PUBLIC NOTICE

US Army Corps
of Engineers
New York District
Jacob K. Javits Federal Building
New York, N.Y. 10278-0090
ATTN: Regulatory Branch

In replying refer to:
Public Notice Number: **NAN-2024-00108-MMI**
Issue Date: February 25, 2025
Expiration Date: March 27, 2025

The New York District, of the U.S. Army Corps of Engineers has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 103 of the Marine Protection, Research & Sanctuaries Act of 1972, as amended (33 U.S.C. 1413):

APPLICANT: New York City Economic Development Corporation
One Liberty Plaza, 14th Floor
New York, New York 10006

ACTIVITY: Maintenance dredging, with subsequent placement of the dredged material in the Historic Area Remediation Site (HARS) for the purpose of remediation. Barge overflow at the dredging site is not proposed. Decanting of barges at the dredging site is proposed.

WATERWAY: Hudson River

LOCATION: Manhattan Cruise Terminal, 711 12th Avenue, Borough of Manhattan, New York County, City of New York, New York

A detailed description and plans of the applicant's activity are enclosed to assist in your review.

The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general the needs and welfare of the people. The decision of whether to issue a Department of the Army Permit for placement of the dredged material at the Historic Area Remediation Site (HARS) will also be based on whether the material meets the requirements of applicable implementing regulations. This activity is also being evaluated to determine that the proposed placement of dredged material will not unreasonably degrade or endanger human health, welfare or amenities, the marine environment, ecological systems or economic potentialities.

On September 26, 2000, the U.S. Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineers (USACE) signed a joint Memorandum of Agreement (MOA) outlining the steps to be taken to ensure that remediation of the HARS continues in a manner appropriately protective of human health and the aquatic environment. In making the determination evaluating placement of dredged material, the criteria established by the USEPA will be applied, including the interim change to one matrix value for polychlorinated biphenyls (PCB's) as described in the joint MOA. In addition, based upon an evaluation of the potential effect which the failure to utilize this ocean site will have on navigation, economic, and industrial development, and foreign and domestic commerce of the

United States, an independent determination will be made of the need to place the dredged material in ocean waters, other possible methods of disposal, and other appropriate locations.

The U.S. Army Corps of Engineers neither favors nor opposes permit issuance for the applicant's proposed activity. The purpose of this public notice is to solicit comments from the public; federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

ALL COMMENTS REGARDING THE PERMIT APPLICATION MUST BE PREPARED IN WRITING AND EMAILED TO CHRISTOPHER.W.MINCK@USACE.ARMY.MIL TO REACH THIS OFFICE BEFORE THE EXPIRATION DATE OF THIS NOTICE, otherwise, it will be presumed that there are no objections to the activity. Comments can also be submitted through the USACE Regulatory Request System (RRS) at https://rrs.usace.army.mil/rrs/public-notices.

Comments submitted in response to this notice will be fully considered during the public interest review for this permit application. Comments provided will become part of the public record for this permit application. All written comments, including contact information, will be made a part of the administrative record, available to the public under the Freedom of Information Act. The Administrative Record, or portions thereof, may also be posted on a Corps of Engineers internet web site. Due to resource limitations, this office will normally not acknowledge the receipt of comments or respond to individual letters of comment.

Any person may request, in writing, before this public notice expires, that a public hearing be held to collect information necessary to consider this application. Requests for public hearings shall state, with particularity, the reasons why a public hearing should be held. It should be noted that information submitted by mail is considered just as carefully in the permit decision process and bears the same weight as that furnished at a public hearing.

The proposed project was reviewed based upon the "Biological Assessment for the Closure of the Mud Dump Site and Designation of the Historic Area Remediation Site (HARS) in the New York Bight and Apex," (USEPA, 1997), Based upon this review, and a review of the latest public listing of threatened and endangered species, it has been preliminarily determined that the proposed dredging and placement activities for which authorization is sought herein, may affect, but are not likely to adversely affect the following federally threatened or endangered species (humpback whales, finback whales, right whales, loggerhead turtles, leatherback turtles, green turtles, Kemp's Ridley turtles, Atlantic sturgeon and Shortnose sturgeon) or their critical habitat pursuant to Section 7 of the Endangered Species Act (ESA; 16 USC 1531). The USACE New York District is conducting informal consultations with the National Marine Fisheries Service in accordance with Section 7 of the Endangered Species Act.

The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), requires all federal agencies to consult with the National Marine Fisheries Service on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). Consultation with the National Marine Fisheries Service regarding EFH impacts and conservation recommendations is being conducted and will be concluded prior to the final decision.

*****PLEASE USE THE 18-CHARACTER FILE NUMBER ON ALL CORRESPONDENCE WITH THIS OFFICE*****

Based upon a review of the latest published version of the National Register of Historic Places, the only known wrecks on or eligible for inclusion on the National Register at the HARS are located in Priority Remediation Area Number 1. As noted in the designation of the HARS, Remediation Material would not be allowed to be placed within 0.27 nautical miles of the identified wrecks or other wrecks that might be found. Otherwise, there are no known sites eligible for, or included in, the National Register within the proposed permit area.

Reviews of activities pursuant to Section 404 of the Clean Water Act will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404 (b) of the Clean Water Act and the applicant will obtain a water quality certificate or waiver from the appropriate state agency in accordance with Section 401 of the Clean Water Act prior to a permit decision.

Pursuant to Section 307 (c) of the Coastal Zone Management Act of 1972 as amended [16 U.S.C. 1456 (c)], for activities under consideration that are located within the coastal zone of a state which has a federally approved coastal zone management program, the applicant has certified in the permit application that the activity complies with, and will be conducted in a manner that is consistent with, the approved state coastal zone management program. By this public notice, we are requesting the state's concurrence with, objection to, or waiver of the applicant's certification. No permit decision will be made until one of these actions occur. For activities within the coastal zone of New York State, the applicant's certification and accompanying information is available from the Consistency Coordinator, New York State Department of State, Division of Coastal Resources and Waterfront Revitalization, Coastal Zone Management Program, One Commerce Plaza, 99 Washington Avenue, Albany, New York 12231, Telephone (518) 474-6000. Comments regarding the applicant's certification, and copies of any letters to this office commenting upon this proposal, should be so addressed.

In addition to any required water quality certificate and coastal zone management program concurrence, the applicant has obtained or requested the following governmental authorization for the activity under consideration:

- New York State Department of Environmental Conservation

If you have any questions concerning this application, you may contact Mr. Christopher Minck at Christopher.W.Minck@usace.army.mil. Questions about the HARS can be addressed to Mr. Mark Reiss, Manager, Dredging, Sediments and Oceans Section, Water Division, Environmental Protection Agency, Region 2 at (212) 637-3799.

In order for us to better serve you, please complete our Customer Service Survey located at http://www.nan.usace.army.mil/Missions/Regulatory/CustomerSurvey.aspx.

For more information on New York District Corps of Engineers programs, visit our website at http://www.nan.usace.army.mil.

R. Miranda Digitally signed by Rosita Miranda

FOR AND IN BEHALF OF
Stephan A. Ryba
Chief, Regulatory Branch

Enclosures

DESCRIPTION OF PROPOSED WORK

The applicant, the New York City Economic Development Corporation, has requested a Department of the Army permit to continue to perform annual maintenance dredging activities at the Manhattan Cruise Terminal in the Hudson River at 711 12th Avenue in the Borough of Manhattan, New York County, City of New York, New York. The purpose of this proposed annual maintenance dredging is to continue to maintain sufficient water depths within the Manhattan Cruise Terminal's berths between Pier 86 and Pier 92 for continuing safe vessel use.

The Manhattan Cruise Terminal was constructed in the 1930s to replace the Chelsea Piers as New York City's luxury liner terminal, when passenger ships were the primary form of transportation to and from Europe. Renovations were completed to the Pier complex in 1970. Ocean-going passenger cruise ships continue to utilize the Terminal year-round. The Terminal also accommodates U.S. Navy ships for Fleet Week festivities, which have occurred annually since 1988.

Twice annually, approximately 490,000 cubic yards (CY) of material would be dredged by a closed clamshell environmental bucket dredge. The dredging area, totaling approximately 28.7 acres, contains Berths 1 through 5 which are located at the inter-pier area between Piers 86 & 88, Piers 88 & 90, Piers 90 & 92, and a portion of the adjacent Federal Navigation Channel along the outboard end of Piers 86, 88, 90, and 92 would be dredged to a maximum depth of 38-feet below the Plane of Mean Lower Low Water (MLLW), plus two feet of allowable overdepth to assure the needed safe navigation depths. The side slopes of the dredge area will be no steeper than 3:1. Barge overflow at the dredging site is not proposed. Decanting of excess water would occur at the dredging site when performed in accordance with a water quality certificate issued by the New York State Department of Environmental Conservation. The dredged material would be transported by ocean-going barges for placement at the Historic Area Remediation Site (HARS) for the purpose of remediation.

The dredged material would be used for remediation purposes at the HARS by placing it over degraded sediments within the site, which is located in the Atlantic Ocean off of Sandy Hook, New Jersey. The proposed dredged material would be transported by bottom-opening barges to the placement site.

Should approval of the requested permit be issued, consideration is being given to issuance of a three-year permit for the bi-annual maintenance work. Subsequent to an initial dredging cycle, the applicant would have to request authorization to perform maintenance dredging during the remaining life of the permit. Such authorization is dependent on the applicant demonstrating that each maintenance event requiring placement at the HARS is in compliance with the Ocean Dumping Regulations cited at 40 CFR Sections 220 - 229 in effect at that time, and will be dependent upon the availability of an approved disposal or remediation site.

INTRODUCTION TO THE HISTORIC AREA REMEDIATION SITE (HARS):

In 1972, the Congress of the United States enacted the Marine Protection, Research and Sanctuaries Act (MPRSA) to address and control the dumping of materials into ocean waters. Title I of the Act authorized the US Environmental Protection Agency (USEPA) and the US Army Corps of Engineers (USACE) to regulate dumping in ocean waters. The USEPA and the USACE share responsibility for MPRSA permitting and ocean disposal site management. Regulations implementing MPRSA can be found at 40 CFR Sections 220 through 229. With few exceptions, MPRSA prohibits the transportation of material from the United States for the purpose of ocean dumping except as may be authorized by a permit issued under the MPRSA. The MPRSA divides permitting responsibility between the USEPA and USACE. Under Section 102 of the MPRSA,

USEPA has responsibility for issuing permits for all materials other than dredged material. Under Section 103 of MPRSA, the Secretary of the Army has the responsibility for issuing permits for dredged material. Determinations to issue MPRSA permits for dredged material are subject to USEPA concurrence.

In the fall of 1997, the USEPA de-designated and terminated the use of the New York Bight Dredged Material Disposal Site (commonly known as the Mud Dump Site or MDS). The MDS had been designated in 1984 for the disposal of up to 100 million CY of dredged material from navigation channels and other port facilities within the Port of New York and New Jersey. Simultaneous with the closure of the MDS, the site and surrounding areas that had been used historically as disposal sites for dredged materials were re-designated as the HARS under authority of Section 102(c) of MPRSA at 40 CFR Sections 228.15(d)(6) (See 62 Fed. Reg. 46142 (August 29, 1997); 62 Fed. Reg. 26267 (May 13, 1997). The HARS will be managed to reduce impacts of historic disposal activities at the site to acceptable levels in accordance with 40 CFR Section 228.11(c). The need to remediate the HARS is supported by the presence of toxic effects, dioxin bioaccumulation exceeding Category 1 levels in worm tissue (a definition of which appears in a memorandum reviewing the results of the applicant's testing), as well as TCDD/PCB contamination in area lobster stocks. Individual elements of those data do not establish that sediments within the Study Area are imminent hazards to the New York Bight Apex ecosystem, living resources, or human health. However, the collective evidence presents cause for concern, and justifies the need for remediation. Further information on the conditions in the Study Area and the surveys performed may be found in the Supplemental Environmental Impact Statement (USEPA, 1997).

The designation of the HARS identifies an area in and around the former Mud Dump Site (MDS) that has exhibited the potential for adverse ecological impacts. The HARS will be remediated with dredged material that meets current Category 1 standards and will not cause significant undesirable effects including through bioaccumulation or unacceptable toxicity, in accordance with 40 CFR 227.6. This dredged material is referred to as "Material for Historic Area Remediation Site (HARS)" or "HARS Material."

As of the end of January 2025, dredged materials from one hundred fifty seven (157) different completed and ongoing Department of the Army (DA) permitted and federal dredging projects in the Port of New York and New Jersey have been dredged and placed as Remediation Material in the ocean at the Historic Area Remediation Site (HARS) since the closure of the Mud Dump Site and designation of the HARS in September 1997. This represents approximately 88,262,000 cubic yards of Remediation Material.

The HARS, which includes the 2.2 square nautical mile area of the MDS, is an approximately 15.7 square nautical mile area located approximately 3.5 nautical miles east of Highlands, New Jersey and 7.7 nautical miles south of Rockaway, New York. The MDS is located approximately 5.3 nautical miles east of Highlands, New Jersey and 9.6 nautical miles south of Rockaway, New York. When determined by bathymetry (a map depicting the relative depths of water in a particular area) that capping is complete, the USEPA will take any necessary rulemaking to de-designate the HARS. The HARS includes the following three areas:

Priority Remediation Area (PRA): A 9.0 square nautical mile area to be remediated with at least 1 meter of Remediation Material. The PRA encompasses the area of degraded sediments as described in greater detail in the SEIS.

Buffer Zone: An approximately 5.7 square nautical mile area (0.27 nautical mile wide band around the PRA) in which no placement of the Material for Remediation will be allowed, but may receive Material for Remediation that incidentally spreads out of the PRA.

No Discharge Zone: An approximately 1.0 square nautical mile area in which no placement or incidental spread of Material for Remediation is allowed.

To improve management and monitoring of placement activities at the HARS, electronic monitoring equipment will be on-board any barges carrying Remediation Material to the HARS. This equipment records vessel positions and scow drafts throughout the duration of each trip to the HARS and during remediation operations. To improve communication reliability between tugs and scows, a prescribed formal communication procedure has been put in place (copies of this procedure are available upon request).

Additional information concerning the HARS can be obtained from Mr. Mark Reiss, Manager, Dredging, Sediments and Oceans Section, Water Division, Environmental Protection Agency, Region 2 at (212) 637-3799.

HARS SUITABILITY TESTING:

A testing evaluation process was developed, which established a basic framework for assessing results of tissue analysis from bioaccumulation testing of dredged material proposed for ocean placement. The framework defines a standard approach for assessing each analyte (an item to be analyzed for as part of the testing), in relation to regulatory standards and human health, and environmental risk factors, to facilitate decisions in accordance with the Marine Protection, Research, and Sanctuaries Act of 1972. USEPA and USACE utilize this testing evaluation process for identifying Category 1 dredged material in determining suitability of dredged materials as material for remediation at the HARS. The Testing Evaluation Memo for this project may be obtained by contacting Mr. Mark Reiss, Manager, Dredging, Sediments and Oceans Section, Water Division, Environmental Protection Agency, Region 2 at (212) 637-3799.

Sediment Grain Size Analysis:

As depicted on the attached drawings, the proposed maintenance dredging area has been characterized by nineteen (19) sediment core samples taken down to -38 feet MLLW plus two feet allowable overdepth in two (2) separate reaches. Reach 1 consists of Berths 1, 2, 3, 4, and the berth channel, and Reach 2 consists of Berth 5. Reach 1 has been dredged during the most recent dredge cycle in September-October 2024 and Reach 2 has not been dredged since October-November 2018; therefore the two reaches were separated and composites evaluated separately. The fifteen (15) samples from Reach 1 were then combined into one composite sample and the four (4) samples from Reach 2 were then combined into one composite sample, which were subjected to chemical and biological testing. Based upon an analysis of sediment samples from the project area submitted by the applicant and their contract laboratory, the grain size characteristics of the proposed dredged material is:

Reach 1 - 6.0% sand, 58.8% silt, 35.2% clay
Reach 2 - 9.8% sand, 65.1% silt, 25.1% clay

Results of the chemical and biological testing are summarized below.

Evaluation of the liquid phase: Chemistry

Under the requirements of 40 CFR 227.6(c)(1) and 227.27(a), chemical analysis was conducted on project area site water and elutriate. Results of this evaluation are summarized in Table 1. Please note in reading Table 1 that detection limits have been listed for only those constituents which the laboratory reported as non-detected (ND) in the concentration column (this reporting convention was similarly applied in reporting the results of bioaccumulation potential testing discussed below). If the constituents were detected (above the detection limit), the measured value would appear.

Expected concentrations of chemical constituents in the water column following ocean placement, after allowing for initial mixing, were calculated using the Automated Dredging and Disposal Alternatives Management System (ADDAMS), a mixing model developed by the U.S. Army Corps of Engineers (USACE) Waterways Experiment Station (WES) and described in the joint USEPA/USACE implementation manual entitled "Evaluation of Dredged Material Proposed for Ocean Disposal" (commonly referred to as the National "Green Book"). The material can be considered suitable for ocean disposal only if the concentration of the Suspended Particulate Phase (SPP) of the dredged material, after allowance for the initial mixing, will not exceed the Limiting Permissible Concentration (LPC) beyond the boundaries of the disposal site within the first four hours following HARS placement or at any point in the marine environment after the first four hours. The ADDAMS Model predicted that applicable marine water quality criteria for listed constituents were not exceeded after allowance for initial mixing [40 CFR 227.29(a)]. Results of this analysis indicate that the LPC will be met for the proposed dredged material from the project area.

Bioassays:

In accordance with 40 CFR Part 227 of the Ocean Dumping regulations, bioassays were performed to assess the toxicities of the suspended particulate, liquid, and solid phases of the proposed dredged material from the proposed project area.

Evaluation of the liquid phase:

Liquid phase bioassays run as part of the suspended particulate phase on three appropriate sensitive marine organisms: a crustacean (a mysid shrimp, *Americamysis bahia*), a finfish (*Menidia beryllina*), and the planktonic larvae of a bivalve (the Common mussel, *Mytilus edulis*), show that after initial mixing (as determined under 40 CFR Sections 227.29(a)(2)), the liquid phase of the material would not exceed a toxicity threshold of 0.01 of a concentration shown to be acutely toxic to appropriate sensitive marine organisms. Accordingly, it is concluded the liquid phase of the material would be in compliance with 40 CFR Sections 227.6(c)(1) and 227.27(a). The specific test results and technical analysis of the data underlying this conclusion are described and evaluated in a joint USACE New York District/US Environmental Protection Agency Region 2 memorandum (copies available upon request).

Evaluation of the suspended particulate phase:

The suspended particulate phase of the material was evaluated for compliance with 40 CFR Sections 227.6(c)(2) and 227.27(b). Bioassay testing of the suspended particulate phase of the material has been conducted using three appropriate sensitive marine organisms: the mysid shrimp, *Americamysis bahia*; a finfish, *Menidia beryllina*; and the planktonic larvae of a Common mussel, *Mytilus edulis.* Median lethal concentrations (LC50), those concentrations of suspended particulate phase resulting in 50% mortality, were determined for all three test species. In addition, the median effective concentration (EC50) based on normal larval development to the D-cell stage, was determined for bivalve larvae. The Limiting Permissible Concentration (LPC) was then calculated as 0.01 of the LC50 or EC50 of the most sensitive organism. In this case, the LPC was calculated at 1.00% for Reach 1 and Reach 2 based on the EC50 of *M. edulis.* This information shows that when placed in the HARS, and after initial mixing (as determined under 40 CFR Sections 227.29(a)(2)), the suspended particulate phase of this material would not exceed a toxicity threshold of 0.01 of a concentration shown to be acutely toxic in the laboratory bioassays, and thus would not result in significant mortality. Moreover, the fact that after placement, the suspended particulate phase would only exist in the environment for a short time, means the suspended particulate phase of the reach would not cause significant undesirable effects, including the possibility of danger associated with bioaccumulation, since these impacts require long exposure durations (see USEPA, 1994).

Accordingly, it is concluded that the suspended phase of the material would be in compliance with 40 CFR Sections 227.6(c)(2) and 227.27(b). The results of bioassay tests conducted on proposed dredged sediments are presented in Table 2 of this public notice.

Evaluation of the solid phase:

The solid phase tests the whole dredged material before it has undergone processing that might alter its chemical or toxicological properties. The solid phase was evaluated for compliance with 40 CFR Sections 227.6(c)(3) and 227.27(b). This evaluation was made using the results of two specific types of evaluations on the solid phase of the material, one focusing on the acute (10-day) toxicity of the material, and the other focusing on the potential for the material to cause significant adverse effects due to bioaccumulation. Both types of tests used appropriate sensitive benthic marine organisms according to procedures approved by USEPA and the USACE. The following sections address the results of those tests and further analyze compliance with the regulatory criteria of 40 CFR Sections 227.6(c)(3), 227.27(b), and 228.15 and with USEPA Region 2/USACE New York District guidance.

1. Toxicity:

Ten-day toxicity tests were conducted on proposed project dredged material using a filter feeding mysid shrimp *(Americamysis bahia)* and a deposit feeding, burrowing amphipod (*Ampelisca abdita*), which are appropriate sensitive benthic marine organisms. The results from the proposed project material are then compared to results for the same organisms that are exposed to reference sediments. The reference sediments represent existing background conditions in the vicinity of the HARS, removed from the influence of any placement operations. These organisms are good predictors of adverse effects to benthic marine communities (see USEPA, 1996). The toxicity of project sediments was not statistically greater than reference sediments for either mysid, or for amphipods. The difference between percent survivals in test and reference sediments was less than 10% for mysid shrimp and less than 20% for amphipods in Reaches 1 and 2.

These results show that the solid phase of the material would not cause significant mortality and meets the solid phase toxicity criteria of Sections 227.6 and 227.27. The results of the ten-day toxicity test are summarized in Table 2.

2. Bioaccumulation:

Bioaccumulation tests for the sediment were conducted on the solid phase of the project material for contaminants of concern using two appropriate sensitive benthic marine organisms: a burrowing, deposit-feeding polychaete, *Alitta virens,* and a filter-feeding bivalve, *Macoma nasuta.* These species are considered to be good representatives of the phylogenetically diverse base of the marine food chain. Contaminants of concern were identified for the regional testing manual from the NY/NJ Harbor Estuary Program Toxics Characterization report (Squibb, *et al.* 1991). Table 3 of this Public Notice addresses the bioaccumulation of contaminants of concern. Additional information on more rigorous evaluations conducted on individual contaminant values may be found in the Testing Evaluation Memo for this project. Table 3 indicates that several contaminants bioaccumulated above reference in the clam and/or worm. All constituents identified in worm and clam tissue were compared to existing Food and Drug Administration (FDA) action levels for poisonous or deleterious substances in fish and shellfish for human food, regional disposal criteria, background concentrations, and risk-based criteria provided by USEPA. The testing memo further evaluates these contaminants, and concludes that any contaminant that exceeded reference did not exceed any existing regional matrix or dioxin values. Several contaminants which did not have matrix values did exceed background levels, but in no case did any contaminant accumulate to toxicologically important concentrations, even when very

conservative assumptions were used in the analysis. Any contaminants that exhibited bioaccumulation test results above reference were all below the acceptable human health risk range and acceptable aquatic effects range, again using conservative approaches and analyses. A discussion of this determination is available in the Testing Evaluation Memo for this permit applicant's dredging and disposal project. The bioaccumulation test results were used in evaluating the potential impacts of the material. The determination is that the combined results of the toxicity and bioaccumulation tests indicate that the material meets the criteria of 40 CFR Sections 227.6(c)(3) and 227.27(b) and 228.15(d)(6)(v)(A) of the Regulations, and that the material is suitable for placement at the HARS.

CONCLUSIONS:

Based upon the results of testing of the sediments proposed for dredging in the permit applicant's facility and ocean placement the USACE and USEPA have determined that the material is Category 1 meeting the criteria for ocean placement as described in 40 CFR Sections 227.6, 227.27, and 228.15, and is a Remediation Material as defined under the USEPA Region 2/USACE, New York District guidance. The specific test results and technical analysis of the data underlying this conclusion are described in the joint USACE, New York District/USEPA Region 2 memorandum mentioned previously.

Placement of this material at the HARS will serve to reduce impacts to acceptable levels and improve benthic conditions. Sediments in the HARS have been found to be acutely toxic to sensitive benthic marine organisms in laboratory tests, whereas project sediments used in laboratory acute toxicity tests with the same species were determined not to be toxic. Placement of project material over existing toxic sediments would serve to remediate those areas for toxicity. In addition, by covering the existing sediments in the site with this project material, surface dwelling organisms will be exposed to sediments exhibiting Category 1 qualities whereas the existing sediments exceed these levels.

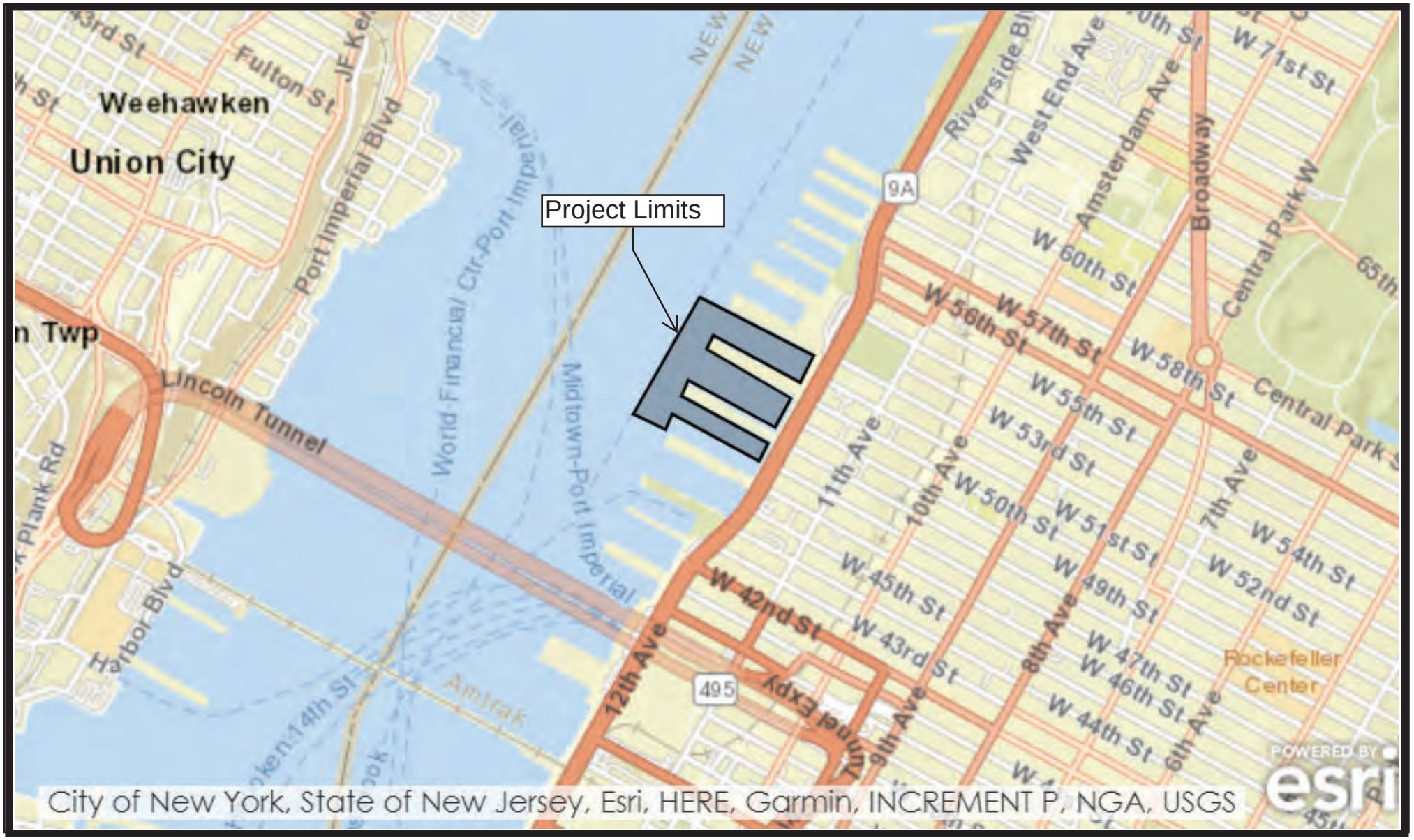
ALTERNATIVES TO HARS PLACEMENT:

Regarding ocean placement of dredged material, the Ocean Dumping Regulations [Title 40 CFR Sections 227.16(b)] states that ". . . alternative methods of disposal are practicable when they are available at reasonable incremental cost and energy expenditures which need not be competitive with the costs of ocean dumping, taking into account the environmental impacts associated with the use of alternatives to ocean dumping . . ." The permit applicant has investigated the use of alternative placement sites for the dredged material that include beneficial re-use at upland placement locations. Beneficial re-use of the dredged material for material recycling has been considered, but the options are limited in number. For existing options, the applicant concluded that the project's sediment characteristics would not be acceptable for re-use. The applicant also investigated the use of upland placement of the dredged material. However, upland disposal locations in the metropolitan area are extremely limited. In addition, upland storage space is limited and there is virtually no commercial use for this type of material, thereby making upland placement not a practicable alternative. Therefore, alternative sites for the placement of the dredged material are either not available or not available at reasonable incremental costs, thus leaving HARS placement as the applicant's preferred alternative.

COMMUNICATIONS:

For additional information regarding this project or the HARS contact Mr. Christopher Minck, Regulatory Project Manager, USACE, New York District at Christopher.W.Minck@usace.army.mil or Mr. Mark Reiss, Manager, Dredging, Sediments and Oceans Section, Water Division, Environmental Protection Agency, Region 2 at (212) 637-3799. If the determination is made to

issue a permit, the permittee will contact the US Coast Guard with the details of the authorized work.



Legend:

Project Location

N
W E
S

Figure 1: Project Location

ENTECH
17 State Street, 36th Floor
New York, NY 10004
Phone: 646-722-0000
Fax: 212-785-8015

Date: 08.19.24

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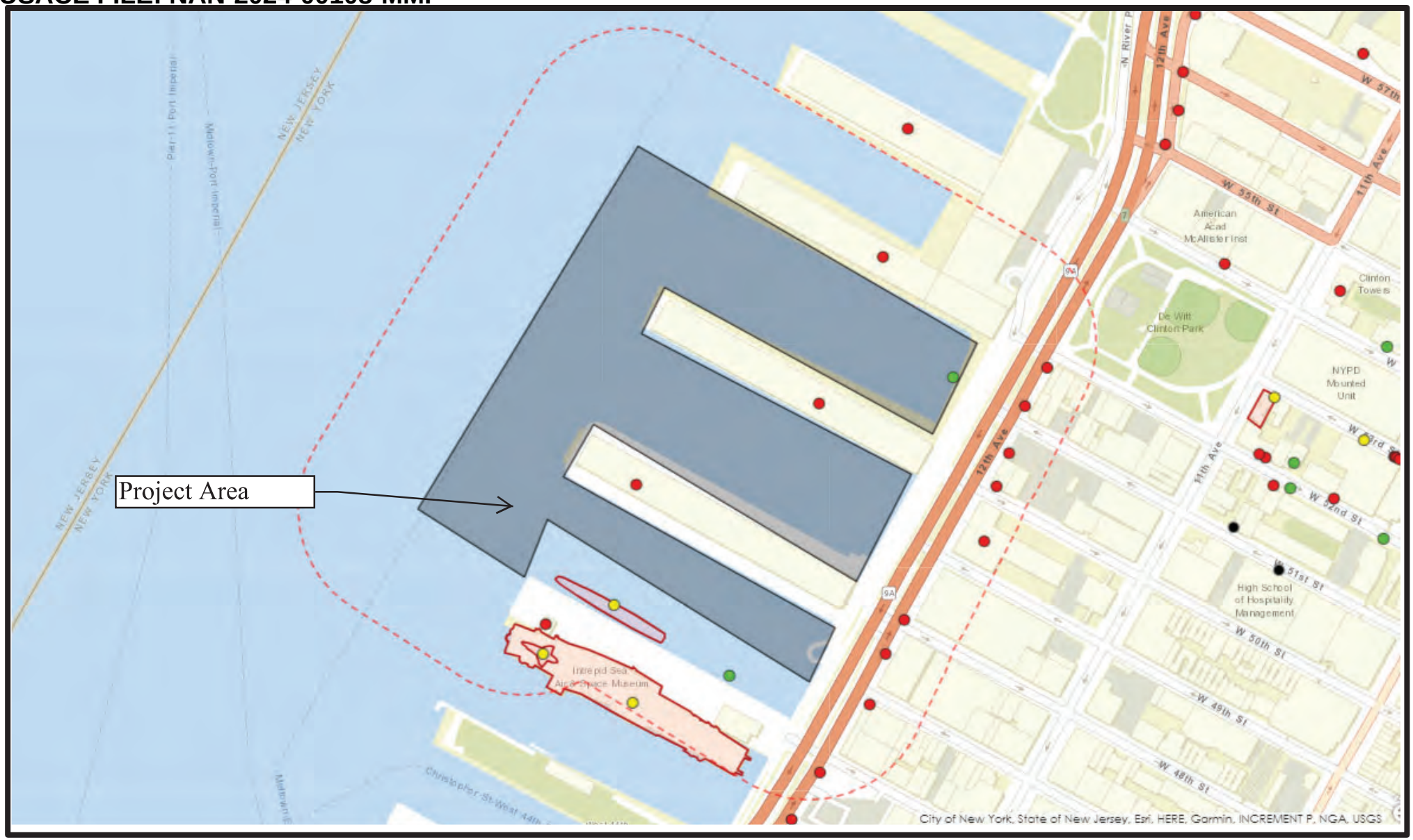

Legend:

- Eligible
- Listed
- Not Eligible
- Not Eligible - Demolished
- Undetermined
- 400 ft. Buffer
- National Register Building Sites

N W E S

Figure 2: CRIS MAP
NEARBY HISTORICAL RESOURCES

ENTECH
17 State Street, 36th Floor
New York, NY 10004
Phone: 646-722-0000
Fax: 212-785-8015

Date: 08.20.2024

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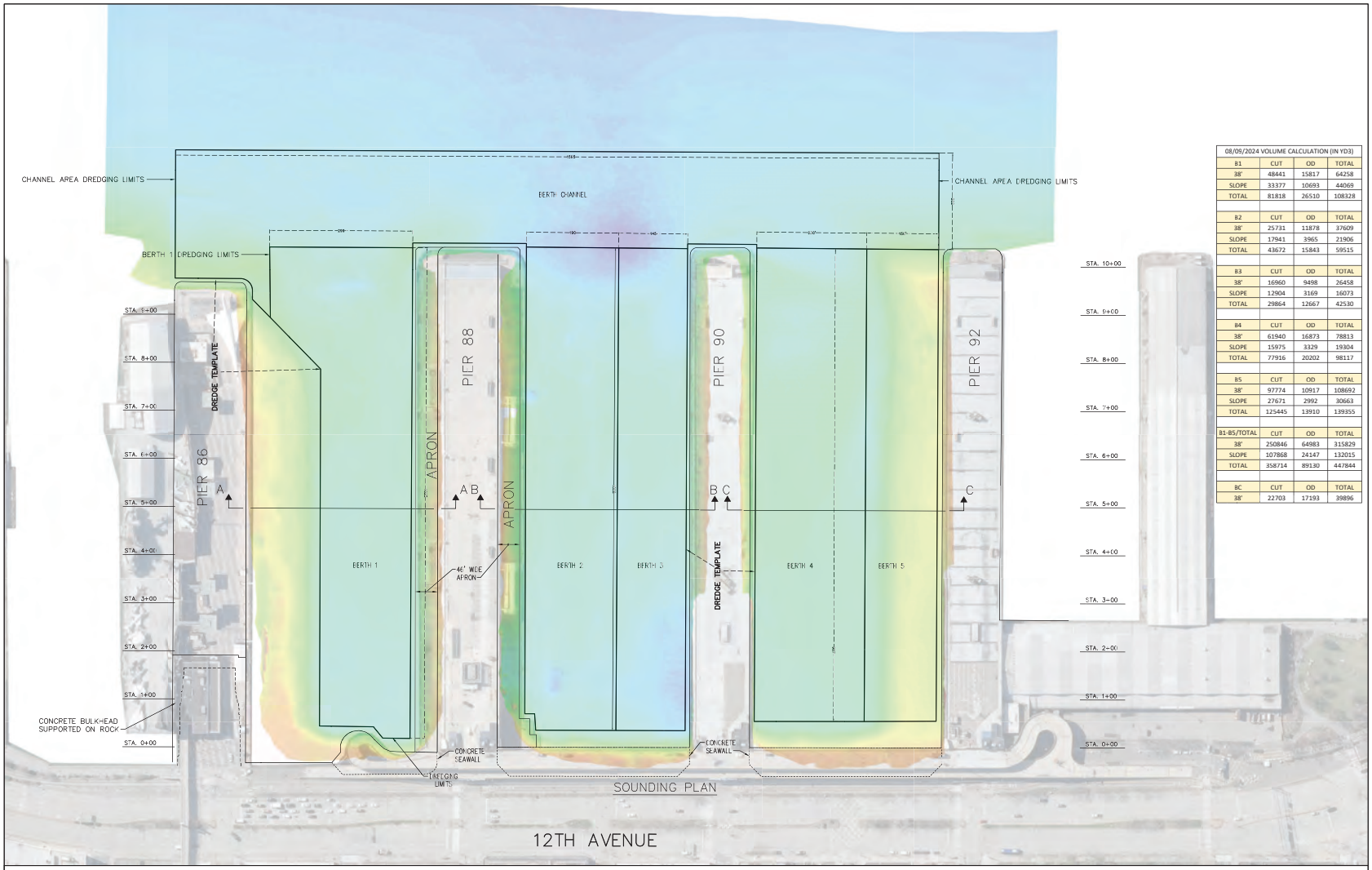
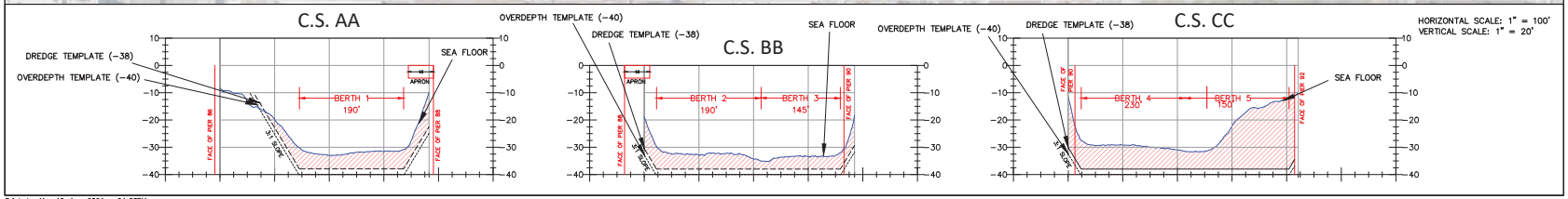


08/09/2024 VOLUME CALCULATION (IN YD3)

B1	CUT	OD	TOTAL
38'	48441	15817	64258
SLOPE	33377	10693	44069
TOTAL	81818	26510	108328
B2	CUT	OD	TOTAL
38'	25731	11878	37609
SLOPE	17941	3965	21906
TOTAL	43672	15843	59515
B3	CUT	OD	TOTAL
38'	16960	9498	26458
SLOPE	12904	3169	16073
TOTAL	29864	12667	42530
B4	CUT	OD	TOTAL
38'	61940	16873	78813
SLOPE	15975	3329	19304
TOTAL	77916	20202	98117
B5	CUT	OD	TOTAL
38'	97774	10917	108692
SLOPE	27671	2992	30663
TOTAL	125445	13910	139355
B1-B5/TOTAL	CUT	OD	TOTAL
38'	250846	64983	315829
SLOPE	107868	24147	132015
TOTAL	358714	89130	447844
BC	CUT	OD	TOTAL
38'	22703	17193	39896



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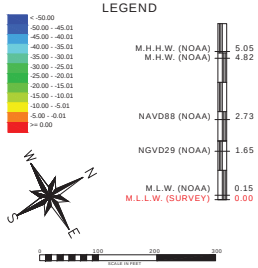
KEY MAP

GEODETIC PARAMETERS

PROJECTION: LAMBERT CONFORMAL CONICAL
COOR. SYS. : STATE PLANE COORDINATES(E,N)
REFERENCE FRAME: NAD83(2011)
ZONE: NY-3104 NEW YORK LONG ISLAND

LEGEND



NOTES

1. THIS SURVEY DOES NOT GUARANTEE THE ABSENCE OR PRESENCE OF ANY UNDERWATER OBSTRUCTION. DIVER VERIFICATION MAY BE REQUIRED.

2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME. THE DATA IS REPRESENTATIVE OF A LARGER DATA SET. THE SOUNDING DATA DEPICTED ON THIS MAP WAS COLLECTED USING CLASS 2 SURVEY STANDARDS IN ACCORDANCE WITH EM 1110 2 1003.

3. RTK GPS WAS USED TO RECORD WATER LEVEL DURING SURVEY. N.O.A.A.'s "VDATUM" Ver. 4.1 WAS USED TO CALCULATE VERTICAL DATUMS.

4. AERIAL IMAGERY SHOWN IS FOR ORIENTATION PURPOSES ONLY.

5. CAMELS ARE PRESENT ALONG THE FACE OF THE PIERS AND LOCATIONS VARY BASED ON VESSEL SCHEDULES.

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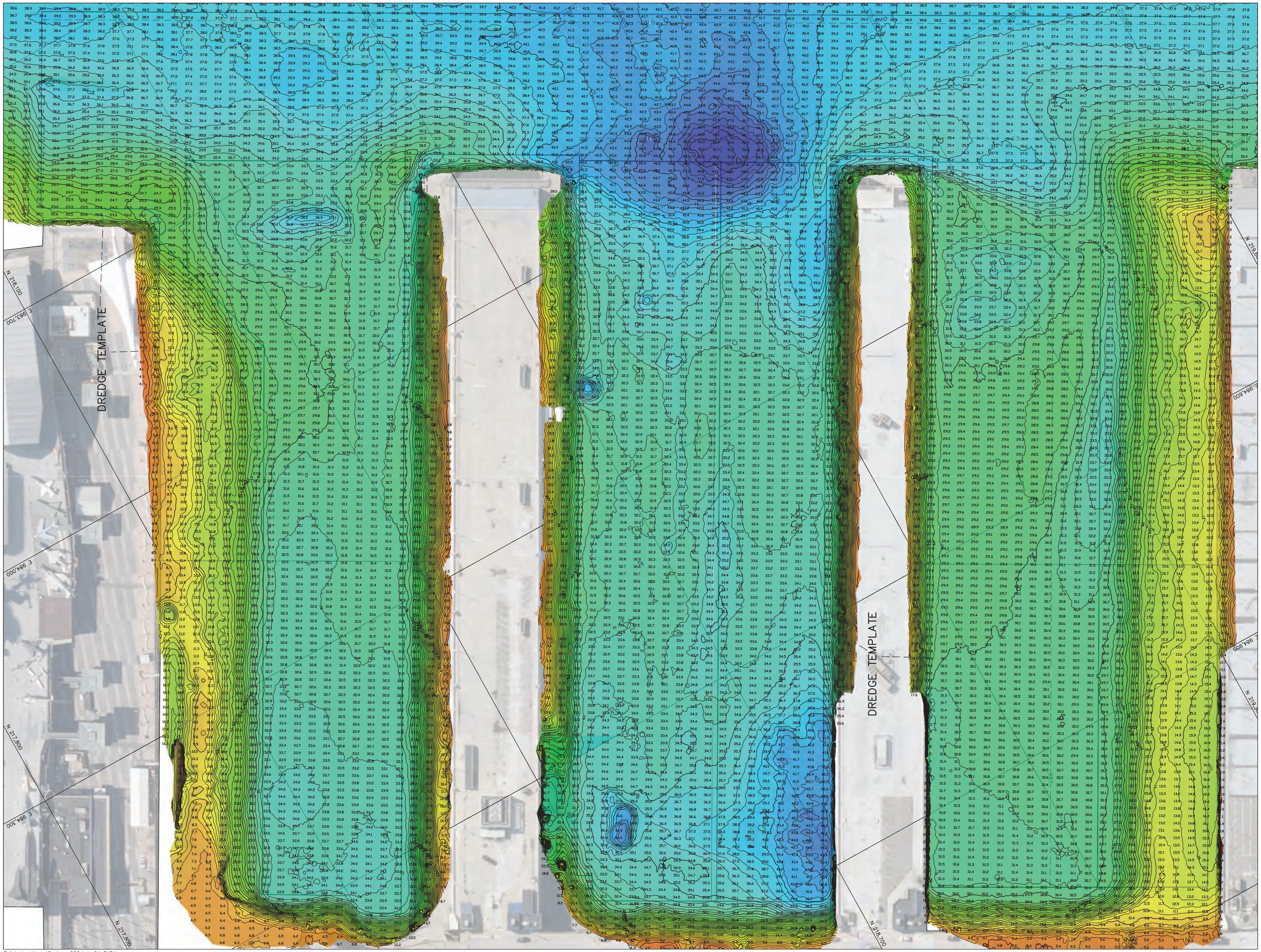
CONDITION SURVEY
MANHATTAN CRUISE TERMINAL
NEW YORK, NY

SHEET 2 OF 2

Rev.No.	Revision	Signed	Date

Drawn by: DJN	Checked by: DWR	Survey Dates: 08/09/2024	
Sheet Size: 24"x36"	Project No.: 53322	Draft Date: 08/12/2024	



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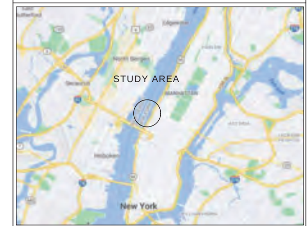
KEY MAP



GEODETIC PARAMETERS

PROJECTION: LAMBERT CONFORMAL CONICAL
COOR. SYS. : STATE PLANE COORDINATES(E,N)
REFERENCE FRAME: NAD83(2011)
ZONE: NY-3104 NEW YORK LONG ISLAND

LEGEND

>= 0.00
-5.00 - -0.01
-10.00 - -5.01
-15.00 - -10.01
-20.00 - -15.01
-25.00 - -20.01
-30.00 - -25.01
-35.00 - -30.01
-40.00 - -35.01
-45.00 - -40.01
-50.00 - -45.01
< -50.00

M.H.H.W. (NOAA)	5.05
M.H.W. (NOAA)	4.82
NAVD88 (NOAA)	2.73
NGVD29 (NOAA)	1.65
M.L.W. (NOAA)	0.15
M.L.L.W. (SURVEY)	0.00

W N S E

0 60 120 180
SCALE IN FEET
SCALE: 1"=60'

NOTES

1. THIS SURVEY DOES NOT GUARANTEE THE ABSENCE OR PRESENCE OF ANY UNDERWATER OBSTRUCTION. DIVER VERIFICATION MAY BE REQUIRED.

2. THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS EXISTING AT THAT TIME. THE DATA IS REPRESENTATIVE OF A LARGER DATA SET. THE SOUNDING DATA DEPICTED ON THIS MAP WAS COLLECTED USING CLASS 2 SURVEY STANDARDS IN ACCORDANCE WITH EM 1110 2 1003.

3. RTK GPS WAS USED TO RECORD WATER LEVEL DURING SURVEY. N.O.A.A.'s "VDATUM" Ver. 4.1 WAS USED TO CALCULATE VERTICAL DATUMS.

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STATE OF NEW YORK · DANIEL W. ROGERS · No. 50215 · LICENSED LAND SURVEYOR

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CONDITION SURVEY
MANHATTAN CRUISE TERMINAL
NEW YORK, NY

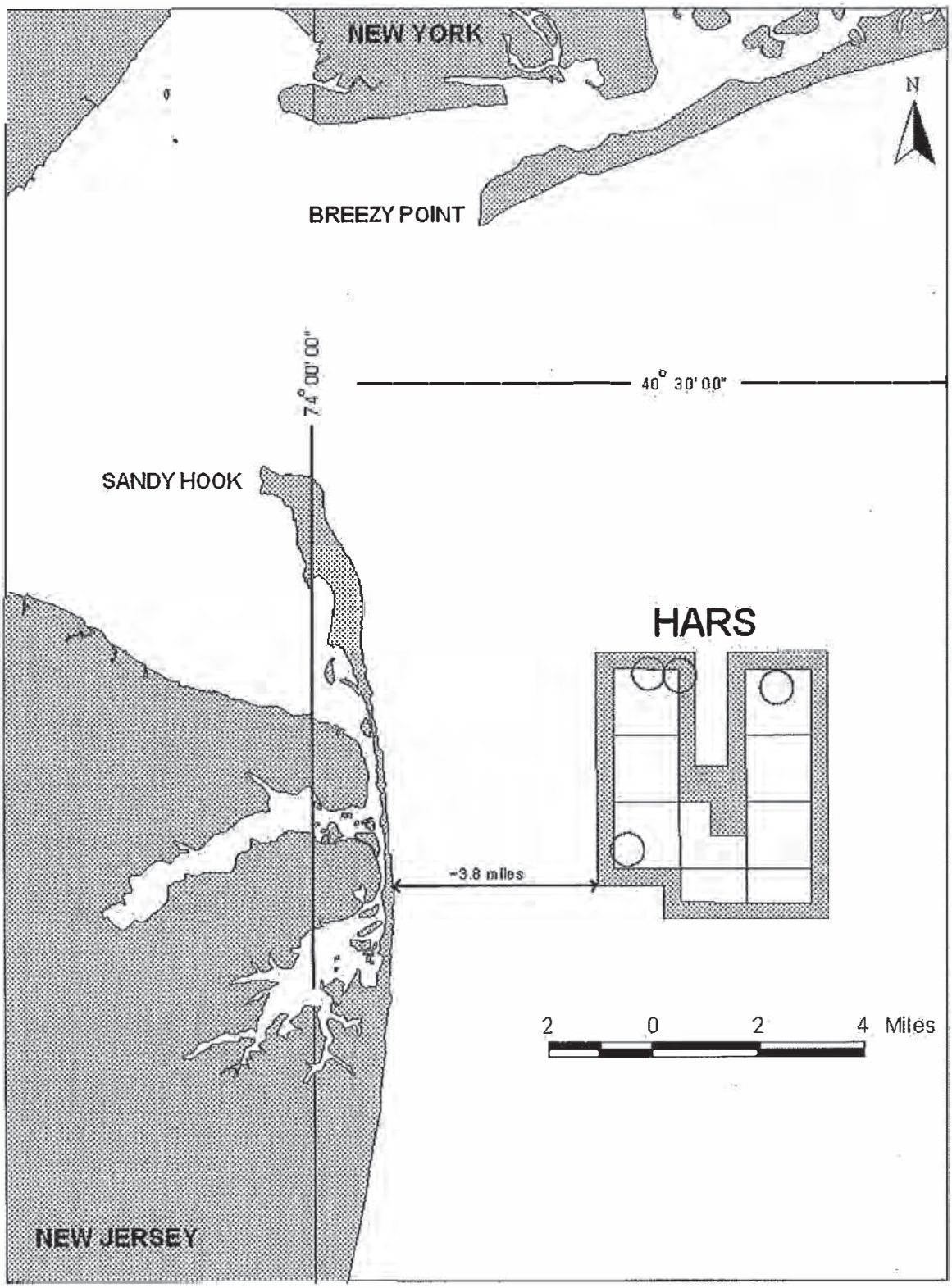
SHEET 1 OF 2

Rev.No.	Revision	Signed	Date

Drawn by: DJN	Checked by: DWR	Survey Dates: 08/09/2024
Sheet Size: 24"x36"	Project No.: 53322	Draft Date: 08/12/2024

PUBLIC NOTICE: NAN-2024-00108-EMI

CENAN-OP-RE



PUBLIC NOTICE: NAN-2024-00108-EMI

CENAN-OP-RE

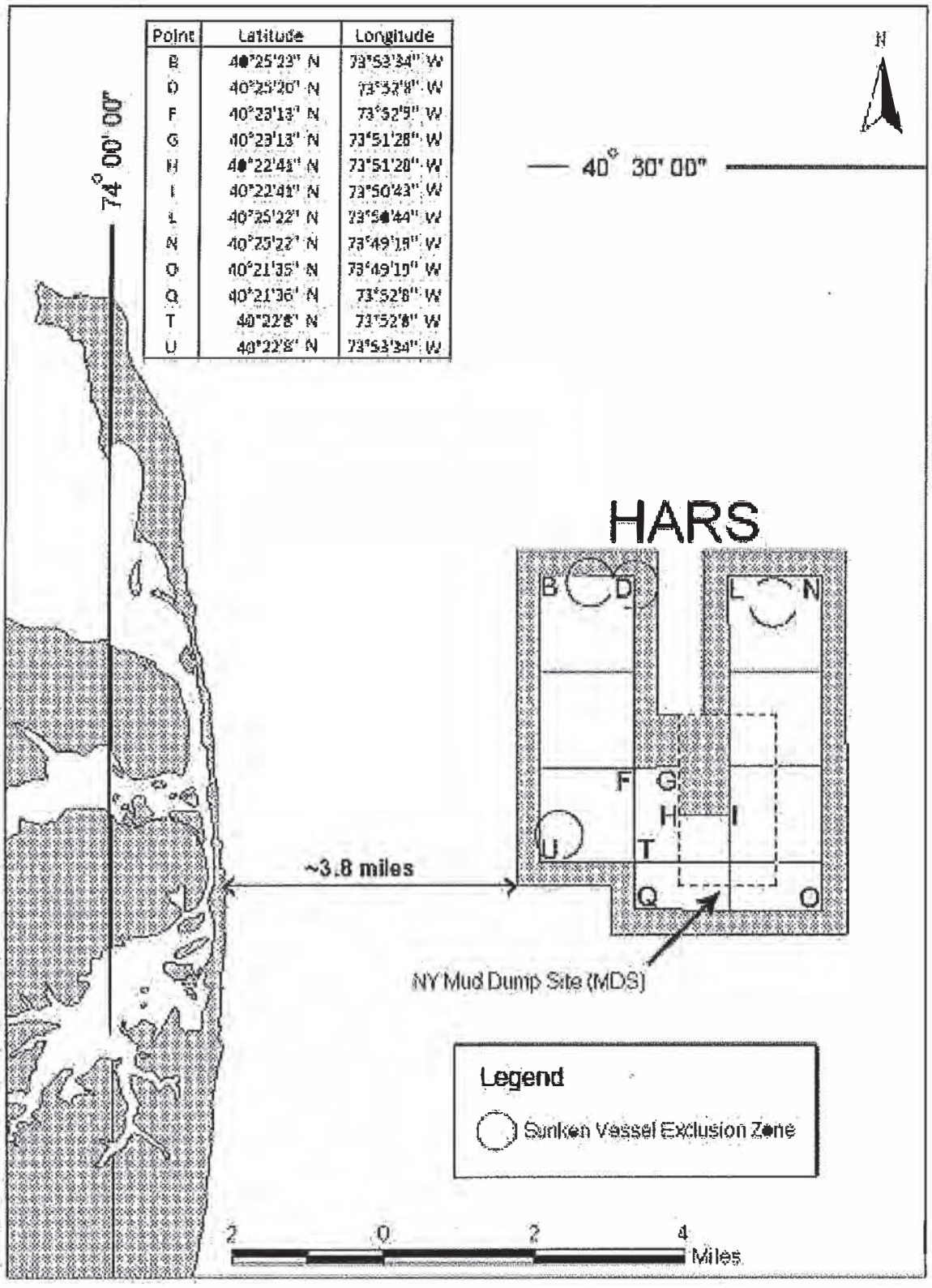


TABLE 1. RESULTS OF CHEMICAL ANALYSIS OF SITE WATER AND ELUTRIATE

MCT - Reach 1

	SITE WATER		ELUTRIATE	
CONSTITUENTS	**DETECTION LIMITS**	**CONCENTRATION**	**DETECTION LIMITS**	**CONCENTRATION**
Metals	**ppb (ug/L)**	**ppb (ug/L)**	**ppb (ug/L)**	**ppb (ug/L)**
Ag	0.060	ND		0.232
Cd	0.100	ND	0.100	ND
Cr		1.47		6.50
Cu		1.56		9.94
Hg	0.200	ND	0.200	ND
Ni	1.00	ND		4.87
Pb	1.00	ND		12.0
Zn		3.89		17.3
Pesticides	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**
Aldrin	0.531	ND	0.531	ND
a-Chlordane	0.442	ND	0.442	ND
trans Nonachlor	0.436	ND		0.452
Dieldrin	0.544	ND	0.544	ND
4,4'-DDT	0.633	ND		0.630
2,4'-DDT	0.795	ND	0.795	ND
4,4'-DDD	0.531	ND		1.81
2,4'-DDD	0.582	ND	0.582	ND
4,4'-DDE	0.445	ND		2.97
2,4'-DDE	0.557	ND	0.557	ND
Total DDT		**ND**		**6.38**
Endosulfan I	0.531	ND	0.531	ND
Endosulfan II	0.525	ND	0.525	ND
Endosulfan sulfate	0.439	ND	0.439	ND
Heptachlor	0.534	ND	0.534	ND
Heptachlor epoxide	0.442	ND	0.442	ND
Industrial Chemicals	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**
PCB 8	0.572	ND		4.5
PCB 18	0.366	ND		6.40
PCB 28	0.423	ND		6.72
PCB 44	0.534	ND		3.35
PCB 49	0.391	ND		3.73
PCB 52	0.499	ND		5.10
PCB 66	0.601	ND		2.90
PCB 87	0.461	ND		1.35
PCB 101	0.388	ND		4.17
PCB 105	0.598	ND		0.826
PCB 118	0.576	ND		2.39
PCB 128	0.417	ND		1.45
PCB 138	0.493	ND		5.53
PCB 153	0.493	ND		4.60
PCB 170	0.452	ND		3.53
PCB 180	0.458	ND		2.25
PCB 183	0.410	ND		4.95
PCB 184	0.576	ND	0.576	ND
PCB 187	0.423	ND		2.09
PCB 195	0.429	ND		0.884
PCB 206	0.464	ND		1.16
PCB 209	0.445	ND		2.65
Total PCB		**ND**		**142**

ND = Not detected
For values reported as ND, one-half of the detection limit is used in the calculation of Total DDT and Total PCB

Total DDT = sum of 2,4'- and 4,4'-DDD, DDE, and DDT
(If all DDT metabolites are ND, the total is reported as ND)

Total PCB = sum of congeners reported x 2
(If all PCB congeners are ND, the total is reported as ND)

ppb = parts per billion
ug/L = micrograms per liter
pptr = parts per trillion
ng/L = nanograms per liter

TABLE 2 **TOXICITY TEST RESULTS** **ASI Job No. 44-050A**
MCT- Reach 1

Suspended Particulate Phase

Test Species	Test Duration	LC_{50}/EC_{50}	LPC (a)
Menidia beryllina	96 hours	**(b)** >100%	>1.00
Americamysis bahia	96 hours	**(b)** >100%	>1.00
Mytilus edulis **(larval survival)**	48 hours	**(b)** >100%	>1.00
Mytilus edulis **(larval normal develop.)**	48 hours	**(c)** >100%	>1.00

(a) Limiting Permissible Concentration (LPC) is the LC_{50} or EC_{50} multiplied by 0.01

(b) Median Lethal Concentration (LC_{50}) resulting in 50% mortatlity at test termination

(c) Median Effective Concentration (EC_{50}) based on normal development to the D-cell, prodissoconch 1 stage

Whole Sediment (10 days)

Test Species	% Survival Reference	% Survival Test	% Difference Reference - Test	Is difference statistically significant? (a=0.05)
Ampelisca abdita	97%	97%	0%	No
Americamysis bahia	98%	98%	0%	No

TABLE 3. 28 DAY BIOACCUMULATION TEST RESULTS: CHEMICAL ANALYSIS OF TISSUE
Wet weight concentrations
MCT - Reach 1

CONSTITUENTS	*Macoma nasuta*				*Alitta (nereis) virens*			
	REFERENCE		TEST		REFERENCE		TEST	
	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION
Metals	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)
Ag		0.025		0.026		0.019		0.016
As		2.54		3.09		1.78		1.54
Cd		0.029		0.030	0.025	ND	0.024	ND
Cr		0.465		0.435		0.077		0.077
Cu		1.47		* 2.37		1.00		1.10
Hg	0.010	ND	0.010	ND		0.021		0.016
Ni		0.538		0.589		0.108		0.119
Pb		0.145		* 0.450		0.073		* 0.084
Zn		12.8		13.7		10.5		8.00
Pesticides	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)
Aldrin	0.014	ND	0.014	ND	0.014	ND	0.014	ND
a-Chlordane	0.011	ND		* 0.053	0.011	ND		* 0.218
trans Nonachlor	0.014	ND		* 0.184		0.258		0.290
Dieldrin		0.087		* 0.222		0.019		* 0.289
4,4'-DDT	0.012	ND	0.012	ND		0.073		0.028
2,4'-DDT	0.017	ND	0.017	ND		0.045		0.036
4,4'-DDD	0.011	ND		* 0.595		0.083		* 0.358
2,4'-DDD	0.017	ND		* 0.213	0.017	ND		* 0.175
4,4'-DDE		0.134		* 0.677	0.011	ND		* 0.173
2,4'-DDE	0.009	ND	0.009	ND	0.009	ND	0.009	ND
Total DDT		**0.200**		* **1.52**		**0.238**		* 0.779
Endosulfan I	0.015	ND	0.015	ND	0.015	ND	0.015	ND
Endosulfan II	0.017	ND		0.055		0.087		* 0.220
Endosulfan sulfate	0.012	ND	0.012	ND		0.078		0.157
Heptachlor	0.011	ND	0.011	ND	0.011	ND	0.011	ND
Heptachlor epoxide	0.017	ND	0.017	ND	0.017	ND		0.023
Industrial Chemicals	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)
PCB 8	0.030	ND		2.68	0.030	ND	0.030	ND
PCB 18	0.014	ND		* 0.195		0.168		* 0.362
PCB 28	0.017	ND		* 0.449	0.017	ND		* 0.256
PCB 44		0.592		0.465		0.056		* 0.180
PCB 49	0.011	ND		* 0.746		0.081		* 0.478
PCB 52		0.042		* 0.825		0.189		* 0.921
PCB 66		0.038		* 0.342		0.286		* 0.715
PCB 87	0.014	ND		* 0.139	0.014	ND		0.049
PCB 101		0.124		* 0.759		0.518		* 0.787
PCB 105	0.012	ND		* 0.098		0.077		* 0.115
PCB 118		0.029		* 0.323		0.140		* 0.259
PCB 128	0.015	ND		* 0.095		0.110		* 0.157
PCB 138		0.325		* 0.699		0.677		* 0.995
PCB 153		0.172		* 0.825		1.12		* 1.58
PCB 170		0.068		* 0.240		0.300		0.348
PCB 180		0.049		* 0.190		0.454		* 0.664
PCB 183		0.022		* 0.096		0.398		0.332
PCB 184	0.024	ND	0.024	ND	0.024	ND	0.024	ND
PCB 187		0.041		* 0.191		0.495		* 0.626
PCB 195	0.009	ND		* 0.042		0.137		0.161
PCB 206	0.009	ND		* 0.079		0.219		* 0.273
PCB 209	0.017	ND		* 0.071		0.209		* 0.251
Total PCB		**3.35**		* **19.2**		**11.4**		* **19.1**
1,4-Dichlorobenzene		0.100		* 0.157		0.143		0.141

TABLE 3. (Continued)

CONSTITUENTS	*Macoma nasuta*				*Alitta (nereis) virens*			
	REFERENCE		TEST		REFERENCE		TEST	
	DETECTION LIMITS	CONCENTRATION	DETECTION LIMITS	CONCENTRATION	DETECTION LIMITS	CONCENTRATION	DETECTION LIMITS	CONCENTRATION
PAH's	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)
Naphthalene		0.734		* 1.06		1.16		0.989
Acenaphthylene		0.114		* 0.622		0.134		* 0.236
Acenaphthene		0.917		* 1.35		0.713		0.556
Fluorene		0.660		* 0.911		0.562		0.423
Phenanthrene		2.15		2.88		0.568		0.484
Anthracene		0.349		* 1.34		0.090		* 0.204
Fluoranthene		3.42		* 11.1		0.559		* 1.92
Pyrene		2.56		* 13.2		0.437		* 2.43
Benzo(a)anthracene		0.477		* 4.43		0.048		* 0.200
Chrysene		1.27		* 7.11		0.315		* 1.29
Benzo(b)fluoranthene		0.692		* 4.68		0.077		* 0.201
Benzo(k)fluoranthene		0.684		* 4.45		0.128		* 0.309
Benzo(a)pyrene		0.560		* 4.47		0.085		* 0.227
Indeno(1,2,3-cd)pyrene		0.237		* 1.71		0.052		* 0.097
Dibenzo(a,h)antracene		0.057		* 0.399		0.041	0.047	ND
Benzo(g,h,i)perylene		0.252		* 1.53		0.050		* 0.118
Total PAH's		**15.1**		* **61.2**		**5.02**		* **9.73**
Dioxins	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)
2378 TCDD	0.129	ND	0.107	ND	0.140	ND	0.098	ND
12378 PeCDD	0.084	ND	0.069	ND	0.070	ND	0.064	ND
123478 HxCDD	0.106	ND	0.107	ND	0.124	ND	0.090	ND
123678 HxCDD	0.108	ND	0.115	ND	0.127	ND	0.096	ND
123789 HxCDD	0.107	ND	0.111	ND	0.126	ND	0.093	ND
1234678 HpCDD	0.174	ND		* 0.380		0.283		0.479
1234789 OCDD		1.03		* 4.82		4.82		9.33
2378 TCDF	0.106	ND		0.158		0.295		0.271
12378 PeCDF	0.053	ND	0.051	ND	0.065	ND	0.069	ND
23478 PeCDF	0.054	ND	0.052	ND	0.062	ND	0.065	ND
123478 HxCDF	0.054	ND	0.040	ND	0.053	ND	0.048	ND
123678 HxCDF	0.054	ND	0.039	ND	0.052	ND	0.049	ND
234678 HxCDF	0.055	ND	0.040	ND	0.053	ND	0.051	ND
123789 HxCDF	0.078	ND	0.056	ND	0.080	ND	0.072	ND
1234678 HpCDF	0.063	ND	0.085	ND		0.155		0.135
1234789 HpCDF	0.095	ND	0.082	ND	0.096	ND	0.090	ND
12346789 OCDF	0.267	ND		0.251		0.278		0.285

ND = Not detected
Concentrations shown are the mean of 5 replicate analyses in wet weight.
For values reported as ND (not detected), one-half of the detection limit is used in the calculation of the mean concentration.
* = Statistically significant at the 95% confidence level.

Total PAH = Sum of all PAH's.
(If all PAHs are ND, the total is reported as ND)

Total DDT = sum of 2,4'- and 4,4'-DDD, DDE, and DDT
(If all DDT metabolites are ND, the total is reported as ND)

Total PCB = 2(x), where x = sum of PCB congeners
(If all PCB congeners are ND, the total is reported as ND)

TABLE 1. RESULTS OF CHEMICAL ANALYSIS OF SITE WATER AND ELUTRIATE

MCT - Reach 2

	SITE WATER		ELUTRIATE	
CONSTITUENTS	**DETECTION LIMITS**	**CONCENTRATION**	**DETECTION LIMITS**	**CONCENTRATION**
Metals	**ppb (ug/L)**	**ppb (ug/L)**	**ppb (ug/L)**	**ppb (ug/L)**
Ag	0.060	ND		0.108
Cd	0.100	ND	0.100	ND
Cr		2.16		3.54
Cu		2.22		4.58
Hg	0.200	ND	0.200	ND
Ni		1.27		2.89
Pb		1.80		4.90
Zn		8.97		7.05
Pesticides	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**
Aldrin	0.531	ND	0.531	ND
a-Chlordane	0.442	ND		0.328
trans Nonachlor	0.436	ND	0.436	ND
Dieldrin	0.544	ND	0.544	ND
4,4'-DDT	0.633	ND		0.238
2,4'-DDT	0.795	ND	0.795	ND
4,4'-DDD	0.531	ND		0.645
2,4'-DDD	0.582	ND	0.582	ND
4,4'-DDE	0.445	ND		1.50
2,4'-DDE	0.557	ND	0.557	ND
Total DDT		**ND**		**3.35**
Endosulfan I	0.531	ND	0.531	ND
Endosulfan II	0.525	ND	0.525	ND
Endosulfan sulfate	0.439	ND	0.439	ND
Heptachlor	0.534	ND	0.534	ND
Heptachlor epoxide	0.442	ND	0.442	ND
Industrial Chemicals	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**	**pptr (ng/L)**
PCB 8	0.572	ND	0.57	ND
PCB 18	0.366	ND	0.37	ND
PCB 28	0.423	ND		4.24
PCB 44	0.534	ND		1.28
PCB 49	0.391	ND		2.42
PCB 52	0.499	ND		3.90
PCB 66	0.601	ND		1.60
PCB 87	0.461	ND		0.943
PCB 101	0.388	ND		2.97
PCB 105	0.598	ND		0.765
PCB 118	0.576	ND		1.60
PCB 128	0.417	ND		0.56
PCB 138	0.493	ND		1.25
PCB 153	0.493	ND		2.88
PCB 170	0.452	ND		2.00
PCB 180	0.458	ND		1.14
PCB 183	0.410	ND		2.86
PCB 184	0.576	ND	0.576	ND
PCB 187	0.423	ND		1.04
PCB 195	0.429	ND		0.507
PCB 206	0.464	ND		0.640
PCB 209	0.445	ND		1.39
Total PCB		**ND**		**69.5**

ND = Not detected

For values reported as ND, one-half of the detection limit is used in the calculation of Total DDT and Total PCB

Total DDT = sum of 2,4'- and 4,4'-DDD, DDE, and DDT
(If all DDT metabolites are ND, the total is reported as ND)

Total PCB = sum of congeners reported x 2
(If all PCB congeners are ND, the total is reported as ND)

ppb = parts per billion
ug/L = micrograms per liter
pptr = parts per trillion
ng/L = nanograms per liter

TABLE 2 **TOXICITY TEST RESULTS** **ASI Job No. 44-050A**
MCT- Reach 2

Suspended Particulate Phase

Test Species	Test Duration	LC_{50}/EC_{50}	LPC (a)
Menidia beryllina	96 hours	**(b)** >100%	>1.00
Americamysis bahia	96 hours	**(b)** >100%	>1.00
Mytilus edulis **(larval survival)**	48 hours	**(b)** >100%	>1.00
Mytilus edulis **(larval normal develop.)**	48 hours	**(c)** >100%	>1.00

(a) Limiting Permissible Concentration (LPC) is the LC_{50} or EC_{50} multiplied by 0.01

(b) Median Lethal Concentration (LC_{50}) resulting in 50% mortatlity at test termination

(c) Median Effective Concentration (EC_{50}) based on normal development to the D-cell, prodissoconch 1 stage

Whole Sediment (10 days)

Test Species	% Survival Reference	% Survival Test	% Difference Reference - Test	Is difference statistically significant? (a=0.05)
Ampelisca abdita	97%	95%	2%	No
Americamysis bahia	98%	96%	2%	No

TABLE 3. 28 DAY BIOACCUMULATION TEST RESULTS: CHEMICAL ANALYSIS OF TISSUE
Wet weight concentrations
MCT - Reach 2

CONSTITUENTS	*Macoma nasuta*				*Alitta (nereis) virens*			
	REFERENCE		TEST		REFERENCE		TEST	
	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION	DETECTION LIMITS	CONCEN TRATION
Metals	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)	ppm (mg/kg)
Ag		0.025		* 0.030		0.019		0.018
As		2.54		* 3.16		1.78		1.67
Cd		0.029		0.030	0.025	ND		0.029
Cr		0.465		0.812		0.077		* 0.262
Cu		1.47		* 2.12		1.00		* 1.27
Hg	0.010	ND	0.010	ND		0.021		0.016
Ni		0.538		* 0.813		0.108		* 0.256
Pb		0.145		* 0.512		0.073		* 0.092
Zn		12.8		14.0		10.5		8.02
Pesticides	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)
Aldrin	0.014	ND	0.014	ND	0.014	ND		0.026
a-Chlordane	0.011	ND		0.034	0.011	ND		* 0.179
trans Nonachlor	0.014	ND		* 0.159		0.258		0.237
Dieldrin		0.087		* 0.187		0.019		* 0.224
4,4'-DDT	0.012	ND	0.012	ND		0.073		0.060
2,4'-DDT	0.017	ND	0.017	ND		0.045		* 0.095
4,4'-DDD	0.011	ND		* 0.549		0.083		* 0.407
2,4'-DDD	0.017	ND		* 0.291	0.017	ND		* 0.199
4,4'-DDE		0.134		* 0.687	0.011	ND		* 0.242
2,4'-DDE	0.009	ND	0.009	ND	0.009	ND	0.009	ND
Total DDT		**0.200**		* **1.57**		**0.238**		* 1.01
Endosulfan I	0.015	ND	0.015	ND	0.015	ND	0.015	ND
Endosulfan II	0.017	ND	0.017	ND		0.087		* 0.311
Endosulfan sulfate	0.012	ND	0.012	ND		0.078		* 0.277
Heptachlor	0.011	ND	0.011	ND	0.011	ND	0.011	ND
Heptachlor epoxide	0.017	ND	0.017	ND	0.017	ND	0.017	ND
Industrial Chemicals	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)
PCB 8	0.030	ND	0.030	ND	0.030	ND	0.030	ND
PCB 18	0.014	ND		* 0.201		0.168		* 0.537
PCB 28	0.017	ND		* 0.585	0.017	ND		* 0.495
PCB 44		0.592		0.435		0.056		* 0.286
PCB 49	0.011	ND		* 0.923		0.081		* 0.767
PCB 52		0.042		* 0.935		0.189		* 1.39
PCB 66		0.038		* 0.358		0.286		* 1.08
PCB 87	0.014	ND		* 0.152	0.014	ND		* 0.103
PCB 101		0.124		* 0.653		0.518		* 1.06
PCB 105	0.012	ND		* 0.130		0.077		* 0.110
PCB 118		0.029		* 0.338		0.140		* 0.355
PCB 128	0.015	ND		* 0.103		0.110		* 0.171
PCB 138		0.325		* 0.782		0.677		* 1.13
PCB 153		0.172		* 0.905		1.12		* 1.79
PCB 170		0.068		* 0.269		0.300		* 0.369
PCB 180		0.049		* 0.220		0.454		* 0.691
PCB 183		0.022		* 0.094		0.398		0.364
PCB 184	0.024	ND	0.024	ND	0.024	ND	0.024	ND
PCB 187		0.041		* 0.230		0.495		* 0.704
PCB 195	0.009	ND		* 0.062		0.137		* 0.204
PCB 206	0.009	ND		* 0.111		0.219		* 0.305
PCB 209	0.017	ND		* 0.078		0.209		* 0.281
Total PCB		**3.35**		* **15.2**		**11.4**		* **24.5**
1,4-Dichlorobenzene		0.100		* 0.167		0.143		0.138

TABLE 3. (Continued)

CONSTITUENTS	*Macoma nasuta*				*Alitta (nereis) virens*			
	REFERENCE		TEST		REFERENCE		TEST	
	DETECTION LIMITS	CONCENTRATION	DETECTION LIMITS	CONCENTRATION	DETECTION LIMITS	CONCENTRATION	DETECTION LIMITS	CONCENTRATION
PAH's	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)	ppb (ug/kg)
Naphthalene		0.734		* 0.957		1.16		* 1.57
Acenaphthylene		0.114		* 0.703		0.134		* 0.287
Acenaphthene		0.917		* 1.48		0.713		0.841
Fluorene		0.660		* 1.03		0.562		0.484
Phenanthrene		2.15		* 4.01		0.568		0.668
Anthracene		0.349		* 1.78		0.090		* 0.223
Fluoranthene		3.42		* 15.7		0.559		* 3.04
Pyrene		2.56		* 17.8		0.437		* 3.51
Benzo(a)anthracene		0.477		* 5.04		0.048		* 0.227
Chrysene		1.27		* 8.29		0.315		* 1.44
Benzo(b)fluoranthene		0.692		* 5.15		0.077		* 0.254
Benzo(k)fluoranthene		0.684		* 5.26		0.128		* 0.381
Benzo(a)pyrene		0.560		* 4.99		0.085		* 0.275
Indeno(1,2,3-cd)pyrene		0.237		* 1.92		0.052		* 0.114
Dibenzo(a,h)antracene		0.057		* 0.496		0.041		0.054
Benzo(g,h,i)perylene		0.252		* 1.14		0.050		* 0.102
Total PAH's		**15.1**		* **75.8**		**5.02**		* **13.5**
Dioxins	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)	pptr(ng/kg)
2378 TCDD	0.129	ND	0.096	ND	0.140	ND	0.142	ND
12378 PeCDD	0.084	ND	0.066	ND	0.070	ND	0.088	ND
123478 HxCDD	0.106	ND	0.078	ND	0.124	ND	0.129	ND
123678 HxCDD	0.108	ND	0.079	ND	0.127	ND	0.133	ND
123789 HxCDD	0.107	ND	0.078	ND	0.126	ND	0.131	ND
1234678 HpCDD	0.174	ND		* 0.385		0.283		0.467
1234789 OCDD		1.03		* 6.86		4.82		3.40
2378 TCDF	0.106	ND		0.126		0.295		0.349
12378 PeCDF	0.053	ND	0.047	ND	0.065	ND	0.085	ND
23478 PeCDF	0.054	ND	0.047	ND	0.062	ND	0.085	ND
123478 HxCDF	0.054	ND	0.042	ND	0.053	ND	0.062	ND
123678 HxCDF	0.054	ND	0.042	ND	0.052	ND	0.061	ND
234678 HxCDF	0.055	ND	0.044	ND	0.053	ND	0.063	ND
123789 HxCDF	0.078	ND	0.060	ND	0.080	ND	0.095	ND
1234678 HpCDF	0.063	ND		* 0.144		0.155		0.157
1234789 HpCDF	0.095	ND	0.086	ND	0.096	ND	0.096	ND
12346789 OCDF	0.267	ND	0.233	ND		0.278		0.270

ND = Not detected
Concentrations shown are the mean of 5 replicate analyses in wet weight.
For values reported as ND (not detected), one-half of the detection limit is used in the calculation of the mean concentration.
* = Statistically significant at the 95% confidence level.

Total PAH = Sum of all PAH's.
(If all PAHs are ND, the total is reported as ND)

Total DDT = sum of 2,4'- and 4,4'-DDD, DDE, and DDT
(If all DDT metabolites are ND, the total is reported as ND)

Total PCB = 2(x), where x = sum of PCB congeners
(If all PCB congeners are ND, the total is reported as ND)