



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P.O. BOX 621  
HONOLULU, HAWAII 96809

STAFF SUBMITTAL

COMMISSION ON WATER RESOURCE MANAGEMENT

June 29, 2011  
Honolulu, Hawaii

Application for Stream Channel Alteration Permit for  
Honolulu High-Capacity Transit Corridor Project (HHCTCP)  
across four (4) streams:  
Waiawa Stream Tributary, Kapālama, Moanalua and Nu‘uanu Streams  
Honolulu, O‘ahu, TMKs: various

APPLICANT:

Wayne Yoshioka, Director  
Department of Transportation Services  
City and County of Honolulu  
650 South King Street, Third Floor  
Honolulu, HI 96813

LANDOWNER:

City and County of Honolulu  
Department of Transportation Services  
650 South King Street, Third Floor  
Honolulu, HI 96813

SUMMARY OF REQUEST:

Application for Stream Channel Alteration Permit (SCAP.2864.3) for Honolulu High-Capacity Transit Corridor Project (HHCTCP) across four (4) streams: Waiawa Stream Tributary, Kapālama, Moanalua and Nu‘uanu Streams in Honolulu, O‘ahu (various TMKs).

LOCATION: See Exhibit 1.

BACKGROUND:

The U.S Department of Transportation Federal Transit Administration (FTA) and the City and County of Honolulu Department of Transportation Services (DTS) are undertaking a project that will provide high-capacity transit service on O‘ahu. The Locally Preferred Alternative (LPA) adopted by the City Council identified a fixed guideway transit system between Kapolei and UH Mānoa with a branch line to Waikiki. The Project described in the Final Environmental Impact Statement (EIS) will cover 20 miles of the overall 34-mile LPA.

The Project will begin in East Kapolei near the planned UH West O‘ahu campus and extend to Ala Moana Center. This is the portion of the LPA that can be constructed with anticipated funding. The

remainder of the LPA, referred to as “planned extensions,” will be evaluated through a separate National Environmental Policy Act (NEPA) and Hawaii Revised Statutes (HRS) Chapter 343 process and designed and constructed once additional funding is secured. Four planned extensions connecting the Project include: West Kapolei, UH Mānoa, Waikiki, and Salt Lake.

The Honolulu High-Capacity Transit Corridor Project (HHCTCP) will provide high-capacity rapid transit in the highly congested east-west transportation corridor. The Project will include construction and operation of a grade-separated, fixed guideway transit system between East Kapolei and Ala Moana Center via the Honolulu International Airport. The transit system will use a steel wheel on steel rail technology. The vehicles can either be operated manually by a driver or fully automated. The entire system will operate in an exclusive right-of-way to provide speed and reliability and avoid the potential for vehicle or pedestrian conflicts. As a result, all parts of the guideway will be elevated except near the Leeward Community College (LCC) where it will be at-grade in an exclusive right-of-way. The Project will include the guideway, 21 stations, vehicle maintenance and storage facility, park-and-ride lots at some locations, traction power substations, and the acquisition of rail vehicles and maintenance equipment.

The Project will begin at the University of Hawai‘i-West O‘ahu (near the future Kroc Center) and proceed via Farrington Highway and Kamehameha Highway (adjacent to Pearl Harbor) to Aolele Street, serving the Honolulu International Airport, to Dillingham Boulevard, to Nimitz Highway, to Halekauwila Street, and ending at Ala Moana Center.

The Project will be constructed in phases to accomplish the following:

- Match the anticipated schedule for right-of-way acquisition and utility relocation.
- Reduce time that each area will experience traffic and community disruptions.
- Allow for multiple construction contracts with smaller contract size to promote competitive bidding.
- Match the rate of construction to what can be maintained with local work force and resources.
- Balance expenditure of funds to maximize borrowing.

The Project will be constructed in four phases: (See Exhibit 2.)

- East Kapolei to Pearl Highlands
- Pearl Highlands to Aloha Stadium
- Aloha Stadium to Middle Street
- Middle Street to Ala Moana Center

The guideway or other project structures will cross 20 streams or conveyance channels. Streams less than 150 feet wide will be clear spanned by the fixed guideway, and there will be no construction within State or Federal waters at these crossings. The Project will require structures in or alterations to the channels of the following streams: Waiawa Stream Tributary, Kapālama Canal/Stream, Moanalua and Nu‘uanu Streams.

PB Americas, Inc., the Applicant’s consultant, is currently drilling geotechnical borings at all the foundation and column locations in the Project area to determine the subsurface conditions. If artesian conditions are encountered, drilling mud will be used to seal the shaft from the artesian conditions.

**DESCRIPTION:**

1) Waiawa Stream Tributary (See Exhibit 3.)

Note: The Applicant incorrectly labeled Waiawa Springs on its maps, drawings and SCAP application. The correct name should be Waiawa Stream Tributary. Waiawa Springs is located further downstream from the Project. No work will be done in Waiawa Springs.

Waiawa Stream Tributary is located just upstream of the west-bound Farrington Highway bridge. This tributary appears to flow perennially south through a three to five foot-wide channel to a confluence with Waiawa Stream. The Pearl Highlands Station will require one of the guideway piers and two of the station support piers to be built close to or within the channel of Waiawa Stream Tributary.

The following components will be built close to or within the channel:

- One six-foot by six-foot guideway column close to the stream channel.
- Two five-foot by five-foot station columns within the stream channel.
- Five-foot diameter drilled shafts for the station foundation columns and a 10-foot diameter drilled shaft for the guideway column. The drilled shafts will be drilled approximately 200 feet below the mud line. The foundations will not be visible after construction has been completed
- Hardening of the current drainage ditch outfall under Kamehameha Highway with a trapezoidal rip-rap swale that is 100 feet long, three feet wide at the bottom, nine feet wide at the top and three feet deep.

The following construction methods will be employed:

- Construct foundation/support columns for guideway and station.
  - Install storm drain pipe diversion to isolate the work area.
  - Drill a 10-foot diameter shaft for column foundation 200 feet below the mud line.
  - Install a steel reinforcement bar (re-bar) cage in the shaft and backfill with concrete.
  - Drill five-foot diameter shafts for the station support pier foundation 200 feet below the mud line.
  - Install a steel reinforcement bar (re-bar) cage in the shaft and backfill with concrete.
  - Remove the temporary diversion line.
- Construct guideway and rail.
  - Construct elevated guideway over stream using pre-cast, span-by-span segments. A gantry crane will be used to install the guideway segments.
  - Install rail, third (electrified) rail and rail systems on guideway.
  - Install utilities and signals along guideway.
- Construct station, parking structure and transit center.
- Restore stream.
  - Remove fill and increase the stream area to enhance flow capacity of the flood zone.
  - Use native Hawaiian plants and non-invasive species to restore the ecology.
  - Retain silt fences and other stream bank best management practices (BMPs) until vegetation has been established.

## 2) Moanalua Stream (See Exhibit 4.)

The HHCTCP will cross Moanalua Stream directly south of Nimitz Highway and the H-1 Freeway viaduct in Māpunapuna, Honolulu. The Moanalua Stream channel is approximately 230 feet wide. Both banks are covered with 20 to 30-foot tall mangroves. The channel averages 3.1 feet deep. The maximum depth is 5.24 feet. Two columns will be constructed in Moanalua Stream between the H-1 ramp to Nimitz Highway and the existing pedestrian bridge.

The following will be built within the stream channel:

- Two six-foot by six-foot columns.
- Two 10-foot diameter foundation shafts for the columns will be drilled 250 feet below the mud line. The foundations will not be visible after construction is complete.

The following construction methods will be employed:

- Construct temporary construction trestle\*:
  - The trestle structure will consist of a 35-foot wide deck that is supported by bents\*\* spaced in approximately 15 to 20-foot intervals. Each bent will be supported by two to three steel pipe piles approximately 30 inches in diameter. The piles will be driven into the streambed approximately 80 feet below the mud line. 21 temporary steel piles are needed to support the two temporary trestles.
  - The trestle structures will extend approximately 40 feet into the stream from the Koko Head bank and 60 feet from the 'Ewa bank.
  - The trestle piles will be removed and the deck disassembled when construction is complete.
- Construct foundation/support columns.
  - Drill the Koko Head column foundation shaft (10 feet in diameter) 250 feet below the mud line.
  - Place a re-bar cage in the drilled shaft and backfill with concrete.
  - Construct the above-ground guideway on the foundation installed on the drilled shaft. The above-ground column will be built using re-bar cage and cast-in-place concrete.
  - Repeat the same process on the 'Ewa side of the stream to install the column.
  - Remove the temporary trestle structures.
- Construct the guideway and rail:
  - Construct the elevated guideway over the stream using pre-cast span-by-span segments. A gantry crane will be used to install the guideway segments.
  - Install rail and third (electrified) rail along guideway.
  - Install utilities and signals along guideway.
- Restore stream:
  - Backfill the temporary trestle holes with bentonite (clay) grout to within two feet of the existing mud line and fill the remainder of the hole with native stream material through normal stream flow.
  - Regrade the stream banks impacted during construction to match the previous contours and replant with native vegetation such as 'Akulikuli (low-growing succulent shrub).
  - Retain silt fences and other stream bank BMPs until vegetation is established.

### 3) Kapālama Canal/Stream (See Exhibit 5.)

The HHCTCP guideway will cross Kapālama Canal/Stream where Dillingham Boulevard crosses Kapālama Canal/Stream. Kapālama Canal/Stream is a realigned channel with graded banks and receives runoff from Kalihi and Kamehameha Heights. The canal is 111 feet wide between eroded earthen banks that are vegetated with grasses and small shrubs above the high-tide line. The Dillingham Boulevard Bridge over Kapālama Canal/Stream will be widened to allow construction of a new median and guideway piers in the median behind the existing bridge abutments.

The following will be built within the stream channel:

- Widen the makai side of the existing Dillingham Boulevard Bridge by 20 feet makai.
- Extend the four existing bridge piers by 12 feet. Each pier extension will be supported by two pre-cast concrete piles.
- Extend the existing bridge abutments by 12 feet. Each abutment extension will be supported by two pre-cast concrete piles.
- Build new walls around the bridge widening abutments.

\*A trestle is a rigid frame used to support a bridge composed of a number of short spans supported by such frames.

\*\*A bent is generally a pre-assembled framework composed of several structural members that supports a trestle. Bents are cross-sectional templates of structural members which repeat on parallel planes along the length of a structure.

- Install new concrete piles similar in size as those used on the existing bridge to minimize the hydraulic effects of the bridge widening. The piers for the extension will be extensions of the existing piers.

The following construction methods will be used:

- Widen bridge:
  - Demolish the existing retaining walls around the makai side of the existing abutments.
  - Build 20 feet of new retaining wall around each bridge widening abutment.
  - Backfill the area around the extended abutments with 75 cubic yards of clean fill at each abutment.
  - Install two temporary coffer dams to isolate the wall and abutment areas from the stream. A coffer dam is an enclosure within a water environment constructed to allow water to be pumped out to provide a dry work area.
  - Install eight pre-cast concrete piles, approximately 14 inches by 14 inches, 150 feet below the mud line.
  - Lengthen the existing piers to incorporate the new piles. The new piers will be formed and cast-in-place with concrete.
- Construct Column:
  - Drill the shafts for the column foundations in the center of Dillingham Boulevard and outside of the Kapālama Canal/Stream using a large diameter soil auger. The drilled shafts will be 10 feet in diameter drilled 190 feet below the surface.
  - Place a re-bar cage in the drilled shaft using a crane and backfill the shaft with concrete.
  - Construct the above-ground guideway columns on the foundations installed in the drilled shaft. The above-ground columns will be built using re-bar cage and cast-in-place concrete.
  - Remove the coffer dam.
- Construct Guideway and Rail:
  - Construct the elevated guideway over the stream using pre-cast span-by-span segments. A gantry crane will be used to install the guideway segments.
  - Install rail and third (electrified) rail along guideway.
  - Install utilities and signals along guideway.
- Streambank restoration
  - Regrade the stream banks impacted during construction to match the previous contours and replant with native vegetation such as 'Akulikuli.
  - Retain silt fences and other stream bank BMPs until vegetation is established.

#### 4) Nu'uanu Stream (See Exhibit 6.)

The HHCTPC guideway will cross Nu'uanu Stream where Nimitz Highway crosses the canal of Nu'uanu Stream in downtown Honolulu. Nu'uanu Stream is a tidal estuary at this location and is confined to a man-made channel that empties into Honolulu Harbor. Twin bridges of Nimitz Highway span the 110-foot wide canal with the project right-of-way alignment passing between the bridge spans. Two columns will be constructed in Nu'uanu Stream between the two existing bridges to support the guideway on the 'Ewa side of the Chinatown Station.

The following will be built within the stream channel:

- Two six-foot by six-foot columns.
- 10-foot diameter foundations for the columns drilled 190 to 200 feet below the mud line. The foundations will not be visible after construction has been completed.

The following construction methods will be used:

- Construct temporary construction trestles:

- The trestle structure will consist of a deck supported by bents spaced at 15 to 20-foot intervals. Each bent will be supported by two to three steel pipe piles approximately 30 inches in diameter. The piles will be driven into the streambed approximately 70 feet below the mud line. 19 temporary steel piles are needed to support the two temporary trestles.
- The trestle structure will extend across the entire width of the stream.
- Trestle piles will be removed and the deck disassembled when construction has been completed.
- Construct columns:
  - Drill the two 10-foot diameter shafts for the Koko Head column foundation using a large diameter soil auger to 190 feet below the mud line.
  - Place a re-bar cage in the drilled shaft using a crane and backfill the shaft with concrete.
  - Construct the above-ground guideway Koko Head column on the foundation installed in the drilled shaft. The above-ground column will be built using re-bar cage and cast-in-place concrete.
  - Remove the temporary trestle structure by pulling the steel pipes and disassembling the deck except for the portion needed to install the 'Ewa column.
  - Repeat the process on the 'Ewa side to install a column, drilling to depth of 200 feet below the mud line.
  - Remove the temporary trestle structures.
- Construct Guideway and Rail:
  - Construct the elevated guideway over the stream using pre-cast span-by-span segments. A gantry crane will be used to install the guideway segments.
  - Install rail and third (electrified) rail along guideway.
  - Install utilities and signals along guideway.
- Streambank restoration
  - Backfill the temporary trestle pile holes with bentonite grout to within two feet of the existing mud line and fill the remainder of the hole with native stream material through normal stream flow.

The Project will have the following temporary construction impacts on water resources:

- Placement of fill in waters of the U.S.: the Project will encroach into a maximum of 0.13 acres of waters of the U.S. temporarily during construction of the guideway in Waiawa Stream Tributary, Moanalua Stream, Kapālama Canal Stream and Nu'uanu Stream.
- Stormwater drainage from construction sites: a National Pollutant Discharge Elimination System (NPDES) permit has been obtained for the Project. Project and site-specific best management practices (BMPs) were prepared and submitted with the NPDES permit. BMPs include methods to mitigate possible pollution, soil erosion, and turbidity caused by stormwater runoff from all sources during construction.
- Wastewater discharge: discharges, such as concrete truck wash down water, dust control sprays, and drilling fluids, will be collected and managed in accordance with NPDES requirements.
- Groundwater impacts: a range of measures will be employed to ensure there are no adverse impacts to groundwater resources.

BMP details will be developed to mitigate potential impacts to streams due to placement of fill. BMPs for the Project may include, but not are limited to:

- Isolate the column construction area from the water through the use of coffer dams, sandbags, or other temporary water-diversion structures.
- Prohibit fueling of equipment while in the stream channel.
- Prevent wet or green concrete from coming into contact with flowing water.
- Maintain fish passage to allow migration of native fish (e.g. 'o'opu) and avoid work in streams during spawning.
- Minimize removal of riparian vegetation.
- Monitor the turbidity both upstream and downstream of the work area.

- Enclose the work area during demolition to contain airborne dust and debris and keep it from entering the stream.
- Establish a construction buffer during work to mitigate the potential impacts to streams or wetlands where there is no in-water work.
- Prohibit the contractor from entering wetlands during construction.
- Secure netting below guideway super structure construction to prevent construction debris from falling into streams.
- Secure tight-woven netting under joints to catch excess epoxy when segments are post-tensioned.
- Install toe boards along edge of the guideway deck to prevent loose material from being knocked off the deck into streams.
- Air test post-tension ducts before grouting to ensure no grout seepage.
- Use silt fence and casing between foundation construction and stream to contain soil and construction debris.
- Collect and handle drilling spoils to eliminate uncontrolled releases into surface waters.
- Construct columns during the dry season, where feasible.
- Place silt fencing around temporary construction platforms or structures to contain disturbed element.
- Provide sheet piling around abutment extensions to prevent soil and sediment from entering stream during abutment and wall construction.

#### ANALYSIS:

##### Agency Review Comments:

The Department of Hawaiian Home Lands did not have any objections.

City and County of Honolulu (C&C) Dept of Planning and Permitting (DPP):

##### Waiawa Stream Tributary

- The Project is not located within the Special Management Area (SMA) and is not subject to SMA use permit requirements.
- A grading permit is required.
- The Project appears to be located within the floodway district. A licensed professional engineer shall certify that the work will not result in any increase to the regulatory flood elevations.

##### Moanalua Stream

- The Project is located within the SMA and is a shoreline lot. A SMA Use Permit was approved for the Project, including work within the stream channels.
- The Project will not require a Shoreline Setback Variance since the work is located mauka of the shoreline setback.
- The Project will not require a current certified shoreline survey from the Board of Land and Natural Resources, provided the work will be set back at least 55 feet from the shoreline.
- A grading permit is not required.
- The Project appears to be located within the floodway district. A licensed professional engineer shall certify that the work will not result in any increase to the regulatory flood elevations.

##### Kapālama Canal Stream

- The project is not located within the SMA and is not subject to a SMA use permit.
- A grading permit may be required.
- The Project is not located within the floodway district. Therefore, a certification of “no-rise” is not applicable.

##### Nu‘uanu Stream:

- The project is not located within the SMA and is not subject to a SMA use permit.

- A grading permit may be required.
- The Project is not located within the floodway district; therefore, a certification of “no-rise” is not required.

University of Hawaii, Environmental Center:

- Construction activities within all segments should be scheduled and conducted to minimize interference with migrating native aquatic life, particularly post-larval recruitment from marine waters into the streams.
- More information about the sources of tributary flow for Waiawa Stream Tributary and the presence or absence of associated native aquatic biota would improve understanding of the potential impact of the proposed channel alteration on the stream environment.
- The proposed transit station at Waiawa Stream Tributary will block virtually all sunlight along most of the tributary and will negatively affect fishery, wildlife, recreational, aesthetic, scenic and other beneficial instream uses throughout the tributary area. The Commission should consider formulating compensatory mitigation measures that are readily accessible from the transit station and are open to the public.

The U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, Department of Health (DOH) Clean Water Branch (CWB) and Office of Hawaiian Affairs did not submit comments as of the date of preparation of this submittal.

DLNR Review Comments:

- Land Division: Appropriate easements in favor of the City and County of Honolulu, authorized by the Board of Land and Natural Resources, will be necessary where the guideway affects State lands.  
If the easements are to be based on the as-built survey maps and descriptions subsequent to the construction of the guideway affecting the State-owned Moanalua Stream, then a construction right-of-entry permit from the DLNR, covering the anticipated guideway’s route locations affecting the stream, will also be necessary.
- State Parks: not subject to its authority or permit.
- Forestry and Wildlife: no objections.

State Historic Preservation Division (SHPD), Division of Aquatic Resources (DAR), and Engineering did not submit comments as of the date of preparation of this submittal.

Chapter 343 Environmental Assessment (EA) Compliance Review:

EA Triggers: In accordance with HRS §343-5 (a), the applicant’s proposed action does trigger the need for an Environmental Impact Statement (EIS) because the HHCTCP will be located on public land and will use public funds.

In November 2008, the FTA, City and County of Honolulu and its consultant, PB Americas, Inc., issued the Draft EIS. The FTA approved beginning the preliminary engineering phase on the portion of the Locally Preferred Alternative (LPA) that will be constructed as the First Project extending from East Kapolei to Ala Moana Center.

In June 2010, the U.S Department of Transportation FTA and the City and County of Honolulu DTS issued a Final EIS/Section 4(f) Evaluation for the HHCTCP. The Final EIS/Section4(f) Evaluation is a joint *National Environmental Policy Act* (NEPA) and Hawai’i Revised Statutes (HRS) Chapter 343 document to provide decision makers and the public with information on the Project’s environmental impacts and benefits. It also serves as a summary documentation of the consultation conducted in compliance with Section 106 of the *National Historic Preservation Act of 1966*, as amended, and Section 4(f) evaluation prepared pursuant to Section4(f) of the *U.S. Department of Transportation Act of 1966*.

Section 106 of the *National Historic Preservation Act* Programmatic Agreement (PA) was developed in consultation among 29 consulting parties. The Section 106 process identified historic properties affected by the Project, assessed effects, and sought ways to avoid, minimize or mitigate any adverse effects on any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register of Historic Places. The PA records the terms and conditions agreed upon to resolve potential adverse effects and is attached to the Final EIS. The FTA, State Historic Preservation Office (SHPO), Advisory Council on Historic Preservation (ACHP), the City and County of Honolulu, National Park Service and 29 consulting parties executed the PA for the Project in January 2011.

Section 4(f) of the U.S. *Department of Transportation Act of 1966* protects public parklands, recreational lands, wildlife refuges, and historic sites of National, State, or Local significance from acquisition and conversion to transportation use. Because avoiding Section 4(f) properties was an important consideration, most public parks, recreational properties, and historic properties identified within the study corridor were avoided in designing the Project. However, the Project will result in the use of 11 Section 4(f) historic properties, *de minimis* use of two historic properties; *de minimis* use of three park and recreational properties; and temporary occupancy of two recreational properties. FTA and the City considered all possible planning to minimize harm to these Section 4(f) properties.

On December 16, 2010, the Governor of the State of Hawai'i accepted the Final EIS/Section 4(f) Evaluation.

On January 18, 2011, the Federal Transit Administration (FTA) issued an environmental Record of Decision (ROD) for the Project. As stated in the ROD, the Project must incorporate all the mitigations of adverse effects presented in the Final EIS, Section 106 Programmatic Agreement, and the ROD.

#### Cumulative Impacts:

Water resources in the area have been degraded by past residential, industrial, military, and farm developments. Some of the effects of past actions include channelizing many streams in urban and suburban areas; draining and filling of wetlands in Waikīkī, Salt Lake and Pearl Harbor; and polluting surface water and groundwater with agricultural (herbicide and insecticide) and other chemicals.

Future projects, including the incremental effects of the Project, will modify the surface water in the City and County's 'Ewa Development Plan Area by incremental conversion of pervious surface to impervious surface. The loss of pervious surface-water resources, increases peak flow due to the loss of infiltration, and decreases base flow due to the loss of infiltration. There is also the potential for loss of flood storage capacity due to encroachments into regulated flood zones. However, infrastructure, such as the Kalo'i Gulch Drainage Canal being constructed as part of the North-South Road project, will be constructed as part of future development as required by regulations to accommodate flood storage capacity. Landscapes in the City and County of Honolulu's Central O'ahu Sustainable Communities Plan area and the City's Primary Urban Center (PUC) Development Plan have already been altered by past loss of pervious surfaces, altered flow conditions, and conversion to a built environment. The cumulative effects of the Project could further degrade surface water resources. However, mitigation measures that will be part of Federal, State, and Local permitting requirements will help offset negative effects to surface water resources. In addition, future projects in the 'Ewa Plain will not affect wetlands because the developable land is already dry and has permeable soil that does not contain wetlands.

The current and foreseeable actions related to the Project will also be required to follow City, County, State and Federal environmental regulations and mitigation measures. Therefore, the additional cumulative effects to water resources are expected to be minimal.

#### Staff Review

On January 18, 2011, the Federal Transit Administration (FTA) issued an environmental Record of Decision (ROD) for the Project. As stated in the ROD, the Project must incorporate all the mitigations of adverse effects presented in the Final EIS, Section 106 Programmatic Agreement and the ROD. These

mitigation actions include, but are not limited to, all commitments to further consultation on specific issues.

### Applicable ROD Determinations and Findings

#### Section 106 of the National Historic Preservation Act

FTA determined that the Project would have an adverse impact on historic properties. The Section 106 Programmatic Agreement (PA) is included as an attachment of the ROD and will mitigate the impacts of the Project.

#### Section 4(f) Findings

The Project will result in the direct use of 11 Section 4(f) historic properties; use with *de minimis* impacts on two historic properties; use with *de minimis* impacts on three park and recreational properties; and temporary occupancy of two recreational properties.

#### Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act

The Project will permanently encroach upon approximately 0.08 acre of the waters of the U.S. These impacts arise from placing piers in Waiawa Stream Tributary, Moanalua Stream, Kapālama Canal Stream and Nu‘uanu Stream. Permanent mitigation features are proposed at Waiawa Stream, with the Pearl Highlands Station area and are included as part of the Mitigation and Monitoring Program.

On July 10, 2009, the consultant for the City prepared a Wetland and Waters Report for the HHCTCP that examined areas of the Project that may be “waters of the U.S.” and under the jurisdiction of the U.S. Army Corps of Engineers (USACE) per Section 404 of the Clean Water Act of 1972 and/or Section 10 of the Rivers and Harbors Act of 1989. The combination of field surveys and background research identified 26 sites that displayed one or more characteristic (i.e. wetlands, streams, open waters) of “waters of the U.S.” and five sites that did not exhibit any characteristics of “waters of the U.S.” for a total of 31 examined sites.

On September 11, 2009, the USACE issued a Preliminary Jurisdictional Determination (JD) for 26 streams, water bodies and/or wetlands for the Project that were considered waters or wetlands of the U.S. including Waiawa Stream Tributary, Kapālama Canal/Stream, Moanalua and Nu‘uanu Streams.

On June 21, 2010, the applicant submitted a Water Quality Certification (WQC) Application to the Department of Health Clean Water Branch (CWB) including a Site-Specific Construction Best Management Practices (BMP) Plan, Permanent BMPs, and a Monitoring and Assessment Plan for the Project.

### Final EIS

Surface waters in the study corridor include intermittent and perennial streams, tidal estuaries, and freshwater and tidal wetlands. Of the 20 streams in the study corridor, most will not be affected directly because the Project’s elevated guideway will clear-span these streams and there will be no pier or column construction or other construction-related activities within the stream channel. In general, the project alignment parallels other bridge crossings of the streams and, in many cases, crosses along the median between bridges carrying opposing lanes of traffic. In these cases, the only potential direct effect of the Project is on of shading of the stream or wetland. Because the guideway is elevated relative to the surrounding roadway crossings, the guideway will only impart minimal additional shading onto the water as compared to the bridges already present in each location.

The streams affected by the structural elements of the Project include Waiawa Stream Tributary, Kapālama Canal/Stream, Moanalua and Nu‘uanu Streams.

Native amphidromous species were identified in Waiawa Stream and Springs, Moanalua and Nu‘uanu Streams. Amphidromous species require a connection through the lowlands to maintain a viable

population in the upper reaches of the stream. These species reside as adults in suitable stream habitats but have a larval stage that lives in the ocean. The juveniles develop in the sea and then migrate to a suitable stream habitat. No permanent (or temporary construction) structures are proposed that would interfere with migration by amphidromous species through the project area.

Of the four streams impacted by the Project, Waiawa Stream Tributary will be impacted the most by the Project. Waiawa Stream Tributary is classified as an interrupted perennial stream, meaning the stream and tributaries are continuously flowing in the uplands, but stream flow is absent in a lowland segment during the dry season. Waiawa Stream Tributary is perennially flowing in the project area because it is fed by springs located in the area.

Approximately five acres near Waiawa Stream Tributary between Kamehameha and Farrington Highways will be shaded by structures (a park-and-ride parking structure, bus transit center, station and guideway, and various pedestrian and vehicle access ramps), roughly one-third of the area. Direct impacts on the stream, including shading, will be minimal because most of the structures are on the north side of the stream. Waiawa Stream supports some native amphidromous species. No part of the Project is expected to interfere with the local population of goby observed or migration through the site required by native species that may breed upstream.

Water resource mitigation is being proposed to compensate of the 0.02-acre permanent encroachment into "waters of the U.S." from the linear transportation features of the Project and 0.06 acre of impact from other Project elements (culvert improvement at Waiawa Stream Tributary). The proposed permanent mitigation measures are intended to satisfy the requirements of the U.S Army Corps 33 CFR Part 332-Compensatory Mitigation of Losses of Aquatic Resources. These mitigation measures are proposed only if other measures fail and only after all measures have been taken to minimize encroachment.

Permanent mitigation features are proposed at Waiawa Stream Tributary within the Pearl Highlands Station. This 17-acre site provides sufficient space for mitigation since only five acres will be required for the substation, leaving the remainder of the site available for mitigation. The principal impacts of the Project are limited to several small impacts in different watersheds. The proposal will consolidate mitigation to a single site on Waiawa Stream Tributary.

Waiawa Stream was selected because of the availability of land that is part of the Project where enhancement of the stream and potential establishment of a wetland are possible with a high degree of long-term success. The mitigation area will become part of the Project. Although the Project will have minimal effect on the stream, it will have a considerable effect on the riparian area at that location. The impact area of constructing a culvert to direct the stormwater outfall and spring flow away from the Pearl Highlands Station (0.06 acre) is greater than all the permanent impacts from the guideway (0.02 acre). Mitigation in this location can also be used to improve the existing outfall, improve water quality, and enhance the natural setting of the station.

The Waiawa Stream Tributary Mitigation will include:

- Enhancement of the stream to restore and/or improve ecological and aquatic function.
- Establishment of water quality basins.
- Enhancement of floodway capacity conveyance to achieve no-rise in flood zone by removal of fill and an increase in the stream area.
- Extension of existing culvert to Waiawa Stream Tributary to correct existing ponding situation.
- Ecological restoration with native Hawaiian plantings and use of non-invasive species.

As discussed above, the environmental impacts from the Project will be mitigated by:

- FTA Record of Decision and Final EIS
- Section 106 and Section 4(f) Programmatic Agreement
- Section 404 Clean Water Act, Water Quality Certification, Monitoring and Assessment Plan and NPDES Permit

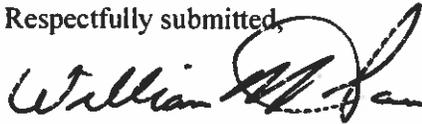
- U.S Army Corps Compensatory Mitigation of Losses of Aquatic Resources
- Project and site-specific best management practice plans

The CWRM staff believes that the impacts from the Project will be mitigated by City, County, State and Federal environmental regulations described above. The additional cumulative effects to water resources will be minimal.

RECOMMENDATION:

That the Commission approve the Applicant's Stream Channel Alteration Permit (SCAP.2864.3) for Honolulu High-Capacity Transit Corridor Project (HHCTCP) at Waiawa Stream Tributary, Kapālama, Moanalua and Nu'uaniu Streams in Honolulu, O'ahu at various TMKs, subject to the standard conditions in Exhibit 6.

Respectfully submitted,



WILLIAM M. TAM  
Deputy Director

- Exhibits:
1. Location Map
  2. Construction Phases
  3. Waiawa Stream Tributary
  4. Moanalua Stream
  5. Kapālama Canal Stream
  6. Nu'uaniu Stream
  7. Standard Stream Channel Alteration Permit Conditions

APPROVED FOR SUBMITTAL:



WILLIAM J. AILA, JR.  
Chairperson







Figure 2-9 Fixed Gateway Transit Alternative Features (Fort Weaver Road to Aloha Stadium)



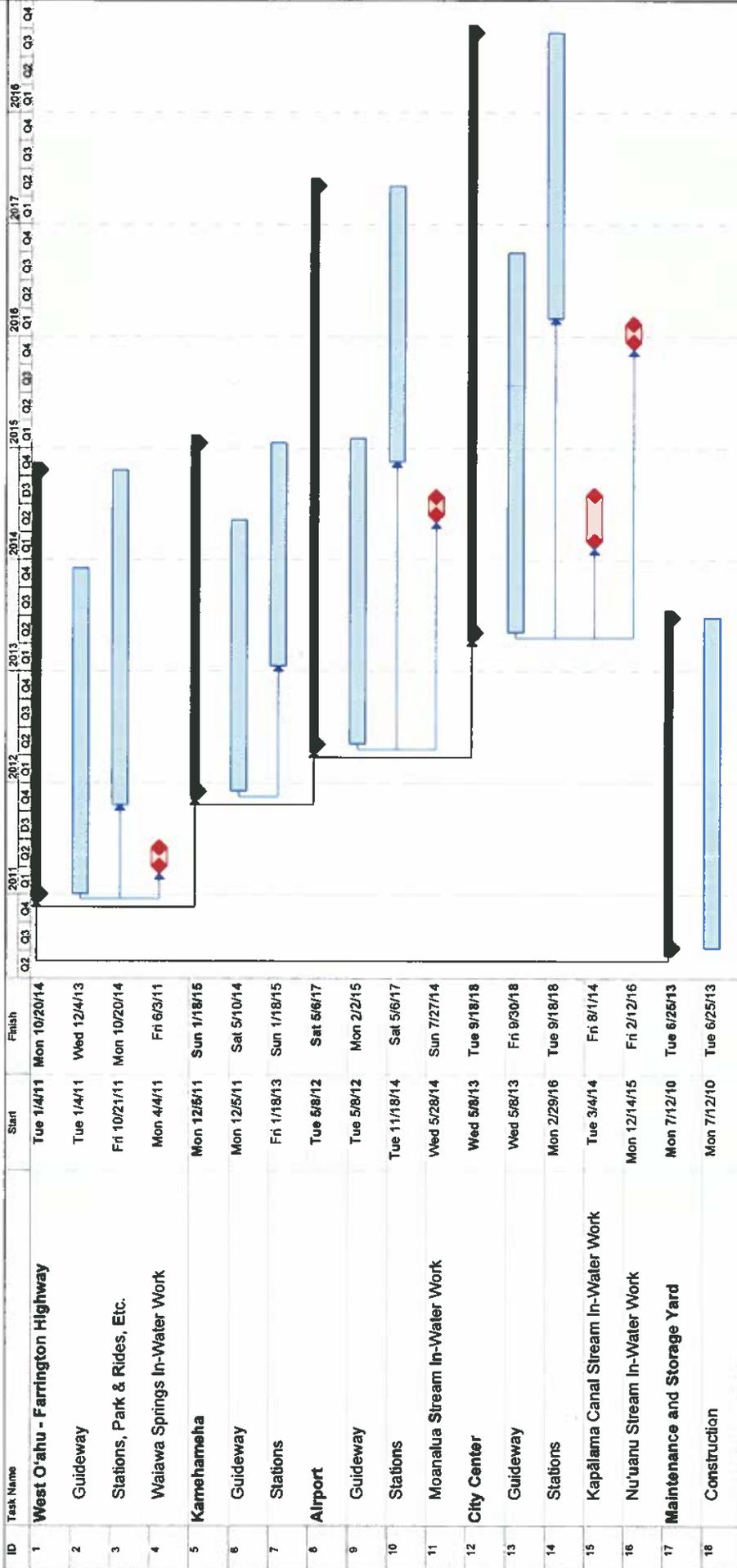
Figure 2-10 Fixed Guideway Transit Alternative Features (Aloha Stadium to Kalihi)

June 2010

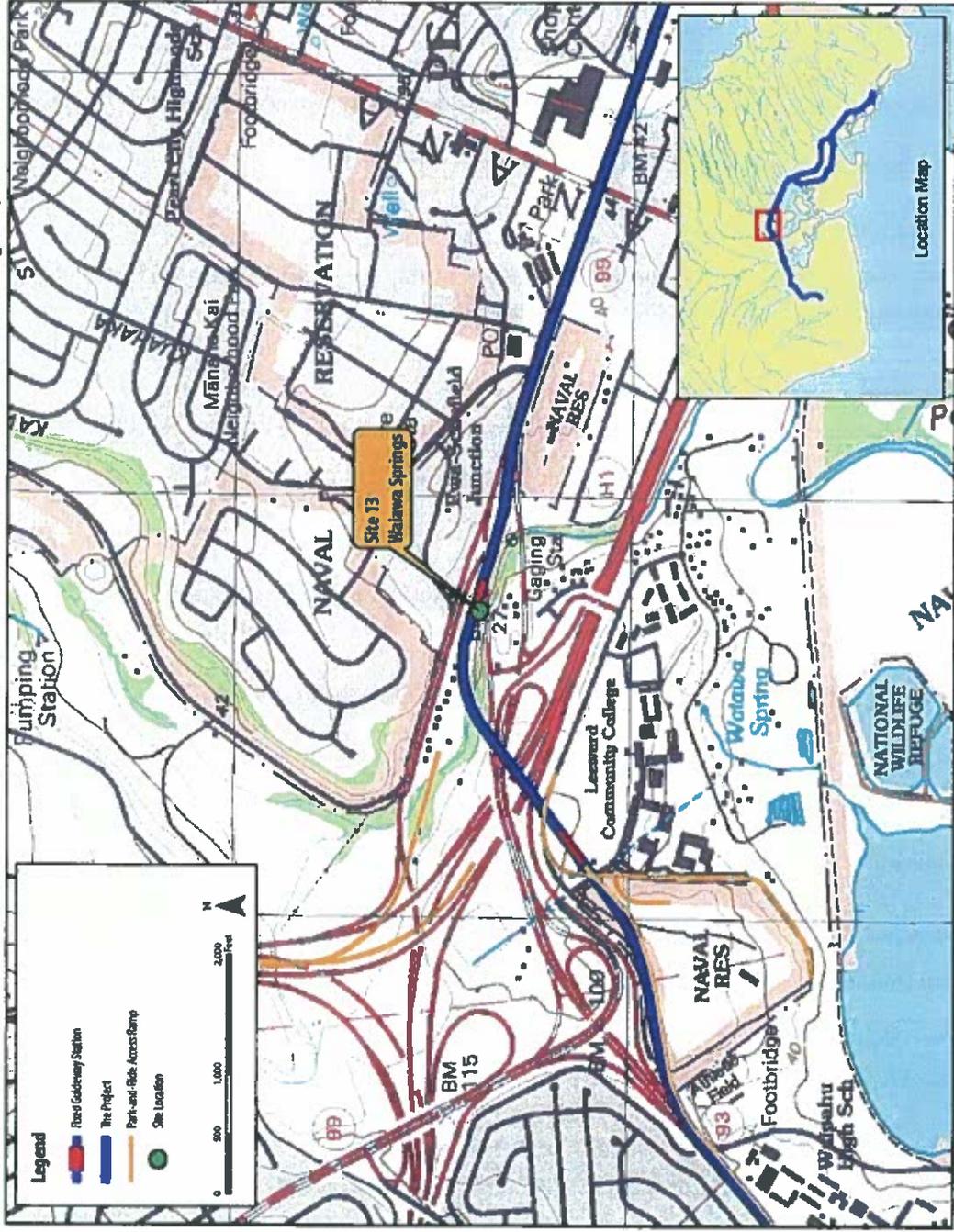


Figure 2-11 Fixed Guideway Transit Alternative Features (Kalihi to Ala Moana Center)

## HHCTC PROJECT GENERAL CONSTRUCTION SCHEDULE

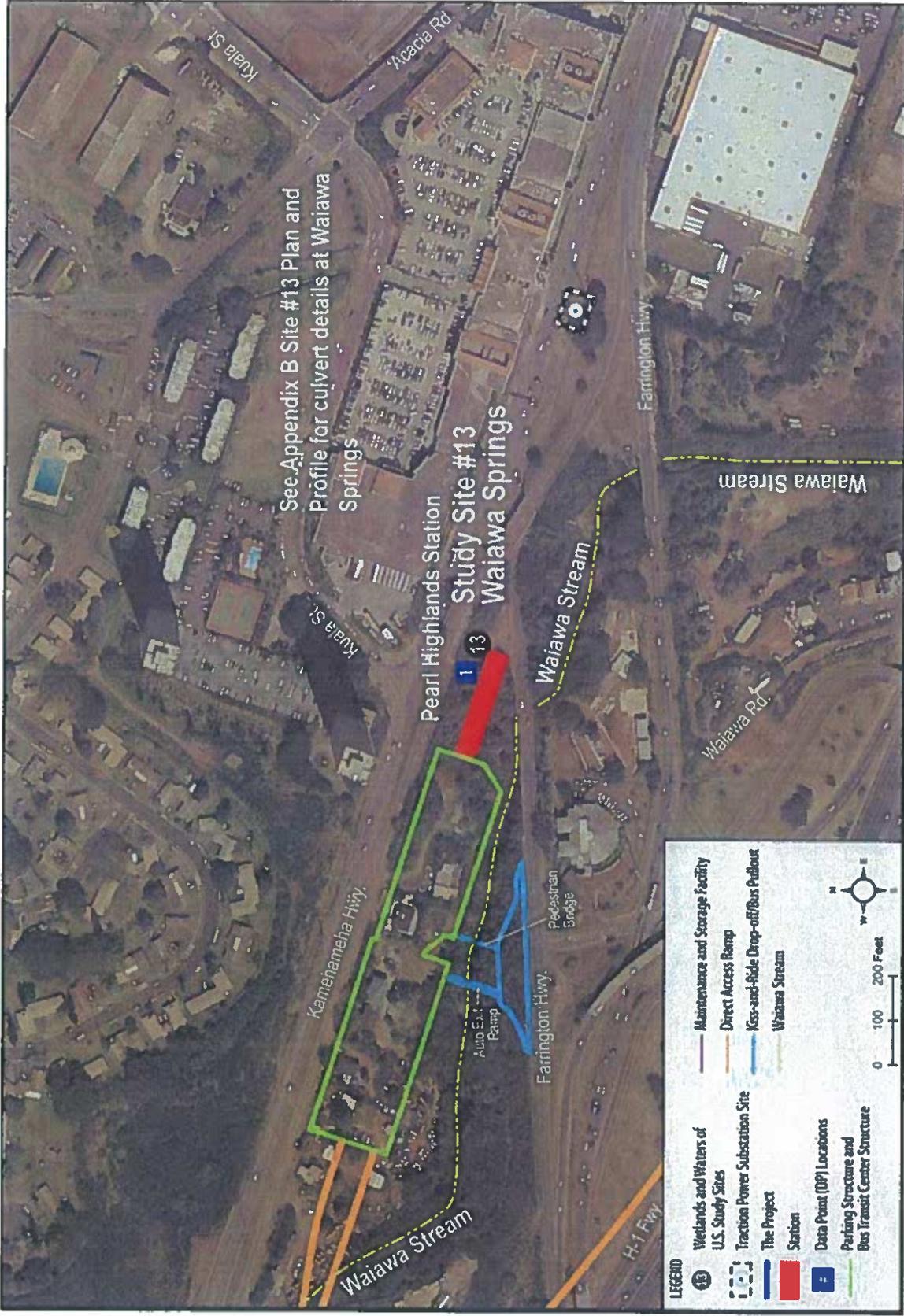


Topographic Map of Waiawa Springs (from Wetlands and Waters of the U.S. Report)

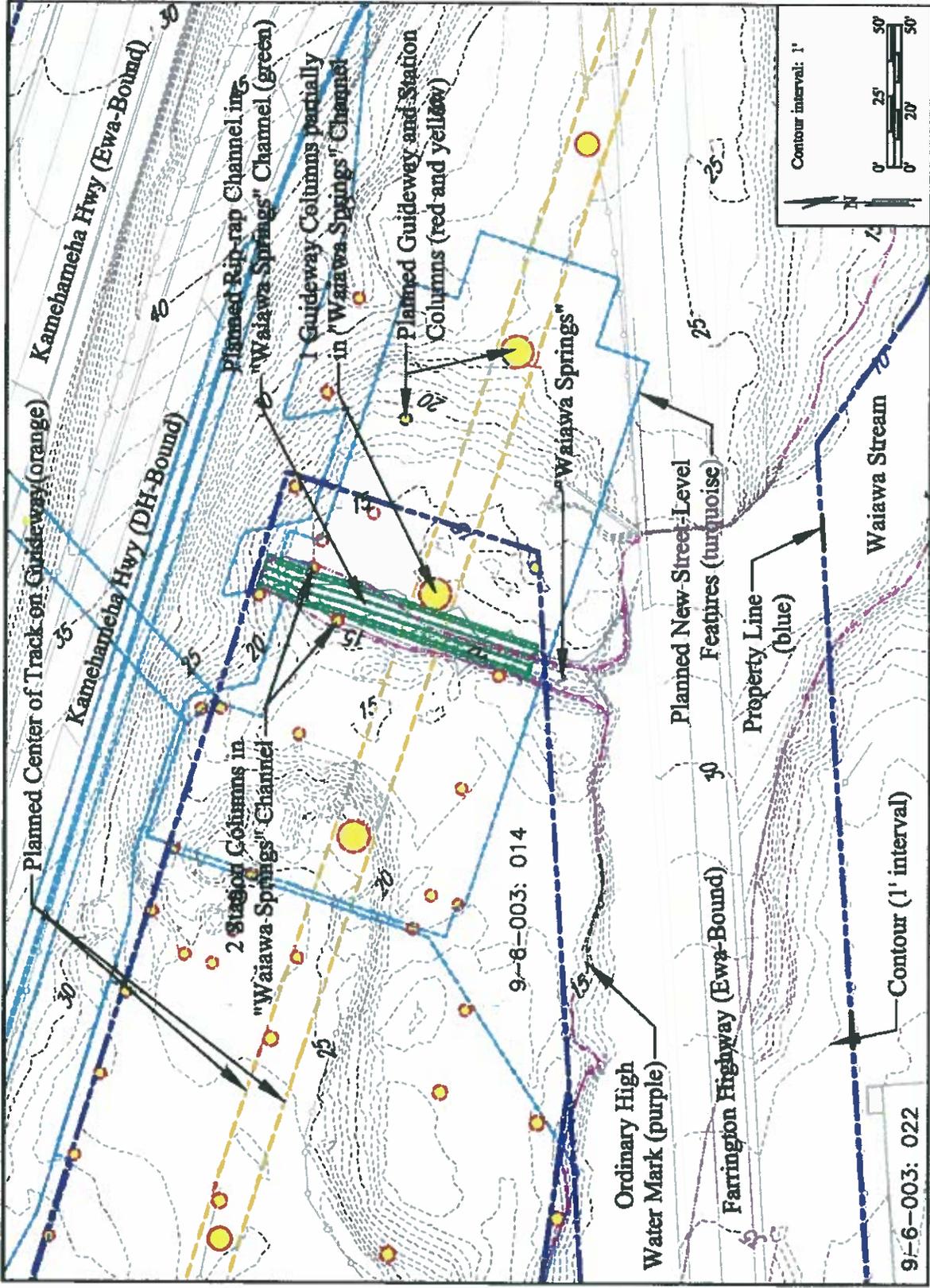


# EXHIBIT 3

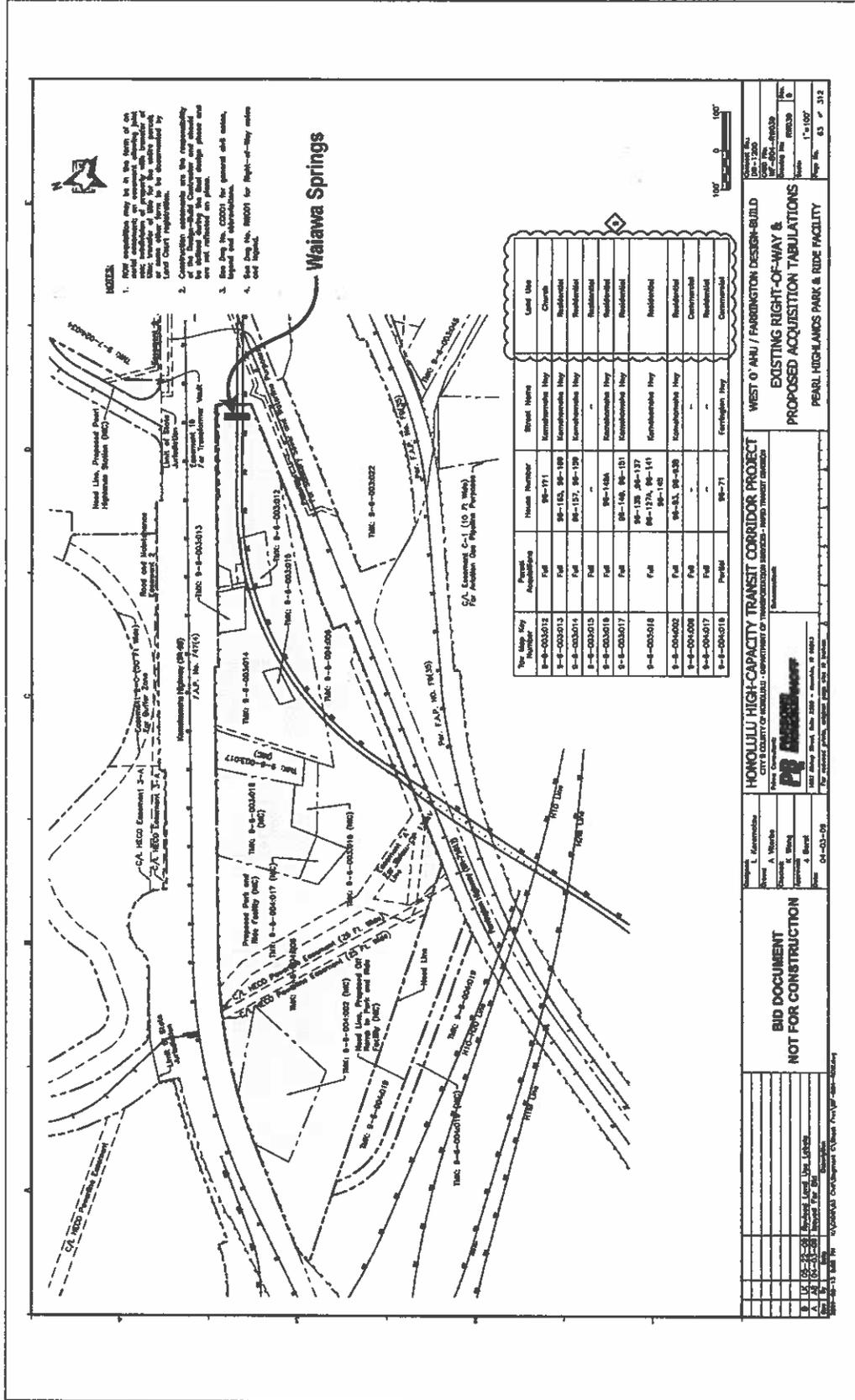
**Aerial Map of Waiawa Springs (from Wetlands and Waters of the U.S. Report)**



Site Plan for Waiawa Springs



Drawing RW-039 Existing Right-of-Way and Proposed Acquisition Tabulations



- NOTES:**
1. All tabulations are for the purpose of land acquisition and are not intended to be used for any other purpose. All tabulations are subject to the provisions of the Land Court Regulations.
  2. Construction tabulations are the responsibility of the applicant and are not intended to be used for any other purpose. All tabulations are subject to the provisions of the Land Court Regulations.
  3. See Eng No. C0001 for general site notes, layout and tabulations.
  4. See Eng No. M0001 for Right-of-Way notes and layout.

Waiawa Springs

| Map Sheet Number | Parcel Acquisition | House Number   | Street Name      | Land Use    |
|------------------|--------------------|----------------|------------------|-------------|
| 8-8-003012       | Full               | 98-111         | Kamoharaha Hwy   | Church      |
| 8-8-003013       | Full               | 98-103, 98-109 | Kamoharaha Hwy   | Residential |
| 8-8-003014       | Full               | 98-137, 98-139 | Kamoharaha Hwy   | Residential |
| 8-8-003015       | Full               | 98-143         | Kamoharaha Hwy   | Residential |
| 8-8-003016       | Full               | 98-145, 98-151 | Kamoharaha Hwy   | Residential |
| 8-8-003017       | Full               | 98-129, 98-137 | Kamoharaha Hwy   | Residential |
| 8-8-003018       | Full               | 98-179, 98-141 | Kamoharaha Hwy   | Residential |
| 8-8-004002       | Full               | 98-143         | Kamoharaha Hwy   | Residential |
| 8-8-004008       | Full               | 98-133, 98-139 | Kamoharaha Hwy   | Commercial  |
| 8-8-004017       | Full               | 98-71          | Constitution Hwy | Commercial  |

**HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT**  
 CITY OF HONOLULU DEPARTMENT OF TRANSPORTATION DESIGN-BUILD TRAVEL SERVICES

**WEST O'AHU / HAWAIIAN DESIGN-BUILD**  
 EXISTING RIGHT-OF-WAY &  
 PROPOSED ACQUISITION TABULATIONS  
 PEARL HIGHLANDS PARK & RIDE FACILITY

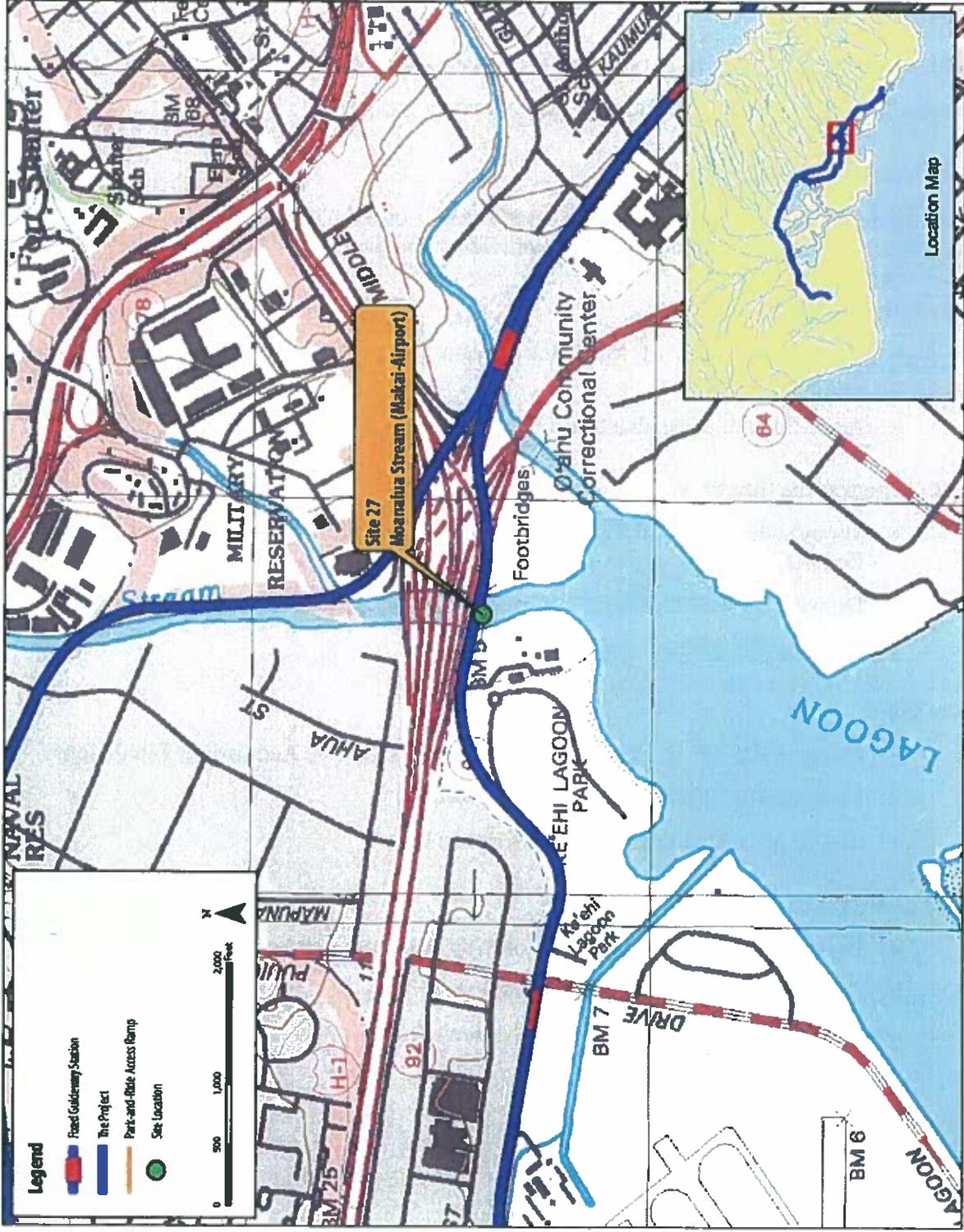
**BID DOCUMENT**  
**NOT FOR CONSTRUCTION**

Scale: 1" = 100'  
 Date: 04-03-09

Project No. 03-00003  
 Drawing No. RW-039

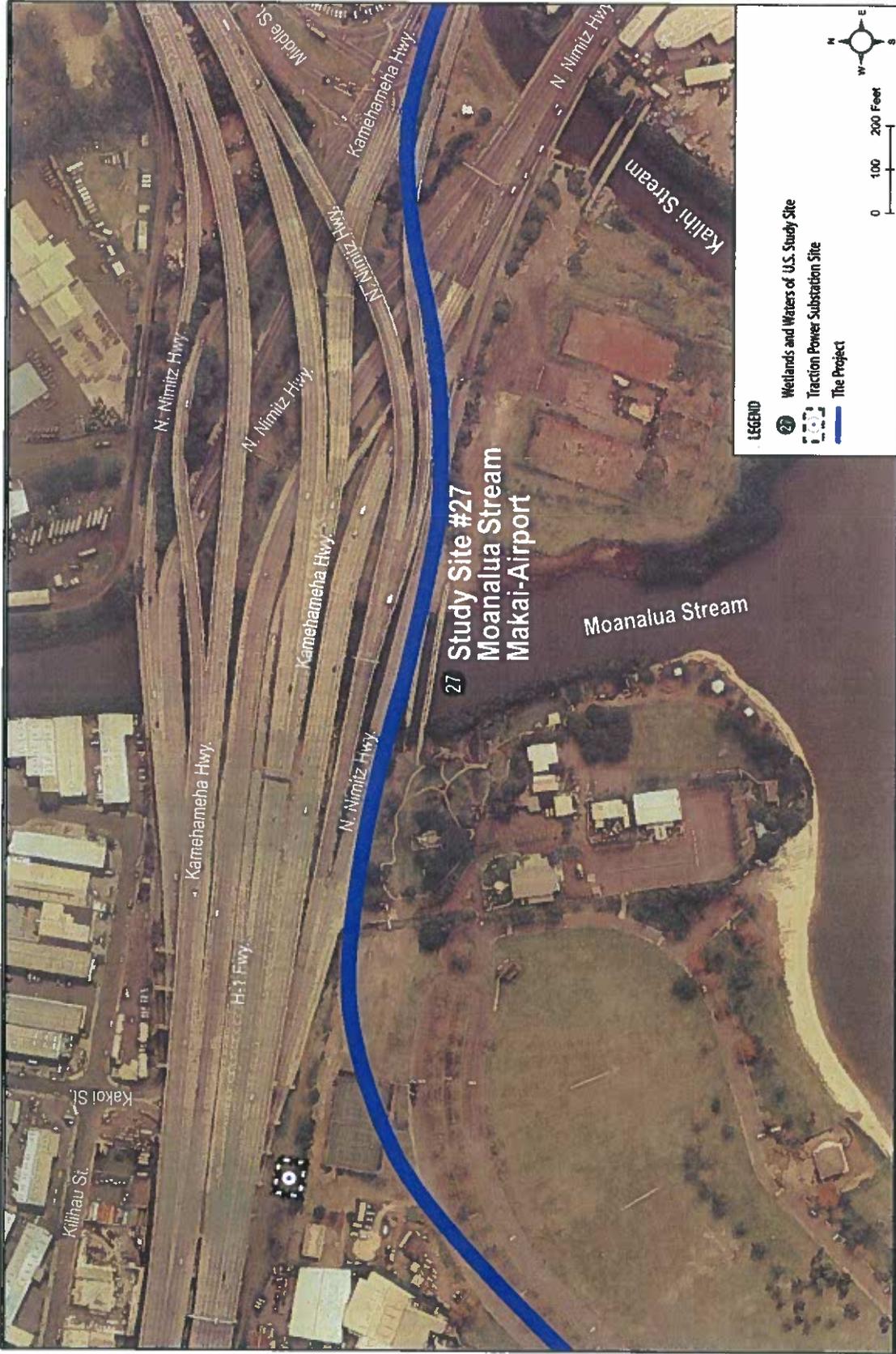


Topographic Map of Moanalua Stream Site (from Wetlands and Waters of the U.S. Report)



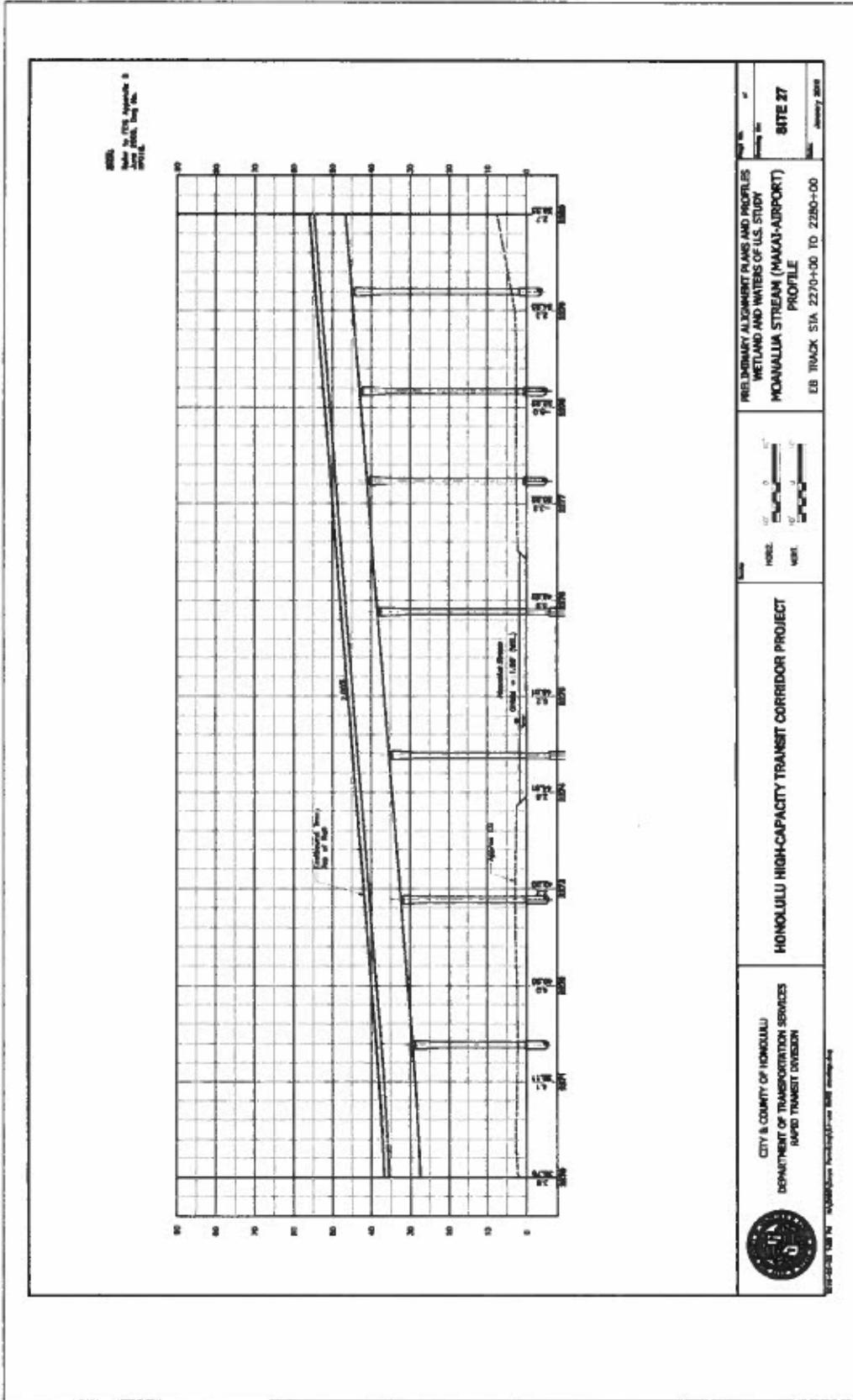
# EXHIBIT 4

**Aerial Map of Moanalua Stream (from Wetlands and Waters of the U.S. Report)**

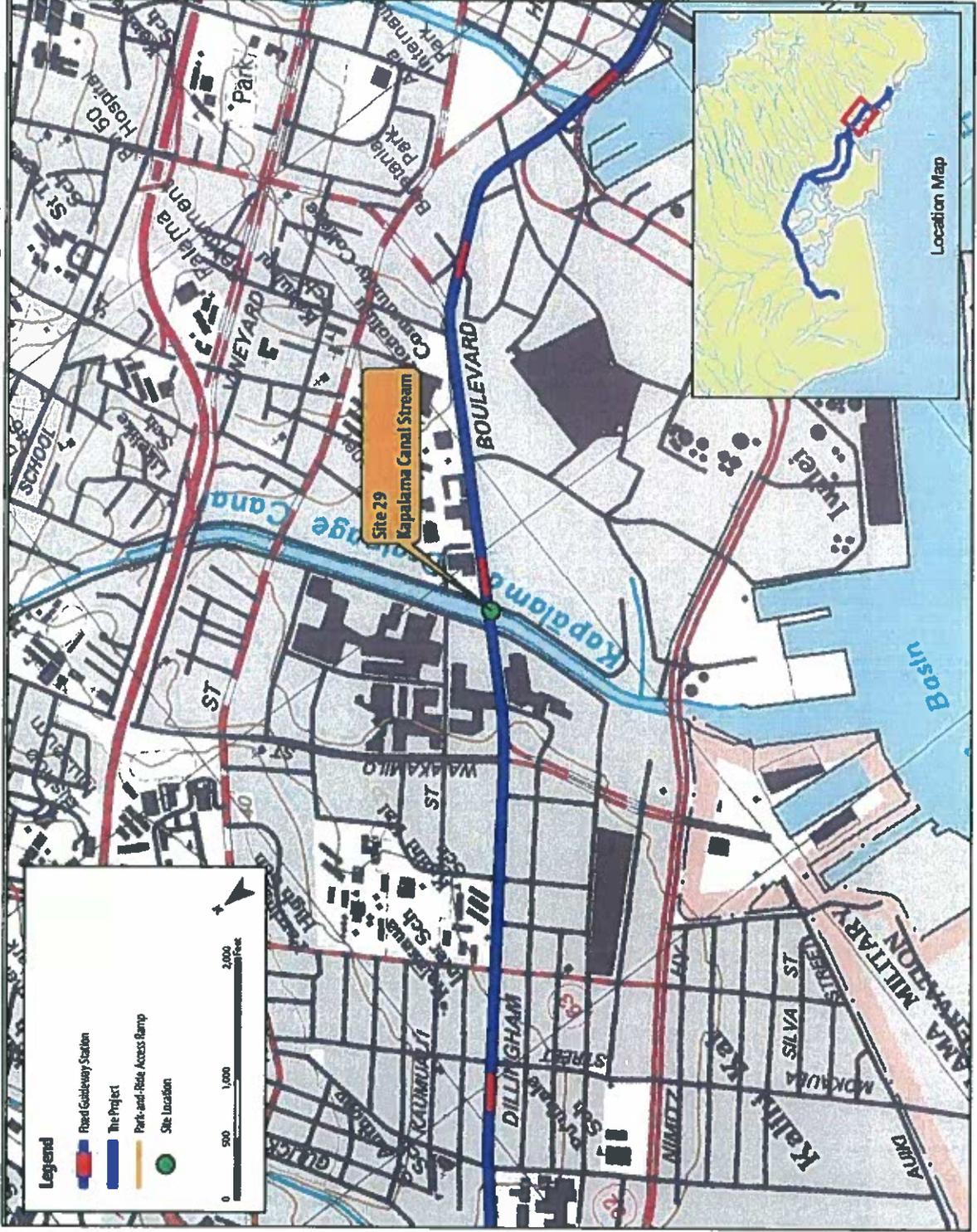




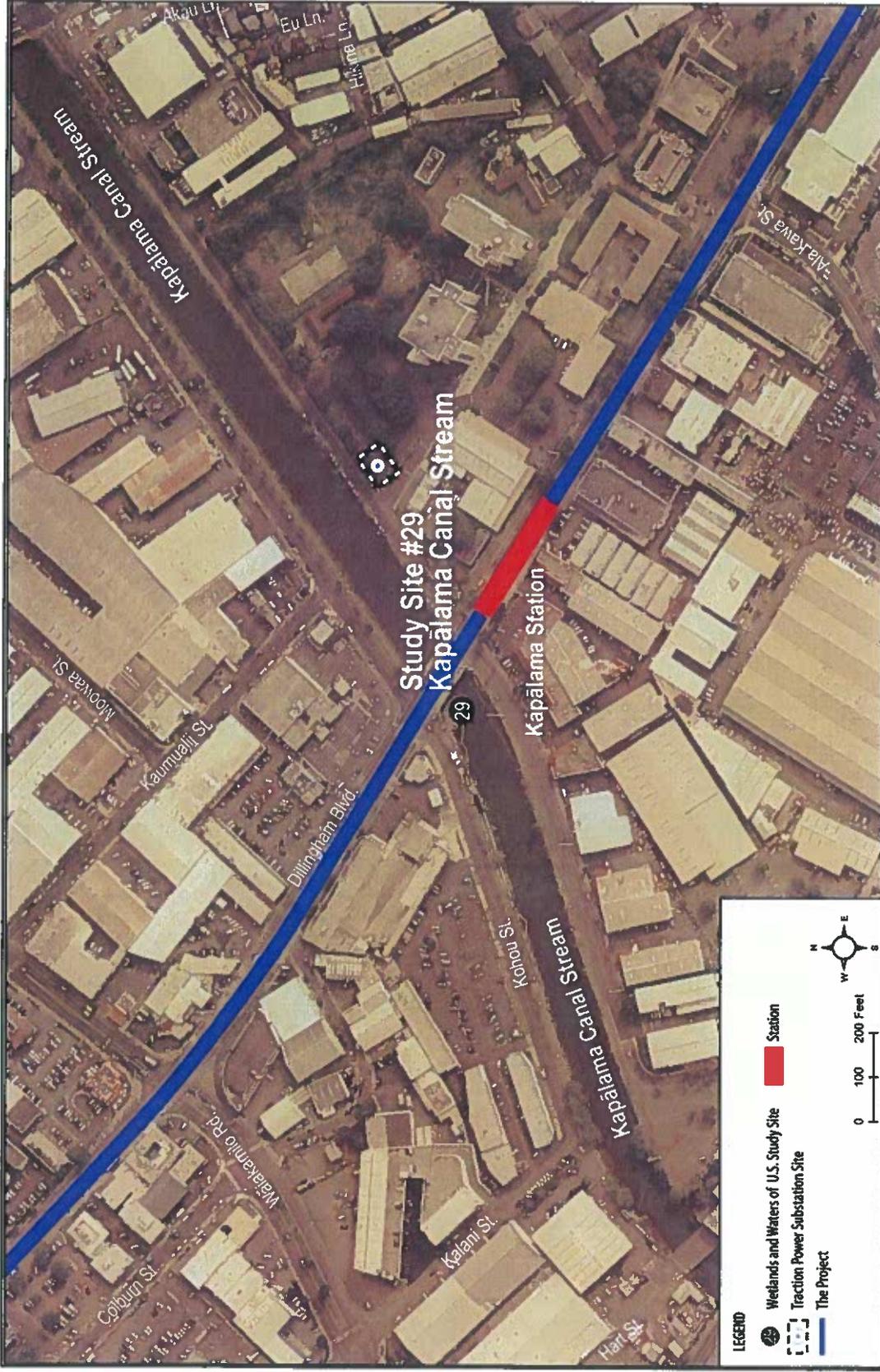
Site 27 Moanalua Stream (Makai Airport) Profile



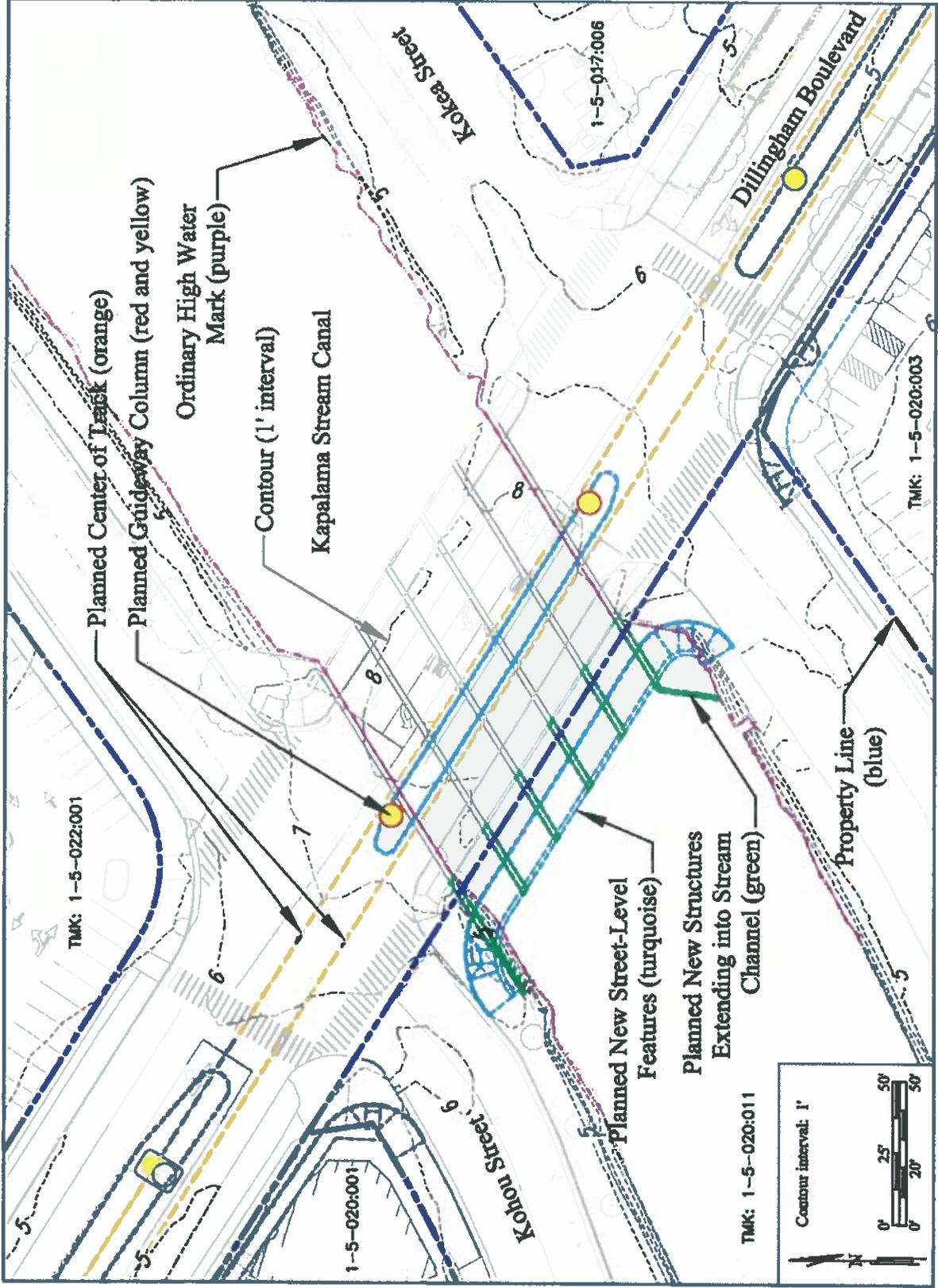
Topographic Map of Kapālama Canal Stream (from Wetlands and Waters of the U.S. Report)



**Aerial Map of Kapālama Canal Stream (from Wetlands and Waters of the U.S. Report)**



**Site Plan for Kapalama Canal Stream**



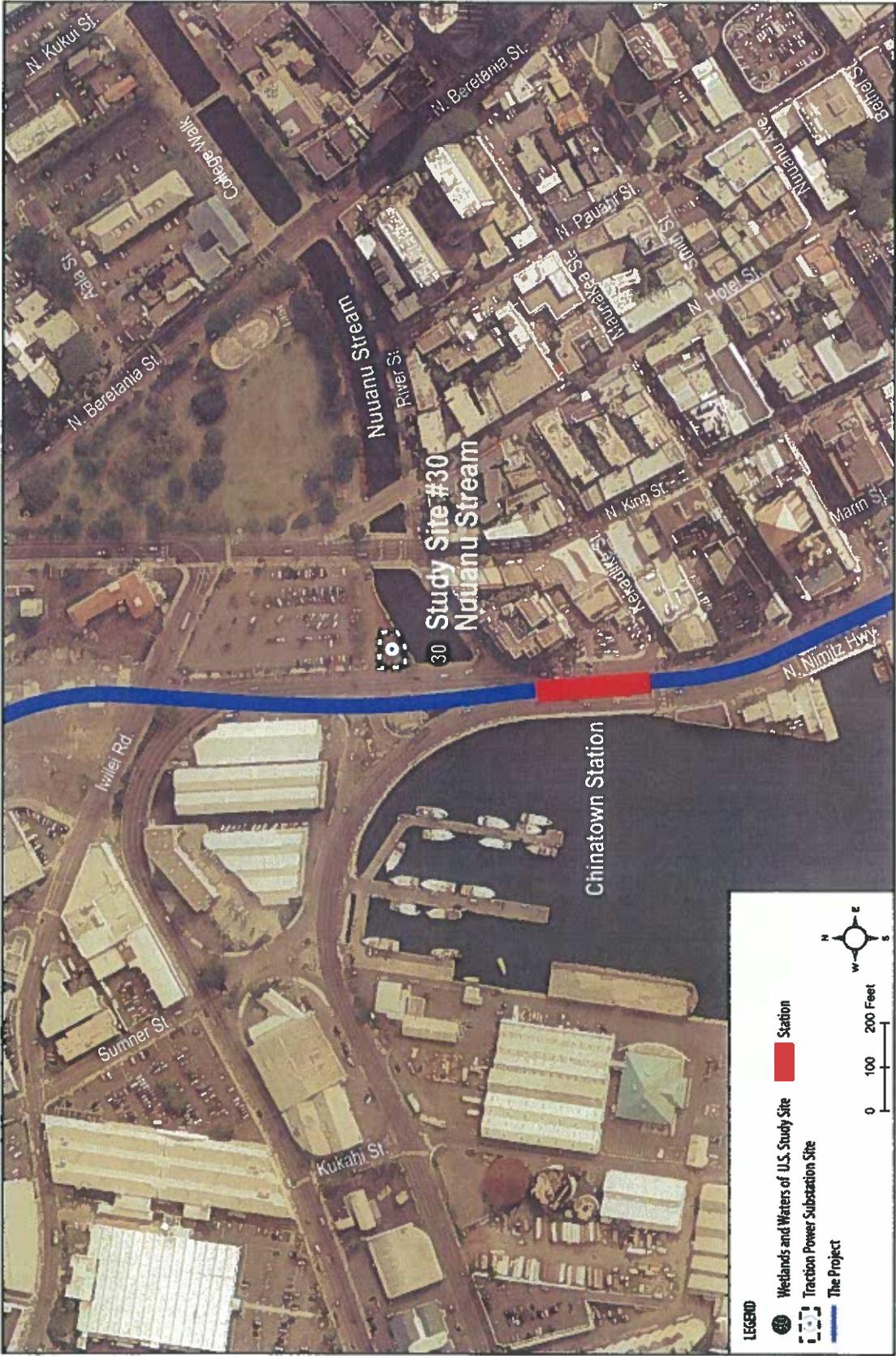




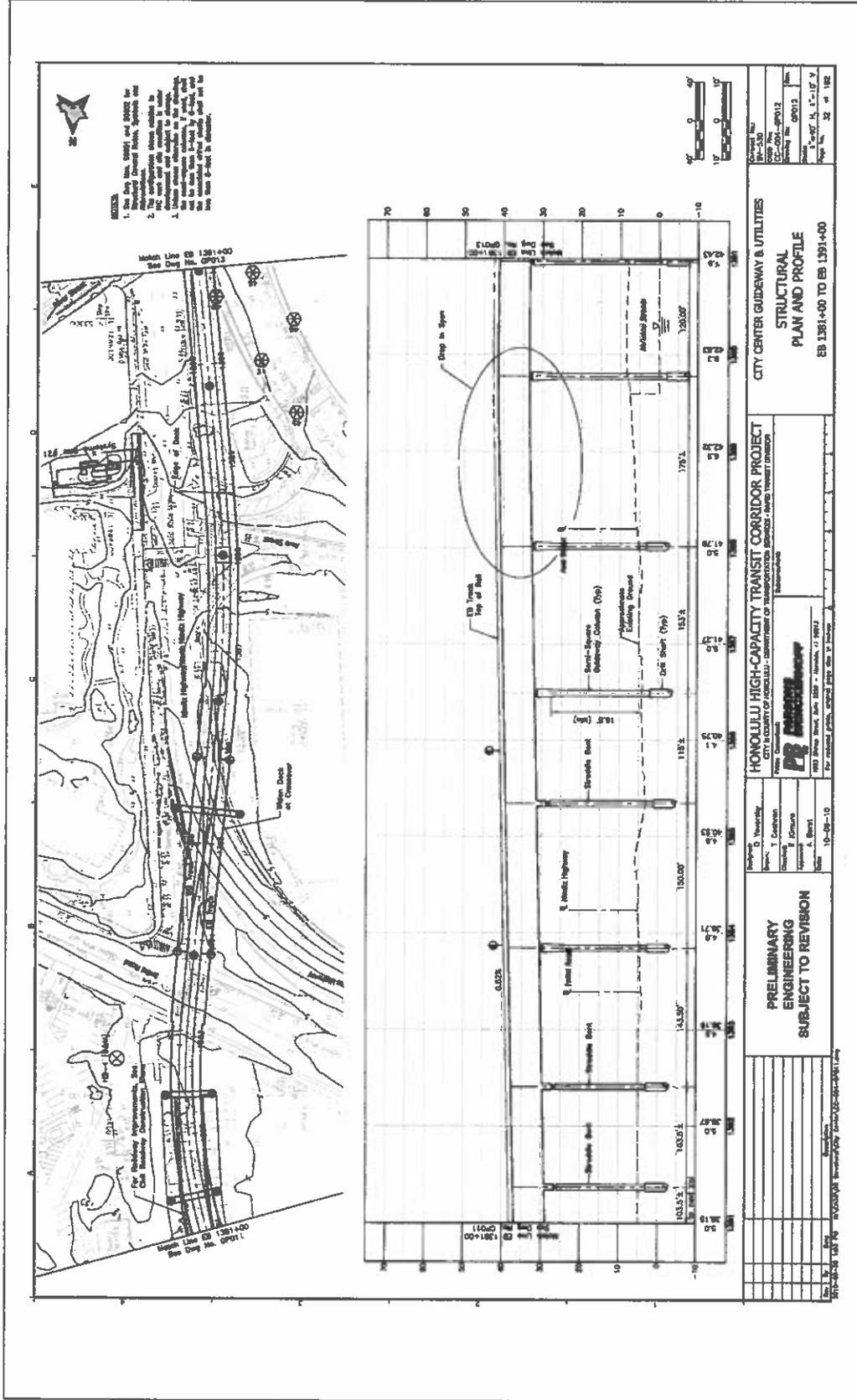
Topographic Map of Nu'uuanu Stream (from Wetlands and Waters of the U.S. Report)



**Aerial Map of Nu'uano Stream (from Wetlands and Waters of the U.S. Report)**



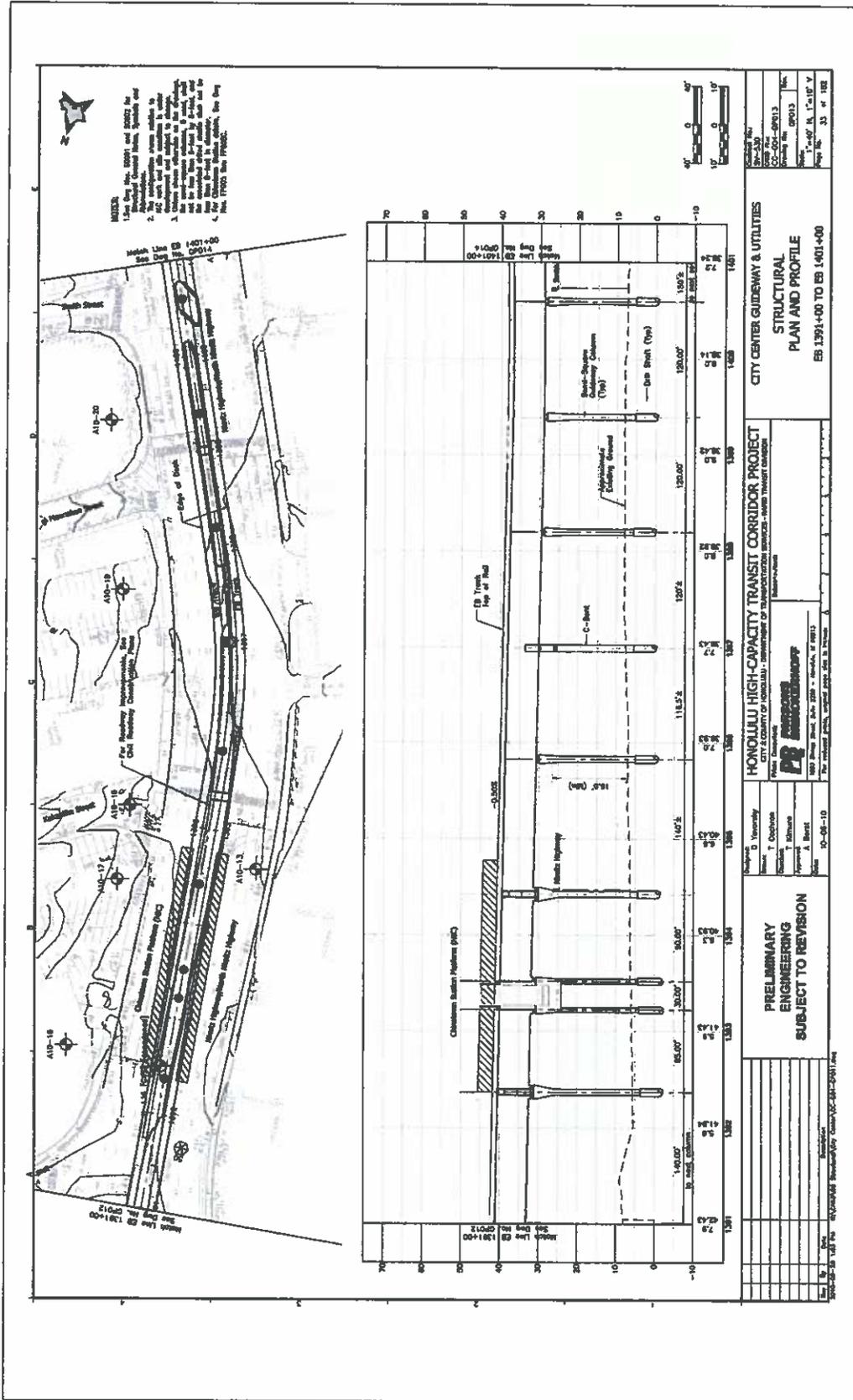
Drawing GP012 Structural Plan and Profile



- NOTES**
1. See City Map, Sheet 100-1-10 for location of guideway.
  2. The guideway structure shown is for a guideway with a maximum width of 100 feet.
  3. The guideway structure shown is for a guideway with a maximum depth of 10 feet.
  4. The guideway structure shown is for a guideway with a maximum length of 100 feet.
  5. The guideway structure shown is for a guideway with a maximum width of 100 feet.

|   |  |   |   |
|---|--|---|---|
| <b>HONOLULU HIGH-CAPACITY TRANSIT CORRIDOR PROJECT</b><br>CITY AND COUNTY OF HONOLULU, DEPARTMENT OF TRANSPORTATION<br>DIVISION OF TRANSPORTATION PLANNING AND DESIGN |  | <b>CITY CENTER GUIDEWAY &amp; UTILITIES</b><br><b>STRUCTURAL</b><br><b>PLAN AND PROFILE</b><br>EB 1381+00 TO EB 1391+00 |   |
| Project No. 10-09-10<br>Date 10-09-10   | Prepared by: [Name]<br>Checked by: [Name]<br>Approved by: [Name] | Drawing No. GP012<br>Scale 1"=50' V, 1"=10' H<br>Sheet No. 32 of 182  | Contract No. 10-09-10<br>Project No. 10-09-10 |

Drawing GP013 Structural Plan and Profile







**STANDARD STREAM CHANNEL ALTERATION PERMIT CONDITIONS**  
(Revised 9/19/07)

1. The permit application and staff submittal approved by the Commission at its meeting on June 29, 2011, shall be incorporated herein by reference.
2. The applicant shall comply with all other applicable statutes, ordinances, and regulations of the Federal, State and county governments.
3. The applicant, his successors, assigns, officers, employees, contractors, agents, and representatives, shall indemnify, defend, and hold the State of Hawaii harmless from and against any claim or demand for loss, liability, or damage including claims for property damage, personal injury, or death arising out of any act or omission of the applicant or his successors, assigns, officers, employees, contractors, and agents under this permit or related to the granting of this permit.
4. The applicant shall notify the Commission, by letter, of the actual dates of project initiation and completion. The applicant shall submit a set of as-built plans and photos of the completed work to the Commission upon completion of this project. This permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The proposed work under this stream channel alteration permit shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Commission upon showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.
5. Before proceeding with any work authorized by the Commission, the applicant shall submit one set of construction plans and specifications to determine consistency with the conditions of the permit and the declarations set forth in the permit application.
6. The applicant shall develop site-specific, construction best management practices (BMPs) that are designed, implemented, operated, and maintained by the applicant and its contractor to properly isolate and confine construction activities and to contain and prevent any potential pollutant(s) discharges from adversely impacting state waters. BMPs shall control erosion and dust during construction and schedule construction activities during periods of low stream flow.
7. The applicant shall protect and preserve the natural character of the stream bank and stream bed to the greatest extent possible. The applicant shall plant or cover lands denuded of vegetation as quickly as possible to prevent erosion and use native plant species common to riparian environments to improve the habitat quality of the stream environment.
8. In the event that subsurface cultural remains such as artifacts, burials or deposits of shells or charcoal are encountered during excavation work, the applicant shall stop work in the area of the find and contact the Department's Historic Preservation Division immediately. Work may commence only after written concurrence by the State Historic Preservation Division.