Application for Department of the Army
Individual Permit for

The New Kapālama Container Terminal Wharf and Dredging
Honolulu, O‘ahu, Hawai‘i (Job H.C. 10498)

POH-2012-81

Applicant:
State of Hawai‘i, Department of Transportation, Harbors Division
79 South Nimitz Highway
Honolulu, HI, 96813

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February 2015

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APPLICATION FORM

U.S. ARMY CORPS OF ENGINEERS **APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT** 33 CFR 325. The proponent agency is CECW-CO-R.	***Form Approved -*** ***OMB No. 0710-0003*** ***Expires: 31-AUGUST-2013***

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)

1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETE

(ITEMS BELOW TO BE FILLED BY APPLICANT)

5. APPLICANT'S NAME	8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required)
First - Ford Middle - N. Last - Fuchigami	First - Dean Middle - A. Last - Kokubun
Company - Director, State of Hawaii, Department of Transportation	Company - Moffatt & Nichol
E-mail Address - Ford.N.Fuchigami@hawaii.gov	E-mail Address - DKokubun@moffattnichol.com
6. APPLICANT'S ADDRESS:	9. AGENT'S ADDRESS:
Address- 869 Punchbowl Street	Address- 1132 Bishop Street, Suite 1595
City - Honolulu State - HI Zip - 96813 Country - USA	City - Honolulu State - HI Zip - 96813 Country - USA
7. APPLICANT'S PHONE NOs. w/AREA CODE	10. AGENTS PHONE NOs. w/AREA CODE
a. Residence b. Business (808) 587-2150 c. Fax (808) 587-2167	a. Residence b. Business (808) 533-7000 c. Fax (808) 533-7002

STATEMENT OF AUTHORIZATION

11. I hereby authorize, Dean A. Kokubun to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

SIGNATURE OF APPLICANT — 5·26·15 DATE

NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY

12. PROJECT NAME OR TITLE (see instructions)

The New Kapalama Container Terminal Wharf and Dredging

13. NAME OF WATERBODY, IF KNOWN (if applicable)	14. PROJECT STREET ADDRESS (if applicable)
Kapalama Basin	Address N/A
15. LOCATION OF PROJECT Latitude: °N 21.3170 Longitude: °W 157.8840	City - Honolulu State- HI Zip- 96819

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID See Additional Information Municipality City and County of Honolulu

Section - Township - Range -

17. DIRECTIONS TO THE SITE
From Honolulu International Airport, head east onto H-1 Freeway ramp.
Merge onto H-1 Freeway East, bound for Waikiki/Honolulu.
Continue on H-1 Freeway East for approximately one mile.
Take Exit 18A toward Highway 92 East, bound for Waikiki/Nimitz Highway.
Merge onto Highway 92/ North Nimitz Highway and continue for approximately 0.25 miles.
Turn right onto Sand Island Access Road and continue south for approximately one mile.
Project site is on the left before the bridge.

18. Nature of Activity (Description of project, include all features)
See Additional Information

19. Project Purpose (Describe the reason or purpose of the project, see instructions)
See Additional Information

USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge
See Additional Information

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

Type Amount in Cubic Yards	Type Amount in Cubic Yards	Type Amount in Cubic Yards

See Additional Information

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)
Acres See Additional Information
or
Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)
See Additional Information

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- See Additional Information

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED
See Additional Info.					

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

[signature] 5-26-15 [signature] 05/27/2015

SIGNATURE OF APPLICANT DATE SIGNATURE OF AGENT DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

ADDITIONAL INFORMATION FOR APPLICATION FORM

Block 16. Other Location Descriptions

The New Kapālama Container Terminal Wharf and Dredging project will occur along the seaside boundary of the proposed Kapālama Container Terminal site (Kapālama site) in Honolulu Harbor, Oʻahu (see Attachment 1, Figure 1). The tax map key (TMK) numbers for the Wharf and Dredging project site (wharf site) include TMK 1-2-025: 009, 011, 012, 016, 017, 040, 046, 071, and 076; TMK 1-5-032: 002 and 043; and TMK 1-5-041: 111 and 296.

Block 18. Nature of Activity

The State of Hawaiʻi Department of Transportation, Harbors Division (DOT-H) is proposing to develop a new overseas container terminal in Honolulu Harbor, which is the port for all container cargo entering and exiting the State of Hawaiʻi. The proposed Kapālama site will consist of an approximately 88-acre container yard with necessary support buildings, entry and exit gates, security fencing, parking, gantry cranes and other container-handling equipment, on-site utilities, outdoor lighting, and other ancillary facilities.

The proposed container yard will also include construction of a weigh station facility adjacent to the container yard entry/exit gate along Sand Island Access Road. The new weigh station, which is being proposed by DOT-H in conjunction with the State of Hawaiʻi Department of Transportation, Highways Division, will include a weigh-in-motion scale, static scale, office, and supporting infrastructure. The purpose of the proposed weigh station facility is to supplement the existing weigh station located on Sand Island. The existing weigh station facility will serve vehicular traffic on Sand Island, prior to the vehicles crossing the existing Sand Island Access Road bridge, and the proposed weigh station facility will serve vehicular traffic exiting the proposed container yard. Environmental permitting for the proposed weigh station facility, which is not part of the Wharf and Dredging project, will be conducted separately in compliance with Federal Highway Administration (FHWA) standards.

The New Kapālama Container Terminal Wharf and Dredging project includes all construction work that will occur along the waterfront of the Kapālama site. The new wharf will be constructed along existing Piers 40F, 41, 42, and 43, and will be approximately 3,190 feet in total length (see Attachment 1, Figure 2). Dredging will occur along the entire length of the new wharf to accommodate container vessels currently calling at Honolulu Harbor and vessels that may call in the future to address higher cargo demands (see Attachment 1, Figure 3). Snug Harbor (Piers 44 and 45), which is located between Piers 42 and 43, and an existing rail slip on the east end of Pier 42 will be filled to provide a continuous wharf face.

The new wharf at Piers 42 and 43 will be approximately 1,860 feet in total length and will include crane rails, utilities, bollards, ladders, fenders, cable slots, cable pits, and storm anchors. The new wharf face will be approximately 113 feet landward of the U.S. Army Corps of Engineers (USACE) Federal Channel limit to prevent the design vessel (Panamax) from encroaching on the Federal Channel when moored along Piers 42 and 43. Soil behind the wharf face will be retained by an anchored steel sheet pile-king pile bulkhead system (see Attachment 1, Figure 4). The bulkhead structure will be anchored to the landside crane rail beam with steel tie rods.

The landside and waterside concrete crane rail beams will be supported on 48-inch and 36-inch diameter cast-in-drilled-hole (CIDH) concrete piles, respectively (Figure 4). A single row of piles supporting the waterside crane rail beam will be spaced at 9-foot intervals along the wharf face, while two rows of piles supporting the landside crane rail beam will be staggered at 18-foot intervals. Soil retained by the proposed bulkhead structure will be improved by vibro-replacement to mitigate liquefaction and provide adequate vertical and lateral structural support. Vibro-replacement is a ground improvement technique that utilizes a vibrating probe to penetrate the ground and install dense aggregate or stone columns.

The new wharf deck at Piers 42 and 43 will consist of a 21-inch thick concrete slab constructed at a maximum elevation of +9.8 feet mean lower low water (MLLW). The deck elevation will vary to accommodate surface drainage. Sheet piles and king piles for the bulkhead structure will be installed to depths of -55.0 feet MLLW and -94.0 feet MLLW, respectively (Figure 4). Concrete piles supporting the landside and waterside crane rail beams will be constructed down to -75.0 feet MLLW and -60.0 feet MLLW, respectively.

The proposed dredge depth of the new wharf at Piers 42 and 43 will be -40.0 feet MLLW with a two-foot over-dredge (OD) allowance for dredge equipment tolerances (Figure 4). The proposed design dredge depth matches the established design dredge depth of the adjacent USACE Federal Channel. Dredging is needed to accommodate deep-draft container vessels and to move the existing shoreline landward to provide adequate separation from the Federal Channel limit. Dredging activities will extend approximately 113 feet from the proposed wharf face and will not occur within the Federal Channel. However, bottom material within the Federal Channel that may be higher than the proposed design dredge depth will slough off into the project area due to the natural angle of repose of the existing soil.

The new wharf at Piers 41 and 40F will be primarily used for inter-island barge traffic and will be approximately 1,330 feet in total length with bollards, ladders, and fenders. The existing slip between Piers 40 and 41 would be widened by approximately 50 feet for a total width of 300 feet to provide barge access while other barges are berthed at both piers. Dredging would occur on the Pier 41 side (west side) of the slip to create the additional space. The existing dock along Pier 41 would be demolished and replaced with a new bulkhead structure at the new shoreline location. The existing wharf structure at Pier 40F will also be replaced with a new bulkhead structure.

The new bulkhead system at Piers 41 and 40F will also consist of a combined steel sheet pile and king pile system. The bulkhead tie-back system will consist of steel tie rods attached to a concrete anchor beam, or deadman (see Attachment 1, Figure 5 and Figure 6). The anchor beam will be supported by two rows of 48-inch diameter CIDH concrete piles staggered at 18-foot intervals along the wharf face. Vibro-replacement stone column ground improvements are also proposed for soil retained by the bulkhead structure at Piers 41 and 40F.

The new wharf pavement at Piers 41 and 40F will consist of a 21-inch thick concrete slab constructed at a maximum elevation of +9.8 feet mean lower low water (MLLW). The pavement elevation will vary to accommodate surface drainage. Sheet piles for the bulkhead structure will be installed to a depth of -55.0 feet MLLW and king piles will be driven down to -94.0 feet MLLW (Figure 5 and Figure 6). Concrete piles supporting the anchor beam will be installed at depths ranging from -60.0 feet to -70.0 feet MLLW. In addition to widening the Pier 40-Pier 41 slip, dredging will be conducted to achieve a minimum depth of -30.0 feet MLLW throughout the slip. A two-foot OD allowance for dredge equipment tolerances will also be provided.

Snug Harbor and the existing rail slip at the east end of Pier 42 will be filled in to construct a continuous wharf along Piers 42 and 43 that can simultaneously berth two large container vessels (see Attachment 1, Figure 7). The portion of Snug Harbor and the existing rail slip that will be filled are approximately 2.0 acres and 0.35 acres, respectively. The existing bottom at Snug Harbor ranges from approximately -19.0 feet to -31 feet MLLW, while the existing rail slip bottom ranges from approximately 0.0 to -14.0 feet MLLW. Both areas will be filled to a maximum elevation of +9.8 feet MLLW. A water area approximately 6,000 square feet behind the proposed bulkhead structure at Pier 40F is below the proposed deck elevation and will be filled to a maximum elevation varying from +9.8 feet MLLW to +8.4 feet MLLW along the waterside bulkhead(see Attachment 1, Figure 8).

Fill material placed in Snug Harbor, the existing rail slip, and the area at Pier 40F will be surcharged with dredged coralline material to accelerate long-term settlement of fine-grained soil. The surcharge heights for Snug Harbor, the rail slip, and Pier 40F area will be approximately 20 feet, 15 feet, and 10 feet, respectively.

After existing concrete wharf structures and piles have been removed, dredged material that is not suitable for ocean disposal will be placed directly in Snug Harbor by barges. A closure dike will be constructed across the mouth of Snug Harbor to initiate fill activities. The closure dike will consist of imported gravel or recycled concrete and will be approximately 80 feet wide at its base, 200 feet long across the harbor entrance, and 20 feet tall with a top elevation of -8.0 feet MLLW (see Attachment 1, Figure 9). The central portion of the dike may be lower than -8.0 feet MLLW as needed for barge access. The closure dike will remain in place after fill activities have been completed.

Filling in Snug Harbor will be completed on land after the fill exceeds the elevation that the barge can safely draft. The new wharf structure at Snug Harbor will vary slightly from the proposed wharf structure at Piers 42 and 43. Instead of CIDH piles, the landside crane rail beam will be supported by a combined steel sheet pile and king pile system (Figure 9). The landside sheet piles and king piles will be driven to depths of -55.0 feet MLLW and -80.0 feet MLLW, respectively. The new bulkhead wall at Snug Harbor will consist of steel sheet piles driven to a depth of -55.0 feet MLLW and steel king piles driven to depth of approximately -97.0 feet MLLW. The bulkhead system will be anchored to the landside crane rail beam with steel tie rods spaced 9 feet on center. The waterside crane rail beam will be supported by 36-inch diameter CIDH concrete piles spaced every 9 feet and installed to a depth of -60.0 feet MLLW.

Vibro-replacement stone column ground improvements are also proposed for soil retained by the bulkhead structure at Snug Harbor. The design dredge depth is consistent with the proposed dredge depth at Piers 42 and 43 (-40.0 feet MLLW with a two-foot OD allowance).

No scour protection measures are proposed along the base of the new wharf. Dredging at Piers 42 and 43 and a portion of Pier 41 is expected to expose coralline material that will be resistant to scour from bow thrusters and propeller wash. Materials at the base of the new wharf along Pier 40F and remaining portions of Pier 41 will be susceptible to long-term erosion. However, rather than providing scour protection for these areas, the proposed bulkhead structure has been designed to accommodate the maximum scour depth anticipated.

Slope protection measures, including installation of a sheet pile wall, are needed at the west end of the new Pier 43 to mitigate potential erosion near the existing Sand Island Access Road bridge abutment (see Attachment 1, Figure 10, Details J and L). The rock revetment slope protection will cover approximately 4,400 square feet and will consist of a three-foot thick layer of quarry-run rock overlain by a 2.5-foot thick layer of armor stone. The slope protection will extend from the proposed sheet pile wall down to -20.0 feet MLLW. The proposed steel sheet pile wall will retain soil above the rock revetment and will be anchored to the wharf bulkhead with steel tie rods. The sheet pile wall will be 90 feet long and be driven to depths ranging from -127.0 feet to -65.0 feet MLLW. Vibro-replacement stone column ground improvements are proposed for the soil retained by the sheet pile wall.

A portion of the dredge material within the project site will be used as fill material for Snug Harbor and the existing rail slip. Dredge material not used for fill that is suitable for ocean disposal will be disposed of at the South Oʻahu Ocean Dredged Material Disposal Site (SOODMDS). All excess dredge material not suitable for ocean disposal or used for fill on-site will be disposed of at an approved upland site, which will likely be the landfill in Nānākuli owned by PVT Land Company, Ltd. (PVT landfill). Efforts to find parties interested in accepting coralline dredge material for beneficial reuse are ongoing. Despite some interest, currently, no parties have agreed to accept any dredge material.

Dredge material within the project site was tested in accordance with U.S. Environmental Protection Agency (USEPA) and USACE requirements for ocean disposal. Approximately 25 percent of the material to be removed is prehistoric coralline material. The coralline material was not tested because the native material is not believed to be contaminated and is consequently suitable for ocean disposal. An additional 40 percent of material to be removed was not tested because the material is already believed to not be suitable for ocean disposal. Approximately 25 percent of the material to be removed was tested and determined to be suitable for ocean disposal. The remaining 10 percent of the material to be removed was tested and determined to not be suitable for ocean disposal. All material not suitable for ocean disposal will be used as on-site fill and grading material or will be disposed of at an approved upland facility. Additional information on the dredge material testing can be found in Attachment 2, Kapālama Container Terminal Dredge Sediment Characterization Draft Data and Analysis Report.

Known contaminated material that was not tested for ocean disposal will be placed in Snug Harbor. In addition to contaminated dredge material, Snug Harbor will be able to accommodate other dredge materials, including harbor sediment and coralline materials. Due to geotechnical loading requirements, only coralline dredge material will be used as fill for the existing rail slip. Material excavated above the mean higher high water (MHHW) elevation will not be suitable for ocean disposal. This excavated material could be used as on-site fill material during landside grading activities. Any excavated material not used for on-site grading will be disposed of at an approved upland facility.

Proposed dredging activities and installation of the wharf bulkhead structure will affect existing utilities that cross the Federal Channel near the Sand Island Access Road bridge. These existing utilities include two Hawaiian Electric Company (HECO) power lines, two Honolulu Board of Water Supply (HBWS) water lines, one U.S. Army Signal Corps communication cable, one abandoned U.S. Army power line, and one abandoned sewer force main. Prior to project construction, the two HECO power lines and communication cable will be relocated by HECO and the U.S. Army Signal Corps, respectively. The abandoned U.S. Army power line and sewer force main will be removed within the project area. The two existing HBWS water lines, which consist of one 12-inch diameter line and one 16-inch diameter line, will be relocated under this project.

The existing water lines will be replaced with two new lines of equal size or with new dual 16-inch diameter lines (see Attachment 1, Figure 34). The parallel replacement lines will be installed down to a depth of -105.0 feet MLLW to clear the bottom of the proposed wharf bulkhead structure. The two new high-density polyethylene (HDPE) water lines will each be approximately 1,400 feet in length and installed via horizontal directional drilling (HDD). HDD is a trenchless pipe installation technique that utilizes a drill rig to bore a pilot hole beneath an obstacle. After the pilot hole is drilled, a back reamer is attached to the drill and pulled back through the pilot hole to enlarge the opening. The pipe is then pulled through the enlarged hole behind the reamer.

Drill pits, which are required at both ends of the drilled line, will be installed within the project site at the west end of Pier 43 and on Sand Island within the container terminal operated by Horizon Lines. The drill pits will be used to stage the drilling equipment and to temporarily store drilling fluids and drill cuttings. After installation of the parallel lines via HDD, additional lengths of 12-inch and/or 16-inch diameter ductile iron pipe (DIP) will be installed within utility trenches to connect the drilled lines to existing water lines on either side of the channel crossing (see Attachment 1, Figures 35 and 36). New valves and valve manholes will be installed along the trenched portions of the new water lines. A new easement in favor of HBWS will be obtained for the new water lines within the Kapālama site, the Federal Channel, and the container terminal on Sand Island. The width of the new easement will range in size from 20 feet to 35 feet.

Installation of the drilled water lines will occur beneath the bottom of the Federal Channel, within the vertical planes extending at the channel limits. Consequently, a Section 408 approval will need to be obtained from USACE for this portion of the project. Information required for the Section 408 approval has been included at the end of this DA Permit application package.

Block 19. Project Purpose

DOT-H is proposing to develop a new container terminal in Honolulu Harbor to increase existing overseas container terminal capacity. The wharf and dredging project is an essential component of the overall Kapālama Container Terminal project that will provide berths for two container vessels. The proposed two-berth wharf layout is needed to meet the increase in overseas cargo handling demand projected through 2039. Due to Hawai'i's dependency on ocean transportation to receive consumer goods, failure to expand the State's container handling facilities would likely result in significant negative impacts on the local economy.

The proposed improvements at Piers 40F and 41 are needed to accommodate inter-island barges that will be used to distribute the increased volume of overseas cargo to the neighbor islands. See Chapter 1 of Attachment 3, Kapālama Container Terminal and Tenant Relocations, Final Environmental Impact Statement (FEIS), for more information.

Construction for the wharf and dredging project is anticipated to begin in January 2016 and end in December 2017. This estimated two-year construction duration could vary based on the contractor selected and the contractor's operations.

Proposed dredging activities and installation of the wharf bulkhead structure at the west end of Pier 43 will impact existing utilities that currently cross the Federal Channel and extend to Sand Island. Two replacement water lines will be drilled below the proposed wharf bulkhead structure to maintain potable water service on Sand Island. HDD will be utilized to install the water lines due to the depth at which the water lines will need to be installed to clear the bottom of the proposed wharf bulkhead structure. As an alternative to drilling, the replacement water lines could not be attached to the Sand Island Access Road bridge; a structural analysis indicated that the existing bridge would not be capable of safely supporting loads imposed by the replacement water lines.

Block 20. Reason(s) for Discharge

The proposed project will result in the discharge of dredge and fill materials into waters of the U.S. Permanent, or long-term, discharges into waters of the U.S. will include dredge material that will be disposed of at SOODMDS; dredge material used as fill for Snug Harbor, the existing rail slip, and Pier 40F; gravel/recycled concrete used to build a closure dike at the mouth of Snug Harbor; and quarry-run rock and armor stone used as slope protection at the west end of the proposed wharf.

Dredge material suitable for ocean disposal will be discharged at SOODMDS to minimize the burden on upland disposal facilities.

Snug Harbor and the existing rail slip at the east end of Pier 42 will be filled in to provide a continuous deck area for efficient container handling operations. Filling of these areas will also provide a continuous wharf face along Piers 42 and 43 that can simultaneously berth two large container vessels. An area behind the proposed bulkhead structure at Pier 40F will be filled in to provide a continuous work space along the new wharf.

The closure dike will hold back dredge material that is being placed in Snug Harbor by barge. The closure dike will remain in place after barge operations have been completed and the wharf is constructed.

Slope protection is needed at the west end of the new wharf to prevent erosion from potentially undermining the Sand Island bascule bridge abutment.

Block 21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards

The proposed project will result in the discharge of several types of materials within waters of the U.S. The following table summarizes the various discharge materials and provides estimated discharge quantities.

Material Type	Discharge Location	Estimated Discharge Volume (cubic yards)	Estimated Discharge Area (square feet)
Dredge material	SOODMDS	198,400	See Note 1
Harbor sediment and coralline dredge material	Snug Harbor	124,200	87,000
Coralline dredge material	Rail slip at east end of Pier 42	13,300	15,300
Coralline dredge material	Pier 40F	4,150	6,000
Armor stone	Slope protection at west end of Pier 43	440	4,400
Quarry-run rock	Slope protection at west end of Pier 43	550	4,400
Gravel/recycled concrete	Closure dike at Snug Harbor	6,450	21,800

1. Placement of dredge material at SOODMDS will be evenly distributed to avoid mounding of material. The contractor will be required to conduct a pre-disposal and post-disposal bathymetric survey of SOODMDS.

Block 22. Surface Areas of Wetlands or Other Waters Filled

Water areas that will be filled include Snug Harbor (87,000 square feet [sf]), the existing rail slip at the east end of Pier 42 (15,300 sf), a 6,000-sf area at Pier 40F, and the area at the west end of Pier 43 where slope protection measures will be installed. Dredge material that will be discharged upland includes surcharge material for the fill sites, fill material used to grade upland portions of the site, and coralline material that will be temporarily stockpiled upland for processing prior to placement at the fill sites or disposal at SOODMDS. All excess dredge material not suitable for ocean disposal or used for fill on-site will be disposed of at an approved upland site, which will likely be the PVT landfill in Nānākuli. Efforts to find parties interested in accepting coralline dredge material for beneficial reuse are ongoing. Despite some interest, currently, no parties have agreed to accept any dredge material.

Material for the base of the closure dike will be placed directly in Snug Harbor from bottom dump hopper barges. The top of the closure dike will then be formed using barge-mounted clamshell dredges or shore-based cranes. Bottom dump hopper barges will also be used to place dredge material directly in Snug Harbor up near the top of the closure dike (elevation -8.0 feet MLLW). Barge-mounted clamshell dredges and shore-based excavators will then be used to fill Snug Harbor up near the final elevation of the new wharf deck (+9.8 feet MLLW). Sediment control measures for dredge material placed in Snug Harbor will include the closure dike during barge operations and the wharf bulkhead structure, which will be installed after fill activities by barge and will hold back the dredge material during and after completion of fill activities (see Attachment 1, Figure 9). All interlocking sheet pile and king pile joints along the bulkhead structure will be sealed from the top of the piles to a minimum of 10 feet below the design dredge depth, including the two-foot OD allowance. Non-coralline dredge material placed in Snug Harbor from land will be transported to Snug Harbor in dump trucks. The trucks will be lined if the material is saturated.

Shore-based and/or water-based equipment (barge-mounted clamshell dredges, excavators, cranes) will be used to fill the existing rail slip up near the final elevation of the new wharf deck (+9.8 feet MLLW). A localized silt curtain may be deployed immediately around active dredging areas (see Attachment 1, Figures 11 and 12). The wharf bulkhead structure, which will be constructed in conjunction with fill activities occurring within the rail slip, will permanently hold back the dredge material. All interlocking sheet pile and king pile joints along the bulkhead structure will be sealed from the top of the piles to a minimum of 10 feet below the design dredge depth, including the two-foot OD allowance.

Shore-based and/or water-based equipment (barge-mounted clamshell dredges, excavators, cranes) will also be used to fill the area at Pier 40F up near the final elevation of the new wharf deck (+9.8 feet MLLW). The sediment control measure for dredge material placed at Pier 40F will consist of the sheet pile-king pile wharf structure, which will be installed prior to the placement of fill. A localized silt curtain may be deployed immediately around active dredging areas (see Attachment 1, Figures 11 and 12). The wharf bulkhead structure will permanently hold back the dredge material. All interlocking sheet pile and king pile joints along the bulkhead structure will be sealed from the top of the piles to a minimum of 10 feet below the design dredge depth, including the two-foot OD allowance.

Shore-based and/or water-based equipment (barge-mounted clamshell dredges, excavators, cranes) will be used to place rock material for the slope protection system near the Sand Island Access Road bridge. The rock will be clean material imported from a local quarry.

Clamshell dredges used during removal of non-coralline material may be equipped with environmental buckets that seal during closure to prevent fine grain material from spilling out of the buckets. The environmental buckets, which may be utilized to maintain water quality standards during construction, would also be vented to minimize sediment plumes when the buckets are lowered in place. Rock buckets that are not sealed at the top will be utilized during dredging of coralline material due to the material hardness. Dredging of the hard coralline material with rock buckets is not anticipated to result in significant turbidity of harbor waters.

Bottom dump hopper barges/scows used to transport dredge material to on-site fill areas or SOODMDS will be properly maintained to close and seal, which will minimize the loss of material during transit to the discharge sites. Monitoring and reporting for scow operations will also be provided during ocean disposal activities.

The fill sites at Snug Harbor, the existing rail slip, and Pier 40F will all be surcharged with dredged coralline material to accelerate settlement of fine-grained soil. The surcharge areas will be surrounded by two rows of fiber rolls to keep the material in place (Attachment 1, Figure 10). One row of fiber rolls will be staked into the ground at the base of the surcharge piles and the other row will be staked at mid-slope. The fill areas will be surcharged for a minimum of 6 to 8 months prior to disposal at SOODMDS or an upland facility.

Dredge material will be used to grade upland portions of the site. Temporary erosion control measures that will prevent this dredge material from re-entering harbor waters during construction include a row of silt fence installed along the perimeter of the site and sandbags placed around storm drainage structures (see Attachment 1, Figures 14 through 19). A second row of silt fence will be installed along the waterside boundary of the site. The new wharf deck and bulkhead structure will prevent dredge material from discharging back into the harbor over the long term. All interlocking sheet pile and king pile joints along the bulkhead structure will be sealed from the top of the piles to a minimum of 10 feet below the design dredge depth, including the two-foot OD allowance.

Coralline dredge material will be temporarily discharged in upland areas for crushing/processing prior to ocean disposal or use as fill material or surcharge material. Non-coralline dredge material will also be temporarily discharged upland prior to use as on-site grading material or disposal at an upland facility. Separate best management practices (BMPs) will be provided for upland processing/transfer areas that handle non-contaminated material and transfer areas that handle contaminated material.

The upland processing/transfer area(s) for non-contaminated material will be surrounded by a retention barrier (hay bale or similar product) lined with filter fabric to prevent deposition of the dredge material back into harbor waters (Attachment 1, Figure 10). The entire interior area up to the full height of the barrier will be lined. The upland transfer area(s) for contaminated material will be surrounded by a compacted earthen berm and will be lined with plastic sheeting up to the top of the berm to prevent deposition of the dredge material and potential contaminants back into harbor waters (see Attachment 1, Figure 20, Stockpile Protection Detail). A row of sandbags will be placed along the exterior perimeter of the earthen berm for protection. Contaminated material left in the transfer areas will be covered with plastic sheeting at the end of each work day or in the event of a storm. The plastic covering will be secured by sandbags placed at the base of the material within the containment berm.

BMPs implemented at all stockpile areas will be similar to the BMPs for upland transfer areas handling contaminated material, as described above and shown in Figure 20. Stockpile areas will also be covered with plastic sheeting secured by sandbags at the end of each work day or in the event of a storm.

The contractor will determine the locations of the upland processing/transfer areas and stockpile areas, with the proper erosion and sediment control measures in place at each location.

Drill pits will be installed at each end of the drilled water lines to facilitate the drilling operation and to temporarily store drilling fluids and drill cuttings. The drill pits will be sized to accommodate the anticipated volume of drilling mud and cuttings with a three-foot freeboard in each pit. The perimeter of the drill pits will be lined with sand bags to provide additional containment (see Attachment 1, Figure 37). Portions of the water lines that will be installed on land in trenches and existing drain inlets in the area will also be surrounded by a row of sand bags to provide erosion and sediment control (see Attachment 1, Figure 19).

Additional erosion and sediment control measures that will be implemented during construction include a stabilized construction entrance/exit installed at the on-land access points to the site, sediment traps located near the stabilized construction entrances/exits that will be used during vehicle wash downs, concrete washout containment areas, and stone column barriers consisting of woven sandbags that will surrounding the stone column ground improvement construction areas. See Attachment 1, Figures 20 and 21, for details of these erosion and sediment control measures.

Block 23. Description of Avoidance, Minimization, and Compensation

The design of the new wharf and dredging was modified to avoid and minimize losses to waters of the United States (WOUS). The wharf design was changed from a pile-supported pier to a sheet pile-king pile bulkhead structural system. A bulkhead structure would require fewer piles and result in less dredging and less excavated and dredged material to dispose of than a pile-supported pier. In addition, the proposed location of the new wharf face will generally be further inland than the existing shoreline, creating new harbor waters and minimizing water areas that will be filled.

Proposed dredging and fill activities will ultimately result in a net gain of approximately 0.29 acres of WOUS. Consequently, compensatory mitigation is not being proposed for the project.

Implementation of construction BMPs discussed above in Block 22 will avoid and minimize adverse impacts to WOUS. Additional avoidance and minimization measures for adverse project impacts to WOUS include the following:

- Minimize the project footprint by limiting construction to shoreline areas immediately adjacent to the proposed wharf and container terminal, limiting dredging activities to nearshore waters and outside the Federal Channel, and limiting wharf construction to the Pier 41 side of the Pier 41-Pier 40 slip.

- Sediment testing was conducted on material proposed for dredging to determine the portions of dredge material that will be suitable for ocean disposal (see Attachment 2). All dredge material not suitable for ocean disposal will be used as on-site fill material or will be disposed of at an approved upland site to prevent the spread or transfer of contaminants in the marine environment.

- Transplant large corals (bigger than 20 centimeters) from the project site to other areas of Honolulu Harbor and/or transport these corals to aquaculture and research facilities at the ʻĀnuenue Fisheries Research Center on Sand Island prior to construction. Corals transported to the ʻĀnuenue Fisheries Research Center will eventually be reintroduced into the natural marine environment at a later date.

- Limit the amount of dredging and excavated and dredged material to dispose of by constructing a sheet pile-king pile bulkhead structure in lieu of a pile-supported wharf.

- Minimize the possibility of spreading known contaminants in dredge material that will be used as on-site fill into harbor waters by sealing all interlocking sheet pile and king pile joints along the wharf face. All joints will be sealed from the top of the piles to a minimum of 10 feet below the design dredge depth, including the two-foot OD allowance. The material will be capped with 21-inch thick concrete yard pavement.

- Deploy a silt curtain around the immediate dredge area to contain sediment and protect coral community resources in surrounding harbor waters.

- Minimize the amount of in-water noise generated during pile driving operations by installing a majority of the sheet pile-king pile bulkhead system on land. Approximately 75 percent of the bulkhead system along the seaward face of the proposed wharf will be driven on land. A portion of the sheet pile wall for the proposed slope protection system at the west end of Pier 43 will also be driven on land. In-water noise generated during pile driving activities will also be minimized through construction of a sheet pile-king pile bulkhead structure in lieu of a pile-supported wharf. The number of piles required for a bulkhead structure is less than that required for a pile-supported wharf.

- Minimize the amplitude of in-water noise generated during pile driving operations by utilizing vibratory pile driving methods, in lieu of impact driving methods, to the maximum extent practicable.
- Limit construction dredging to low rainfall periods to the maximum extent practicable. Surface water discharges into harbor waters have the potential to spread sediment plumes outside the construction area.
- Minimize the quantity of dredge material placed at SOODMDS through beneficial reuse of dredge material as on-site fill material.
- Commence in-water pile driving activities with 5 to 10 soft blows to allow mobile organisms to vacate the area. In addition, all work during pile driving and dredging activities should temporarily cease if a turtle or marine mammal were to breach minimum stand-off distances.
- Minimize long-term degradation of harbor waters by installing permanent stormwater treatment devices for stormwater runoff generated at the wharf and container terminal yard.
- Modify the existing Honolulu Harbor invasive species plan to include controls for ships that plan to use the new wharf facilities.
- Monitor water quality during construction to evaluate changes from preconstruction baseline conditions.
- Minimize sediment suspension during dredging by reducing the lowering rate of the dredge bucket prior to impact with the harbor bottom.
- Minimize spillage of dredge sediment into harbor waters by reducing the travel speed of the dredge buckets.

In spite of these proposed avoidance and minimization measures, the project will result in unavoidable losses of marine ecosystem resources and subsequent losses to ecosystem functions and services. A paper describing the functions and services at the project site is being prepared and will be provided prior to consultation with Federal and State resource agencies. Offset measures that are planned for these losses currently include one or more of the following:

- Construct an artificial reef to offset ecosystem functions and services associated with lost physical habitat as the new reef is colonized by fish, coral, and other invertebrates.

- Provide support for the Super Sucker program, which utilizes barge-mounted pumps and suction hoses to remove invasive algae from reefs in Kāneʻohe Bay. After the reefs are cleared of the algae, sea urchins are placed on the reef to control the re-growth of algae.

- Provide support for anticipated habitat restoration and coral colony restoration programs for the Waikīkī Marine Life Conservation District (MLCD). These anticipated programs are based out of the ʻĀnuenue Fisheries Research Center on Sand Island, which is an aquaculture and research facility of the State Department of Land and Natural Resources (DLNR), Division of Aquatic Resources. DLNR is currently in the process of establishing programs that will support, restore, and improve ecosystem functions and services within the Waikīkī MLCD. In addition, a program to remove invasive algae from reefs within Waikīkī MLCD, similar to the SuperSucker program in Kāneʻohe Bay, could be implemented.

The equivalent ecosystem value of each of these proposed offset measures has not yet been established. Consequently, the extent of each offset measure needed for project-related losses has yet to be determined.

Block 25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody

Tax Map Key	Owner/Lessee	Mailing Address
1-2-025: 009	Honolulu Shipyard Inc	P.O. Box 30989 Honolulu, HI 96820
1-2-025: 011	State of Hawaiʻi Department of Transportation Harbors Division	N/A – Proposing Agency
1-2-025: 016	State of Hawaiʻi Department of Transportation Harbors Division	N/A – Proposing Agency
1-2-025: 017	University of Hawaii Marine Center	1 Sand Island Access Road Honolulu, HI, 96819
1-2-025: 071	Voyager Submarines Hawaii	680 Iwilei Road Honolulu, HI 96817
1-5-032: 002 and 008	Young Brothers, Ltd.	P.O. Box 3288 Honolulu, HI 96801

1-5-032: 043	Atlantis Submarines Hawaii LLC	1600 Kapiolani Blvd, Ste 1630 Honolulu, HI 96814
1-5-041: 111	State of Hawaiʻi Department of Transportation Harbors Division	N/A – Proposing Agency
1-5-041: 126-2	CSX Lines LLC c/o Horizon Lines LLC	4064 Colony Rd, Ste 200 Charlotte, NC 28211
1-5-041: 126-5	Honolulu Fueling Facilities Corporation	7617 Arvilla Ave Jacksonville, FL 32202
1-5-041: 126-7	Sea-Land Service Inc	500 Water St, J910 Charlotte, NC 28211
1-5-041: 185 and 323	Matson Terminals, Inc.	555 12th Street Oakland, CA 94607

Block 26. List of Other Certificates or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in this Application

Agency	Type Approval	Identification Number	Date Applied	Date Approved	Date Denied
State Agencies					
Office of Environmental Quality Control	Hawai'i Revised Statutes 343 Environmental Impact Statement (EIS)		FEIS Published on 8/23/14		
Office of Planning	Coastal Zone Management Federal Consistency Review		In process		
Department of Health (DOH), Clean Water Branch	Section 401 Water Quality Certification		In process		
DOH, Clean Water Branch	National Pollutant Discharge Elimination System Permit, NOI Form C		In process		
DOH, Clean Water Branch	National Pollutant Discharge Elimination System Permit, NOI Form F		In process		
Disability and Communication Access Board (DCAB)	2004 Americans with Disabilities Act (ADA) Accessibility Guidelines	DCAB #2014-499	7/11/2014	10/21/14	
DLNR, Office of Conservation and Coastal Lands	Conservation District Use Permit (CDUP)		Exempt		
Department of Transportation (DOT), Highways Division	Permit to Discharge into the State Highways Drainage System (for hydrotesting effluent discharge)		In process		

Agency	Type Approval	Identification Number	Date Applied	Date Approved	Date Denied
State Agencies					
DOT, Harbors Division	Permit for Connection to the State Harbors Drainage System (for hydrotesting effluent discharge)		In process		
DOT, Harbors Division	Permit to Discharge into the State Harbors Drainage System (for hydrotesting effluent discharge)		In process		
City and County of Honolulu Agencies					
Department of Planning and Permitting	Special Management Area Use Permit		Exempt		
Department of Facility Maintenance	Drainage Encroachment Variance (for work within City easements only)		In process		
Department of Planning and Permitting	Surface Runoff from Construction Activities entering into City's Storm Sewer System		In process		

SUPPLEMENTAL QUESTIONNAIRE

SUPPLEMENTAL QUESTIONNAIRE, US ARMY CORPS OF ENGINEERS - HONOLULU DISTRICT, REGULATORY BRANCH, REV. FEB 2012

A. Location

1. The tax map key (TMK) numbers for the wharf and dredging project include TMK 1-2-025: 009, 011, 012, 016, 017, 040, 046, 071, and 076; TMK 1-5-032: 002 and 043; and TMK 1-5-041: 111 and 296.

2. The Pier 41-Pier 42 interface of the proposed wharf is approximately located at Latitude °N 21.3170 and Longitude °W 157.8840.

3. The proposed project is located within the Kapālama Watershed.

B. Proposed Action

1. Description of Work

    a. In-water construction methods

        In-water construction will consist of demolition and removal work, dredging, discharge/fill activities, and installation of the sheet pile-king pile bulkhead structure.

        General in-water demolition and removal work will be primarily conducted with land-based or water-based cranes and excavators. Water-based equipment will be mounted on barges. Pile removal will consist of land-based or water-based cranes and excavators extracting piles from the harbor bottom. If simple pile extraction is not effective, the contractor may vibrate the piles or use jet probing to loosen the piles. Jet probing utilizes water jets to remove/loosen sediment around piles/structures to be removed. Pile cutting may be necessary should the contractor be unable to pull out the piles in whole.

        Mechanical (clamshell and/or excavator) dredging is the anticipated dredging method. Dredge material will be placed on barges to be transported to fill sites, upland transfer areas, or SOODMDS. A portion of Snug Harbor will be filled with a bottom dump hopper barge. Land-based and water-based excavators will be used to fill the rest of Snug Harbor and other water areas to be filled (existing rail slip and Pier 40F).

        Steel sheet piles and king piles will be installed with a pile driving rig operating on land and in the water. The piles will be installed by vibratory and/or impact driving methods. Installation of all sheet piles and king piles will require impact pile driving to stab the piles into the earth once the piles have been installed to the full design depth or when refusal occurs during vibratory driving.

b. Construction equipment/machinery

In-water demolition and removal work will include the use of cranes, excavators, and barges. Vibratory pile drivers/extractors, jet probe equipment, and/or concrete pile cutting machinery will be used as needed for pile removal work. Clamshell dredges, barges, tugs, and excavators will be used to dredge the wharf site and transport the dredge material. Bottom dump hopper barges and excavators will be used to fill the project water areas. Pile driving rigs and barges will be used to install the wharf bulkhead structure. Augers and/or spudding equipment may be used where necessary to facilitate driving of the steel king piles and sheet piles through hard coral substrate. Augers and cranes will be required to construct cast-in-drilled hole (CIDH) piles that will be installed on land. CIDH piles will not be constructed in water. Cranes and soil vibrators will be required for soil vibro compaction, which will take place on land and not in water.

c. Staging/access requirements

The project site will have two on-land access points; one on the west end of the site near Pier 43 with access from Sand Island Access Road, and the other on the east end of the site near Pier 40F with access from the intersection of Libby Street and Auiki Street (see Attachment 1, Figure 22). On-land staging areas may be located near the two on-land access points and could move within the site as construction progresses.

In-water staging areas for boats, dredges, barges, and other waterborne construction equipment will likely be limited to project waters fronting Piers 42 and 43 and in the Pier 40-Pier 41 slip. Construction barges and other vessels may need to temporarily moor along other berths within Honolulu Harbor as allowed by the Harbor Master and/or DOT-H. The only other time waterborne equipment is likely to leave project waters is during ocean disposal activities when tugs and hopper barges travel to SOODMDS. The approximate travel path from the project site to SOODMDS is shown on Attachment 1, Figure 23.

d. General construction sequence

The following construction sequence is based on a likely sequence of general construction activities for the project. The construction sequence could vary based on the contractor selected and the contractor's operations and means and methods. Some construction activities listed separately below may occur simultaneously with others or may be shifted around in sequence.

1. Install applicable construction BMPs prior to commencement of associated construction activities.

2. Install water lines near Sand Island Access Road bridge via horizontal directional drilling (HDD).

    a) Construct drilling pits on either side of Federal Channel

    b) Drill holes and install fused HDPE pipe strands

    c) Install near-surface ductile iron water line segments via open trenching and connect drilled water lines to existing water system

    d) Test lines

    e) Backfill drilling pits and stabilize and restore work drilling area

3. Conduct demolition work

4. Construct wharf structure at Piers 41 and 40F

    a) Install king pile-sheet pile bulkhead system

    b) Construct anchor blocks, CIDH piles, and tie-back system

5. Install closure dike at Snug Harbor

6. Dredge area at Piers 41 and 40F

7. Place dredge material from Piers 41 and 40F in Snug Harbor and upland disposal site (process coralline material as needed prior to placement)

8. Install stone column ground improvements at Piers 41 and 40F

9. Construct wharf structure at Snug Harbor

    a) Install king pile-sheet pile bulkhead system

    b) Construct anchor blocks, CIDH piles, and tie-back system

10. Construct wharf structure at Piers 42 and 43 and install structural portion of slope protection measures at west end of Pier 43

    a) Install king pile-sheet pile bulkhead system

    b) Construct anchor blocks, CIDH piles, and tie-back system

11. Install stone column ground improvements at Piers 42 and 43

12. Dredge area at Piers 42 and 43

13. Place dredge material from Piers 42 and 43 in Snug Harbor, existing rail slip, Pier 40F, upland fill sites, and SOODMDS (process coralline material as needed prior to placement)

14. Place surcharge material at fill sites for minimum required surcharge durations

15. Install stone column ground improvements at Snug Harbor

16. Construct rock revetment slope protection measures at west end of Pier 43

17. Remove surcharge material and dispose of at SOODMDS or upland facility

18. Conduct civil site work

    a) Install utility systems

    b) Install post-construction BMPs (stormwater treatment units)

    c) Construct concrete wharf deck/pavement

    d) Install fenders, bollards, and ladders

19. Remove temporary construction BMPs

e. Construction scheduling

Construction for the wharf and dredging project is anticipated to begin in January 2016 and end in December 2017. This estimated two-year construction duration could vary based on the contractor selected and the contractor's operations.

f. Stockpile locations

Stockpiles will be located on land within the project site. No material will be stockpiled in waters of the U.S. The contractor will determine the specific stockpile locations to suit its operations. Erosion and sediment control measures described in Block 22 of ENG FORM 4345 will be installed at each stockpile area.

2. Location of borrow and upland disposal sites

All rock, gravel, and other aggregate material that will be used in construction of the slope protection measures at the west end of Pier 43 or the stone column ground improvements will be imported from a local quarry/quarries. Fill imported for the project will be clean material without deleterious substances. If gravel is used to construct the closure dike, the material will also be imported from a local quarry and will be clean and devoid of deleterious substances. Alternatively, if recycled concrete is used in construction of the dike, the existing piles in Snug Harbor will be the likely source. The concrete piles, which are not believed to contain contaminated material, would be crushed in an upland facility before being placed back in the water.

Drilling fluids (mud slurry) used by the contractor during HDD installation of the two replacement water lines near the Sand Island Access Road bridge shall be composed and used in compliance with applicable local, state, and federal environmental regulations. Oil-based drilling fluids or other fluids that can contaminate the soil or groundwater shall not be used. Disposal of drilling fluids shall be conducted in compliance with all applicable environmental and government regulations and permit requirements.

Excess dredge material not used as fill material, grading material, or deposited at SOODMDS will likely be disposed of at PVT landfill in Nānākuli. Other excess materials not reused on site, including demolition waste, will be taken to PVT landfill. Efforts to find parties interested in accepting excess coralline dredge material for beneficial reuse are ongoing. Despite some interest, currently, no parties have agreed to accept any dredge material. West Oʻahu Aggregate recycles construction materials and may accept the excess coralline material.

3. Description of best management practices

Best management practices (BMPs) used during dredging will consist of a silt curtain deployed around the immediate area to be dredged. The silt curtain will surround the dredge equipment and barge used to transport the dredge material (see Attachment 1, Figures 11 through 13). The silt curtain will be deployed at all times during dredging and will be moved with the dredging operations and equipment.

Temporary BMPs used during fill activities, surcharge activities, water line installation work via HDD, and on-land construction work are described in Block 22 of ENG FORM 4345 and shown on Attachment 1, Figures 10 through 12, Figures 14 through 21, and Figure 37.

Post-construction BMPs will consist of three stormwater treatment units. See Attachment 1, Figures 24 through 30 for treatment unit locations and details. One large treatment unit consisting of two 60,000-gallon treatment tanks will be located near the filled-in Snug Harbor and will treat stormwater generated at the wharf along Piers 42 and 43 and at the overall container terminal yard (Attachment 1, Figure 29). Each of the 60,000-gallon tanks will contain a series of settling chambers separated by baffles that will remove sand, sediment, and grit from stormwater runoff. The large tanks will also contain trash screens to capture larger floatable materials.

The other two smaller treatment units will be hydrodynamic separators that also target removal of sediment and floatables from stormwater runoff (Attachment 1, Figure 30). These two treatment units will be installed at the north end of Pier 41 and at Pier 40F and will treat stormwater from the rest of the wharf. Stormwater runoff will drain to the proposed on-site stormwater collection system before passing through the treatment units and then being discharged into harbor waters.

All new development and redevelopment projects by DOT-H or harbor tenants that result in a land disturbance of one acre or more are subject to the requirements of the DOT-H Post-Construction Stormwater Management Program (SWMP). Major components of the Post-Construction SWMP include incorporating low-impact development, source control, and treatment control BMPs into project designs; subsequent review of the BMP designs, including any applicable operation and maintenance (O&M) plans for the BMPs, for adherence to the SWMP; inspections during construction to ensure proper installation of the BMPs; periodic inspection after construction is complete to ensure proper operation and maintenance of the BMPs; and implementation of enforcement actions (warnings and penalties) for violations observed during post-construction BMP inspections.

The entire wharf deck will be hardened with concrete, which will minimize the potential for erosion from the site. A continuous sheet pile-king pile bulkhead structure will be installed along the entire face of the new wharf, which will prevent dredge material used as on-site fill from discharging back into the ocean. All interlocking sheet pile and king pile joints along the wharf face will be sealed from the top of the piles to a minimum of 10 feet below the design dredge depth, including the two-foot OD allowance. The pile seals will minimize the possibility of a release of dredge material and any contaminants into harbor waters.

In addition to structural BMPs, pollution prevention and good housekeeping BMPs will be implemented, including:

- Spill prevention control and countermeasures during construction and by individual tenants as required by federal, state, and local regulations
- Proper fueling and maintenance of equipment or vehicles
- Proper washing of equipment and vehicles
- Proper storage, handling, and disposal of construction products, materials, and wastes, including chemicals, fuels, oil, hydraulic fluids, and other petroleum products
- Adequate provision for sanitary waste facilities
- Proper application of pesticides, herbicides, insecticides, fertilizers, and landscape materials

C. Discharge of Dredged and/or Fill Material

1. Source of dredged or fill material

Discharge Location	Source(s)	Material Composition
SOODMDS	Dredge material from Pier 42 and Pier 43 (below MHHW)	-Harbor deposits -Lagoonal deposits -Previous fill material located below MHHW -Processed coralline material
SOODMDS	Surcharge material removed from fill sites, which will consist of dredge material from Pier 42 and Pier 43 (below MHHW)	-Processed coralline material
Snug Harbor	Dredge material from Pier 40-Pier 41 slip	-Harbor deposits -Coralline material
Snug Harbor	Dredge material from Pier 42	-Coralline material
Rail slip at east end of Pier 42	Dredge material from Pier 42 and Pier 43	-Coralline material
Pier 40F	Dredge material from Pier 43	-Coralline material
Slope protection at west end of Pier 43	Imported fill from local quarry	Armor stone
Slope protection at west end of Pier 43	Imported fill from local quarry	Quarry-run rock
Closure dike at Snug Harbor	Imported fill from local quarry or recycled concrete from existing piles in Snug Harbor	Gravel/recycled concrete

2. Method of discharge

   Bottom dump hopper barges will be used to place dredge material at SOODMDS and a portion of Snug Harbor. Land-based excavators and barge-mounted clamshell dredges and excavators will be used to fill the remaining area of Snug Harbor, the existing rail slip, and the area at Pier 40F. Barge-mounted clamshell dredges and excavators will also be used during placement of rock/stone for the slope protection system near the Sand Island Access Road bridge.

3. Location of discharge

A plan view of the proposed discharge/fill sites is shown in Attachment 1, Figure 31. Cross-section views of the proposed discharge/fill sites are shown in Attachment 1, Figures 7, 8, and 10.

4. Structures or facilities constructed on fill area

A new wharf is proposed at Snug Harbor, the existing rail slip, and at Pier 40F. Wharf construction at each of these locations is described in Block 18 of ENG FORM 4345 and shown in Attachment 1, Figures 5, 6, and 9. A sheet pile wall will be constructed at the top of the proposed slope protection area near the Sand Island Access Road bridge (see Block 18 of ENG FORM 4345 and Attachment 1, Figure 10).

D. Dredging Projects

1. Dredge plans

Drawings depicting proposed dredging activities are provided in Attachment 1. The entire set of final construction drawings for the project is provided in Attachment 4. The proposed dredge footprint is shown in Attachment 1, Figures 3 and 31. Cross-section views of the areas to be dredged are shown in Attachment 1, Figures 4 through 10. For a location map of the project site, see Attachment 1, Figure 1.

All dredge material stockpile and processing areas will be located upland within the project site. Specific locations of the upland stockpile and processing areas will be determined by the contractor, which will be responsible for implementing the proper BMPs. Dredge material fill sites are shown in Attachment 1, Figures 3 and 31. The location of the ocean disposal site, SOODMDS, is shown in Attachment 1, Figure 23.

2. Type and composition of material to be dredged

Material proposed for dredging is expected to consist of harbor deposits, lagoonal deposits, coralline materials, and previous fill material used to create fast land. The harbor deposits and lagoonal deposits are generally characterized as sandy silts or silty sands with very soft to soft consistencies and very loose to loose relative densities. The coralline material generally consists of dense coral formation, sandstone/limestone, and medium dense coralline detritus. Coralline detritus is granular detritus broken from reef formations, including sandy gravel and gravelly sands. Previous fill material generally consists of clayey silts and sandy silts with stiff to hard consistencies.

For more information on the material to be dredged, see Attachment 2, Dredge Sediment Characterization Draft Data and Analysis Report, and Attachment 5, Geotechnical Engineering Exploration Report.

3. Dredge schedule

Overall construction for the wharf and dredging project is anticipated to begin in January 2016 and end in December 2017. Construction dredging is anticipated to begin in July 2016 and end in April 2017. No phased dredging operations are anticipated. The sequencing of areas to be dredged is listed in Item B.1.d above. These estimated construction dates could vary based on the contractor selected and the contractor's operations.

DOT-H is currently not planning on conducting periodic maintenance dredging of the project site. Intermittent maintenance dredging may be conducted in the future on an as-needed basis.

4. Dredge material quantities

    a. Dredge volume (includes material to be excavated above the MHHW elevation) = 417,900 cubic yards

    b. Dredge area = 5.64 acres

5. Dredging methods

    Mechanical (clamshell and/or excavator) dredging is the anticipated dredging method because it would minimize the amount of water that would be loaded onto barges with the dredge material, resulting in fewer trips to the ocean disposal site. If hydraulic dredging was to be utilized, the dredge slurry would contain approximately four times more water than dredge material. Clamshell dredging is also preferred because it would minimize the amount of suspended sediment and potential for the release of contaminants during in-water fill activities. Placing the hydraulic dredge slurry mix directly in the fill sites would require greater efforts to contain sediment.

6. Dredge material dewatering area

    Dredge material transported upland will be placed in transfer/processing areas where dewatering may occur. The contractor will determine the upland transfer/processing areas within the project site to suit its operations. Appropriate erosion and sediment control measures described in Block 22 of ENG FORM 4345 will be installed at each transfer/processing area. Trucks with lined beds will be used to transport saturated dredge material between upland areas.

7. Ocean disposal of dredge material

    a. Dredge material disposal locations

        Excess dredge material not used for on-site fill that is suitable for ocean disposal will be transported to the South Oʻahu Ocean Dredged Material Disposal Site (SOODMDS) in Māmala Bay. The center of SOODMDS is approximately located at latitude 21°15′10″ north and longitude 157°56′50″ west.

b. Volume of material to be disposed of

Up to approximately 198,400 cubic yards of dredge material is planned for disposal at SOODMDS.

c. Type and composition of material

Material proposed for ocean disposal is expected to consist of harbor deposits, lagoonal deposits, coralline materials, and previous fill material used to create fast land that is located below the MHHW elevation. For a description of the material compositions, see Item D.2 above.

Native material at SOODMDS is primarily comprised of silts and clays. Depositing larger coralline material at the disposal site could potentially result in the formation of mounds that would not be environmentally acceptable. Consequently, coralline dredge material will be processed to a maximum particle size of four inches prior to ocean disposal.

d. Duration of ocean disposal

Ocean disposal activities are anticipated to be conducted in increments. The total duration for ocean disposal is estimated to be eight months. The following schedule is anticipated for ocean disposal operations:

- November 2016 – Initial offshore disposal
- March 2017 through July 2017 – Next offshore disposal
- August 2017 through September 2017 – Final offshore disposal

The estimated construction dates and durations could vary based on the contractor selected and the contractor's operations. The final offshore disposal activities listed above will involve surcharge material removed from the proposed fill sites. The contractor may elect to dispose of the coralline surcharge material at an upland facility in lieu of SOODMDS, reducing the total ocean disposal duration to approximately six months.

e. Means of transporting dredge material to ocean disposal site

Non-coralline dredge material suitable for ocean disposal will be loaded directly onto bottom dump hopper barges that will be towed to SOODMDS by tugs. Coralline dredge material will be processed and either be stockpiled or used as surcharge material before being loaded onto barges and towed to SOODMDS.

E. Structures in Navigable Waters

1. Specific structures to be constructed and machinery and/or equipment used in construction

   The proposed wharf will be approximately 3,190 feet in total length along its seaward face. Slope protection measures will be installed on the west end of Pier 43 near the Sand Island Access Road bridge. Detailed information on the proposed wharf structures and slope protection measures is provided in Block 18 of ENG FORM 4345 and also shown in Attachment 1, Figures 4 through 6 and Figures 9 through 10. Machinery and equipment likely to be used during construction are listed in Item B.1.b.

2. Reason(s) in-water work is required

   In-water work is required to construct a new wharf capable of meeting the projected increase in overseas cargo handling demand. Some areas along the new wharf will need to be filled in to provide a continuous wharf face with adequate berthing capacity and to support efficient container handling operations. The bulkhead structures at the proposed fill sites will need to be installed waterside to complete fill operations. Slope protection measures at the west end of Pier 43 will be installed below MHHW and will require in-water work.

3. Purpose of structures

   The proposed wharf along Piers 42 and 43 will be used to berth overseas container vessels and to support gantry cranes that will be used to load/unload the vessels. The cranes will be installed separately by the future tenant of the container terminal. The primary use of the proposed wharf along Piers 41 and 40F will be to load/unload inter-island barges (without gantry cranes). The slope protection measures will be used to mitigate potential erosion near the existing Sand Island Access Road bridge abutment.

4. Support and/or anchoring systems

   The wharf bulkhead structure along Piers 42 and 43 will be anchored to the landside crane rail beam with tie rods (Attachment 1, Figure 4). The landside and waterside crane rail beams will be supported by cast-in-drilled-hole (CIDH) concrete piles. The wharf bulkhead structure along Piers 41 and 40F will be anchored to a concrete deadman with tie rods (Attachment 1, Figures 5 and 6). The deadman will also be supported by CIDH concrete piles. Vibro-replacement stone column ground improvements will be installed along the entire length of the new wharf to mitigate liquefaction and provide adequate vertical and lateral structural support.

The proposed slope protection measures will include a landside sheet pile wall that will be anchored to the wharf bulkhead at Pier 43 with tie rods (Attachment 1, Figure 10).

F. Existing Environment

1. Physical Environment

a. General description of project area and surrounding area.

1) Level of development

A majority of the land within the project site and in adjacent areas has been developed, consisting primarily of buildings and paved surfaces. Across the harbor channel, a majority of Sand Island contains industrial development. Sand Island State Recreation Area, which contains nearly 145 acres of open space, is located along the western and southern shorelines of Sand Island.

Photographs of the site and surrounding areas are provided in Attachment 6.

2) Existing land and water use

Existing/recent land uses within the wharf project area include a visitor-oriented ocean recreation company (Atlantis Submarines Hawaiʻi), a shipyard repair company (Pacific Shipyards International or PSI), a transportation service company (Island Movers), and an ocean research facility (University of Hawaiʻi Marine Center). The surrounding landside area is comprised of a number of smaller commercial and industrial tenants. Most of the tenants have already vacated the site as part of the overall container terminal project. The container terminal facilities of Horizon Lines LLC and Matson Navigation Company are located directly across the harbor channel on Sand Island (see Attachment 1, Figure 1).

Existing/recent water uses within the project area include berthing/docking facilities for the waterfront tenants and dry dock facilities used by PSI for ship repair activities. The adjacent harbor channel is used by commercial cargo, passenger, excursion, research, and fishing vessels. Fishing is not allowed within Honolulu Harbor.

3) Other general features

The overall container terminal site consisted of fishponds until about 1920, when the fishponds were filled in by the U.S. Army to develop the Kapālama Military Reservation (KMR) site. The KMR site was divided and sold to the State and local companies in the late 1980s, transforming KMR into its current/recent mix of industrial, commercial, and recreational uses.

In addition to existing wharf structures, relatively large sunken debris within the project dredge/fill areas will need to be removed. The east side of Snug Harbor contains rows of exposed concrete piles that will need to be extracted/removed prior to fill operations.

b. Substrate found at the project site

A geotechnical investigation of the site was conducted by Geolabs, Inc. in 2013 (Attachment 5). Harbor bottom areas at Piers 42 and 43 generally consist of coralline deposits overlain by soft harbor sediments. The harbor bottom at Piers 41 and 40F generally consists of a mixture of coralline deposits and alluvium (silts and clays) overlain by harbor sediments. Upland areas within the site generally consist of coralline deposits and alluvium overlain by lagoonal deposits (sandy silts and silty sands) and fill material (clayey silts and sandy silts). Although not encountered in the borings, basalt rock formations (Koʻolau Basalt) are anticipated at the site.

c. Range of water levels

Historical tidal elevation data at Honolulu Harbor published by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS) are summarized in the table below. The vertical datum is mean lower low water (MLLW).

Tide Data, NOAA Station 1612340	Elevation (feet MLLW)
Highest Observed Water Level (HOWL) on 2/14/1967	3.39
Mean Higher High Water (MHHW)	1.90
Mean High Water (MHW)	1.44
Mean Sea Level (MSL)	0.82
Mean Tide Level (MTL)	0.80
Mean Low Water (MLW)	0.16
Mean Lower Low Water (MLLW)	0.00
Lowest Observed Water Level (LOWL) on 4/30/1911	-1.41

The diurnal tide range for the harbor is 1.9 feet (from MHHW to MLLW). A maximum storm surge of approximately 1.5 feet is estimated by assuming that the highest observed water level (+3.39 feet MLLW) coincides with storm surge in addition to MHHW (+1.90 feet MLLW) due to the duration of a storm surge event. The estimated 50-year maximum water level at the site is 7.3 feet.

d. Description of water currents and water circulation patterns at the site

A hydrodynamic model was used to simulate currents at the site. The current simulation model considered tidal influence, prevailing wind patterns (from the east to northeast direction), and wave effect. Simulation results indicated that currents at the site are not significant, with a maximum current speed of less than 0.2 feet per second (ft/s).

Water circulation patterns at the project site are assumed to follow the tidal current, which generally ebbs east and floods west along the southern coast of O'ahu.

e. Salinity of water at the project site

The project site contains seawater.

f. Quality of water at the project site

Project waters (Honolulu Harbor & Shore Area – Honolulu Waterfront – Aloha Tower, Geocode ID HIW00061) are on the 2014 Section 303(d) List of Impaired Waters. Of the three pollutants with sufficient data, only ammonia-nitrogen (NH_4) values exceeded State water quality standards (WQS). Nitrate + nitrite-nitrogen (NO_3+NO_2) and turbidity values were below State WQS.

Water quality sampling was conducted in April 2012 as part of the 2012 marine survey for the project (see Attachment 7 and Item F.2. below for more information on the 2012 marine survey). Water chemistry throughout the project area was consistent with typical water chemistry patterns for semi-enclosed basins receiving fresh water runoff; vertical stratification with an upper layer of lower salinity-higher nutrient water overlaying a bottom later of higher salinity-lower nutrient water. Turbidity and Chlorophyll *a* concentrations were relatively low throughout the sampling area with little variation in these values.

g. Groundwater recharge area

No potable groundwater resource is located within the project site. High salinity levels in groundwater at the site make it unsuitable for potable use.

h. History or possibility of contaminants/pollutants in the substrate at the source of fill material

Dredge material within the project site that will be used as fill includes coralline material, lagoonal deposits, and harbor deposits. Approximately 40 percent of the material to be removed is native prehistoric coralline material that is not believed to be contaminated. Material to be dredged in the Pier 40-Pier 41 slip and at Pier 42 in front of the PSI site (TMK 1-2-025:

009) is believed to contain contaminated materials due to past industrial activities.

This suspected contaminated material, which will be placed in Snug Harbor or disposed of at an approved upland facility, was tested in September 2013 as part of the Environmental Hazard Evaluation and Environmental Hazard Management Plan (EHE-EHMP) for the PSI site (see Attachment 8 for additional information). Analysis of sediment samples taken from harbor areas along the PSI site, which only extended approximately three feet below the harbor bottom, indicated relatively high levels of total petroleum hydrocarbons as diesel range organics (TPH-DRO), benzo(a)pyrene, and zinc that all exceeded State DOH commercial/industrial land use (C/I) environmental action levels (EALs). The sediment samples also contained high concentrations of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and Priority Pollutant metals (arsenic, cadmium, chromium, copper, lead, nickel, silver, zinc, and mercury) that exceeded NOAA National Status and Trends Program Sediment Quality Guidelines for Effects Range Low (ERL) and/or Effects Range Median (ERM) screening levels.

In addition to the known contaminated material, other material proposed for dredging was tested in accordance with USEPA and USACE requirements for ocean disposal, including material that will be used as on-site fill (see Block 18 of ENG FORM 4345 and Attachment 2 for more information). Of the dredge material that was tested, approximately 75 percent of the material (equivalent to approximately 25 percent of the total material to be removed) was determined to be suitable for ocean disposal. The remaining 25 percent of the tested material that could be used as on-site fill material was determined to not be suitable for ocean disposal because the sediment did not meet toxicity test requirements for the amphipod *Ampelisca abdita*. This material contained the highest concentrations of PAHs and PCBs. EPA concurrence on the suitability of the material for ocean disposal is pending.

The appropriate BMPs discussed in this permit application shall be implemented during handling, stockpiling, and placement of the contaminated material. Contaminated material used as on-site fill will be contained by construction of the continuous wharf bulkhead and the wharf and container yard pavement. All interlocking sheet pile and king pile joints along the wharf face will be sealed from the top of the piles to a minimum of 10 feet below the design dredge depth, including the two-foot OD allowance. The pile seals will minimize the possibility of a release of contaminated material back into harbor waters.

All imported fill for the project will be clean material without deleterious substances.

i. Problems with erosion at or near the project site

In addition to being flat, a majority of the site has been paved and is not susceptible to erosion. However, a portion of the existing shoreline along Piers 42 and 43, from Sand Island Access Road up to the Island Movers-PSI boundary, contains natural sandy/gravelly slopes that appear to have eroded over time (see Attachment 6). Aside from scattered concrete rubble and debris, these natural shoreline areas are bare and exposed to harbor waters.

j. Project site in or near drainage way or flood plain

The site is not located within or near a drainage way. The nearest drainage way is Kapālama Drainage Canal, which discharges into Honolulu Harbor over 1,000 feet to the east of the project area.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) 15003C0353G, revised 1/19/2011, a majority of the project site is located within Flood Zone AE. Flood Zone AE base flood elevations (BFEs) range from six to ten feet at the site (see Attachment 1, Figure 32). A small portion of the site along Pier 43 is located in Flood Zone VE with a BFE of ten feet.

k. Impacts to air quality at the project site

The State Department of Health (DOH) maintains two air monitoring stations in the area. The closest station is located on the east end of Sand Island and monitors for particulate matter up to 2.5 microns in diameter ($PM_{2.5}$) and ozone (O_3) from vehicle traffic. The second station is located less than two miles southeast of the site on the roof of DOH's office building on Punchbowl Street. This station monitors for sulfur dioxide (SO_2), carbon dioxide (CO_2), particulate matter less than 10 microns in diameter (PM_{10}), and $PM_{2.5}$. Based on air quality data from both stations, all federal and state air quality standards are being met.

Adverse impacts to air quality at the site will be primarily short-term and related to construction activities. Air emissions from construction activities will mainly include fugitive dust and emissions from diesel-powered equipment and vehicles. Fugitive dust released during construction will be controlled by BMPs at the site, including dust suppressors, and all applicable permits required under Hawaiʻi Administrative Rules (HAR) 11-60.1 will be obtained by the operator of the regulated stationary source equipment used for construction.

Operational air emissions will be generated by container trucks and other vehicles, diesel-powered equipment and generators, and arriving/departing vessels. Operations at the new container terminal that could reduce or minimize typical emissions include the use of low-sulfur fuel, use of electric-powered gantry cranes, and use of electric-powered vehicles and equipment where possible. Vessels moored at the proposed site could also be powered by shore-based electricity rather than vessel-based generators that utilize fossil fuels.

l. Impacts to noise levels at the project site

Existing waterfront activities generating noise at the site include shipyard repair operations and berthing and maintenance of marine vessels. Further inland, commercial and light industrial tenants of KMR generate noise during their operations. Additional sources contributing to ambient or background noise levels include aircraft traffic coming in and out of Honolulu International Airport, harbor activities, operation of the existing container terminal facilities on Sand Island, and street traffic along Auiki Street and Sand Island Access Road.

The nearest residences are located along the north side of Auiki Street in the Kalihi Kai area, which is adjacent to the northeast end of the wharf and dredging project site. The nearest school is Puʻuhale Elementary School, located approximately 2,000 feet to the north.

The project will result in both temporary and long-term impacts on noise levels at the site. Temporary construction noise generated on land and offshore will impact the surrounding community. Noise generated during construction activities will also propagate through the water and could potentially impact the marine environment. Pile driving activities will generate most of the noise disturbance in the water.

Should construction noise temporarily exceed DOH maximum permissible levels, a noise permit or variance will be required from the agency. Mitigation measures identified in the noise permit or variance will help reduce temporary impacts.

The amount of in-water noise generated during pile driving operations will be minimized by installing a majority of the sheet pile-king pile bulkhead system on land. Approximately 75 percent of the bulkhead system along the seaward face of the proposed wharf will be driven on land. A portion of the sheet pile wall for the proposed slope protection system at the west end of Pier 43 will also be driven on land. In-water noise generated during pile driving activities will also be minimized through construction of a sheet pile-king pile bulkhead structure in lieu of a pile-supported wharf. The number of piles required for a bulkhead structure is less than that required for a pile-supported wharf. Vibratory pile driving methods, in lieu of impact driving methods, will be used to the maximum extent practicable to minimize the amplitude of in-water noise generated during construction. Mitigation measures for sheet pile and pile driving activities, such as air/bubble curtains, could be used to dampen noise levels in the water.

Construction noise generated during HDD operations for the two replacement water lines is not likely to exceed noise generated during other construction activities. Drilling equipment will be equipped with noise suppressors, including silencers on compressors, as needed to maintain noise levels within acceptable limits.

Long-term noise levels will increase during operation of the proposed container terminal. Activities that will generate noise within the wharf and dredging project area include vehicle movements, vehicle safety devices such as horns and reverse-mode signals, ship loading and unloading, and operation of cranes, forklifts, and other heavy equipment. Impulsive noises, including banging noises involving shipping containers, will be the loudest operational sounds. Both stationary noise and impulsive noise from operation of the site are anticipated to be within the State's permissible levels at Puʻuhale Elementary School; however, operational noise levels (both stationary and impulsive) are expected to exceed the State's permissible levels at residences in Kalihi Kai.

Measures to minimize long-term noise could include the following:

- Construct sound attenuation barriers/walls;
- Select equipment that will generate less noise while also meeting operational needs;
- Include sound attenuation treatments to all fixed machinery.

Noise mitigation measures are discussed in more detail in Chapter 3 of the FEIS (Attachment 3).

2. Biological Environment

   a. Biological survey reports

Marine and terrestrial biological surveys were completed in 2012 for the overall Kapālama project. The marine and terrestrial survey reports are provided in Appendix E and Appendix F, respectively, of the FEIS (Attachment 3). A second marine survey was conducted for the wharf and dredging project site in 2014 following a large release of unrefined molasses into Honolulu Harbor in September 2013. The 2014 marine baseline survey is provided in Attachment 9.

The 2014 marine baseline survey indicated that a total of 81,422 coral colonies consisting of six live species with a combined equivalent area of 274 square meters (2,949 square feet) were observed in the project area. The six coral species included *Cyphastrea ocellina*, *Lepastrea* sp., *Pavona varians*, *Porites compressa*, *Porites lobata*, and *Porites monticulosa*. *Porites lobata* and *Lepastrea* sp. accounted for nearly 95 percent of the total number of coral colonies. Approximately 80 percent of the live corals observed fall within the smallest size class (1 to 5 centimeters, or less than 2 inches).

A total of 14,876 individual fish consisting of 68 species were observed within 96 belt transects and 100 single point survey areas at the project site. The average fish density within the surveyed areas was approximately 19,055 fish per hectare with an average mass of 443 kilograms per hectare. Common fish that were observed during the 2014 survey included sardines, ring-tailed surgeonfish, convict surgeonfish, yellow tang, whitespotted toby, domino damselfish, threadfin butterflyfish, and raccoon butterflyfish. Macro-invertebrates predominantly observed in the project area included tunicates, sponges, and bryozoans.

b. List of plants and animals within or near the project area that are listed as threatened or endangered under the Endangered Species Act of 1973.

No threatened/endangered species listed under the Endangered Species Act of 1973 (ESA) were observed in the area during the 2014 marine survey. No ESA-listed species were observed in the project area during the 2012 marine surveys either. However, the 2012 marine survey report noted that the threatened green sea turtle (*Chelonia mydas*) and endangered hawksbill turtle (*Eretmochelys imbricata*) are likely to occur within Honolulu Harbor despite not being observed. The endangered humpback whale (*Megaptera novaeangliae*) winters in the Hawaiian Islands from December to April, and may occasionally enter the harbor. The endangered Hawaiian monk seal (*Monachus schauinslandi*) commonly hauls out of the water to rest on sandy beaches. Monk seals could enter harbor waters, but there are no beaches within the harbor to serve as resting sites.

A flora and fauna survey of the overall Kapālama site was conducted in June 2012. No ESA-listed plant species or rare Native Hawaiian plant species were observed during the survey. The project site does not contain critical habitat for threatened or endangered plants, as designated by the U.S. Fish and Wildlife Service (USFWS) under the ESA. No ESA-listed or candidate bird, mammal, or insect species were observed during the survey. The Kapālama site does not contain any critical habitats for ESA-listed vertebrate or invertebrate species. The endangered Hawaiian hoary bat (*Lasirus cinereus semotus*) was not observed and is unlikely to occur at the site due to the level of disturbance in the area.

The threatened Newell's shearwater (*Puffinus auricularis newelli*) was not observed during the survey but could occasionally occur at the site. No known breeding colonies of the shearwater are present along the south shore of Oʻahu; however, birds flying over the site could be attracted by lights and eventually become grounded. Similarly, the endangered Hawaiian Dark-Rumped petrel (*Pterodroma phaeopygia sandwichensis*) could also be attracted to lighting at the site and be at risk of becoming grounded. Minimizing nighttime construction work and operations and shielding and/or orienting lights at the proposed wharf and container yard to prevent upward radiation could reduce seabird attraction and mitigate impacts to the Newell's shearwater, Hawaiian petrel, and other seabirds. Potential impacts to seabirds could also be minimized by training staff on how to properly handle downed seabirds during nighttime construction and operations.

A biological evaluation for the proposed project is being prepared and will be provided prior to consultation with Federal and State resource agencies.

c. Essential Fish Habitat

In a letter dated February 7, 2013, the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Administration (NOAA) identified the marine water column and seafloor in and adjacent to Honolulu Harbor as Essential Fish Habitat (EFH), which includes the proposed wharf and dredging project area.

NMFS' letter also identified four management unit species (MUS) designations and associated life stages from the Western Pacific Regional Fishery Management Council's 2009 Fishery Ecosystem Plans (FEPs) for the Hawai'i Archipelago and Pacific Pelagic Fisheries applicable to the proposed wharf and dredging project:

- Bottomfish MUS (BMUS)—eggs, larvae, juveniles, and adults
- Coral reef ecosystem MUS (CRE-MUS)—eggs, larvae, juveniles, and adults
- Crustacean MUS (CMUS)—eggs, larvae, juveniles, and adults
- Pelagic MUS (PMUS)—juveniles and adults

NMFS confirmed the applicable MUS in an email dated December 4, 2013.

The FEPs identified Habitat Areas of Particular Concern (HAPCs) for the EFH MUS designations:

- Bottomfish MUS (BMUS)—All slopes and escarpments between 40 to 280 meters (m) and three known areas of juvenile 'ōpakapaka habitat (two off O'ahu and one off Moloka'i)
- Coral reef ecosystem MUS (CRE-MUS)—All no-take marine protected areas (MPAs) identified in the coral reef management fishery management plan (CRE-FMP), all Pacific remote islands, as well as numerous existing MPAs, research sites, and coral reef habitats throughout the western Pacific

- Crustacean MUS (CMUS)—All banks in the Northwestern Hawaiian Islands with summits less than or equal to 30 m from the surface

- Pelagic MUS (PMUS)— The water column from the surface down to a depth of 1,000 m above all seamounts and banks with summits shallower than 2,000 m within the exclusive economic zone (EEZ)

The proposed project site does not contain any identified HAPCs for the EFH MUS designations listed above.

An EFH assessment for the proposed project is being prepared and will be provided prior to consultation with Federal and State resource agencies.

3. Special Aquatic Sites

No special aquatic sites are located within or near the project area. The coral colonies observed at the site do not appear to constitute a coral reef(s), as defined in 40 CFR Part 230 (Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material), Section 230.44:

> "Coral Reefs consist of the skeletal deposits, usually of calcareous or silicaceous materials, produced by the vital activities of anthozoan polyps or other invertebrate organisms present in growing portions of the reef."

This definition of a coral reef as a special aquatic site excludes individual coral colonies growing on non-reef structures and coral communities growing at a depth over non-calcareous substrate not comprising either a ridge, bank, or shoal. The definition excludes coral colonies growing on artificial substrate (pilings, revetments, and breakwaters) as well as coral communities growing over lava rock at depth where this substrate does not constitute a reef or shoal. The above definition is also consistent with the following NOAA definition of a coral reef:

> "A mound or ridge of living coral, coral skeletons, and calcium carbonate deposits from other organisms such as calcareous algae, mollusks, and protozoans. Most coral reefs form in warm, shallow sea waters and rise to or near the surface, generally in the form of a barrier reef, fringing reef, or atoll. Coral reefs grow upward from the sea floor as the polyps of new corals cement themselves to the skeletons of those below and in turn provide support for algae and other organisms whose calcium carbonate secretions serve to bind the skeletons together."

The corals observed at the project site were growing either on artificial substrate (e.g., concrete piles in Snug Harbor) or on the harbor bottom at depths where the substrate does not constitute a reef or shoal.

4. Public Interest Review

a. Existing land use zoning for the site and its vicinity

Land within the overall Kapālama site and in the surrounding area is defined by the *Urban* State Land Use District. The harbor area located on submerged lands owned by the State is designated by the *Resource* subzone of the *Conservation District*. In May 2013, Senate Bill 1207 was signed, exempting DOT-H from the Conservation District and Site Plan approval requirements for any work involving submerged lands in state commercial harbors.

Land within the overall Kapālama site is designated by the City and County of Honolulu (City) Land Use Ordinance (LUO) as *I-3 Waterfront Industrial*. Submerged lands within the project site are designated by the LUO as *P-1 Restricted Preservation*. However, in accordance with Hawaii Revised Statutes (HRS) Section 266-2(b), City land use regulations do not apply to the development of the Kapālama Container Terminal. HRS Section 266-2(b) states:

> "Notwithstanding any law or provision to the contrary, the department of transportation is authorized to plan, construct, operate, and maintain any commercial harbor facility in the State, including, but not limited to, the acquisition and use of lands necessary to stockpile dredged spoils, without the approval of county agencies."

b. Dwellings, facilities, etc. on the land at or near the site

The overall Kapālama site recently contained a mixture of industrial and commercial buildings, warehouses, and other facilities. A majority of the existing structures are currently being demolished under a separate contract from this wharf and dredging project. The remaining structures on the site will eventually be demolished by existing tenants, during construction of the wharf and dredging project or during separate construction for the container terminal project.

c. Occurrences at or near the site

- No local fresh water supply areas occur at or near the site due to the site's close proximity to the ocean.
- No known recreational or commercial fishing occurs at the site. Fishing is not allowed within Honolulu Harbor.
- No scenic areas occur at or near the site due to widespread industrial development.
- No agriculture occurs at or near the site.

- No aquaculture occurs at or near the site, which is located in a commercial harbor. The ʻĀnuenue Fisheries Research Center, an aquaculture and research facility of the State DLNR, Division of Aquatic Resources, is located over one mile southeast of the project site on Sand Island.

- The overall Kapālama site contains two fishponds that existed until about 1920, when the fishponds were filled in by the U.S. Army to develop KMR. The State Historic Preservation Division (SHPD) determined no historic properties, including the fishponds, would be adversely affected by the proposed project (see Attachment 10). However, SHPD determined that sections of the fishpond wall could potentially be exposed or damaged during construction and required archaeological monitoring be provided during excavation work near the reported locations of the fishpond wall. SHPD also requested that an archaeological monitoring plan (AMP) be submitted for the project.

  An AMP for both the container terminal and wharf and dredging projects was submitted to SHPD on August 7, 2014 and subsequently revised and re-submitted on December 16, 2014. A copy of the December 2014 AMP and a letter from SHPD accepting the AMP are provided in Attachment 11.

  SHPD also determined that former KMR buildings that have been or will be demolished would not be adversely affected because documentation of the site and the buildings were provided as mitigation prior to demolition. Documentation of the site was provided in the report entitled *Historic Architectural Survey of Former Kapālama Military Reservation and Hawaiian Dredging Sites* (Fung Associates, Inc., 2007).

- Aside from the fishponds and the former KMR buildings, no other cultural or historical resources have been identified within the overall Kapālama site.

- No parks, monuments, or preserves occur at or near the site. Sand Island State Recreation Area is located along the west and south shores of Sand Island and is approximately one-quarter mile from the project site at its nearest location.

G. Environmental Effects of Proposed Project

1. Physical environment (land, water, air, soil, etc.)

   The proposed project will result in a net gain of approximately 0.29 acres of harbor waters that will be converted from fast land (see Attachment 1, Figure 33). The entire wharf site will be paved, which will generally match the existing ground surface. Sparse areas of existing vegetation and natural groundcover will be replaced with concrete pavement. A bulkhead structure will be constructed along the entire wharf face, replacing natural shoreline areas that are susceptible to erosion. Rock revetment will be installed near the Sand Island Access Road bridge abutment to prevent erosion of the natural slope and protect the abutment.

Impacts to harbor waters will primarily be limited to the in-water construction period. In-water construction activities will temporarily impact water quality. Implementation of BMPs such as silt curtains and selected construction methods such as mechanical (clamshell and/or excavator) dredging (in lieu of hydraulic dredging) will minimize these temporary impacts. Silt curtains will surround the immediate area occupied by the dredge equipment and transfer scows and will move with dredging operations. In-water fill areas will also be enclosed with silt curtains, the closure dike at Snug Harbor, and/or the proposed bulkhead structure to contain suspended sediment within the immediate area.

Honolulu Harbor is on the Section 303(d) List of Impaired Waters. Consequently, no increase in loadings of pollutants of concern will be allowed during construction and operation of the wharf site. Operation of the new wharf will have negligible long-term effects on water quality, water levels, water currents, and water circulation patterns within the harbor.

Temporary and long-term impacts to air quality at the site and proposed mitigation measures are discussed in Item F.1.k above.

No significant impacts to soils at the site are anticipated. Potential spread of contaminants will be minimized by proper implementation of BMPs during filling of Snug Harbor with known contaminated dredge material and upland disposal of the contaminated material. All fill material imported to the site during construction will be clean and free of deleterious substances. The entire site will be bounded along the waterfront by the wharf bulkhead and capped by concrete pavement, limiting the potential for erosion and containing the contaminated dredge/fill material. All interlocking sheet pile and king pile joints along the wharf face will be sealed from the top of the piles to a minimum of 10 feet below the design dredge depth, including the two-foot OD allowance. The pile seals will minimize the possibility of a release of contaminated material back into harbor waters.

In addition to dredge sediment, contaminated soil was found in existing upland areas within the project site. If this contaminated soil is disturbed during construction, the soil should be separated from clean material and stockpiled with the proper BMPs in place, or the soil should be profiled and disposed of at an appropriate landfill site. Any contaminated fast land material that remains in place or is reused as on-site fill material will be contained by the wharf bulkhead and concrete pavement after construction is complete. No contaminated material removed from existing upland areas shall be placed below the tidally-influenced high water table and all heavily contaminated soils from existing upland areas (total petroleum hydrocarbon concentration greater than 5,000 milligrams per kilogram) shall be profiled and disposed of at an appropriate landfill site. See Attachment 8, EHE-EHMP for the New Kapālama Container Terminal Yard Design for additional information.

Cuttings from drilling operations for the two replacement water lines shall be tested for contamination and any contaminated cuttings shall be mechanically separated and disposed of off-site at an approved upland disposal facility.

2. Biological environment (plants, animals, and habitats)

   No ESA-listed threatened or endangered plant or animal species were observed in the project site during the marine and terrestrial surveys. Land within the project site does not contain critical habitats for ESA-listed plant, vertebrate, or invertebrate species.

   The proposed project is not expected to have a significant adverse impact on terrestrial flora and fauna due to widespread development within the existing site. Existing flora, a majority of which is non-native, will be removed and replaced with paved surfaces. Fauna observed at the site primarily consisted of birds that are typically found at coastal and urban environments. No seabirds were observed roosting at the site. Birds that may occasionally fly over the site, such as the threatened Newell's shearwater or endangered Hawaiian Dark-Rumped petrel, could be attracted to lighting at the site and eventually become grounded. Minimizing nighttime construction work and operations and shielding and/or orienting lights at the proposed wharf and container yard to prevent upward radiation could reduce seabird attraction and mitigate impacts to the Newell's shearwater, Hawaiian petrel, and other seabirds. Potential impacts to seabirds could also be minimized by training staff on how to properly handle downed seabirds during nighttime construction and operations.

   Construction of the proposed project could potentially adversely impact marine ecosystem resources and result in unavoidable losses of these resources. Avoidance, minimization, and offset measures for anticipated impacts and unavoidable losses to the marine environment are described in Block 23 of ENG FORM 4345.

3. Special aquatic sites

   No special aquatic sites are located within or near the project area.

4. Human use

   Industrial and commercial land uses within the site will generally remain the same when the proposed container terminal is in operation. Specific land and maritime-dependent uses such as PSI's ship repair operations and Atlantis Submarine's business operations have been or will soon be relocated to other areas of Honolulu Harbor.

As a port facility, the site will remain secured and public access to the site will continue to be restricted. Implementation of federally-regulated security measures will continue to limit recreational uses within the site and in nearby harbor waters.

5. Historical/cultural resources

A National Historic Preservation Act (NHPA) Section 106 consultation meeting with the State Historic Preservation Division (SHPD) was conducted in March 2014 for the project. SHPD subsequently determined that no historic properties will be adversely affected by the proposed project (Attachment 10). However, SHPD determined that sections of the fishpond wall could potentially be exposed or damaged during construction and required archaeological monitoring be provided during excavation work near the reported locations of the fishpond wall. An archeological monitoring plan (AMP) for both the container terminal and wharf and dredging projects was submitted to SHPD, which accepted the AMP on December 30, 2014 (see Attachment 11).

During earlier consultations, SHPD also determined that demolition of former KMR buildings on the site would not be adversely impacted because mitigation was provided through proper documentation of the KMR site and its buildings (Attachment 10).

6. Indirect impacts

The proposed wharf and overall container terminal are needed to meet the increase in overseas cargo handling demand projected through 2039. The long-term increase in demand for consumer goods is directly related to long-term economic and population growth trends. By providing additional cargo capacity, the project is anticipated to support and possibly encourage residential and economic (agricultural, urban, industrial, tourism, etc.) growth.

The proposed wharf and overall container terminal will also provide an additional means of distributing goods to Oʻahu and neighbor island destinations in the event that the Sand Island Access Road bridge is unavailable. Currently, if the Sand Island Access Road bridge were to become unavailable, over-land distribution to inter-island cargo operators and Oʻahu destinations would be cut off.

7. Cumulative impacts

The proposed project is a key recommendation of DOT-H's 2020 master plan for Oʻahu's commercial harbors. Similar harbor projects recommended in the 2020 master plan include the provision of container terminal space at Pier 1 on the east end of Honolulu Harbor and at Piers 51 through 53 on Sand Island. The 2020 master plan also recommended a total of six container berths be provided at the Kapālama site (KMR), Pier 1, and Sand Island.

The proposed project is an improvement identified in the Hawaiʻi Harbors Modernization Plan, which is a system-wide plan that addresses current and projected shipping requirements for the State. Other harbor improvements identified in the modernization plan for Oʻahu include construction of Kalaeloa west harbor utilities infrastructure and construction of a new dedicated fuel pier at Kalaeloa Barbers Point Harbor.

Existing/recent maritime-dependent tenants within the overall Kapālama site will be relocated to other areas of Honolulu Harbor. PSI and Atlantis Submarines are working with DOT-H to relocate to Piers 24 through 28, while University of Hawaii Marine Center (UHMC) operations will relocate to Piers 34 and 35 and the Honolulu Community College Marine Education and Training center on Sand Island. In turn, current tenants at the waterfront sites where the Kapālama tenants plan to relocate will also need to move. Eventually, waterfront improvements may be needed to accommodate these tenants at their new locations. For example, Clean Islands Council/Marine Spill Response Corporation (CIC/MSRC) plans to move from Piers 34 and 35 to Piers 12 and 15 when UHMC moves to its site. New berthing and mooring structures would be required at Piers 12 and 15 to accommodate CIC/MSRC.

USACE is responsible for maintenance dredging of the federal project area within Honolulu Harbor. The next maintenance dredging is scheduled in the next few years, but may be delayed depending on available federal funding. If this routine operation proceeds in the short-term, it may require coordination with the proposed dredging for the pier improvement of the Proposed Action. Maintenance dredging by USACE would restore the authorized depths throughout Honolulu Harbor of between minus 35 feet to minus 40 feet MLLW. Either USACE or others would deepen this area.

In addition, USACE is responsible for new dredging of the federal project area. A section of the federal project area from the Sand Island Access Road bridge to approximately 450 feet into Honolulu Harbor at the Kalihi channel is currently authorized to minus 35 feet MLLW. DOT-H has requested USACE for a new dredging project in this area that would increase the federally authorized depth to minus 40 feet MLLW. Either USACE or others would deepen this area.

Cumulative impacts as a result of the proposed wharf and dredging project on roadways and traffic, hydrology (surface runoff), climate and air quality, noise, visual resources, marine environment, terrestrial flora and fauna, and socioeconomics were analyzed in Chapter 6 of the FEIS (See Attachment 3). Pertinent sections of this cumulative impact analysis are summarized below.

Roadways and Traffic

Construction-related traffic would be short-term and is not expected to create a significant adverse impact. The number of construction vehicles traveling to and from the site would generate less vehicular traffic than that from the existing tenants. Also, in comparison to the average daily volume along Sand Island

Access Road, the number of construction trucks is not expected to exceed daily traffic by more than 5 percent. Minimal impacts on traffic would occur within neighborhood streets as project construction would not involve any major work activity within the adjacent streets. An existing entrance to the project site along Auiki Street will be closed with a new curb and gutter and sidewalk. TheBus service would not be impacted. The changes in use at the Kapālama site will require changes in intersection control at various intersections adjacent to the project site. Plans for improvements at intersections along Sand Island Access Road will be coordinated with the State DOT Highways Division. Impacts to pedestrians and bicyclists are not expected to be significant; as a result, no mitigation measures are proposed.

Utilities

No other planned projects would adversely impact utilities in the project vicinity. Demolition and construction waste from the proposed wharf and dredging project and the container terminal project will be disposed of at the PVT landfill in Nānākuli. Total waste from the two projects would be equivalent to approximately 0.3 percent of the annual estimated total solid waste tonnage for O'ahu based on City and County of Honolulu projections. This slight increase in annual solid waste tonnage for O'ahu would result in relatively minor impacts to solid waste facilities.

Hydrology (Surface Runoff)

Development of various projects in Honolulu Harbor has the potential to cumulatively impact surface runoff quality during construction. However, with implementation of BMPs as conditions of project-specific permits, impacts would be avoided or minimized. There would be little or no cumulative increase in surface runoff during operations. Existing conditions in areas to be redeveloped are mainly paved surfaces and buildings, to be replaced by new pavement, structures, utilities, etc. Post-construction stormwater treatment devices will be installed as part of the proposed wharf and dredging project to treat stormwater quality prior to discharge to the harbor.

Climate Change and Air Quality

No significant cumulative impacts on climate change would occur, as changes in greenhouse gas emissions during operation of the proposed wharf are not anticipated to be sufficiently higher than current operations at the site. The proposed wharf and dredging project would reduce greenhouse gas emissions by allowing for an increase in operational efficiency and subsequent decrease in fuel use. Specific measures include improved handling operations using electric-powered equipment within the container yard, elimination of truck travel needed to move cargo from Sand Island to the inter-island barges on the main side, and elimination of vehicle miles traveled represented by the distance between Sand Island and the proposed Kapālama Container Terminal. Similarly, harbor-related projects considered in this cumulative analysis should also help in reducing greenhouse gas emissions, as modernization implies use of newer technologies, equipment, and efficiencies. No significant cumulative impacts from climate change would occur, as plans for adaptation that have already been established (e.g., Act 286, Session Laws of Hawai‘i 2012) will be followed for the project.

The proposed wharf and dredging project and other harbor projects considered in this cumulative analysis would reduce regulated air pollutant emissions in Honolulu Harbor. With modernization, increases in handling and transportation efficiencies within and immediately outside of the harbor are expected. The use of newer technologies and equipment, as well as improved efficiencies, would serve to reduce air pollutant emissions. One such example is the possible use of electricity, rather than diesel-powered engines, for gantry cranes. Another example is a process called cold ironing. This process allows a ship to draw power from an electric station allowing the ship to not run their engines while in port. Existing air pollution control rules and regulations serve to minimize pollutant emissions, and regional meteorological conditions effectively disperse pollutants.

Noise Environment

The overall sound environment for Honolulu Harbor is characteristically marine industrial. Existing sources of sounds include gantry cranes, material handling equipment, generators, other mechanical and cargo equipment, vehicle movements, and ships. The proposed wharf and dredging project would generate additional noise, but noise impacts would primarily be localized. Cumulative impacts on noise would not be significant.

The noisiest construction activities that would impact areas outside the project boundary are pile and sheet driving, and possibly dredging for the new wharf. For these activities, a permit or variance from the DOH would be acquired prior to construction. In-water noise impacts would be short-term and occur during construction of the proposed wharf. Measures to minimize the impacts of in-water noise are discussed further in Block 23 of ENG FORM 4345.

New technologies and equipment used to reduce air emissions and lower energy costs with the proposed terminal development will also reduce source noise levels. One technology is a process called cold ironing. This process allows a ship to draw power from a shore-based electric station in lieu of engines running on the ship while in port. Electric-powered gantry cranes could possibly be used during operation of the proposed wharf, eliminating noise from diesel generators typically positioned high atop each crane. Other recent technologies that could reduce noise at the project site include electric-powered and hybrid ships.

Visual Resources

The overall visual setting of Honolulu Harbor is characteristically marine industrial. The proposed wharf would not appreciably change the appearance of the harbor, which would continue to include gantry cranes and other structures visible from a distance. Night-time operations would continue, requiring outdoor lighting. With little change in the general view of the harbor, cumulative visual impacts are expected to be minimal.

Marine Environment

The proposed wharf and dredging project would result in removal of old piers and other vertical structures whose surfaces provide habitat for both coral and macro-invertebrate communities. In addition, remaining corals not removed during dredging could be affected by sedimentation from construction activities.

Algal communities were scarce at all locations surveyed in 2014 for the wharf and dredging site. The proposed project would not contribute to cumulative impacts on algal communities.

No seagrasses were found in the 2014 marine survey of the project area.

Fish communities may be affected by construction of the wharf and dredging project. However, fish would be able to find suitable habitat at nearby locations.

During dredging and filling activities, fragmentation of biological material could disperse invasive species, enabling regeneration from the fragments. These fragments have the potential to disperse to areas outside the harbor where such species do not yet occur. Measures to reduce fragmentation and prevent dispersal of fragments during construction include:

- Reduce the falling velocity of buckets on mechanical dredges, especially before seafloor impact, to minimize both fragmentation and dispersion.
- Reduce travel speed of buckets to prevent spillage of fragments in dredged sediment.
- Use silt curtains for the full duration of the dredge/fill work to prevent dispersal of fragments outside the immediate area.
- Monitor water quality during construction to evaluate changes from preconstruction baseline conditions.
- Until properly disposed of, store dredged sediment in a way that prevents both runoff and biological fragments from being washed back into coastal areas. BMPs that will be implemented during upland storage of dredge sediment are discussed in Block 22 of ENG FORM 4345.
- Conduct pre-dredging sediment testing to determine whether there are areas with toxic materials, which has already been completed (see Attachments 2 and 8).

During operations, the new Kapālama Container Terminal *per se* would not cause an increase in the introduction of invasive marine species. Rather, the projected increase in cargo volume and, hence, ship arrivals (which would occur with or without the new wharf and container terminal) pose the potential for more invasive species to be introduced in Hawaiʻi. The major pathway for aquatic species introductions is ballast water. Compliance with the existing National Invasive Species Act of 1996, as amended, and its implementing regulations prevent the discharge of ballast water and would continue to prevent the spread of aquatic nuisance species (ANS). The proposed wharf and dredging project will also comply with the existing State of Hawaiʻi Aquatic Invasive Species (AIS) Management Plan (Department of Aquatic Resources, 2003). In addition, in March 2012, the Coast Guard accepted the final rule for Standards for Living Organisms in Ships' Ballast Water Discharged in U.S. Waters. EPA also issued NPDES 2013 Vessel General Permit regulating discharges from commercial vessels, including ballast water, to reduce invasive species and protect the nation's waters from ship-borne pollutants. This general permit applies to commercial vessels greater than 79 feet in length, excluding military and recreational vessels.

Construction-related impacts on Endangered Species Act (ESA)-listed species are more likely for the threatened green sea turtles than for other protected species due to the larger population of green sea turtles. Hawksbill turtles may also potentially occur in the harbor. In January 2012, two humpback whales entered Honolulu Harbor, but this was recognized as a highly unusual event. Monk seals are unlikely to frequent the harbor due to the lack of beaches suitable for hauling out. Mitigation measures include monitoring prior to pile driving and dredging activities and establishing appropriate stand-off distances.

Avoidance, minimization, and offset measures for anticipated project impacts and unavoidable losses to the marine environment are discussed further in Block 23 of ENG FORM 4345.

Terrestrial Flora and Fauna

Other than the concern for the risks of spread of invasive species, no other cumulative impacts on terrestrial flora and fauna have been identified. Cargo containers and their contents provide a pathway for invasive species to enter Hawaiʻi or to exit Hawaiʻi and enter the continental U.S. cargo containers in transit to or from the neighbor islands can allow inter-island movement of invasive species. The inspection effort to control invasive species is a collaborative one involving federal and state agencies.

As part of the overall Kapālama Container Terminal project, DOT-H would set aside approximately 2.5 acres at the Kapālama site where the State Department of Agriculture (DOA) could develop a biosecurity facility next to its existing facility. The biosecurity facility would include an inspection building (Phase 1) consisting of inspection bays with consolidation/deconsolidation capability for neighbor island cargo and a treatment area building (Phase 2) with treatment capabilities for import/export goods. The harbor biosecurity facility would allow inspection off the port, reduce congestion at the harbor, and provide a climate-controlled facility for food safety. DOA would fund development of this facility.

The overall Kapālama Container Terminal project would enable the establishment of a biosecurity facility at the Kapālama site that would improve intervention efforts and reduce the cumulative risks associated with the spread of invasive terrestrial species.

Cultural Resources

The fishponds that once covered most of the Kapālama site were filled decades ago and repeated investigations have been made to learn about them. The warehouses built before and during World War II at the project site have been used until the present. A study to the Historic American Buildings Survey (HABS) III standards provided detailed documentation of the structures and their past uses. The warehouses have been or will be vacated and demolished. The proposed wharf and dredging project will have no additional impact on cultural resources and practices.

SHPD determined that no historic properties, including the fishponds, would be adversely affected by the proposed Kapālama Container Terminal project (see Attachment 10). However, SHPD determined that sections of the fishpond wall could potentially be exposed or damaged during construction and required archaeological monitoring be provided during excavation work near the reported locations of the fishpond wall. An archeological monitoring plan (AMP) for both the container terminal and wharf and dredging projects was submitted to SHPD, which accepted the AMP on December 30, 2014 (see Attachment 11).

SHPD also determined that former KMR buildings that have been or will be demolished would not be adversely affected because documentation of the site and the buildings were provided as mitigation prior to demolition. Documentation of the site was provided in the report entitled *Historic Architectural Survey of Former Kapālama Military Reservation and Hawaiian Dredging Sites* (Fung Associates, Inc., 2007).

Socioeconomics

The proposed project is expected to increase economic throughput and job growth. Operational efficiencies will be achieved with increased container yard space, with beneficial effect on the island and state economies. The availability of labor, equipment, and materials may be cumulatively affected by other harbor and non-harbor projects, but the impact would depend on actual construction schedules.

8. Other impacts

No other pertinent impacts have been identified for this permit application.

H. Alternatives to activities conducted in Aquatic Areas

1. Alternative sites

Alternative sites were considered for the project, including other waterfront areas within Honolulu Harbor, an existing container terminal on Sand Island that would need to be expanded, and Kalaeloa Barbers Point Harbor. However, these alternative sites were not selected for the following reasons:

- Available waterfront areas within Honolulu Harbor are not large enough to berth the two overseas container vessels that will need to utilize the new container terminal.

- Expanding the existing container terminal on Sand Island to satisfy the project needs would require costly improvements related to modifying the Sand Island Access Road bridge or providing alternative vehicle access to Sand Island. In addition to costs, in-water construction of the bridge/vehicle access improvements would result in significant environmental impacts.

- Kalaeloa Barbers Point Harbor does not have adequate berthing capacity to accommodate overseas container vessels and its narrow entrance channel would present navigational challenges for container vessels.

Additional information on these alternative sites is provided in Chapter 2 of the FEIS (Attachment 3).

2. Alternative upland fill sites

   The Kapālama site is the only feasible location for the new wharf and container terminal. Snug Harbor and the existing rail slip will need to be filled in to provide sufficient berthing capacity for two overseas container vessels and to provide a continuous work space for efficient container handling operations. An alternative wharf design that proposed to construct a pile-supported deck over Snug Harbor (in lieu of filling the harbor) was considered. This alternative was not selected due to significantly higher estimated construction costs and additional maintenance requirements related to circulating the water beneath the deck. The fill sites also provide opportunities for beneficial reuse of dredge material, including contaminated sediment, that would otherwise need to be disposed of at SOODMDS or an upland disposal facility.

3. Alternative methods or designs

   The following alternative designs were considered, but ultimately did not meet the project needs:

   - Instead of a linear wharf alignment along Piers 42 and 43, the wharf face at the east end of Pier 42 would be angled towards the Pier 40-Pier 41 slip to create additional berthing room for overseas container vessels. This alternative was not selected because it would reduce container handling efficiencies, reduce the area needed for container terminal operations, and limit the amount of space available for inter-island barge operations proposed within the Pier 40-Pier 41 slip.

- Instead of filling in Snug Harbor, the harbor would be retained in its current condition. This alternative would result in inefficient container handling operations near Snug Harbor and an insufficient berthing area along Piers 42 and 43 for the two necessary overseas container vessels.

- Instead of filling in Snug Harbor or retaining the harbor in its existing condition, a new wharf deck would be constructed along the east side of the harbor where only exposed piles currently remain. This would create approximately 300 feet of new berthing space, but would result in an insufficient berthing area along Piers 42 and 43 for the two necessary overseas container vessels. Container handling operations near Snug Harbor would also be hampered.

The only feasible wharf design alternative that was considered and meets the project needs is construction of a pile-supported deck over Snug Harbor, which is discussed in Item H.2 above. However, this alternative is not reasonable due to significantly higher construction costs and additional maintenance requirements.

4. Other alternatives should the permit be denied

   If this permit application were to be denied, the wharf and overall container yard would not be constructed, and the State would have little to no opportunity to significantly increase its cargo capacity. The existing overseas container terminals on Sand Island would continue to accommodate increasing cargo demands into the future. Congestion in the existing container terminals will continue to escalate, which could eventually result in hazardous work conditions for operators and container handlers. On-site cargo handling densities in Honolulu Harbor are already higher than any other U.S. west coast harbor due to space constraints.

   If capacity is not significantly increased by 2020, the movement and handling of cargo will effectively be constrained, resulting in substantial adverse impacts to the state's economy.

5. Avoidance or minimization measures for adverse effects on the marine environment

   Avoidance and minimization measures for anticipated project impacts on the marine environment are discussed in Block 23 of ENG FORM 4345.

   As a wharf improvement project, the proposed facility cannot be relocated to a non-aquatic site. Dredging, filling, and other in-water work are needed to construct a wharf that meets all of the project needs. Specific construction activities that may not actually require in-water work, such as filling Snug

Harbor by barge, will be conducted in harbor waters due to efficiency. More efficient work operations will likely result in shorter construction durations and fewer impacts to the marine environment.

The project footprint will be minimized by constructing the proposed wharf face further inland from the general location of the existing shoreline (Attachment 1, Figure 33). Harbor waters will be created at existing shoreline areas where excavation and dredging is proposed. The total fill area within the project site will also be minimized. The project will ultimately result in a net gain of approximately 0.29 acres of harbor waters.

The contractor will be responsible for implementing the BMPs listed and referenced in this application to avoid and minimize adverse effects on the marine environment during construction.

SECTION 408 SUBMITTAL PACKAGE

SECTION 408 SUBMITTAL PACKAGE GUIDE, FINAL, 11/12/08

1. Written request for approval of the project modification

- Detailed description of the proposed modification

  The State of Hawai'i Department of Transportation, Harbors Division (DOT-H) is proposing to replace two water lines within the Federal Channel in Honolulu Harbor. A detailed description of the proposed water line construction is provided in Block 18 of ENG FORM 4345.

- Purpose/need for the modification

  The purpose/need for the replacement water lines is described in Block 19 of ENG FORM 4345.

- Appropriate map or drawing

  Drawings of the replacement water lines are provided as Figures 34 through 36 of Attachment 1.

2. Technical Analysis and Adequacy of Design

- Geotechnical Evaluation

  A geotechnical engineering analysis for the replacement water lines was prepared by Geolabs, Inc (Geolabs). A copy of the geotechnical engineering report summarizing Geolabs' findings and recommendations is provided in Attachment 12. Findings from the geotechnical study include the following:

  - Coral, sandstone, and gravelly soils will likely be encountered along the water line alignments. Due to variable consistency of the coral and sandstone that will likely be encountered during drilling, the contractor will need to select the appropriate HDD equipment to drill through the formations. The gravelly soils are expected to cause difficulty in steering the pilot hole and cause borehole stability problems during the pilot borehole drilling and reaming stages.

  - High density polyethylene (HDPE) pipe with a Standard Dimension Ratio (SDR) of 9 or better should safely handle the loads imposed on the water lines during HDD installation and throughout the service life of the pipe. The replacement water lines will meet these pipe requirements.

  - Drilling fluid pressure is unlikely to exceed the hydraulic fracture pressure of the in-situ soil formation near the proposed water line invert at elevation -105 feet MLLW. If the drilling fluid pressure were to exceed the hydraulic fracture pressure of the in-situ soil, heave and/or blowout of the ground surface could potentially occur.

Drilling fluids and cuttings will be temporarily stored in drill pits located at either end of the drilled water lines. Containment measures for drilling fluids and cuttings that will be implemented during construction are discussed in Block 22 of ENG FORM 4345. Additional BMPs that will be implemented during the water line construction are also discussed in Block 22.

Drilling fluids used by the contractor shall be composed and used in compliance with applicable local, state, and federal environmental regulations. Oil-based drilling fluids or other fluids that can contaminate the soil or groundwater shall not be used. In addition to providing containment, the contractor will be responsible for properly handling and disposing of the drilling fluids and cuttings. Disposal of these materials shall be conducted in compliance with all applicable environmental and government regulations and permit requirements. Cuttings from drilling operations shall be tested for contamination and any contaminated cuttings shall be mechanically separated and disposed of off-site.

- Structural

Sections of HDPE pipe will be fused together to form two single lengths of water line that will be drilled approximately 50 to 70 feet below the bottom and more than 150 feet to either side of the Federal Channel (see Attachment 1, Figure 34). Preliminary geotechnical findings suggest that HDPE pipe with a SDR of 9 or better should safely handle the loads imposed on the 12-inch and/or 16-inch diameter water lines during HDD installation and throughout the service life of the pipe. Other than the pipe itself, the drilled portions of the water lines will not contain any structural features.

Trenched ductile iron water lines will be installed near the ground surface approximately 300 to 600 feet beyond the Federal Channel, connecting the drilled water lines to the existing water distribution system. Several valves and valve manholes will be installed in accordance with HBWS standards along the trenched water lines outside of the channel (see Attachment 1, Figures 35 and 36).

- Hydraulic and Hydrology

As a potable water distribution system improvement that will be drilled beneath the Federal Channel, the proposed water line replacement work should not impact hydraulic or hydrologic conditions within the channel or the surrounding area.

- Operation and Maintenance Requirements

  Operation and maintenance requirements will be limited to the new valves along trenched portions of the replacement water lines. Annual maintenance of the valves, which will be installed outside the Federal Channel, will include exercising the valves to verify operability and checking for leakage. No impacts to operation and maintenance of the Federal Channel in Honolulu Harbor or other USACE facilities are anticipated as a result of the proposed water line replacements.

3. Real Estate Analysis

DOT-H is responsible for administering the State-owned and controlled commercial harbors system in Hawaiʻi, including Honolulu Harbor. The proposed water line replacement work will occur entirely within State-owned lands, including TMK 1-2-025: 017, TMK 1-5-041: 111 and 296, and submerged lands (see Attachment 1, Figure 24). The Federal Channel limits are also shown on Figure 24.

After construction is complete, the two replacement water lines will be turned over to HBWS, which will need to negotiate a new easement with DOT-H for the new water lines. The proposed HBWS easement for the replacement water lines will range between 20 and 35 feet in width (see Attachment 1, Figures 34 through 36). Existing easements in favor of HBWS for portions of the existing water lines that will be replaced are also shown on these figures. The new water lines will connect to the existing water system within the Sand Island Access Road right-of-way on the north side of the Federal Channel and within an existing 20-foot wide HBWS easement on Sand Island to the south of the channel.

4. Discussion of Residual Risk

The proposed water line replacements will be installed 50 to 70 feet beneath the USACE Federal (navigation) Channel and should not impact the channel or any dams, levees, floodwalls, or other flood control projects. Installation of the drilled water lines should not impact navigation within the Federal Channel and should not be injurious to the public. By maintaining potable water service to Sand Island, replacement of the water lines will continue to provide support for harbor users and others on the island.

5. Administrative record for key decisions such as environmental reports, judges' decisions, permits, etc.

A list of permits and approvals for the Kapālama Container Terminal Wharf and Dredging project, which includes the proposed water line replacement work, is provided in Block 26 of ENG FORM 4345.

6. Discussion of Executive Order 11988 Considerations

The two water lines will be relocated below the ground surface, below the Federal Channel, and below the floodplain. No impacts to flooding in the area are anticipated as a result of the water line improvements.

7. Environmental Protection Compliance

- National Environmental Policy Act (NEPA)

  USACE is in the process of determining whether a NEPA Environmental Impact Statement (EIS) or Environmental Assessment (EA) will be prepared for the project.

- Endangered Species Act (ESA)

  ESA-listed threatened or endangered plant or animal species that could occur at the site are described in Items F.2.b and G.2 of the Supplemental Questionnaire. The National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS) identified the marine water column and seafloor in and adjacent to Honolulu Harbor as Essential Fish Habitat (EFH). An EFH discussion for the project is provided in Item F.2.c of the Supplemental Questionnaire.

- Fish and Wildlife Coordination Act (FWCA)

  Coordination with the U.S. Fish and Wildlife Service (USFWS) will be undertaken during the DA Permit application process. Earlier coordination with the USFWS during the Hawai‘i Environmental Policy Act (HEPA) process is documented in Appendix A of the State FEIS for the project (Attachment 3).

- Marine Protection, Research and Sanctuaries Act

  Dredge material within the wharf and dredging project site was tested in accordance with U.S. Environmental Protection Agency (USEPA) and USACE requirements for ocean disposal. A draft data and analysis report for characterizing dredge sediment to be removed from the wharf and dredging site was submitted to the USEPA on January 9, 2015, (see Attachment 2). A summary of the dredge sediment testing results is provided in Block 18 of ENG FORM 4345. Dredge material not used as on-site fill that is suitable for ocean disposal will be disposed of at the South O‘ahu Ocean Dredged Material Disposal Site (SOODMDS). Cuttings that will be generated during drilling operations for the replacement water lines were not tested for ocean disposal requirements and will be disposed of at an approved upland facility.

- Wild and Scenic Rivers Act

  No wild and scenic rivers have been designated in the State of Hawai‘i.

- Coastal Zone Management Act

  A Coastal Zone Management (CZM) application is currently being prepared for the project and will be submitted to the State Office of Planning. Prior to submitting the CZM application, the Office of Planning will need to receive notification from USACE and the State Department of Health (DOH) that the DA Permit application and Section 401 Water Quality Certification application have been accepted for processing by the respective agencies.

- Clean Air Act

  Project-related impacts to air quality at the site are described in Items F.1.k and G.7 of the Supplemental Questionnaire. Coordination with the USEPA and State DOH, Clean Air Branch during the HEPA process is documented in Appendix A of the State FEIS for the project (Attachment 3).

- Hazardous, Toxic, and Radioactive Waste (HTRW)

  No significant risks to public health and safety from HTRW are anticipated to result from the proposed project. Compliance with applicable laws and regulations associated with handling and managing HTRW will minimize or avoid risks to public health and safety. Additional information is provided in Items F.1.h and G.1 of the Supplemental Questionnaire, the Environmental Hazard Evaluation and Environmental Hazard Management Plan (EHE-EHMP) prepared for the overall Kapālama site and PSI site at Pier 41 (Attachment 8), and Chapter 3 of the State FEIS (Attachment 3). Coordination with the USEPA and State DOH, Hazard Evaluation and Emergency Response (HEER) Office during the HEPA process is documented in Appendix A of the State FEIS for the project (Attachment 3).

- National Historic Preservation Act

  Cultural and historic resources that could potentially be impacted by the project are discussed in Items F.4.c, G.5, and G.7 of the Supplemental Questionnaire. Mitigation measures and coordination with the State Historic Preservation Division (SHPD) are also summarized therein.

- Noise Control Act

  Impacts caused by noise generated during construction and operation of the project and associated mitigation measures are discussed in Items F.1.l and G.7 of the Supplemental Questionnaire. Coordination with the State DOH and other government agencies/officials during the HEPA process is documented in Appendix A of the State FEIS for the project (Attachment 3).

ATTACHMENTS