

LINDA LINGLE
GOVERNOR OF HAWAII



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

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COMMISSION ON WATER RESOURCE MANAGEMENT

May 16, 2012
Honolulu, Hawaii

Application for Stream Channel Alteration Permit (SCAP.2621.3) for
Temporary By-Pass Roads and Replacement of Makaha Bridges 3 and 3A, Makaha Stream, Makaha,
Oahu (TMKs: (1) 8-4-001:012, 8-4-002:045 and 47, 8-4-008:020 and 8-4-018:014)

APPLICANT:

Edwin Sniffen, Highways Administrator
Department of Transportation
869 Punchbowl Street, Room 513
Honolulu, HI 96813

LANDOWNERS:

City and County of Honolulu
Dept. of Parks and Recreation (DPR)
(TMKs: (1) 8-4-001:012 and 8-4-002:047)

HRT Kili Drive LLC
Farrington Highway
Waianae, HI 96792
(TMK: (1) 8-4-002:045)

Moana Kea Among and Amalia Barboza
84-445 Farrington Highway
Waianae, HI 96792
(TMK: (1) 8-4-008:020)

Robert C. Palmer
84-450 Farrington Highway
Waianae, HI 96792
(TMK: (1) 8-4-018:014)

SUMMARY OF REQUEST:

Application for Stream Channel Alteration Permit (SCAP.2621.3) for temporary a by-pass road and replacement of Makaha Bridges 3 and 3A in Makaha, Oahu (TMKs: (1) 8-4-1-001:012, 8-4-002:045 and 47, 8-4-008:020 and 8-4-018:014).

LOCATION: See Exhibits 1A, 1B, 1C, and 1D.

D1

BACKGROUND:

Farrington Highway is a two-lane arterial with 11-foot wide lanes and three-foot wide paved shoulders. Makaha Bridges 3 and 3A support two 11-foot wide lanes with a two-foot wide shoulder on the makai side of the bridge and a one-foot wide shoulder on the mauka side. A four-foot wide walkway is located on the mauka side of both bridges. Both wooden bridges were built in 1937. See Exhibits 1A and 1B.

The Hawaii Department of Transportation (HDOT) proposes to replace the two timber bridges along Farrington Highway in Makaha, Oahu to comply with current design standards of the American Association of State Highway and Transportation Officials (AASHTO) and HDOT. The design will address current bridge deficiencies in substructure and superstructure conditions, hydraulic capacity, bridge width and shoulder areas. The replacement bridges will:

- Feature reinforced concrete structures to eliminate the potential for increased maintenance costs associated with aging wooden bridges.
- Increase travel-way widths and provide adequate shoulder areas.
- Include other improvements such as bridge railings and guardrails.
- Expand pedestrian and bicycle facilities along the bridges and approaches.
- Provide stream flow capacity to accommodate 100-year flood events.

Makaha Stream is an intermittent stream that originates in the western slopes of the Waianae mountain range deep in Makaha Valley. Makaha Stream flows under Bridge 3 and terminates behind a sand berm at Makaha Beach Park. West Makaha Stream arises on the south slope of the Puukeaau mountain range and eventually flows under Bridge 3A. It is a relatively short intermittent stream that terminates in an approximately 100-foot long muliwai (coastal estuarine pond) along West Makaha Stream on the mauka side of Farrington Highway. Neither stream has a permanent surface connection to the ocean. The two stream beds connect to each other on the makai side of Farrington Highway. Water normally flows in this area only after heavy rains. See Exhibit 2 (Photos 1-7).

On December 7, 2004, the State Historic Preservation Division (SHPD) accepted the applicant's Archaeological Monitoring Plan (AMP) for the project.

On July 9, 2007, SHPD accepted the applicant's 2006 Burial Treatment Plan for the project.

On February 17, 2010, SHPD approved the applicant's Archaeological Data Recovery Plan to address the handling of two bone fragments and other archaeological resources (railroad remnants and two timber framed bridges, #3 and 3A) found at the project site.

On August 28, 2010, SHPD approved the applicant's Historic American Engineering Record (HAER) HI-90 and HI-91, Makaha Bridges 3 and 3A and ORL Trestle Ruins which photo documented and described the architecture and history of the Makaha Bridges.

On April 29, 2011, HDOT submitted the Final Environmental Assessment (FEA) and Finding of No Significant Impact (FONSI) of Makaha Bridges No. 3 and No. 3A to the Office of Environmental Quality Control (OEQC) for its review and approval.

On May 23, 2011, OEQC approved and published the FEA and FONSI for the proposed project.

On October 3, 2011, Commission staff met with Keith and Juliana Kohls, 84-452 Farrington Highway (TMK: (1) 4-8-018:122) to discuss the Kohls' concerns regarding the design details for the new bridge, the retaining wall design, stream hydraulics and flooding concerns. Commission staff informed the Kohls

that the stream hydraulics and the engineering for bridge and retaining wall should be addressed by HDOT engineers and the City and County Department of Planning and Permitting as part of the SMA permitting process.

On February 28, 2012, the Department of Health Clean Water Branch issued a Water Quality Certification (WQC) for this project.

On February 29, 2012, the U.S. Army Corps of Engineers reviewed the proposed Makaha Stream Bridges Project and verified the project under Nation Wide Permit (NWP) #14 (Linear Transportation Projects) in accordance with the Corp's NWP authority.

On March 14, 2012, the Commission received written notices from the following property owners stating that they had withdrawn their permission for the proposed project. Exhibit 1C shows the location of these owners as well as the Kohl property. Exhibit 1D shows DOT's proposed right-of-way acquisitions and proposed temporary construction easements.

- Moana Kea-Klausmeyer-Among (TMK: (1) 8-4-008:020)
- Jason Ellis (TMK: (1) 8-8-018:014)
- Robert Palmer (TMK: (1) 8-4-018:014)
- Donald Redington (TMK: (1) 8-4-018:123)

On April 3, 2012, the City and County of Honolulu, Department of Planning and Permitting granted Special Management Area (SMA) Permits for the construction of new bridges over Makaha and West Makaha Streams at Makaha Beach, Oahu.

DESCRIPTION:

The project site is located in Makaha in Flood Zones AE, AEF, VE, X and XS according to the Federal Emergency Management Agency (FEMA). Zone AE is the flood insurance rate zone that corresponds to the one-percent annual chance of 100-year floodplain. Zone AEF refers to a floodway area within Zone AE. The Base Flood Elevation (BFE), derived from detailed hydraulic analysis at the project site is 13 feet. Zone VE is the flood insurance rate zone that corresponds to the flood hazard areas inundated by a 100-year flood that has additional hazards associated with coastal flood with wave action. The BFE for this zone is 12 feet. Zones X and XS refer to areas outside the flood limits. See Exhibit 3.

A drainage analysis prepared by FEMA indicated that the existing bridges do not have the hydraulic capacity to accommodate a 100-year flood event. Should such an event occur, flood waters would overtop Farrington Highway. Because the subject property is located within the 100-year floodplain, the new bridge structures will be designed to accommodate a 100-year flood event. Geotechnical and hydraulic studies have been completed to ensure the structural integrity of the bridges in flooding events and were used to prepare the project's construction plans. The proposed design of the replacement bridges will accommodate the 100-year flood event without increasing flood hazards to adjacent properties. All work within Zones AE, AEF and VE will be in accordance with the rules and regulations of the National Flood Insurance Program.

The draft engineering reports and draft plans have been submitted to governmental agencies and utility companies for review and comment. The draft reports and plans cannot be made available to the public because of HDOT policy that draft engineering design documents are not allowed to be released until after the project design has been finalized. This provides the public with the correct project design for construction that has been reviewed and approved by governmental agencies and the utility companies.

The two existing wooden bridge structures will be replaced with reinforced concrete bridges. The replacement bridges will increase the lane widths to 12-foot wide lanes in each direction and 10-foot wide shoulders to accommodate pedestrians and bicyclists. The proposed project will require: construction of an approximately 1,200-foot long by-pass road on the makai side of the existing highway; demolition of the existing wooden bridge structures; construction of temporary bridges; construction of the new bridges, channel slope protection and bridge appurtenances; relocation of utilities; restoration of the site; and demobilization of construction equipment and materials. The total area involved will be approximately 3.8 acres. See Exhibits 4-7.

In order to meet current roadway design requirements, the proposed project will require additional areas beyond the current right-of-way to accommodate the increased bridge spans and structures necessary for embankment protection, channel widening and guardrail improvements. The proposed wider right-of-way will affect lands on both sides adjacent to the project site. Additionally, the temporary use of construction parcels will be necessary during construction. (See Exhibit 1D.) No residents will be displaced by this project.

The proposed project involves excavation in the stream channels to remove soil and excess material and demolition debris from the concrete aprons, piers, foundations and abutments of the existing bridges. Structures to be constructed within the stream channel include existing slope protection measures (abutment and wing walls) adjacent to and directly under the bridges. To minimize disturbance of the stream bed, the concrete pier foundations of the existing Bridge 3A will be removed by cutting them off at the stream bottom elevation and leaving the footings in place.

Bridge 3 will involve construction of new abutments, wing walls, a center pier, and a concrete apron directly under the proposed bridge. To accommodate flows from 100-year storm events, the new Bridge 3 will be a two span structure. In addition to the longer bridge, an approximately 150-foot section of Makaha Stream will be widened to transition from the existing stream width to the widened channel under the new bridge structure. Both the upstream and downstream stream banks will be stabilized using rip-rap or similar material to maintain reasonable structural integrity and resistance against storm flows.

The project will also include fill material associated with the temporary by-pass road. Bridge 3A will be spanned by a temporary, pre-fabricated, metal bridge structure including temporary bridge abutments. The by-pass road crossing Makaha Stream for Bridge 3 will be a temporary culvert comprised of six, 60-inch high-density polyethylene (HDPE) pipes. At the vicinity of the Makaha Stream channel crossing, the by-pass road will be constructed using sheet piles and backfilled with appropriate fill material and overlain with base-course fill and asphalt pavement. All fill material used to construct the by-pass road will be removed at the end of the project and the area restored and/or stabilized.

During the construction of the new bridges, stream flow diversion measures will be installed in one-half of the stream channel at a time using sheet piles, sandbags, pipes, or other appropriate measures. The purpose of these measures is to (1) prevent pollutants (silt) from entering the stream should the stream start flowing during rainfall events and (2) isolate the work area at Bridge 3A to minimize impacts to aquatic organisms in the muliwai during construction. The temporary diversion measures will be designed to accommodate high stream flow from storm events. Once the by-pass road is operational, the two existing bridges will be demolished. Instream work will be intermittent during the construction period but will be focused on either the makai or mauka areas of the project at one time. Sand bags, sheet piles, or other appropriate temporary diversion measures will be put in place to isolate the active work areas from the stream. Any material excavated from the stream channel will be stockpiled at a designated material storage area, or loaded onto trucks for disposal at a county-approved refuse facility.

The overall construction schedule is estimated to last about 16 months with intermittent in-stream activities. However, all in-stream work will be limited to the dry season.

ANALYSIS:

Agency Review Comments:

U.S. Fish and Wildlife Service: recommended that best management practices (BMPs) be implemented to minimize impacts to aquatic resources.

The Department of Health (DOH) Clean Water Branch (CWB): the project is subject to Section 401 and Section 402 National Pollutant Discharge Elimination System (NPDES) permits.

City and County of Honolulu Department of Planning and Permitting:

- The project is located in the Special Management Area (SMA) and is subject to compliance with SMA use permit requirements.
- The applicant must submit construction and grading plans to the City for review and approval.
- The project is located within the AE floodway district and the VE coastal high hazard district. The applicant shall certify that the work will not result in any increase to the regulatory flood elevations.
- Approval of a subdivision application will be required for the additional highway right-of-way to be obtained from abutting properties.
- If dewatering of excavated material is required before disposal, a stockpiling permit may be required.

Office of Hawaiian Affairs (OHA) requested clarification on the status of mitigation measures to protect cultural sites and historic properties within the project area and whether the Historic Preservation Division had approved a recovery plan and long-term protection measures for a designated re-internment site pursuant to applicable provisions of Hawaii Administrative Rules §13-300.

The Department of Hawaiian Home Lands and the University of Hawaii Environmental Center did not submit comments as of the date of preparation of this submittal.

DLNR Review Comments:

Division of Aquatic Resources (DAR): DAR surveyed Makaha Stream in the area of the proposed activity and the upper reaches in December 2001. At the time of the survey, the stream was dry; however, native o`opu and `opae were observed in the middle and upper reaches.

- The proposed replacement bridge is not expected to have any significant impact on the aquatic resources in this area as the construction will be done in phases.
- The temporary stream flow diversion measures will help prevent pollutants from entering the stream and minimize impacts to the aquatic organisms in the muliwai and ocean should the stream start flowing from rainfall events.
- The flow diversion measures should not block the total stream flow during rainfall events to accommodate the upstream migration of post-larval gobies and allow the passage of larval drift to the ocean should recruitment spawning occur.
- Mitigative measure should be implemented during the construction of the replacement bridge and retaining walls to minimize the potential for erosion, siltation and pollution of the aquatic environment.

Engineering: according to the Flood Insurance Rate Map (FIRM), the project site is located in the 100 Year Flood Zones VE12, AEF and AE which are regulated by the National Flood Insurance Program (NFIP). The project must comply with the rules and regulations of the NFIP whenever development within a Special Flood Hazard Area is undertaken.

Historic Preservation (SHPD):

- Approved the applicant's 2004 Archaeological Monitoring Plan (AMP), the 2007 Burial Treatment Plan, and 2010 Archaeological Data Recovery Plan.
- Requested that a qualified archaeologist conduct on-site monitoring of all ground disturbances in accordance with the approved AMP.

The Data Recovery Plan focuses on the specific archaeological site, including the *iwi* (ancestral remains), found on-site as a result of the Archaeological Inventory Survey. The AMP is more general and covers ground disturbing activities throughout the construction project.

State Parks and Forestry and Wildlife: no objections to the project.

Land Division 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 triggers an EA because State funds will be used for the replacement of Bridges 3 and 3A. On May 23, 2011, the OEQC approved and published the applicant's FEA and FONSI for the project.

Staff Review

On April 3, 2012, the City and County of Honolulu, Department of Planning and Permitting granted Special Management Area (SMA) Permits for the project.

HDOT and R.M. Towill are working with property owners Among (Parcel 020) and Palmer (Parcel 014) to obtain the necessary right-of-way (ROW) and temporary construction parcels required for the project. However, the two property owners are opposed to the project because they do not agree with the design of the project and believe that HDOT and R.M. Towill are conspiring against them to benefit another landowner (HRT, Parcel 045) at their expense. If HDOT and R.M. Towill are unable to negotiate a ROW and temporary construction agreement with the two property owners, HDOT will use eminent domain to acquire the necessary land for the project, although this is not HDOT's preferred approach.

R.M. Towill and HDOT staff met with the Keith and Juliana Kohls, 84-452 Farrington Highway (Parcel 123) to address their concerns about the project's increased flooding potential at the Kohl's property. HDOT and R.M. Towill responded to Kohls' concerns during the SMA permit hearings before the public and the City Council. On October 3, 2011, R.M. Towill sent the Kohls a 12-page letter addressing the Kohls concerns; however, the Kohls still believe that the project will increase the flooding potential to their property despite the apparent increase of bridge 3's width, reduction of number of piers, and hydraulic studies. Nevertheless, a No-Rise Certification from the City is still outstanding and is required. See Exhibit 8.

Commission staff also met with the Kohls to discuss their concerns about the project and informed the Kohls that stream hydraulics and bridge engineering should be addressed by HDOT engineers and the City and County Department of Planning and Permitting as part of the SMA permitting process.

The applicant will prepare a Best Management Practices (BMP) Plan as part of the applicant’s Section 401 Water Quality Certification application which will be filed with the Department of Health Clean Water Branch. The applicant will schedule all in-stream work during the dry season, and the temporary stream flow diversion measures will limit work to one half of the stream at a time to help prevent pollutants from entering the stream and accommodate migration of aquatic species during rainfall events.

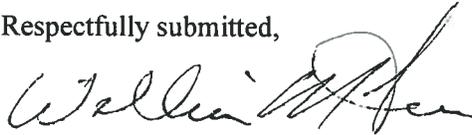
Staff recommends that the HDOT’s SCAP be approved subject to HDOT acquiring the necessary rights-of way and temporary construction easements required for the project and a No-Rise Certification from the City and County of Honolulu Department of Planning and Permitting prior to construction.

RECOMMENDATION:

That the Commission approve a Stream Channel Alteration Permit (SCAP.2621.3) for temporary a by-pass road and replacement of Makaha Bridges 3 and 3A in Makaha, Oahu at TMKs: (1) 8-4-1-001:012, 8-4-002:045 and 47, 8-4-008:020 and 8-4-018:014, subject to the following conditions:

1. HDOT must obtain the necessary rights-of-way and construction easements prior to construction.
2. HDOT must obtain a No-Rise Certification from the City and County of Honolulu Department of Planning and Permitting prior to construction.
3. Standard Conditions in Exhibit 9.

Respectfully submitted,



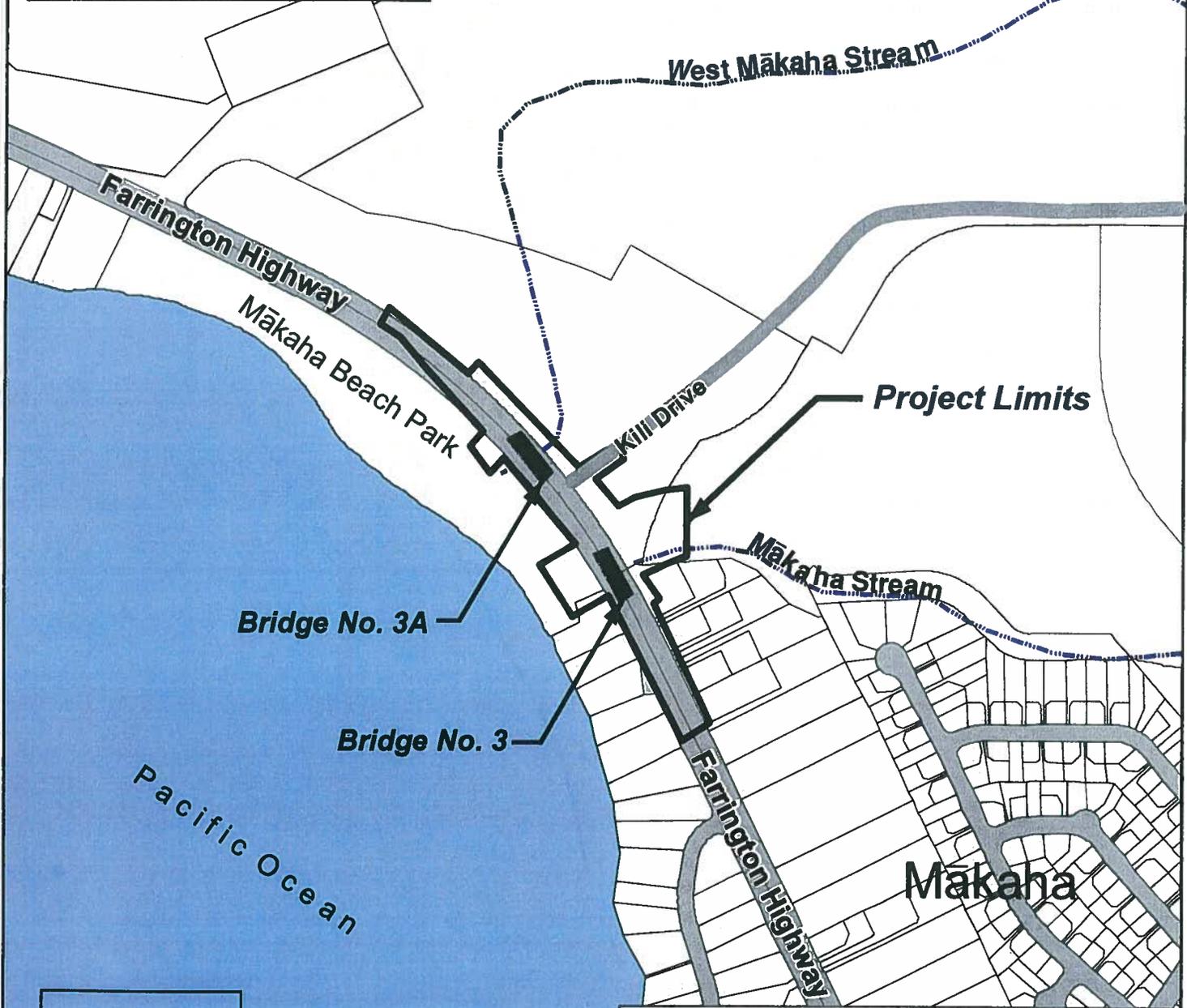
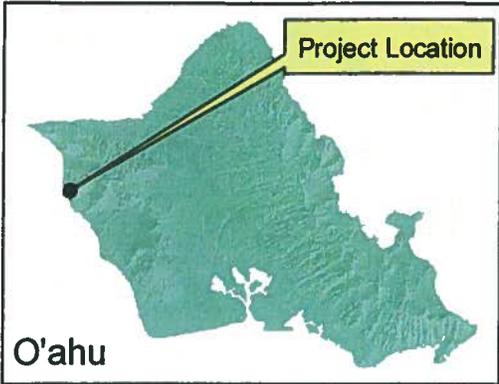
WILLIAM M. TAM
Deputy Director

- | | |
|-----------|---|
| Exhibits: | <ol style="list-style-type: none"> 1A. Location Map 1B. Aerial Photo of Project Site 1C. Map of TMKs 1D. Proposed ROW Acquisition and Temporary Construction Easement 2. Photos of Makaha Stream 3. FEMA Flood Map 4. Temporary By-Pass Road Plan 5. Construction Details 6. Existing and Proposed Bridge Elevations 7. Final Site Plan 8. October 3, 2011, R.M. Towill response to the Kohls 9. Standard Stream Channel Alteration Permit Conditions |
|-----------|---|

APPROVED FOR SUBMITTAL:



WILLIAM J. AILA, JR.
Chairperson



LEGEND

- Streams
- Roadways
- Parcel Boundaries

GIS Layer Source: HoLIS

Exhibit 1 Project Location & Vicinity
 Replacement of Mākaha Bridges No. 3 and No. 3A
 Farrington Highway, Wai'anae, O'ahu, Hawai'i

0 250 500 1,000 Feet

R.M. TOWILL CORPORATION

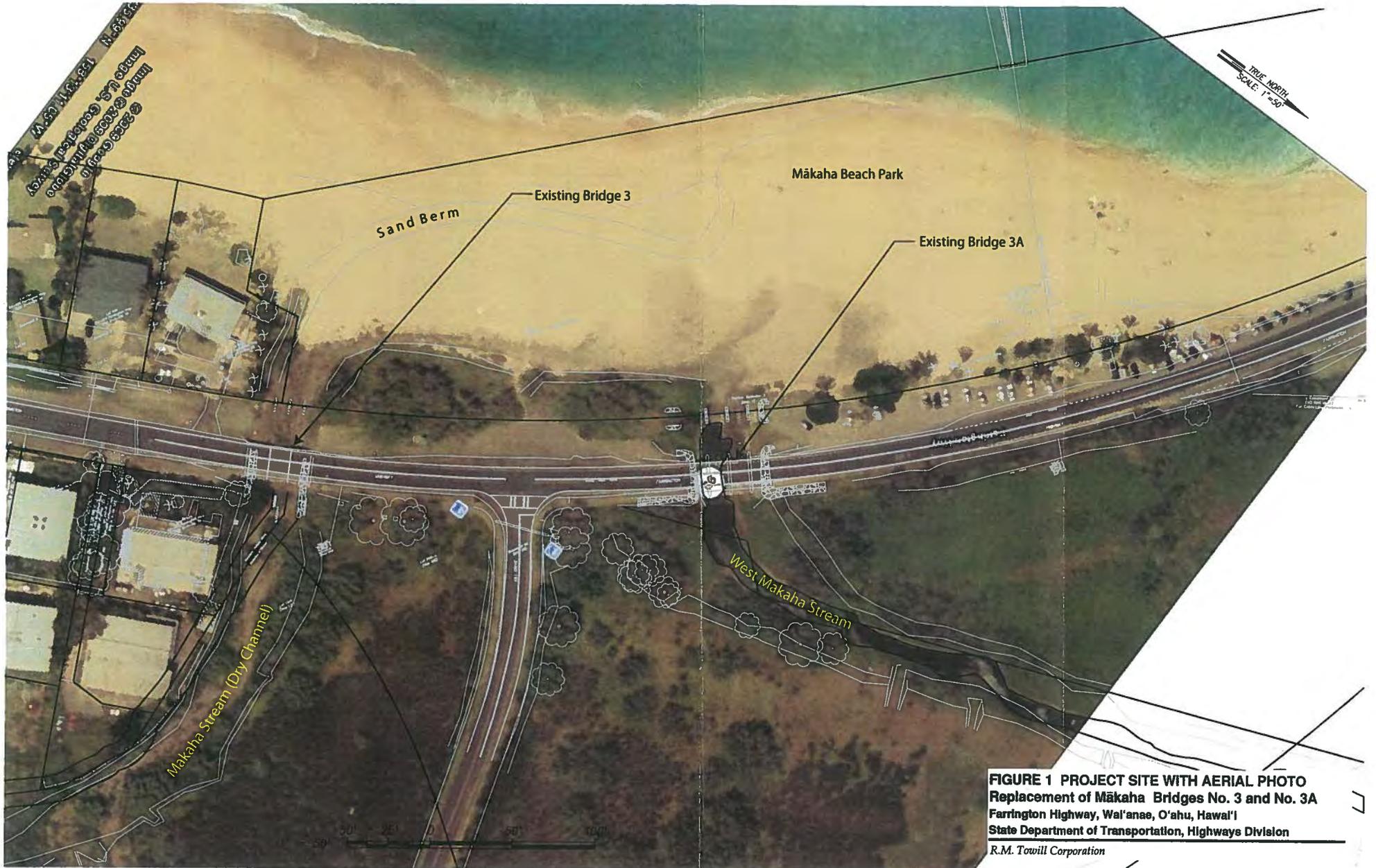
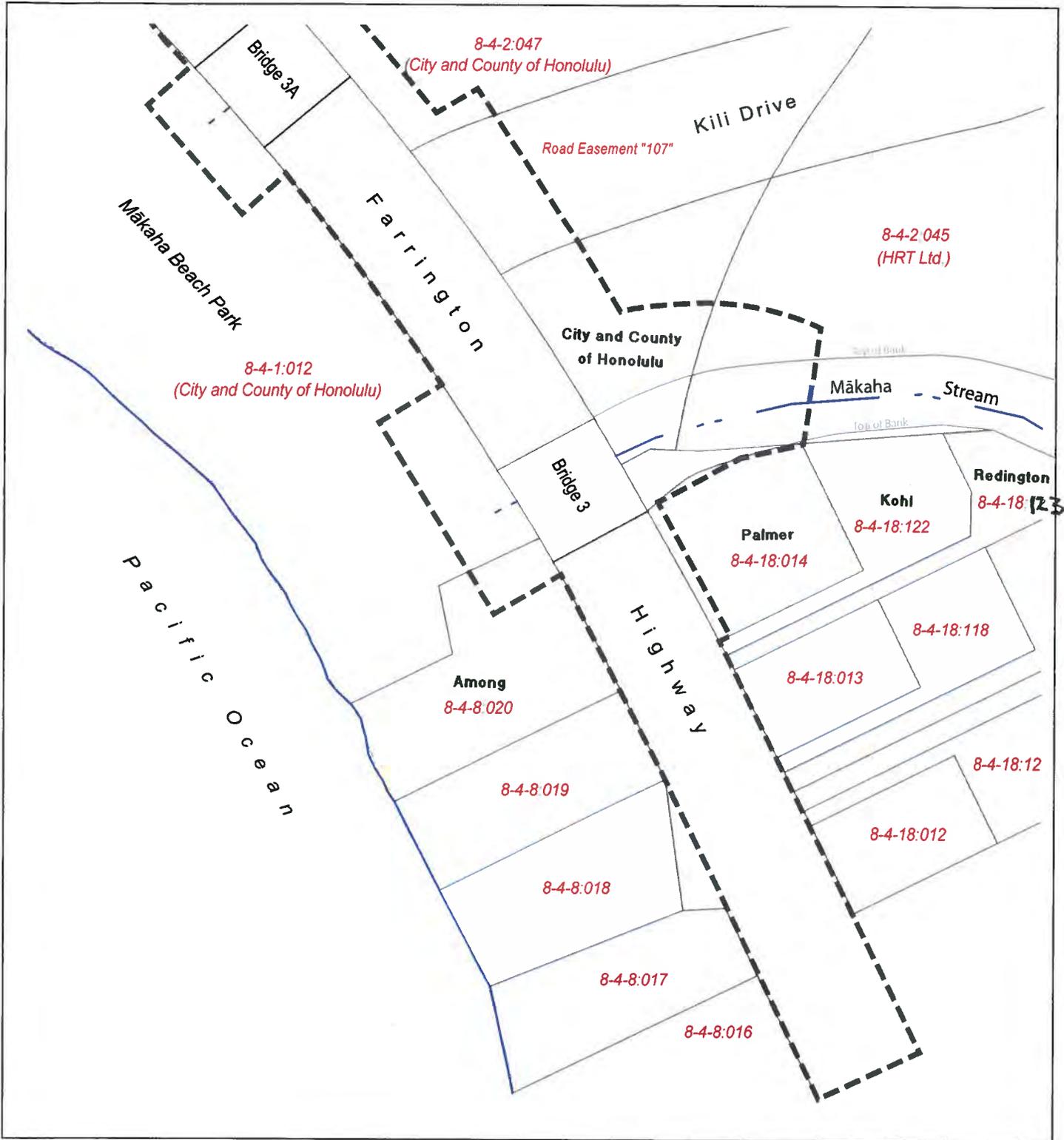


EXHIBIT 1B



Legend

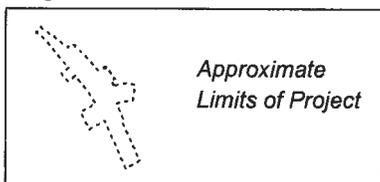
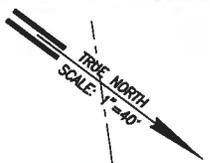
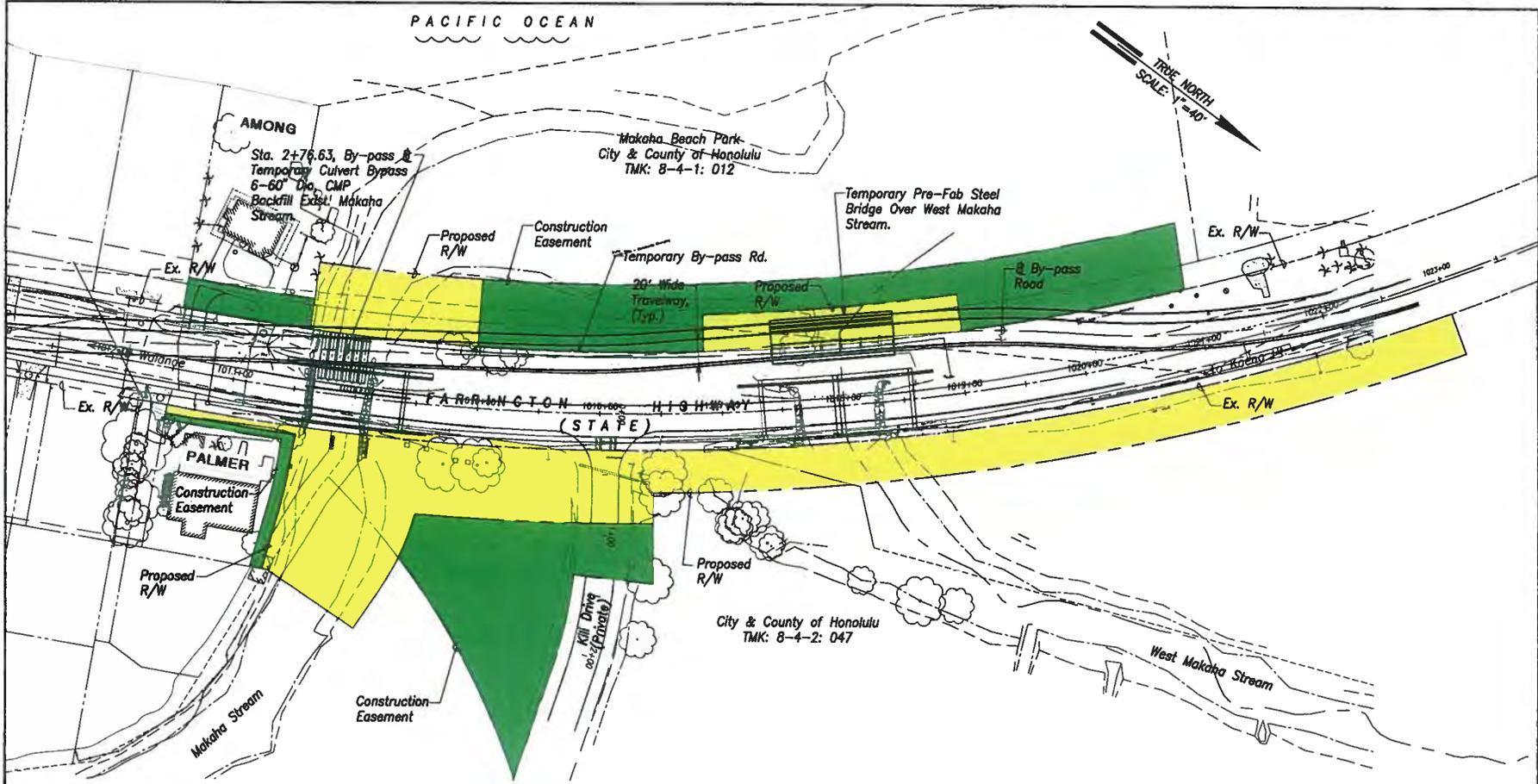


Figure 1-2 Tax Map Keys (TMKs)
Replacement of Mākaha Bridges No. 3 and No. 3A
 Farrington Highway, Wai'anae, O'ahu, Hawai'i
 State Department of Transportation, Highways Division



R.M. TOWILL CORPORATION

April 2010



- PROPOSED RIGHT-OF-WAY ACQUISITION
- PROPOSED TEMPORARY CONSTRUCTION EASEMENT

Portions of City & County of Honolulu Properties to be Acquired:

TMK: 8-4-1: 012 - 12,342.32 sf (0.283 ac.)
 TMK: 8-4-2: 047 - 39,654.31 sf (0.910 ac.)



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

EXHIBIT 1
PROPOSED ROW ACQUISITION
 FARRINGTON HIGHWAY
 Replacement of Makaha Bridge
 No. 3 and Makaha Bridge 3A
 F. A. Project No. BR-093-1(20)
 Scale: 1" = 40' Date: August 28, 2008

EXHIBIT 1D



PHOTO 1: BRIDGE 3A -MAUKA SIDE FACING SOUTH WEST

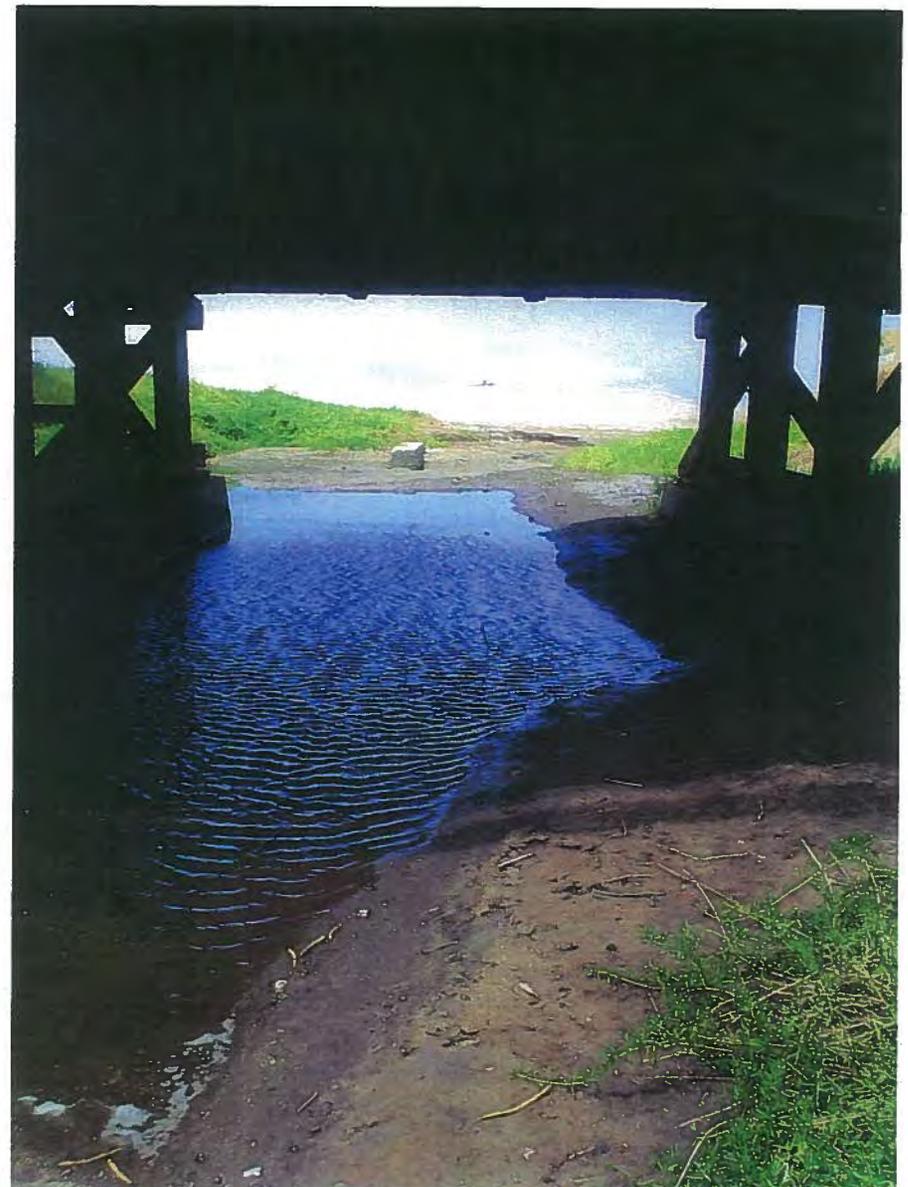


PHOTO 2: BRIDGE 3A - MAUKA SIDE FACING SOUTH

Photos taken 8-17-2006

EXHIBIT 2

PHOTOS 1 & 2
Replacement of Makaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae District, O'ahu, Hawai'i

R. M. TOWILL CORPORATION

July 2009



PHOTO 3: BRIDGE 3A -MAUKA SIDE FACING NORTH

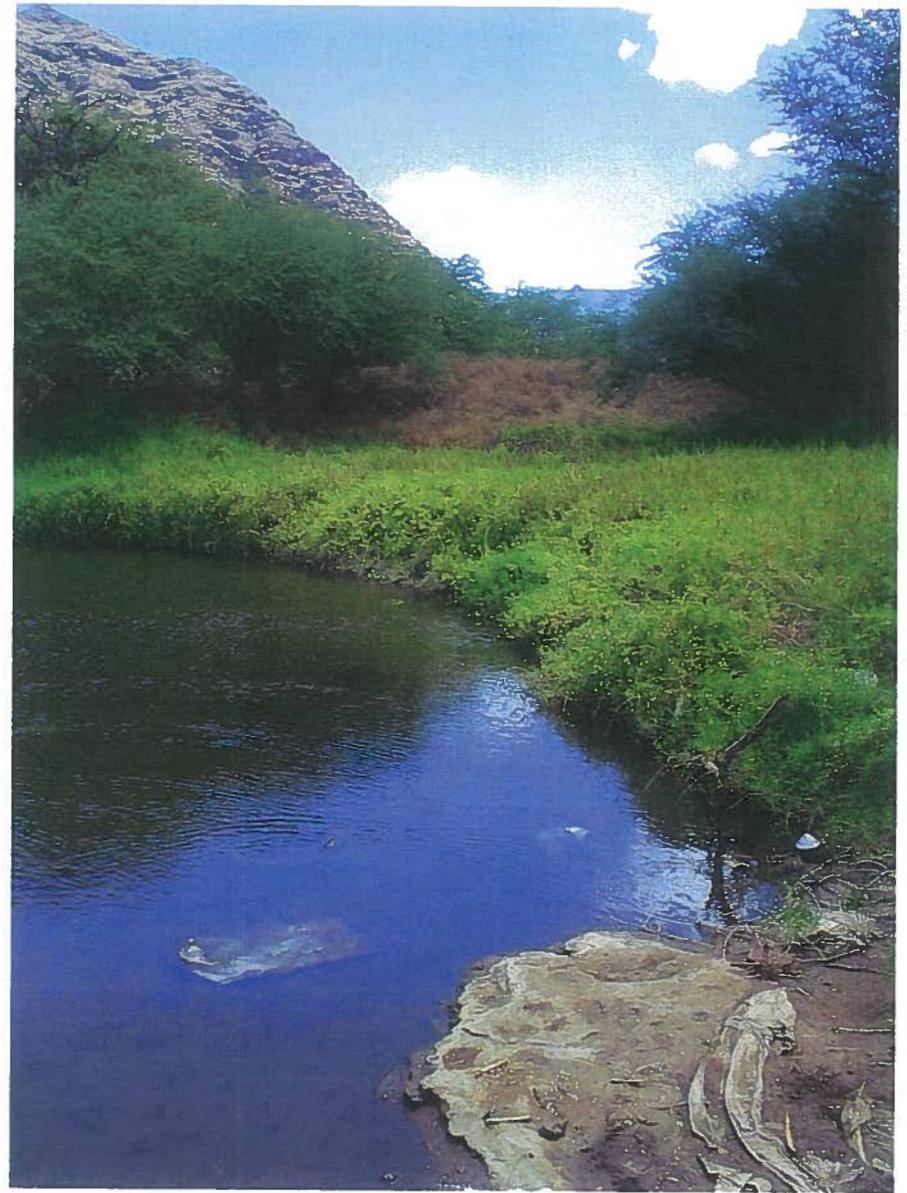


PHOTO 4: BRIDGE 3A - MAUKA SIDE FACING NORTH-NORTHWEST

Photos taken 8-17-2006

PHOTOS 3 & 4
Replacement of Makaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae District, O'ahu, Hawai'i

R. M. TOWILL CORPORATION

July 2009



PHOTO 5: BRIDGE 3 -MAKAI SIDE FACING NORTH-NORTHWEST

Photo taken 8-17-2006

PHOTO 5
Replacement of Makaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae District, O'ahu, Hawai'i

R. M. TOWILL CORPORATION

July 2009



PHOTO 6: BRIDGE 3 -MAUKA SIDE FACING NORTH-NORTHWEST

Photo taken 8-17-2006

PHOTO 6
Replacement of Makaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae District, O'ahu, Hawai'i

R. M. TOWILL CORPORATION

July 2009



PHOTO 7: BRIDGE 3 -MAUKA SIDE FACING NORTHWEST FOLLOWING DRY STREAMBED

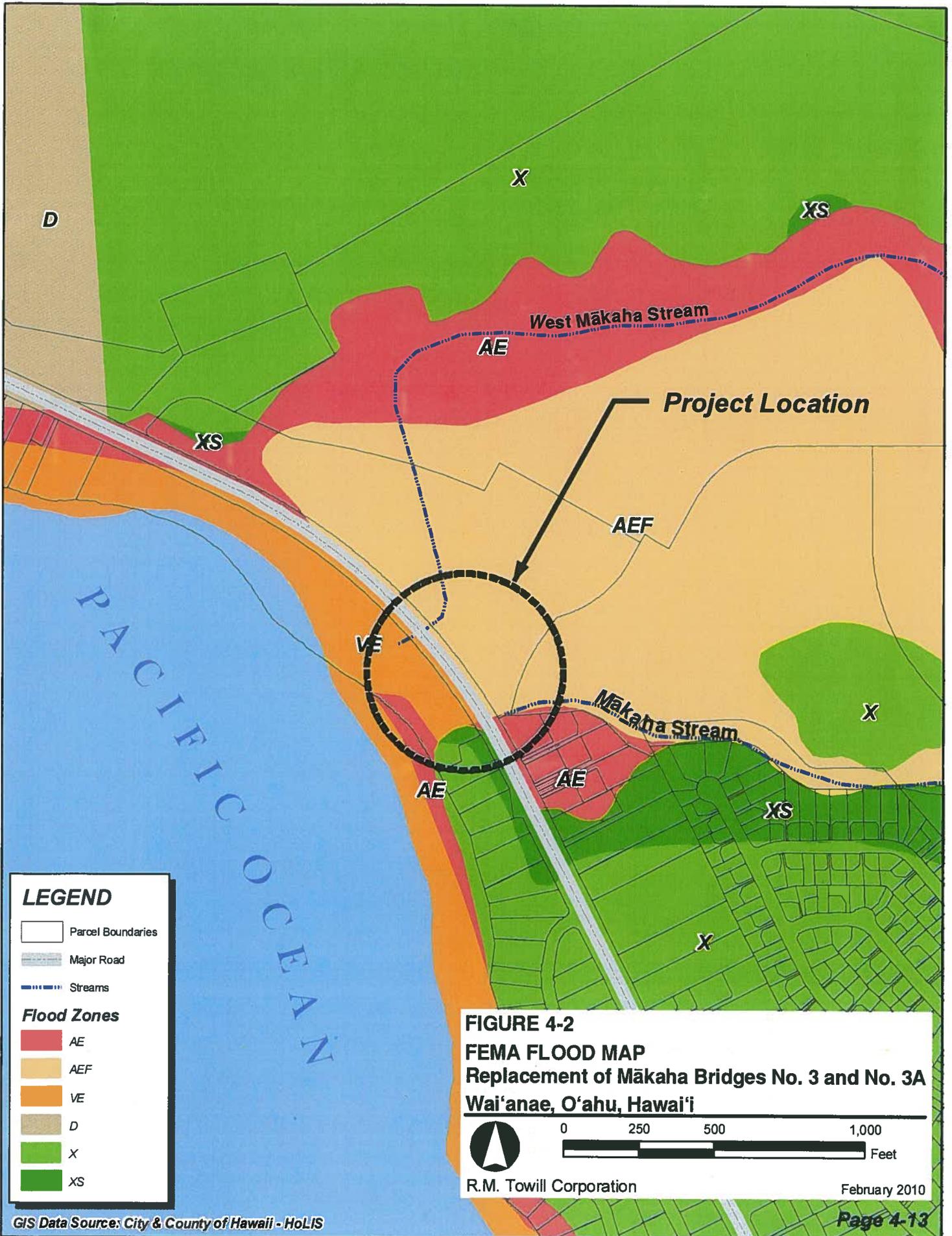
Photo taken 8-17-2006

PHOTO 7

Replacement of Makaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae District, O'ahu, Hawai'i

R. M. TOWILL CORPORATION

July 2009



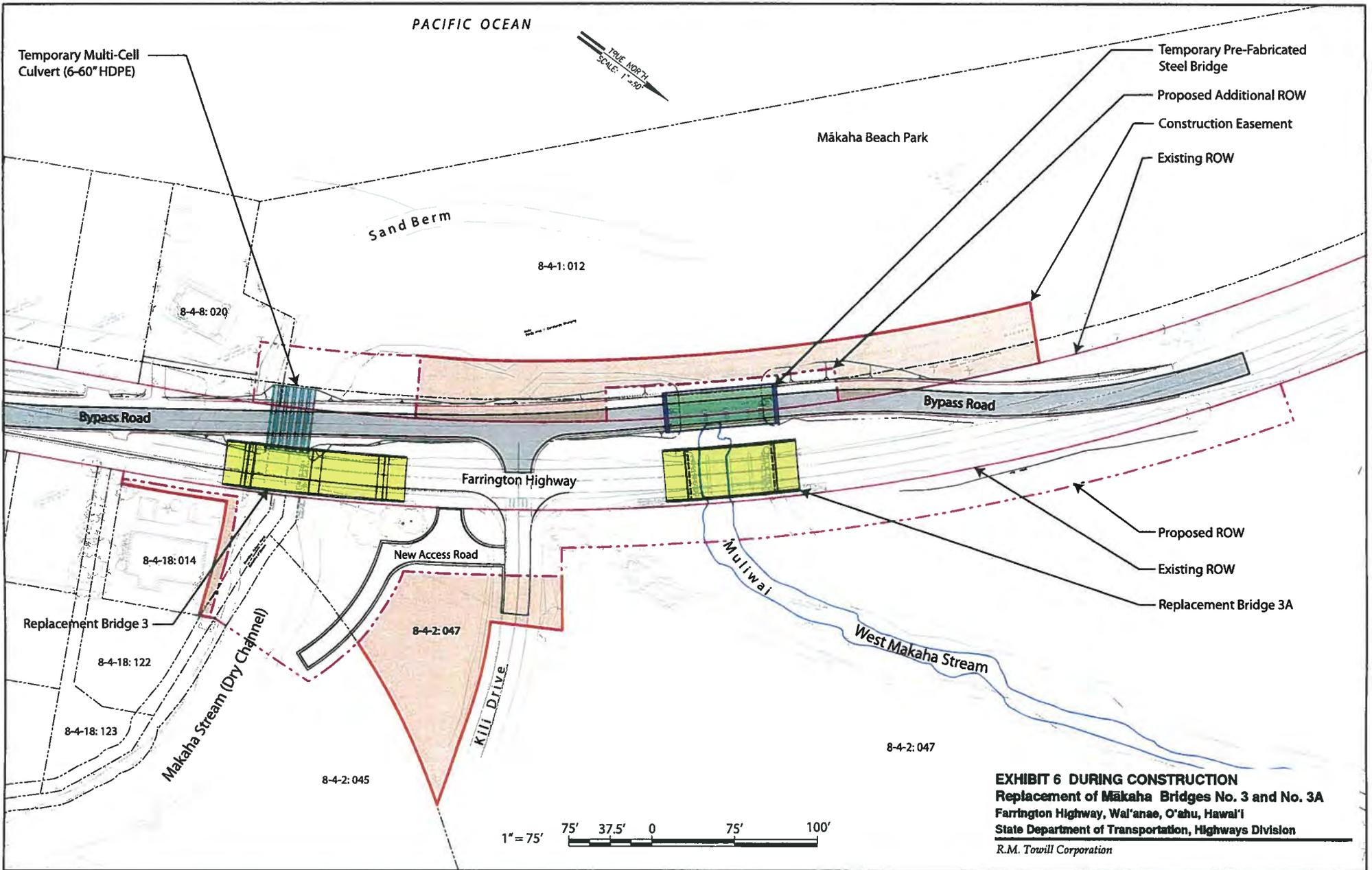
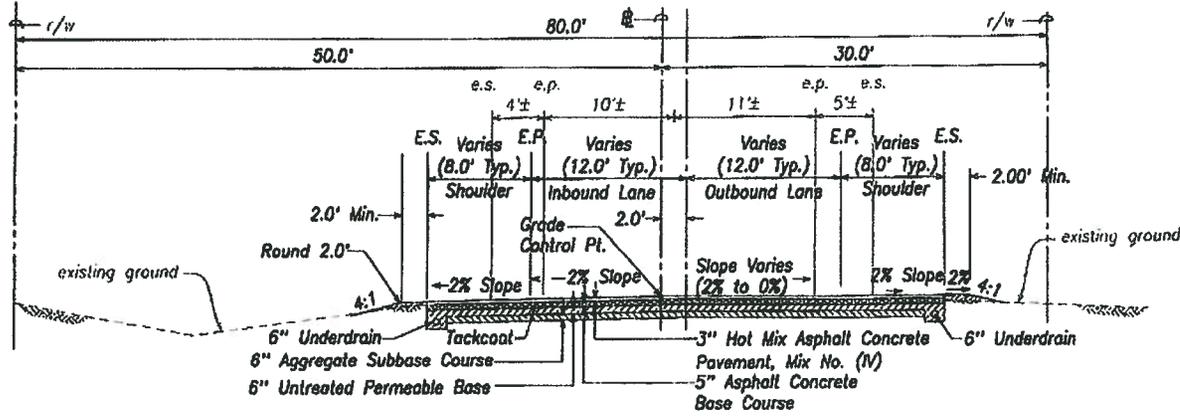
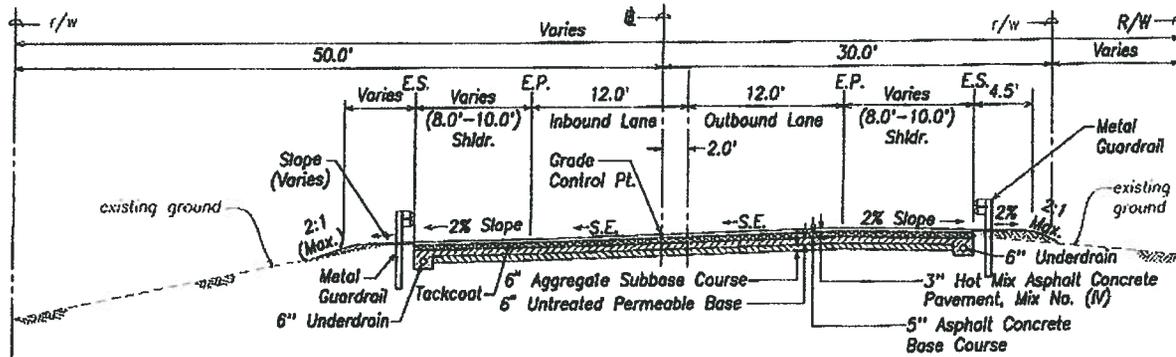


EXHIBIT 4

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HA	BR-093-1(20)	2010	12	56



TYPICAL SECTION - FARRINGTON HIGHWAY
 # STA. 1010+50 TO # STA. 1011+78.70
 Scale: 1"=5'

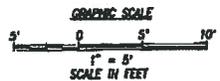


TYPICAL SECTION - FARRINGTON HIGHWAY
 # STA. 1011+78.70 TO # STA. 1013+61.99
 Scale: 1"=5'

- Notes:**
- See Sht. C-18 for Location of Metal Guardrail



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.



APR 30, 2010
 EXPIRATION DATE OF THE LICENSE
 SIGNATURE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAY DIVISION

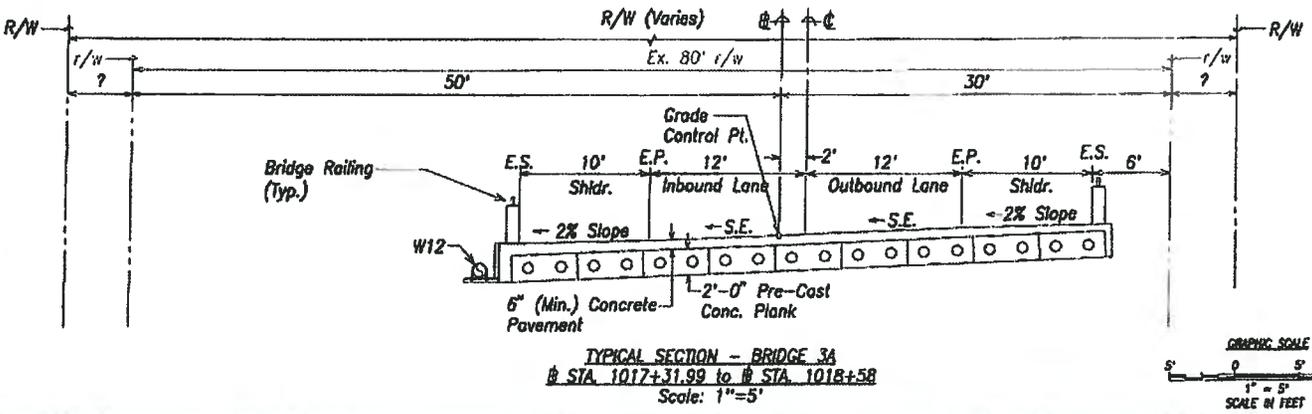
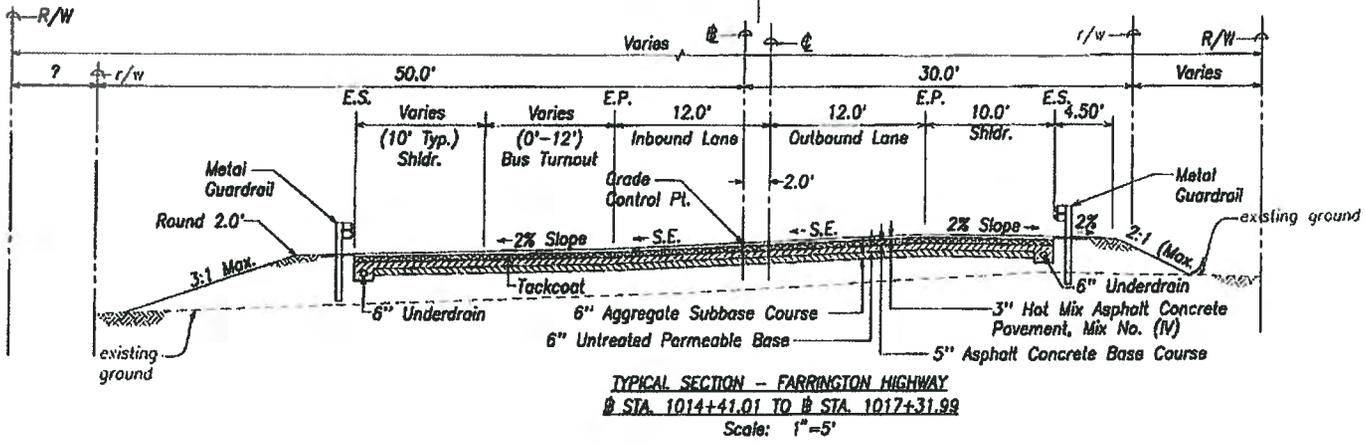
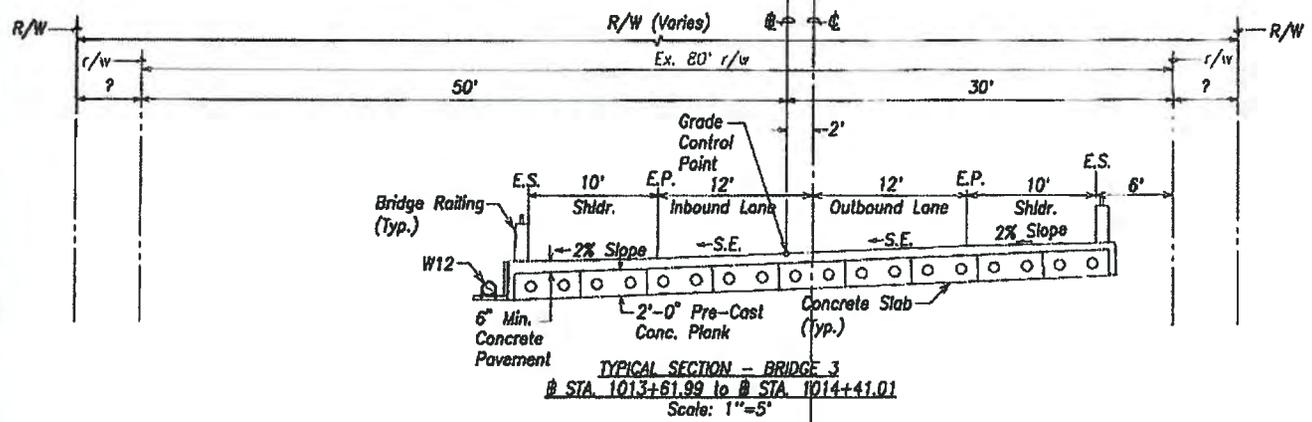
TYPICAL SECTIONS - 1
FARRINGTON HIGHWAY
 Replacement of Makaha Bridge
 No. 3 and Makaha Bridge 3A
 E. A. Project No. BR-093-1(20)
 Scale: 1" = 1'-0" Date: March 28, 2008

SHEET No. C-11 OF 56 SHEETS

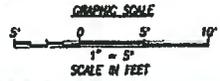
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	BR-093-1(20)	2010	13	56

Note:

- See Sht. C-18 for Location of Metal Guardrail



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.



APR 30, 2010
 EXPIRATION DATE OF THE LICENSE

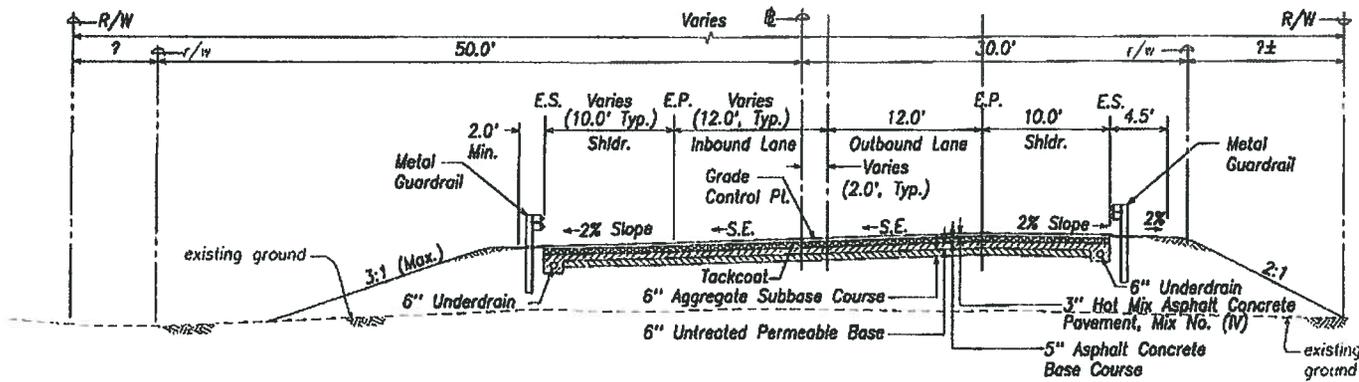
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TYPICAL SECTIONS - 2

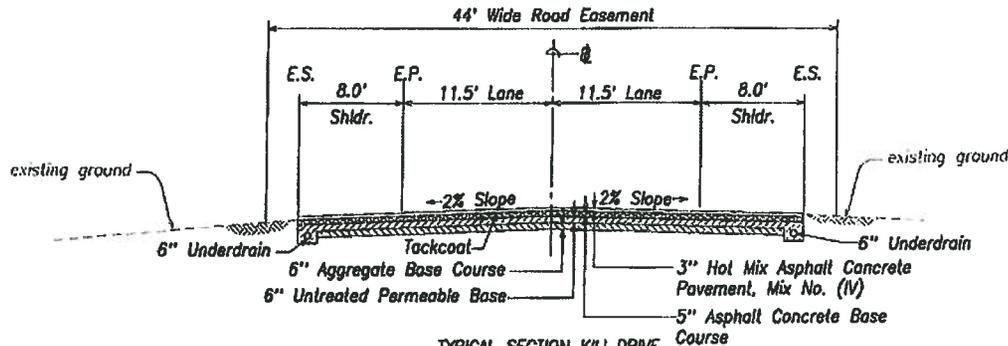
FARRINGTON HIGHWAY
 Replacement of Makaha Bridge No. 3 and Makaha Bridge 3A
 F. A. Project No. BR-093-1(20)
 Scale: 1" = 1'-0" Date: March 26, 2009

SHEET No. C-12OF 56 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(20)	2010	14	56



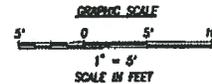
TYPICAL SECTION - FARRINGTON HIGHWAY
 @ STA. 1018+58 TO @ STA. 1021+00
 Scale: 1"=5'



TYPICAL SECTION KILL DRIVE
 @ STA. 0+00 TO @ STA. 2+75
 Scale: 1"=5'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

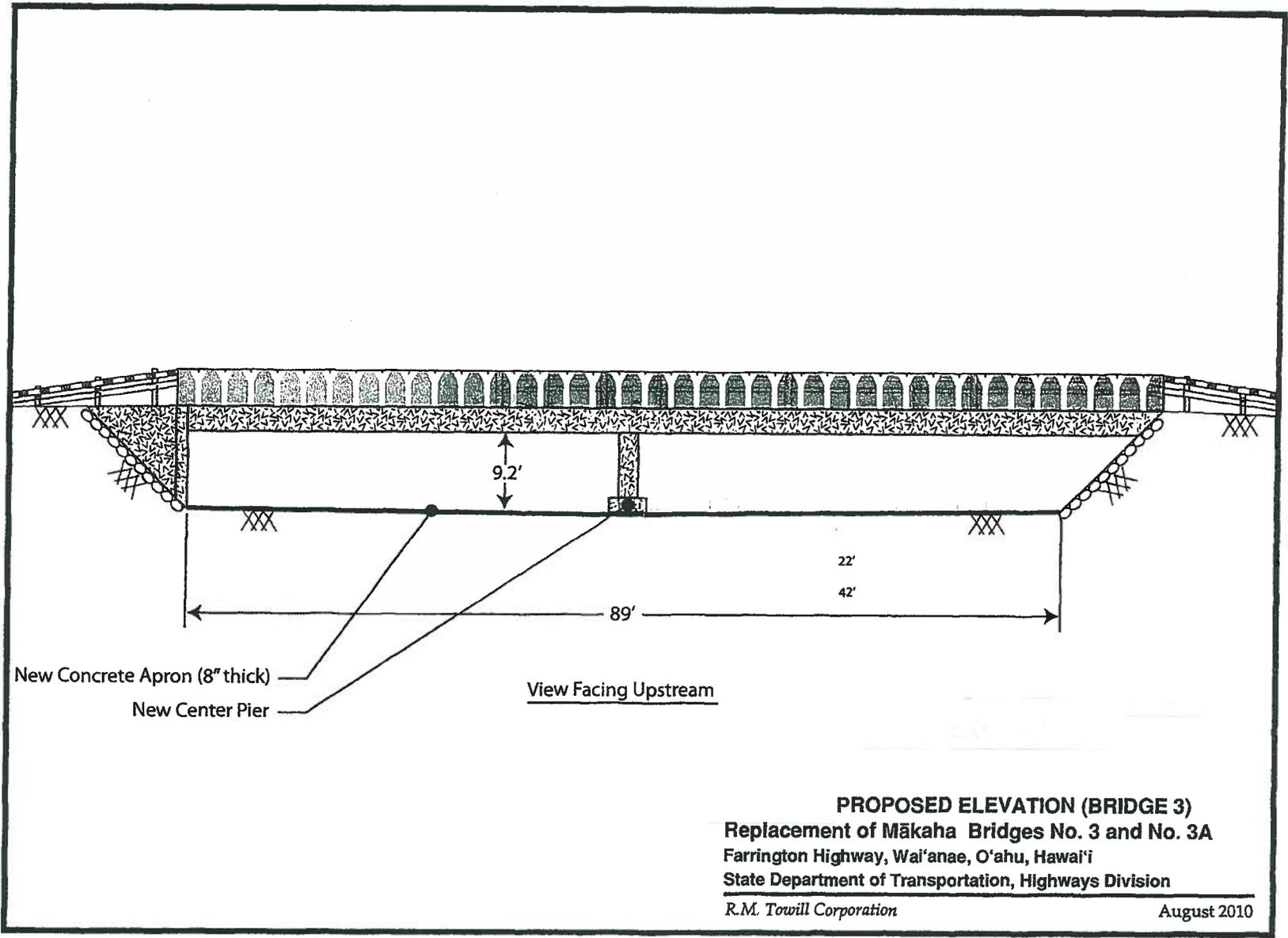


APR 30, 2010
 EXPIRATION DATE OF THE LICENSE
 SIGNATURE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

TYPICAL SECTIONS - 3
FARRINGTON HIGHWAY
 Replacement of Makaha Bridge No. 3 and Makaha Bridge 3A
 F. A. Project No. BR-093-1(20)
 Scale: 1" = 1'-0" Date: March 26, 2008

SHEET No. C-13 OF 56 SHEETS



New Concrete Apron (8" thick)

New Center Pier

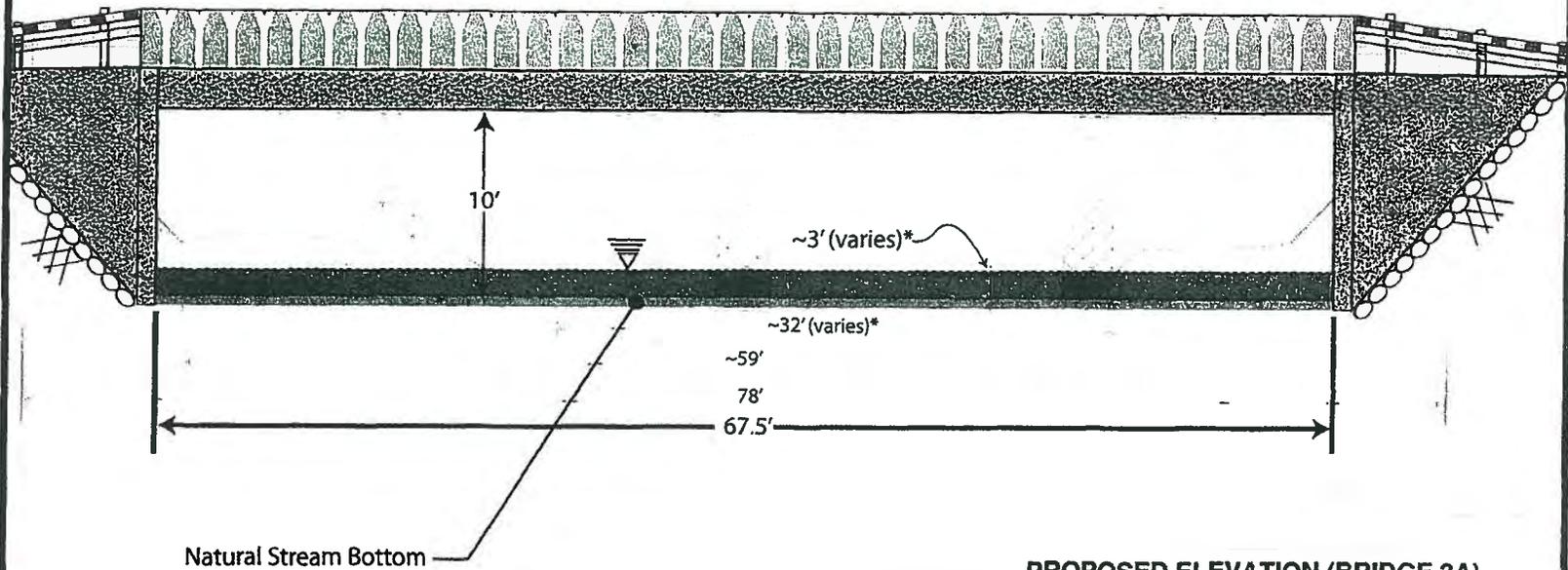
View Facing Upstream

PROPOSED ELEVATION (BRIDGE 3)
Replacement of Mākaha Bridges No. 3 and No. 3A
 Farrington Highway, Wai'anae, O'ahu, Hawai'i
 State Department of Transportation, Highways Division

R.M. Towill Corporation

August 2010

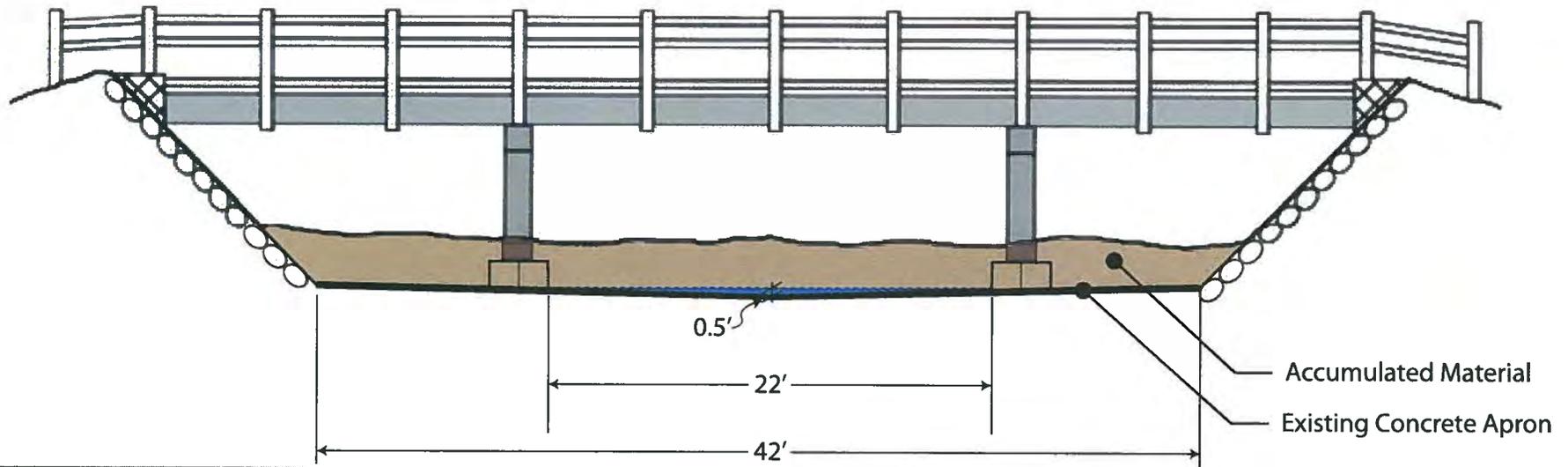
View Facing Upstream



PROPOSED ELEVATION (BRIDGE 3A)
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

R.M. Towill Corporation

August 2010



-  - concrete/mortar
-  - mortar & basalt abutment
-  - wood beams

View Facing Upstream

Water level observed on 8/17/06 at 11:58 am during site visit.
 A high tide of 2.0 ft was expected at 12:39 pm.
 The accumulated material that's normally under the bridge
 was removed to allow for emergency bridge repair due to fire damage.

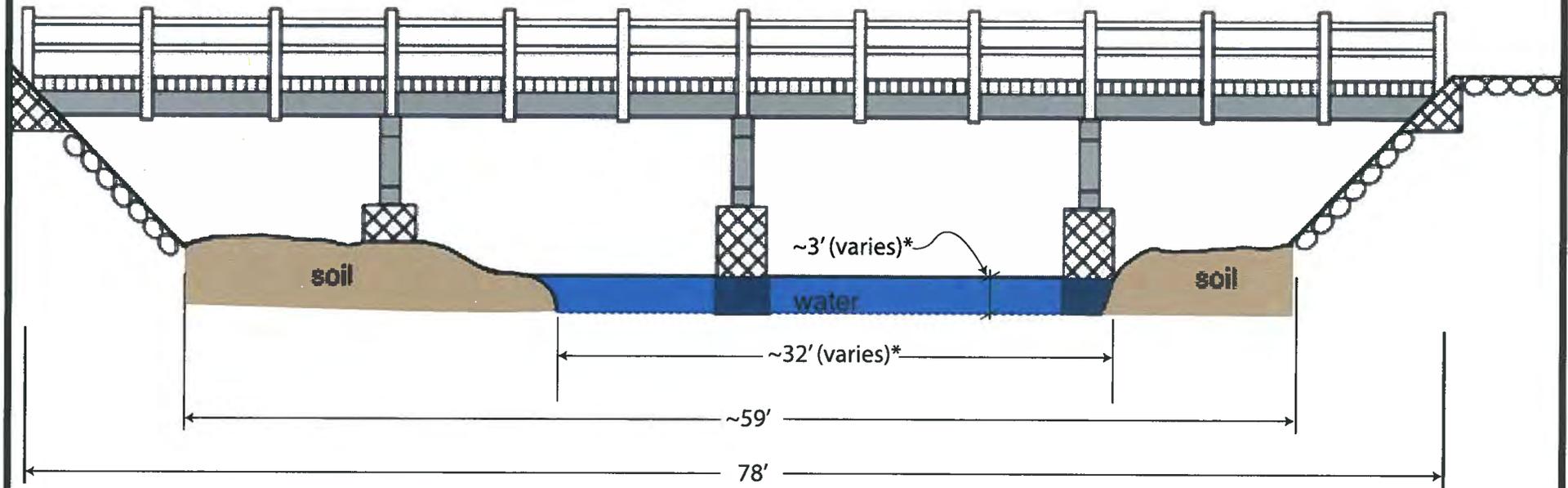
EXISTING ELEVATION (BRIDGE 3)
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

R.M. Towill Corporation

February 2010

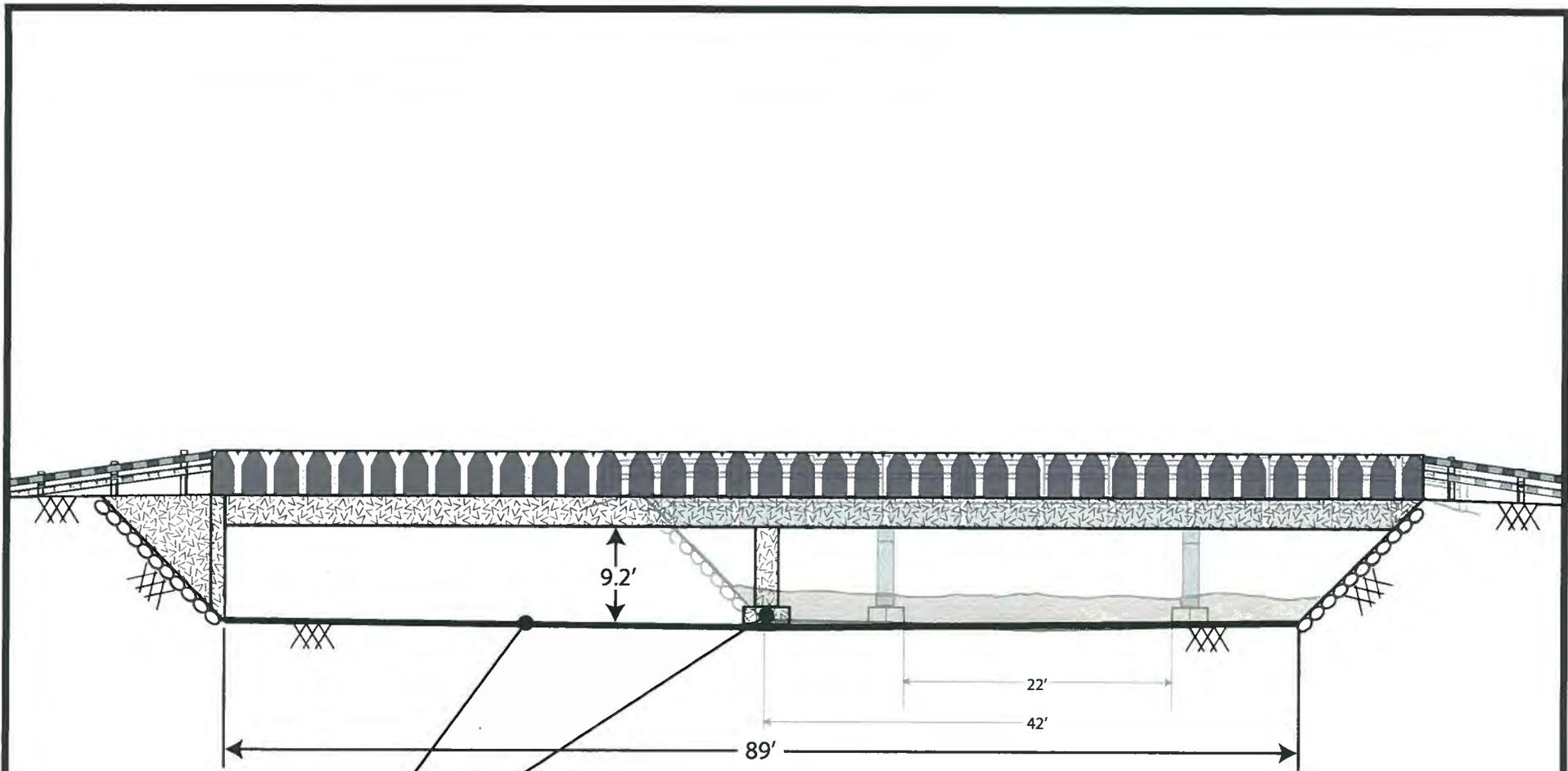
* Water level is dependent on rain events and large wave activity.
 The hypersaline nature of the wetland suggests it is formed and maintained by salt water seepage through the coastal sand, and is then influenced by evaporation.

View Facing Upstream



-  - concrete/mortar
-  - mortar & basalt abutment
-  - wood beams

EXISTING ELEVATION (BRIDGE 3A)
Replacement of Mākaha Bridges No. 3 and No. 3A
 Farrington Highway, Wai'anae, O'ahu, Hawai'i
 State Department of Transportation, Highways Division



New Concrete Apron (8" thick)

New Center Pier

View Facing Upstream

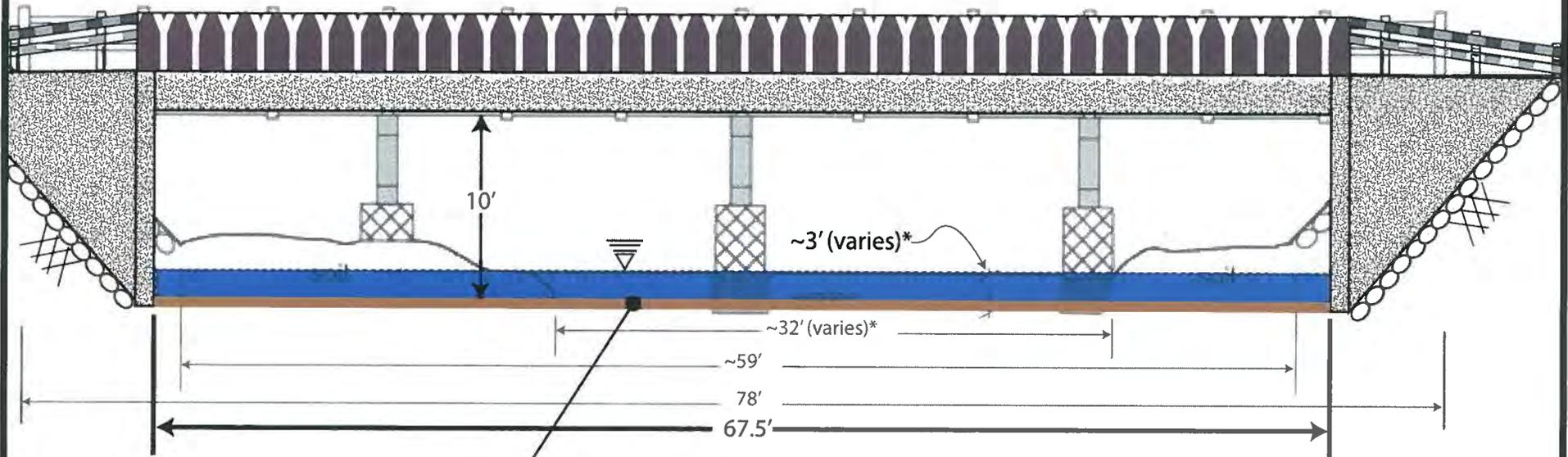
PROPOSED ELEVATION (NEW BRIDGE 3)
Replacement of Mākaha Bridges No. 3 and No. 3A
 Farrington Highway, Wai'anae, O'ahu, Hawai'i
 State Department of Transportation, Highways Division

R.M. Towill Corporation

February 2010

* Water level is dependent on rain events and large wave activity.
 The hypersaline nature of the wetland suggests it is formed and maintained by salt water seepage through the coastal sand, and is then influenced by evaporation.

View Facing Upstream



Natural Stream Bottom

PROPOSED ELEVATION (BRIDGE 3A)
Replacement of Mākaha Bridges No. 3 and No. 3A
Farrington Highway, Wai'anae, O'ahu, Hawai'i
State Department of Transportation, Highways Division

R.M. Towill Corporation

February 2010

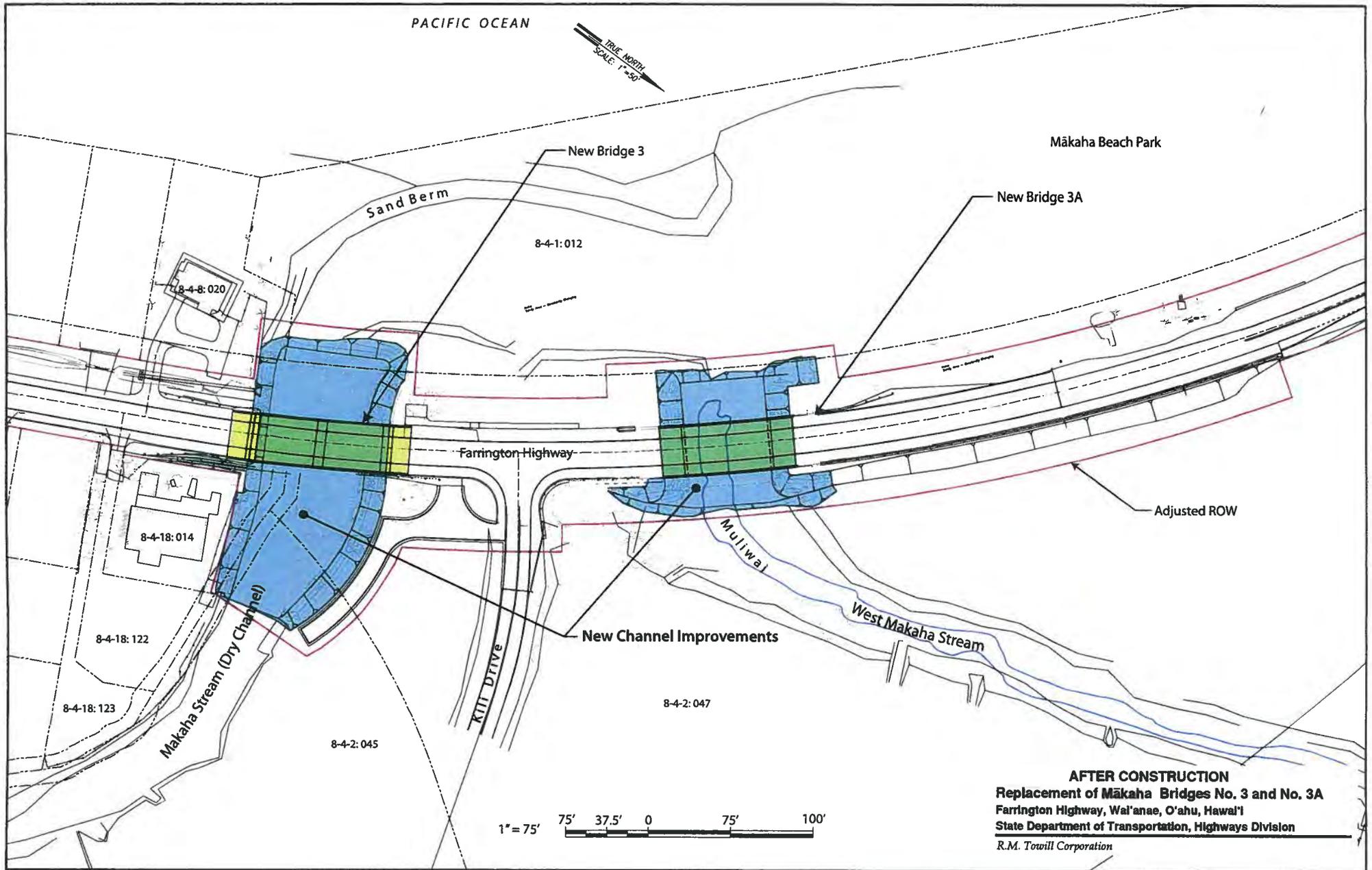


EXHIBIT 7

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Honolulu, Hawaii 96819-3494
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Fax 808 842 1937
eMail rmtowill@hawaii.rr.com



R. M. TOWILL CORPORATION
SINCE 1930

Planning
Engineering
Environmental Services
Photogrammetry
Surveying
Project and Construction Management

October 3, 2011

Mr. Keith and Ms. Juliana Kohl
86-098 Pokai Bay Street
Wai'anae, Hawai'i 96792

Dear Mr. and Ms. Kohl:

**Subject: SMA Permit File No. 2011/SMA-38 (WA) & 2011/MA-39
Farrington Highway Replacement of Mākaha Bridges No. 3 and No. 3A
Wai'anae, O'ahu, Hawai'i, FAP No. BR-093-1(20)**

On behalf of the State Department of Transportation, Highways Division, thank you for your letters dated September 2 and 5, 2011, concerning the subject project to the Department of Planning and Permitting, City & County of Honolulu. The following has been prepared in response to your comments (your comments have been *italicized* for reference):

1. Letter Dated September 2, 2011

"We object the proposed design as submitted. Please place this into the file/written record of the September 6, 2011 public hearing on this project."

We acknowledge and are sorry that you object to this important project. A copy of your objection has been forwarded to the DOT and we have also placed a copy of your letter into our project files.

"I am requesting the DPP to obtain and make available for copy/review all the survey(s) done surrounding the design an [SIC] plans for this project. I have contacted both Towill and DOT with no results. To view the original surveys which serve as the basis for the design [SIC] Without the accompanying surveys, the design/plans cannot be adequately evaluated in their entirety."

We acknowledge this latest request for information which we have forwarded to the DOT. Unfortunately, we have been advised that the DOT cannot release the survey or construction drawings for this project until such time that the plans have been approved by the required agencies and parties, and are finalized¹.

Although we could not release the above information to you we did furnish you with publicly available information that included a copy of the Final Environmental Assessment (FEA) published by the State Office of Environmental Quality Control (OEQC) on May 23, 2011. The contents of the FEA included: (1) why this important project is necessary to be built; (2) the planned design and activities necessary to accomplish replacement construction of the +70 year old existing bridges; (3) an evaluation of the project and surrounding site including planned mitigation measures to reduce or minimize the potential for adverse effects to the environment; and (4) a record of coordination undertaken to date with governmental agencies and the community.

¹This is consistent with our prior response to an earlier request by you on September 25, 2005 for the release of the survey and construction drawings for this project.

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"In Exhibit 1 of the EIS submitted, the upstream direction of the Makaha Stream is not correct, and the plan design shows the stream curving beginning just 40 feet upstream from the new proposed Bridge 3, such that curve would place the center of Makaha Stream just about running through 84-454 Farrington Hwy, TMK 1-8-4-018-123, and almost onto 84-452 Farrington Hwy, TMK 1-8-4-018-122. This curvature is NOT correct and does not correspond with actual flow during heavy rains. Figure 8-1 shown by Towill is NOT correct flow direction of Makaha Stream currently."

The FEA does not contain an Exhibit 1. We believe the closest figure you may be referencing is Figure 1-1, Project Location, which is from a topographic map prepared by a licensed professional surveyor. Because we do not know if this is the same map being referenced we cannot respond to your comments regarding the curvature or location of the Mākaha Stream.

We acknowledge your comment regarding Figure 8-1. Figure 8-1, Zoning and Special Management Area, is a reference map created by a Geographic Information System (GIS) that is designed to show the general boundaries for zoning and the Special Management Area (SMA). This type of drawing is therefore useful in depicting general site conditions, such as zoning or other land use boundaries, but it should not be used to understand the detailed flow directions of streams or serve as the basis for design.

"Figure 4-2, the FEMA Flood Map, has Makaha Stream in the WRONG position, the stream is coming down on the northwest side of the island of Zone "X" as depicted in figure 4-2, the stream does NOT come from the Nukea and Water Street direction. It does not pass the island zoned "X" as shown in Figure 4-2, instead, it flow on the northwest side of the Island of Zone "X"."

"This Map must be very outdated or copied without current verification of the Makaha Stream flow currently happening (see my photos). The only water flowing from the Nukea street area to Makaha Stream proper is coming from the 54"/60" culvert drainage pipe which empties the Nukea/Water Street areas roadways, but this flow is minimal compared to the actual Mākaha Stream. Figure 4-2 incorrectly identifies this culvert outflow as the Makaha Stream channel, which is not. The change could be impacted [SIC] from upstream development or some drainages system got blocked?????"

"This is verified by the attached photos as well as a simple physical inspection of the area, and especially obvious during a heavy rain and runoff event. Thus I do not agree with the stream "realignment" or depicted direction of the Makaha Stream as put forth by Towill Corp."

The purpose of Figure 4-2, FEMA Flood Map, is to delineate the types of flood zones that surround the project site. The data contained in the figure is the latest available for flood zones in the City and County of Honolulu. We note your observations regarding flooding at the project site but add that Figure 4-2, itself, should not be construed as serving as a detailed topographical representation of the project site.

*"Please see attached photos, which show heavy flow events eating away at the NORTHWEST bank of Makaha Stream on the Kili drive side, owned by HRT which is zoned AEF (flood plain). The Makaha stream does NOT curve as depicted on Towill's submissions, but comes down along the Kili Drive side of HRT property and is eating away at that northwest embankment, not curving dramatically toward Nukea Street area as depicted on several Towill submissions. The Makaha Stream wants to flow away from 84-454 Farrington Hwy, TMK 1-8-4-018-123, and 84-452 Farrington Hwy, TMK 1-8-4-018-122, but the large silt/rocks deposited by the new runoff out of the forest, as described above, is eating away the embankment and bring a large volume of silt/rocks into the streambed on the Kili Drive side and slightly diverting the desired path of the Makaha Stream which is along the Kili Drive side embankment. After the interruption from that side, the main flow returns to the Kili Drive side the last 150 feet before the Bridge 3, as can be seen in the photos. **This all corresponds to the EIS statement contained on page 6-23 at 6.4.2 " Makaha Streams lower***

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reaches favor the NorthWest side of the valley" which is exactly the current flow pattern which is currently eroding the Kili side embankment for several hundred feet upstream of Bridge 3. The Kili Drive side of the stream the last few hundred feet before the Bridge 3 is zoned AEF, or flood plain, so isn't that exactly what that area is for? For the stream to flow/overflow onto the flood plain instead of the AE zoned residential side of the Mākaha Stream? So it is VERY wrong for the design as shown/submitted to try to curve the streambed back toward the AE zoning, when the current flow follows the Northwest embankment. If the abnormal runoff described above is eliminated, the stream will flow along the Kili side embankment mainly and be less danger to the AE zoned side of the stream."

"The EIS and plans repeatedly states that" The construction of the proposed replacement bridges will widen the stream channel to provide sufficient flow capacity to accommodate the 100 year flood event without overtopping or negatively impacting upstream properties" See page 1-6,"

This comment is similar to and a continuation of the comment above. The proposed improvements are designed to protect the stream bank from erosion by flood events. The improvements are designed to: transition the flow from the existing stream channel to the replacement bridges; and, allow the 100-year design flood to pass through the replacement bridges. This is possible because portions of the flood hazard area are designated zone AE which indicates that the base flood elevations have been determined.

The project's Final EA states there is sufficient flow capacity by noting on page 1-6 that, "Since the publication of the Draft EA, updated information has been obtained and additional analysis has been performed to confirm the flow conditions at the proposed replacement bridges. The results of the analysis indicate that the current three span design of bridge 3 needs to be redesigned in order to accommodate the revised 100-year storm flow."

"Why adding Rip-Rap boulders into existing stream channel in AEF zone, while at same time narrowing streambed channel from about 95 feet wide at Brdige [SIC] 3 down to only about 45 feet in less than 150 feet upstream???? So this design, with Large Boulders on each side is only 45 feet wide channel 150 feet from Bridge 3, and 95 feet wide only 150 feet later?? If there is a large flow in the stream, this literally creates a bottleneck, which will increase the flow rate to a maximum rate right at the junction of the property line between 84-450 Farrington and 84-452 Farrington, which is just about the WORST possible embankment area to endure a maximum flow rate. Yes, as soon as the channel widens out to 95 feet at the Bridge 3 only 150 feet away, the flow rate will decrease approaching the bridge structure (easier on the bridge), and also the level will drop, since a given volume of water will be in a wider (and few feet deeper channel). The design submitted will certainly cause a bottleneck of the water volume at the property line at the upstream end of the rip-rap, and additionally, placing such boulders on the Kili Drive side of the embankment (in AEF zone) actually PREVENTS the water from channeling onto the AEF flood plain and will force the water onto the residential side of the Makaha Stream right before the Bridge 3. Don't believe it?? Then how come the proposed height of the Rip-Rap on 84-450 embankment (AE zone side) is about 10 feet, and across the streambed on the AEF flood plain side Kili Drive side is 11-12 feet or more??"

The dumped rip-rap is required to protect the proposed replacement bridge and stream improvements from flood damage. The proposed improvements extending upstream of the replacement bridge matches the existing stream bank. The improvements are designed such that there will be no adverse effects to adjacent property. The design increases the width of the streambed from approximately 40 to approximately 90 feet and increases the bridge span, widens the stream, and minimizes the number of bridge piers to decrease the possibility of clogging due to debris. The widened stream and increased bridge span will increase the conveyance area through the highway crossing.

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Tax Map Keys (TMKs), 8-4-018: 014, 122 and 123 are currently inundated during large flood events. The proposed stream bank improvements along TMK 8-4-018:014, is planned to match existing conditions in order to allow runoff to continue draining towards the stream. The bank improvements on the north side of the stream matches the existing conditions and will not be built up to adversely affect flooding conditions to adjacent properties.

"Example: The Ala Wai canal Waikiki side embankment with sidewalk along the Ala Wai, is a few feet or so HIGHER in height than the Golf Course side embankment. In the event of overflow, the runoff water would tops over the golf course side of Ala Way canal, while the Waikiki side remains several feet higher and protected by the wall, which is obviously designed to prevent flooding of Waikiki."

"So how come the residential AE zone side of Makaha Stream rip-rap would be designed to be LOWER than the AEF zoned Kili Drive side by 2 feet or more?? Thus forcing anything over 10 feet onto residential properties instead of into AEF zone?"

The residential properties are located in a flood hazard area inundated by the 100-year flood. Raising the stream banks, as suggested, could create a condition in which floodwater would be prevented from draining into the stream. This increased potential for flooding would only exacerbate the poor drainage conditions at the site. To address this problem the project has been designed to pass the design storm through the bridge structures which will help to alleviate the flood conditions.

"There are at least two responses from DLNR (see attached) contained in the EIS, that inform Towill Corp. that they need to correct information regarding the project area and to show that part of the project occurs in zone AEF. Also that strict conformance with 44CFR 60.3 (d)(3) provisions must be strictly followed, as well as other 44CFR parameters. One of those requirements is that the applicant must submit a "No-Rise" Certification with the application. I do not see one in this application. It seems like 44CFR may allow for a local permitting officer to make his/her own determination of "no-rise" for a minor project, but I don't think the Bridges 3 and 3A replacement is a minor project, and especially given that it intends to address or alter stream flow direction. Widen channel, add rip-rap in AEF embankment etc. It is common sense that the volume of water flowing toward the ocean 100-200 feet upstream from Makaha Bridge will be about the maximum volume, having drained the entire very deep Makaha Valley watershed. So why in the world would ANY design reduce a 95 foot wide opening (under the newly proposed bridge) down to a 45 foot wide rip-rap reinforced channel, thus forcing the entire volume through half the size channel which is stated as necessary to prevent overtopping of the Bridge 3?"

A No-Rise Certification will be submitted to the Department of Planning and Permitting. The design will widen the downstream stream bed from approximately 40 feet to approximately 90 feet. The shape of the flow will be changed from the narrow existing stream channel to a significantly widened channel made possible by the downstream bridge improvements. In contrast to the statement above the proposed design will not: "...reduce a 95 foot wide opening (under the newly proposed bridge) down to a 45 foot wide rip-rap reinforced channel".

"Towill repeatedly states in the EIS and plans that " The construction of the proposed replacement bridges will widen the stream channel to provide sufficient flow capacity to accommodate the 100 year flood event without overtopping or negatively impacting upstream properties" (See page 8-14), and "without overtopping or negatively impacting upstream properties" (see 1-6). Again, on page 4-11 "The proposed design would widen the stream channels to accommodate the 100 year flood event without increasing flood hazards to adjacent properties" How can the channel only half as wide 150 feet upstream accommodate the same 100 year flow as the 95 foot wide bridge opening which is being widened from 60 feet to 95 feet to accommodate the 100 year flood. I.e. how can a 45

foot opening accommodate what a 60 foot opening could not accommodate? Towill mantra repeated again on page 4-12!!"

"But who made such a determination? Towill by simply saying so?? There is no "No-Rise Certification submitted, and yet this plan wants to "realign the Makaha Stream channel" "widen" the stream channel" (while actually NARROWING the channel from 95 feet wide to only 45 feet wide in less than a 150 section, which section has the same flow volume unchanged during the 150 foot reduction), and "excavate and add rip-rap" in an AEF zone. So Towill states as applicant that there will "no negative impact on upstream properties", namely and especially 84-450 and 84-452 Farrington, but besides their own statement, there is no data or no adherence to 44CFR requirements, which DLNR engineers at least twice specifically noted need to be included. and addressed, not just glossed over with a self serving applicant statement of "no impact" and no "overtopping of upstream properties" I beg to differ, that the proposed plans and omissions may in fact cause overtopping onto and erosion into 84-450 and 84-452 properties or embankments, while actually protecting the AEF embankment without any residences! The water speed will be greater at the bottleneck of the rip-rap, and deteriorate the embankment of 84-452 because of the narrowing of the stream channel."

"Towill states on page 1-5 " Bridge 3 cannot accommodate the 100 year flood now" ... thus they want to widen the bridge/channel...so if the bridge opening needs to be 95 feet wide to accommodate the 100 year flow, then why would they artificially make the stream channel only 45 feet wide 150 feet upstream?? Additionally, the streambed is 2-3 lower in elevation at the Bridge allowing for much more water volume than 150 feet away upstream, which is not only half as wide, but the elevation is 2-3 feet higher. I simply don't understand the reason to reinforce the REDUCED streambed width with rip-rap boulders, and make the water go faster and higher right at the 84-450 and 84-452 property line. This will cause a maximum water speed and maximum RISE in water height right at that point. 44CFR requires that "no rise" is allowable. In this plan it almost seems like the design could not be worse for the 84-450 and 84-452 Farrington residential properties."

"or [SIC] Why would the Makaha Stream be "realigned" toward the residential side, when it is actually flowing and eroding the Kili Drive side on the channel all the way up several hundred feet from the Brige [SIC] 3 in the Northwest embankment? (see photos)"

The project design was determined based on performing hydrologic and hydraulic analyses for the design of the replacement bridges and stream improvements. The proposed improvements transition from a widened stream channel at the downstream end of Bridge No. 3, to the existing stream channel approximately 140 feet upstream of the bridge. There is no narrowing of any section of the existing stream that would lead to an increase of water surface elevation.

Because the existing stream above the project site does not have the capacity to contain the 100-year flow, during a large storm event stormflows will overtop the banks of the Mākaha Stream and extend into the overbank area. This existing condition requires that the stream banks be designed to protect the replacement bridge structure while causing no increase in the existing flood elevation. As indicated above, the stream alignment ties into the existing stream bank upstream of the project.

"Figure 1-2 line showing "top of embankment" on Kili Drive side of Makaha stream is not correct, does not show inflow of water and eaten away embankment across from 84-452 Farrington Hwy, TMK 1-8-4-018-122 and 413-C as described newly appearing large volume flow, maybe from makaha Stream West."

We do not know the source or basis for the assertion above. However, the existing conditions used in performing the hydraulic analysis were obtained from a topographic survey after the

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December 2008 flood event. The majority of the stream flow originates from above the site through the Mākaha Resort and Golf Club.

"No rip-rap should be placed on AEF side of stream and especially rip-rap which has a height HIGHER than the residential side of Makaha Stream approaching Bridge 3, simply leave it alone. and [SIC] to just add the Bridge 3 apron and abutment protections at the bridge itself, and let the stream determine the channel to get to the bridge. Besides, with the amount of silt and pebbles, and even larger stones and rocks that move downstream during heavy flow events, any rip-rap may soon be covered as if it wasn't there, EXCEPT for rip [SIC] rip-rap on the Kili Drive side acting to divert the stream back toward the AE side instead of letting it correctly go to the AEF flood plain. If any rip-rap is allowed in the approach to the Bridge 3, it should be ONLY on the residential side of the embankment and should be made consistently HIGHER in height on the residential side, than on the Kili Drive AEF flood plain side."

This comment appears to be similar to the one above at the bottom half of Page 3. Please refer to our previous response.

*"In short, we strongly object this current design - This design will **MANUALLY** create an artificial water flow bottleneck just before (about 150 feet upstream) the heavy volume runoff water reaches Makaha Bridge 3. Obviously the main aim of this design is to protect the bridge, with slower flow and wider channel created within the last 150 feet approaching Bridge 3. This is being proposed to the detriment of the upstream adjacent residential properties - **creating a bottleneck** - which may cause overtopping of those properties embankments."*

Although we acknowledge your objection, we wish to clarify that this project does not result in the creation of a bottleneck; the bottleneck you refer to is an existing condition that the proposed project will help to relieve.

"I also wish to herein note that in the past year or so, during heavy rains, it appears that an abnormally large volume of runoff, even up to about half the flow volume of the Makaha Stream itself, has been pouring into the Makaha Stream directly across from 84-452 Farrington Hwy, TMK 1-8-4-018-122, and 84-454 Farrington Hwy, TMK 1-8-4-018-123, i.e. the Kili drive side of Makaha Stream. This newly appearing inflow which was not seen in years past, has very significantly increased the volume of Makaha Stream just before approaching the bridge. That water coming into Makaha Stream has been completely muddy brown, and I suspect has something to do with the bulldozing of the large project area which looks like a new housing development area, up Kili Drive on the right a few hundred yards from Farrington Hwy. I believe that may be TMK 1-8-4-002-064, a 13 acre parcel, I do not know that project name. However, the amount of water coming essentially out of the forest into Makaha Stream during/after heavy rain from the Kili Drive side about 200+ feet Mauka of the Bridge 3, is very abnormal, and only seen the past year or so, not previously, hence I believe that the Makaha Stream West (the one that is supposed to not connect with the Makaha Stream and supposed to run under Kili Drive and empty under Bridge 3A) has been actually diverted or filled in somehow, such that BOTH streams are now merging just before Makaha Bridge 3. I think the City/State should determine what has occurred and going on and where this large volume of water is coming from, I don't think Towill or DOT is aware of it. Even during the heaviest rains and when the Makaha Stream is flowing all the way to the ocean, there is no flow outward toward the ocean of any runoff under Makaha Bridge 3A from Makaha Stream West. This could be because Makaha Stream West has been altered or diverted under or around upstream development projects, or maybe some upstream drainage system got blocked, such that all runoff is actually going out in Mkaaha [SIC] Stream only."

We acknowledge your observations concerning runoff from the area of the project site. We add that a principal objective of this project is to improve the capacity of the bridges to accommodate

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the 100-year flood event; a capacity level which the existing bridges do not now meet. In order to accomplish this objective geotechnical and hydraulic studies were undertaken to ensure the structural integrity of the bridges and to improve the handling of storm flows from the project site.

"If the drain-pipe on 84-450 property is replaced, should it have a one-way valve function such that high water cannot back up through the pipe to the residential properties, yet allow for draining."

The suggestion for the installation of a one-way valve is noted. However, due to maintenance and liability issues the project will include the installation of in-kind drainage features.

*"Is there a web sit [sic] we where we can access updated design for this project??
Is Land Right of Way purchase completed yet?
Dust Screen end at 84-450 property line? Need Tall dust screen to prevent debris go to 84-452 property and stream bed too."*

A website specific to this project has not been and is not anticipated to be required.

The purchase of easements or rights-of-way has not yet been completed.

The suggestion for use of a tall dust screen is noted and will be considered for use by the construction contractor who will be responsible for the installation of mitigation measures such as dust screens.

2. Letter Dated September 6, 2011

"This is additional written testimony/comments/questions concerning the Makaha Bridges 3 and 3A project, in addition to that submitted September 2, 2011 at DPP. I do apologize for the somewhat disjointed order/clarity of my comments/questions etc, I have not had enough time since the C&C notice came out to read everything thoroughly but nevertheless am expressing my testimony/concerns here as best as possible."

This comment is acknowledged.

"Please be advised that I probably should clarify my previous stated "opposed to project" statement. I am not opposed to the rebuilding of the Makaha bridges into modern, stronger, and longer span bridges, what I am more specifically opposed to is the current Makaha Stream Channel Plan" and the "Makaha Stream Grading and Drainage Plan" as designed currently, and the Makaha Stream "realignment" notion, which these current plans I believe will increase the possibility of overtopping the embankments of the adjacent residential properties, especially 84-450 and 84-452 Farrington Hwy."

This comment is acknowledged.

"This project is called the "Makaha Bridges 3 and 3A Replacement project" but realigning the Makaha Streams de facto existing flow direction, and adding encumbrances onto the AEF zone (flood plain) embankment that actually NARROW the stream bed, not widen it as repeatedly stated, are a whole different notion/ball game. In previous contacts with Towill they have repeatedly told me that this is a "bridge" project, not a flood control or stream project. Well, then how come this "stream realignment" and channel widening (actually narrowing), are incorporated without adequate water flow analysis/data, other than Towill stating "no negative impact or overtopping of upstream adjacent properties"?"

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The proposed project including the bridges and drainage facilities does not involve a "narrowing" of the stream as the flows will be required to meet the existing regulations of the State Department of Transportation and City & County of Honolulu.

Please also refer to the responses to your previous letter dated September 2, 2011, above, concerning "narrowing" of the stream.

"I see a bottleneck in the Makaha Stream about 150 feet upstream of the Bridge 3 being proposed by Towill, a MAN MADE bottleneck, and on top of that a design to curve the actual existing DE FACTO flow direction of the Makaha Stream, without any real explanation as to WHY such "realignment [SIC] is necessary or desirable and what [SIC] is the PURPOSE of realignment of the Mākaha Stream channel?"

Please refer to the responses to your previous letter dated September 2, 2011, above.

"The current stream realignment and channel design, constructed in the AEF Zone (flood plain) does not have any engineering data to back it up, based on any hydrological analysis, or water height flow data whatsoever. The EIS states over and over again that there will be no negative impact to upstream properties, without any scientific survey data or flow/depth of flow analysis to certify that statement."

This reference to a lack of engineering data to substantiate the proposed stream realignment and channel design in the project's EA (not EIS) appears to be in error. The purpose of the project's Final EA is to meet the requirements of Hawai'i Revised Statutes, Chapter 343, principally involving the public's right to disclosure on a project's potential for adverse environmental effects, the alternatives that were considered, and the mitigation measures that are proposed to address the possibility of adverse effects, among other requirements. The review of the physical design of the project is handled by governmental agencies that include the State DOT, City Department of Planning and Permitting, Army Corps of Engineers, and other agencies, organizations, and utility companies, e.g., such as the Board of Water Supply, Hawaiian Electric Company, and others.

With further regard to the design of the project, including the supporting documentation to substantiate the design, the following minimum analyses will be prepared: hydrologic and hydraulic analysis in accordance with the State of Hawaii, Department of Transportation, Design Criteria for Highway Drainage, 10/1/10; and the design of bridge and stream improvements will be in prepared in accordance with the appropriate Federal Highway Administration, Hydraulic Engineering Circulars.

"As previously stated and submitted, 44CFR requires that a "no - rise" Certification should be attached to this application, instead of blanket statements by the applicant of "no negative impact". Towill just keeps repeating "no negative impact" and "no overtopping" of upstream adjacent properties, without any data, or certification. 44CFR allows for the local permit reviewer (i.e. in this instance William Ammons/C&C) to certify the "no - rise" certification or "no negative impact"."

"But as I see it, in response to DLNR's notation to Towill that they must comply with 44CFR60.3(d)(3) requirements when working in an AEF Zone (i.e. the Kili Drive side of the Makaha Stream), Towill simply stated back to DLNR that the application would be properly submitted through the C&C of Honolulu permitting process does this mean that Towill hoped this narrowing of the channel from 95 feet down to 45 feet within only 150 feet distance creating a bottleneck in the streambed would pass William Ammons/C&C review and thus become essentially "certified" by C&C (which does not meet 44CFR requirement), such that Towill would then maintain everything was approved by the

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C&C Honolulu? 44CFR allows for a city planner to certify "no-rise" for very minor projects or construction, but does Makaha Stream REALIGNMENT and CHANNEL WIDENING and RIP-RAP on the AEF zone (flood plain) embankment qualify as a "minor" project in light of the statement that this area is "prone to flooding" as stated by the applicant on page 8-14? Where is Towill's "no-rise" study, data, or certification about the AEF zone (flood plain) embankment reinforcement plan? They can't just throw it in and hope it gets past C&C and thus they are off the hook for the certification, or was that what Towill is trying to do? I don't see anything to support their repeated "no negative impact" and "no overtopping upstream" statements, but the current "Makaha Stream Channel Plan" and the "Makaha Stream Grading and Drainage Plan" themselves show a self-evident bottleneck almost designed specifically to do just that, i.e. cause constricted flow that could lead to overtopping at the narrowest juncture."

As noted, a "no-rise" certification application for this project will be submitted to the Department of Planning and Permitting.

The design of the channel is based on the DOT, Design Criteria for Highway Drainage, 10/1/10.

Page 8-14, at 8.3.3 describes the requirement for a "specific finding" regarding work in AEF Zone, not an applicants blanket statements, which statements seem to conflict with the actual proposed design utilizing a narrowed channel 150 feet upstream."

The specific finding that is referenced is stated as: All Federal or Federally-aided construction of buildings, etc., which encroach upon or affect the base floodplain, requires an assessment of floodplain hazards and a specific finding for significant encroachments is required in the final environmental document.

An engineering assessment of the floodplain hazard indicated that the bridges have poor hydraulic capacity and that a widening of the stream channel to provide sufficient flow capacity would be necessary. The "encroachment" would consist of widening the stream channel (and increasing the bridge openings) to accommodate the 100-year flood event without overtopping or negatively impacting upstream properties. The "finding" of the act of widening the bridge opening was that:

"The proposed project occurs within an area prone to flooding, however the planning improvements is anticipated to result in enhancement of existing flood conditions at the project site. [And furthermore that] The proposed project will be designed in compliance with the requirements of AASHTO, FHWA, HDOT, City and County of Honolulu and the Department of the Army, Corps of Engineers."

These findings and the proposed project design do not conflict with one another. We also wish to clarify that this project will not involve the use of, "...a narrowed channel 150 feet upstream", as noted in the comment above.

"Page 8-14 mentions AASHTO, FHWA, HDOT, C&C Honolulu, and Army Corps of Engineers requirements Do all these approve of bottle necking the stream with reinforced rip-rap embankments ADDED to the streambed, which restrict heavy flow to an opening only half as wide just 150 feet upstream from Bridge 3?"

"The channel design is OBVIOUSLY made to have water speed and depth LESS at the bridge opening, while only 150 feet upstream, the speed/flow of a heavy runoff will be MUCH greater, forced through a 45 foot wide bottleneck (and direction altered) created by Towill!!! The purpose I

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believe is to minimize water impact/force/speed on the Makaha Bridge 3 and its abutments, apparently at the expense of adjacent properties 84-450 and 84-452 Farrington.

Construction documents for the proposed improvements are being routed to the appropriate government agencies for review and approval. The proposed improvements are designed to avoid as much as practicable any negative effects to adjacent properties.

The proposed improvements will relieve some of the existing bottleneck conditions of the stream by widening the stream bed.

"Page 1-2 and 1-3 drawings are not even consistent as to the location and direction of the Makaha Stream. Yet these are dated February 2010 and April 2010. Why the change?"

The two figures cited above reference the same project site but serve different purposes: Figure 1-1, Project Location, is based on the topographic base map for this project and is intended to show the general location of the project site in relation to its immediate surroundings.

Figure 1-2, Tax Map Keys (TMKs), is based on a program called Win2Data that shows only parcel boundaries, the stream centerline and the shoreline. The orientation of this map is also different from Figure 1-1, as noted by the north arrow. In short, these are two different maps showing different themes (subjects) that serve different purposes.

"There is the "Makaha Stream Channel Plan" and the "Makaha Stream Grading and Drainage Plan this indicates that major work is to be done in the Makaha Stream channel, not minor work. Actually the cost of this work is minimal compared to the Bridge structure, however, the possible negative impact on adjacent residential properties by the proposal as it stands can be greatly damaging, and will cause overtopping right at the bottleneck in a heavy runoff event. And to say "no negative impact" and "no overtopping" is simply wrong and irresponsible, if not intentionally so. I even wrote Towill a Certified letter at least two years ago warning of the danger of their proposed rip-rap design, and how it would divert water onto adjacent residential properties, right at the SAME point at the property line of 84-450 and 84-452 Farrington, right where they intend to end the rip-rap. Towill did not reply, and I see the design ignores that concern expressed [SIC] two years ago! Towill is only concerned about slowing the flow/depthspeed [SIC] of heavy runoff water immediately before it hits the Bridge 3, so that Towill's Bridge 3 "still stands" no matter what. That notion is fine, but can't be done at the expense of endangering upstream properties to higher water levels [SIC] by manipulating the Makaha Stream channel."

We do not agree that this project will have a negative impact on adjacent residential properties. On the contrary, the proposed replacement bridge will be designed to pass up to the 100-year flood through the bridge structure without increasing the flood water elevation, a situation that is not possible today. By allowing the flow to pass under the highway as opposed to the current condition in which the flood overtops the highway, the flood water elevation will decrease resulting in a lower potential impact to adjacent residential properties.

We also do not agree concerning the comment involving the proposed use of rip-rap boulders. Please refer to our response cited previously on the bottom half of page 3 of this letter.

"The Makaha Stream channel can be widened much more than in the current submitted design plans in the AEF zone (flood plain) Kili Drive side embankment to accommodate high/heavy runoff better, so why in the world RESTRICT the width of the channel on the AEF zone (flood plain) side dramatically?"

"What is the REASON for "REALIGNMENT" of Makaha Stream?? And is the realignment proposed an "IMPROVEMENT? And what evidence presented that the realignment is an improvement? (an constricting/narrowing the channel into about 3/5 width within a very short distance, about 150 feet) Same questions ought to be answered."

"Probably the cheapest apart of this entire Bridge 3 construction plan is the channel widening and embankment rip-rap, however the current design is misguided. It would [SIC] be best to provide SUFFICIENT and EFFECTIVE embankment protection on the residential zone side of Mākaha stream, but at least DO NOT pile up bunch of boulders on the AEF (conservation) zone, or flood plain side of Makaha stream, and making the stream NARROW at the end of the rip-rap. The current design is adding an impediment to the current flow channel of the stream, yet is not sufficient to "realign" the stream channel. No rip-rap at all on the AEF side would be a better design, and allow heavy flow to enter AEF side away from residential side of the stream."

We disagree that the project design constitutes "an impediment to the current flow channel of the stream." The proposed improvements widen the stream, and do not narrow or constrict the flow. The centerline of the stream is being realigned to transition the existing stream to the widened proposed bridge structure. The proposed stream bank improvements necessary for the bridge replacement are protected from flood damage. The proposed stream bank improvements are also designed to tie into the existing stream bank at an elevation that will not restrict flow upstream of the project.

"I am also concerned about the duration of the proposed construction, as I'm sure many others are."

"However, maybe my concern is not exactly the same reason. I feel the contractors must understand that during heavy rain/runoff events, the Makaha Stream can have a very significant volume of water, such that I would not want to see some bypass pipes installed that were unable to handle the volume during construction, thus causing a backup of water (pooling) upstream, as well as damaging the work so far accomplished. From that point of view, along with the fact that a longer duration means more dust, traffic etc problems, there would be much less chance of a heavy rain event from March through November of any year, thus if the work could be accomplished during 9 months instead of 12-15, would lessen chance of significant damages from a large rainfall event."

The DOT shares this concern involving the duration of construction of approximately 16 to 18 months. This estimate was reduced from earlier projections of as much as 24 months. The DOT understands this is an important transportation corridor in Mākaha and plans to maintain the period of construction to as short a time as possible by doing the work on both bridges at the same time instead of working on only one bridge at a time; and possibly using extended work hours.

"Attached are just some of the exhibits pertaining to many of the above concerns, more are containing in the plans and EIS themselves."

"Again, we do not object specifically to the rebuilding of the Makaha Bridges 3 and 3A. We do object to the current "Makaha Stream Grading and Drainage Plan" and the "Makaha Stream Channel Plan" submitted designs, with the concerns and testimony submitted herein and also previously submitted on September 2, 2011. The plans may in fact negatively affect upstream residential properties and cause overtopping upstream as noted, despite Towill's repeated unsupported statements otherwise. Towill's sole aim is to protect the Bridge 3 from water speed/depth/force by widening the channel right before the Bridge 3, which they try to accomplish by the dramatic widening beginning about 150 feet upstream from the Bridge 3, from 45 feet wide to 95 feet wide. The EIS states the Bridge 3 needs to be about 90 feet wide to handle the 100 year flood event without overtopping. The opening under the Bridge is thus twice as wide and deeper by 2-3 feet than at the mauka end of the proposed

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rip-rap, so where would the constricted flow go when constricted to about 45 feet wide 150 feet mauka of the bridge 3? This constricting effect does not just apply to the 100 year flow event, but lesser events, that could be threshold 100 year runoff, but would possibly overtop because of the 45 foot wide created constriction."

We acknowledge your objections and have attempted to respond in a constructive manner to your numerous concerns. Your objections and concerns, and our responses, have been documented in this reply and will be forwarded to the Department of Planning and Permitting.

We appreciate this opportunity to respond. Any further written comments may be directed to the undersigned.

Sincerely,



Brian Takeda
Planning Project Coordinator

BT/MO

cc: Mr. Henry Kennedy, P.E., State Department of Transportation, Highways Division
Mr. William Ammons, Department of Planning and Permitting, City & County of Honolulu

STANDARD STREAM CHANNEL ALTERATION PER.M.IT CONDITIONS
(Revised 9/19/07)

1. The permit application and staff submittal approved by the Commission at its meeting on May 16, 2012, 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.