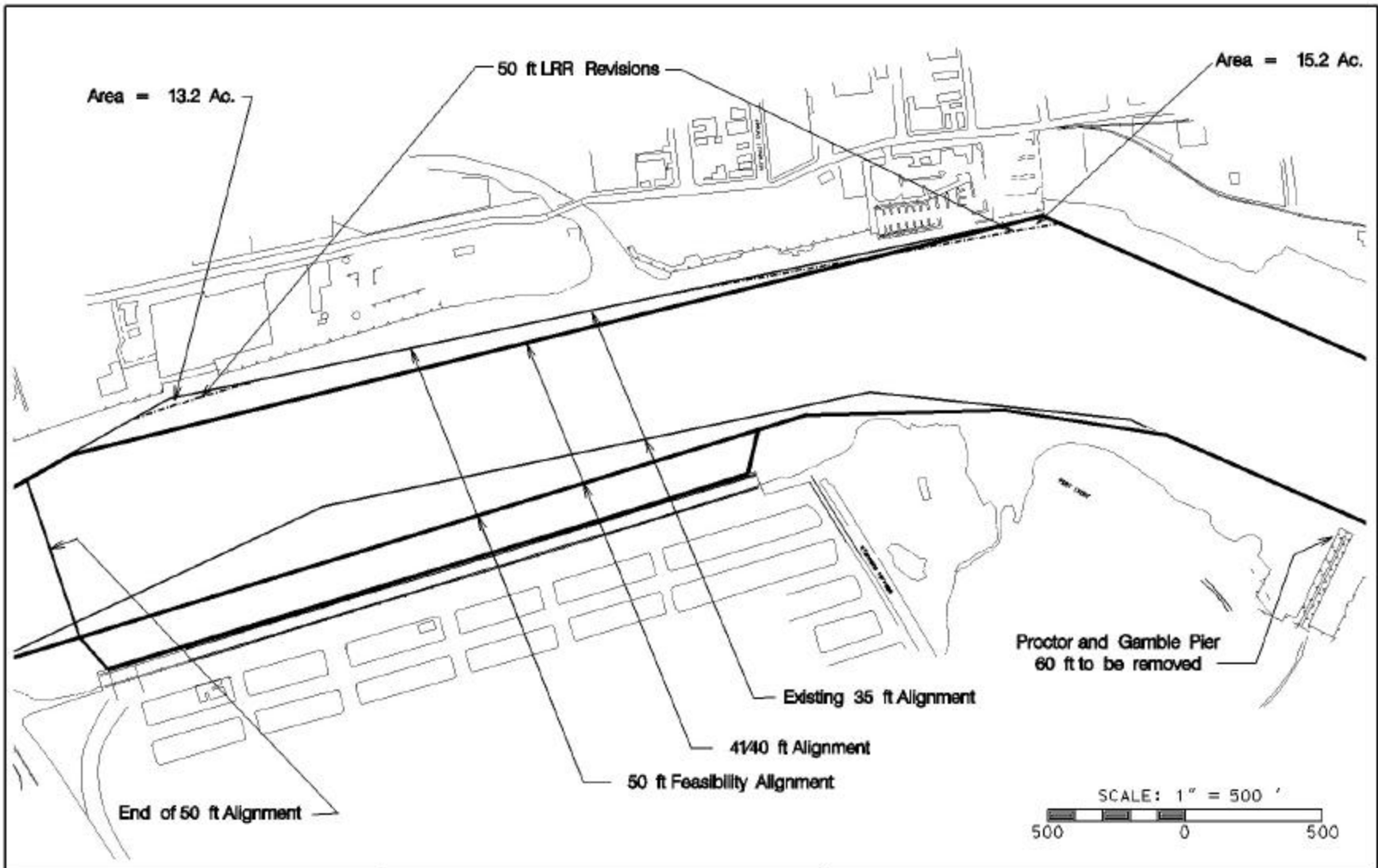


U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
NEW YORK, NEW YORK

NEW YORK AND NEW JERSEY HARBOR
NAVIGATION STUDY

FIGURE 3-4
SOUTH ELIZABETH CHANNEL





U.S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
NEW YORK, NEW YORK

NEW YORK AND NEW JERSEY HARBOR
NAVIGATION STUDY

FIGURE 3-6
ARTHUR KILL CHANNEL

- Bay Ridge Channel contract areas are re-delineated within authorized project footprints. The number of contracts in Bay Ridge Channel has decreased from 2 contracts to 1 contract.

UTILITY RELOCATION

- A new utility was identified for relocation in Ambrose Channel. It is a Transco 26" gas pipeline. Approximately 2,500 ft. will need to be relocated.

1 AFFECTED ENVIRONMENT

4.1 The *Feasibility Report* provided a complete, comprehensive description of the existing resources in the study area that may be affected by the proposed channel improvements. This description is based on an extensive database on the natural resources in New York and New Jersey Harbor developed over the past 20 years. Information contained in the *Feasibility Report* was obtained from various literature sources and supplemented with project-specific sampling programs. Additional (new) project-specific biological data (e.g. fisheries, hydrodynamic, water quality and sediment transport modeling) has been collected and analyzed since the conclusion of the Feasibility phase (during PED) and is included for evaluation in this EA (See Appendices B, C, and E).

4.2 The *Feasibility Report* study area is the same for the consolidated implementation as it is for the implementation of Recommended Plan without consolidation. This EA relies on and refers to the socioeconomic, land use, cultural and natural resource information provided in the *Feasibility Report*, augmented by the newer data and habitat re-classifications described above in section 3.6 to describe the affected environment within the Study area.

2 ASSESSMENT OF ENVIRONMENTAL EFFECTS

5.1 This assessment of environmental effects is divided into two main sections: 1.) Effects derived from Consolidated Implementation and 2.) Effects based on New Information and Modified Project Conditions. The Consolidated Implementation section assesses potential impacts due to consolidation of the Predecessor Projects with the Recommended Plan. The New Information and Modified Project Conditions section assesses actions and new information that applies to both the consolidated (Proposed Action) and unconsolidated (No Action) project implementation alternatives.



CONSOLIDATED IMPLEMENTATION

5.2 Potential effects attributable to consolidated implementation are limited to those impacts associated with vertical consolidation. This consists of the direct deepening of the identified channels from existing depths to the authorized depth in one construction dredging operation instead of two sequential dredging operations with as little as two months and up to several years between contracts (dependent on factors such as dredge equipment availability, scheduling and navigational concerns). As previously stated in Section 3, horizontal consolidation does not result in any impacts since it is only the re-delineation/combination of smaller contract areas to larger contract areas. Consequently, all discussions of consolidated impacts in this EA refer to vertical consolidation.

5.3 Because the configuration and final channel depths for the With Project (consolidated implementation) and Without Project (unconsolidated implementation) Conditions are the same, no new long-term impacts are associated with the Proposed Action as it results in the same final depth and width as would be produced by the unconsolidated sequential dredging of each authorized project. Because the new information and any design modifications made during PED effect the with and without project conditions in the same manner, there are no differences in impacts from any new information or modifications between the no action alternative and proposed consolidated implementation. Any revisions based on new information/design changes are discussed below in Sections 5.50 - 5.57.

5.4 Unconsolidated implementation (*i.e.* No Action alternative) requires a two-phase approach. The first phase of construction activities would deepen the channels to an interim authorized depth (e.g., KVK deepened to 45 feet). To reach the final authorized depth, a second phase of dredging, and in some areas blasting, would be required. Between these two phases, natural resources that might have been disturbed and started to recover, would be disturbed again during the second phase of construction activities, causing recovery of the disturbed area to be delayed

5.5 Consolidated implementation would dredge the designated channel areas (KVK Areas 4b and 5) directly to the authorized depth instead of first dredging the areas to the initial interim authorized depth (45 ft) of the predecessor channel and then from those depths to 50 ft under a single contract. The duration of this single consolidated event would be longer than each of the unconsolidated individual dredging events but shorter than both separate events combined thus a consolidated implementation schedule would reduce the overall duration of short-term impacts by reducing the total in-water construction period. A consolidated implementation schedule would also reduce the frequency of events by dredging to the entire depth at once and not as separate events. Consolidated implementation would not increase the intensity of the dredging event as no additional equipment would be required for the project, the same equipment being used just without any interruption between dredging events. Consolidation of the deepening efforts would also reduce the overall schedule for deepening activities from a



2016 completion date to a 2013 completion date. As a result, habitat recovery will commence sooner under consolidated implementation than under unconsolidated implementation.

5.6 Timeframe estimates for in-water work (i.e. drilling, blasting, dredging, mobilization and demobilization) for consolidated implementation versus unconsolidated implementation are listed below.

Table 5-1 Estimated Timeframe for In-water Work				
Project Area	Interim Phase 1 (Months)	Interim Phase 2 (Months)	Consolidated Implementation (Months)	Time Saved (Months)
KVK Area 4b	8.5	11.5	12	8
KVK Area 5	26	31	36	21

Note: Interim Phase 1 – KVK/NB-45, Interim Phase 2 – Recommended Plan
 Estimated timeframe savings for specific project areas should not be confused with total HDP timeframe as construction events may overlap.

5.7 Short-term impacts attributable to the proposed consolidated implementation were only identified for vertical consolidation efforts. No environmental impacts were identified for re-delineation of contract area efforts as these efforts only affect the administration, procurement, contracting and sequencing of contract areas for the authorized project and not the physical activity, duration or depth of dredging.

5.8 Changes in the frequency and duration of these potential short-term impacts attributable to consolidated implementation were evaluated for their potential effect on navigation, air quality, noise, water resources and aquatic biological resources. No significant impacts were identified as a result of consolidated implementation.

NAVIGATION

5.9 Commercial navigation and traffic management within the New York and New Jersey Harbor is a cooperative effort of the U.S. Coast Guard, the Maritime Association, tug companies, and docking pilots. The U.S. Coast Guard has lead responsibility for enforcement of maritime law, placement and maintenance of aids to navigation, regulation of anchorages, movement of vessels, and safeguarding life and property. As part of a major effort to improve maritime safety and protect the environment, Congress provided funding for the Coast Guard to establish the Vessel Traffic Service in New York (VTSNY). VTSNY is designed to reduce the probability of collision or grounding by providing advance information on the movements of other vessels, traffic congestion, weather conditions, and other potential hazards to navigation. Navigation restrictions associated with any deepening activities would be coordinated through the VTSNY notification to mariners, minimizing any potential impact restrictions on navigation.



5.10 With the Proposed Action, the frequency and duration of potential navigational restrictions may change. Consolidated implementation would require only a single dredging event (equipment mobilization and occurrence within a contract area would occur only once), thereby reducing the frequency of navigational restrictions in the construction area. The duration of this single consolidated event would be shorter than the individual dredging events combined; therefore, no significant adverse impact to navigation attributable to consolidated implementation is expected.

AIR QUALITY

5.11 The General Conformity Rule (GCR) of the Clean Air Act Amendment (CAA) of 1990 (40 CFR 193) went into effect as of 31 January 1994. The GCR requires that Federal Actions, such as channel improvements, not interfere with states' efforts to attain or maintain ambient air quality standards in accordance with EPA-approved State Implementation Plans (SIPs). All Federal Actions must comply with the GCR unless otherwise exempt. Channel improvements do not meet the exemption requirements, so both consolidated or unconsolidated plans require compliance with GCR.

5.12 The GCR only applies to actions that emit one or more criteria pollutants in areas that do not meet CAA standards for those pollutants (nonattainment area) or have recently attained that standard (maintenance area). This study area is located within the New York Northern New Jersey Connecticut nonattainment area (NYNJCTNA), which is also referred to as the New York New Jersey Long Island nonattainment area and thus falls within the jurisdiction of both states' SIPs. This region is currently designated as a severe nonattainment area for ozone and a maintenance area for carbon monoxide (CO). The GCR threshold is triggered, in severe ozone nonattainment areas, when emissions exceed 25 tons per year. This quantity applies to the amount of ozone precursors as well, which are oxides of nitrogen (NO_x) and volatile organic carbons (VOCs). The GCR threshold for the CO maintenance area is 100 tons per year.

5.13 As shown in Table 5.2, both consolidated and unconsolidated plans exceed the 25 tons per year threshold for NO_x during each year of construction. For construction to proceed, a Statement of Conformity (SOC) must be prepared and approved to document how either plan would be in compliance with the CAA, which requires reducing the NO_x emissions to zero for each year they exceed 25 tons. This can be accomplished by reducing the emissions directly attributable to the project or by reducing the emissions of some other mobile marine source to offset project emissions so there is no net increase in NO_x levels in the nonattainment area.



Table 5-2 Annual Estimated Project Related Emissions (NOx tons)

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
UCI		207.12	597.24	542.8	520.12	359.71	463.47	420	420	237.64	237.64	67.11	62.86	45.94	30.54	4212.19
CI	81.80	121.11	145.26	339.17	429.21	366.47	321.95	440.33	409.64	202.00	74.62	15.66				2,947.20

Notes: Unconsolidated Implementation – UCI; Consolidated Implementation - CI

Unconsolidated annual emission estimates are from the *Marine and Land Based Mobile Source Emission Estimates for 50-foot Deepening Project*, January 3, 2002.

Consolidated annual emission estimates are based on draft June 2003 unpublished estimates, *Marine and Land-based Mobile Source Emissions from the Consolidated Schedule of the 50-Foot Deepening Project*.

The With Project condition estimates for the years 2004-2006 include emissions for PJ and for KVK Area 5.

The primary reason for the significant difference in emissions is the revision of project volume estimates (UCI was estimated at ~50 million cubic yards) due to more accurate data (CI was estimated at ~43 million cubic yards).

5.14 It is important to note that the unconsolidated implementation estimated emissions are based on volume projections dating back to 2001 and the consolidated implementation emission estimates are based on September 2003 volume estimates and projections which are lower. As noted above, the difference in volume estimates does account for a significant portion of the emission differences between the unconsolidated implementation and consolidated implementation plans. However, ongoing refinements to the scheduling of the consolidated implementation have significantly reduced the peak year emissions, thus minimizing the magnitude of offsets required to meet GC.

5.15 Consolidated and unconsolidated plan emission estimates predict project NOx emissions would exceed the GCR threshold level for severe ozone nonattainment areas during each year of construction (except the last year of the consolidated implementation plan). However, consolidated implementation, besides producing less emissions overall, also reduces the number of years that emissions are generated. Consolidated implementation affects the timing and magnitude of when peak year estimated emissions occur, as well as the years leading up to and after the peak year. Consolidated implementation also affects the level of the peak, which may slightly exceed NOx levels of the unconsolidated implementation plan in a few years but generally are substantially lower, necessitating less total offsets over its project life.

5.16 The strategy for reaching General Conformity with the CAA for this project was laid out in a conditional SOC that was finalized in accordance with the CAA in April 2002. The overall plan of how the project will achieve this goal is laid out in the Harbor Air Mitigation Plan (HAMP). The HAMP examined a number of strategies for achieving conformity and recommended a combination of options that meet CAA requirements in a cost effective and environmentally acceptable manner. A Regional Air Team, comprised of Corps', Port Authority's, EPA's and the states' air quality offices, has been working to assist with the HAMP and assure its technical feasibility and regulatory compliance with the CAA. The result of implementing the HAMP will be a no net emission increase during any year of the project, as well as overall air quality improvement during many construction years and after construction is complete. The analyses will culminate in a detailed SOC for the first construction element and for every construction element



thereafter for the duration of the project. The first SOC is scheduled for release for public review in the spring of 2004.

5.17 The HAMP recommends a combination of repowering up to 8 tugs and retrofitting the Staten Island Ferries, reducing their emissions to offset project emissions. Contingency measures include adding verified fuel emulsions to project dredges and support vessels and/or to offloading equipment (*i.e.* dockside tractors) at the port facilities, selective catalytic reduction devices for the project hopper dredges, repowering some older loading cranes and further repowering of up to two additional tugboats. When fully implemented, the HAMP could potentially reduce the overall project NOx emissions by more than twice the emissions that will be produced over the life of the project. The net result will be long-term improvements to the air quality of the region from significantly lower overall NOx levels both during and after the project is completed, as the retrofitted tugs and ferries continue to operate after construction is completed under either consolidated and unconsolidated implementation plans.

WATER RESOURCES

5.18 Potential impacts of consolidated implementation to the hydrodynamics, salinity, water temperature, dissolved oxygen (DO), and sediment transport in the study area were evaluated using the three-dimensional numerical model of hydrodynamics and water quality developed as part of the *Feasibility Report*. The model domain covers the New York Bight, Raritan Bay, New York-New Jersey Harbor, Long Island Sound, and the Hudson River. The calibration and verification of the model are discussed in the *Feasibility Report*. Details of the model and evaluation of potential effects in the study area are described in Appendix B.

5.19 Model results indicate minimal and localized changes in DO as a result of consolidated implementation; however, these changes are within the recorded seasonal variation for these parameters within the Harbor and are not significantly different from the predicted values under the unconsolidated plan. Model results indicate that salinity concentrations and temperature ranges during consolidated implementation will be no worse than under the Recommended Plan. The duration of consolidated implementation would be shorter than the individual dredging events combined and will not result in any additional significant adverse impacts to water resources and may even yield less overall impacts since dredging would be completed 3 years sooner.

5.20 Model results indicate short-term changes in flow velocities and shoaling rates would be minimal due to consolidated implementation. Historic shoaling rates in these areas are relatively small; therefore the predicted increases in shoaling due to small decreases in flow velocities over the vertically consolidated areas would only result in increases of a few hundred cubic yards per year.

5.21 Model results indicate that long-term channel shoaling rates will not be affected by consolidated implementation. Consolidated implementation would change the timing



of channel deepening, but not the final configuration of channels; therefore, no differences in sedimentation patterns leading to changes in channel shoaling rates are expected between the With and Without Project conditions.

AQUATIC BIOLOGICAL RESOURCES

5.22 Previous biological investigations characterized the seasonal distribution and composition of the fish community in various habitats and areas of the Harbor estuary. These sampling programs and their information are described in detail in the *Feasibility Report's* Final Environmental Impact Statement (FEIS). Additional data collected since the *Feasibility Report* have added to the seasonal distribution and abundance information of aquatic species in the study area, particularly winter flounder and other demersal/bottom dwelling species^{1,2,3} but have not altered the assessment of impacts described in the FEIS except by suggesting these species may utilize some areas to a lesser degree than initially expected. The new data are summarized in Appendices C1 and C2.

5.23 Data comparison and evaluation identified no new potential adverse environmental impacts to aquatic resources attributable to consolidation. Potential short-term impacts due to consolidated implementation would be the same as the effects on aquatic resources identified in the *Feasibility Report*, except the overall duration under a consolidated schedule would be shorter. The removal of sediment would result in a loss of the invertebrates living in the sediment and a disruption of habitat for the epibenthos and fish using the area at the time of dredging. Benthic and epibenthic species from adjacent areas will recolonize the area once dredging is complete, and fish species would soon follow. Consolidated implementation will reduce the frequency and duration of these potential effects on aquatic resources and thus reduce the overall short-term impact and allow recovery to be initiated sooner.

5.24 Unconsolidated implementation would require two periods of dredging and blasting in some areas. Between these periods, benthic communities would recolonize only to be disturbed again during the second construction period. Consolidated implementation eliminates the need for dredging and blasting twice, and therefore eliminates disturbing aquatic biological (benthic and pelagic) resources twice, allowing for earlier and uninterrupted recovery.

5.25 Construction related impacts will be minimized and mitigated through the same best management practices (BMPs) as described in the *Feasibility Report* such as utilizing environmental buckets, where appropriate, and complying with hoist speed restrictions. Migratory and resident species are expected to use the same remaining habitats in the Harbor during construction under either plan. Because the potential impacts resulting from consolidated implementation would be shorter in duration and less

¹ U.S. Army Corps of Engineers, op. cit., February 2002.

² U.S. Army Corps of Engineers, op. cit., August 2003.

³ U.S. Army Corps of Engineers, op. cit., Draft Report, August 2003.



in frequency than a multiphase, unconsolidated schedule, the overall adverse effects would be reduced. On the whole, no additional significant adverse impacts to aquatic resources are expected to result from consolidated implementation.

NOISE

5.26 Consolidated implementation would not result in more drilling, blasting, or dredging but would reschedule these actions so that the designated channel sections (KVK Areas 4b and 5) are deepened as one event, reducing the frequency and overall duration of any noise effects associated with those actions. A separate second dredging event, staging of equipment, mobilization and demobilization, drilling, and blasting would not be necessary, thereby reducing the overall time the area would be exposed to noise and shortening the end date by which all such actions will be completed.

5.27 Because consolidated implementation would realize reductions in overall duration and frequencies in drilling, blasting and dredging events, no significant adverse impacts due to noise from the consolidated implementation are expected.

PROTECTED SPECIES AND WILDLIFE

5.28 Potential impacts to Federal and state protected species due implementation of the Recommended Plan were evaluated in the *Feasibility Report*. No new Federal and state protected species have been identified in the study area since 1999.

5.29 Based on recent observations,⁴ use at Shooters Island by protected species such as Herons has been confined to foraging or roosting activities. Nesting of herons has not been observed on Shooters Island since 1997, and recent monitoring confirms general bird activity primarily consists of several species of gulls, Canada geese, cormorants, starlings and crows. Migratory and resident species are expected to continue to utilize other habitats in the Harbor such as Pralls, Hoffman and Swinburne Islands, as occurs now.

5.30 With the Proposed Action, the frequency and duration of dredging and deepening activities would change, requiring only a single dredging event (construction activities within a contract area would occur only once), thereby reducing the potential for adverse impacts to protected species and other wildlife. The duration of this single consolidated event would be longer than each individual dredging event but shorter overall; therefore, no significant adverse impact to protected species and other wildlife attributable to consolidated implementation is expected.

⁴ USACE; Memorandum for the Record, 2003



ESSENTIAL FISH HABITAT

5.31 Essential Fish Habitat (EFH) is defined under the Magnuson-Stevens Fishery Conservation and Management Act of 1976 (MSFCMA) (PL 94-265 codified as 16 U.S.C. 1801 et. seq.), as amended by the Sustainable Fisheries Act (SFA) of 1996 (PL 104-267), as “those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.” The SFA requires that EFH be identified for those species actively managed under Federal fishery management plans (FMPs). This includes species managed by the eight regional Fishery Management Councils (FMCs), established under the MSFCMA, as well as those managed by the National Marine Fisheries Service (NMFS) under FMPs developed by the Secretary of Commerce.

5.32 A description of those species and habitats for which EFH has been designated in the Hudson-Raritan estuary and Sandy Hook Bay is provided in Appendix E. EFH has been designated for specific life stages based on their occurrence in tidal freshwater, estuarine (i.e., mixing/brackish salinity zone), or marine (i.e., seawater salinity zone) waters. EFH for most species includes both the estuarine and marine waters within and surrounding the project area.

5.33 The *Feasibility Report* evaluated the potential impacts to EFH attributable to the Recommended Plan. Those impacts included: potential changes in water temperature, salinity, and current velocity; changes in sediment type and water depth; and displacement and temporary loss of benthic forage species. The potential impacts attributable to consolidated implementation would be similar to those described in the *Feasibility Report*; no new impacts would result from the Proposed Action nor would any new species or habitats be affected.

5.34 Consolidated implementation will decrease the frequency and overall duration of short-term impacts by reducing the total in-water construction period. The Recommended Plan would require two periods of dredging and in some areas, blasting. Between these periods, EFH species may start to reuse the area only to be disturbed again during the second construction period. Consolidated implementation eliminates the need for dredging and blasting twice, and therefore eliminates disturbing EFH twice, allowing for earlier and continuous habitat use. Because total disturbance duration is reduced, the project area would be available for use by the local aquatic biota earlier than under an unconsolidated schedule.

5.35 Because the potential impacts resulting from the consolidated deepening proposal would be shorter in duration and less in frequency than a multiphase, unconsolidated approach, the overall adverse effects would be reduced; therefore, no significant additional adverse impacts to EFH attributable to the Proposed Action are expected.



5.36 Based on the data collected during the recent aquatic biological sampling programs,^{5,6,7} the District has reinitiated EFH consultation with the National Marine Fisheries Service (NMFS) to determine what, if any, seasonal restrictions should still be recommended to avoid potential adverse impacts during construction. Aided by data from the most recent aquatic biological sampling in the New York and New Jersey Harbor, this assessment indicates, with special emphasis on winter flounder, that some areas of the Harbor, such as in Newark Bay and in the Arthur Kill, may not be significantly utilized to the same degree, as other areas of the Harbor and seasonal restrictions may no longer be warranted in these areas. These conclusions would be true under either the consolidated or unconsolidated plan and may affect the timing of certain dredging reaches but not result in any overall increases in dredging volumes or impacts. A description of those species and habitat for which EFH has been designated in the Hudson-Raritan estuary and Sandy Hook Bay and an evaluation of potential impacts attributable to Recommended Plan (consolidated and unconsolidated) are provided in Appendix E.

5.37 As a means of mitigating for potential EFH impacts, the District and NMFS investigated EFH opportunities in the New York and New Jersey Harbor for those species with designated EFH occurring in the Harbor. The results of these investigations may allow for the implementation of one or more opportunities to create or improve EFH throughout New York and New Jersey Harbor through beneficial use of some dredge material (e.g., rock, sand), potentially reducing costs or even reducing or eliminating seasonal windows in some areas. Conceptual designs have been developed for several potential EFH sites in the Lower New York and New Jersey (south of the Narrows) and Raritan Bays and are identified in Appendix E. This opportunity would exist under both consolidated and unconsolidated implementation and investigations are proceeding to assess its feasibility and cost. The outcome of those effects, while potentially aiding one or more designated species, will have no effect on implementation of either the consolidated or unconsolidated plan.

CULTURAL RESOURCES

5.38 The District has certain responsibilities for the identification, protection and preservation of cultural resources that may be located within a project's area of potential effects (APE). Present statutes and regulations governing this work include the National Historic Preservation Act of 1966, as amended through 1992; the National Environmental Policy Act of 1969; Executive Order 11593; Procedures for the Protection of Historic and Cultural Properties (36 CFR Part 800); the Abandoned Shipwreck Act of 1987 and the Corps of Engineers Identification and Administration of Cultural Resources (33 CFR 305). Significant cultural resources include any material remains of human activity eligible for inclusion on the National Register of Historic Places (NRHP).

⁵ U.S. Army Corps of Engineers, op. cit., February 2002.

⁶ U.S. Army Corps of Engineers, op. cit., August 2003.

⁷ U.S. Army Corps of Engineers, op. cit., Draft Report, August 2003.



5.39 Cultural resource investigations conducted for Recommended Plan and other navigation projects in the Harbor have identified historic properties listed or eligible for listing on the NRHP within the APE. The areas comprising the APE that are included under consolidated implementation and considered in this EA are Arthur Kill, Kill Van Kull, Newark Bay, and Port Jersey Channels. Historic properties within the APE include abandoned vessels and shipwrecks, waterfront structures such as wharves and piers, historic structures and buildings, and submerged land surfaces which may be sensitive for prehistoric materials and paleoenvironmental data. Within the vicinity of the APE are National Historic Landmark properties such as the Statue of Liberty and Ellis Island, and NRHP eligible historic properties such as Bush Terminal and the Greenville Yards.

5.40 Potential impacts to cultural resources attributable to the Recommended Plan were evaluated in the *Feasibility Report*, resulting in the Programmatic Agreement (PA) that was signed in the spring of 2000 by the New York State Historic Preservation Office (SHPO), New Jersey SHPO and the District. The Advisory Council on Historic Preservation and the New York City Landmarks Preservation Commission reviewed the draft PA but were not signatories to the document. This PA specifies the stipulations and actions to be taken by the District during the Recommended Plan's execution to satisfy the District's responsibilities under Section 106 of the National Historic Preservation Act of 1966, as amended. The PA was amended to expand the APE to include not only those areas described in the original PA but also areas being considered for environmental mitigation purposes. The Amended PA also reflects the more recent Congressional authority under which this project is authorized. The stipulations agreed to in the original PA will be executed for all areas with the APE as defined through the amendment.

5.41 The amended Programmatic Agreement (PA) among the District, NJSHPO and NYSHPO specifies the stipulations and actions to be taken by the District during Project execution to satisfy the District's responsibilities under Section 106 of the National Historic Preservation Act of 1966, as amended. Portions of Recommended Plan areas were determined to be sensitive and will be impacted by channel realignment or widening regardless of whether the projects are consolidated or not. Mitigation for these impacts, which will be the same for consolidated and unconsolidated implementation, will consist of a data recovery program as outlined in the amended PA. A summary of the cultural resources studies, actions and further recommendations is provided in Appendix F.

5.42 Because the configuration and channel depths for the Proposed Action are the same as the unconsolidated implementation schedule, no additional short- or long-term impacts to cultural resources attributable to consolidated implementation have been identified.

CUMULATIVE IMPACTS

5.43 Cumulative impacts result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) undertakes these other actions (40 C.F.R. §1508.7).



Cumulative impacts generally involve project-related long-term impacts; those impacts resulting from the final project condition or configuration. Because short-term impacts are by their nature of short-duration, short-term impacts generally do not contribute to cumulative impacts, except in those instances when one or more actions occur simultaneously (e.g., increased noise levels or traffic interruptions resulting from the simultaneous construction of two projects with overlapping project areas). If they occurred, these situations may involve a short-term cumulative impact, but these impacts would occur only during a specified period (e.g., project construction), would not continue over the life of the project, and therefore, would not result in the cumulative environmental degradation of the project area.

5.44 The consolidated implementation schedule, however, would reduce the overall duration of short-term impacts by reducing the total in-water construction period. Though consolidated implementation would realize reductions in overall duration and frequencies in drilling, blasting and dredging events by shortening contract durations, it does not add more equipment to a given reach nor result in simultaneous actions occurring within a channel, and therefore, no additional significant adverse cumulative impacts to navigation, air quality, water resources, aquatic biological resources, noise, protected species and wildlife, EFH and cultural resources are expected.

5.45 Because the configuration and channel depths for consolidated implementation and unconsolidated implementation are the same, no new long-term impacts are associated with the Proposed Action; therefore no long-term cumulative impacts are expected.

NEW INFORMATION AND MODIFIED PROJECT CONDITIONS (With or Without Project Conditions)

5.46 During the PED phase, minor design changes in the Recommended Plan have been proposed to address safety issues. In addition, along with completion of biological inventories have provided additional information on harbor resources. This new information and design modification are relevant to both the consolidated and unconsolidated implementation plans.

DREDGED MATERIAL MANAGEMENT PLAN (DMMP) AND SEDIMENT CHARACTERIZATION

5.47 Current volume estimates are based on more recent surveys and the actual depths of channels already dredged. The result of these findings was a reduction in the volume estimates of dredged material to be excavated and managed to construct the recommended plan to about 42.5 million cubic yards. If anything, this lower volume will have a lesser impact on the ecosystem and on dredged material management effort. The latest schedule, revised volume estimates, and identification of placement sites for the various deepening contracts under a consolidated plan have been determined to be fully



consistent with the DMMP⁸ which included much higher volumes from navigation improvements than appear to be needed. Some of the placement sites have changed as old sites are filled and new sites become available, as anticipated in the DMMP. Other than changing the years in which certain volumes may be produced, the consolidated plan will not affect final volumes or types of material produced nor alter the selection of management options or its applicability for beneficial reuse. Any beneficial use of dredged material would also apply to consolidated implementation, as the type and volume of material are the same, though the year it is available may differ. In addition, as stated in the EIS prepared for the DMMP, since all potential placement sites are required to comply with all applicable Federal, state and local rules and regulations for licensing of a dredged material placement site, no additional supplemental NEPA documentation is required for placement of dredged material as it relates to this project (with and without project conditions). Therefore, there will be no added adverse impacts from consolidation or revised volume estimates.

5.48 Characterization of material proposed for placement at the Historic Area Remediation Site (HARS) is based on sampling and testing using physical, chemical and biological assays established in the District/USEPA Region 2 ocean disposal testing program. These tests include grain size analysis, bulk sediment chemistry, elutriate and site water analysis, and toxicity and bioaccumulation tests. A Memoranda of Understanding (MOA) was signed by the District and USEPA Region 2 indicating that all Pleistocene red clays and glacial till in the subject project area have been sufficiently characterized by current testing and are eligible for HARS placement without further analysis. As the dredging areas are the same under both plans, this finding would pertain equally to the consolidated and unconsolidated implementation plans.

5.49 Current characterizations of material to be dredged under either consolidated or unconsolidated implementation are based on tests completed since the Feasibility phase. Testing regulations require additional testing be conducted within 3 years of actual dredging. NYSDEC or the New Jersey Department of Environmental Protection (NJDEP) will provide sediment sampling and testing plans depending on the location of the dredging and/or upland placement area; these tests normally include sediment chemistry and leachate analysis. The testing schedule for individual reaches depends on the tests required and the timeframe for actual dredging. All testing identified in the *Feasibility Report* for the unconsolidated plan would also occur under any consolidated plan, as the material removed is the same under both plans. It is not anticipated that there will be any significant changes in sediment characterization resulting from these tests, though the timeframe for when particular reaches are tested may differ to accommodate the consolidation of contract areas.

⁸ U.S. Army Corps of Engineers, *Dredged Material Management Plan for the Port of New York and New Jersey: Implementation Report, Programmatic Environmental Impact Statement, and Technical Appendix* (1999).



DESIGN MODIFICATIONS

5.50 Design modifications are proposed engineering design changes to the 1999 *Feasibility Report's* Recommended Plan. These design modifications would occur under both the consolidated and unconsolidated schedule. Most changes are the result of a USACE Value Engineering (VE) study, which is partially based on ship simulation modeling and was conducted during the PED phase. Ship simulation modeling was performed to maximize navigational safety. Design modifications will likely continue throughout the Construction phase. Any additional design modifications that may occur in the future will be assessed for significant environmental impacts and will be evaluated in subsequent NEPA documents. Below are the design modifications that have been proposed to date, none of which would significantly increase adverse environmental impacts to either the consolidated or unconsolidated plan.

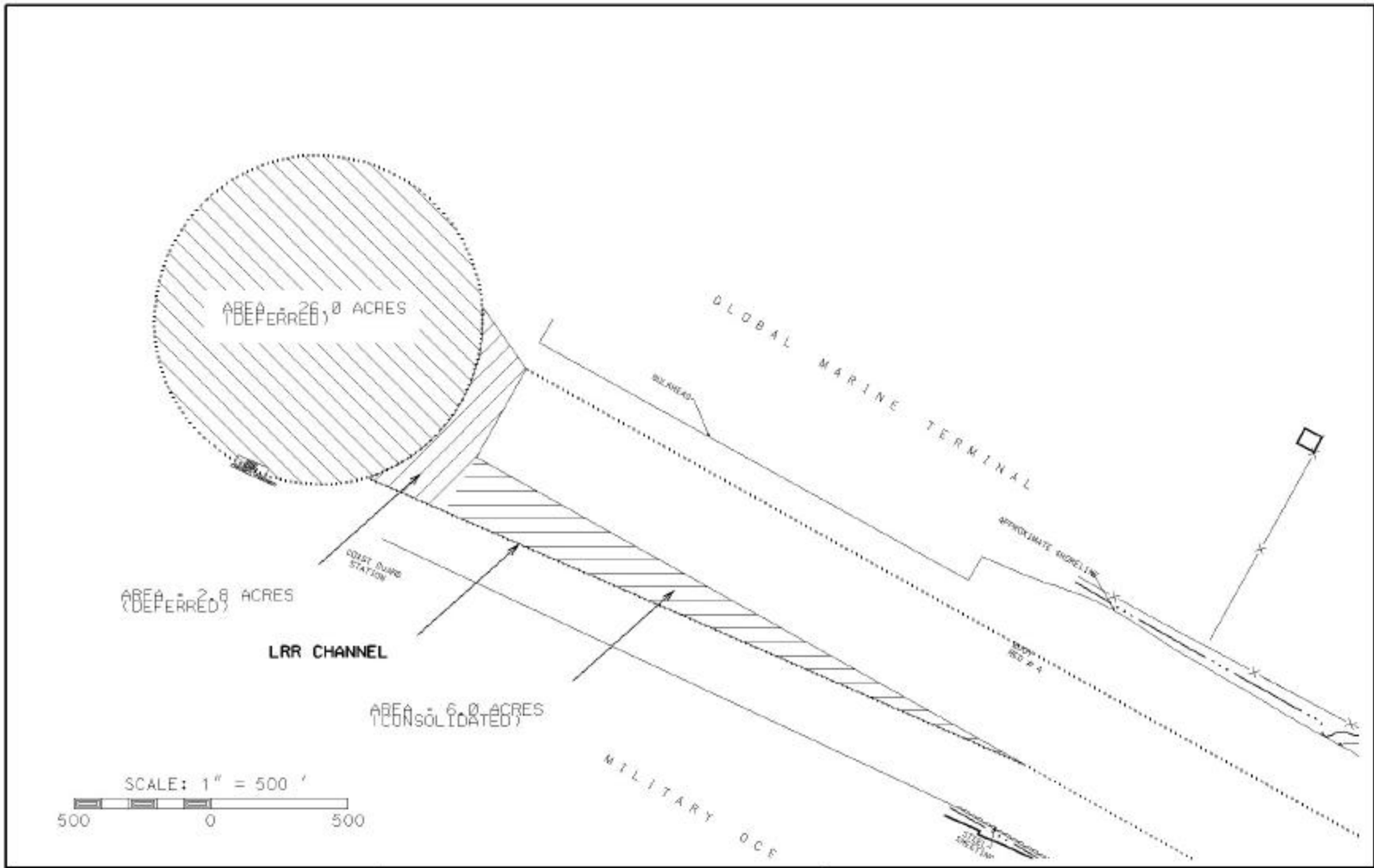
PORT JERSEY

5.51 The proposed realignment of the Port Jersey Channel, as a result of the implementation of the Recommended Plan, would: 1) eliminate 45.1 acres of proposed dredging from the existing 35' depth to the 41' depth (28.8 acres shown in Figure 5-1 and 16.3 acres shown in Figure 5-2); 2) dredge an additional 6 acre area of the inner channel from its existing depth 35' to 50' (See Figure 5-2). This new design modification diverges from the Feasibility Report by reducing the area dredged by 37.5 acres and takes the 6 acre inner channel area from 35' directly to 50' with no predecessor 41' depth; and 3) dredge an additional 7.6 acres from 41' to 50' (See figure 5-2). Potential effects due to this action would be less loss of benthic organisms within the substrate and no additional temporary avoidance of the area by mobile aquatic species during construction. As in the *Feasibility Report*, it is expected that 1) benthic organisms would recolonize the area soon after dredging; 2) mobile aquatic species would utilize other areas of the Harbor during dredging activities; 3) all areas proposed for dredging have been identified as sublittoral zone and have been previously dredged; and 4) the 6 acre area in the inner channel is proposed to be dredged in a single dredging event from 35' to 50', avoiding multiple impacts consequently no significant adverse impacts are expected due to these design modifications.

SOUTH ELIZABETH CHANNEL

The proposed realignment of the South Elizabeth Channel increases the Recommended Plan's footprint by approximately 4.4 acres of the southeastern end of the channel (See Figure 5-3). Potential effects due to this action would be direct loss of benthic organisms within the substrate and temporary avoidance of the area by mobile aquatic species during construction. As it is expected that 1) benthic organisms would recolonize the area soon after dredging; 2) mobile aquatic species would utilize other areas of the Harbor during dredging activities; 3) all 4.4 acres proposed for deepening is sublittoral zone and would go from already deep to deeper depths (no wetlands or

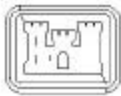
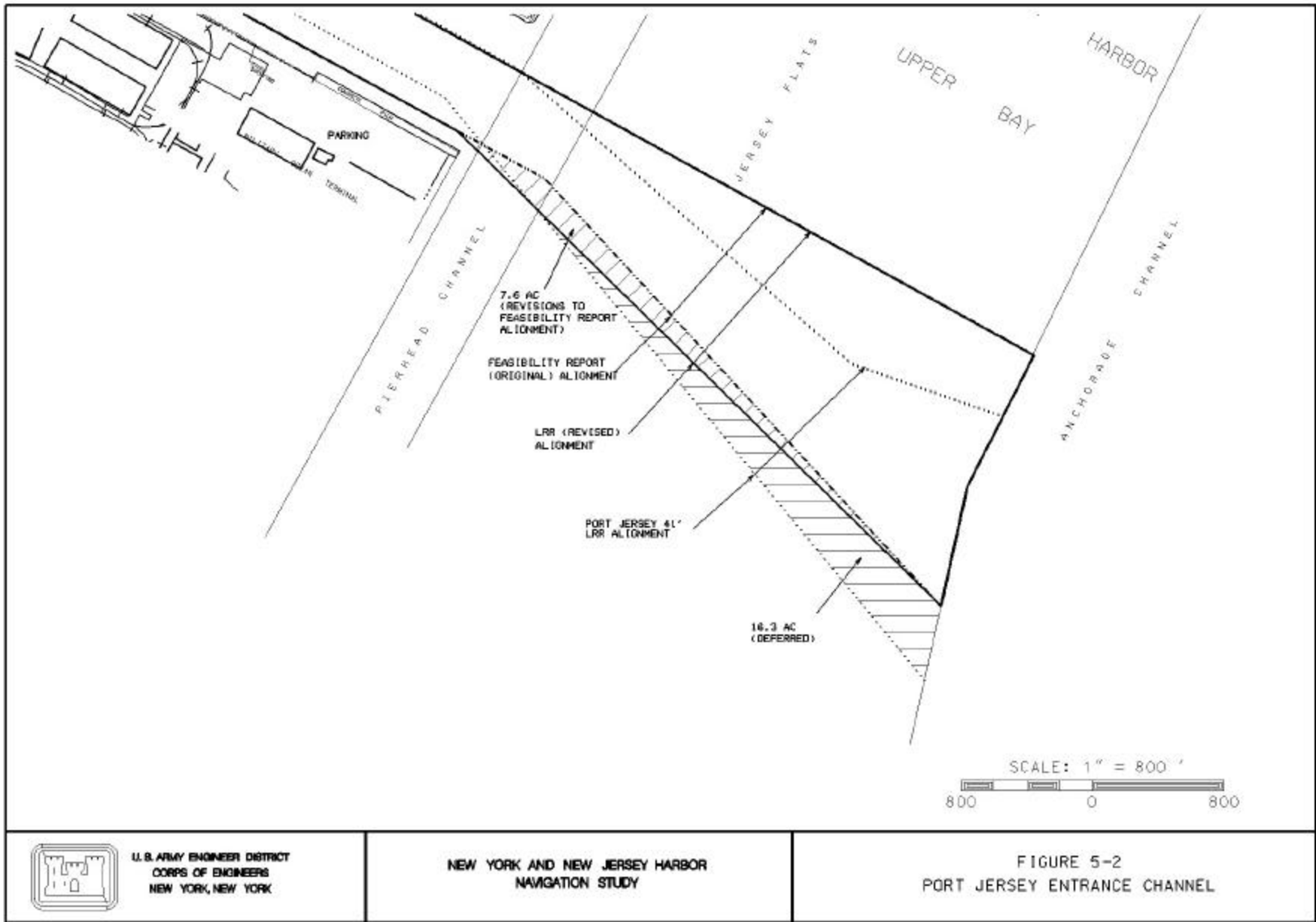




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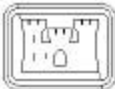
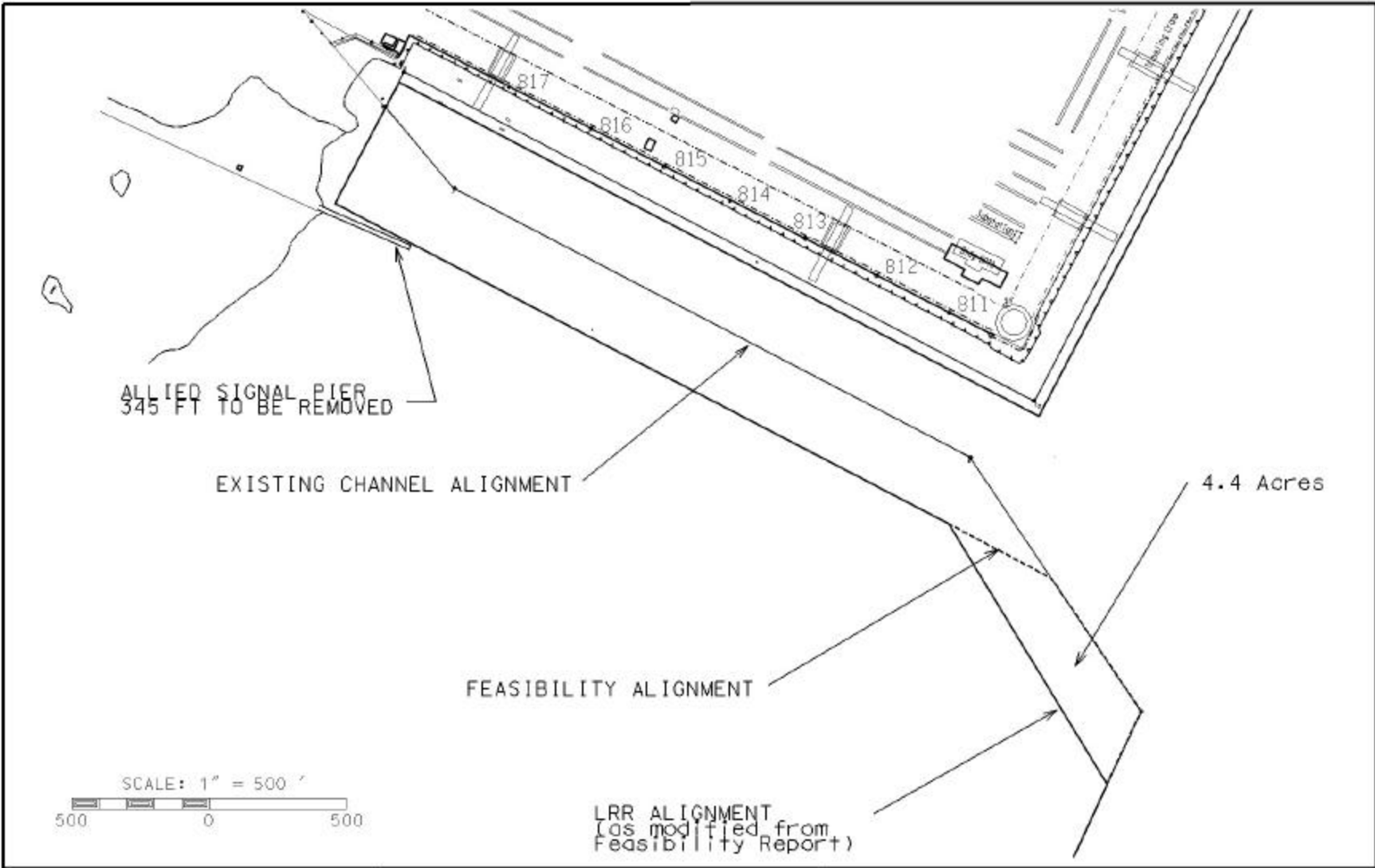
FIGURE 5-1
PORT JERSEY INNER CHANNEL



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FIGURE 5-2
 PORT JERSEY ENTRANCE CHANNEL



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FIGURE 5-3
SOUTH ELIZABETH CHANNEL

mudflat loss) at the juncture of the South Elizabeth Channel and the Newark Bay Channel, no significant adverse impacts are expected due to this design modification.

ARTHUR KILL

5.1 Realignment of the Arthur Kill Channel is proposed to reduce the Recommended Plan's footprint in two locations (See Figure 5-4). This realignment would decrease the footprint on the western side of the channel by approximately 28.4 acres. Reduction of the dredging volumes and acreage in the Arthur Kill may reduce potential adverse effects due to dredging as the total in-water work time would be reduced and less benthic habitat would be disturbed. A result of this action, no significant adverse impacts are expected due to the narrowing of the channel alignment.

PIER REMOVAL

5.2 The proposed construction of the Recommended Plan would remove/demolish portions of the Proctor and Gamble Pier in the Arthur Kill, NY and the Commerce Street Pier in the Kill Van Kull, NJ that lie within the footprint of the side slopes of the Recommended Plan and would remove the entire Allied Signal Pier in South Elizabeth Channel, NJ. Potential effects due to this action would be direct loss of encrusting organisms along the pilings of the piers and loss of edge-effect habitat for mobile aquatic species. The piers represent a small portion of this habitat type in these areas and are unstable, and dilapidated and subject to loss on their own and therefore are a source of potential drift, creating a navigation safety hazard. Their impacts are not expected to be significant as they are located along the dredging slopes of areas to be dredged in the *Feasibility Report*, and would have been removed with or without consolidated implementation. Such a removal will now be completed in a more controlled and safe manner. (See LRR's Structural Appendix: Facility Numbers 4, 8, and 9). Pier removal is expected to be executed by the private or public owner of the pier under a permit action and is required to undergo all reviews applicable to Federal, state and local laws and regulations.

RE-DELINEATION OF CONTRACT AREAS

5.3 The re-delineation of contract areas would combine Feasibility and PED phase projected contract areas into larger contract areas that would decrease the actual number of dredging operations for the Recommended Plan. This would include: 1) decreased number of mobilization and demobilization operations; 2) the flexibility for dredging operations to avoid and minimize project effects by planning for maximal distances from temporal and spatial seasonal windows without having to cease operations; and 3) where appropriate, decrease the number drilling and blasting events. As the intensity of the dredging operations would not increase (*i.e.* no more dredging equipment or more intense blasting is expected to occur in a given channel) and the total in-water work time would have a net decrease by several years, no significant adverse impacts are expected due to the re-delineation of the contract areas.



UTILITY RELOCATION

5.4 Utility relocation is expected to be executed by the private or public owner of the pier under a permit action and is required to undergo all reviews applicable to Federal, state and local laws and regulations. Utility relocation is necessary under both consolidated implementation and unconsolidated implementation plans.

RE-CLASSIFICATION OF HABITAT TYPES

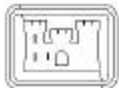
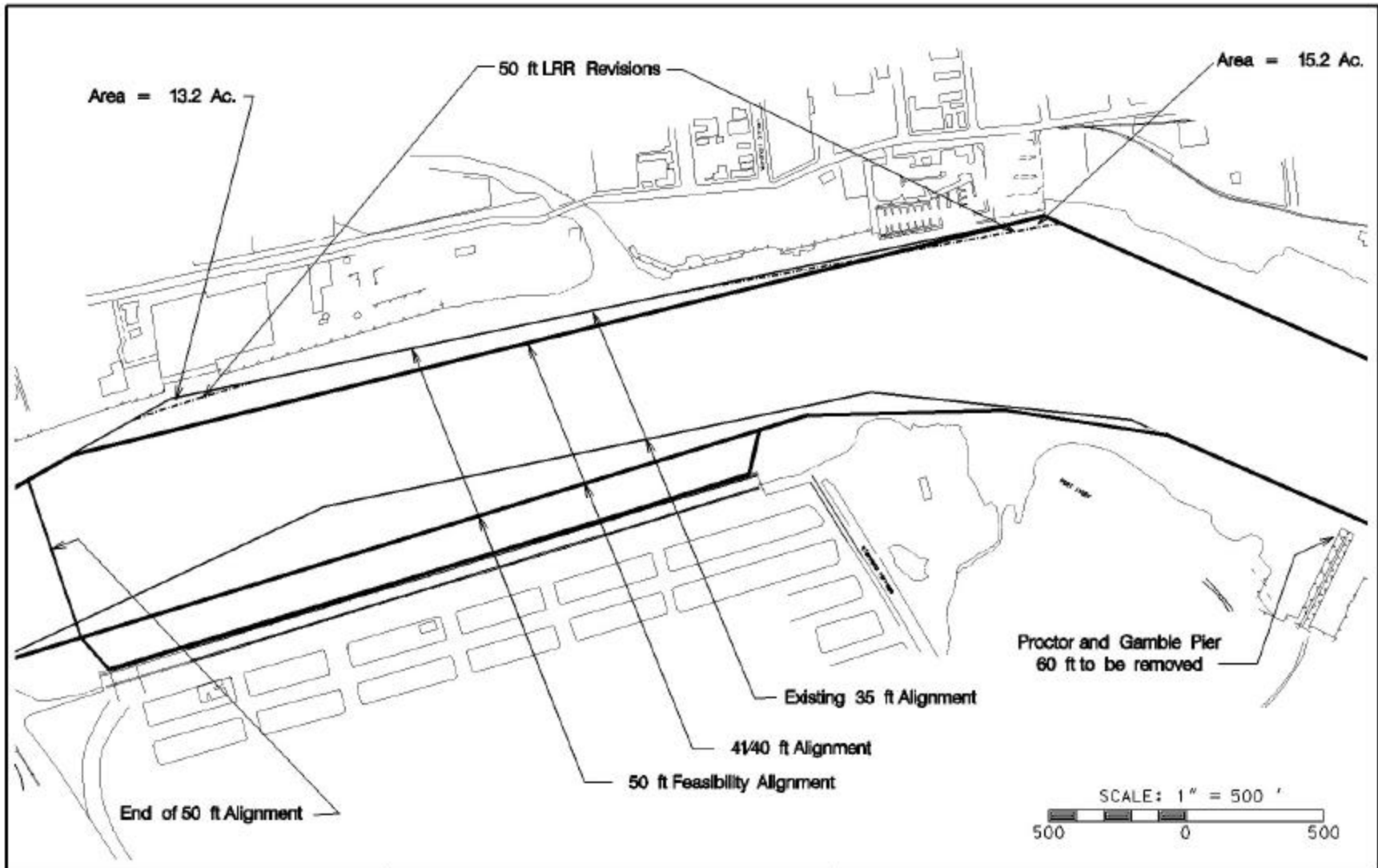
5.5 As part of the process of updating information for the EA, a portion of the project in the vicinity of Bridge Creek in the Arthur Kill and on the southwestern section of the South Elizabeth Channel have been re-classified in terms of habitat type.

- A portion of the project area designated as littoral zone in the Arthur Kill has been determined to be intertidal habitat. For the section of the project extending from Howland Hook to the Proctor & Gamble Pier, the 1999 FEIS designated 0.19 acres of littoral zone to be impacted. The latest information based on the most recent shoreline surveys shows approximately 0.32 acres of littoral zone impact and 0.14 acres of intertidal impacts. Intertidal impacts would be to rocky intertidal and shoal mudflats. This is an increase of 0.27 acres of littoral and intertidal impacts. The majority of the rocky intertidal areas are comprised of construction debris. These small areas of additional impact will be addressed in a revised mitigation plan to include impacts associated with this section of the project area (See Habitat Mitigation Plan below). Impacts to these areas would occur under both the consolidated and unconsolidated implementation plans. No significant adverse impacts are expected from this minor reclassification.
- A portion of the project area designated as sub-littoral in South Elizabeth has been determined to be littoral habitat with an increase of approximately 0.75 acres of littoral zone impacts. The 1999 FEIS previously designated approximately 0.75 acres of littoral zone as sub-littoral zone. Current information shows this area to be littoral zone habitat. This increase in littoral zone impact will be mitigated to offset impacts associated with this section of the project area (See Habitat Mitigation Plan below). Impacts to this area would occur under both the consolidated and unconsolidated implementation plans. No significant adverse impacts are expected.

HABITAT MITIGATION PLAN

As described in the *Feasibility Report*, the primary unavoidable environmental impacts (that require mitigation) associated with the Recommended Plan are disturbance and loss of littoral zone habitat. These same impacts and acreage losses, including the slight increase due to reclassifying some of the habitats described above in Section 5.57





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FIGURE 5-4
ARTHUR KILL CHANNEL

would occur under consolidated and an unconsolidated implementation so no additional mitigation would be required under the consolidated plan. Mitigation for losses of littoral zone habitat are specifically required because the littoral zone is defined as wetland habitat in New York (Title 6 §661.2 (b) and (e) of the Official Codes of Rules and Regulations of New York State) and is protected in New Jersey under Coastal Area Facility Review Act (N.J.S.A 13:19-1 to 21) (CAFRA) regulations.

5.1 The 1999 FEIS' recommended mitigation plan under the unconsolidated plan was developed in consultation with state and Federal resource agencies through the New York and New Jersey Harbor Navigation Study Environmental Work Group (EWG) and consisted of 4.6 acres of littoral zone creation at Mariner's Harbor Marsh, NY, 3 acres of littoral zone creation at the Goethals Bridge South site in New Jersey, and 11 acres of intertidal wetland creation at Woodbridge Creek, NJ. More recently, the New York State Department of Environmental Conservation (NYSDEC), in a letter dated 28 May 2003, reconsidered the proposed plan and indicated that the Mariner's Harbor Marsh site was no longer suitable. This site has been subsequently replaced with one located at Old Place Creek in New York.

5.2 Together, with the site in Woodbridge Creek in New Jersey (Refer to site maps of both sites in Appendix D), the revised mitigation plan is consistent with local state agency priorities and includes compensation for the slight increase in acreage affected that resulted from the minor reclassification of habitat types in the Arthur Kill and South Elizabeth. Both sites are contiguous tracks of land consisting of a combination of existing wetland communities and adjacent open water areas (i.e., tidal creeks). Both sites are located within watersheds and near areas of ongoing habitat initiatives and thus contribute to the broader goal of state agencies toward coastal marsh ecosystem restoration. Measures considered in the mitigation plan such as the refinement of habitat characterization, input from state regulatory agencies (NYSDEC and NJDEP) and additional functional assessments related to implementation of the Recommended Mitigation Plan as well as the selected mitigation sites are described in Appendix D. The recommended mitigation plan estimates a maximum restoration of approximately 9 acres at the New York site and approximately 8 acres at the New Jersey site from *Phragmites* dominated areas. Continuing refinement of the project design throughout project construction may decrease the actual amount of littoral and intertidal habitats impacted. If this proves to be the case, mitigation will be reduced accordingly. Final plans for the two sites are currently being completed as part of the PED phase. These revised plans either as currently indicated or potentially reduced in the future, would be the same for consolidated as well as unconsolidated implementation.



FINDING OF NO SIGNIFICANT IMPACT

New York and New Jersey Harbor Deepening Project, New York and New Jersey Consolidated Implementation

Federal Navigation Project

I have reviewed and evaluated the Environmental Assessment for the New York and New Jersey Harbor Deepening Project in terms of the overall public interest. The analysis of the possible consequences of the alternatives (including the "no-action" plan) prepared in the Limited Reevaluation Report (LRR) to address consolidated implementation of the New York and New Jersey Harbor Deepening Project (Recommended Plan) and other changed conditions were considered in terms of probable environmental impact, social well-being, and economic factors. The preferred alternative proposes the consolidation of several authorized New York and New Jersey Harbor navigation channel improvement projects, which would provide the opportunity to lower economic cost and environmental impact.

The "no-action" alternative for the proposed project is the authorized deepening of the Ambrose, Anchorage, Port Jersey, Kill Van Kull, Newark Bay, Arthur Kill, and Bay Ridge Channels to 50-ft at MLW, with the project schedule extending to 2016. The existing conditions in the Harbor and the environmental impacts of the navigation channel improvements were presented in the *New York and New Jersey Harbor Navigation Study Feasibility Report* (USACE December 1999).

The Recommended Plan would consolidate authorized navigation improvement projects into a single construction effort, directly deepening project channels to final depths authorized in §101(a)(2) of WRDA 2000, thus shortening the construction schedule by several years.

The attached Environmental Assessment discusses the environmental impacts associated with the project and any changed conditions since the release of the *New York and New Jersey Harbor Navigation Study Feasibility Report*. The environmental conditions and effects associated with consolidated implementation of the channel improvement projects and the No Action Alternative (construction of the authorized navigation channel improvement projects without consolidation) are the same, as the footprint of the Harbor Deepening Project has not changed. However, the reduced schedule related to the consolidated implementation results in a reduction in overall environmental impacts, due primarily to the shorter construction period.

As a result of my review, I find that there are no substantial changes in the proposed action or new circumstances or information relevant to environmental concerns bearing on the proposed action or its impacts that would indicate a significant impact on the human environment requiring the preparation of a Supplement to the project's Environmental Impact Statement for these changed conditions.



John B. O'Dowd
Colonel, U.S. Army
District Engineer