

STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
Honolulu, Hawai'i
June 22, 2018

180-Day Exp. Date: August 11, 2018

**Board of Land and
Natural Resources
State of Hawai'i
Honolulu, Hawai'i**

REGARDING: Conservation District Use Application (CDUA) OA-3816 for a Portion of the Kamehameha Highway Wastewater Pump Station Force Main System Improvements

APPLICANT: City & County of Honolulu
Department of Environmental Services

LOCATION: Moanalua and Kalihi Streams
Vicinity of Ke'ehi Lagoon, Kahauiki, Kalihi-Kai, O'ahu

Tax Map Key: (1) 1-1-003: 138 and other submerged land

LANDOWNER: State of Hawai'i

USE: Approximately (\approx) 846.2 linear feet

SUBZONE: Resource

DESCRIPTION OF AREA AND CURRENT USE: (Figure 1 & 2)

The proposed project site is located in the vicinity of Ke'ehi Lagoon, Kahauiki, Kalihi-Kai, O'ahu, upon Tax Map Key: (1) 1-1-003: 138 and other submerged land within the Resource subzone of the Conservation District. **The Conservation District portion of this project is below the depths of the bottom of Moanalua and Kalihi Streams.**

According to the application, the stream bottom is composed of very soft to soft organic clayey silt. No in-stream surveys were conducted in the project area because tunneling would take place well below the stream channel and aquatic resources would not be impacted. It is believed that there are no archeological or cultural resources within the project area. No known cultural practices are known to occur in the project area. There are no utilities, surface water or groundwater in the project area.

PROPOSED USE: (Figure 3 & 4)

The City's Department of Environmental Services (ENV) proposes to construct a new sewer force main between the Kamehameha Hwy Wastewater Pump Station (WWPS), located adjacent to

Ke'ehi Lagoon Park, and the Kapālama Interceptor Relief Sewer, located in the Kalihi Kai industrial area off Sand Island Access Road. The entire new force main would be about 3,100-linear feet. Approximately 2,000 linear feet would be installed by Horizontal Directional Drilling (HDD) under Ke'ehi Memorial Park, Moanalua Stream, Kahauiki Village peninsula, and Kalihi Stream; and 1,100 linear feet using open trench construction. The project will also include temporary staging areas, bypass facilities, access roads, utility connections and relocations (as needed), and site restoration.

The new HDD force main would be constructed from high density polyethylene with an inner diameter of 36" and a design capacity of 33 million gallons per day. The outer diameter of the pipe would be 42". The borehole diameter would be approximately 54", including the layer of drilling fluid around the pipeline that would harden and remain in place following installation of the pipeline within the drilled hole. According to the applicant, no in-water construction work is expected as the new force main would be pulled through a tunnel at an elevation well below the depths of the existing streams. **The tunnel has been designed to pass below Kalihi Stream at a depth ranging from 22 to 64-feet below mean sea level (msl) and below Moanalua Stream at a depth ranging from 103 to 11- feet below msl.**

Construction Activities

Outside of the Conservation District, open trench construction will include 200-ft on the eastern end (Kalihi Kai industrial area) to connect to the existing sewer system and 900-ft on the western end to connect to the existing Kamehameha Hwy WWPS. In addition to the pipeline alignment, major components of the project also outside of the Conservation District would include:

- The **launch site** is located 94-ft from the east bank of Kalihi Stream, accessed off of Sand Island Access Road. This is where the drill rig and ancillary equipment would be set up and drilling would begin. The drill head would advance from this location westward to the receiving site. When the tunnel has been bored, the new pipeline, that would be laid out at the receiving end, would be pulled back through the tunnel;
- The **receiving site** would be in the northeast corner of Ke'ehi Lagoon Beach Park about 520-ft. from the west bank of Moanalua Stream;
- The **temporary layout of pipeline** is required in preparation for the pull back through the bored hole. The current plan is to lay down the new pipe in two sections side by side adjacent to Nimitz Hwy;
- A **new valve vault** will be constructed just south of the existing valve vault at Ke'ehi Lagoon Beach Park just south of the valve vault for the existing force main. The existing valve vault will be reconstructed in place. Valve vaults are connection points that allows flows to be isolated from or directed to either of the force mains after project completion; and
- **Staging and construction access** would occur within the construction area at the launch and receiving sites except for the temporary layout of pipeline.

About two-thirds of the project would be installed by HDD, a construction method that seeks to minimize impacts to environmental resources on the surface. According to the applicant, the underground tunnel follows an arc line using advanced technology and technicians guiding a drill head electronically to ensure the angle, depth, and exit point in the engineering plans.

The application states the directional drilling process involves a nonhazardous drilling fluid primarily made up of water and bentonite (often referred to as mud). Bentonite is a naturally occurring, nontoxic and inert substance. Drilling fluid is injected into the tunnel to lubricate and stabilize the hole and to remove soil cuttings. Throughout the process, the drilling fluid is cleaned and recycled. Liquid material is recycled for use by the tunnel boring machine. Solids are taken off site for testing and stockpiling, then disposed of at a site approved by the City.

Further, the construction contract documents will require an experienced HDD contractor, and a monitoring and contingency plan. The monitoring plan will include monitoring downhole pressure and fluid returns throughout the drilling operation and visual observation of the streams for plumes. A required frack-out contingency plan will include measures for prevention and containment, response, clean-up and correction. The plan will include isolation of the area surrounding the launch and receiving sites of the drill using isolation materials and fencing that would contain fluid surface returns as the drill gets close to the exit point. The captured returns will be cleaned up and removed.

The project is proposed to be designed to conform to specifications and recommendations for seismic design. As an underground facility, it is believed that the sewer force main is less vulnerable to the effects of sea level rise. According to the applicant the new pipe and associated valves and connections are being designed for an environment characterized by a high ground water table that is influenced by tidal fluctuation. The force main is a sealed system operating under pressure. The applicant shall implement several required mitigative actions and best management practices by complying with government rules and regulations.

Purpose

According to the applicant, the purpose of the project is to improve the Kamehameha Highway WWPS force main system in accordance with the Force Main Flow Diversion Plan mandated by the First Amended 2010 Wastewater Consent Decree. The decree is an agreement reached between the Federal Environmental Protection Agency and the State Department of Health and the City.

The application states the Consent Decree requires that large force mains, including the Kamehameha Hwy Force Main, have the capability to divert flows to minimize the release of wastewater to the extent practicable in the event of force main failure. The purpose of the project is to provide a backup facility to divert flows if the active 42-inch main fails, as required under the first Amended 2010 Wastewater Consent Decree.

Alternatives

Rehabilitation of an Existing Abandoned Force Main

An alternative considered was to rehabilitate an abandoned 36-inch sewer force main that runs parallel with the active 42" sewer force main that crosses Moanalua and Kalihi Streams on respective utility bridges. A field investigation was conducted and it appears there were challenges along various segments of the alignment such as corrosive soils; deteriorating utility bridges, and high groundwater conditions.

No Action Alternative

This does not appear to be an alternative as no action would violate the mandate of the Consent Decree.

SUMMARY OF COMMENTS

The application was referred to the following agencies for their review and comment-the State: Department of Land and Natural Resources Divisions of: Aquatic Resources, Conservation & Resource Enforcement, Oahu District Land; State Parks and Historic Preservation; the Department of Health; the Office of Hawaiian Affairs; the Office of Environmental Quality Control; the City: Department of Planning and Permitting and the Kalihi-Palama Neighborhood Board. In addition, this CDUA was also sent to the nearest public library, the Kalihi-Palama State Library, to make this information readily available to those who may wish to review it.

Comments were received by the following and summarized by Staff as follows:

THE STATE

DEPARTMENT OF LAND AND NATURAL RESOURCES

Conservation and Resource Enforcement

No comments

Division of Aquatic Resources

DAR is in general support of this project and understands the need to have a back-up system for wastewater diversions in the event of the sewer force main failure. A failure of the main without a back-up system could cause significant environmental damage to Hawai'i's near shore aquatic habitats.

DAR appreciates the disclosure of environmental impacts that may result from this project and addressing Best Management Practices (BMPs) for accidental discharge containment. We would like to re-emphasize the continual use and maintenance of BMPs, particularly at the HDD Launch site, to minimize release of drilling fluids, soil erosion, siltation, or wind-blown debris into nearby aquatic environments. The HDD Launch site is of particular concern given its relatively close distance to the Kalihi Stream. DAR also request to be promptly notified in the event of a surface or subsurface release of drilling fluids into the streams. Should there be any changes, amendments or modification s to the current plans, DAR requests the opportunity to review and comment on those changes.

Applicant's Response

We acknowledge your comments and note that the BMPs referenced by DAR have been incorporated into the contract bid document and specifications. BMPs will be continually used and maintained during project construction to minimize impacts to nearby aquatic environments. DAR will be notified if there is inadvertent release of drilling fluids into the streams.

Oahu District Land Office (ODLO)

A land disposition will be needed for construction easements and permanent easements over State lands.

Applicant's Response

We acknowledge the terms for issuance of non-exclusive easements involving state lands, including land in the conservation district. The stated applicant requirements will be fulfilled by the City to obtain a perpetual easement for sewer line purposes.

THE CITY AND COUNTY OF HONOLULU

DEPARTMENT OF PLANNING AND PERMITTING

Resolution No. 18-36, CD1 was adopted by the Honolulu City Council on February 28, 2018, granting a Special Management Area (SMA) Use Permit to construct a new 3,100-linear ft., 36" Ø force main for the Kamehameha Hwy WWPS.

ANALYSIS

After reviewing the application, by letter dated February 14, 2018, the Department has found that:

1. The proposed use is an identified land use in the Resource subzone of the Conservation District, pursuant to §13-5-22, Hawaii Administrative Rules (HAR), P-6 PUBLIC PURPOSE (D-1) Not for profit land uses undertaken in support of a public service by an agency of the county, state, or federal government, or by an independent non-governmental entity, except that an independent non-governmental regulated public utility may be considered to be engaged in a public purpose use. Please be advised, however, that this finding does not constitute approval of the proposal;
2. Pursuant to §13-5-40(a), HAR, a Public Hearing is not required; and
3. In conformance with Chapter 343, Hawaii Revised Statutes (HRS), as amended, and Chapter 11-200, HAR, the Final Environmental Assessment for the Kamehameha Highway Wastewater Pump Station Force Main System Improvements was reviewed and accepted by the City & County of Honolulu's Department of Environmental Services. Notice was published in the October 8, 2017 issue of the Environmental Notice.

Resolution No. 18-36, CD1 was adopted by the Honolulu City Council on February 28, 2018, granting a Special Management Area (SMA) Use Permit for the proposed project.

Notice of CDUA OA-3816 was published in the March 8, 2018 issue of the Environmental Notice.

CONSERVATION CRITERIA

The following discussion evaluates the merits of the proposed land use by applying the criteria established in HAR, 13-5-30.

1. *The proposed land use is consistent with the purpose of the Conservation District.*

The objective of the Conservation District is to conserve, protect and preserve the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare.

Staff believes the proposal is consistent with the purpose of the Conservation District as the force main system will reduce the risk of sewage spillage upon land and into water bodies by providing a backup force main. The proposal will protect public health, safety and welfare and water quality.

2. *The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur.*

The objective of the Resource subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas. The proposed use is an identified land use in the Resource subzone of the Conservation District, pursuant to §13-5-3, Hawaii Administrative Rules (HAR), §13-5-22, P-6, PUBLIC PURPOSE USES.

As the proposed work within the Conservation District shall take place below the stream floor, staff believes the proposal shall sustain the natural resources of the project area.

3. *The proposed land use complies with provisions and guidelines contained in Chapter 205, HRS, entitled "Coastal Zone Management," where applicable.*

The proposed project incorporates protective measures to prevent adverse effects to the land and water resources. Staff believes that recreational resources, historical resources, scenic and open space resources, and coastal ecosystems, shall be preserved.

The Honolulu City Council granted a Special Management Area (SMA) Use Permit [Resolution No. 18-36, CD1] for the proposed project on February 28, 2018.

4. *The proposed land use will not cause substantial adverse impacts to existing natural resources within the surrounding area, community, or region.*

Staff believes the proposed land use will not cause substantial adverse impacts to existing natural resources within the surrounding area, community or region. The proposed land use does not change the existing use of Moanalua and Kalihi Streams.

5. *The proposed land use, including buildings, structures and facilities, shall be compatible with the locality and surrounding area, appropriate to the physical conditions and capabilities of the specific parcel or parcels.*

The proposed use does not require new construction of above ground facilities in the Conservation District. The project will not create a visual or functional change in the project area.

6. *The existing physical and environmental aspect of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable.*

Staff believes the existing physical and environmental aspects of the land shall be preserved.

7. *Subdivision of the land will not be utilized to increase the intensity of land uses in the Conservation District.*

There will be no subdivision of land for this proposed project.

8. *The proposed land use will not be materially detrimental to the public health, safety and welfare.*

Staff believes the proposal will contribute to maintain public health, safety and welfare.

DISCUSSION

The purpose of the project is for the City to be compliant with the first Amended 2010 Wastewater Consent Decree. The Consent Decree requires that large force mains, including the Kamehameha Hwy Force Main, have the capability to divert flows to minimize the release of wastewater to the extent practicable in the event of force main failure. The purpose of the project is to provide a backup facility to divert flows if the active 42-inch main fails, as required under the

The applicant shall implement several required mitigative actions and best management practices by complying with government rules and regulations.

RECOMMENDATION:

Based on the preceding analysis, Staff recommends that the Board of Land and Natural Resources APPROVE Conservation District Use Application (CDUA) OA-3816 for a portion of the Kamehameha Highway Wastewater Pump Station Force Main System Improvements located at Moanalua and Kalihi Streams, vicinity of Ke'ehi Lagoon, Kahauiki, Kalihi-Kai, island of O'ahu, Tax Map Key: (1) 1-1-003: 138 and other submerged land, subject to the following conditions:

- (1) The permittee shall comply with all applicable statutes, ordinances, rules, and regulations of the federal, state, and county governments, and applicable parts of this chapter;
- (2) The permittee shall obtain appropriate authorization from the department for the occupancy of state lands, if applicable;
- (3) The permittee shall comply with all applicable department of health administrative rules;
- (4) Before proceeding with any work authorized by the department or the board, the permittee shall submit two copies of the construction plans and specifications to the chairperson or an authorized representative for approval for consistency with the conditions of the permit

and the declarations set forth in the permit application. One copy will be returned to the permittee. Plan approval by the chairperson does not constitute approval required from other agencies;

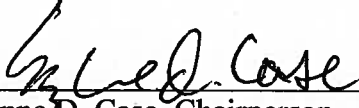
- (5) Unless otherwise authorized, any work or construction to be done on the land shall be initiated within one year of the approval of such use, in accordance with construction plans that have been signed by the chairperson, and shall be completed within three years of the approval of such use. The permittee shall notify the department in writing when construction activity is initiated and when it is completed;
- (6) All representations relative to mitigation set forth in the accepted environmental assessment or impact statement for the proposed use are incorporated as conditions of the permit;
- (7) The permittee understands and agrees that the permit does not convey any vested right(s) or exclusive privilege;
- (8) In issuing the permit, the department and board have relied on the information and data that the permittee has provided in connection with the permit application. If, subsequent to the issuance of the permit such information and data prove to be false, incomplete, or inaccurate, this permit may be modified, suspended, or revoked, in whole or in part, and the department may, in addition, institute appropriate legal proceedings;
- (9) Where any interference, nuisance, or harm may be caused, or hazard established by the use, the permittee shall be required to take measures to minimize or eliminate the interference, nuisance, harm, or hazard;
- (10) During construction, appropriate mitigation measures shall be implemented to minimize impacts to off-site roadways, utilities, and public facilities;
- (11) The permittee acknowledges that the approved work shall not hamper, impede, or otherwise limit the exercise of traditional, customary, or religious practices of native Hawaiians in the immediate area, to the extent the practices are provided for by the Constitution of the State of Hawaii, and by Hawaii statutory and case law;
- (12) Should historic remains such as artifacts, burials or concentration of charcoal be encountered during construction activities, work shall cease immediately in the vicinity of the find, and the find shall be protected from further damage. The contractor shall immediately contact HPD (692-8015), which will assess the significance of the find and recommend an appropriate mitigation measure, if necessary;
- (13) Other terms and conditions as prescribed by the chairperson; and
- (14) Failure to comply with any of these conditions shall render a permit void under the chapter, as determined by the chairperson or board.

Respectfully submitted,

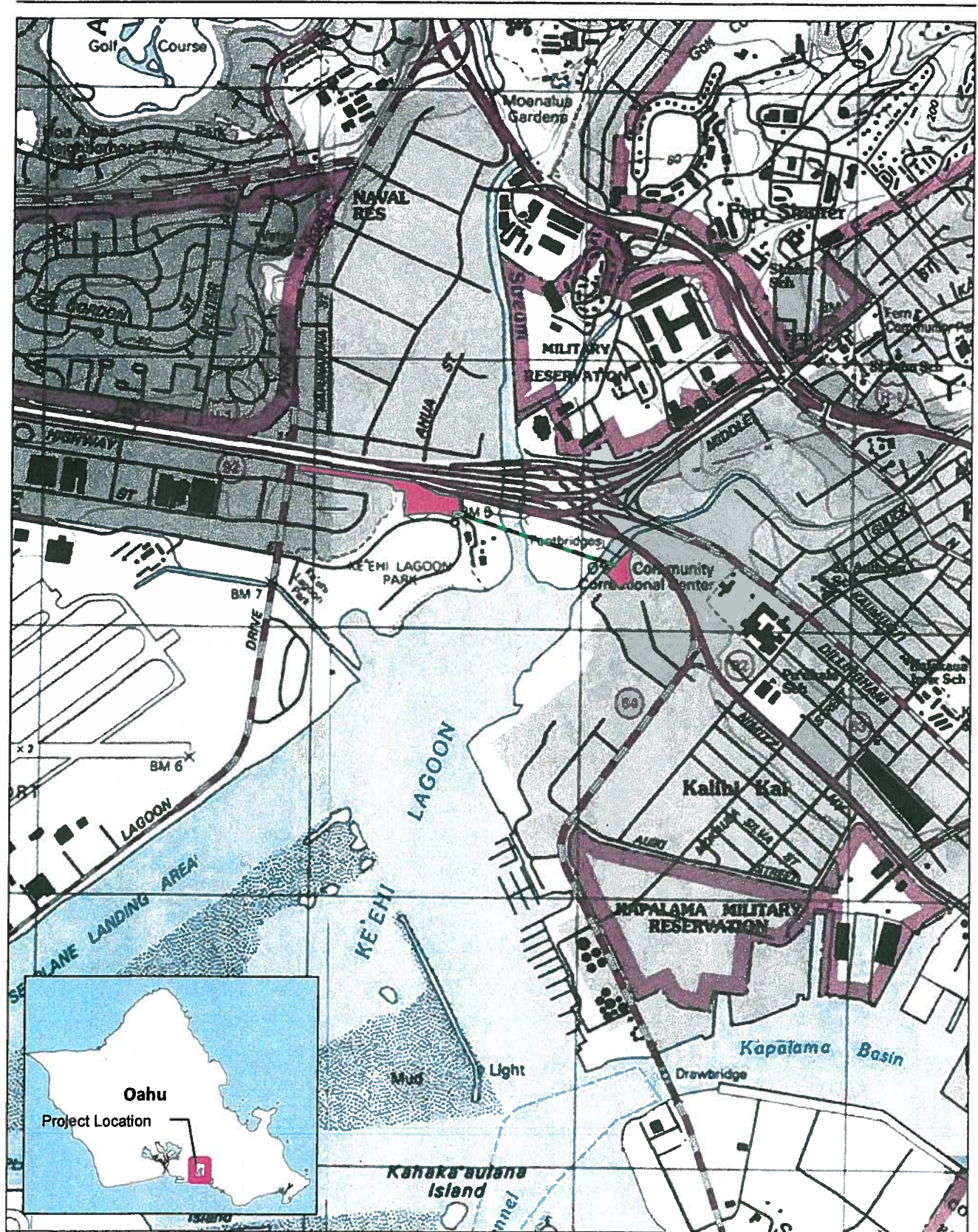


K. Tiger Mills, Staff Planner
Office of Conservation and Coastal Lands



Approved for submittal:



Suzanne D. Case, Chairperson
Board of Land and Natural Resources



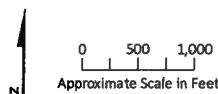
LEGEND

-  Horizontal Directional Drilling
-  Project Area

Note: Locations are approximate.

FIGURE 1

Project Location Map
 Kamehameha Highway Wastewater Pump
 Station Force Main System Improvements
 Oahu, Hawaii



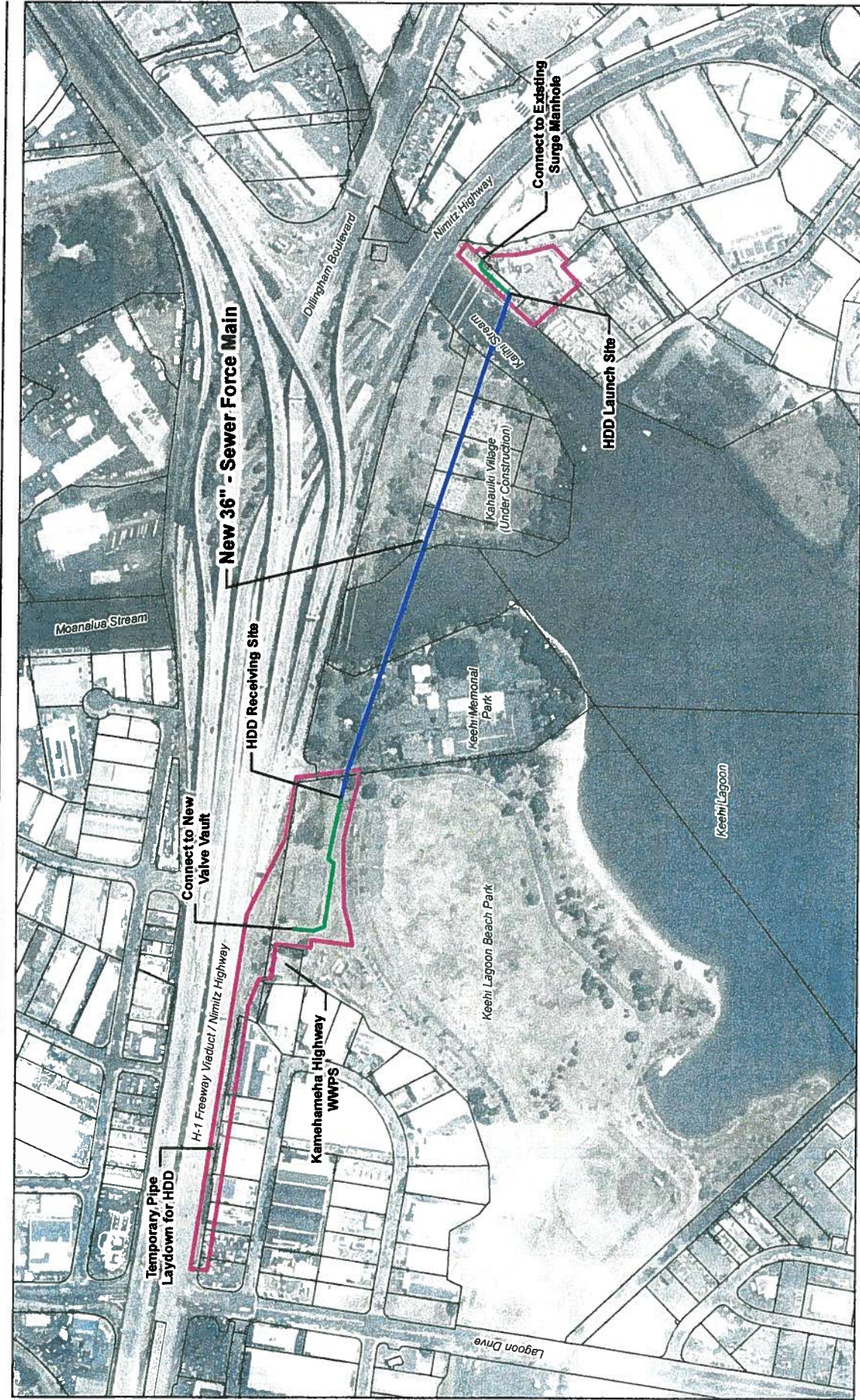


FIGURE 2
Project Area Map
 Kamehameha Highway Wastewater Pump
 Station Force Main System Improvements
 Oahu, Hawaii

LEGEND

- Project Area
- TMK
- HDD
- Open Trenching (Cut and Cover)

Note: Locations are approximate.

0 275 550
 Approximate Scale in Feet

UNK \\\MALA\PROJ\GIS LIBRARY\CCH_PUBLIC\WORKS\MAPS\REPORT\FINAL_REPORT\12\FIG - 2_PROJECT AREA.MXD RMANGAN 7/20/2017 1:10:14 PM



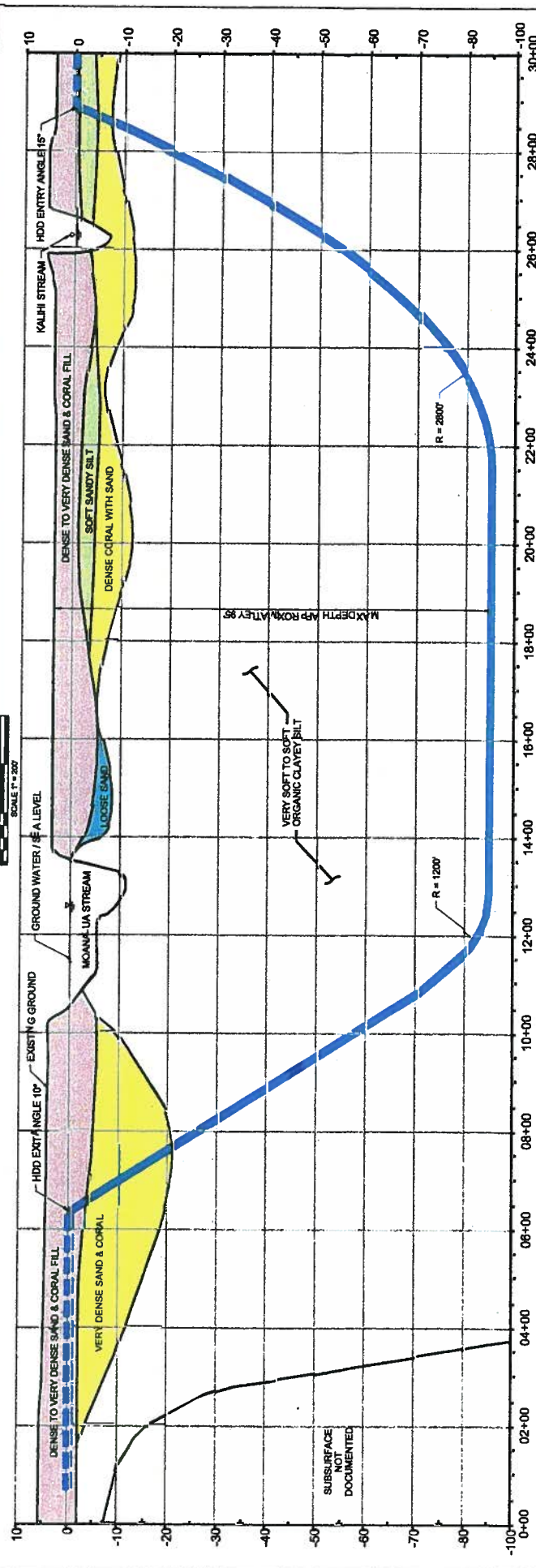
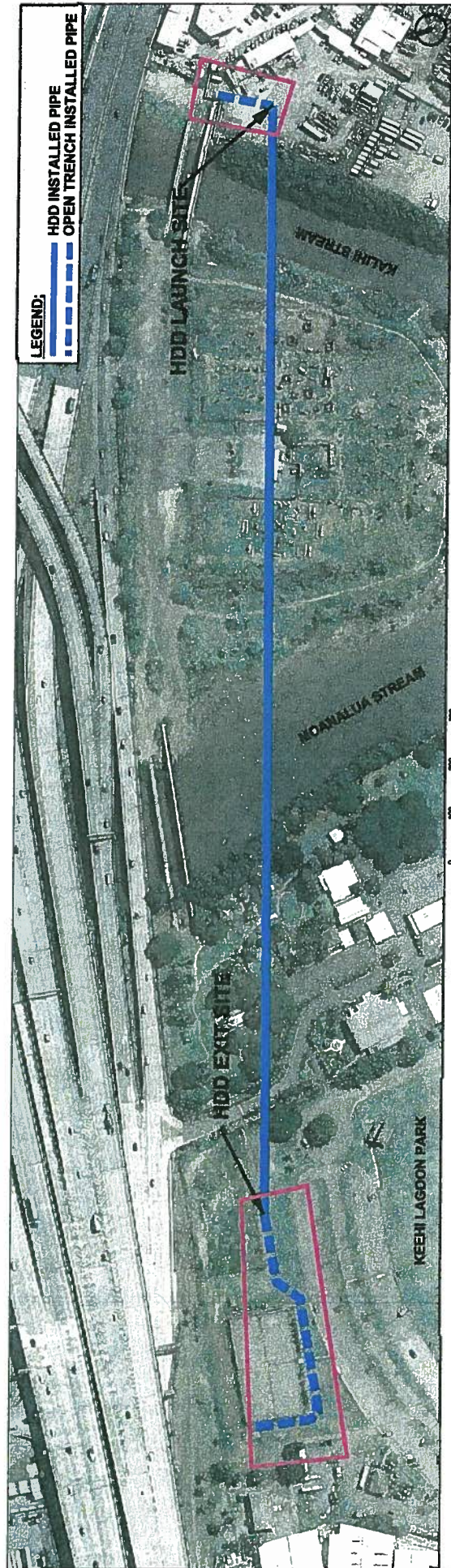
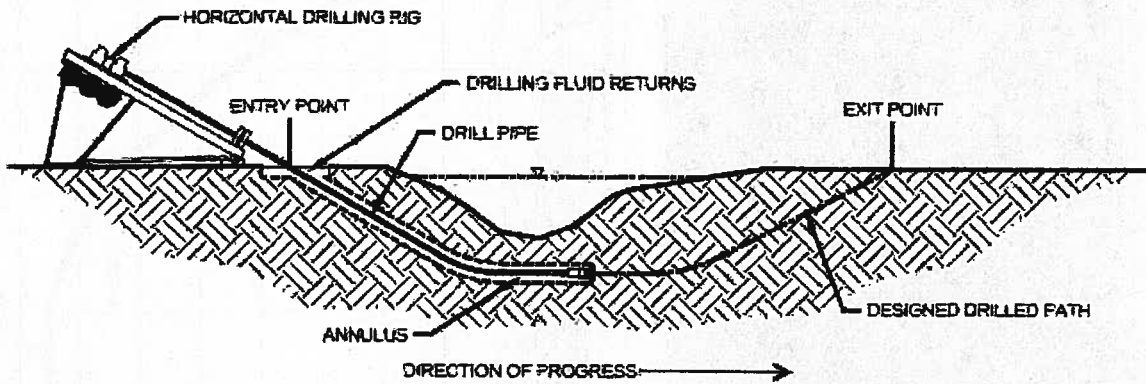


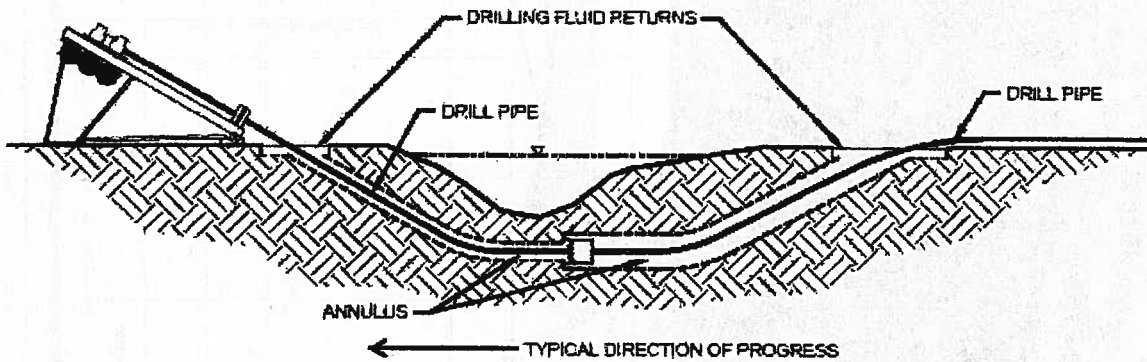
FIGURE 3. PRELIMINARY PLAN AND PROFILE



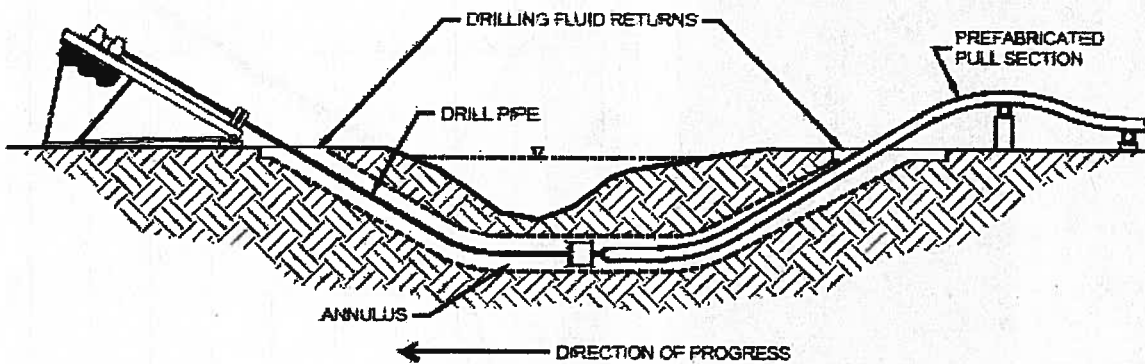
PILOT HOLE



PREREAMING



PULLBACK



SOURCE: U.S. Fish and Wildlife Service,
*NiSource Multi-Species Habitat
Conservation Plan, Appendix J, June 2013*

FIGURE 4
HDD Process Diagram
*Kamehameha Highway Wastewater
Pump Station Force Main System
Improvements*

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