ALA WAI CANAL PROJECT
O'AHU, HAWAI'I

DRAFT FEASIBILITY STUDY REPORT WITH INTEGRATED ENVIRONMENTAL IMPACT STATEMENT

APPENDIX G
PUBLIC AND AGENCY INVOLVEMENT

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Distribution List for Draft Integrated Feasibility Report and EIS

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APPENDIX G1

Distribution List for Draft Feasibility Study Report with Integrated Environmental Impact Statement

FEDERAL AGENCIES	
U.S. Geological Survey, Pacific Islands Water Science Center	Federal Aviation Administration
Department of the Interior, U.S. Fish and Wildlife Service	Federal Transit Administration
Department of Commerce, National Marine Fisheries Service	Federal Highways Administration
Department of the Interior, National Parks Service	U.S. Coast Guard
Dept. of Agriculture, Natural Resources Conservation Service	U.S. Environmental Protection Agency
U.S. Army Corps of Engineers	Advisory Council on Historic Preservation
Department of the Navy	Federal Emergency Management Agency, Region IX
STATE AGENCIES	
Department of Agriculture	DLNR, Division of State Parks
Department of Accounting and General Services (DAGS)	DLNR, Historic Preservation Division
DAGS, Archives Division	Oahu Island Bural Council
Department of Business, Economic Dev. and Tourism (DBEDT)	Honolulu County Soil and Water Conservation Districts
DBEDT, Research Division Library	Department of Transportation
DBEDT, Strategic Industries Division	University of Hawaii, Office of Capital Improvement
DBEDT, Office of Planning	University of Hawaii, Office of Emergency Management
Department of Defense	University of Hawaii, Water Resources Research Center
Department of Education	University of Hawaii, Environmental Center
Department of Hawaiian Home Lands	University of Hawaii, Center for Conservation Research and Training
Department of Health, Environmental Health Administration	University of Hawaii, College of Tropical Agriculture and Human Resources
Department of Land and Natural Resources (DLNR)	University of Hawaii, Sea Grant Program
DLNR, Division of Boating and Ocean Recreation	Research Corporation of the University of Hawaii
DLNR, Division of Forestry and Wildlife	University of Hawaii, Social Science Research Institute
DLNR, Na Ala Hele	University of Hawaii, Marine Program
DLNR, Division of Aquatic Resources	University of Hawaii, Lyon Arboretum
DLNR, Land Division	Office of Hawaiian Affairs
DLNR Office of Conservation and Coastal Lands	Hawaii Emergency Management Agency
DLNR Commission on Water Resource Management	
CITY AND COUNTY OF HONOLULU	
Board of Water Supply	Department of Planning and Permitting
Department of Customer Services Municipal Library	Department of Parks and Recreation
Department of Design and Construction	Police Department
Department of Environmental Services	Department of Transportation Services
Department of Facilities Maintenance	Department of Emergency Management
Fire Department	Department of Enterprise Services
Department of Community Services	
ELECTED OFFICIALS	
U.S. Senator Brian Schatz	State Representative Bertrand Kobayashi (District 19)
U.S. Senator Mazie Hirono	State Representative Calvin Say (District 20)
U.S. Representative Mark Takai	State Representative Scott Nishimoto (District 21)
U.S. Representative Tulsi Gabbard	State Representative Tom Brower (District 22)
Governor David Ige	State Representative Isaac Choy (District 23)
Senate President Ronald Kouchi	State Representative Della Au Belatti (District 24)
State Senator Sam Slom (District 9)	State Representative Sylvia Luke (District 25)
State Senator Les Ihara (District 10)	State Representative Scott Saiki (District 26)
State Senator Brian Taniguchi (District 11)	State Representative Derek S.K. Kawakami
State Senator Brickwood Galuteria (District 12)	State Representative Chris Lee
State Senator Suzanne Chun-Oakland	State Representative Ryan Yamane
State Senator Glenn Wakai	Mayor Kirk Caldwell
State Senator Clarence Nishihara	City Councilperson Trevor Ozawa (District 4)
State Senator Mike Gabbard	City Councilperson Ann Kobayashi (District 5)
House Speaker Joseph Souki	City Councilperson Carol Fukunaga (District 6)
NEIGHBORHOOD BOARDS	
Kaimuki Neighborhood Board No. 4, Lyle Bullock, Jr. (chair)	Waikiki Neighborhood Board No. 9, Robert Finley (chair)
Diamond Head-Kapahulu Neighborhood Board No. 5, George West (chair)	Makiki-Tantalus Neighborhood Board No. 10, John Steelquist (chair)
Palolo Neighborhood Board No. 6, Beverly Mau (chair)	Ala Moana-Kakaako Neighborhood Board No. 11, Larry Hurst (chair)
Manoa Neighborhood Board No. 7, Eric Eads (chair)	Nuuanu/Punchbowl Neighborhood Board No. 12, Philip Nerney (chair)
McCully-Moiliili Neighborhood Board No. 8, Ron Lockwood (chair)	
COMMUNITY GROUPS, ORGANIZATIONS AND ASSOCIATIONS	
Aha Wahine	Makiki Stream Stewards
Ala Wai K9 Park	Malama Manoa
Ala Wai Plaza	Manoa Innovation Center

Distribution List for Draft Feasibility Study Report with Integrated Environmental Impact Statement

Ala Wai Watershed Association	Manoa Marketplace
Ala Wai Watershed Working Group	Marco Polo
Association of Hawaiian Civic Clubs (Oahu Council)	Na Ohana o Na Hui Wa'a Canoe Association
Be Ready Manoa Team	National Disaster Preparedness Training Center
Bernice Pauahi Bishop Museum, Native Hawaiian Culture & Arts Program	Oahu Hawaiian Canoe Racing Association
Century Center	Oahu Island Parks Conservancy
Council on Native Hawaiian Advancement	Palolo Community Council
Friends of Tantalus	Palolo Homes Mutual Housing Association of Hawaii
Harbor View Plaza	Palolo Tenant Association
Hawaii Lodging and Tourism Association	Papa Ola Lokahi
Hawaii Maoli	Papakolea Community Development Association
Hawaii Nature Center	Paradise Park
Hawaii State Hazard Mitigation Forum	Pig Hunters Association of Oahu
Hawaiian Civic Club of Honolulu	Shriners Hospital
Hawaiian Trail and Mountain Club	Surfrider Foundation
Healani Canoe Club	Tantalus Community Association
Historic Hawaii Foundation	The Outdoor Circle
Hui Malama I Na Kupuna 'O Hawaii Nei	Waikiki Beach Boys Hu`i Waa
Hui o Makiki	Waikiki Business Improvement District Association
Kawahapai Ohana	Waikiki Hawaiian Civic Club
Koolau Mountains Watershed Partnership	Waikiki Improvement Association
Ku'iwalu	Waikiki Surf Club
Kumuola Foundation	Yacht Harbor Towers
LANDOWNERS	
Colin & Magdalena Petko	Trustees of Carole N Haida Trust
Trustees of Jon L & Amy E Manago Trust	Howard T. Takaki
Trustees of Hiroshi Yamamoto Trust & Family Trust	Marlon P. & Kathleen S. Dyer
Harry N. Yoshino & Pamela M. Amano	Baruch Bakar
Trustees of Roy E & Ann Sato Trust	Sen-Ming Lin
Trustees of Stephen H Sato Trust and Florence H Sato Trust	Manoa Shangri-La Community Association
Trustees of Katsugo Miho Trust and Laura M Miho Trust	Trustees of Michael S. Aramaki Trust & Fumiko Aramaki Trust
Ray H & Dorothy K. Sakata	Trustees of Michael J. Shapiro Trust
Trustees of Kenji Kawano Trust & Peggy S T Kawano Trust	Trustees of Marivic G. Dar Trust
Masayuki Najita Gen Trans Trust & Masayuki Najita Res Trust	Trustees of Osato Family Trust
Trustee of Pauline I Segawa Trust	Dave K. & Nola S. G. O. Watase
Fred S & Edith H Takaki and Trustees of Carole N. Haida Trust	Lin Yee Chung
SCHOOLS	
Iolani School	St. Francis School
Kuhio Elementary School	Maryknoll School
Ala Wai Elementary School	Palolo Elementary School
Hokulani Elementary School	Jarrett Middle School
Kaimuki High School	Manoa Elementary School
Chaminade University	Noelani Elementary School
St. Louis School	Lincoln Elementary School
Mid Pacific Institute	Stevenson Middle School
Ke Kula Kaiapuni 'O Ānuenue	Roosevelt High School
Hanahauoli School	
UTILITIES	
Hawaii Gas	Hawaiian Telcom
Hawaiian Electric Company, Inc.	Oceanic Time Warner Cable
LIBRARIES	
Hawaii State Library, Hawai'i Documents Center	Hawaii State Library, Lihue Regional Library
Hawaii State Library, Kaimuki Regional Library	Hawaii State Library, Waikiki-Kapahulu Library
Hawaii State Library, Kaneohe Regional Library	Hawaii State Library, Library for the Blind and Physically Handicapped
Hawaii State Library, Pearl City Regional Library	Hawaii State Library, McCully-Moiliili Library
Hawaii State Library, Hawaii Kai Regional Library	Hawaii State Library, Manoa Library
Hawaii State Library, Hilo Regional Library	Legislative Reference Bureau Library
Hawaii State Library, Kahului Regional Library	University of Hawaii, Thomas H. Hamilton Library
NEWS MEDIA	
Honolulu Star Advertiser	Hawaii News Now
Honolulu Civil Beat	

Appendix G2
Stakeholder Involvement Plan for Current Project Phase (2013)

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ALA WAI CANAL PROJECT - PHASE IV

PUBLIC INVOLVEMENT PLAN (v.04)

Prepared for:
U.S. Army Corps of Engineers
and
CH2M Hill

Prepared By:
Townscape, Inc.

June 2013

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ACRONYMS

AWCP	Ala Wai Canal Project
ENV	City and County of Honolulu Department of Environmental Management
DFM	City and County of Honolulu Department of Facility Maintenance
DLNR	State of Hawai‘i Department of Land and Natural Resources
EIS	Environmental Impact Statement
FAQs	Frequently Asked Questions
HRS	Hawai‘i Revised Statutes
NEPA	National Environmental Policy Act
PDT	Project Delivery Team
TAT	Technical Advisory Team
TSP	Tentatively Selected Plan

1 Project Management Meetings

Project management meetings will be held to coordinate actions within the project and among related projects in the watershed. While these efforts are primarily for coordination purposes, there are elements of public outreach and involvement and are therefore mentioned briefly below.

1.1 Project Delivery Team (PDT) Meetings

Purpose: To discuss project status and resolve issues and/or reach decisions on project development and execution.

Participants:

- USACE (lead)
- CH2M Hill
- Project sub-consultants, as necessary
- DLNR (project sponsor)
- City and County of Honolulu ENV and DFM (project sponsor)

Process: The PDT will meet monthly and will be convened by the USACE project manager.

1.2 Stakeholder Meetings

Purpose: To inform stakeholders on project development progress and to coordinate with other organizations, studies, and efforts that are occurring within the watershed.

Participants:

- USACE (lead)
- CH2M Hill
- Project sub-consultants, as necessary
- DLNR (project sponsor)
- City and County of Honolulu ENV and DFM (project sponsor)
- Representatives from community and private organizations
- Public agencies (non-project sponsor)
- Elected officials (or their representatives)
- Representatives from related projects

Process: These meetings will be held at specific milestones (to be determined), possibly once or twice a year, to review the status of the Ala Wai Canal Project (AWCP) and other projects and programs in the Ala Wai Watershed. These meetings are primarily update briefings and opportunities to raise issues and to coordinate amongst related projects; they are not meant to be working meetings where issues are resolved.

1.3 Technical Advisory Team (TAT) Meetings

Purpose: To provide a forum for key PDT members and key stakeholders to work through specific technical issues for expeditious decision-making.

Participants:

- CH2M Hill (lead)
- USACE
- Federal, State and Local agencies as applicable
- Project sub-consultants, as necessary

Process: TATs will be formed around specific issues and will be made up of working level technical experts. Meetings will be held as needed until the issue is resolved.

2 Public Involvement

Several public participation techniques will be used to reach out to various stakeholder groups at different points in the process. Different techniques should be used depending on the group targeted and the purpose of the involvement. The following is a list of proposed techniques that may be employed during this phase of the project.

2.1 Individual Interviews and Small Group Meetings

Purpose: To get early feedback on specific flood reduction measures. This input will inform the alternatives analyses that result in the tentatively selected plan (TSP).

Participants:

- Townscape (lead)
- USACE (support)
- CH2M Hill (support)
- Landowner and community leaders
- Community and private organizations
- Public agencies
- Quasi-governmental organizations
- Elected officials (possibly)

Process: Two or three potentially controversial flood reduction measures will be identified. A Focus Group meeting will be held on each measure identified to get input on user concerns, potential "deal-breakers," and acceptable conditions or mitigation measures. Specific groups and individuals will be invited to participate.

2.2 Briefings to Stakeholder Groups

Purpose: To update key stakeholders on the project.

Participants:

- USACE (lead)
- Remaining PDT members (support)

Process: Briefings may be scheduled based on a formal request from an entity or individual representing a key constituency (e.g., elected official). Alternatively, a briefing might be proposed by the PDT. If a briefing is determined to be beneficial and/or necessary, USACE will coordinate and conduct the briefing with support from the rest of the PDT, as needed.

2.3 Open House Meetings

Purpose: To provide community members with opportunities to learn about the Ala Wai Canal Project and the Tentatively Selected Plan (TSP), and to build community support for project implementation.

Participants:

- Townscape (logistics and coordination)
- USACE (presentation)
- CH2M Hill (support)
- All stakeholders would be invited to attend

Process: Hold two public meetings in an "Open House" format to present preliminary project concepts to the public. The Open House would begin with a brief overview presentation and question and answer session. After the presentation and discussion, attendees may circulate and view maps and other graphics illustrating preliminary project concepts. Project staff would be on hand to answer questions and hear comments. Comment sheets would provide a way for participants to submit written questions and comments.

2.4 EIS Public Meeting

Purpose: To gain public feedback on the proposed alternatives and TSP and to satisfy the requirements of HRS Chapter 343 and NEPA.

Participants:

- Townscape (logistics and coordination)
- USACE (presentation)
- CH2M Hill (support)
- All stakeholders would be invited to attend

Process: One public meeting on the Draft EIS will be held at an accessible location within the watershed. The various alternatives will be presented and feedback from the public will be recorded for consideration when developing the Final EIS and preferred alternative.

2.5 Project Information Sheet/FAQs

Purpose: To introduce the project to stakeholders and provide them with basic information.

Process: A Project Information Sheet will be developed as a concise handout to use in stakeholder meetings that includes information such as the project purpose, goals, process, map of the project area, and contact information.

2.6 Project Website

Purpose: To provide the larger public with background information and materials to keep them apprised of project progress, next steps, and how they can provide input.

Participants:

- CH2M Hill (lead)
- Remaining PDT members (support)

Process: A project website will be developed and regularly updated to provide information on the project, including project background, purpose, upcoming meetings and events, contact information, and review materials. Materials for download from the website could include the project information sheet, notes from the public meeting, the Notice of Intent and EIS Preparation Notice, and the Draft and Final Feasibility/EIS Report.

2.7 Email Updates

Purpose: To alert key stakeholders and interested parties of project milestones and to direct them to the project website for materials and information.

Participants:

- CH2M Hill (lead)
- Remaining PDT members (support)

Process: Periodic updates will be sent to interested parties using project email list that will be compiled and maintained. Email topics may include milestone highlights, announcements of meetings and comment deadlines, and notifications of new materials on the project website. Townscape will provide a spreadsheet of previous project contacts.

2.8 News Media

Purpose: To notify the general public of highlights and progress of the project.

Participants:

- USACE (lead)
- Remaining PDT members (support)

Process: All media requests will be referred back to the USACE for comment. If press releases are determined to be necessary or beneficial, the appropriate team member(s) will draft the content of the piece and review it with the PDT before forwarding it to USACE and DLNR for final approval and release.

3 National Flood Risk Management Program Public Involvement Pilot Project

The AWCP was selected as one of five flood risk management projects nation-wide to be the recipient public involvement services to complement public involvement efforts already planned as a part of the project. The scope of these services are yet to be determined.

Purpose: To work with the tourism industry, and Waikīkī interests in particular, to raise their awareness about flood risks in the Ala Wai Watershed and to improve their understanding of their role in mitigating those risks.

Participants:

- USACE (lead)
- Waikīkī and Tourism Industry Interests:
  - Hawai‘i Tourism Authority
  - Hawai‘i Hotel and Lodging Association
  - Waikīkī Business Improvement District
  - Waikīkī Improvement Association
  - National Disaster Preparedness Training Center

Process: To be determined.

4 Townscape Effort

The current phase of the AWCP has been broken down into four major tasks: (1) Project Management, (2) Draft Integrated Feasibility/EIS Report, (3) Public Involvement, and (4) Final Integrated Feasibility/EIS Report.

4.1 Task 1: Project Management

Townscape will participate in the various project management meetings (PDT, TAT, and Stakeholder), as needed, providing support to USACE and CH2M Hill.

4.2 Task 2: Draft Integrated Feasibility/EIS Report

Townscape currently has no activities associated with this task.

4.3 Task 3: Public Involvement

Townscape will solicit public involvement through small group meetings (focus groups) and open houses to better understand community concerns regarding specific proposed flood mitigation measures and a public meeting on the Draft Integrated Feasibility/EIS Report.

4.3.1 Focus Group Meetings

Focus group meetings will be held on up to three specific flood mitigation measures or groups of measures in order to identify public concerns about each measure or measure grouping that should be taken into account during measure design, alternatives analysis, and selection of TSP. The measures selected for discussion will be those that are potentially the most controversial for the public.

The PDT will agree upon up to three measures/measure groupings that are anticipated to be controversial. Measures preliminarily proposed for focus group meetings include the following:

1. Mānoa Detention
   - Wet/Dry Dam in Mānoa Valley
   - Detention Basins in Mānoa Valley
   - Multipurpose Detention at Mānoa District Park
2. Ala Wai Golf Course
   - Multipurpose Detention at Ala Wai Golf Course
   - Ala Wai Golf Course Sediment Basin (DLNR)
3. Ala Wai Canal modifications
   - Widen Mouth of Canal
   - Modify McCully Street Bridge
   - Levees around the Canal
   - Pump System

Townscape, with assistance from other members of the PDT as needed, will present the overall project purpose, goals, and objectives. After briefly outlining the list of proposed measures, Townscape will describe the specific measure that the focus group is convened to discuss. This description should include location, need, potential benefits, and tradeoffs. After this, the focus group will be asked the following questions:

- What concerns do you have about this proposed measure
- Is this measure a "deal-breaker" for you?" What about it makes it a "deal-breaker?"
- What conditions or mitigation measures would make the measure acceptable to you?

Discussion from the focus group meeting will then be taken back to the PDT for incorporation into the project. It is anticipated that the feedback will inform design of the measures to make them more acceptable to the community and alternatives analysis during selection of TSP.

4.3.2 Public Meeting

The public meeting will aid in understanding potential impacts and concerns associated with the project alternatives, and is also mandated by NEPA. One public meeting will be held within the watershed, possibly at the Hawai'i Convention Center, where the EIS Scoping Meeting was previously held, or at an area school.

Townscape, with the assistance of the PDT, will present the project purpose, goals, objectives, alternatives, potential impacts, proposed mitigation measures, and TSP. The public will then be provided an opportunity to ask questions and comment on the project, possibly through verbal comment, one-on-one discussions with project team members in an "open-house" format, and/or written feedback. Attendees should be informed of how they may provide further comment on the Draft Integrated Feasibility/EIS Report, and of the deadline for public comment. This information, as well as notes from the public meeting should be posted to the project website.

The PDT should use the feedback from the public meeting along with any other comments received on the Draft Integrated Feasibility/EIS Report to select a preferred plan.

4.3.3 Briefings to Stakeholder Groups

Townscape will coordinate a limited number of briefings to key stakeholder groups that the PDT identifies. Depending on the nature of the update, other members of the PDT may be needed to present project material and/or answer questions.

Appendix A: Stakeholder Groups

The range of potential stakeholders is large and includes land owners, community members, environmental and community organizations, elected officials, and public agencies. The following is a listing of individuals and groups that the project team should consider contacting as part of the public involvement process, as well as a short description of who they are and why they should be included.

A.1. Community at Large

The community at-large includes anyone that may have an interest in the project; they do not represent anyone or anyone's interests other than their own.

A.2. Landowners and Community Leaders

Landowners and other individuals to be contacted as a part of the stakeholder involvement process have a particular interest in the project, but may not have a formal organization to represent them. Private landowners include those that either have been impacted by previous flooding or will be impacted by the implementation of one or more measures proposed by this project. This group may share maintenance responsibilities, or may need to be approached to negotiate easements through their property or for land acquisition. Community associations may be able to represent the interests of several individual landowners.

Because it will not be possible to meet individually with everyone who might be affected by the project, it would be beneficial to target those individuals that residents have been identified as being representative of their community, or have significant knowledge of certain aspects of the community. These may include long-time residents, or other individuals who have been active in the Ala Wai Watershed, but may not necessarily hold official leadership positions in organizations at this time.

A.3. Businesses

This group includes businesses whose operations either were previously impacted by flooding or will be affected by the implementation of one or more measures proposed by this project. This group may share best management practices and maintenance responsibilities, or they may need to be approached to negotiate easements through their property. Business associations may be able to represent the interests of several individual businesses.

A.4. Community and Private Organizations

Community and private organizations are formally organized 501(c)(3) non-profit organizations as well as less formal groups with a membership and a focus of interest that may be related to or affected by the project, but are not necessarily landowners in the watershed. These organizations range in purpose and demographics and offer a way to sample various perspectives within the community. Examples of Community and Private Organizations include the Ala Wai Watershed Association (AWWA), Canoe and Rowing Clubs, Hawai'i Transportation Association, Kapi'olani Park Preservation Society, Makiki Stream Stewards, Mālama Mānoa, Pālolo Community Council, The Outdoor Circle, Waikīkī Yacht Club, and others.

A.5. Public Agencies

Public agencies are a part of the executive branch of government at the Federal, State, and local levels. Several public agencies are a part of the sponsoring team that is developing the project. In addition, some agencies currently have other projects or initiatives within the watershed that should be coordinated with the planning of this project, and some agencies will also be responsible for actions throughout this phase of the project, as well as during implementation and subsequent operations and maintenance.

City Agencies and Affiliated Entities

Because the City administers several permits that may be necessary to complete the project, they should be included in the process to ensure that final designs conform with permit restrictions and requirements, thus improving the likelihood of implementation. Portions of the streams and surrounding areas are owned by the City and some of the recommended project features may be sited on these lands. Some of these features may also require the City to operate and maintain them, thus making the City's participation critical to this process.

The City Department of Environmental Services is also a sponsor of the AWCP. Additionally, the City was also a local sponsor in the Mānoa Watershed Project (MWP) and may have special insight into what might be appropriate regarding the planning and design of the AWCP.

State Agencies

Like the City, the State also administers permits that may be required for implementation of the project, thus making it important that they participate in the planning and design phase. The State, through the DLNR, is also a local sponsor in this phase of the project and will provide input on planning and design. Project sponsors are expected to participate in planning and technical meetings, as appropriate, and offer guidance to ensure that the project is implementable, as well as to ensure that the project features address their needs and standards.

The Ala Wai Canal and portions of its tributaries and surrounding areas are owned by the State and some of the recommended project features may be sited on these lands. If needed, the State may also be responsible for land acquisition costs, construction costs related to modifications to infrastructure such as roads and bridges, and operation and maintenance of features on their lands.

The University of Hawai`i is also considered a State Agency and can provide local expertise on several aspects of the project including watershed ecosystems, invasive species impacts, hydrology, etc. Additionally, the University of Hawai`i at Mānoa campus is located along Mānoa Stream, was previously impacted by flooding, and has implemented projects to protect themselves from future flood events.

Federal Agencies

Federal agencies will participate primarily in the environmental review process through various consultations and assessments. Early consultation with agencies regarding Federal permits and EIS requirements will benefit project implementation. Some agencies also have data records and expertise in developing an understanding of the area and past flood events, and designing for future occurrences. Other agencies have expertise on ecosystem restoration best practices. One federal agency, USACE, is a project co-sponsor and is responsible for funding, technical assistance, project management, and stakeholder consultation. Other federal agencies, i.e., the Natural Resources Conservation Service and the Federal Emergency Management Agency, were or are sponsors of other related projects in the watershed.

A.6. Quasi-Governmental Organizations

A quasi-governmental organization is one that is linked to or supported by a public agency, but acts as an independent entity. Some of these organizations have areas of focus that extend beyond the Ala Wai Canal Watershed. Examples of Quasi-Governmental Organizations include the Neighborhood Boards, Ala Wai Marina Board, the Koʻolau Mountains Watershed Partnership, and others.

A.7. Elected Officials

Elected officials are persons that are voted into public office to represent the community at the local (City Council), State (State House of Representatives and Senate), and Federal (U.S. Congress) levels. It is important to keep elected officials apprised of the project and to have their support because they will be critical in getting permit approvals, implementation funding, and maintenance agreements. Their interest in the project will ensure that it maintains a high priority for agencies. Also, as representatives of the community, they should be approached for an overall understanding of the major issues that need to be considered, as well as details that should be addressed.

Appendix G3
Focus Meeting Summary (2014)

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TOWNSCAPE, INC.
Environmental & Community Planning

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ALA WAI CANAL PROJECT
MEMORANDUM (REVISED 4/15/14)
Date: **March 27, 2014**
To: **Project Files**
From: **Townscape, Inc.**
RE: **Focus Group Meeting on Proposed Measures on or Near the Ala Wai Canal**

Participants:	**Ala Wai Watershed Association**	Tom Heinrich
	O'ahu Hawaiian Canoe Racing Association	Luana Froiseth
	Na 'Ohana o Na Hui Wa'a	Kauokalani Moikeha
	Neighborhood Board #5: Diamond Head/Kapahulu/St. Louis Heights	Daisy Murai
		Woody Chang
	Waikīkī Improvement Association	Rick Egged
	City Department of Design & Construction	Tim Trang
	City Department of Enterprise Services	Garrick Iwamuro
	City Department of Environmental Services	Gerald Takayesu
	City Department of Facility Maintenance	Lan Yoneda
	City Department of Parks & Recreation (DPR)	Karen French
	State Department of Land and Natural Resources (DLNR), Division of Boating and Ocean Recreation (DOBOR)	Meghan Statts
	DLNR Engineering Division	Gayson Ching
	U.S. Army Corps of Engineers (USACE)	Athline Clark
		Michael Wong
	CH2M Hill	Lisa Kettley
	Townscape, Inc.	Bruce Tsuchida
		Sherri Hiraoka

The purposes of the meeting were to (1) share measures proposed on or near the Ala Wai Canal with stakeholders who may be directly affected by those measures, (2) answer questions about the project and the proposed measures, (3) gather feedback on how those measure would impact stakeholders, and (4) discuss possible design options or operational methods that could lesson those impacts.

Athline Clark started the meeting by introducing the project team, then asked the participants to each introduce themselves. She then gave an overview of the U.S. Army Corps of Engineers' (USACE) role in the Ala Wai Canal project. She explained that the USACE is involved at the request of the State of Hawai'i Department of Land and Natural Resources (DLNR) and is serving as a technical resource. The non-federal sponsor (DLNR) is responsible for making decisions regarding project implementation based on the technical information developed by the USACE. She emphasized that no decisions have yet been made for the Ala Wai Canal project. She explained that the purpose of the meeting was to get input from the group regarding the flood risk reduction measures that are being considered in the Waikīkī/Ala Wai Canal area; this input will be used to further develop the project and will be considered in the decision-making process.

Athline then reviewed a powerpoint presentation with the group; the presentation addressed: (1) project authority and objectives, (2) planning process, (3) extent of past and potential flooding in the watershed, (4) potential flood-related damages, (5) criteria and strategies used to formulate alternatives, (6) process and results of screening and evaluation of alternatives, and (7) overview of the flood risk reduction measures in the tentatively selected plan (TSP). Michael Wong provided a detailed review of the conceptual design information for each of the measures in the Waikīkī/Ala Wai Canal area.

Following the presentation, Athline explained that the intent of the focus group meeting was to get input specifically for the measures in the Waikīkī/Ala Wai Canal area; particular items of interest include the potential impacts to stakeholders/users and design features that could potentially mitigate those impacts. The group then provided the following comments and questions:

GENERAL QUESTIONS AND COMMENTS

- Is the project intended to only address large storm events, or would it also account for tsunami?
  - The following conditions were taken into account: The capacity of the Ala Wai Canal after its last maintenance dredging, storm conditions, and high tide.
  - Hurricanes can cause wave "set-up," which increases the tidal level, but this is not considered part of the study as the seasonal nature of hurricanes is typically not coincident with large storm events.
  - A tsunami event during a flood event has not been modeled.
- Does the project have to address the 100-year flood?
  - No, the project does not have to address the 100-year flood. It can address a lower level of protection, i.e., a 50-year or 25-year flood event.
  - The analysis starts at the 100-year level of protection, but that can be adjusted depending on the needs of the local sponsor (in this case, the State Department of Land and Natural Resources).
  - If the project is designed to address a lower level of protection, it would still need to provide enough benefits to justify implementation, i.e., the project would still reduce enough damages and potential loss of life to make it worth implementing.

- There are several projects that are being pursued in the Ala Wai Canal area. At what point will coordination occur with these other transportation and recreation projects?
    - The Waikīkī Regional Circulator Study proposes a pedestrian bridge over the Ala Wai Canal at University Avenue and the Waikīkī Landing Project at the Ala Wai Small Boat Harbor proposes water taxis in the Canal.
    - Coordination amongst the projects is very important and these other efforts should be acknowledged as part of the current designs
    - The project team has already begun consulting with other known projects such as the Waikīkī Regional Circulator Study and will continue to coordinate with them as we develop the project.
    - This phase of the Ala Wai Canal Project will conclude with a Feasibility Report and Environmental Impact Statement and will include designs at the 35% level. Even at that point, there would still be opportunities for detailed integration of the other efforts if/when the project moves forward into the design phase.
- Debris has a big impact on the Ala Wai Small Boat Harbor.
    - Most of the debris is generated in the upper watershed. All of the proposed features in the upper watershed have debris catchment features. There are also two mid-valley detention catchment measures.
    - These features are meant to capture large debris like tree limbs; none of these features is specifically designed to capture trash.
    - The DLNR Division of Boating and Ocean Recreation (DOBOR) is more concerned with the large debris as it costs approximately $8,000-$10,000 each time it needs to clear the Boat Harbor of debris.
    - The Project should consider debris catchment makai of Dole Street because some debris comes from the mid-valley area. The community could be engaged in cleaning and maintenance activities, although this would require access to the stream.

FLOODWALLS AROUND THE ALA WAI CANAL

- The concept drawings are intended to show typical concepts, not specific dimensions. Therefore, the existing sidewalk/pathway may be wider than is shown on the concept drawings. The final designs for the project will reflect the actual dimensions.
- The width of berms and floodwalls around the Canal would vary, depending on a number of factors.
    - In general, a berm could be as wide as 30+ feet (as shown in Concept C) and a floodwall could be as narrow as 8 inches (as shown in Concept B).
    - A combination of these different concepts will likely be needed, based on the constraints along the various portions of the Canal (e.g., integrity of the existing wall, available space, etc.). Floodwalls may be used in areas where there is not much space and berms may be used where there is more space.
    - The sides of berms will need to have a shallow enough slope to accommodate stability, safety, and maintenance issues.

FLOODWALLS AROUND THE ALA WAI CANAL (continued)

- None of the concepts would make the Canal narrower since that would reduce its capacity to hold floodwaters. Instead, a wider area would be available for Canal flows during a flood event.
- There may be concerns with homeless people or others loitering on the inner side of the wall. This will need to be considered as we design and implement the project.
- The Ala Wai Canal itself is historic so we need to take that into consideration when we plan for and design measures that will impact its walls.
- Concept D (Concrete floodwall and earth levee) will likely need a safety railing to protect people from falling into the Canal.
- Can we use flood gates (moveable walls) instead of solid walls to preserve access to the Canal?
  - Yes, but it is more of a burden on the local sponsor because it will require someone to manually move the wall into place every time there is a threat of flooding. A passive solution such as a wall would always be in place.
  - Flood gates could be a good solution for areas that are actively used as launch points for the canoe clubs.
  - We would need to consider how much lead time we would have before the Ala Wai Canal overtops, and whether or not that is enough time to reasonably ensure that someone could get to the moveable section and secure it in place.
  - If a movable wall were constructed, a flood warning system would be required.
- Are there floodwalls proposed around the Canal where the Hausten Detention Basin berms are proposed?
  - There are currently floodwalls/berms proposed along with the Hausten Ditch Detention Basin berms, but the Project can consider ways in which these could be combined.
- Concept C (Earth levee) would need to be about four feet high near the canoe club launch areas (near Station 48+47).
- Canoes are stored and launched at three different locations along the Ala Wai Canal: near McCully, at the bottom of University Avenue, and near the Golf Course at Kapahulu.
  - There would be no floodwalls along the Canal at the Golf Course, but the perimeter berm for the Golf Course detention basin will need to consider access for the canoe clubs
  - Berms with flatter slopes may allow for canoes to go over them at the McCully and University launch sites.
- What would happen to the existing coconut trees, landscaping, and benches along Ala Wai Boulevard? Residents and users along the Waikīkī side of the Ala Wai Canal are very invested in the "linear park" that runs along the entire length of the Canal and have high expectations that this area be accessible and well-maintained.
  - Some of these features may have to be removed, depending on the space available, the floodwall design selected for that area, and the exact placement of the features, but this has not yet been determined.
  - The project should coordinate with the City Department of Transportation Services about potential impacts to the roadway, parking, and landscaped area.

FLOODWALLS AROUND THE ALA WAI CANAL (continued)

- Are the storm drains that feed into the Ala Wai Canal above water level? In some cases, the existing storm drains are partially submerged.
- How many flap gates will be needed to prevent backflow into the storm drains?
  - There are at least 40 locations where a flap or sluice gate is needed.
  - Flap gates have high maintenance requirements, and are considered a high liability if they fail; they noted the need to use high quality products.
- How will the project affect dredging of the Canal?
  - The project is expected to increase capture of sediment and debris before they reach the Canal, and therefore it is not expected to increase the need for dredging.
  - Dredging was considered as a measure to increase the Canal's capacity; however, the dredging would need to be maintained to provide ongoing flood protection, and the maintenance requirements are extremely high. As such, this measure was dropped from consideration.
  - The flood modeling is based on the capacity of the Canal following the last dredging event.
  - The DLNR periodically dredges the Canal and is currently assessing the timing for the next maintenance dredging event.
- There are existing steps leading into the Canal on the Waikīkī side, providing access for fishermen. This needs to be considered as part of the design.
- How will the berm/wall accommodate Makiki Stream at the confluence with the Ala Wai Canal?
  - The berm/wall will likely need to be continued up Makiki Stream to tie into an existing feature (e.g., bridge) in order to maintain protection in this area.
  - The stream is very narrow and this area is very flood-prone.
  - Makiki Stream is also highly constrained by existing development: many structures are built close to the stream, the stream is partially underground, private decks cross the stream, etc.
  - It will be very difficult to provide flood protection in this area. As an example, in order to contain the floodwaters within the stream (near Jack in the Box), the floodwalls would need to be 16 feet high. As this is not practicable, detention basins are being considered in the upper watershed.
  - There will still be areas within Makiki that cannot be protected.
  - There are plans to build a condominium in the parking lot on the corner of Kapiʻolani Boulevard and Kalakāua Boulevard, adjacent to the Century Center building. The City had a maintenance easement through this lot to clean Makiki Stream.
- The McCully Bridge restricts Ala Wai Canal water flow but modifying it would have been extremely costly.

ALA WAI GOLF COURSE DETENTION BASIN

- The berm for the golf course detention basin is in the vicinity of the entrance road.
  - The City is currently working on a stormwater project in that area that involves repaving the access road and installing rain gardens.
  - The detention basin design can accommodate these improvements.
  - A flood gate across the entrance road could be used to maintain access to the Golf Course.

ALA WAI GOLF COURSE DETENTION BASIN (continued)

- Can the cart path be located on top of the berm for the detention basin?
  - This is what is currently shown on the conceptual design, but there is flexibility. The design can accommodate changes in the cart path, as well as the placement of the holes.
  - A suggestion was made to consult with a golf course designer as a part of this effort.
- There are examples of areas where the rough is successfully used to accommodate floodwaters, with minimal impact to the course. However, the tees/greens would likely need to be raised significantly to minimize flood-related damages, which would be extremely expensive and time-consuming to repair after a flood.
- The State, in collaboration with the Ala Wai Golf Course, has also studied using the Golf Course as a sediment basin to improve water quality.
  - An inflatable dam would be used in the Mānoa-Pālolo Drainage Canal during small flood events, and the sediment basin would be used to reduce sediment/pollutants associated with these "first-flush" events.
  - It would be an open-channel feature (designed to function similar to a wetland).
  - Maintenance responsibility would need to be defined and coordinated by the State.

HAUSTEN DITCH DETENTION BASIN (at Ala Wai Community Park)

- What would the berms around the ball field look like and what would they be built from?
  - The berms would be about four-feet high earthen berms, covered with grass to minimize erosion.
  - The City Department of Parks and Recreation's (DPR) concerns relate to maintenance and emergency access to this area.
  - Berms would have a 3:1 slope to allow for a riding mower to drive on it for maintenance purposes.
  - A paved path could be built over the berm to provide emergency vehicles with access to the ballfield.
- Canoe clubs use a portion of the park near the end of the parking lot as a turning area for their trailers and to get their canoes from the halau into the Ala Wai Canal and back again. The project team will see if there is a way to align the berm to not block this access while still accommodating the ball field.
- The park where the detention basin is located is heavily used for softball. There may be specific safety concerns associated with placing berms/walls near the playing fields.
- The detention basin is more appropriate at the current location than the ball field on the 'Ewa side of Hausten Ditch, which is more heavily used.
- It was suggested that the berms could serve as an outfield observation area. This is a possibility but DPR would need to consider this idea further.

Athline concluded the meeting by thanking the participants. She encouraged the participants to provide any follow-up input in the next several weeks and noted that the next opportunities for input would be during a series of open house meetings, which are expected to occur in May.

Appendix G4
Open House Meeting Summary (2014)

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Environmental & Community Planning

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ALA WAI CANAL PROJECT
MEMORANDUM

Date: **May 20 & 21, 2014**
To: **Project Files**
From: **Townscape, Inc.**
RE: **Open Houses on the Ala Wai Canal Project and Proposed Alternative 3A**

Two community Open Houses were held for the Ala Wai Canal Project: one at Mānoa Valley District Park and one at Stevenson Middle School. Each Open House ran from 5:00 pm to 8:00 pm to allow attendees flexibility in accommodating their schedules. Thirty five people signed in to the May 20 Open House in Mānoa and 20 people singed in to the May 21 Open House at Stevenson.

The purposes of the Open Houses were to (1) update the community on the status of the Ala Wai Canal Project (AWCP), (2) inform the community of the measures currently being proposed for implementation, and (3) provide the community with the opportunity to ask questions and comment on the project and proposed measures in advance of the Draft Feasibility Study/Environmental Impact Statement (FR/EIS).

A brief slideshow was presented at 5:00 pm to provide Open House participants with background on the project and its current status. The slideshow was then looped continuously for those who arrived later to view. Three information stations were set up around the room with different topics:

1. Project Background;
2. Measures Proposed in the Mid- to Upper-Watershed; and
3. Measures Proposed in the vicinity of the Ala Wai Canal.

Participants were free to view the maps, drawings, and displays at their leisure, ask questions of staff, and comment on the proposed project and measures. Questions and comments raised at the Open Houses are recorded below.

PROJECT BACKGROUND AND GENERAL QUESTIONS AND COMMENTS

- Cost/Funding/Timing/Phasing
  - Are the State and City participating?
  - Check with the O‘ahu Metropolitan Planning Organization (OMPO) for Federal Transportation funds.
  - Incorporating climate change helps drive funding.
  - Can the USACE/DLNR really build this for $200 million?
  - Would construction start in the upper watershed or the lower watershed?
  - When would construction start? How long will it take?
  - What is the project timeline?

PROJECT BACKGROUND AND GENERAL QUESTIONS AND COMMENTS (continued)

- Operations and Maintenance
  - Maintenance will always be an issue.
  - Operations and maintenance needs to be addressed.
    - Community is losing faith because of past lack of support and follow through.
    - Need maintenance of ditch that flows into Mānoa Stream (community can't help if basic maintenance is not provided).
  - We need to organize communities to take care of their neighborhoods in new ways. It's the "kuleana frontier." An example of this is community-based disaster preparedness.
  - Revisit the idea of a stream access corridor, i.e., "Greenbelt," for maintenance, recreation, water quality, and floodway expansion. This could be a project for the UH Planning School to take up.
- What is one cubic feet per second (CFS) in gallons per minute (GPM)?
  - 1 CFS = ~449 gallons/minute
- Flood mapping
  - What happens in a smaller event?
  - What about the existing Federal Emergency Management Agency (FEMA) Flood map?
    - The local sponsor would have to request FEMA to revise the Flood Insurance Rate Map.
  - In a 1% storm, how deep are flood waters without the project? With the project?
  - Show existing flooding and with-project flooding side-by-side for comparison.
- Climate Change
  - What happens with climate change?
  - How has sea level rise been considered?
  - How will storm surges change as a result of climate change? How will this affect flooding?
  - Has climate change been considered? Rainfall, storm surges, probability analysis (1-year, 5-year, 10-year, etc.). Frequency/intensity of rainfall.
  - Design elements seem to focus on getting water into the Canal. How is sea level rise factored in?
- Coordination and Outreach
  - Can the Project team do a presentation to the Mānoa Neighborhood Board?
  - It is important to coordinate with the Neighborhood Boards. Use the Neighborhood Boards as a conduit to other stakeholders. Some neighborhood Boards also televise their meetings.
  - Is the project coordinated with other developments in the area, e.g., transit, high rises in the lower watershed, etc.?
  - Coordinate with the Waikīkī Circulator Study
  - Will there be more meetings to discuss the conceptual designs?
    - Concerns about impacts of flood walls on recreational access.
    - What is involved with installing walls?
- Are there other flood control projects on-island that can be examples of successes and failures?

- Low Impact Development
  - Consider incentivizing control of stormwater runoff as a possible solution.
  - These solutions are beneficial for small-scale events but don't help large-scale events much.
  - Mandate additional permeable surfaces and passive drainage to help deal with current and future peaks from climate change. Write into code. Lower insurance rates as an incentive. Use this to supplement the engineering solution.
- Ecosystem Restoration
  - Would some of these measures improve water QUALITY?
  - Will the project address water quality (not just quantity)?
  - Are there considerations for taking out channelization for ecosystem restoration?
  - Use permeable surfaces (pervious pavers) and more vegetation (native plants), e.g. Buzz's Steakhouse, Kailua; Kaelepulu Stream

MEASURES PROPOSED IN THE MID- TO UPPER-WATERSHED

- Makiki Stream
  - What is the plan for Makiki Stream? It needs maintenance!
  - My neighbor built OVER the stream!
  - Would there be increased flooding in Makiki in the with-project condition?
- Mānoa Stream
  - There are cultural sites in upper Mānoa Valley
  - Concern with flooding of farms as water backs up behind basins in Mānoa (Wong property).
  - Debris in Mānoa Stream (stumps) seen by resident and reported to the City. No action taken. Likely illegal dumping. Pack trunks and branches along banks. Heavy rainfall dislodges debris upstream of Mānoa District Park and could clog up the proposed debris catchment at the Park during a storm.
  - The Waiakeakua flume is eroding and needs repair.
  - Woodlawn chute structure
    - How does it work both with and without the AWCP (question came from a home owner whose property is near the bridge).
    - What does the chute structure do and does it work with the Ala Wai Canal Project?
  - Need to consider local storm drainage pipe at Kahewai Place (Paul Araki, homeowner) between Kahaloa and Lowrey.
    - Drainage pipe is perpendicular to stream flow and during high flows, it causes backup
    - It would help to redirect the drainage pipe to better merge with stream flow (by angling it so the outflow comes out in the same direction as streamflow).
- Waihī Detention/Debris Basin
  - Who owns the land?
  - Ala Wai Watershed Association (AWWA) project location on the Paradise Park property. Coordinate with AWWA on location of their project in proximity to the Waihī detention basin.

- General comments and questions regarding Mid- to Upper-Watershed Planning
  - How do the debris/catchment basins work?
  - Are debris catchment posts high enough? Would logs float over them during a flood?
  - How will you avoid buildup of debris, trash, and sediment before a storm?
  - What happens when debris catchment backs up during a storm? We won't be able to clean it out during a storm. Will this increase flooding upstream?
  - Detention Basins: can we tap into the water that is held back and make use of it for irrigation. We would need to use pipes to distribute the water to irrigation areas.
  - Re-development increases runoff.
  - Will there be access roads for maintenance?
  - Will there be takings of property?
  - Operations and maintenance is a concern.
  - What type of materials will be used?
  - Does the Ala Wai Canal Project work with the UH Drainage Project?
  - Will there be coordination with the Rail project?
  - Special taxation district? Rate that is no net increase with respect to flood insurance rates.

MEASURES PROPOSED IN THE VICINITY OF THE ALA WAI CANAL

- Hausten Ditch Detention Basin
  - Is there a lot of debris, or is it not too bad?
  - The Marco Polo "maze" system captures lots of debris before it can get into the Canal.
  - Where would the sluice gate be placed?
  - The Hausten Ditch sluice gate "looks like an industrial area" and will destroy this important cultural asset.
  - Sluice gates: are lower gates or flap structures possible, or would "hinge" structures require more maintenance?
  - Can the mouth of Hausten Ditch (where it connects to the Ala Wai Canal) be smaller?
  - There is no need for a detention basin at Hausten Ditch.
- Flood Walls Around the Ala Wai Canal
  - Location and height of flood walls
    - A berm wouldn't work on the makai side of the Canal because there isn't enough space to accommodate the slope needed for safety and maintenance reasons.
    - Do you need flood walls on the mauka side of the Ala Wai Canal? Why not put berms around Ala Wai School and Noelani School? Water naturally dissipates (based on personal observations). When told that the USACE is modeling a much bigger storm event, the response was that the USACE is going overboard.
    - There needs to be a flood wall to protect 'Iolani School
    - A berm around Ala Wai Elementary School would suffice.
    - Could a new flood wall be built on top of the existing wall after it is repaired?
    - Do the flood walls need to be so high?
    - How high will the flood walls be? Three feet? Four feet? Five feet?

- Aesthetics
  - Design the flood walls to match the existing historic walls with arched shapes.
  - "Fake archways" on the wall could look better than plain concrete.
  - Berms on the mauka side of the Canal could have a "wavy" alignment.
  - Flood wall aesthetics: a "pattern" would help and is preferable to "plain concrete."
  - Aesthetically pleasing walls on the Ala Wai Canal would be an improvement.
  - Make the walls look better for tourists. Double walls will turn them off.
  - Consult with the Diamond Head and Waikīkī Special Districts about potential view corridor issues.
  - See Cedar Falls as a good example of flood walls
- Historic/Archaeological/Cultural Concerns
  - The entire Canal is on the Historic Register. The proposed flood wall would compromise the integrity of the historic Canal.
  - Can ask the State Historic Preservation Division for a variance. Design the wall to appear similar to the historic resource.
- Accessibility
  - How many ramps over the flood wall will be needed?
  - Need to consider whether access points into the Canal should be Americans with Disabilities Act-compliant. Existing stairs are not compliant because they are historic. Would the project change this?
  - What is impact on recreational uses and pedestrians? What about during construction?
  - Some coaches for the canoe clubs walk along the wall to coach the paddlers.
- Safety
  - Safety concern: visibility will be restricted behind the wall, particularly if the sidewalk is on the Canal side of the wall. Consider talking with the Waikīkī Business Improvement District about safety concerns and programs.
  - Major concern for placement of the wall down at the historic section of the walls. Recommend moving the wall next to the historic walls or the area will become a Mecca for homeless.
- We are getting higher tides, especially with the full moon.
- City prefers no flood walls.
- Where does the rain falling in Waikīkī go? Will the new flood wall trap water in Waikīkī?
- Will the flood wall cause Waikīkī to flood even more in a tsunami? Have the effects of tsunami been considered?
- How will the flap gates affect the subsurface drainage systems?
- Look into retention system expansion: cancel Ala Wai Canal walls, 10-foot high industrial sluice gate structures, concrete ramps and any other structural elements that will destroy: the character, the integrity, the visual appearance and aesthetics, the cultural value, and the Hawaiian sense of place of the Ala Wai Canal walls and promenade. This is a historic Place. Please do not adversely impact this major public asset.

- Ala Wai Golf Course Detention Basin
  - Why is there still flooding behind the golf course under the with-project condition?

- Additional comments and questions regarding Ala Wai Canal-area planning
  - Can we raise Ala Wai Boulevard?
  - Can we have a wide/raised promenade?
  - Measures around the Canal should have their own break-out sessions, stakeholder charrettes to factor in design considerations for users. Include recreation features such as improved walkways to make the concepts more palatable to the community.
  - Dredging
    - How much sediment is accumulating annually in the Canal?
    - Is dredging the Ala Wai Canal a possible solution?
    - Did you look at dredging the Ala Wai Canal?

Ala Wai Canal Project

May 2014

The Ala Wai Canal Watershed, comprised of the communities of Makiki, Mānoa, Pālolo, McCully, Mōʻiliʻili, Kapahulu, Ala Moana, and Waikīkī, is susceptible to flooding due to aging and undersized flood conveyance infrastructure. Additionally, flooding often occurs rapidly as "flash floods," when heavy rains run downstream extremely quickly due to steep topography and relatively short stream systems. The Ala Wai Canal has overtopped its banks in 1965, 1967, and in 1992. More recently, a 2004 storm caused over $85 million in damages to the Mānoa area and 40 days of consistent rainfall in 2006 caused flooding in Makiki.

The State Department of Land and Natural Resources (DLNR), together with the U.S. Army Corps of Engineers (USACE) are leading the proposed Ala Wai Canal Project. The goal of this study is to increase life safety and reduce flood risk. A key collaborator in this process is the City and County of Honolulu.

This dense area of urban Honolulu contains over 3,000 properties; 54,000 residents; 85,000 students and workers; and 79,000 visitors within the floodplain. A 1% chance flood event would cause an estimated $397 million (October 2013 dollars) in property damages. The majority of the economic damages are expected to occur in Waikīkī, where the density is highest. Additional economic losses to businesses would increase this estimated economic impact.

The Ala Wai Canal Project is currently in the Feasibility Study Phase, which will conclude with the publication and filing of a joint Federal and State Feasibility Study and Environmental Impact Statement (EIS). The EIS will describe and compare project alternatives and their respective impacts on the community, environment, and economy. The final Feasibility Study and EIS will be used to support a Chief of Engineer's Report. That report will then be sent to the U.S. Congress to seek authorization for construction of the project.

For more information, please contact:

Athline Clark, Project Manager
U.S. Army Corps of Engineers
808-835-4032
athline.m.clark@usace.army.mil

State of Hawaiʻi
Department of Land and Natural Resources

US Army Corps of Engineers
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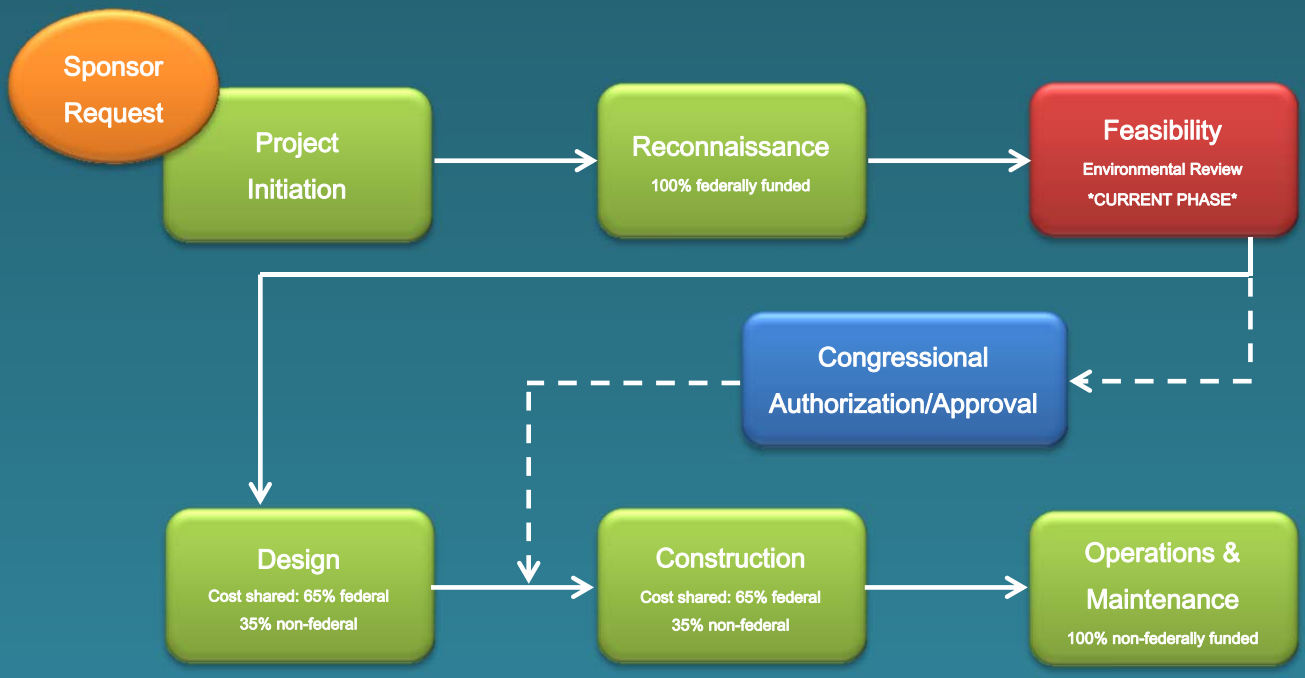
Ala Wai Canal Project



Expected flooding during a 1% chance flood event

Appendix G5
Legislative Briefing Summary (2014)

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From: Sherri Hiraoka <Sherrihiraoka@townscapeinc.com>
Sent: Tuesday, June 03, 2014 12:41 PM
To: Rep. Joseph Souki; Sen. Donna Mercado Kim; Rep. John Mizuno; Sen. Ronald D. Kouchi; Rep. Mark Hashem; Rep. Bertrand Kobayashi; Rep. Calvin Say; Rep. Scott Nishimoto; Rep. Tom Brower; Rep. Isaac W. Choy; Rep. Della Belatti; Rep. Sylvia Luke; Rep. Scott Saiki; Sen. Sam Slom; Sen. Les Ihara, Jr.; Sen. Brian Taniguchi; Sen. Brickwood Galuteria; Sen. Suzanne Chun Oakland; Rep. Chris Lee; Sen. Mike Gabbard; Rep. Henry J.C. Aquino; Sen. Will Espero; Rep. Cindy Evans; Sen. Malama Solomon; Sen. Gilbert Kahele
Cc: 'Carty.S.Chang@hawaii.gov'; 'Karen Ah Mai'; Sherri Hiraoka; 'athline.m.clark@usace.army.mil'; Floriene Hamasaki; Gina Williams; Christine Fehn; Harrison Kawate; Kathy Kato; Edward Thompson, III; Evelyn Hee; Kevan Wong; Cynthia Nyross; Carole Hagihara; Jon Kawamura; Julie Yang; Jonathan Tungpalan; Melvin Ah Ching; Heather Bolan; Susan Miyao; Tommie Suganuma; Raytan Vares; Alisha Leisek; Tyrell Maae; Jennifer Wilbur; Rock Riggs; Donna Lay; Maureen Andrade; Marlene Uesugi; Teriitavae Perez; Roth Puahala; Linda Menda; Tom Heinrich; Kettley, Lisa/HNL; Bruce Tsuchida; Gayson.Y.Ching@hawaii.gov
Subject: ALA WAI CANAL PROJECT - Open House Recap

Aloha:

As mentioned in the briefing provided to you and your staff on May 13, 2104, the Ala Wai Canal Project Team held two Open Houses on May 20 and 21, 2014 to update the community on the project, share the measures being considered, and provide an opportunity to receive comments in advance of the Draft Feasibility Report and Environmental Impact Statement (EIS), which is expected to be published in late 2014. The first Open House was held at Manoa Valley District Park and the second at Stevenson Middle School. A total of 45 people signed in, but it was noted that some attendees did not sign in.

Open House participants were curious and engaged and had great discussions with project staff. Common questions and comments from both the Open Houses and the Legislative Briefing included:

- Operations and maintenance are of concern because existing projects are not maintained. The community could help, but needs support.
- Climate change impacts such as sea level rise and larger storms need to be factored into the project.
- This project needs to coordinate with other projects in the area such as rail, new high rises, the UH Drainage Study, and the Waikiki Circulator Study.
- How do the detention basins and debris catchments work? Will they flood upstream areas? How will they be cleaned?
- The proposed Hausten Ditch detention basin sluice gates are ugly and do not fit into the surrounding park/open space area. Is there a way to make them smaller or use a different, less intrusive mechanism?
- Consider potential uses outside and adjacent to the Ala Wai Golf Course when designing the berms. Many ideas have been proposed on the Date Street/Kapahulu sides of the Golf Course but have been restricted due to lack of space.
- Is there a way to make the proposed flood walls around the Ala Wai Canal lower? How does this impact the view plane and open space benefits currently provided by the Canal, parks, and golf course?
- Any flood walls around the Ala Wai Canal should be aesthetically pleasing, especially for the tourists. A blank wall may invite graffiti.
- Flood wall design should consider safety, particularly regarding homeless congregation, visibility, and protection from falling into the Canal.
- Flood walls need to allow for recreational access into and around the Canal, particularly for pedestrians and canoe paddlers.

The Project Team is reviewing the questions and comments and is folding the concerns raised into the

Feasibility Study/EIS.

Thank you for your continued interest and involvement in the Ala Wai Canal Project. The slideshow from the Open Houses is posted at the project website at: http://alawaicanalproject.com/meetings/AlaWai_OpenHouse_presentation_20May2014.pdf.

We will be sure to inform you when the Draft Feasibility Study/EIS is published and the Public Hearing is scheduled. Until then, please feel free to contact myself or the Project Manager from the US Army Corps of Engineers or the Department of Land and Natural Resources with any questions. Our contact information is provided below.

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Mahalo,
Sherri

Sherri Hiraoka
Senior Planner

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Appendix G6
EIS Preparation Notice (2014)

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October 23, 2014

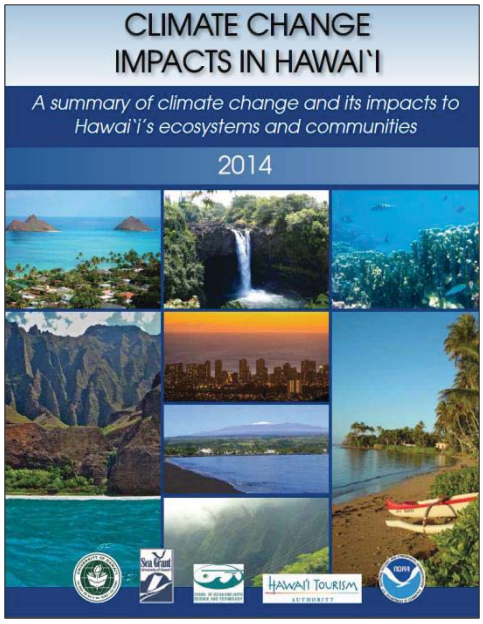
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

The Environmental Notice

A Semi-Monthly Bulletin pursuant to Section 343-3, Hawai'i Revised

Climate Change Impacts in Hawai‘i

The University of Hawai‘i Sea Grant College Program (UH Sea Grant) prepared a report that summarizes the current state of scientific knowledge regarding climate change and how it is anticipated to affect Hawai‘i.



Climate Change Impacts in Hawai‘i - A Summary of Climate Change and its Impacts to Hawai‘i’s Ecosystems and Communities was written to provide communities and government agencies with a fundamental understanding of the effects of climate change so that Hawai‘i can be better prepared for changes to come.

OEQC recently released ***The Hawai‘i Environmental Policy Act Citizen’s Guide*** which discussed the need to incorporate sea level rise and other climate change impacts in environmental review documents. As this ***Climate Change Impacts in Hawai‘i*** report is structured to serve a broad audience it may assist both document preparers and reviewers to incorporate climate change impacts into plans for future development.

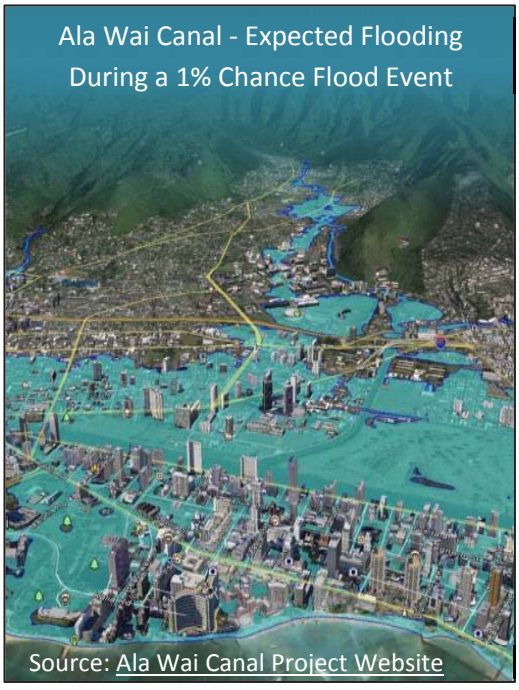
Ala Wai Canal Project EISPN

The Ala Wai watershed (comprised of the communities of Makiki, Mānoa, Pālolo, McCully, Mōili‘ili, Kapahulu, Ala Moana and Waikīkī) is the most densely populated watershed in Hawai‘i.

The Ala Wai Canal is susceptible to flooding due to aging and undersized flood conveyance infrastructure.

The State of Hawai‘i Department of Land and Natural Resources and the U.S. Army Corps of Engineers are conducting a feasibility study to address flood risk associated with the Ala Wai Canal and its contributing watershed. The objective of the project is to reduce riverine flood hazards to property and life safety in the Ala Wai watershed.

See page 6 for more details.



O‘AHU (HRS 343)

5. Ala Wai Canal Project EISPN

Island: O‘ahu
District: Honolulu
TMK: Various TMKs in Zone 2, Sections 3-9 and Zone 3, Sections 1-4
Permits: Clean Water Act §404 compliance; National Environmental Policy Act (NEPA) compliance; National Historic Preservation Act (NHPA) §106 compliance; Coastal Zone Management Act (CZMA) compliance; Fish and Wildlife Coordination Act (FWCA) compliance; Request for Use of State Lands; Hawaii Revised Statutes (HRS) §343 compliance; Department of Health §401 Water Quality Certification; National Pollutant Discharge Elimination System (NPDES) permit; Conservation District Use Permit, Stream Channel Alteration Permit; HRS §6E Historic Preservation review; Special Management Area (SMA) permit; Waikīkī Special District permit; Community Noise Permit; Grading and Building Permits
Proposing Agency:
Department of Land and Natural Resources, Engineering Division, P.O. Box 373, Honolulu, Hawai‘i 96809.
Contact: Gayson Ching, gayson.y.ching@hawaii.gov, (808) 587-0232
Accepting Authority:
Governor, State of Hawai‘i
Consultant: CH2M HILL, 1132 Bishop Street, Suite 1100, Honolulu, Hawai‘i 96813
Attn: Lisa Kettley
Status: Statutory 30-day public review and comment period starts; comments are due by November 24, 2014. Please send comments to the proposing agency and consultant.

The State of Hawai‘i Department of Land and Natural Resources (DLNR) and the U.S. Army Corps of Engineers (USACE) are conducting a feasibility study to address flood risk associated with the Ala Wai Canal and its contributing watershed, including Makiki, Mānoa and Palolo Streams. The Ala Wai watershed is the most densely populated watershed in Hawai‘i; in addition to residential, commercial, and institutional development, the watershed also includes the Waikīkī District, a prime tourist destination and economic engine of the State. It is estimated that the Canal has the capacity to contain about a 20- to 10-percent chance (5- to 10-year) flood before overtopping the banks; overtopping of the Canal has previously caused flooding in Waikīkī multiple times. Upstream areas are also at risk of flooding, as demonstrated by an October 2004 storm in Mānoa, which caused an estimated $85 million in damages. Initial modeling efforts indicate that the 1-percent chance (100-year) flood would result in damages to more than 3,000 structures throughout the watershed, with property damages exceeding $311 million (based on 2009 price levels).

The objective of the project is to reduce riverine flood hazards to property and life safety in the Ala Wai watershed. In response to identified flood-related problems and opportunities, a variety of measures were identified. These measures were combined into a range of alternatives, which were evaluated through an iterative screening and reformulation process, resulting in identification of a Tentatively Selected Plan (TSP). The TSP involves construction of (1) a series of in-stream detention basins in the upper reaches of Makiki, Mānoa and Palolo streams, (2) additional detention basins adjacent to the Ala Wai Canal, (3) debris catchment in portions of the developed watershed, (4) floodwalls along the Ala Wai Canal and (5) various non-structural measures (e.g., flood-proofing). Given the scope and scale of the measures being considered, it is expected that implementation of the TSP will result in unavoidable adverse impacts. As such, it has been determined that an Environmental Impact Statement (EIS) will be required. The EIS will describe the TSP (proposed action) and the range of reasonable alternatives, and will address the potential for direct, indirect, and cumulative effects on

the human, natural, and cultural environment; mitigation measures that avoid or minimize the potential adverse effects will also be identified. Pursuant to Hawaii Revised Statutes (HRS) Chapter 343, an EIS Preparation Notice (EISPN) has been prepared to inform interested parties of the project, and to seek input on issues or resources of concern that should be addressed in the EIS.

6. Camp Pūpūkea Mater Plan FEA (FONSI)

Island: O‘ahu
District: Ko‘olauloa
TMK: (1) 5-9-005:002 and (1) 5-9-005:077
Permits: Conservation District Use Permit; National Pollutant Discharge Elimination System Permit; Department of Health Wastewater Permit; Building Permits
Applicant: Aloha Council Boy Scouts of America, 42 Pū‘iwa Road, Honolulu, Hawai‘i 96817
Contact: Jeff Sulzbach, (808) 595-0859
Approving Agency:
Department of Land and Natural Resources, 1151 Punchbowl Street, Honolulu, Hawai‘i 96813, Contact: Kimberly (Tiger) Mills, Ph.: (808) 587-3822; Fax (808) 587-3827
Consultant: PBR Hawaii & Associates, Inc., 1001 Bishop Street, Suite 650, Honolulu, Hawai‘i 96813.
Contact: Tom Schnell, (808) 521-5631; Fax (808) 523-1402
Status: Findings of No Significant Impact Determination

Boy Scouts of America Aloha Council have used Camp Pūpūkea for overnight camping and recreation since the early 1960s. This former military training area is the largest and busiest Boy Scout activity center in the Pacific. Its summer camp program plays host to troops from throughout Hawai‘i and the United States Mainland. It is used year-round for camping, training, and other various activities.

The Boy Scouts are proposing various improvements at Camp Pūpūkea. Upgrades include infrastructure improvements (particularly wastewater improvements to eliminate the use of portable toilets), renovation or relocation of some existing structures, and new facilities. Improvements are expected to be completed in three phases over a period of 20 or more years.

The proposed improvements will address facility deficiencies and have beneficial impacts by creating safer conditions and improved facilities. Potential adverse impacts, while minimal, can be mitigated.

7. Fuller Residence FEA (FONSI)

Island: O‘ahu
District: Ko‘olaupoko
TMK: (1) 4-5-047:116
Permits: City and County of Honolulu, Shoreline Setback Variance, and Building Permits (building, plumbing and electrical).
Approving Agency:
Department of Planning and Permitting, City and County of Honolulu, 650 South King Street, 7th Floor, Honolulu, Hawai‘i 96813, (808) 768-8000
Applicant: Herb Fuller, 45-038 Ka Hanahou Place, Kāne‘ohe, Hawai‘i 96744
Consultant: R. M. Towill Corporation, 2024 North King Street, Honolulu, Hawai‘i 96819,
Contact: Chester Koga, (808) 842-1133
Status: Findings of No Significant Impact Determination

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Appendix G7
EIS Scoping Meeting Notes (2004 and 2008)

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LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
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BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

JUN 17 2004

Dear Interested Party:

Ala Wai Canal Project – Environmental Impact Statement Scoping Meeting

The US Army Corps of Engineers and the State of Hawaii Department of Land and Natural Resources announce their intent to prepare an Environmental Impact Statement (EIS) for the Ala Wai Canal Project. This is a multi-purpose project that incorporates flood hazard reduction and ecosystem restoration for the Ala Wai watershed, which encompasses the Makiki, Manoa, and Palolo sub-watersheds, as well as Waikiki. Flood hazard reduction concepts being considered include flood walls around the Ala Wai Canal, dredging, flood water storage, widening the Canal, and modification of bridges spanning the Canal. Ecosystem restoration concepts include stream channel restoration, stream bank stabilization, riparian re-vegetation, check dam installation, sediment basin construction, and wetland re-construction.

In preparation of the EIS, the sponsors are requesting public input on the scope of analysis for the Draft EIS studies. A public EIS scoping meeting is being held to discuss the proposed project and its possible impacts, and to identify community concerns:

Ala Wai Canal Project - EIS Scoping Meeting
Tuesday, June 29, 2004
Hawaii Convention Center, Theater Room 320
6:30 p.m.
Parking will be free with validation

The project team will present the preliminary concepts, discuss the EIS, and explain the procedure for providing comments. The overall project schedule will also be covered.

Availability of the EIS Preparation Notice was published in the State Office of Environmental Quality Control June 8, 2004 Environmental Notice. We welcome your participation in this process and look forward to working together to create a safe and healthy watershed for the Ala Wai community.

This public meeting is accessible for individuals with disabilities. For more information or to request an auxiliary aid or service (e.g., sign language interpreter, designated parking, materials in alternate format), please contact Mr. Andrew Monden of the Engineering Division, at 587-0227 seven days before the meeting. Also, should you have any questions or concerns, please contact Mr. Monden.

Sincerely,

Peter T. Young
Chairperson

TOWNSCAPE, INC.

ENVIRONMENTAL AND COMMUNITY PLANNING

900 Fort Street Mall, Suite 1160, Honolulu, HI 96813
Telephone (808) 536-6999 Facsimile (808) 524-4998
email address: mail@townscapeinc.com

ALA WAI CANAL PROJECT
To: Project Files
Date: July 7, 2004

NOTES FROM EIS SCOPING MEETING held on June 29, 2004

This memo generally summarizes the Ala Wai Canal Project (AWCP) Environmental Impact Statement (EIS) Scoping Meeting held on Tuesday, June 29th at 6:30 pm at the Hawaii Convention Center Theater 320. Approximately 130 people attended the meeting.

Members of the project team gave a slide show presentation on the general nature of the AWCP as well as on the flood damage reduction and ecosystem restoration concepts they are considering. Additionally, the EIS process and public comment opportunities were described. After the presentation, meeting participants were asked to provide their comments on the project. Verbal comments were as follows:

Renwick "Uncle Joe" Tassill – Concerned Citizen, Ala Wai Watershed Association (AWWA), Tour Industry (leads ahupua'a system discussion at Hilton Bishop Museum)

- If we are designing for the 100-year storm, where are we in that 100-year cycle? What is the relationship of the timing of this project with the expected occurrence of the storm? Are there weather patterns/studies to figure this?
- A: The term 100-year storm refers to the statistical probability that a storm of this magnitude will occur once every 100 years. This does not mean that it will only happen once every 100 years. There is a 1% chance that this large of an event will happen in any given year. The term 25- or 100-year storm also means the magnitude of the storm.

- This project should be taken down to the children because it will affect them, too.

Raymond Gruntz – Safety Chair, Waikīkī Neighborhood Board

- How far up the Canal does the salt water travel and mix with the fresh water?
- A: During high tide, the salt water can go as high as Kaimukī High School.

- If you flood the golf course, will the salt water kill the grass?
- A: No, because the diversion to the golf course will be located upstream, above the tidal influence, putting only fresh water onto the course.
- The project team is invited to the Waikīkī Neighborhood Board to speak about the project.

Clifton Takamura – Mōʻiliʻili Neighborhood Board, resident

- Remembers the 1965 flood and how it flooded Ala Wai Elementary. Does not want children to have to experience the flooding that happened in the past.
- This project should have been coordinated with the dredging project last year.
- Wondered why flooding of Hausten Ditch and other streams has not been addressed, and recommended a cross-circulation idea for the Canal to the Corps but did not see that in the presentation.
- Project should also improve circulation in the streams, including Hausten Ditch.

Bill Tom – Marine Consultant

- Damming of streams not the answer, removal of trash is the answer. Need to concentrate on trash and sediment upstream, which will reduce pressure on the Ala Wai Canal.
- In Los Angeles, they have an 'inverted skateboard ramp' to collect trash – each city is responsible for collecting trash. Looking at this method to pick up trash and put in a chute would be good.

Petra Fetcher – former resident near the canal

- Experienced a 100yr flood in Ashland, OR, which has a similar geography to the Ala Wai watershed. Depended on the National Guard for 2-3 weeks, without sanitation and living off of rain barrels.
- We should all be concerned with the 100-year flood and come together to clean the streams.

Lance Grolla – former City Planner

- Based on his work experience, he thinks that 30 and 60-day review periods were not long enough. It takes time for people to write, also time to review. Extensions should be given so the community can adequately respond to the project.
- Create terraced channels/Canals in the upper watershed to catch water. There were terraced taro patches in Hawaiian history.
- Plant the terraces.
- Catch rainwater by draining water directly down into the aquifer (a system used in Australia) vs. the impermeable surfaces that we see in the developed areas. Australia

uses a piping system to catch water from impervious surfaces that runs directly into the catchment channels and the aquifer. This also prevents flooding.

He complimented the panel on the presentation.

(Tsuchida noted that there may be a problem with runoff from neighborhoods; they may contain contaminants that we do not want to get into the ground water. Lance replied yes, would have to use something like charcoal.)

Steve Kubota – Ahupua'a Action Alliance, AWWA, worked on Kaneohe-Kahaluu Stream Restoration and Maintenace Guidebook

- Make ahupua'a the knowledge base for designing restoration. William Kikuchi of Kauai reported on hydraulic infrastructure – heiau, lo'i system, and fish ponds is a graphical image of water systems Hawaiians used. It is a water management system; not a preservation system; i.e., lo'i was irrigation and fishponds were sediment traps. Its features include restoration of the aquatic ecosystem.

- Recreate landscapes. The National Research Council developed a manual: Restoration of Aquatic Ecosystems, in 1992. It is a formal process that the Federal government is trying to develop. It advocates using historical records, oral histories, GIS, and other tools as a guide for restoration. There is also extensive literature on the subject at the UH libraries.

- Need to look at history past the construction of the Ala Wai Canal. Utilize information on historic caves. He e-mailed Derek Chow about the 1935 Star-Bulletin article "Romance of the Caves" regarding John Williamson and the historic caves. It documents pre-historic activities relating to limestone caves. There is a wealth of clues that could be used to map the earlier hydraulic landscape. These caves may be used as conveyance for water and as restoration opportunities for their unique organisms, such as blind mullet.

- Rainwater catchment would cool water and address the bacteria problems.

Yoshimi Endo - Retired

He lived in the Moiliili Quarry area from 1963 to 1971. Flood waters covered the entire lower campus of UH.

- Tourism is the #1 economy; opposes dikes or barriers that tourists could see.

- Kaimuki High School could be used as a catch basin instead of an area where tourists can see.

Rick Egged – Waikiki Improvement Association

He complimented the panel and had the following thoughts and concerns:

- Damage estimates are rather low. Loss of business costs, etc., need to be included in the estimates.

- The flood is a community problem. It is not just a Waikīkī problem but it affects residents of McCully, Kaimukī, and all surrounding areas.

- Building walls and widening the Canal should be the last resort. It would negatively impact the community. The panel needs to look at every other option before doing that. Dredging helps and it is preferred to building walls and widening the Canal.

- Create another method for water to move from the Canal to the ocean, such as a drainage system to flush at Kapahulu end to increase capacity. This would be preferable to walls and/or widening.

(Chow's response was that we will try to avoid building walls but the situation must be evaluated. The original study in 2001 focused on just dredging or just walls and it determined that flood walls alone would need to be 10 to 13 feet high. However, the purpose of the study was to identify engineering solutions toward getting the Corps involved in the project. The best solution is a combination of all concepts because it would minimize the impacts of each individual action.)

Alan Ewell - Tantalus Association

- Restoration and flooding are integrated and should not be looked at as separate. Start at the top of the watershed and work down to prevent flood water from even reaching the Canal. There are lots of other options than what has been presented, e.g., green roofs, wetlands throughout the watershed, rainwater catchment for commercial and residential areas. Are these being considered?
- A: Tsuchida explained that we are looking at concepts such as catchment and wetlands, but we need to determine how much effort is needed to gain any measurable benefit. Chow stated that the Federal Government can't solve everything, but wants to help jump start the community.

- Economic, recreational development should all be considered at this stage. Previous proposals included using the Canal for commercial ferries and turning the golf course into a park, which would include wetlands. This team should coordinate with the appropriate State and City agencies to ensure that this project fits into their overall economic development plans for the area.

- A: Tsuchida explained that we are not considering redesigning the golf course for a park but we are looking at it as a storm water retention basin. We will coordinate with the appropriate agencies to ensure that this project does not conflict with future planned uses.

David Ogura – private citizen

- Provide a path or pipe on the Diamond Head end of the Canal to help with the conveyance during floods, running offshore instead of affecting nearshore.

- Consider draining out of both sides. The Canal can be made such that it will only be used in case of a flood.

- Widen and deepen stream beds to settle out sediments before they get to the Canal. Disposal of sediment will then be easier because it is not contaminated by salt water.

He lives on the Windward side and is experiencing sediment problems in the stream near his home. He has found that the permits and approvals process is time-consuming and suggested that the process should be streamlined. He indicated his frustration and said that while awaiting permits, approvals, and cleaning of the stream, the streambed near his home erodes and continues to get wider.

Patrick Chun – Ala Wai business owner

- Mr. Chun asked why the Ala Wai Canal had not been completed on the Kapahulu side?
- A: Frankly, they ran out of funding.

- Further, besides dredging deeper, what are the benefits of lining with concrete to convey water faster?
- A: Chow said we are trying to make the project area more natural; however, we cannot get more conveyance through the Canal by just dredging. We want to minimize the use of more concrete.

- Mr. Chun also noted that in keeping things natural, unless the streams and plantings are maintained properly, they may add to debris that clogs the stream and Canal.

Eric DeCarlo – private citizen

The stream in the Canal has never been dredged to its original depth. Can take core samples to tell what the original depth was. He noted that it is a Canal, not a stream, and by definition, it will never flow down hill, though at the onset, the Kapahulu end was higher.

Most of the sediment comes from the upper watershed. Fifty percent of the sediment load of Pālolo and Mānoa comes from above Waiakeakua. The Canal is a sediment trap; it is perfectly designed. Eighty percent of the sediment comes from the Conservation District; therefore, he believes that anything that is done toward abatement of the problem in the urbanized areas will have no impact on the sedimentation. Nature used to have sediment traps in the upper watershed.

(Chow's response was that we are looking at the upper watershed system to reduce the amount of sediment and contaminants.

Bourke stated that we need to balance the project such that sediment traps can be put in the upper watershed; we are trying to reinvent ways to capture sediment in the upper areas without negatively impacting the aquatic biology. This may include check dams, but anything bigger runs into hydraulic problems.)

Michael Cain – private citizen; SSRI Environmental Planner

Mr. Cain asked if the bike path in the diagram is an element being considered.

(Tsuchida responded that we would like to improve access on public lands where it is feasible.)

Lauren Roth –private citizen; also with UH Manoa

- Clean the pollution coming down into the Canal.
- Need to consciously build settling ponds and constructed wetlands for sediment and remediation issues, so that functional guardians are addressed, not just "restoration".
- Need native plants, wetlands features, widening of the banks, gardens that have purpose.

Lorraine Cypher – Waikiki condo owner, originally from the mainland

Ms. Cypher needed contact numbers in regard to suspicious substances in the Canal.

Mr. Takayesu provided numbers for the City Environmental Concern Line – 692-5656 and for the State Department of Health Clean Water Branch – 586-4309.

Chad Durkin – Biologist

Mr. Durkin is doing work in the Ala Wai watershed; he is looking at restoration and "natural engineering."

- Restore water quality integrating modern engineering with ancient Hawaiian practices and natural engineering. This technology exists, and need to incorporate this.
- Maintain the nutrient balance.

- Control the volume of water in the streams. The goal is to have more water in the streams on a daily basis and control water on a flooding basis.

- Plan for water re-use. We need to reduce water demand so we can get more water in the stream for native species.

He offered his project for those interested in participating – the Makiki Ecological Demonstration at the Hawaii Nature Center. He is there every Monday, Thursday, and Saturday from 10 a.m.-12 noon.

Sally Moses

We need to be concerned about our environment; we need to do what is pono. Ms. Moses lives in the uplands of Makiki and has seen the water in the stream go down to nothing in a 6-year period.

- A dry stream is a dangerous stream and will cause damage once a storm hits. Becomes overgrown with weeds.

- Get the charter and DOE schools involved in the project; turn this into a curriculum-based program; get the youth involved.

- Take care of the land, there is no other place to go.

Lionel Aono – Chair of Board of Public Golf Courses

There will be problems in using the golf course for drainage retention. After the water is drained, there will be a lot of silt and that will kill the grass for at least a year. The aftermath will result in a bad smell, muck, debris, and health problems. He noted that the West Loch golf course was flooded recently when a small stream overflowed due to a light rain; the course was closed for six months. Have the impacts of storm water on land been explored?

- Get the water out into the ocean. Storing the water on land will damage the environment.

(Tsuchida responded saying that we will look at those impacts over the next few months.)

Jim Harwood – Mānoa N.B.; AWWA

We need to consider the impacts of rain, wind, hurricane, and tsunami. The walls will hold tsunami back and keep the Canal from draining.

- Consider how this project will impact the area under these scenarios.

Unnamed female

- Do not widen the Canal due to recreational impacts. Prefer deepening. The Canal was dredged in 2003; the previous dredging was in 1973. Once in thirty years is not enough.

Wenhao Sun – former UH Researcher, now with private company that is currently involved with the Ala Wai

- Consider phyto-remediation.
- Follow the ahupua'a concept; restore the back yard. The plant component, e.g., taro, provides lots of functions – takes up nutrients and sedimentation, preventing upstream water from flooding down stream.

Mr. Sun heard a story about the Ala Wai of 20 years ago. It was very clean, marsh land with sea grass and people were able to swim in it.

- Work with nature.
- Create a sustainable system.
- Introduce plants. Introduce sea grass under stream then turn nutrients from pollutants/waste to food for plants; first need to clean up the algae from the water and then introduce the sea grass and establish the system.
- Grow native plants on a floating platform.

Gerald Takayesu for Helen Nakano – Mālama o Mānoa

Mālama o Mānoa cleans a section of the Mānoa Stream and worked under the Kuleana Project last year. Ms. Nakano is able to get the necessary volunteers and would like help from the government in finding a way to make it easier to adopt stream sections for volunteer groups. Has been trying to do this for the last five years but needs help in cutting the red tape.

Ray Pendleton – recreational boating

Mr. Pendleton reminded the panel that there is a multi-million dollar marina at the end of the Ala Wai Canal and they are usually not included in Ala Wai projects. For example, last year's dredging stopped at the Ala Moana Bridge. A larger-walled Canal, carrying more water, will damage the marina. The boats in the marina take the brunt of the damage. In the last ten years, during heavy rains, boats were carried away.

Karen AhMai – AWWA.

Ms. Ah Mai cited the importance of Mr. Yoshimi Endo's statements regarding the UH Quarry and Kaimukī High School where flood waters could be stored.

She talked of Ho'omaluhia where a huge berm was built. As a result, in the 1965 flood, the Kānewai area people had to climb out of their windows.

For emergency storage areas, consider places like the UH quarry, soccer fields, etc.; look at that type of large diversion. If bermed properly, this area could serve as a detention basin, and concerns of this area being flooded are not as high as other areas.

John Wilbur – citizen / paddler

Mr. Wilbur noted that a complete archaeology history of the watershed has not been done.

Regarding chemicals in Oahu's streams, he asked, "Where do we stand as a state in regard to the Federal Clean Water Act? Are we getting Federal funds because our streams are polluted? Is that why we are trying to clean the watershed area? Are water standards being addressed?"

He felt that this project is a step toward improvement and he appreciates it.

(Tsuchida responded that archaeological and cultural resources studies are currently being done. In regards to the Clean Water Act, while this project cannot solve all of the water quality issues for the state or for this area, we are working to do what we can so together, with other groups and agencies, we can work toward that goal)

Robert Rodman – Waikiki residents association

Mr. Rodman stated that several years ago he wrote to the Department of Land and Natural Resources in regard to flushing fresh water from the Kapahulu groin. In his plan, a one-way valve would flush water into the Canal twice a day with the tides. This could be done without the use of pumps 24 hours a day. The process is to drain out the Canal and bring fresh sea water in. It is a global solution.

There are a large number of pigs in upper Mānoa Valley and that is probably the reason for so much sediment; they are tearing up the forest. Need to look at this part of the problem too.

He is trying to get a grant to automate the cleaning of the debris trap under bridges. The area was not dredged and there is still a lot of sediment under there. If there is a flood, the flood waters would go over the bridge. He further noted that there are large blockages in the Canal.

Lance Grolla

The promenade is the most beautiful, supreme place. He questioned why we would plan to remove 20 feet of it and endanger the root system of the trees. He thinks it would be better to widen the Canal on the Waikīkī side instead.

(Chow responded that there are roadways and utilities involved across the Canal. The promenade side was proposed because of the ease in getting equipment in there and the lesser impacts on utilities.)

Petra Fletcher

Ms. Petra cited the beauty of the Amsterdam Canal as well as the deterioration of canals in Italy and Greece. Bad pollution kept tourists away for years. She feels that we need to talk to the proper people, the baby boomers who are creating the trash, not the children. We need a public education program.

Edgar Akina – from Kalihi

- Finish the Canal on the Diamond Head side.
- Do bio-remediation.
- Increase storm water capacity and get all issues addressed before proceeding with dredging. This project should have been coordinate with the previous dredging.

Mr. Akina stated that it was promised that the dredge material would be taken out to the ocean. He saw the barge; it was tilted and the sediment was spilling into the ocean, all the way to the disposal site. We need a new concept other than ocean disposal; we cannot take pollution from one area and take/spread it to another area.

He feels that we need to lessen the impact to Waikīkī but noted that flooding will still happen, there will still be damage. He questioned if it is worth all of this.

In regard to environmental justice, with a 100-year flood, all islands will be affected. He therefore feels that the flood problems should be addressed throughout all of the islands.

Michelle Matson – Kapi‘olani Park Advisory Council

Ms. Matson noted we need to be aware of historic elements of the Ala Wai Canal, e.g., two historic bridges, banyan, bridal path, trees.

On the east side, there is still part of a drainage area that feeds into Māmala Bay – Kaneloa (by Waikiki Shell). It is working wetland with native plants and animals that needs to be investigated.

Jackie Miller – UH Environmental Center

Ms. Miller asked if the study of the boundaries of the 100-year flood is close to reality at this stage?

(Chow responded that previously, a traditional Corps model was used; they are now using numeric models that provide more exact data. The boundaries are expected to be the same with the new model, but the flood depths will be more accurate.)

Steven Kubota

He feels that we need to develop material for teachers to use in the classrooms. In regard to environmental justice, he noted that there is a high population of low-income and Asian and Pacific Islanders in the affected area. Fifty percent of the students are from non-English speaking homes. Many residents are first generation families where children are the translators to their parents. Need to remember that not everyone speaks English.

Yoshimi Endo

Makiki Stream runs below the H-1 Freeway and with a large flood, it will break through and create impassable conditions. The area between Roosevelt and Stevenson schools will need a bridge.

Ron Lockwood – McCully/Mō‘ili‘ili Neighborhood Board

In regard to Environmental Justice, there are 16 different ethnic groups in the public schools in his area. Fifty to 70 percent of the students are on the reduced lunch program.

About a year ago their Neighborhood Board set the Ala Wai Canal project as a recurring item on their regular monthly agenda. They meet on every first Thursday of the month. All are welcome to attend to discuss this continuous issue. He suggested that members of the panel could attend as liaisons to take the information back to their agencies.

Once everyone had an opportunity to speak, Bruce Tsuchida thanked participants for attending and voicing their opinions and concerns. He reminded everyone that comment sheets may be filled out and submitted to the project team or mailed in at a later date. Official comments on the EIS Preparation Notice are due on July 14, 2004.

TOWNSCAPE, INC.
ENVIRONMENTAL AND COMMUNITY PLANNING

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ALA WAI WATERSHED PROJECT

NOTES FROM ENVIRONMENTAL IMPACT STATEMENT SCOPING MEETING

Tuesday, October 21, 2008

An Environmental Impact Statement (EIS) Scoping Meeting was held on October 21, 2008. The purpose of this meeting was to inform the community that the Ala Wai Watershed Project will be developing an Environmental Impact Statement and to allow for public input on possible actions and impacts. Approximately 46 Ala Wai Watershed residents, community members, and other stakeholders attended the meeting. In addition to these attendees, agency representatives included the Federal Natural Resources Conservation Service; the State Departments of Land and Natural Resources (DLNR), Health, and Civil Defense; and the City Departments of Environmental Services (ENV) and Planning and Permitting. Also present were elected officials, or their representatives, from the State Senate, House of Representatives, City Council, and Neighborhood Board.

I. SLIDESHOW PRESENTATION

Cindy Barger from the U.S. Army Corps of Engineers (USACE) welcomed everyone and introduced the project team, including Federal, State and City partners. Gerald Takayesu (ENV) and Carty Chang (DLNR) said a few words as project sponsors. Ms. Barger then presented the project background, including the project goal and objectives, location, previous studies, current and next steps, and some of the other projects that we are currently coordinating with.

Sherri Hiraoka from Townscape, Inc. explained the EIS process and Bob Bourke from Oceanit presented some background data on flooding and ecosystem restoration in the watershed, as well as some preliminary measures that are currently being considered. Ms. Hiraoka then discussed some issues that the project team will need to consider when determining what measures might be acceptable for this watershed and indicated the types of impacts that the team would be studying as a part of the EIS process. Please refer to the slideshow handout for highlights from the presentation.

A few questions were asked about the project background:

What is the DLNR's chute structure project?
After the 2004 flood, DLNR received some funds from the Federal Emergency Management Agency (FEMA) to develop measures to mitigate the flooding that occurred from the overtopping of Mānoa Stream at Woodlawn Drive. The DLNR and FEMA are currently working on the design of a chute structure to improve flow under the Woodlawn Drive Bridge.

What agency is the accepting agency for the EIS?
In Hawai'i's environmental review process, "acceptance" is defined as "a formal determination that the [EIS] fulfills the definition of an environmental impact statement, adequately describes identifiable environmental impacts, and satisfactorily responds to comments received during the review of the statement." The "accepting authority" therefore determines the final acceptability of the document, in this case, the EIS. Based on the guidance in Hawai'i Revised Statutes §343-5(b)(2) and Hawai'i Administrative Rules §11-200-4, the accepting authority for the Ala Wai Watershed Project is the Governor of the State of Hawai'i, or the Governor's authorized representative, because state lands and funds will be used.

In accordance with federal regulations (40 CFR Parts 1500-1508 and ER 200-2-2), USACE is the lead federal agency. As lead federal agency, USACE will be the decision maker and sign the Record of Decision (ROD). While there is no "accepting agency" under the federal process, EPA in accordance with Council of Environmental Quality (CEQ) regulations, reviews and rates all EISs. EPA ratings reflect the strength with which the EIS identifies and recommends corrective action for significant environmental impacts associated with any proposal. Review of the adequacy of the information and analysis contained in the draft EIS will be done as needed to support this objective.

What is the total cost of the entire project from its start in 1998?
The total project planning cost is $5.545 million, including the work that was completed from 1998 through the end of this feasibility phase. The cost of design and construction will be determined based on the preferred alternative.

II. BREAKOUT GROUPS

Meeting participants separated into breakout groups to discuss issues, concerns, and ideas for six neighborhoods within the project area: (A) Makiki, (B) Mānoa, (C) Pālolo, (D) Ala Moana-McCully-Mōʻiliʻili, (E) St. Louis-Kapahulu-Diamond Head, and (F) Waikīkī. The following is a summary of the comments, concerns, questions, and ideas that were raised in each of the breakout groups.

A. Makiki

- *Why have man-made drainage works failed?*
- *Residents are frustrated! They feel that existing drainage systems are not being maintained, and the result is flooding their properties.*
- *The planning team needs to identify what needs to be done to ensure that the existing drainage system works as it should.*
- *Address maintenance issues. We need regular maintenance from government and private owners.*
- *Hold meetings in the community to get real grass roots input.*
- *Make the project relevant to the average citizen*
- *Rockfalls are a problem in Mānoa Valley and sedimentation is a problem in the streams.*
- *Private ownership of the stream is a tough issue – what are the responsibilities and liabilities of private owners?*
- *What is the availability of funds for the project?*
- *What storm strengths are flood hazard reduction measures designed to withstand?*
- *Why did flooding occur in Mānoa in 2004 only and not in other years?*
- *How was the culvert under H-1 sized?*
- *Is there typically flooding at the stream confluences?*

B. Mānoa

- *Concerns about individual property responsibilities, limits of property. Land owners must know their rights and responsibilities.*
- *How are you going to deal with the 150-200 individual [private] property owners?*
- *Concern about measures being forced onto individual and private residences and businesses. Rumor about a drainage pipe being put in underneath the Mānoa Marketplace.*
- *Installation of structures now could affect or limit future development.*
- *Maintenance and safety plan responsibilities, i.e. rapid response with heavy equipment.*
- *Suggest that the area of the stream become the concern of one entity (i.e., a land trust)*
- *Intermittent streams flooding/damage occurred in the 2004 flood, upper Woodlawn*
- *UH Mānoa Landscape Advisory Committee: planning in coordination with UH planning*
- *Are survey teams going out and how often?*
- *Concern about feral pigs*
- *Concern about safety measures for any work, structures, etc. due to children "exploring."*
- *Community education needed*

C. Pālolo

- *Everybody drains into the stream, but there is very little management of the stream.*
- *House was inhabited in 1959, and every time there is rain, it is flooded. The stream was pushed to our property; 3,000 square feet of land was lost because the property on the other side of the stream put walls on the stream bank!*
- *People still get permits to develop the side of the stream.*
- *Now we have a retaining wall that has been okay, but recently the seams are separating. Whose responsibility is it for maintaining the retaining wall?*
- *What are the rights and responsibilities of the stream owners?*

- *Lots of debris and graffiti on the retaining wall*
- *People throw things into the stream*
- *It seems like the City has a policy of maintaining the channel from a certain point down, even if it is privately owned. Problem: can't figure out where that "point" is. Could it be easement lands that the City worked on?*
- *Problem of the ownership of stream land.*
- *Children were able to catch fish in the stream (at least small fish to put into an aquarium), not anymore.*
- *Natural bed on some parts of the stream by Chaminade University, but it's been decreasing in size.*
- *Walls on private lands: if the City builds the walls for the streams, the City should pay the landowner.*
- *There should be a better way of announcing this kind of project so more landowners can come and their concerns can be heard.*
- *Someone should randomly check what the problems are along the stream.*
- *On 10th Avenue, there was recently a rockfall [in the Kuahea Street-Yvonne Place area].*
- *If there's a tsunami, there are different reports on the reach of the inland inundation zone. Want to confirm which one is the right one (concern about the location of the property).*
- *What happens to existing conditions if we factor in tsunami impacts? UH has Tsunami Research Center that may be a good resource.*
- *Big facilities like condos have greater ability to retrofit drainage systems; need some kind of ordinance to force these large facilities to improve drainage.*
- *Flood management and ecosystem restoration are two possibly conflicting objectives of this project.*
- *Upper Pālolo Stream doesn't have the same level of natural/native ecosystem health, when compared to Mānoa. Opportunities for ecosystem restoration should be assessed.*
- *Quality of water in the pipe? Do I get water from within the Pālolo watershed through the BWS system?*
- *What is in the [Kaʻau] crater?*
- *Better treatment of both storm and non-storm water discharge (e.g., residue water from car washing, etc.)*

- *All of the lands along the stream should ideally be turned back to natural ecosystems but there is a problem with ownership. Easement credits can be considered to solve this problem.*
    - *Concern about land takings if an easement program is carried out.*
    - *Would easements be forced on the landowner?*
    - *What exactly would the easement do?*

D. Ala Moana-McCully-Mōʻiliʻili

- *Maintenance!*
- *Priority of Improvement: Makiki, Hausten Ditch, Mānoa-Pālolo Drainage Canal*
- *Community Involvement*
    - *Neighborhood Boards*
    - *Representatives*
    - *Religious Groups/Boys and Girls Clubs*
    - *Local Interest/Scientific Groups*
- *Steps that enter the [Ala Wai] Canal are covered with trash and mud.*
- *Canal near Jack in the Box is too low and the walls are not the same height. Will capacity be increased?*
- *Existing storm drains need debris collectors – too much trash.*
- *Street cleaning removes pollutants - why not do more often?*
- *Pālolo junction [Mānoa-Pālolo Canal near Kūhiō School] needs relief – gets flooded. Add additional drainage retention.*
- *Refit cisterns to allow seepage or use pervious pavement. Try to keep water on residential lots.*
- *Other entities that we should coordinate with*
    - *UH Landscape Advisory Committee*
    - *City Parks and Recreation (safety): educate workers who work the grounds*
    - *Large landowners and land developers*
    - *Keep everyone informed – need to emphasize everyone who has a responsibility*

- *Community members contend that local drainage (storm drain) systems are inadequate to handle even moderate rainfall and runoff. Potential measures need to be evaluated with respect to local drainage needs and conditions.*
- *Box jellies have been observed above Date Street.*
- *Golf Course might incorporate water features*
- *Is it possible to use pumps like in New Orleans?*
- *Add second outlet/reservoir for the [Ala Wai] Canal*
- *Restore native species (akulikuli)*
- *Provide shade and cover over the stream*
- *With concrete structures, try to add natural-type features, or at least a native look*
- *Water quality: concern about bacteria from feral cats*
- *Redevelop Alenaio Ditch*
- *Where do we get sandbags for flood protection?*
- *Screen over Hausten Ditch was removed recently – needs to be replaced.*
- *Control/eradicate alien species*
- *How much is for protection of Waikīkī? It is the economic engine of the state.*
- *Archway near Waikīkī entrance could have walls heightened.*
- *Take advantage of all large open spaces.*

E. St. Louis-Kapahulu-Diamond Head

- *St. Louis Heights has no storm drains, water is channeled by streets. This area needs stormwater flow management.*
- *St. Louis/Roberts Drive outlets to a concrete chute at Waʻahila Valley. This creates problems of erosion and sediment discharge in the valley.*
- *Frank Street has storm drains but manhole covers pop off during heavy rains.*
- *Feral pigs at Robert Place, UH, and Waʻahila Valley.*
- *Storm runoff from St. Louis Heights and Waʻahila Valley often crosses over Dole Street, depositing rocks and trash and causing problems on the ma kai shoulder and in the UH Hawaiian Studies building.*
- *At dead end streets where grade flattens out*

- *Board of Water Supply recently replaced a corroded and plugged two-inch pipeline with a four-inch pipeline.*
- *Increased water pressure due to pipeline improvements by BWS in St. Louis Heights have created problems.*
- *Maintain crown in the road for water to flow, but in heavy rain street will not convey water. In some St. Louis Heights areas, the repeated paving and patching have filled the roadway and have eliminated the curbs and gutters.*
- *Use the undeveloped Waʻahila Valley area, above the faculty housing, for storage of water and debris catchment.*
- *Fresh water ʻopihi live on algae on the limestone and were found in the reach between the golf course and Kaimukī High School.*
- *Aboriginal rights were exercised by some for collecting imu stones for home use at the stream intersection of Mānoa with Pālolo.*
- *Ditch and wetland area behind the Waikīkī Shell has:*
    - *Maintenance problems*
    - *Stagnant water*
    - *Homeless*
- *Bertram Street and St. Louis Drive: water goes into homes.*
    - *Residents use sand bags on their own to divert the flood waters*
- *Fire hazard on east side of the St. Louis area [along Kalaepōhaku Ridge].*
- *Kānewai Field – recent repair of the bank near Koali Road required the stream flow to be routed through the field by Hōkūlani School. It created odors and damaged the field so children could not use it. This should be considered if other fields are used for water storage.*
- *Agencies need to be proactive, rather than reactive.*
- *Issue of privately-owned streets in Kapahulu where the City will not make improvements. Most of Kapahulu Streets do not meet current City requirements.*
- *There is a tunnel at Waiʻalae Avenue near St. Louis School – what is its purpose? Is it a part of the storm drain system?*
- *Check into the work that the STEM Program at Kapiʻolani Community College is doing in the area*
- *Herbert Street: in heavy rains water flows down the street*

F. Waikīkī

- *Flooding is the primary issue, but a "wall" around the Ala Wai Canal is not wanted. A "wall" should be a last resort and even then may not be acceptable.*
- *Flooding from the land side and from the ocean (global warming and sea level rise) is a major concern. The group understands that the USACE investigation will consider a "without project condition extending 50 years into the future" and that sea level rise of several feet has been postulated for this time frame by some researchers.*
- *If Waikīkī is flooded, there would be a huge impact on Hawai'i's entire economy. The estimated damages of $135 million as stated in the presentation may be grossly underestimated. After all, if there was $85 million damage at UH Mānoa, just imagine what would happen to Waikīkī, especially if it took several weeks to restore infrastructure and clean up.*
- *If Waikīkī is flooded, there would be a severe impact on the community as a whole because of job loss and tax losses to the State.*
- *USACE should look at less "invasive" measures first, such as widening the Ala Wai Canal as shown in the presentation to improve the capacity of the Canal.*
- *Work in the Canal should include improvements to water quality, such as the seawater flushing which has been proposed in the past.*
- *While a second Ala Wai Canal outlet that discharges in the vicinity of the Natatorium might help with flooding, it would pollute and contaminate Waikīkī beaches, which is intolerable. If this measure is considered, special efforts must be done to study the impacts on reefs, surfers, surf, and beaches because currents flow from east to west along shore in this area.*
- *Consider using Ala Wai Golf Course, Ala Moana Park, and Kapi'olani Park as detention areas. These areas will flood under most conditions anyway, and their use as detention may be a necessity because it is easier to clean up a golf course or park than to clean up houses or Waikīkī.*
- *Can we inject stormwater into caverns in McCully-Mō'ili'ili? Those caverns may not have excess capacity and would be filled up already under such severe rainstorm conditions.*
- *The flow velocity out of the Ala Wai Canal has been so severe sometimes that it damaged piers and boats in the Small Craft Boat Harbor. If more water is to be discharged, the impacts on the Harbor need to be considered.*
- *Property owners have a responsibility to maintain their stream banks, which may produce some of the sediment that fill up the Canal. Their interests need to be balanced with those of the community for flood control.*

III. QUESTIONS AND COMMENTS (VERBAL)

A question and answer session was held after all of the breakout groups shared some of their comments. The comments and questions that were asked are listed below, along with the responses that were given. Expansion of the responses provided at the meeting is provided where appropriate for the benefit of the public.

The project is not addressing the issues of nearshore waters and beach users.
The project analysis does extend past the shoreline to the nearshore waters. We have invited some of those coastal user groups to the meeting, but it is a good reminder to not forget the coastal issues. The Waikīkī group did discuss how a measure such as creating a second outlet from the Ala Wai Canal through the Natatorium area might impact Waikīkī beaches.

Additional Detail: The Project Team is also coordinating with stakeholders that have studied the Waikīkī area, such as the DLNR Office of Conservation and Coastal Lands and the University of Hawai'i School of Ocean and Earth Science and Technology (UH SOEST).

Are there any projects or programs to address flooding that can be done right now, given that implementation of this project is still four years away?
Flood insurance can be quickly obtained at a moderate cost. If you think that you might be exposed to a flood risk or hazard, consider purchasing flood insurance. You do not need to be in a designated flood zone to do so.

Additional Detail: The planning process will identify activities and mechanisms that may be implemented by other federal, state, local, and non-governmental programs to address problems and concerns. We will work with our partners to identify opportunities that may be implemented in the near future, separate from this planning process. Such actions include relaying the specific locations of maintenance concerns to the City and County.

The City Department of Emergency Management should be a partner in this project.

The project is currently reaching out to agencies that are not listed as formal partners. We will contact the City Department of Environmental Management to seek their involvement. Community members are encouraged to recommend partnerships and to indicate your support for the project to agencies.

Sea level rise should be taken into consideration.

The project is required to look at a "without project condition" and assess what might happen in the next fifty years without the project. Sea level rise is a part of that assessment and will also be included in the assessment of different alternatives.

Additional Detail: We have been working with UH SOEST to gain their expertise in calculating the potential sea level rise and its potential impacts on this study.

Is "No Action" going to be considered as one of the alternatives in the EIS?

Yes, the "No Action" alternative will be considered; it is a requirement of all Federal EISs. The "without project condition" would be the result of the "No Action" alternative. The purpose of the "No Action" alternative is to provide a benchmark from which to compare the magnitude of environmental effects of the action alternatives. It also helps to identify reasonable alternatives that are outside the jurisdiction of the lead agency.

IV. QUESTIONS AND CONCERNS (WRITTEN)

Some questions and concerns were written on the green comment sheets provided or index cards and submitted to the project team, either at the meeting, or at a later date. This is a summary of those comments and questions. The responses provided below were not given at the meeting because most of the questions were submitted after the meeting concluded.

Sand bags for big rains

This information will be relayed to the State Civil Defense and the City Department of Environmental Management for their information.

They half okole cleaned Hausten, Isenberg, and Kapiolani; never replaced screen.
This information will be relayed to the City for their information.

When drains have a preventative [screen] in front; dirt and debris pile up and harden so now what?
This information will be relayed to the City for their information.

Curbs, mud, and debris build up when street cleaner [comes through] due to parked cars - unable to do their job.
This information will be relayed to the City for their information.

Clean Canal bus stop
This information will be relayed to the City for their information.

Clogged drains (curbside debris, leaves, mud) flood gutters
This information will be relayed to the City for their information.

There needs to be better notification to affected homeowners so they can participate in these decisions. I accidentally read your small meeting notice in the Advertiser. Every homeowner bordering the streams should be aware of their options.
Thank you. Based on this and other comments, the planning team will re-evaluate the public involvement plan to see how we can improve our coordination and notification to the community on the status of the project.

Define major and minor, large or small potential environmental hazards, and developmental growth that must be addressed before social and cultural impacts would be affected horribly.
Thank you. As we begin to develop alternatives and analyze their potential impacts, we will evaluate these concerns as well.

Future flood plans for Makiki Stream, ex: deepening streambed, dredging debris measures, etc.

Withstanding all agencies, Federal, State, City, etc., what types of water control measures are proposed…Makiki, Mānoa, etc.

At this time, we do not have specific control measures proposed for these areas beyond the general concepts discussed in the Scoping Meeting presentation. We will be developing these measures in more detail as we go forward from the Scoping Meeting. We will keep communication open with the public during this process and will hold a full public workshop on alternatives in Fall 2009.

Short term goals?

Thank you. As we move forward on developing the alternatives, we will identify potential measures that could either be implemented separately from the study by other partners or authorities. We will also identify potential measures or alternatives that could be implemented in the first phase of construction and seek the public's input and comment on a proposed phasing.

Storm drainage capacity of existing storm drains are outdated for McCully/Moiliili and overflowing into streets. Even during minor floods water backs up.

Thank you. As part of the existing hydrology evaluations conducted this past year, we have surveyed the existing drainage in the watershed. As part of the study, we will evaluate potential options and opportunities to update and improve the drainage.

Update all agencies of property ownership of affected areas and mandate a list for future proposals, updates, and "keep them informed!"

Thank you. Based on this and other comments, the planning team will re-evaluate the public involvement plan to see how we can improve our coordination and notification to the community of the status of the project.

One issue that was not discussed was recreation. One of the goals might be to make the canals and streams fishable. A more realistic goal might be to have running paths and bike lanes along the Ala Wai Canal and streams where feasible. This would foster greener living and better appreciation of the aquatic resources by the community. Great examples include Four Mile Run in Arlington, VA; St. Paul MN; Madison, WI. These serve as greenways and areas which can accommodate overflowing storms. Having a green loop around the Ala Wai Canal, into the golf course and bike/pedestrian bridge over the Ala Wai should be incorporated in any landscaping/riparian area management plan.
Thank you. We will look at the opportunities of incorporating this idea and other recreational opportunities in the planning study.

Has consideration been given to utilize Mānoa and perhaps Pālolo stream(s) as bikeways and give residents and students an opportunity to travel from Mānoa Marketplace to the Ala Wai Canal without crossing the street? Not only do people have a safe route to utilize, but it could open another source of funding for the project (transportation) at the Federal and State level.
Increasing recreational opportunities is an objective of the Ala Wai Watershed Project. With all the potential alternatives, we will look at the opportunities to increase recreational use at the proposed project sites including potential bike ways.

Propose a bikeway along Mānoa Stream as a very inexpensive and easy solution conveying UH students from UH to Waikīkī.

- ***Restore a grade-level bridge at the previous bridge crossing at Kānewai field***
- ***At the junction of the Pālolo and Mānoa Streams on Koali Road improve the already existing ramp to go down into the stream bed***
- ***The bike path will stay on the Diamond Head side of the stream--an elevated (1 foot is probably fine as almost all of the year the stream water is below this level and also most flow is in the center of the streambed.***
- ***The path runs under the tangle of streets and freeway on and off ramps.***
- ***Another ramp can be located on the Kaimukī High School property near Kapiʻolani Blvd.***

- ***An optional additional ramp can be located near King street***
- ***The rest of the bikeway is on the existing bike path makai to Date Street***
- ***Date Street is the only street to be crossed (or could the bike path go under?)***
- ***The bikers/walkers can then travel either on the existing Date Street path toward Diamond Head ending at the Waikīkī Library or go 'Ewa and traverse the Ala Wai Park to McCully Street.***

Three foot flood walls along the makai side of the Ala Wai Canal would protect the state's economic engine as well as beautify the canal wall. Storm surges drive ocean and brackish water up the canal and the Mānoa Stream. The water level rise overtopping the banks and popping the storm drain covers.

V. CLOSING

Cindy Barger closed the meeting by reminding everyone of the ways to remain involved in the planning process, including upcoming meetings and documents. Comments from this EIS Scoping Meeting will be added to the public input already gathered in the previous 2004 Ala Wai Canal Project EIS Scoping Meeting, the 2007 Mānoa Watershed Project EIS Scoping Meeting, and the various other stakeholder meetings and correspondence from these two complementary projects. The comments will be addressed, to the extent possible, in the Draft Environmental Impact Statement. If there any further comments, please feel free to send them in using the following contact information:

Cindy Barger, Project Manager
Civil and Public Works Branch
US Army Corps of Engineers, Honolulu District
CEPOH-PP-C, Room 307, Building 230
Fort Shafter, HI 96858
Phone: (808) 438-6940
Email: Ala-Wai@usace.army.mil

Additionally, a project website will be made available in the near future. Thank you to everyone who attended and participated in this meeting!

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Appendix G8
Notice of Intent (2004 and 2008)

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Normal and Adulterated Urine,'' filed June 18, 2003. Foreign rights are also available (PCT/US03/06283). The United States Government, as represented by the Secretary of the Army, has rights in this invention.

ADDRESSES: Commander, U.S. Army Medical Research and Materiel Command, ATTN: Command Judge Advocate, MCMR–JA, 504 Scott Street, Fort Detrick, Frederick, MD 21702–5012.

FOR FURTHER INFORMATION CONTACT: For patent issues, Ms. Elizabeth Arwine, Patent Attorney, (301) 619–7808. For licensing issues, Dr. Paul Mele, Office of Research & Technology Assessment, (301) 619–6664, both at telefax (301) 619–5034.

SUPPLEMENTARY INFORMATION: The present invention relates to methods and means for detecting oxidants in urine. More specifically, the present invention relates to methods and means for spectroscopic detection of oxidants and oxidizing agents in urine.

Brenda S. Bowen,

Alternate Army Federal Register Liaison Officer.

[FR Doc. 04–13270 Filed 6–10–04; 8:45 am]

BILLING CODE 3710–08–M

DEPARTMENT OF DEFENSE

Department of the Army

Availability for Non-Exclusive, Exclusive, or Partially Exclusive Licensing of U.S. Patent Application Concerning a Method and Apparatus for Generating Two-Dimensional Images of Cervical Tissue From Three-Dimensional Hyperspectral Cubes

AGENCY: Department of the Army, DoD.

ACTION: Notice.

SUMMARY: In accordance with 37 CFR 404.6 and 404.7, announcement is made of the availability for licensing of U.S. Patent Application No. 10/051,286 entitled ''A Method and Apparatus for Generating Two-Dimensional Images of Cervical Tissue from Three-Dimensional Hyperspectral Cubes,'' filed January 22, 2002. Foreign rights are also available (PCT/US02/01585). The United States Government, as represented by the Secretary of the Army, has rights in this invention.

ADDRESSES: Commander, U.S. Army Medical Research and Materiel Command, ATTN: Command Judge Advocate, MCMR–JA, 504 Scott Street, Fort Detrick, Frederick, MD 21702–5012.

FOR FURTHER INFORMATION CONTACT: For patent issues, Ms. Elizabeth Arwine, Patent Attorney, (301) 619–7808. For licensing issues, Dr. Paul Mele, Office of Research & Technology Assessment, (301) 619–6664, both at telefax (301) 619–5034.

SUPPLEMENTARY INFORMATION: This invention relates to detection and diagnosis of cervical cancer. More particularly, this invention relates to methods and devices for generating images of the cervix, which allow medical specialists to detect and diagnose cancerous and pre-cancerous lesions.

Brenda S. Bowen,

Alternate Army Federal Register Liaison Officer.

[FR Doc. 04–13269 Filed 6–10–04; 8:45 am]

BILLING CODE 3710–08–M

DEPARTMENT OF DEFENSE

Department of the Army, Corps of Engineers

Intent to Prepare an Environmental Impact Statement for the Ala Wai Canal Project, Hawaii

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DoD.

ACTION: Notice of intent.

SUMMARY: Pursuant to the National Environmental Policy Act (NEPA), the U.S. Army Corps of Engineers and the State of Hawaii Department of Land and Natural Resources will prepare an Environmental Impact Statement (EIS) for the alternatives and potential impacts associated with the Ala Wai Canal Project Feasibility Study. This effort could result in a multi-purpose project being proposed under Section 209 of the Flood Control Act of 1962 (Pub. L. 87–874) and will incorporate both flood hazard reduction and ecosystem restoration components into a single, comprehensive strategy.

DATES: In order to be considered in the draft EIS (DEIS), comments and suggestions should be received no later than July 14, 2004.

ADDRESSES: Send written comments to U.S. Army Corps of Engineers, Honolulu District, ATTN: Mr. Derek Chow, Senior Project Manager, Civil and Public Works Branch (CEPOH–PP–C), Rm 312, Bldg 230, Fort Shafter, HI 96858–5440.

FOR FURTHER INFORMATION CONTACT: Questions or comments concerning the proposed action should be addressed to Mr. Derek Chow, Project Manager, U.S. Army Corps of Engineers, Honolulu District, Civil Works Branch, Building 230, Fort Shafter, HI 96858–5440, telephone 808–438–7019, E-mail: *Derek.J.Chow@poh01.usace.army.mil* or Mr. Andrew Monden, Planning Branch Head, State of Hawaii Department of Land and Natural Resources, Engineering Division, P.O. Box 373, Honolulu, HI 96809, telephone 808–587–0227, E-mail: *Andrew.M.Monden@hawaii.gov.*

SUPPLEMENTARY INFORMATION: The 11,069-acre Ala Wai watershed is located in the southern portion of the island of Oahu and includes the sub-watersheds of Makiki, Manoa, Palolo, and Waikiki. Approximately 1,746 structures exist within the designated 100-year flood plain. The proposals being investigated incorporate both flood hazard reduction and ecosystem restoration into a single, comprehensive strategy. The Ala Wai Canal watershed is highly urbanized and characterized by significant environmental degradation, including heavy sedimentation, poor water quality, lack of habitat for native species, and a prevalence of alien species. Additionally, there exists a high potential for massive flood damage to the densely populated and economically critical area of Waikiki and the adjacent neighborhoods of McCully and Moilili. The EIS and the Feasibility Study for the Ala Wai Canal Project will be conducted concurrently. The EIS will evaluate potential impacts to the natural, physical, and human environment as a result of implementing any of the proposed flood hazard reduction and ecosystem restoration alternatives arising during the study.

Goals of the Ala Wai Canal Feasibility Study are to identify alternatives that will (1) Protect Waikiki and the surrounding areas from the 100-year flood event, (2) improve the migratory pathway for native amphidromous species, (3) reduce sediment buildup in the streams and Ala Wai Canal, and (4) enhance the physical quality of existing aquatic habitat for native species. Anticipated significant issues identified to date and to be addressed in the EIS include: (1) Impacts on flood control, (2) impacts on stream hydraulics, (3) impacts on fish and wildlife resources and habitats, (4) impacts on recreation and recreation facilities, and (5) other impacts identified by the Public, agencies, or USACE studies. Evaluation of the flood hazard reduction alternatives will take into account a cost-benefit analysis and minimization of impacts to social resources, aesthetics, recreation, historic and cultural resources, and native species habitat. Evaluation of the ecosystem

restoration alternatives will be based on the area of habitat they create, improve, or provide access to, as well as their ability to complement flood hazard reduction measures and minimize adverse impacts to social, economic, cultural, historic, and recreational resources.

A public scoping meeting will be held in the summer of 2004. The date and time of this meeting will be announced in general media and will be at a time and location convenient to the public. Interested parties are encouraged to express their views during the scoping process and throughout the development of the alternatives and the EIS. To be most helpful, comments should clearly describe specific environmental topics or issues which the commenter believes the document should address.

The DEIS is anticipated to be available for public review in early 2005, subject to the receipt of federal funding.

Brenda S. Bowen,

Alternate Army Federal Register Liaison Officer.

[FR Doc. 04–13271 Filed 6–10–04; 8:45 am]

BILLING CODE 3710–NN–M

DEPARTMENT OF EDUCATION

Office of Special Education and Rehabilitative Services; Overview Information; Technical Assistance and Dissemination To Improve Services and Results for Children With Disabilities—IDEA General Supervision Enhancement Grant; Notice Inviting Applications for New Awards for Fiscal Year (FY) 2004

Catalog of Federal Domestic Assistance (CFDA) Number: 84.326X.

Dates:

Applications Available: June 14, 2004.

Deadline for Transmittal of Applications: July 23, 2004.

Deadline for Intergovernmental Review: September 21, 2004.

Eligible Applicants: State educational agencies (SEAs), local educational agencies (LEAs), institutions of higher education (IHEs), other public agencies, nonprofit private organizations, for-profit organizations, outlying areas, freely associated States, and Indian tribes or tribal organizations.

Additional information concerning eligibility requirements is provided elsewhere in this notice under Section III., 1.

Eligible Applicants.

Estimated Available Funds: $6,700,000. Additional information concerning funding amounts is provided elsewhere in this notice under Section II. Award Information.

Estimated Average Size of Awards: See Section II. Award Information.

Estimated Number of Awards: 13. Additional information concerning the number of awards is provided elsewhere in this notice under Section II. Award Information.

Note: The Department is not bound by any estimates in this notice.

Project Period: October 1, 2004–September 30, 2005.

Full Text of Announcement

I. Funding Opportunity Description

Purpose of Program: This program provides technical assistance and information that (1) support States and local entities in building capacity to improve early intervention, educational, and transitional services and results for children with disabilities and their families; and (2) address goals and priorities for improving State systems that provide early intervention, educational, and transitional services for children with disabilities and their families.

This competition contains one funding priority with four focus areas addressing services provided under Parts B and C of the Individuals with Disabilities Education Act, as amended (IDEA).

Priority: In accordance with 34 CFR 75.105(b)(2)(iv), this priority is from allowable activities specified in the statute (see sections 661(e)(2) and 685 of the IDEA).

Absolute Priority: For FY 2004 this priority is an absolute priority. Under 34 CFR 75.105(c)(3), we consider only applications that meet this priority.

This priority is:

Technical Assistance and Dissemination To Improve Services and Results for Children With Disabilities—IDEA General Supervision Enhancement Grant

Background of Priority: Consistent with the No Child Left Behind Act of 2001 (NCLB) and its focus on children with disabilities meeting State educational achievement standards, many States have begun the challenging but important process of—

(1) Developing outcome indicators for children with disabilities;

(2) Developing outcome indicators for infants and toddlers with disabilities;

(3) Developing or redesigning State academic standards and assessment systems using universal design principles; and

(4) Developing or enhancing State systems to disseminate research-based promising practices in education and early intervention.

States may obtain technical assistance on these processes from a variety of sources, including the Office of Special Education Programs (OSEP) funded Technical Assistance and Dissemination Centers such as the National Center on Special Education and Accountability Monitoring, the National Center on Educational Outcomes, the Early Childhood Outcomes Center, the National Dissemination Center for Children with Disabilities, the Regional Resource Centers, and other sources of technical assistance. States may find the technical assistance provided by the Early Childhood Outcomes Center particularly useful with regard to early intervention and preschool outcomes.

Statement of Priority: This priority is to support projects that address the technical assistance and dissemination needs of States to improve services and results for children with disabilities in one or more of the following four focus areas.

Focus 1: Developing or Enhancing Part B State Outcome Indicators and Methods To Collect and analyze Part B outcome indicator data

Background of Focus: The development of outcome indicators, against which progress can be measured, is the cornerstone of any accountability system. State performance reports, self-assessments, and other extant data show that most States, as well as their LEAs, have not developed outcome indicators for children with disabilities served under Part B of IDEA or methods to collect and analyze Part B outcome indicator data, especially for preschool children. Therefore, the States lack the capacity to collect sufficient data to determine the impact of special education services.

Statement of Focus: This focus supports development or enhancement of Part B State outcome indicators and methods to collect and analyze Part B State outcome indicator data. These indicators must provide information about one or more of the following:

(a) The impact of Part B preschool services (age 3–5) on children with disabilities at the State and LEA level.

(b) The impact of Part B services on school-aged children with disabilities at the State and LEA level.

(c) Post-secondary education and employment outcomes (including the impact of Part B services on these outcomes) at the State and LEA level using indicators that have been shown to lead to positive post-secondary school outcomes.

The Commission's rules require futures commission merchants and introducing brokers: (1) To provide their customers with standard risk disclosure statements concerning the risk of trading commodity interests; and (2) to retain all promotional material and the source of authority for information contained therein. The purpose of these rules is to ensure that customers are advised of the risks of trading commodity interests and to avoid fraud and misrepresentation. In addition, the Commission's rules impose obligations on contract markets that are designed to avoid manipulation and fraud. In order to ensure compliance with these rules, the Commission requires the information whose collection and dissemination is required under 17 CFR 1.60.

The Commission estimates the burden of this collection of information as follows:

ESTIMATED ANNUAL REPORTING BURDEN

17 CFR section	Annual number of respondents	Total annual responses	Hours per response	Total hours
1.60	235	1	.10	.10

There are no capital costs or operating and maintenance costs associated with this collection.

Dated: September 26, 2008.

David Stawick,

Secretary of the Commission.

[FR Doc. E8–23220 Filed 10–1–08; 8:45 am]

BILLING CODE 6351–01–P

COMMODITY FUTURES TRADING COMMISSION

Sunshine Act Meetings

TIME AND DATE: 11 a.m., Wednesday, October 29, 2008.

PLACE: 1155 21st St., NW., Washington, DC, 9th Floor Commission Conference Room.

STATUS: Closed.

MATTERS TO BE CONSIDERED: Enforcement Matters.

CONTACT PERSON FOR MORE INFORMATION: Sauntia S. Warfield, 202–418–5084.

Sauntia S. Warfield,

Staff Assistant.

[FR Doc. E8–23418 Filed 9–30–08; 4:15 pm]

BILLING CODE 6351–01–P

COMMODITY FUTURES TRADING COMMISSION

Sunshine Act Meetings

TIME AND DATE: 11 a.m., Friday, October 24, 2008.

PLACE: 1155 21st St., NW., Washington, DC, 9th Floor Commission Conference Room.

STATUS: Closed.

MATTERS TO BE CONSIDERED: Surveillance Matters.

CONTACT PERSON FOR MORE INFORMATION: Sauntia S. Warfield, 202–418–5084.

Sauntia S. Warfield,

Staff Assistant.

[FR Doc. E8–23419 Filed 9–30–08; 4:15 pm]

BILLING CODE 6351–01–P

COMMODITY FUTURES TRADING COMMISSION

Sunshine Act Meetings

AGENCY HOLDING THE MEETING: Commodity Futures Trading Commission

TIME AND DATE: 11 a.m., Friday, October 17, 2008.

PLACE: 1155 21st St., NW., Washington, DC, 9th Floor Commission Conference Room.

STATUS: Closed.

MATTERS TO BE CONSIDERED: Surveillance Matters.

CONTACT PERSON FOR MORE INFOR MATION: Sauntia S. Warfield, 202–418–5084.

Sauntia S. Warfield

Staff Assistant.

[FR Doc. E8–23420 Filed 9–30–08; 4:15 pm]

BILLING CODE 6351–01–P

COMMODITY FUTURES TRADING COMMISSION

Sunshine Act Meetings

AGENCY HOLDING THE MEETING: Commodity Futures Trading Commission

TIME AND DATE: 11 a.m., Friday, October 3, 2008.

PLACE: 1155 21st St., NW., Washington, DC, 9th Floor Commission Conference Room.

STATUS: Closed.

MATTERS TO BE CONSIDERED: Surveillance Matters.

CONTACT PERSON FOR MORE INFORMATION: Sauntia S. Warfield, 202–418–5084.

Sauntia S. Warfield,

Staff Assistant.

[FR Doc. E8–23421 Filed 9–30–08; 4:15 pm]

BILLING CODE 6351–01–P

COMMODITY FUTURES TRADING COMMISSION

Sunshine Act Meetings

TIME AND DATE: 11 a.m., Friday, October 31, 2008.

PLACE: 1155 21st St., NW., Washington, DC, 9th Floor Commission Conference Room.

STATUS: Closed.

MATTERS TO BE CONSIDERED: Surveillance Matters.

CONTACT PERSON FOR MORE INFORMATION: Sauntia S. Warfield, 202–418–5084.

Sauntia S. Warfield,

Staff Assistant.

[FR Doc. E8–23425 Filed 9–30–08; 4:15 pm]

BILLING CODE 6351–01–P

DEPARTMENT OF DEFENSE

Department of the Army, Corps of Engineers

Intent To Prepare a Draft Environmental Impact Statement for the Proposed Ala Wai Canal Project, Honolulu, Oahu, HI

AGENCY: Department of the Army, U.S. Army Corps of Engineers (USACE), DoD.

ACTION: Notice of intent.

SUMMARY: Pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA) of 1969, the U.S. Army Corps of Engineers (USACE) and the State of Hawaii Department of Land and Natural Resources (DLNR) gives notice that an Environmental Impact Statement is being prepared for the Ala Wai Canal Project, City and County of Honolulu, HI. This effort is a multi-purpose project being proposed under Section 209 of the Flood Control Act of 1962 (Pub. L. 87–874) and will incorporate both flood hazard reduction and ecosystem

restoration components into a single, comprehensive strategy.

DATES: In order to be considered in the Draft EIS (DEIS), comments and suggestions should be received no later than 30 days after publication of this notice in the **Federal Register** .

ADDRESSES: Send written comments to U.S. Army Corps of Engineers, Honolulu District, ATTN: Cindy S. Barger, Project Manager, Civil and Public Works Branch (CEPOH–PP–C), Room 311, Building 230, Fort Shafter, HI 96858–5440.

FOR FURTHER INFORMATION CONTACT: Questions or comments concerning the proposed action should be addressed to Ms. Cindy S. Barger, Project Manager, U.S. Army Corps of Engineers, Honolulu District, Civil and Public Works Branch, Building 230, Fort Shafter, HI 96858–5440, Telephone: (808) 438–6940, E-mail: *Cindy.S.Barger@poh01.usace.army.mil*, or Mr. Carty Chang, Project Planning and Management Branch Chief, State of Hawaii Department of Land and Natural Resources, Engineering Division, 1151 Punchbowl Street, Room 221, Honolulu, HI 96813, telephone (808) 587–0227, E-mail: *carty.s.chang@hawaii.gov.*

SUPPLEMENTARY INFORMATION: A preliminary assessment of this federally funded action indicates that the project may cause significant impacts on the environment. As a result, it has been determined that the preparation and review of an Environmental Impact Statement (EIS) is needed for this project. The EIS and Feasibility Study for the Ala Wai Canal Project are being conducted concurrently. The EIS will evaluate potential impacts to the natural, physical, and human environment as a result of implementing any of the proposed alternatives that are developed by this project.

This project will be implemented under Section 209 of the Flood Control Act of 1962 (Pub. L. 87–874), for the purpose of flood mitigation and ecosystem restoration in the Ala Wai Canal Watershed, which consists of the sub-watersheds of Makiki, Manoa, Palolo, and Waikiki. The USACE will work with the affected community and the sponsoring local organization, the State of Hawaii Department of Land and Natural Resources, to develop an acceptable plan to address the flood and ecosystem problems.

The 11,069-acre Ala Wai Canal Watershed is located in the southern portion of the island of Oahu. The Watershed is highly urbanized, with approximately 1,746 structures within the designated 100-year floodplain. There is a high potential for massive flood damage to the densely populated and economically critical area of Waikiki and the adjacent neighborhoods of McCully and Moiliili. Additionally, flooding frequently occurs in lower Makiki and recently in the central Manoa Valley, causing damages to businesses, homes, and academic facilities. There is also significant environmental degradation of the streams and waterways, including heavy sedimentation, poor water quality, lack of habitat for native species, and a prevalence of alien species.

Goals of the Ala Wai Canal Project are to (1) Protect the entire Ala Wai Canal Watershed from the 100-year flood event, (2) improve the migratory pathway for native amphidromous species, (3) reduce sediment buildup in the streams and Ala Wai Canal, (4) enhance the physical quality of existing aquatic habitat for native species, and (5) improve water quality. Anticipated significant issues identified to date and to be addressed in the EIS include: (1) Impacts on flooding, (2) impacts on stream hydraulics, (3) impacts on fish and wildlife resources and habitats, (4) impacts on recreation and recreational facilities, and (5) other impacts identified by the Public, agencies, or USACE studies.

A full range of possible programs and actions will be considered in order to meet the project goals. Currently under consideration are dredging, detention basins, flood walls, debris basins and other debris management actions, bridge modification, flood-proofing structures within the flood plain, diversion of flood waters, flood warning systems, widening of channels, acquisition of properties within the floodplain, maintenance easements, and a drainage district. Ecosystem restoration measures currently under consideration include low-flow channels, creating more natural stream channels, constructed wetlands, trash separators, sediment interceptors, daylighting the stream, increasing or decreasing shade as necessary, reducing the pig population, and stream bank stabilization. As hydrologic, hydraulic, and biological analyses are performed and stakeholder consultations are conducted, additional concepts may be developed.

Evaluation of all of the alternatives will take into account minimization of adverse impacts to social resources, economics, aesthetics, recreation, historic and cultural resources, and native species habitat. Flood hazard reduction alternatives will additionally take into account a cost-benefit analysis and ability to complement ecosystem restoration measures. Evaluation of the ecosystem restoration alternatives will be based on the areas of habitat they create, improve, or provide access to, as well as their ability to complement flood hazard reduction measures.

A DEIS will be prepared and circulated for review by agencies and the public. The USACE and DLNR invite participation and consultation of agencies and individuals that have special expertise, legal jurisdiction, or interest in the preparation of the DEIS. The DLNR will be issuing a state-level Environmental Impact Statement Preparation Notice (EISPN) pursuant to Hawaii Revised Statutes (HRS) Chapter 343. All written and verbal comments received in response to this Notice of Intent and the State EISPN will be considered when determining the scope of the EIS. To the extent practicable, NEPA and HRS 343 requirements will be coordinated in the preparation of the EIS document.

A public scoping meeting will be held on Tuesday, October 21, 2008 at the Washington Middle School Cafeteria at 1633 South King Street, Honolulu, HI 96826, from 6:30 p.m. until 8:30 p.m. to determine the scope of analysis of the proposed action. The scoping meeting will also be announced in local media. Interested parties are encouraged to express their views during the scoping process and throughout the development of the alternatives and EIS. To be most helpful, comments should clearly describe specific environmental topics or issues which the commenter believes the document should address. Further information on the proposed action or the scoping meeting may be obtained from Cindy S. Barger, Project Manager, at (see **ADDRESSES**). The DEIS should be available for public review in early 2010, subject to the receipt of federal funding.

Brenda S. Bowen,

Army Federal Register Liaison Officer.

[FR Doc. E8–23221 Filed 10–1–08; 8:45 am]

BILLING CODE 3710–NN–P

DEPARTMENT OF DEFENSE

Department of the Army; Corps of Engineers

Intent To Prepare a Draft Environmental Impact Statement for the Mississippi River-Gulf Outlet Ecosystem Restoration Feasibility Study

AGENCY: Department of the Army, U.S. Army Corps of Engineers, DoD.

ACTION: Notice of intent.

SUMMARY: The Corps of Engineers (Corps) intends to prepare an

Appendix G9
Public and Agency Comments Received from Public Review of the Draft Feasibility Report/EIS

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DAVID Y. IGE
GOVERNOR

DOUGLAS MURDOCK
Comptroller

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1225.5

SEP 1 2015

Mr. Derek Chow
Honolulu District, USACE
Building 230, CEPOH-PP-C
Fort Shafter, Hawaii 96858

Dear Mr. Chow:

Subject: Feasibility Study for Ala Wai Canal Project

Thank you for the opportunity to comment on the subject project. We have no comments to offer at this time as the proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities.

If you have any questions, please have your staff call Ms. Gayle Takasaki of the Planning Branch at 586-0584.

Sincerely,

JAMES K. KURATA
Public Works Administrator

GT:mo
c: Mr. Gayson Ching, DLNR Engineering Div.

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: James Kurata
State of Hawaii, Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawaii 96810-0119

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization has no comments on the FEIS.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

DAVID Y. IGE
GOVERNOR

ARTHUR J. LOGAN
MAJOR GENERAL
ADJUTANT GENERAL

KENNETH S. HARA
COLONEL
DEPUTY ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

September 3, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

State of Hawaii, DLNR Engineering Division
ATTN: Gayson Ching
P.O. Box 373
Honolulu, Hawai'i 96809

Subject: Ala Wai Canal Project, Oahu, Hawaii, Feasibility Study Report with Integrated Environmental Impact Statement

Gentlemen:

Thank you for the opportunity to comment on the above project. The State of Hawaii Department of Defense has no comments to offer relative to the project.

If you have any questions or concerns, please have your staff contact Mr. Lloyd Maki, Assistant Chief Engineering Officer at (808) 733-4250.

Sincerely,

ARTHUR J. LOGAN
Major General
Hawaii National Guard
Adjutant General

c: Ms. Havinne Okamura, Hawaii Emergency Management Agency

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Arthur Logan
State of Hawaii, Department of Defense
3949 Diamond Head Road
Honolulu, Hawaii 96816-4495

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization has no comments on the FEIS.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

The following comments apply to Appendix A of the subject Ala Wai Canal Project report.

Section 3.2 Stream Flow Gages -"Historic stream gage records were used to develop sub-basin analyses for the HEC-HMS model.": Based on my visual observations of the Waiakeakua Stream over the past 27 years, it is apparent that the Waiakeakua Stream gage (#16240500) with its existing concrete flume are undersized and unsuitable for measuring stream flow rates during storms or even moderate rainfall. The existing flume is small and only spans a portion of the stream cross section. Consequently, this stream gage and flume are only suitable for measuring low flows during dry weather and not high flows during storms when most of the stream flow is above and to the sides of the flume. Even during periods of normal to moderate rainfall, the stream flows over the top of the adjacent parallel weir, and this portion of the stream flow is not registered by the stream gage and flume. See Figure 1 below. Also, the concrete flume is severely deteriorated as evidenced by missing chunks of concrete near its throat and diverging section.

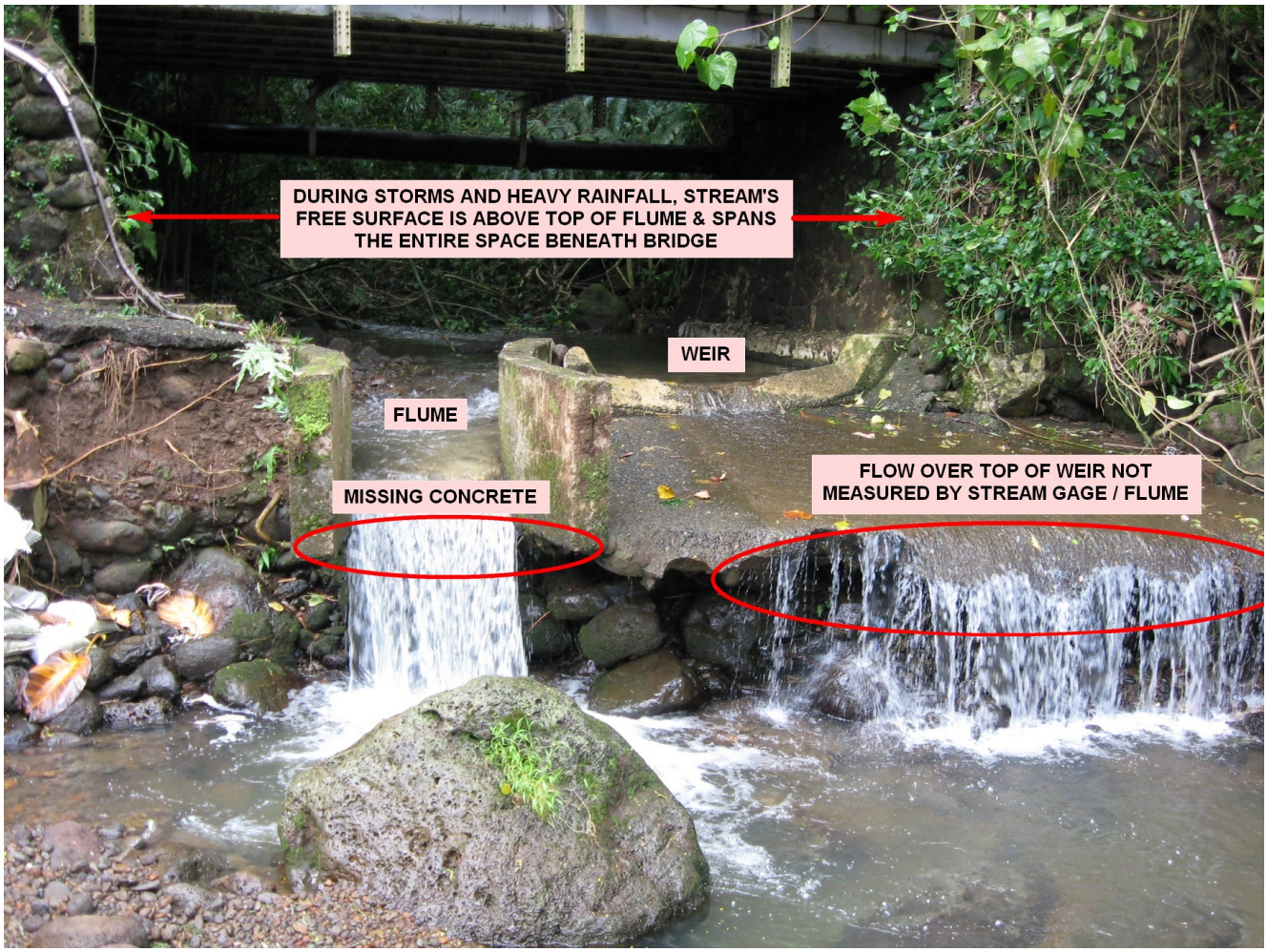

Figure 1 - Waiakeakua Stream Gage/Flume During Normal/Moderate Rainfall Conditions

During storms, most of the stream flow is above and to the sides of the existing flume as shown in Figure 2 below. Therefore, the stream flow measurements for the Waiakeakua Stream will be highly unreliable (too low). A similar situation also exists for the nearby Waihi Stream gage.

Figure 2 – Waiakeakua Stream Gage / Flume During Storm Conditions

Table 2 in Section A3 (page 416 of 467 of Appendix A) specifies an "observed peak flow" of 1100 cfs for Waiakeakua Stream during the October 30, 2004 storm. This flow rate appears to be too low based on my observations and estimate of the flow rate for this storm. Our property is located at 3569 Waakaua Street and is approximately midway between the Waiakeakua Stream gage station and the Waiakeakua Stream/Waihi Stream junction. The width of the stream is more than 25' behind our property, and I estimate that that average depth of flow was approximately 5 feet during the October 30, 2004 storm. I further believe that the mean stream flow velocity during that storm was at least 25 feet per second based on my work experience as an engineer. The foregoing information yields a stream flow rate of more than 3,000 cfs for the October 30, 2004 storm (25 ft W X 5 ft D X 25 fps = 3,125 CFS), or nearly three times the stated 1,100 cfs in Appendix A of the report. This estimate further supports my claim that the existing Waiakeakua flume and stream gage yield excessively low flow rate data.

I believe the flow velocities during most storms in the Waiakeakua Stream are greater than 20 ft/second based on my past work experience with wastewater facilities for the City & County of Honolulu. In particular I was involved with a project that installed a pair of ultrasonic Doppler area-velocity flow meters in an 84" diameter concrete pipe for the Honouliuli Wastewater Treatment Plant's effluent outfall. Flow velocities in that outfall typically exceeded 20 fps based on real time measurements along with simultaneous visual observation. Based on my visual observations of the Waiakeakua Stream, the flow velocities are easily in the range of 20 feet/second (or greater) during storm conditions. Therefore, I strongly recommend that a closer look be taken at the accuracy of the stream gages (and flumes) and the flow measurements that form the basis of the Ala Wai Canal Project. This is especially important for the Waihi Stream and Waiakeakua Stream gages because the estimated storm flow rates are grossly understated for these streams. A significantly larger peak flow rate during a storm will have a great impact on the proposed design, i.e., detention basin volume (earthen dam height).

Waiakeakua Debris And Detention Plan And Sections, Sheet # C-302 (35% Design), Section A2 – Aluminum Arch Culvert: The proposed design drawing shows the arch culvert will be 4 ft. high X 12 ft. wide and be constructed of corrugated aluminum plate. The upper side of the culvert will be in direct contact with soil and rock from the earthen dam while the underside will be partially submerged or be subject to splashing from the stream. Aluminum is an anodic metal that is subject to accelerated corrosion under such conditions. It is a well known fact that aluminum is a highly corrodible metal and is even used as sacrificial anodes in cathodic protection systems to protect buried or submerged metal structures and pipes. Therefore, it is strongly recommended that aluminum plate be replaced with a more suitable material that can better resist corrosion. Type 316 and 316L stainless steels are some possible replacement options. Another possibility is a concrete culvert or channel.

Another concern is that the 4' high culvert is too short to pass the large boulders and debris that are frequently transported downstream during storms. The proposed culvert design will be subject to plugging and will be nearly impossible to clear of debris when obstructed. An appropriately-sized open channel will be easier to maintain in lieu of the proposed arch culvert.

Waiakeakua Debris And Detention Plan And Sections, Sheet # C-302 (35% Design), Section A2 –Debris Catchment: The proposed debris catchment design includes a series of vertical 8" diameter pipes embedded in concrete footings. It is apparent that this design is not sufficiently strong to resist and survive the impact from the numerous large boulders that are swept quickly downstream during storm conditions. For example, behind our property there is a 5-ft long X 2 ft wide X 9" thick concrete slab that is sandwiched between a pair of 5-ft. diameter boulders that appeared in the middle of the stream after a storm several years ago. See photo in Figure 3 below. The swift current in the Waiakeakua Stream is very strong and deep during storms, and can rapidly transport heavy boulders and other debris downstream. During severe storms, the collisions of the boulders in the stream create loud noises equaling that of thunder. It is unlikely that the proposed debris catchment will be able to withstand the impact of such boulders under such stream flow conditions. Also, the longevity of the steel pipes is also a concern especially if they are to be constructed of carbon or galvanized steel which won't last very long under the wet and corrosive environment.

Furthermore, the proposed 4-ft. spacing between the 8" pipes is estimated to be too small and the debris catchment system will become quickly plugged by boulders, tree stumps, and other large debris that are transported downstream by the stream flow during heavy rain.

Figure 3 – Large Boulders & Debris in Waiakeakua Stream Near Flume/Stream Gage

Waiakeakua Debris And Detention Plan And Sections, Sheet # C-302 (35% Design), Section A2 – Flow Over Emergency Spillway if Culvert Gets Plugged: In view of the large boulders and debris flowing in the stream and the questionable longevity of the proposed arch culvert, it is strongly recommended that the consequences of the entire peak storm flow over the top of the earthen dam be evaluated. In other words, the design should include consideration to the real life situation when all peak flow from the 100-year storm flows over the top of the earthen dam with no flow from its (plugged) culvert. Of particular concern is the possibility of flooding to residential homes and properties along the stream on Waakaua Street that are immediately downstream of the proposed earthen dam. Based on grading plan drawings for the Manoa Shangri-la neighborhood, the elevations of these properties range between 286' to 299' elevation as compared to 317' elevation of the bottom of the emergency spillway. This is a serious concern for obvious reasons.

Waiakeakua Debris And Detention Plan And Sections, Sheet # C-302 (35% Design), Section A2 – Site Plan: There are several errors on the partial site plan for Waakaua Street and the location of the Waiakeakua Stream relative to residential properties in our neighborhood. See marked up partial plan in Figure 4 below. The City & County of Honolulu's printed tax map (Figure 5 below) is also attached for reference. These errors should be corrected since they might affect the location of the proposed debris catchment and earthen dam.

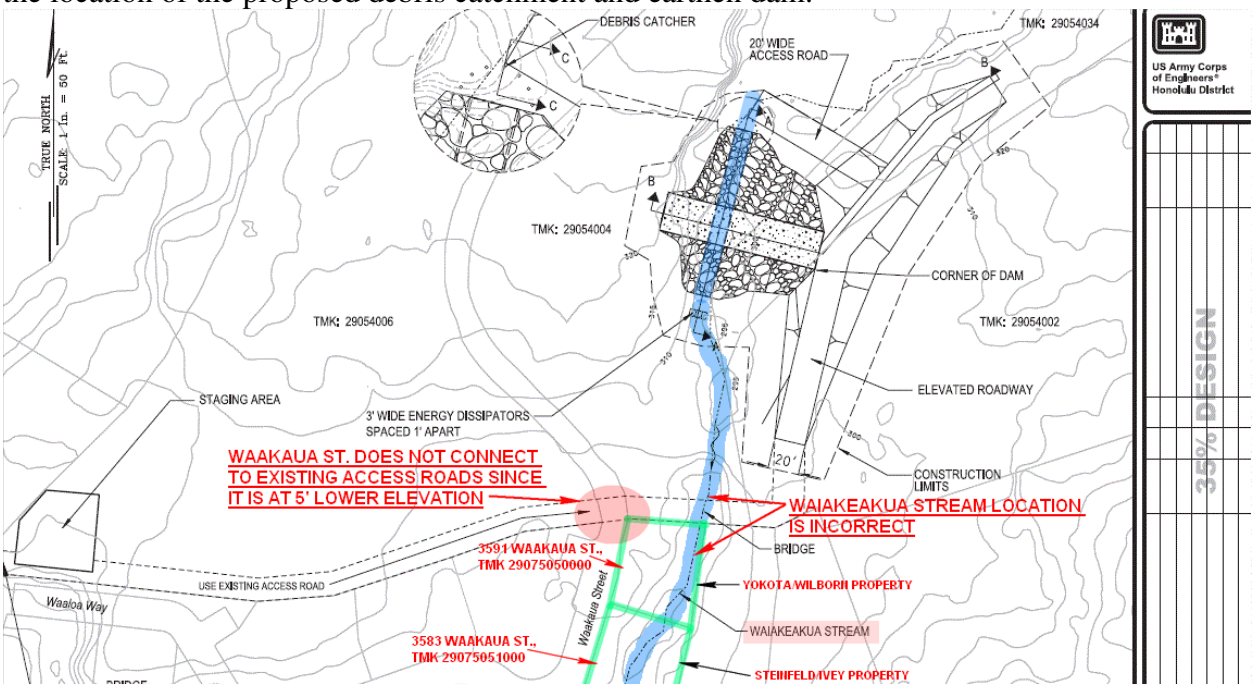

Figure 4 – Partial Site Plan on Drawing #C-302 from Section A2 of Appendix A

Figure 5 – City & County Tax Map 2-9-75 Showing Correct Location of Waiakeakua Stream

It is my hope that serious consideration and evaluation be given to the preceding information and comments. It is my sincere desire that the proposed project will not jeopardize the lives, safety, and property of homeowners living near the proposed debris catchment and earthen dams. I assume the detention basin volume (earthen dam height) will probably need to increase to accommodate the estimated higher peak flow rates from the stream. Project cost will probably increase, also.

Please do not hesitate to contact me if there are any questions.

Thank you for your time and consideration in this matter.

Lloyd Nakata, P.E.
3569 Waakaua St.
Honolulu, HI 96822
Phone # (808) 988-4382
Email: lloyd_nakata@hawaiiantel.net

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Lloyd Nakata
3569 Waakaua Street
Honolulu, HI 96822

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Calibration of hydrologic models to stream gauge observations
- Design elements of debris and detention basins
- Functional elements of debris and detention basins

Calibration of hydrologic models is detailed in Appendix A1, Sections 3.7 and 4.4. Calibration for the Waiakeakua sub-basin was performed for multiple storm events. This calibration has undergone both an internal agency technical review as well as an independent external peer review and was deemed sufficient for the purposes of the FEIS.

Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the designs of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. Any inconsistencies between current designs and site specific conditions will be corrected during this upcoming phase. The specific location and scale of project features may change as additional information is acquired from the site. Materials utilized in the designs will be reevaluated to meet site conditions.

As noted, the debris and detention basins are designed to overtop should functionality be reduced by debris or if event conditions exceed the capacity of the structure. Future design efforts will take these concerns into account and attempt to minimize future flood risk to downstream structures. It is assumed that flood risk to areas downstream of debris and detention basins will be no greater than the future without project condition flood risk.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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To the Ala Wai Canal Project members and the Army Corps of Engineers,

I am a resident of Moiliili and the editor and writer of the book *Moiliili–The Life of a Community,* and I have been observing the community, and especially the water patterns, for over 35 years.

I was also one of the community "experts/consultants" queried at the outset of this project. I told of the high water incidents that I had witnessed and the mitigation steps that might be taken to protect the community–and the Waikiki economic engine. Unfortunately, the Army Corp of Engineers took very little of what I, or others, said seriously.

Further, at the more recent meeting presenting the ACE plans I made comments on the mistaken proposals with specifics for mitigation. And, now the 2015 version of the ACE's plans show no evidence that it has listened to the community experts/consultants. I wish to testify before all committees hearing this Ala Wai Watershed re-formation.

This email will not be exhaustive so I will present a few bullet points:

" multi-purpose detention basins in open space areas in the urbanized portion of the watershed"

- Add 3 more "detention basins," that is open field areas to contain and slow storm waters–1) Kaimuki High School field; 2) the Ala Wai Park area Ewa of the juncture of the Manoa stream and the Ala Wai Canal (with low berm around the edges of Ala Wai School, as well as berms at Hokulani School and Iolani School); 3) the entire Ala Wai Park area between the Ala Wai School and the Ala Wai Clubhouse. (2) and 3) already have captured previous storm waters–with water dissipating naturally after a storm event.)

"Floodwalls along the Ala Wai Canal (including 3 associated pump stations)"

- The only floodwalls that might be appropriate to "save" the Waikiki economic engine are on the Waikiki side of the canal. Unfortunately, the ACE's solutions are overkill, visually off-putting, difficult, and scary to navigate. Instead hide the floodwall inside the berm and a raised-up canal wall and build the railing/parapet with blue stone (moss rock is not appropriate, nor as it ever been used for canals, bridges, or walls). Please see the example of the open (though it could be closed) parapet/railing located closer to Kalakaua. And put the pedestrian and bike paths on top of the berm (with the "protection" for the parapet/railing. Floodwalls do not need to be installed elsewhere in Moiliili.

- I'm not sure about pumping stations–they appear huge and ugly with a gable roof topknot. Put the whole pumping station underground. The sewage spill

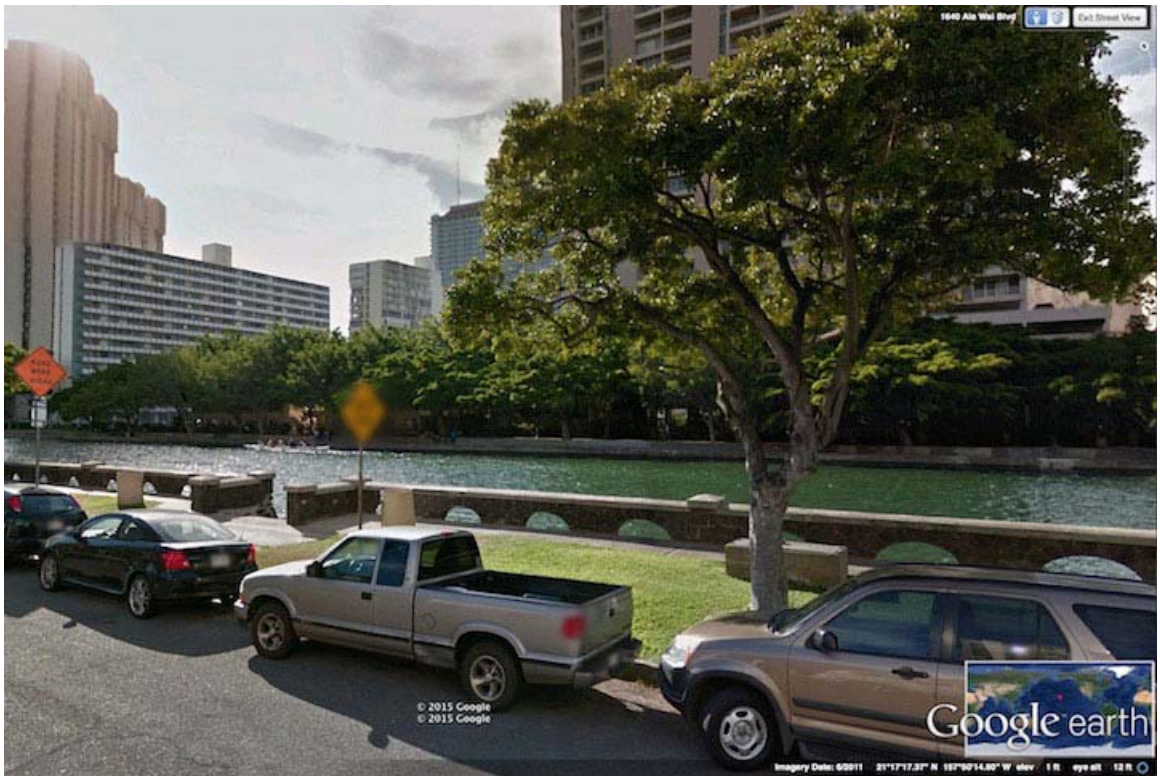
remediation dug a huge hole between the canal and community gardens. Please look to Tokyo's solutions.

"In-stream improvements to restore passage for native aquatic species as compensatory mitigation for impacts to aquatic habitat"

- This is something of a mystery: has the ACE looked closely at the aquatic species in the Manoa Stream, let alone the canal? Is the ACE suggesting that it remove all the invasive species such as tilapia and armored catfish and restore the fresh and brackish native species? Further, where are the ACE plans to more fully remediate the polluted water with such riparian plants as *akulikuli*? An experimental test has already been done.

- One other point, has the ACE designed the "sluice gates" (I assume these are backflow preventers) as a way to keep the waters from backing up and popping many storm drain covers on higher ground? This water surge does happen in hurricanes and other fierce storms.

Again, please invite me to be a member of a serious review panel. Thank you,
Laura Ruby
509 University Ave. #902
947-3641
lruby@hawaii.edu


1640 Ala Wai Blvd
Exit Street View
© 2015 Google
© 2015 Google
Google earth
Imagery Date: 6/2011

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Laura Ruby
509 University Avenue, #902
Honolulu, Hawaii 96826

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Aesthetics of the floodwalls and pump stations
- Concerns regarding the compensatory mitigation
- Backwater flooding in the existing (without project) condition

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed.

USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

The design of project features is focused on the most economical design that will provide the needed function while observing compliance with applicable Federal law. Pump stations are above ground to avoid costs associated with sub-surface placement and must contain maintenance features which will allow for annual remove and inspection of pumps. The design of floodwalls and the pump stations must meet the criteria set forth in Section 106 of the Historic Preservation Act. This design will be coordinated with the State Historic Preservation Office to ensure appropriate design aspects are integrated into the project to ensure preservation of the historic value of the area.

Backwater flooding in the streets from the canal will be reduced through the use of flap gates at storm sewer outfalls entering the canal. These features are proposed to be installed along with the implementation of the floodwall. Environmental mitigation measures are described in Section 3.13 of the report. Implementation of these features involves the removal of barriers to fish passage on the Manoa stream.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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HONOLULU FIRE DEPARTMENT

CITY AND COUNTY OF HONOLULU

636 South Street
Honolulu, Hawaii 96813-5007
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

KIRK CALDWELL
MAYOR

MANUEL P. NEVES
FIRE CHIEF

LIONEL CAMARA JR.
DEPUTY FIRE CHIEF

September 15, 2015

Mr. Gayson Ching
Engineering Division
Department of Land and Natural
Resources
State of Hawaii
P.O. Box 373
Honolulu, Hawaii 96809

Dear Mr. Ching:

Subject: Ala Wai Canal Project

In response to a letter from Carty Chang of your office received on August 24, 2015, regarding the above mentioned subject, the Honolulu Fire Department determined that there will be no significant impact to fire department services.

Should you have questions, please contact Battalion Chief Terry Seelig of our Fire Prevention Bureau at 723-7151 or tseelig@honolulu.gov.

Sincerely,

Socrates D. Bratakos

SOCRATES D. BRATAKOS
Assistant Chief

SDB/SY:bh

cc: Honolulu District, U.S. Army Corps of Engineers

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Socrates Bratakos
City and County of Honolulu, Honolulu Fire Department
636 South Street
Honolulu, Hawaii 96813-5007

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization has no comments on the FEIS.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulupd.org

KIRK CALDWELL
MAYOR

LOUIS M. KEALOHA
CHIEF

DAVE M. KAJIHIRO
MARIE A. McCAULEY
DEPUTY CHIEFS

OUR REFERENCE MT-DK

September 17, 2015

Honolulu District USACE
Attention: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, Hawaii 96858

To Whom It May Concern:

This is in response to a letter from the Department of Land and Natural Resources requesting comments on a Draft Feasibility Report/Environmental Impact Statement for the proposed Ala Wai Canal project on Oahu.

Based on the information provided, this project should have no significant impact on the services or operations of the Honolulu Police Department at this time.

If there are any questions, please contact the following commanders for their respective areas: Major Roy Sugimoto of District 1 (Central Oahu) at 723-3327, Major Clyde Ho of District 6 (Waikiki) at 723-3345, and Major Lester Hite District 7 (East Honolulu) at 723-3369.

Thank you for the opportunity to review this project.

Sincerely,

LOUIS M. KEALOHA
Chief of Police

By
MARK TSUYEMURA,
Management Analyst VI
Office of the Chief

Serving and Protecting With Aloha

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Louis Kealoha
City and County of Honolulu, Honolulu Police Department
801 South Beretania Street
Honolulu, Hawaii 96813

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization has no comments on the FEIS.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

DAVID Y. IGE
GOVERNOR
STATE OF HAWAII

SHAN S. TSUTSUI
LT. GOVERNOR
STATE OF HAWAII

JOBIE M. K. MASAGATANI
CHAIRMAN
HAWAIIAN HOMES COMMISSION

WILLIAM J. AILA, JR.
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96805

September 29, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

SUBJECT: Review and Comments on Draft Feasibility Report/Environmental Impact Statement, Ala Wai Canal Project, Ala Wai Watershed (multiple TMK's), Kona, Island of O'ahu

Dear Sir and/or Madam:

Mahalo for providing the Department of Hawaiian Home Lands (DHHL) with the opportunity to provide comments on the Draft Feasibility Report/Environmental Impact Statement for the Ala Wai Canal Project. DHHL understands that the purpose of the project is to reduce flood risk within the Ala Wai Watershed. The Tentatively Selected Plan proposes nine (9) detention basins, a debris catchment feature, floodwalls, flood warning system improvements and in-stream improvements to restore passage for native aquatic species.

As landowners engaged in our own planning processes, it is our responsibility to engage with other agencies and plan appropriately for the larger region, and it is our priority to ensure that DHHL's plans are as consistent as possible with other plans for the island of O'ahu. In addition, DHHL is the land owner of two parcels potentially impacted by the "one percent ACE flood event" and within 1,500 feet of the proposed Hausten Ditch Detention Basin, TMK's (1)2-7-008:018 (0.92 acres) and (1)2-7-008:020 (0.97 acres). See Exhibits "A" and "B".

Please consider the following general comments:

1. DHHL supports the U.S. Army Corps of Engineers' and the State of Hawai'i Department of Land and Natural Resources' efforts to better manage stormwater and reduce flooding from

heavy rain events, which may occur more frequently in the future. Reducing the flood risk in the Ala Wai Watershed will benefit the Hawaiian Home Lands Trust by protecting critical infrastructure and enhancing DHHL's future ability to use our lands in Mō'ili'ili.

2. DHHL also appreciates the measures developed to minimize and mitigate negative impacts to cultural and natural resources important to native Hawaiians due to construction of project components. Streams and stream life in their natural state are culturally significant to our beneficiaries, therefore DHHL supports successful completion of the NHPA Section 106 consultation process and finalization of a Programmatic Agreement to mitigate potential impacts to cultural, natural and scenic resources from implementation of the Tentatively Selected Plan.

We appreciate the opportunity to provide comments on the Draft Feasibility Report/Environmental Impact Statement for the Ala Wai Canal Project. If there are any questions, please contact Nancy McPherson at our Planning Office via email at nancy.m.mcpherson@hawaii.gov or by phone at 808.620.9519.

Mahalo,

Jobie M.K. Masagatani, Chairman
Hawaiian Homes Commission

Enclosures
CC: State of Hawai'i,
DLNR Engineering Div.
ATTN: Gayson Ching

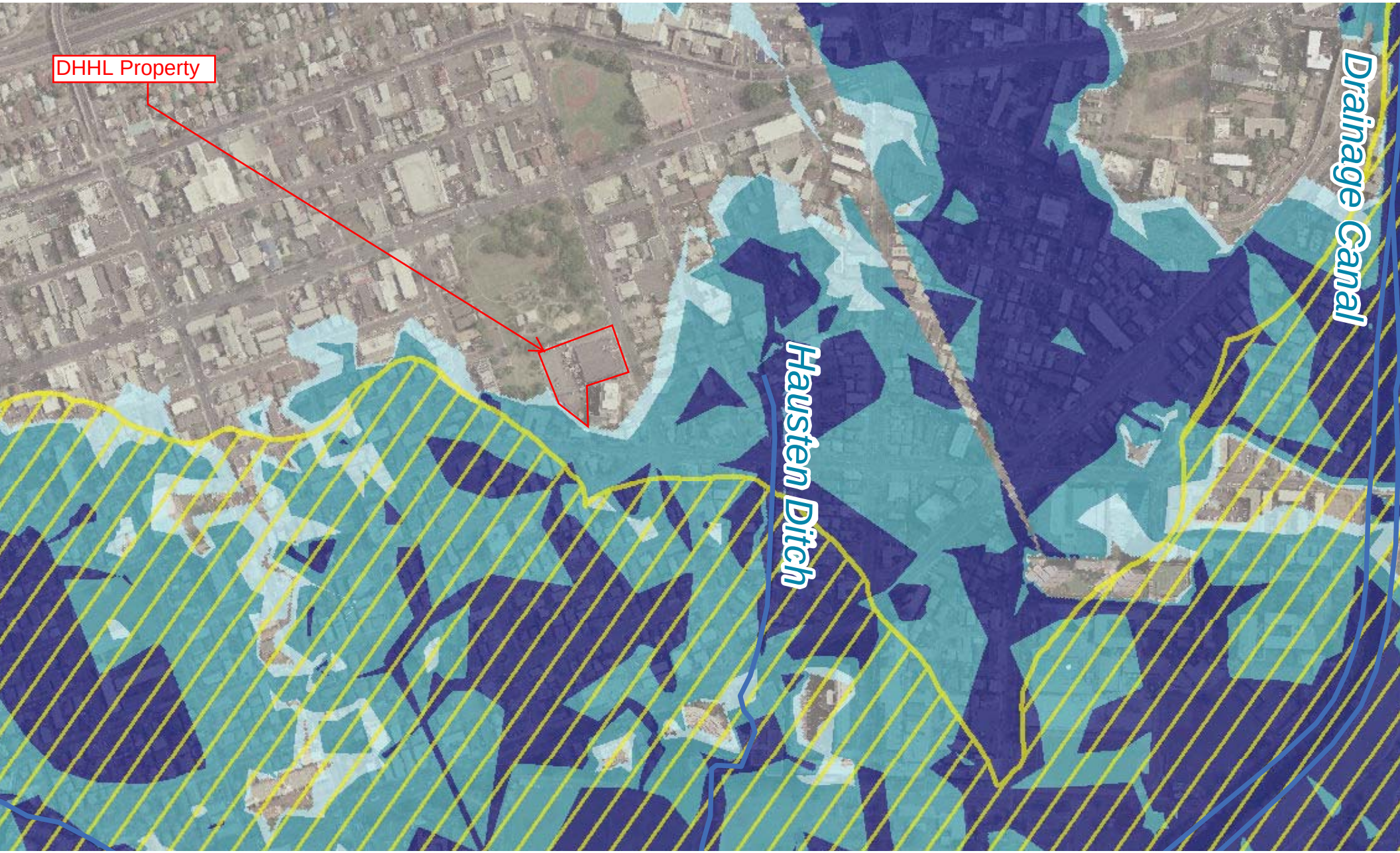


EXHIBIT A

LOCATION OF FORMER BOWL-O-DROME PARCELS OWNED BY DHHL

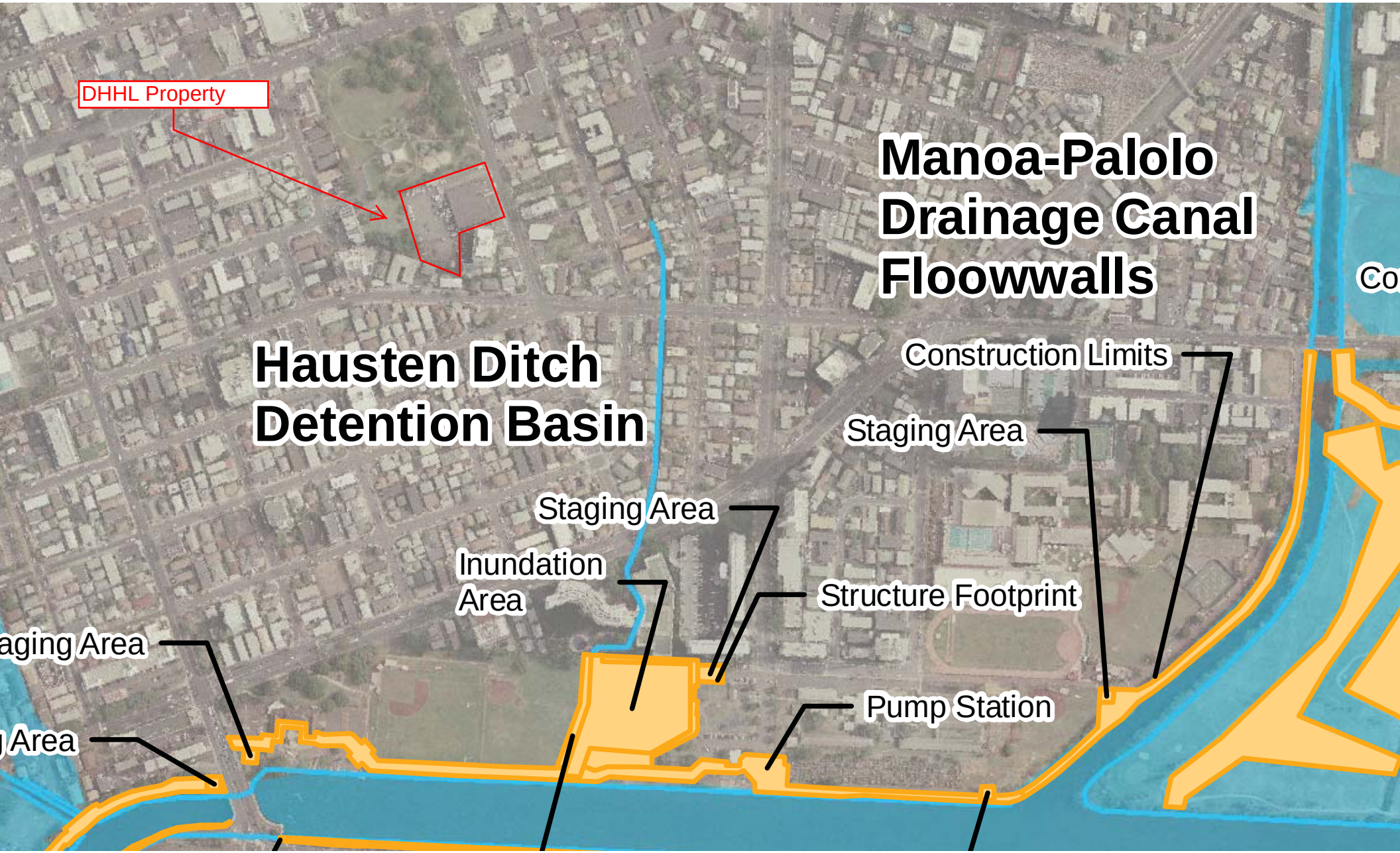


EXHIBIT B

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Jobie M.K. Masagatani
State of Hawaii, Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, Hawaii 96805

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization has no comments, requests for information, or concerns regarding adverse effects of the FEIS and is generally supportive of the recommended plan.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 30, 2015

State of Hawaii, DLNR Engineering Division
Attn: Gayson Ching
P.O. Box 373
Honolulu, HI 96809 via email: Gayson.Y.Ching@hawaii.gov

Honolulu District, USACE
Attn: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858 via email: AlaWaiCanalProject@usace.army.mil

Dear Mr. Ching and USACE,

SUBJECT: Public Comment Period and Public Meeting for the Ala Wai Canal Project, Draft Feasibility Report/EIS

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comments.

At this time, enclosed are comments from (1) Land Division; (2) Division of Boating & Ocean Recreation; (3) Division of Aquatic Resources; and (4) Engineering Division. No other comments were received as of our suspense date. Should you have any questions, please feel free to call Supervising Land Agent Steve Molmen at 587-0439. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 25, 2015

MEMORANDUM

TO: **DLNR Agencies:**
_X_ Div. of Aquatic Resources
_X_ Div. of Boating & Ocean Recreation
_X_ Engineering Division
_X_ Div. of Forestry & Wildlife
___ Div. of State Parks
_X_ Commission on Water Resource Management
_X_ Office of Conservation & Coastal Lands
_X_ Land Division – Oahu District
_X_ Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Public Comment Period and Public Meeting for the Ala Wai Canal Project, Draft Feasibility Report/EIS
LOCATION: Ala Wai Watershed, City and County of Honolulu, O`ahu, Hawai`i
APPLICANT: State of Hawai`i, Department of Land and Natural Resources; U.S. Army Corps of Engineers

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found at www.AlaWaiCanalProject.com.

Please submit any comments by September 28, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

COMMENTS:
THE DRAFT FEASIBILITY REPORT/EIS ASSESSES THE RISK OF FLOODING IN THE ALA WAI WATERSHED AND INCLUDES ALTERNATIVE PLANS TO REDUCE FLOOD RISKS.
THE BOARD'S APPROVAL IS REQUIRED FOR ANY IMPROVEMENTS BUILT UPON STATE LAND TO REDUCE THE FLOOD RISK. IE. AN EASEMENT DISPOSITION FOR DRAINAGE PURPOSES.

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____
Print Name: Ling Chee
Date: 8/26/15

DAVID Y. IGE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION
2015 SEP -4 AM 11:10
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 25, 2015

MEMORANDUM

TO: **DLNR Agencies:**
_X_ Div. of Aquatic Resources
_X_ Div. of Boating & Ocean Recreation
_X_ Engineering Division
_X_ Div. of Forestry & Wildlife
___ Div. of State Parks
_X_ Commission on Water Resource Management
_X_ Office of Conservation & Coastal Lands
_X_ Land Division – Oahu District
_X_ Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Public Comment Period and Public Meeting for the Ala Wai Canal Project, Draft Feasibility Report/EIS
LOCATION: Ala Wai Watershed, City and County of Honolulu, O`ahu, Hawai`i
APPLICANT: State of Hawai`i, Department of Land and Natural Resources; U.S. Army Corps of Engineers

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found at www.AlaWaiCanalProject.com.

Please submit any comments by September 28, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed: Edward R Underwood
Print Name: Edward R Underwood
Date: 9/3/15

AUG27'15AM10:35BOR ADM

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
LAND DIVISION
2015 SEP 29 AM 10:54
DEPT. OF LAND & NATURAL RESOURCES STATE OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
AUG 26 2015
AQUATIC RESOURCES

DAR #5175

August 25, 2015

MEMORANDUM

TO: **DLNR Agencies:**
- X Div. of Aquatic Resources
- X Div. of Boating & Ocean Recreation
- X Engineering Division
- X Div. of Forestry & Wildlife
- ___ Div. of State Parks
- X Commission on Water Resource Management
- X Office of Conservation & Coastal Lands
- X Land Division – Oahu District
- X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Public Comment Period and Public Meeting for the Ala Wai Canal Project, Draft Feasibility Report/EIS
LOCATION: Ala Wai Watershed, City and County of Honolulu, O`ahu, Hawai`i
APPLICANT: State of Hawai`i, Department of Land and Natural Resources; U.S. Army Corps of Engineers

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found at www.AlaWaiCanalProject.com.

Please submit any comments by September 28, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
(X) We have no comments. GRH
( ) Comments are attached.

Signed: Alton Miyasaka
Print Name: Alton Miyasaka, Acting Administrator
Date: 9-28-15

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 25, 2015

MEMORANDUM

TO: FR:

DLNR Agencies:
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
X Engineering Division
X Div. of Forestry & Wildlife
___ Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Oahu District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Public Comment Period and Public Meeting for the Ala Wai Canal Project, Draft Feasibility Report/EIS
LOCATION: Ala Wai Watershed, City and County of Honolulu, O`ahu, Hawai`i
APPLICANT: State of Hawai`i, Department of Land and Natural Resources; U.S. Army Corps of Engineers

Transmitted for your review and comment on the above-referenced document. We would appreciate your comments on this document which can be found at www.AlaWaiCanalProject.com.

Please submit any comments by September 28, 2015. If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Supervising Land Agent Steve Molmen at (808) 587-0439. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____
Print Name: Carly S. Chang, Chief Engineer
Date: 9/25/15

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
REF: Public Comment Period and Public Meeting for the Ala Wai Canal Project Draft Feasibility Report/EIS
Oahu.070

COMMENTS

( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

( ) Please take note that the project site according to the Flood Insurance Rate Map (FIRM), is located in Zone ___.

( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

(X) Please note that the project(s) located in the Flood Hazard Zones (A, AO, AH, AE, AEF, V, VE, and XS) must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

(X) Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.

( ) Mr. Carter Romero (Acting) at (808) 961-8943 of the County of Hawaii, Department of Public Works.

( ) Mr. Carolyn Cortez at (808) 270-7253 of the County of Maui, Department of Planning.

( ) Mr. Stanford Iwamoto at (808) 241-4896 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

_____

( ) Other: _____

_____

Should you have any questions, please call Mr. Dennis Imada of the Planning Branch at 587-0257.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 9/25/15

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Russell Tsuji
State of Hawaii, Department of Lands and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have provided a references to State policy requirements. The final FEIS will provide an overview of compliance with applicable Federal laws and policies, some of which are administered at a State level. Section 5 details an assessment of impacts resulting from the final array of alternatives. Section 7 details to compliance with applicable Federal laws and policies. The intent of the FEIS is to demonstrate compliance with all applicable Federal laws and policies.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 ● HONOLULU, HAWAII 96813 ● AREA CODE 808 ● PHONE: 768-7762 ● FAX: 768-7792

KIRK CALDWELL
MAYOR

GARY K. NAKATA
DIRECTOR

BARBARA YAMASHITA
DEPUTY DIRECTOR

September 21, 2015

Honolulu District, USACE
Attention: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, Hawaii 96858

To Whom It May Concern:

SUBJECT: Ala Wai Canal Project, O'ahu, Hawai'i Feasibility Study with Integrated Environmental Impact Statement

We have reviewed your letter and the Draft Feasibility Study Report with Integrated Environmental Impact Statement (EIS).

Our review of the documents provided indicates the proposed project will have no adverse impacts on any Department of Community Services' activities or projects at this time. Thank you for providing us with the opportunity to comment on this matter.

Sincerely,

Gary K. Nakata
Director

GKN:jc

cc: Gayson Ching, State of Hawaii
DLNR Engineering Division

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Gary Nakata
City and County of Honolulu, Department of Community Services
715 South King Street, Suite 311
Honolulu, Hawaii 96813

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization has no comments on the FEIS.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

From: victim@centurylink.net
To: Ala Wai Canal Project
Subject: [EXTERNAL] Ala Wai Canal Project
Date: Thursday, September 24, 2015 6:04:25 PM

Dear USACE Representative,

As a tourist to Waikiki it has always concerned us when brown water enters Waikiki from the Canal.

Also wonder why the Ala Wai Canal is stagnant water when it could have a current of salt water making it possible to use it for swimming etc.

Improving the Canal in addition to renovating the War Memorial in East Waikiki should be a priority. A War Memorial allowed to deteriorate is an insult to those who have served in the military.

Thanks for your attention,

Sincerely,

Timothy O. Carvelli
2460 13th Ave East
North Saint Paul, Minnesota 55109

email: victim@centurylink.net <mailto:victim@centurylink.net>

Ph: 651-770-6729

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Timothy Carvelli
2460 13th Avenue East
North St. Paul, MN 55109

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Improvement to water quality within Ala Wai Canal
- Deterioration of the War Memorial in East Waikiki

Unfortunately, the issues noted above are not topics addressed by the FEIS nor does USACE have the authorization to study those issues. It is suggested that you contact the State of Hawaii Department of Health for information related to water quality and the Natatorium for information related to the War Memorial.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

From: derek
To: Ala Wai Canal Project; gayson.y.ching@hawaii.gov
Subject: [EXTERNAL] Comments to Draft Feasibility Report/EIS - Ala Wai Canal Project
Date: Wednesday, October 07, 2015 4:29:05 PM

To the Army Corp of Engineers and the State of Hawaii:

I am a resident of upper Manoa Valley and owner of a property (3590 Waakaua Street) abutting the access road that will be impacted by the subject project. I have serious concerns about the construction of the earthen dams/detention basins and debris catchment for the Waiakeakua & Waihi Streams. The following are my questions and comments for your consideration.

Please advise what was the motivating reasons and factors behind this project; and what factors were considered in locating the Waiakeakua debris and detention basin. Also, what kind of fortifications is planned to the access road and to the bridges?. How long they expect the construction activities to last? Will regular maintainance be using the access road? How often?

My concern is about the use of the access road that abuts many of our homes, and the appropriateness and ability of that road to handle the transportation of construction equipment. Noise and exhaust/ dust are obvious concerns but safety should be paramount, and specifically addressed. I have personally seen regular size trucks slip and slide on the mud and needing a shove by their passengers. I can only imagine what horrible consequences may occur if a larger construction vehicle was to slip or overturn. The current fence would not provide much resistance to a larger vehicles that goes astray. In its current condition as an unpaved mud road, the access road would seem to be inadequate.

Another concern is maintenance. While the catchment may be well and good, if it is not properly maintained, that may cause unintended and more disastrous consequences. On the other hand, regular maintenance may impact the peacefulnessof our neighborhood and the access road may be inadequate.

Getting the correct location and alignment with respect to your property is critical. As shown in Drawing C-302, the proposed plan consists of constructing a significant structure (105 feet by 110 feet debris and detention basin) northeast and upslope of your property

How long the construction activity is expected to take and what precautions they will take to protect your property and minimize noise impacts?

One minor observation: Drawing C-302 is labeled as a 10% design but the report says it is a 35% design.

Respectfully submitted,
Derek Wong

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Derek Wong
3590 Waakaua Street
Honolulu, Hawaii 96822

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Operations, maintenance and public safety of the project features
- Effects of noise as a result of the recommended plan

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins

- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

Attached is the 35% design for the Waikeakua Debris and Detention Structure. Table 49 details the general construction schedule which extends from 2021-2024. It is likely that the construction of the debris and detention basins would occur first in this schedule and be completed prior to the 2024 date. The details relating to construction schedule will be further explored in the design phase of the study. If constructed, ownership, operations and maintenance of the structure would be the responsibility of the non-Federal sponsor.

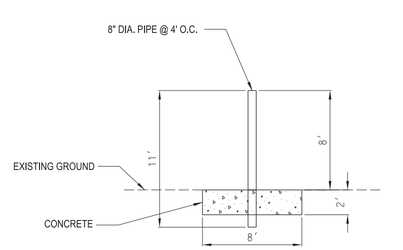
Table 9, page 3-22 of the draft FEIS (page 3-23 of the final) details cursory operations and maintenance requirements based on project feature. These obligations are identified during the feasibility phase for the purpose of developing initial cost estimates. If approved, a detailed operations and maintenance plan will be developed during the design phase of the study. Debris and detention structures are intended to pass normal stream flows without impounding water. The structure are designed to function only during storm events, therefore, no impoundment of water is anticipated outside of such storm events. Maintenance for specific project features is detailed in Table 9 of the FEIS. General maintenance will consist of clearing vegetation 20-feet around the structure twice per year and an annual inspection of the debris catchment or more frequent if flood events occur. Debris catchments must be cleared as needed.

The non-Federal sponsors must enter into a Project Partnership Agreement with USACE to construct the Project. This agreement sets the required cost sharing of the Project between the non-Federal sponsors and the Federal government and requires that the non-Federal sponsors be solely responsible for the Operation and Maintenance of the Project. The sponsors are responsible for financing their local share and operation and maintenance costs.

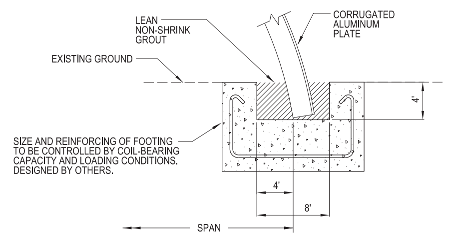
The effects of noise created by the recommended plan are documented in Section 5.14 of the FEIS. Permissible standards are established by the State of Hawaii and vary between allowable daytime and nighttime noise levels. Permissible noise levels will likely be exceeded temporarily within areas of close proximately to the constructed features. Several best management practices are proposed within the FEIS including proper tuning and balancing of construction equipment, use of noise barriers and/or mufflers on engines, restriction of construction activities to typical working days/hours, and keeping unnecessary noise to a minimum during the construction period.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

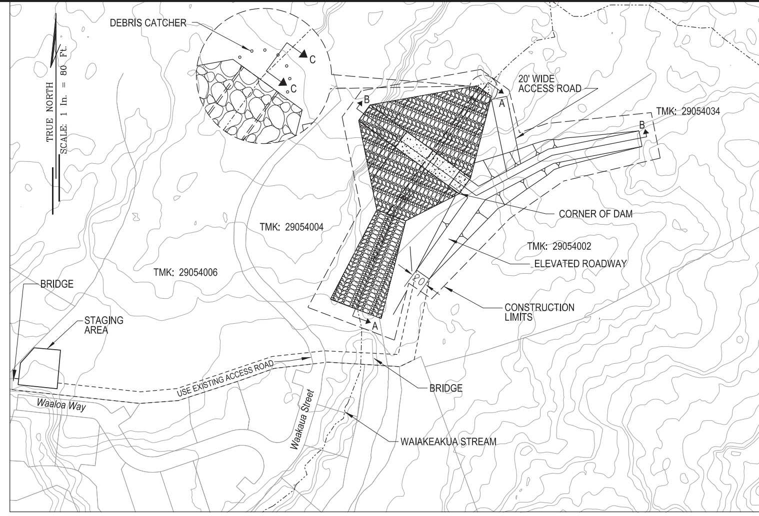
http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx



WAIAKEAKUA DEBRIS AND DETENTION BASIN
SECTION C-C
SCALE: 1"=5'



SLOTTED CONCRETE FOOTING
WAIAKEAKUA DEBRIS AND DETENTION BASIN
SECTION D-D
SCALE: NTS

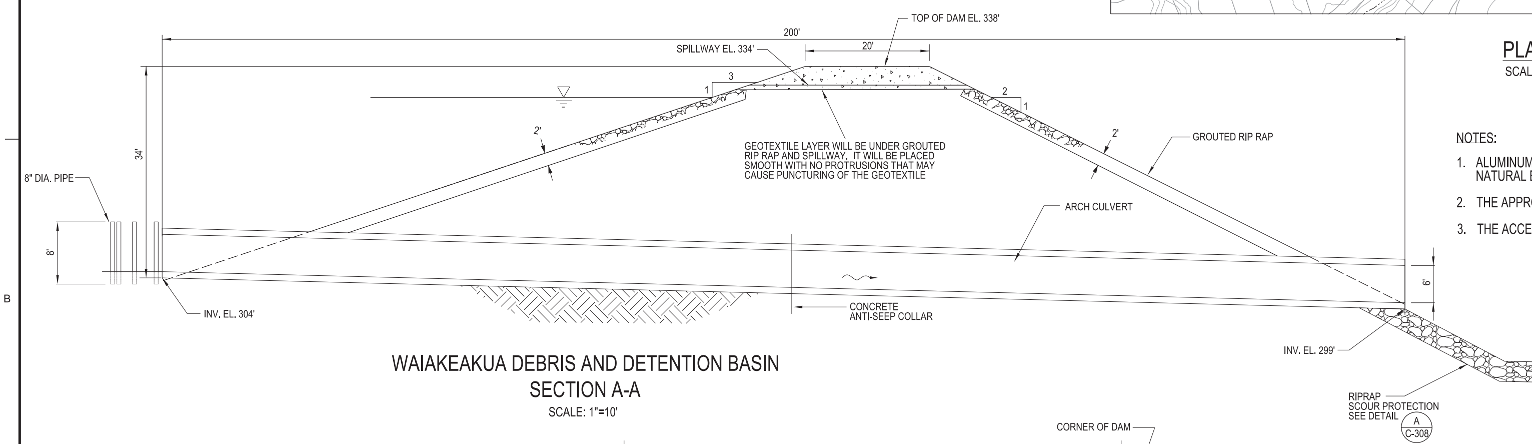


PLAN
SCALE: 1"=80'

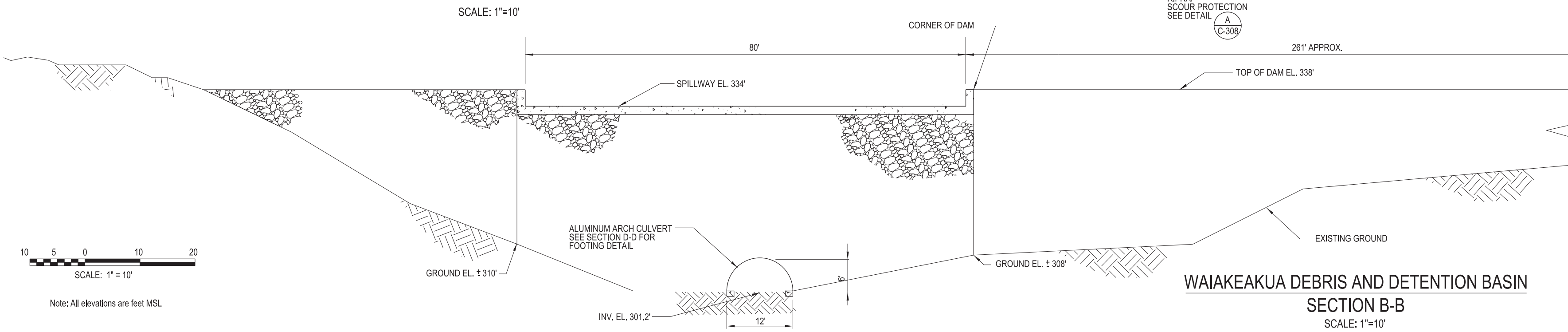
SOLID LINE = 5' CONTOURS
80 40 0 80 160
SCALE: 1" = 80'

NOTES:

1. ALUMINUM ARCH CULVERT METAL THICHNESS IS 1.50". WITH A NATURAL BOTTOM.
2. THE APPROXIMATE AREA UNDER THE ARCH CULVERT IS 35.3 SQ FT.
3. THE ACCESS ROAD WILL ALSO BE USED FOR MAINTENANCE.



WAIAKEAKUA DEBRIS AND DETENTION BASIN
SECTION A-A
SCALE: 1"=10'



Note: All elevations are feet MSL

WAIAKEAKUA DEBRIS AND DETENTION BASIN
SECTION B-B
SCALE: 1"=10'

US Army Corps of Engineers®
Honolulu District

35% DESIGN

MARK	DESCRIPTION	DATE	APPR.	MARK	DESCRIPTION	DATE	APPR.

US ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
HONOLULU, HAWAII

DESIGNED BY: JHH	DATE:	REVISION:	
DRAWN BY:	CHECKED BY:	SOLICIT./ CONTRACT NO.:	
SUBMITTED BY:		LOCATION CODE	
PLOT SCALE:	PLOT DATE: 8/30/2016	DRAWING NUMBER:	
SIZE: ANSI D	FILE NAME: Ala_Wai_C-302xxx		

ALA WAI CANAL PROJECT
WAIAKEAKUA DEBRIS AND DETENTION BASIN
PLAN AND SECTIONS

SHEET IDENTIFICATION
C-302
SHEET 11 OF 31

FILE: pw:\\COE-POHPWP08FTS.poh.ds.usace.army.mil:coe-pohpw08fts.poh.ds.usace.army.mil\Documents\11 Other Locations\2 - O'ahu\Civil Works\Ala Wai Water Shed\Ala Wai Canal Project\01-Drawings\Civil\Final\NEW TSP\Ala_Wai_C-302xxx
MODEL NAME: C-302
DATE & TIME: 8/30/2016 10:30:01 AM
LAST SAVED BY: j3ec9cp9
PLOTDRIVER: c:\pw-work\poh-1\j3ec9cp9\d0115194\PDF-AECv3.pltcfg
PEN TABLE: BW_and_Grayscale_Pen
PRINTED BY: j3ec9cp9

From:	Kuwaye, Kristen
To:	Ala Wai Canal Project; "Gayson.Y.Ching@hawaii.gov"
Cc:	Liu, Rouen
Subject:	[EXTERNAL] Public Comment Period and Public Meeting for the Ala Wai Canal Project
Date:	Wednesday, October 07, 2015 1:28:39 PM

Kristen Kuwaye on behalf of Rouen Liu

To whom it may concern,

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Company has no objection to the project. Should HECO have existing easements and facilities on the subject property, we will need continued access for maintenance of our facilities.

We appreciate your efforts to keep us apprised of the subject project in the planning process. As the proposed Ala Wai Canal Project comes to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.

If you have any questions, please call me at 543-7245.

Sincerely,

Rouen Q. W. Liu

Permits Engineer

Tel: (808) 543-7245

Email: Rouen.liu@hawaiianelectric.com <mailto:Rouen.liu@hawaiianelectric.com>

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Rouen Q.W. Liu
Hawaiian Electric Company
e-mail: Rouen.liu@hawaiianelectric.com

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization has no objections to the recommendations of the FEIS. Temporary and permanent relocation of utilities have been evaluated in the final FEIS, Appendix I3. Relocation of utilities will be revisited in detail during the design phase of the study and will be the responsibility of the non-Federal sponsor.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

From: Glenn Otaguro
To: Ala Wai Canal Project
Subject: [EXTERNAL] Draft Feasibility Report/EIS
Date: Sunday, October 11, 2015 8:28:58 PM

As a concerned resident of Manoa Valley who has a stake in this project, I wholeheartedly support the project in its current condition. In 2004 when our driveway was flooded, I was frustrated as the lack of care anyone was providing. I have been attending almost every single meeting on Manoa Stream since the flood and I plan on continuing to attend all meetings to make sure this project goes forward.

I have been doing what I can to push the information on this project forward and into the public eye.

Additionally, when the project is completed, I was told a flood notification plan will be in place to notify residents of an impending flood. I would like to be a part of this plan. I currently am providing a stream monitoring response plan for Manoa Stream during flood warnings and am interested in participating in the implementation of a flood notification plan.

Glenn Otaguro

Manoa Valley CERT

Zone 2 Lead

3158-B East Manoa Road

Honolulu, HI 96822

(808) 226-9275

<Blockedhttp://t.sidekickopen21.com/e1t/o/5/f18dQhb0S7ks8dDMPbW2n0x6l2B9gXrN7sKj6v4f9G8W2Bg_Wl8qSrZWW4X9JSd1pctGFW5mQrvl1k1H6H0?si=4562937710116864&pi=a919e8ea-accf-443b-b843-d5241d65306a>

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Glenn Otaguro
Manoa Valley Cert
3158-B East Manoa Road
Honolulu, Hawaii 96822

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization has no comments, requests for information, or concerns regarding adverse effects of the FEIS and is generally supportive of the recommended plan. A flood warning system is included in the recommended plan and will be developed in detail during the design phase of the study.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

EPO 15-219

September 15, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, Hawaii 96858
Email: AlaWaiCanalProject@usace.army.mil

Dear Ala Wai Canal Project:

SUBJECT: Draft Feasibility Study Report with Integrated Environmental Impact Statement (EIS) for the Ala Wai Canal Project
TMK: Various Tax Map Keys

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your EIS to our office via the OEQC link:
http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Oahu/2010s/2015-08-23-OA-5B-DEIS-Ala-Wai-Canal-Project.pdf

EPO strongly recommends that you review the standard comments and available strategies to support sustainable and healthy design provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments.

EPO offers the following comments:

1. We suggest you review the requirements for the National Pollutant Discharge Elimination System (NPDES) permit. We recommend contacting the Clean Water Branch at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov after relevant information is reviewed at:
    a. http://health.hawaii.gov/cwb
    b. http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/standard-npdes-permit-conditions
    c. http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/forms

2. EPO recommends you review the need and/or requirements for a Clean Air Branch permit. The Clean Air Branch can be consulted via e-mail at: Cab.General@doh.hawaii.gov or via phone: (808) 586-4200.

3. If noise created during the construction phase of the project may exceed the maximum allowable levels as set forth in Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control". A noise permit may be required and should be obtained before the commencement of work. Please call the Indoor and Radiological Health Branch at (808) 586-4700 and review relevant information online at: http://health.hawaii.gov/irhb/noise
4. EPO also suggests that the Hazard Evaluation and Emergency Response (HEER) Office's Site Discovery and Response (SDAR) Section be contacted. The SDAR section protects human health and the environment by identifying, investigating, and remediating sites contaminated with hazardous substances (non-emergency site investigations and cleanup). The HEER Office's SDAR Section can be contacted at: (808) 586-4249 and relevant information can be reviewed at: http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/site-assessment-and-cleanup-programs

EPO encourages you to examine and utilize the Hawaii Environmental Health Portal. The portal provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings. The Portal is continually updated. Please visit it regularly at: https://eha-cloud.doh.hawaii.gov

You may also wish to review the revised Water Quality Standards Maps that have been updated for all islands. The Water Quality Standards Maps can be found at: http://health.hawaii.gov/cwb/site-map/clean-water-branch-home-page/water-quality-standards/.

In order to better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed a new environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: http://www2.epa.gov/ejscreen

We request that you utilize all of this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office

Attachment: EJSCREEN, 3 page report

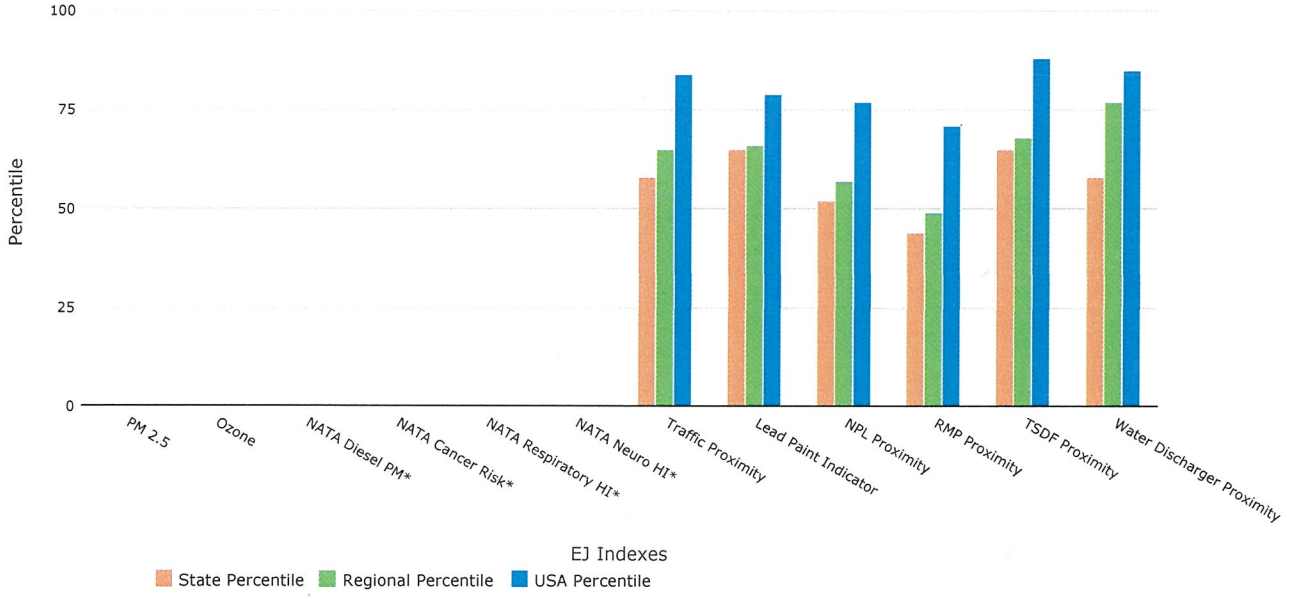
c: Lisa Kettley, CH2M HILL
Gayson Ching, DLNR Engineering Division {email: Gayson.Y.Ching@hawaii.gov}
DOH: CWB, CAB, WWB, IRHB, HEER {via email only)

Save as PDF

EJSCREEN Report for .5 mile Ring around the Corridor
HAWAII, EPA Region 9
Approximate Population: 50264
DFSR DEIS Ala Wai Canal

Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
EJ Indexes			
EJ Index for Particulate Matter (PM 2.5)	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA Diesel PM*	N/A	N/A	N/A
EJ Index for NATA Air Toxics Cancer Risk*	N/A	N/A	N/A
EJ Index for NATA Respiratory Hazard Index*	N/A	N/A	N/A
EJ Index for NATA Neurological Hazard Index*	N/A	N/A	N/A
EJ Index for Traffic Proximity and Volume	58	65	84
EJ Index for Lead Paint Indicator	65	66	79
EJ Index for NPL Proximity	52	57	77
EJ Index for RMP Proximity	44	49	71
EJ Index for TSDF Proximity	65	68	88
EJ Index for Water Discharger Proximity	58	77	85

EJ Index for the Selected Area Compared to All People's Block Groups in the State/Region/US



This report shows environmental, demographic, and EJ indicator values. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

September 15, 2015

Digitized Line

1:18,056

0 0.15 0.3 0.6 mi

0 0.25 0.5 1 km

Selected Variables	Raw data	State Average	%ile in State	EPA Region Average	%ile in EPA Region	USA Average	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m^3)	N/A	N/A	N/A	9.95	N/A	9.78	N/A
Ozone (ppb)	N/A	N/A	N/A	49.7	N/A	46.1	N/A
NATA Diesel PM (µg/m^3)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Air Toxics Cancer Risk (risk per MM)*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Respiratory Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NATA Neurological Hazard Index*	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Traffic Proximity and Volume (daily traffic count/distance to road)	130	280	62	190	62	110	79
Lead Paint Indicator (% pre-1960s housing)	0.19	0.17	61	0.25	54	0.3	47
NPL Proximity (site count/km distance)	0.047	0.092	46	0.11	41	0.096	49
RMP Proximity (facility count/km distance)	0.091	0.18	48	0.41	20	0.31	31
TSDF Proximity (facility count/km distance)	0.1	0.092	73	0.12	68	0.054	88
Water Discharger Proximity (count/km)	0.31	0.33	64	0.19	86	0.25	80
Demographic Indicators							
Demographic Index	52%	51%	52	46%	60	35%	76
Minority Population	71%	77%	30	57%	62	36%	80
Low Income Population	32%	25%	69	35%	50	34%	52
Linguistically Isolated Population	15%	6%	89	9%	76	5%	89
Population with Less Than High School Education	8%	10%	50	18%	33	14%	37
Population under Age 5	4%	6%	24	7%	23	7%	25
Population over Age 64	17%	14%	64	12%	79	13%	73

*The National-Scale Air Toxics Assessment (NATA) environmental indicators and EJ indexes, which include cancer risk, respiratory hazard, neurodevelopment hazard, and diesel particulate matter will be added into EJSCREEN during the first full public update after the soon-to-be-released 2011 dataset is made available. The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: http:// www.epa.gov/ttn/atw/natamain/index.html.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not

provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Laura Leialoha Phillips McIntyre
State of Hawaii, Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have provided a references to State policy requirements. The final FEIS will provide an overview of compliance with applicable Federal laws and policies, some of which are administered at a State level. Section 5 details an assessment of impacts resulting from the final array of alternatives. Section 7 details to compliance with applicable Federal laws and policies. The intent of the FEIS is to demonstrate compliance with all applicable Federal laws and policies.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

DAVID Y. IGE
GOVERNOR

KATHRYN S. MATAYOSHI
SUPERINTENDENT

STATE OF HAWAI`I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI`I 96804

OFFICE OF SCHOOL FACILITIES AND SUPPORT SERVICES

September 30, 2015

Mr. Derek Chow
Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, Hawaii 96858

Re: Draft Feasibility Report/Environmental Impact Statement for the Ala Wai Canal Project

Dear Mr. Chow:

The Department of Education (DOE) attempted to review the Draft Feasibility Report/Environmental Impact Statement for the Ala Wai Canal Project. We wish to offer the following comments. It was difficult to get a comprehensive impression of the impact of the proposed project on the DOE schools within the Ala Wai Watershed. DOE schools were identified mostly in indirect references, not in relation to how the proposed project would impact their campuses. There was far more effort spent describing project impacts to the elepaio bird than public school students and facilities in the study area. There were also some references to a drainage project at Ala Wai Elementary School which needs to be corrected and clarified. Details on the DOE project are listed below.

It would have been useful to include one table on the schools identified in the Ala Wai Watershed, if not all the schools at least the largest ones or the ones expected to be impacted the most. On page 2-2, there is a description of approximately 28,529 students attending at least 11 schools. Later on page 5-87, the report says there are approximately 40 public schools, private schools and universities with a combined student body of 48,000 students. What seems like conflicting information makes the text more difficult to follow.

In the discussion of the impacts of the tentatively selected plan there are details on the selected alternative plans impact on several parks, but the text never acknowledges the proximity of the schools located adjacent to, or sharing a parcel with the parks. Any reference to Manoa District Park, Kanewai Community Park and Ala Wai Community Park cannot ignore the co-location of elementary schools.

Table 30 lists significant views and view planes and who are the potentially sensitive receptors. Table 30 identifies residential properties immediately adjacent, but never mentions public schools immediately adjacent. The same criticism applies to Table 31 concerning ambient noise. Nearby residents and park users are listed as potentially sensitive noise receptors along with Ala Wai

Elementary and Kaimuki High, but there is no reference to Manoa Elementary or Hokulani Elementary. Table 34 identifies roads and other transportation resources affected by the tentatively selected plan, fails to list Manoa and Hokulani Elementary schools, which share facilities with affected parks.

The DOE believes that any discussion on public services should include public schools. On page 5-80 the report says the proposed plan still leaves two emergency shelters at Lunalilo Elementary and Washington Intermediate in the floodplain. The next sentence says in addition to the three schools that serve as emergency shelters, the only other school that would remain in the floodplain is Iolani School, that seven other schools in the floodplain would be protected. The DOE is unclear which school is the third school that serves as an emergency shelter remaining in the flood plain. We would also like to have the seven other schools identified.

On page 5-88 there is a reference to "the above-listed schools and their facilities" in the study area, but there is no list. There is an additional reference to 11 schools, including UH, in the one percent chance floodplain. It seems like one table identifying at least the 11 schools would have been helpful. The report also mentions a possible scenario of water overtopping the canal walls. The water would pond on Kapahulu Avenue and then pass "through the grounds of Jefferson Elementary school." It is unclear whether Jefferson is one of the schools in the floodplain.

Finally, there are a few references to the Ala Wai Elementary School Drainage Improvements project. The project has not been completed as stated on pages 1-7 and 5-91. The project is only half completed and has had to change its design so it no longer drains into the Ala Wai Canal. We ask that this reference be corrected.

We appreciate the opportunity to review the Draft Feasibility Report/Environmental Impact Statement. If you have any questions, please contact Heidi Meeker, Land Use Planner of the Planning Section of the Facilities Development Branch at 377-8301.

Respectfully,

Kenneth G. Masden II
Public Works Manager
Planning Section

KGM:jmb

c: Gayson Ching, Engineering Division, Department of Land and Natural Resources

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Kenneth Madsen
State of Hawaii, Department of Education
PO Box 2360
Honolulu, Hawaii 96804

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization have submitted a number of suggested corrections and clarifications for the FEIS. Your corrections and suggested edits are noted and are included in the final FEIS.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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United States Department of the Interior
U.S. GEOLOGICAL SURVEY
Pacific Islands Water Science Center
1845 Wasp Boulevard, Building 176
Honolulu, Hawaii 96818
Phone: (808) 690-9600/Fax: (808) 690-9599

October 2, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, Hawai'i 96858

To Whom It May Concern:

Subject: Public Review and Comment Period of Draft Feasibility Report/EIS for the Proposed Ala Wai Canal Project, O'ahu, Hawai'i

Thank you for your letter regarding availability of the subject Draft Feasibility Report/EIS for review and comment by the staff of the U.S. Geological Survey Pacific Islands Water Science Center. We regret however, that due to prior commitments and lack of available staff, we are unable to review this document.

We appreciate the opportunity to participate in the review process.

Sincerely,

Stephen S. Anthony
Center Director

cc: State of Hawai'i, DLNR Engineering Division
ATTN: Gayson Ching
P.O. Box 373
Honolulu, Hawai'i 96809

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Stephen Anthony
U.S. Department of Interior, Geological Survey
Pacific Island Water Science Center
1845 Wasp Boulevard, Building 176
Honolulu, Hawaii 96818

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization has no comments on the FEIS.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

October 5, 2015

I absolutely oppose connecting La'i Road to Ipulei Place.
My reason is the crime factor stemming from additional access to the Carlos Long neighborhood.
My suggestion is something be done to the stream further down by Ahe Street.

Thank you & sincerely,

Madge Nicolas
3184 Holly Pl
HH 96846
779-3944

P.S. I will get every single resident & home owner to sign a petition!

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Madge Nicolas
3184 Holly Place
Honolulu, HI 96816

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

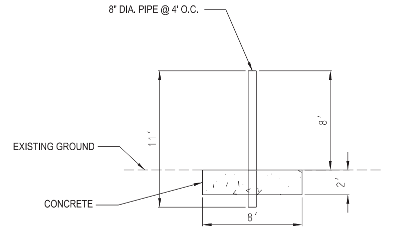
- Connecting La'I Road to Ipulei Place via the Pukele Debris and Detention Structure

Attached is the 35% design for the Pukele Debris and Detention Structure. The top of the structure is intended to serve as an overflow spillway, not a structure utilized for public access. Section C-C shows that the top of the structure is 441' in elevation whereas the spillway elevation is located at 437' with vertical side slopes on the furthest lateral extent of the spillway. The assumed four foot elevation difference would not be conducive to either vehicle or pedestrian traffic across the structure. If constructed, ownership, operations and maintenance of the structure would be the responsibility of the non-Federal sponsor.

Designs associated with the FEIS are developed to a 35% level in order to adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the designs of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase.

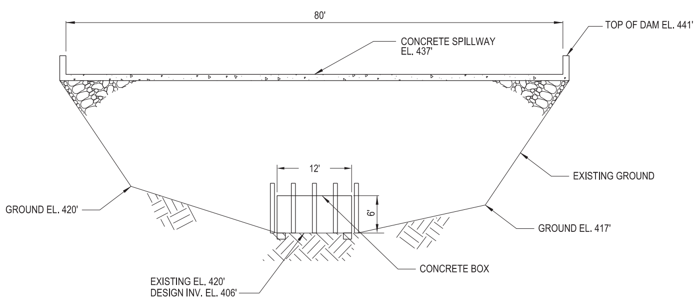
Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx



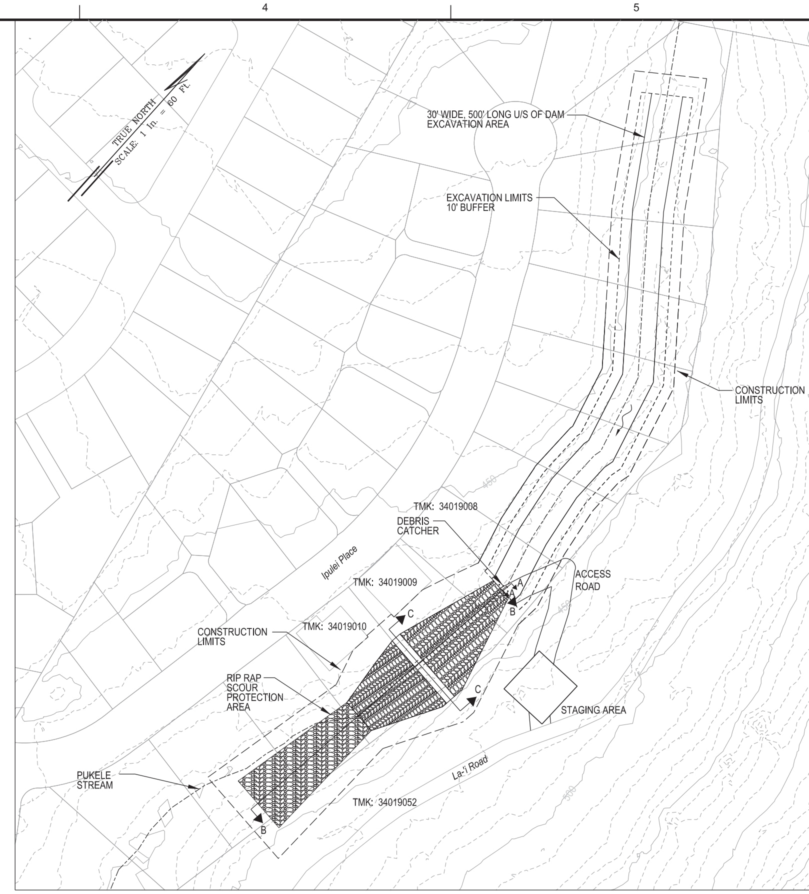
PUKELE DEBRIS AND DETENTION BASIN SECTION A-A

SCALE: 1"=5'



PUKELE DEBRIS AND DETENTION BASIN SECTION C-C

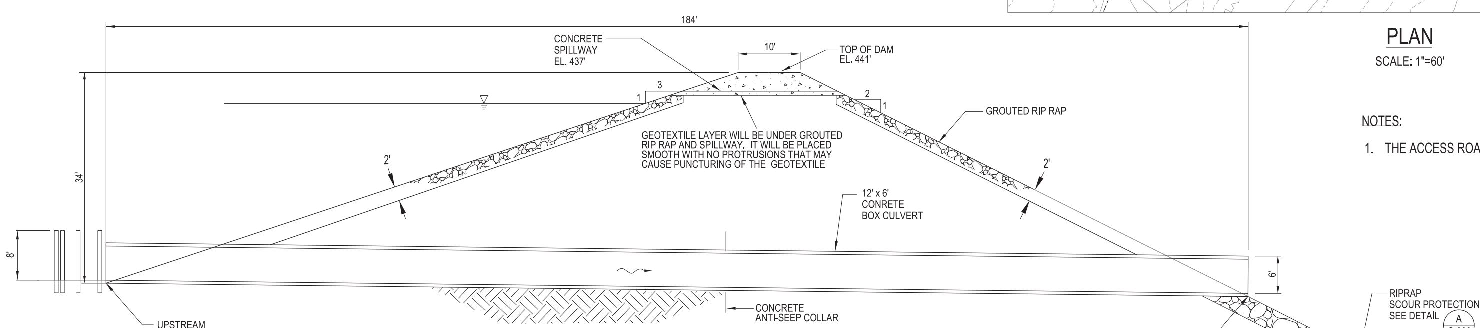
SCALE: 1"=5'



PLAN

SCALE: 1"=60'

SOLID LINE = 50' CONTOURS
DOTTED LINE = 10' CONTOURS



PUKELE DEBRIS AND DETENTION BASIN SECTION B-B

SCALE: 1"=5'

NOTES:

1. THE ACCESS ROAD WILL ALSO BE USED FOR MAINTENANCE.

5 2.5' 0 5 10
SCALE: 1" = 5'
Note: All elevations are feet MSL

US Army Corps of Engineers® Honolulu District

35% DESIGN

US ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
HONOLULU, HAWAII

DESIGNED BY: JHH | DATE: | REVISION:
DRAWN BY: | CHECKED BY: | SOLICIT./ CONTRACT NO.:
SUBMITTED BY: | LOCATION CODE
PLOT SCALE: | PLOT DATE: 8/30/2016 | DRAWING NUMBER:
SIZE: ANSI D | FILE NAME: Ala_Wai_C-313xxx

ALA WAI CANAL PROJECT
PUKELE DEBRIS AND DETENTION BASIN
PLAN AND SECTIONS

SHEET IDENTIFICATION
C-313
SHEET 18 OF 31

FILE: pw:\\COE-POHPWP08FTS.poh.ds.usace.army.mil:coe-pohpwp08fts.poh.ds.usace.army.mil\Documents\11 Other Locations\2 - O'ahu\Civil Works\Ala Wai Water Shed\Ala Wai Canal Project\01-Drawings\Civil\Final\NEW TSP\Ala_Wai_C-313xxx
MODEL NAME: C-313
DATE & TIME: 8/30/2016 10:37:06 AM
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PEN TABLE: BW_and_Grayscale_Pen
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ALA WAI CANAL PROJECT DRAFT FEASIBILITY REPORT / EIS
PUBLIC MEETING - COMMENT SHEET
September 30, 2015

Thank you for participating in the Public Meeting on the ALA WAI CANAL PROJECT DRAFT FEASIBILITY REPORT/ENVIRONMENTAL IMPACT STATEMENT. Please use this form to submit any questions or comments you may have on the Draft Feasibility Report/EIS. Completed forms may be submitted to a project team member or mailed by **November 9, 2015**. Comments may be also emailed to: AlaWaiCanalProject@USACE.Army.mil. Please note that comments must include a name and physical address to receive a written response. To review the Draft Feasibility Report/EIS, visit www.AlaWaiCanalProject.com.

After attending the Public meeting, I truly feel that the proposed solution to the Ala Wai canal project is a waste of time and taxpayer's money for something that may not solve and may make the flooding problem even worse than it already is; by creating many more flood prone areas along the 3 streams.
What assurances do I have that I will be protected from future flooding (ie 10yrs., 50yrs., & 100yrs.)?
Is there a solution that will be more environmentally friendly and less destructive to the surrounding area ie residential homes?
As a full-time pensioner, I cannot afford the risk of flooding and damage to my home.
Please reconsider alternative solutions, as this is not the answer to the problem as the cost to the affective community is too great and the problem of flooding of the Ala Wai canal will still exist.

CONTACT INFORMATION

Please note that comments must include a name and physical address to receive a written response.

Name: Lori L. Takasaki

Phone: (808) 542-2351

Address: 98-2061 B Kaahumanu St.
Aiea, HI 96701

Email: lori.takasaki@gmail.com

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Lori Takasaki
98-2061B Kaahumanu Street
Aiea, Hawaii 96701

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course

- A flood warning system
- Fish passage environmental mitigation features at two locations

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 3RD FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 768-8305 • Fax: (808) 768-4730 • Internet: www.honolulu.gov

KIRK CALDWELL
MAYOR

MICHAEL D. FORMBY
DIRECTOR

MARK N. GARRITY, AICP
DEPUTY DIRECTOR

TP8/15-621881R

October 7, 2015

Honolulu District
United States Army Corps of Engineers
Building 230, CEPOH-PP-C
Fort Shafter, Hawaii 96858

Attention: Ala Wai Canal Project

State of Hawaii
Department of Land and Natural Resources,
Engineering Division
P.O. Box 373
Honolulu, Hawaii 96809

Attention: Mr. Gayson Ching

Gentlemen:

SUBJECT: Draft Feasibility Study/Environmental Impact Statement for the Ala Wai Canal Project

In response to a public notice from Mr. Carty Chang, Chief Engineer, State of Hawaii, Department of Land and Natural Resources, Engineering Division, received on August 24, 2015, we have the following comments:

1. Any construction materials and equipment should be transferred to and from the project sites during off-peak traffic hours (8:30 a.m. to 3:30 p.m.) to minimize any possible disruption to traffic on the local streets. The Transportation Management Plan specified under Section 5.15.2.2. of the Draft Feasibility Study/Environmental Impact Statement (Study/EIS), page 5-75, should note this.

2. Please discuss and address the possibility of including at least one pedestrian bridge over the Ala Wai Canal as an evacuation measure in the event of flooding in Waikiki.

3. The fourth bullet on page 7-77 of the Study/EIS states: "Provide written advanced notice to property owners and businesses adjacent to construction areas." You should add also affected Neighborhood Boards, Public Transit and the Emergency Services personnel. The notice should be at the earliest opportunity and not less than ten days prior to beginning construction.

4. A street usage permit from the City's Department of Transportation Services shall be obtained for any construction-related work that may require the temporary closure of any traffic lane on a City street.

Thank you for the opportunity to review this matter. Should you have any further questions, please contact Michael Murphy of my staff at 768-8359.

Very truly yours,

for Michael D. Formby
Director

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Michael Formby
City and County of Honolulu, Transportation Services
650 South King Street, 3rd Floor
Honolulu, HI 96813

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Policies related to construction activities
- Inclusion of an additional bridge to serve as an evacuation route
- Inclusion of specific parties to receive construction notice
- Obtaining a street usage permit

It is noted that you have provided a references to local policy requirements. The final FEIS will provide an overview of compliance with applicable Federal laws and policies, some of which are administered at a State level. Section 5 details an assessment of impacts resulting from the final array of alternatives. Section 7 details to compliance with applicable Federal laws and policies. The intent of the FEIS is to demonstrate compliance with all applicable Federal laws and policies. Coordination of specific items related to construction logistics will occur at a local level during the design phase of the study.

Unfortunately, the issue of evacuation route planning is not a topic addressed by the FEIS nor does USACE have the authorization to study that specific issue. It is suggested that you work with the State of Hawaii to adequately plan evacuation routes for potential natural disasters. If authorized, USACE will work with State and local partners to integrate the proposed flood warning system into local disaster and emergency preparedness efforts.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843

October 13, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, Hawaii 96858

Gentlemen:

Subject: Your Transmittal of the Draft Feasibility Study Report with Integrated Environmental Impact Statement for the Ala Wai Canal Project, Oahu, Hawaii

Thank you for the opportunity to review the subject document for the proposed flood control project.

We have the following comments to offer:

1. The Board of Water Supply (BWS) has several drinking water wells, reservoirs and appurtenant structures including a pipeline transmission tunnel in the vicinity of the debris and detention basins proposed for upper Makiki, Manoa and Palolo area. We also have distribution pipelines in close proximity to the lower Manoa detention basin areas adjacent to the Ala Wai Canal. Schematics, diagrams, detailed location maps and site plans should be submitted for our review to determine the impacts the project will have on any of our infrastructure.

2. The BWS is landowner for the area proposed for the upper Manoa portion of the project and possibly for portions of the Makiki and Palolo area. Land approvals would need to be coordinated accordingly. The BWS would not agree to be responsible for operating and maintaining the proposed earthen dams, detention basins and associated structures. These are basically flood control measures and being responsible for them is not in alignment with BWS' core mission of providing safe, dependable and affordable drinking water to its customers.

3. There should be an expanded discussion on the operation, maintenance and associated impacts of the proposed earthen dams and infrastructure which would have to comply with Army Corps of Engineers regulations and State of Hawaii Dam Safety Program regulations.

4. Please use current data on the BWS on page 5 – 82. In calendar year 2014, the BWS produced an average of about 140 million gallons per day for the island of Oahu.

5. We reserve further comment until the requested materials are submitted for our review.

If you have any questions, please contact Iris Oda, Long Range Planning Branch of our Water Resources Division at 748-5946 or by e-mail at ioda@hbws.org.

Very truly yours,

ERNEST Y. W. LAU, P.E.
Manager and Chief Engineer

cc: DLNR, Engineering

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Ernest Lau
City and County of Honolulu, Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization have submitted a number of suggested corrections and clarifications for the FEIS. Your corrections and suggested edits are noted and are included in the final FEIS.

In addition, your organization submitted concerns regarding long-term maintenance of debris and detention basins. Table 9, page 3-22 of the draft FEIS (page 3-23 of the final) details cursory operations and maintenance requirements based on project feature. These obligations are identified during the feasibility phase for the purpose of developing initial cost estimates. If approved, a detailed operations and maintenance plan will be developed during the design phase of the study. Debris and detention structures are intended to pass normal stream flows without impounding water. The structure are designed to function only during storm events, therefore, no impoundment of water is anticipated outside of such storm events.

The non-Federal sponsors must enter into a Project Partnership Agreement with USACE to construct the Project. This agreement sets the required cost sharing of the Project between the non-Federal sponsors and the Federal government and requires that the non-Federal sponsors be solely responsible for the operation and maintenance of the Project. The sponsors are responsible for financing their local share and operation and maintenance costs.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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October 17, 2015

Dear U.S. Army Corps of Engineers,

Regarding your Ala Wai Canal Project:

Damming our streams is entirely unacceptable. The problems seem to be (a) debris and (b) choke points. I suggest relying less on "community groups" for debris removal, and widening or reconfiguring the channels at choke points.

Raising the walls of the Ala Wai Canal seems like a good idea—especially because we are expecting sea level rise.

Sincerely,

Regina E. Gregory
1704 Anapuni St.
Honolulu, HI 96822

Ms. Renate E. Gregory
1704 Anapuni St. Apt. 4D
Honolulu, HI 96822-4425

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USACE
Attn: Ala Wai Canal Project
Bldg. 230, CEPOH-PP-C
Ft. Shafter, HI 96858

96858

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Regina Gregory
1704 Anapuni Street
Honolulu, HI 96822

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Detention basins and channel constrictions on upstream tributaries

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. While widening stream channels was initially considered, this measure was dropped due to the relative low cost-effectiveness of the action. Details regarding planning considerations leading to the development of alternatives can be found in Section 3 of the FEIS.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

ALA WAI CANAL PROJECT DRAFT FEASIBILITY REPORT / EIS
PUBLIC MEETING - COMMENT SHEET
September 30, 2015

Thank you for participating in the Public Meeting on the ALA WAI CANAL PROJECT DRAFT FEASIBILITY REPORT/ENVIRONMENTAL IMPACT STATEMENT. Please use this form to submit any questions or comments you may have on the Draft Feasibility Report/EIS. Completed forms may be submitted to a project team member or mailed by **November 9, 2015**. Comments may be also emailed to: AlaWaiCanalProject@USACE.Army.mil. Please note that comments must include a name and physical address to receive a written response. To review the Draft Feasibility Report/EIS, visit www.AlaWaiCanalProject.com. 10/19/15

This is not about the "feasibility report" right yet - I would really like to know who to contact regarding the water quality in my apartment - the residue that settles on the kitchen area counters (i.e. dish tray) is pretty greasy! I would really like to be sure the water coming out is safe - I live right on Ala Wai (between Ala Moana Blvd and Kalakaua) on the walk path that faces the Convention Center on the Canal

Mahalo!
Betsy Staller

CONTACT INFORMATION

Please note that comments must include a name and physical address to receive a written response.

Name: Betsy Staller Phone: (808) 944-5004

Address: 1868 Kalakaua Apt #308 Email: stabets@yahoo.com
Honolulu HI 96815

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Betsy Staller
1868 Kahakai Drive, #308
Honolulu, HI 96814

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Water quality of drinking water within a private residence

Unfortunately, the issue noted above is not a topic addressed by the FEIS nor does USACE have the authorization to study that issue. It is suggested that you contact the State of Hawaii Department of Health or the Board of Water Supply for information related to general drinking water quality or your facility management for information related to water within your residence.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

From: CA Wong
To: Ala Wai Canal Project
Subject: [EXTERNAL] Manoa Stream in-stream debris catchment
Date: Tuesday, October 13, 2015 11:02:45 AM

Dear Sirs,
I am emailing to communicate my questions and concerns related to the above-referenced portion of the Ala Wai Canal Project. While I generally support the goals of the Ala Wai Canal project I cannot help but to be worried about the debris-catchment plan. I am a landowner, with a home directly mauka of the proposed site. My property has never flooded in the 9 years I have lived on it, nor in the fifty years my family has owned the property. Even in 2004 the water did not breach the top (my family has owned the property for decades).

I have looked at the Draft EIS and I attended the open-house portion of the community meeting on September 30, 2015. It is my understanding that the intent is to place a series of 7' high bollards across Manoa Stream with the purpose of trapping debris.

My concerns are as follows:

1) Is there a backflow plan? I spoke with Loren at the meeting and he said that the water would flow through or over any obstructions caused by debris caught by the bollards. He also indicated that there were not going to be any modifications to Manoa Park to receive excess water.

Could you tell me if any backwater curves have been computed for Manoa Stream at flood flow with and without the bollards installed. I am told that is an engineering fact that any obstruction to a channel cross section will result in the water surface level rising upstream from that obstruction and that, therefore, flooding of my property might occur with far less intense storms (increased likelihood of more flooding) or in the event of a storm which generated flooding, that flooding would be far more severe. It would be useful if you would provide backwater curves for Manoa Stream upstream from the proposed bollard site showing current non-flood, 25-year, 50-year, and 100-year storm flows both with and without the proposed bollards in place.

I was told that upstream improvements would reduce the flow to be expected. With the exception of the amount of ground percolation (small because of ground will have already been saturated), the volume of runoff carried out on existing waterways will be approximately equal the amount of precipitation. Altering the size of the catchment areas feeding Manoa Stream is not likely to be an economically feasible way to reduce runoff volume. In the case that full funding is not obtained for the project, what is the likelihood that the bollards will be put in place without any of the upstream flow mitigation?

2) Maintenance of the catchment. Loren also informed me that the City & County of Honolulu would be responsible for maintaining the catchment. Since the City & County can't even maintain its parks or roadways, this aspect of the plan is hugely concerning to me.

3) Placement. I'm just curious why the catchment, which I'm told is meant to stop large tree branches and boulders, isn't being placed further upstream so that the large tree branches and boulders won't pile up under the bridge Kahaloa.

I appreciate your time and patience in reviewing and responding to my concerns. If it can be shown that the placement of the bollards would not increase the elevation of the water surface, my concerns will be allayed. If not, I will have to oppose a proposal which places my property and possibly my well being at increased risk.

Best Regards,
Cecily Wong

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Cecily Wong
e-mail: cecilyaewong@gmail.com

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Design elements of debris and detention basins
- Operations, maintenance and public safety of the project features

Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the designs of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. Any inconsistencies between current designs and site specific conditions will be corrected during this upcoming phase. The specific location and scale of project features may change as additional information is acquired from the site. Materials utilized in the designs will be reevaluated to meet site conditions. The design and engineering of project features has undergone both an internal agency technical review as well as an independent external peer review and was deemed sufficient for the purposes of the FEIS.

Backwater conditions have been calculated for all detention basins. As noted, the debris and detention basins are designed to overtop should functionality be reduced by debris or if event conditions exceed the capacity of the structure. Backwater conditions assume full functionality, however, if debris reduces flow through the bollards, the bollards will overtop. Future design efforts will take these concerns into account and attempt to minimize and avoid and transfer of flood risk to area structures. Construction of the recommended plan, if approved and authorized, will be divided into construction increments. The increments have not yet been identified, but will likely be divided between the upstream detention basins and the lower watershed line of protection (i.e. floodwalls and levees) with the upstream features constructed first. As you note, the system will not function as designed without full upstream detention in place. Full funding will be requested for each increment. Without full Congressional appropriation for each increment, the construction will not proceed.

Table 9, page 3-22 of the draft FEIS (page 3-23 of the final) details cursory operations and maintenance requirements based on project feature. These obligations are identified during the feasibility phase for the purpose of developing initial cost estimates. If approved, a detailed operations and maintenance plan will be developed during the design phase of the study. Debris and detention structures are intended to pass normal stream flows without impounding water. The structure are designed to function only during storm events, therefore, no impoundment of water is anticipated outside of such storm events.

The non-Federal sponsors must enter into a Project Partnership Agreement with USACE to construct the Project. This agreement sets the required cost sharing of the Project between the non-Federal sponsors and the Federal government and requires that the non-Federal sponsors be solely responsible for the operation and maintenance of the Project. The sponsors are responsible for financing their local share and operation and maintenance costs.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

1000 Ulu`ohia Street, Suite 215, Kapolei, Hawaii 96707
Phone: (808) 768-3343 • Fax: (808) 768-3381
Website: www.honolulu.gov

KIRK CALDWELL
MAYOR

ROSS S. SASAMURA, P.E.
DIRECTOR AND CHIEF ENGINEER

EDUARDO P. MANGLALLAN
DEPUTY DIRECTOR

IN REPLY REFER TO:
DART No. 623641

October 13, 2015

SENT VIA EMAIL

Mr. Thomas Hankins
thomasrhankins@aol.com

Dear Mr. Hankins:

Thank you for your email to Mayor Kirk Caldwell on September 7, 2015. Your email was referred to the Department of Facility Maintenance, Division of Road Maintenance (DRM), Honolulu Police Department (HPD), and the Department of Environmental Services (ENV).

A site inspection of the Ala Wai Canal was conducted on September 11, 2015, by DRM personnel. The City will work with the State in removing debris from under the McCully Street Bridge. The Ala Wai Canal is under the jurisdiction of the State of Hawaii, Department of Land and Natural Resources (DLNR). DLNR may be contacted at 587-0400.

Regarding unsafe crane operations at the Ala Moana Center, officers from the HPD's District 1 (Central Honolulu), made checks of the construction sites at the Ala Moana Center. The work sites were found to be in compliance with State and City laws, and the construction companies possessed the proper permits. Officer Renee Awakuni contacted you and provided you with this information. If you have any questions, please call Major Roy Sugimoto of District 1 at 723-3327.

In regards to the sewage spill at Ala Moana Boulevard, Atkinson Drive, and Cooke Street, the City has received the consultant's draft report for addressing odors in that area and is in the process of evaluating their report to assess action required. If you have any questions, please call Mr. Scott McAdam of ENV at 768-7251.

If you have any questions, please call Mr. Thomas Takeuchi of the Division of Road Maintenance at 768-3600.

Sincerely,

Ross S. Sasamura, P.E.
Director and Chief Engineer

cc: Kirk Caldwell, Mayor
Honolulu Police Department
Department of Environmental Services
State of Hawaii, Department of Land and Natural Resources

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US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Ross Sasamura
City and County of Honolulu, Department of Facility Maintenance
1000 Ulu'ohia Street, Suite 215
Kapolei, HI 96707

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- A letter to Thomas Hankins regarding debris under the McCully Street Bridge, Ala Wai Canal, crane operations at Ala Moana Center, and a sewage spill at Ala Moana Center

It appears that this letter was directed in error to the Ala Wai Canal Flood Risk Management Study website as none of the issues identified in the letter appear to pertain to the USACE-DLNR Flood Risk Management study.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

HISTORIC HAWAI'I FOUNDATION

November 1, 2015

Christopher W. Crary
Lieutenant Colonel, U.S. Army
District Engineer, Honolulu District
U.S. Army Corps of Engineers
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858-5440

Carty Chang
Chief Engineer
Department of Land and Natural Resources
State of Hawai'i
P.O. Box 373
Honolulu, HI 96809

RE: Ala Wai Canal Project, O'ahu, Hawai'i

Dear. Lt. Col. Crary and Mr. Chang:

Historic Hawai'i Foundation is providing these comments on the Draft Feasibility Study Report with an Integrated Environmental Impact Statement (EIS) for the Ala Wai Canal Project on O'ahu, Hawai'i. The EIS is being developed in accordance with the National Environmental Policy Act (NEPA) and Hawai'i Revised Statutes (HRS) Chapter 343 for environmental issues, including potential effects on historic properties and other cultural resources.

Historic Hawai'i Foundation (HHF) is also a consulting party to the Army Corps of Engineers (ACOE) for compliance with the National Historic Preservation Act (NHPA), per 36 CFR 800.2(c)(5) as an organization with a demonstrated interest and concern with the undertaking's effect on historic properties. These comments are also submitted as part of the Section 106 consultation for the undertaking. ACOE has noted that they are coordinating and integrating the two processes as specified in the Council on Environmental Quality NEPA regulations at 40 CFR 1502.25.

ACOE has proposed a determination of "no adverse effect" for the undertaking. Historic Hawai'i Foundation strongly disagrees with this determination.

The ACOE proposed determination of effects confuses the difference between avoiding an effect and mitigating an effect. ACOE has proposed findings of "conditional no adverse effect" based on future conditions to be determined with the input of the State Historic Preservation Division (SHPD) to mitigate the impacts.

680 Iwilei Road, Suite 690 / Honolulu, Hawai'i 96817 / Tel (808) 523-2900 / Fax (808)523-0800
Email preservation@historichawaii.org / Web www.historichawaii.org

However, a finding of "no adverse effect" may only be used when the conditions completely avoid the adverse circumstance. In this case, the conditions do nothing to avoid the demolition, destruction, alteration, change of character, use of physical features, and introduction of elements that diminish the integrity of historic properties.

NHPA Section 106 requires that adverse effects be resolved prior to the approval of the undertaking and any expenditure of federal funds. Resolution of any adverse effects is to be completed before the agencies' final decisions.

Therefore, the stated intention to develop mitigation measures and work out the details with the State Historic Preservation Division at a future date is insufficient to satisfy the requirements of 36 CFR Part 800. Historic Hawai'i Foundation strongly recommends that ACOE and its state and local partners develop a Project Programmatic Agreement (PA) to resolve adverse effects from the undertaking. Historic Hawai'i Foundation will continue in its role as a consulting party to develop the PA.

Project Summary

The proposed undertaking is a project to reduce flood risk within the Ala Wai Watershed, including the Makiki, Mānoa and Pālolo Streams, all of which drain to the Ala Wai Canal. The watershed is comprised of approximately 1,358 acres and includes both undeveloped and urbanized areas. The tentatively selected plan includes:

- 6 in-stream debris and detention basins in the Makiki, Mānoa and Pālolo streams;
- 1 debris catchment feature in Mānoa stream;
- 3 detention basins in the urban area;
- Floodwalls and pump stations along the Ala Wai Canal;
- Improvements to the flood warning system; and
- In-stream measures for aquatic species passage to mitigate impacts to habitat.

Information Provided and Additional Information Needed

Reference materials for this undertaking have included:

1. Letter from ACOE to HHF, March 10, 2015; including information on areas of potential effect, historic properties present, and the tentatively selected plan with 13 measures to be introduced to the Ala Wai Watershed. Attachments included maps and photographs of the Direct and Indirect Areas of Potential Effect (APE) and historic properties with identification numbers.
2. Letter from HHF to ACOE, April 8, 2015; with questions about the purpose and need for the project and the process to address effects on historic properties.
3. Letter from ACOE to HHF, May 1, 2015; with responses to HHF's questions.
4. Letter from ACOE to HHF, June 30, 2015; to identify historic properties within the Direct APE, provide significance evaluations of historic properties, present determinations of effect to historic properties, and propose conditions to mitigate adverse effects. The attachments

to the letter include the Historic Property Table (Encl #1), Historic Maps and Descriptions (Encl #2), and the list of Consulting Parties (Encl #3).

5. Draft Feasibility Report with Integrated Environmental Impact Statement, August 2015; including conceptual engineering plans for each of the proposed flood control measures and an appendix on cultural resources.

The proposed project is complex, wide-ranging in scope and effect, and has many components that are both interrelated and independent. To understand the potential effects on historic properties, we found it necessary to cross-reference the materials listed above, as relevant information was presented in various places and formats.

We note that reference is made to the "Historic Structures Inventory Survey of the Ala Wai Watershed" (Mason Architects, 2010), a copy of which is not included in the letters or the Draft EIS (Section 5.8.1.2). We are hereby requesting a copy of this Survey, which we assume corresponds to the historic properties.

Areas of Potential Effect

"Area of potential effects means the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties" (36 CFR 800.16(d)).

The project has delineated two Areas of Potential Effect (APE): one for direct effects and one for indirect effects. The Direct APE is the area that will be directly affected by construction and includes the flood mitigation measure, the construction buffer, staging area and access road. The Indirect APE is a one-half mile radius form the outer edge of the Direct APE.

Historic Hawai'i Foundation agrees with the Direct and Indirect APEs as described.

Identification of Historic Properties

The identification of historic properties was provided within the Direct APE for each of the flood mitigation measures, including 46 distinct historic properties. These include sites, buildings, structures and objects that are determined eligible for listing on the National and/or Hawai'i Registers of Historic Places.

The identification of historic properties within the Indirect APE was partially included via maps, but was not included in tabular form. We agree that some traditional cultural properties may be vulnerable and location information should be held in confidence. However, other historic properties do not have the same sensitivity and should be clearly identified and addressed.

Several historic properties that are located in the Indirect APE should be noted and any cumulative, indirect and/ or reasonably foreseeable effects should be evaluated. The historic properties include:

1. Kapi'olani Park
2. Diamond Head Crater
3. Puawaina/Punchbowl Crater
4. Mānoa Chinese Cemetery

HHF preliminarily agrees with the determinations of eligibility and the identification of historic properties provided by ACOE, subject to receipt and confirmation using the Historic Structures Inventory Survey. We note that there may be additional historic properties in the Indirect APE. The identified historic properties are:

Flood Mitigation Measure 1: Makiki D&D Basin

1. Archie Baker Park
2. Makiki Stream
3. Maikiki Stream Chanel
4. Makiki Street Bridge
5. Oneele Place Bridge
6. Terrace

Flood Mitigation Measure 2: Mānoa Waihi D&D Basin

7. Mounds/Platforms/Walls
8. Waihi Stream
9. Aihualama Loʻi

Flood Mitigation Measure 3: Mānoa Waiakeakua D&D Basin

10. Waaloa Way Bridge 2
11. Waaloa Way Bridge 1
12. Terraces
13. Waihi Stream Stone/Mortar Dam
14. Historic House
15. Historic House
16. Waihi Gaging Station
17. Waiakeakua Stream
18. Waiakeakua Gaging Station
19. Bridge Foundation

Flood Mitigation Measure 4: Mānoa Woodlawn Ditch

20. Woodlawn Ditch
21. East Mānoa Road Mānoa Park Ditch Bridge
22. East Mānoa Road Culvert
23. Kaamamilo Drive Driveway Bridge

Flood Mitigation Measure 5: Mānoa In-Stream Debris Catchment

24. Mānoa Stream Channel
25. Lowrey Avenue Bridge
26. Kahaloa Drive Bridge

Flood Mitigation Measure 6: Kanewai Field Detention Basin

27. Kanewai Field
28. Mānoa-Pālolo Canal
29. Old Waiʻalae Road Bridge

30. Pālolo Stream Channel
31. Kanewai Loʻi

Flood Mitigation Measure 7: Pālolo Pukele D&D Basin
32. Pukele Stream

Flood Mitigation Measure 8: Pālolo Waiʻōmaʻo D&D Basin
33. Waiʻōmaʻo Stream

Flood Mitigation Measure 9: Ala Wai Hausten Ditch Detention Basin
34. Alanaio Stream Channel(Hausten Ditch)
35. Ala Wai Canal
36. Date Street Box Culvert
37. Kapiʻolani Blvd. Box Culvert

Flood Mitigation Measure 10: Ala Wai Golf Course MPDB
38. Ala Wai Golf Course
39. Mānoa-Pālolo Canal (previously listed at #28)
40. Date Street Bridge

Flood Mitigation Measure 11: Ala Wai Canal Floodwalls/Pump Stations
41. Ala Wai Canal (previously listed at #35)
42. Ala Wai Clubhouse
43. Paddling Outrigger Canoe
44. Kalākaua Avenue Bridge
45. McCully Street Bridge

Flood Warning System 12: Ala Wai Watershed
46. Mānoa Stream
47. Makiki Stream (previously listed at #2)
48. Pālolo Stream
49. Ala Wai Canal (previously listed at #35)

Aquatic Habitat Mitigation 13: Ala Wai Watershed
50. Mānoa Stream (previously listed at #46)
51. Waihi Stream Stone/Mortar Dam (previously listed at #13)
52. Waihi Gaging Station (previously listed at #16)
53. Waiakeakua Gaging Station (previously listed at #18)
54. Mānoa Stream Chanel (previously listed at #24)

Determinations of Effect

An *adverse effect* is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling or association. Adverse effects include reasonably

foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative. See 36 CFR 800.5(a)(1).

ACOE has proposed a determination of "no adverse effect" for the undertaking. Historic Hawai'i Foundation strongly disagrees with this determination.

Direct effects from the project will include:

1. Physical destruction of or damage to all of part of the property;
2. Alteration of a property that is not consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties;
3. Change of character of the property's use or physical features within the property's setting;
4. Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features.

Properties that will be adversely affected include:

- Ala Wai Canal
- Ala Wai Clubhouse
- Ala Wai Golf Course
- Alanaio Stream Channel/Hausten Ditch
- Archie Baker Park;
- Kalākaua Avenue Bridge
- Kanewai Field
- Makiki Stream;
- Mānoa Stream Channel
- Mānoa, Makiki and Pālolo Streams
- McCully Street Bridge
- Pukele Stream
- Waaloa Way Bridge 1
- Waaloa Way Bridge 2
- Wai'ōma'o Stream
- Waiakeakua Stream
- Waiakeakua Stream Gaging Station
- Waihi Mounds/Platforms/Walls;
- Waihi Stream
- Waihi Stream Dam
- Waihi Stream Stone/Mortar Dam

The ACOE determination of effects confuses the difference between avoiding an effect and mitigating an effect. ACOE has proposed findings of "conditional no adverse effect" based on future conditions to be determined with the input of the State Historic Preservation Division to mitigate the impacts.

However, a finding of "no adverse effect" may only be used when the conditions completely avoid the adverse condition. In this case, the conditions do nothing to avoid the demolition, destruction, alteration, change of character, use of physical features, and introduction of elements that diminish the integrity of the historic properties.

NHPA Section 106 requires that adverse effects be resolved prior to the approval of the undertaking and any expenditure of federal funds. Resolution of any adverse effects is to be completed before the agency's final decision.

Therefore, an intention to work out the details with the State Historic Preservation Division at a future date is insufficient to satisfy the requirements of 36 CFR Part 800. Historic Hawai'i Foundation strongly recommends that ACOE and its state and local partners develop a Project Programmatic Agreement (PA) to resolve adverse effects from the undertaking. Historic Hawai'i Foundation will continue in its role as a consulting party to develop the PA.

Specific Comments and Questions by Project Component

Flood Mitigation Measure 1: Makiki Debris and Detention Basin

- Direct APE is too narrowly defined as the construction area. A portion of the construction and staging area is contained within the historic Archie Baker Park and thus will have an adverse effect, even though temporary.
- The indirect APE does not appear in the Draft EIS documents. The map of the indirect area for this undertaking appears to identify more than six historic sites. Are the other numbered bridges non-historic?
- It is not clear if the access road will be removed at the end of construction. Leaving it in place in the historic park would be an adverse effect
- The plans and sections in the Draft EIS (Appendix F) do not indicate the rock covering (riprap) across the face of the berm.
- The conceptual sketch implies that the top of the berm/dam will be well below the road and shoulder. Please confirm.
- Does the top of the dam/spillway need to be exposed concrete? Can it also be rock-covered or groundcover?
- *"A 20-foot-wide area around the perimeter of the berm will be cleared and maintained."* How will this cleared area be treated visually and from an erosion standpoint?

- Makiki Stream is described as eligible for consideration as a Traditional Cultural Property. What is its current condition and will restoration/rehabilitation of the stream banks be required prior to construction?
- Determination of effect:
  - HHF disagrees that there is no adverse effect to Archie Baker Park and the Makiki Stream, or that the 'conditions' have been identified that would avoid an adverse effect from this construction activity
  - What about potential indirect effects on sites outside the 'footprint'? What about indirect effects for sites 19-23?

Flood Mitigation Measure 2: Mānoa Waihi D&D Basin

- Direct APE is too narrowly defined as the construction area. A portion of the construction and staging area is contained within steep sloped and wooded landscape. Assume that the construction of the access road will involve grading and other destructive measures resulting in an adverse effect to the landscape.
- The footprint of this large berm appears to have an adverse effect on site 50-80-14-6734 which consists of several archaeological platforms. Is there another dam type (vertical) with a smaller footprint which could avoid these historic sites?
- Alternatively, could two smaller structures be built above the convergence of Waihi and Aihualama Streams, thus avoiding the identified historic sites?
- Not clear on what view planes from and along Mānoa Road would be visually impacted. Also views from the historic homes shown on the indirect APE.
- Does the top of the dam/spillway need to be exposed concrete? Can it also be rock-covered or groundcover?
- *"A 20-foot-wide area around the perimeter of the berm will be cleared and maintained."* How will this cleared area be treated visually and from an erosion standpoint?
- Waihi Stream is described as eligible for consideration as a Traditional Cultural Property. What is its current condition and will restoration/rehabilitation of the stream banks be required prior to construction?
- Determination of effect(s):
  - HHF disagrees with the determination of 'no adverse effect with conditions' to the archaeological site #50-80-14-6734 unless the project can be relocated.
  - The *"temporary loss of access to cultural sites and areas of cultural practices during construction"* is an adverse effect.

Flood Mitigation Measure 3: Mānoa Waiakeakua D&D Basin

- Construction footprint of new access and raised roadway is significant. Assume that the construction of the access road will involve grading and other destructive measures resulting in an adverse effect to the landscape.
- It also appears as if the stream bed is diverted. Please confirm.
- Determination of effect(s):
    - Impact to historic Bridges is adverse if reinforcing will be necessary. How will the reinforcing impact the affected streambed?
    - Alteration of the Waihi Stream Mortar Dam will be an adverse effect

Flood Mitigation Measure 4: Mānoa Woodlawn Ditch

- Woodlawn Ditch is described as eligible for the Hawai'i and National Registers. What is its current condition and will restoration/rehabilitation of the topography be required prior to construction?
- Does the top of the dam/spillway need to be exposed concrete? Can it also be rock-covered or groundcover?
- *"A 20-foot-wide area around the perimeter of the berm will be cleared and maintained."* How will this cleared area be treated visually and from an erosion standpoint?
- Access will be via the existing cemetery road. What is the impact to the cemetery?
- Determination of effect(s):
    - Impact to historic Bridges may be adverse if traffic patterns are altered
    - Alteration of the Woodlawn Ditch may be an adverse effect which has not been adequately described

Flood Mitigation Measure 5: Mānoa In-Stream Debris Catchment

- Mānoa Stream Channel is described as eligible for the Hawai'i and National Registers. What is its current condition and will restoration/rehabilitation of the topography be required prior to construction?
- Does the exposed portion of the pad need to be concrete or can it be rock faced to look more natural?
- Will access to the site for construction impact the adjacent neighborhood, roadway and bridges?
- Determination of effect(s):
    - Impact to historic Bridges may be adverse if traffic patterns are altered

Flood Mitigation Measure 7: Pālolo Pukele D&D Basin

- Does the top of the dam/spillway need to be exposed concrete? Can it also be rock-covered or groundcover?

- *"A 20-foot-wide area around the perimeter of the berm will be cleared and maintained."* How will this cleared area be treated visually and from an erosion standpoint?
- Access to the site appears to be through private property. Has that parcel been evaluated for eligibility as an historic property?
- Pukele Stream is described as eligible for consideration as a Traditional Cultural Property. What is its current condition and will restoration/rehabilitation of the stream banks be required prior to construction?

Flood Mitigation Measure 8: Pālolo Waiʻōmaʻo D&D Basin

- Access to the site appears to be through private property. Has that parcel been evaluated for eligibility as an historic property?
- The access road will require significant grading. How will that affect the adjacent properties and view planes?
- Does the top of the dam/spillway need to be exposed concrete? Can it also be rock-covered or groundcover?
- *"A 20-foot-wide area around the perimeter of the berm will be cleared and maintained."* How will this cleared area be treated visually and from an erosion standpoint?
- Significant excavation of the streambed for the detention basin has the potential for disruption to the stream environment. What is its current condition and will restoration/rehabilitation of the topography be required prior to construction?
- Waiomao Stream is described as eligible for consideration as a Traditional Cultural Property. What is its current condition and will restoration/rehabilitation of the stream banks be required prior to construction?

Flood Mitigation Measure 9: Ala Wai Hausten Ditch Detention Basin

- The Ala Wai Canal is a listed Site on the State and National Registers of Historic Places. Any destruction of those qualities that make the site eligible (i.e. the rock walls) is an adverse effect (36 CFR 800.5 (a) 2 (i)).
- Will access to the park will be channeled through one entrance?
- The floodwalls and berm will enclose an otherwise open space and create potential crime setting due to lack of visibility
- What other more 'naturalistic' solutions have been considered?
- Determination of effect(s):
    - Historic Hawai'i Foundation disagrees with the determination of no adverse effect to the Ala Wai Canal.

Flood Mitigation Measure 10: Ala Wai Golf Course Multi-Purpose Detention Basin

- Scope and construction difficult to understand. More analysis is needed to determine effect on the historic property.

Flood Mitigation Measure 11: Ala Wai Canal Floodwalls/Pump Stations

- Construction of flood walls and pump stations on both sides of the Ala Wai Canal would adversely affect its historic characteristics, including design, materials, workmanship, setting, feeling and association.
- Pump Station size, location, bulk, massing and detailing has the potential to adversely affect the setting.
- Floodwalls and flood gate attached to the Ala Wai Clubhouse would adversely affect its historic characteristics, including design, materials, workmanship, setting, feeling and association.
- Alterations to the Kalākaua Bridge would adversely affect its historic characteristics, including design, materials, workmanship, setting, feeling and association.
- Alterations to the McCully Bridge would adversely affect its historic characteristics, including design, materials, workmanship, setting, feeling and association.
- Determination of effect(s):
    - Historic Hawai'I Foundation disagrees with the determination of no adverse effect to the Ala Wai Canal.

Flood Warning System 12: Ala Wai Watershed

- Streamflow gauges are not designed or located, so there is a potential effect on Mānoa, Makiki and Pālolo Streams, as well as the Ala Wai Canal.

Aquatic Habitat Mitigation 13: Ala Wai Watershed

- Biological mitigation measures would demolish or remove historic properties, including the Waihi Stream Dam and the Waiakeakua Stream Gaging Station.

Conclusions

Historic Hawai'i Foundation agrees with the determination of the Direct APE and the identification of historic properties within the Direct APE.

Historic Hawai'i Foundation requests additional information on other historic properties within the Indirect APE and a copy of the "Historic Structures Inventory Survey of the Ala Wai Watershed" (Mason Architects, 2010).

Historic Hawai'i Foundation disagrees with the determination of no adverse effect to historic properties.

Historic Hawai'i Foundation requests to continue as a consulting party to resolve adverse effects from the undertaking prior to the agencies' final determination on the course of action.

We look forward to continuing to work with ACOE and DLNR to address these issues.

Very truly yours,

Kiersten Faulkner
Executive Director

Copies via email:

Derek Chow & Loren Zulick, USACE
Gayson Ching, DLNR Engineering Division, State of Hawai'i
Alan Downer & Jessica Puff, Hawai'i State Historic Preservation Division
Brian Lusher, Advisory Council on Historic Preservation

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Historic Hawaii Foundation
Historic Hawaii Foundation
680 Iwilei Road, Suite 690
Honolulu, Hawaii 96817

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. As a consulting party to the National Historic Preservation Act (NHPA) Section 106 Programmatic Agreement between USACE and the State of Hawaii, it is our understanding that your concerns have been taken into account as a part of the development of the agreement. It is also noted that your organization will serve as a concurring party to this agreement. Should you have further concerns, please contact USACE.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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From: Michael Molloy
To: Ala Wai Canal Project
Subject: [EXTERNAL] RESPONSE TO 2015 DRAFT PROPOSAL FOR AN ALA WAI CANAL PROJECT
Date: Sunday, November 01, 2015 3:28:10 PM

RESPONSE TO 2015 DRAFT PROPOSAL FOR AN ALA WAI CANAL PROJECT

FROM: Michael Vincent Molloy, Ph.D

Thomas Lee Hilgers, Ph.D.

Thank you for requesting the ideas of the public regarding this plan. We are pleased to know of state and federal concern for protection from floods. Some of the elements of the draft plan are quite thoughtful. We would appreciate being kept informed of the development of the proposed plan. Our email addresses are below.

On the side in favor of the proposed plan, we see a desire to protect Waikiki from mauka floods. We also see a desire to protect the main university campus. On the other side, we see the large amount of work involved, the cost, the need to keep detention basins regularly free of debris and regrowth, and the resultant environmental damage, particularly in the valleys.

The overarching concern seems to be to protect Waikiki from being flooded from the mauka side. However, because of the predicted rise of the ocean level, it is inevitable that at least a third of Waikiki will be underwater within 100 years. This fact can be addressed initially by dikes. In fact, building a wall along the Ala Wai Canal on the Waikiki side seems a first step in this direction. Other dikes and berms would eventually follow. But this solution will not be able to last in the long term.

We recommend a less elaborate course that could be a reasonable compromise:

1) Build a berm around the Ala Wai Golf Course and other school fields in the area to capture flood water.

2) Build a low wall along the Waikiki side of the Ala Wai Canal.

3) Build a pumping station in the Ala Wai Canal, but place it underground or below the surface.

4) Enlarge the bridge on Woodlawn Avenue and redesign the bridge, to allow easier flow of water, even at times of great rainfall.

5) Keep the Manoa Woodlawn Bridge free of debris (the debris was the main reason for the 2008 overflow)

6) Do not build the detention basins in the valleys.

7) Avoid widening any streams or adding concrete to their floors or sides.

8) Focus primarily on human and environmental effects, and avoid invasive interventions of the current water-flow system.

Thank you for considering our comments.

Sincerely,

Michael Molloy

molloy@hawaii.edu <mailto:molloy@hawaii.edu>

Thomas Hilgers

hilgers@hawaii.edu <mailto:hilgers@hawaii.edu>

3276 Lower Road

Honolulu, HI 96822

808-988-7473

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Michael Molloy, Thomas Hilgers
3276 Lower Road
Honolulu, Hawaii 96822

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have offered a number of alternatives to the recommended plan included in the FEIS.

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed.

USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course

- A flood warning system
- Fish passage environmental mitigation features at two locations

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

Dave and Nola Watase
1537 Ala Aoloa Loop
Honolulu, HI 96819
Email: dwatase@hotmail.com
Cel. 808-728-0759

November 9, 2015

Suzanne D. Case, Chairperson
State of Hawaii, DLNR
P.O. Box 621
Honolulu, HI 96809

Re: Ala Wai Canal Project

Dear Ms. Case,

We have written several letters over the past few weeks stating our objection to the process in which our privately owned property located at 2532 Waiomao Road, Honolulu, Hawaii 96816, TMK 34016059 was selected and incorporated into the Ala Wai Canal Project's Draft FS/EIS.

We believe the short cutoff date given for our feedback including your extension to November 9, 2015 is unfair and is a severe handicap to us. It is not commensurate to the volume of documents that you are asking us and the general public to review and provide comment.

We also believe that your methods of notices to inform the general public and stakeholders throughout the process was inadequate and/or selective and done with prejudice and neglected those stakeholders most greatly affected by the Ala Wai Canal Project. Included in those who we believe should have been notified were all adjacent properties, private landowners , stakeholders, and those downstream of any detention basin which could overtop in the event of a storm greater than the designed capacity of the detention basin and would put at risk the lives of those downstream of your planned alternatives.

In general we have many questions regarding the technical side of the Ala Wai Canal Project's FS/EIS but were not given access to question and get answers from the project's consultants, Project Development Team, DLNR and the USACE.

In all of our letters including this one, we've really only had time to generalize many of our concerns, support, ideas, and suggestions. Our letters were rapidly put together and may have a few words out of place, a question that doesn't quite make sense, typos, and other grammatical mistakes. However, we urge you not to just discount the questions, ideas, or suggestions and we hope that you will contact us for further explanation or correction rather than simply dismissing the area of question.

In your Introduction 1.4 Purpose and Need, it states that the *"Ala Wai has the capacity to contain about a 20- to 10-percent annual chance exceedance (ACE) flood before over topping the banks."* This is the equivalent to a 5-year and 10-year storm. The question that I have is that I'm 56 years old and if this were the in fact the case and your assessment accurate and correct, I would think that I would have seen a lot more overtopping of the Ala Wai Canal and seen a lot

more economical damage done to Waikiki. I would think that I might have even experienced a 50-year flood by now with catastrophic flooding and damage throughout the whole watershed and not just the Waikiki area. But as far as I know it's been relatively nothing with the exception of your mention of the November 1965 and December 1967 storms and the passage of Hurricane Iniki in 1992.

Section 1.4 references the October 2004 storm that flooded Manoa Valley *"estimated to be a 4-percent chance of occurring in any single year".* This means that the storm was a 25-year storm which is far greater than the *"20- to 10-percent"* (5-year to 10-year) storm that in the paragraph before you say would overtop Waikiki. So, how bad was the economic damage done by the October 2004 storm due to the Ala Wai Canal overtopping?

While it doesn't quite make any sense to us, hydraulically speaking, hurricanes and related storms are not considered meteorological event and are not supposed to be considered as a basis for justifying this project in a similar manner if an earthquake generated a tsunami or surge that caused the Ala Wai Canal to overtop and cause economical damage. Yet, your report references this storm and uses it as a basis for support and is gross misrepresentation and use of facts.

Section 1.4 refers to the loss of life claim *"including two known deaths (associated with flooding in December 1918 and December 1950)."* We question to what extent theses deaths are truly flood related and would like for you to provide the supporting documentation and details of these deaths including the names of the deceased, any autopsy reports and other witness statements to back up the claim.

Section 1.4 states that *"multiple past flood events have been documented within the watershed over the course of the past century".* We believe you should include a summary and list of every major storm related event over the past century and documented rainfall, storm rating, stream flow rates, the height elevation of the Ala Wai Canal, and the outflow rate at the Ala Wai Harbor, and the amount of economic or financial damage sustained within the watershed from each storm.

Section 2.1.1 references the March 2006 storm in which 40 days of consistent rainfall feel within the watershed. It states that *"although none of the storm events were very large, the consistent rain resulted in flooding in the Makiki and Moilili neighborhoods."* We believe this statement is a clear example of the invalidity of the hydraulic modeling because the collected data does not predict, compute, or correlate to the flood and damage done to the Makiki and Moilili neighborhoods. The reason is that the modeling formulas do not take into account the level of rainfall ground saturation and probability factors for multiple sequential storms and no measurements are taken for the variable of ground saturation which will affect the ground absorption and runoff rates. This places an unknown variable in all of your storms used to calibrate your modeling rendering all of the results deficient.

Section 2.1.1 states that the *"stream capacities are diminished due to debris and sedimentation."* We would like to know to what degree this diminishes the capacity of the Ala Wai Canal from the rated 5-year to 10-year storm capacity. If this was truly the case as you are referencing and as we know sedimentation and debris is in the Ala Wai Canal shouldn't the canal be overtopping more often or every 5-years or less?

Section 2.2.1 states that the "*flooding may be exacerbated by climate change and associated projected increases in sea level rise.*" We believe this statement is hearsay and in the long course of time unproven. Just recently on the internet stated that NASA believes ice is being added in the Antarctic. You can Google it.

Section 2.2.1 states *"Hurricanes are not the same as the meteorological events that can bring intense flood-producing rainfall, which usually occur during the wet season (October to April). Similarly, tsunamis are not expected to be coincident with a major storm resulting in riverine flooding. Given the low probability of these events occurring at the same time, it was decided that potential storm surge would not be included as part of the hydraulic modeling."* This statement based on a false premise and the selected course of action should be rendered incomplete. We can surmise that this course of action was selected because of the USACE policy to handle only riverine flooding but as we all know especially in Hawaii and unlike many parts on the mainland, Hawaii is subjected to a lot of storms that are associated Hurricanes. We do not believe you can separate the data and yet consider your modeling complete and accurate.

We have a lot of questions and issues with your Final Hydrology Report dated June 2, 2015. We do not believe that it is proper for you to use a total of five different methods which use different methodologies to estimate the peak flow discharges throughout the Ala Wai Canal because they are inconsistent and missing data. We don't believe that it is proper to use methodologies in this report without a clear description, application, and showing all supporting data and computations for each methodology. Additionally, it the variance between methodologies should be explained and reason given for use. We don't think that it is proper to just average several methodologies together to come out with a more universal numbers or results. In some cases all 5 methodologies are averaged together and in other cases only a single methodology is used. Different methodologies may use different sets of data collected, may not use the same data sites, and may selectively apply the data. This can lead to an off balance in data collection where certain sites may be counted several times thus receiving more strength in a weighted average. The differences between methodologies have variances as high as 76% for the same flows.

We believe the Thiessen Polygons diagrams are inaccurate because around the perimeter of the Ala Wai Watershed because no rain gauges are located outside of the watershed. There also seems to be several Polygons without rain gauge stations to reference.

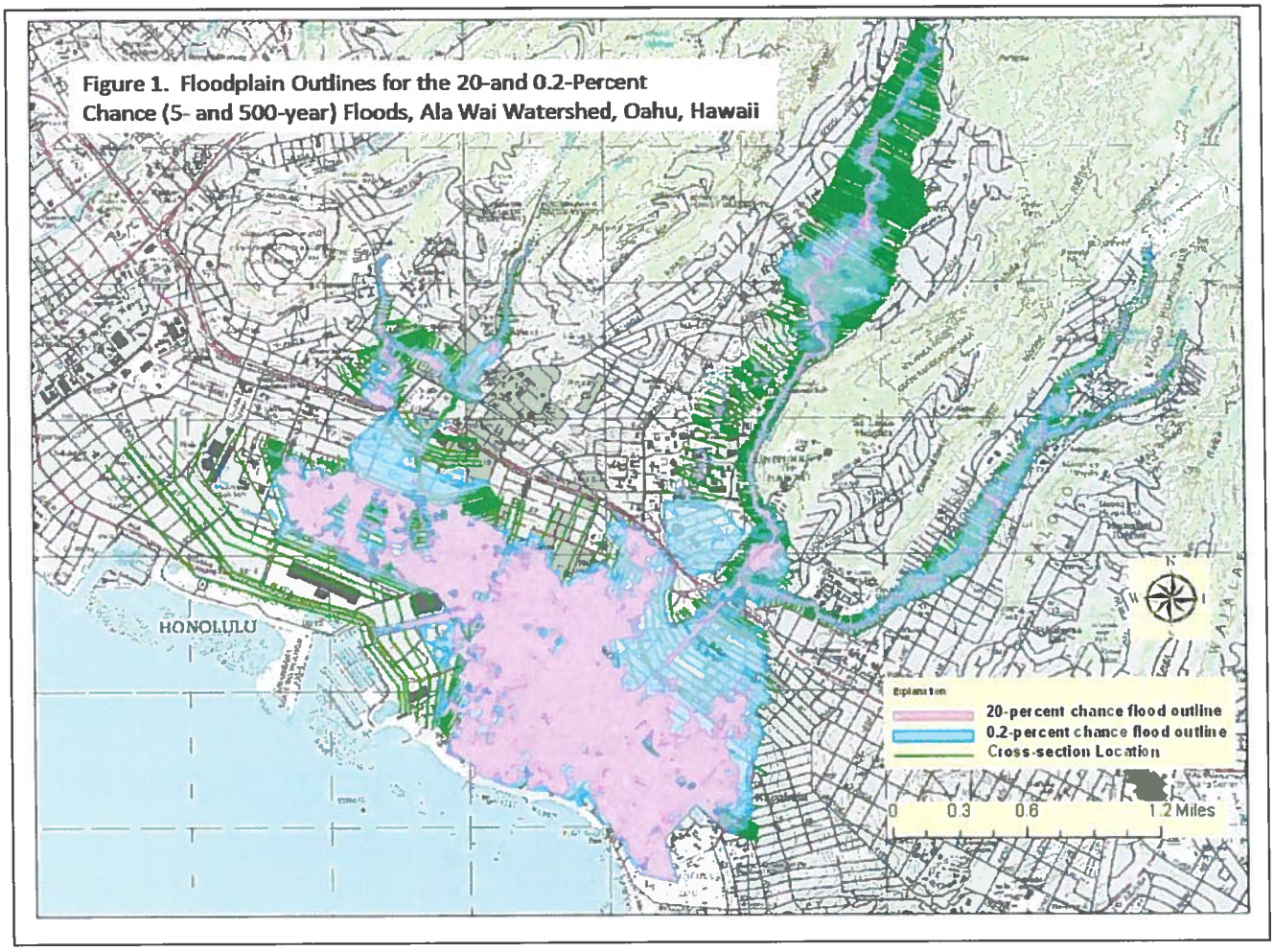
We believe the description, layout, maps, pictures, of each rainfall gauge and stream flow gauge should be shown. The equipment make, model, year, accuracy, calibration and certification dates listed for each rainfall gauge and stream flow gauge. Are there any protections in place to insure that the data is accurate. There are instances where you toss out flow reading because they don't add up. This should be an indicator that the stream flow gauge may be inaccurate or malfunctioning or be calibrated incorrectly as stated in Section 4.12

"At USGS Gaging Station 16247000, there are 32 effective annual peaks available to perform the statistical frequency analysis. The continuous recorded annual peaks are from 1953 to 1979 and from 2003 to 2007, but no data is available between 1980 and 2002. The recorded annual peaks from 2003 to 2007 seem incorrect for the following two reasons.

(1) On October 30, 2004, the recorded peak at this gage was 776 cfs. The tributary stream gage upstream (Pukele) recorded a 753 cfs peak, and another tributary (Waiomao Stream) received the same rain as Pukele Stream received. At USGS gage 16247100 downstream, the recorded

peak was 9380 cfs and the Manoa Stream at Kanewai gage recorded a peak at 5860 cfs. Thus, the peak flow at the Palolo gage should be in a range of 1500 to 3000 cfs rather than the 776 recorded because it received similar rainfall as Manoa.

(2) The peak for March 31, 2006 storm at Palolo Stream Gage was 1390 cfs, at downstream gage USGS 16247100, the recorded peak was 9320 cfs, the rainfall was uniformly distributed into the study area, the Palolo valley should have generated a range 2000 to 3000 cfs peak flow. Since there was possible channel conditions changed during the last 50 years, the data in this gage may be lower than actual stream flows, as a result, the HEC-SSP and FEMA analysis (used 25-year annual peaks) got lower peak discharges."



The diagram above is an example of many that we question that pertain to the flood coverage. The area shaded in pink signifies a 5-year storm. I don't recall ever seeing that kind of flooding in the past 50 years. Apparently, it should be happening every 5-years or so. We sense that all the storm ratings and coverages are overrated and exaggerated. Should you have any questions, please don't hesitate to contact us via email or call us on our cel. listed above.

Very truly yours,

Dave and Nola Watase

Dave and Nola Watase
1537 Ala Aoloa Loop
Honolulu, HI 96819
Email: dwatase@hotmail.com
Cel. 808-728-0759

November 2, 2015

Suzanne D. Case, Chairperson
State of Hawaii, DLNR
P.O. Box 621
Honolulu, HI 96809

Re: Ala Wai Canal Project
HRS Chapter 343 and NEPA

Dear Ms. Case,

As previously stated in my letter dated September 28, 2015, we are totally against your purchasing of our privately owned, residentially zoned property, TMK 34016059, located at 2532 Waiomao Road in Palolo Valley for the construction of the Waiomao Detention Basin which is a part of the $173 million Ala Wai Canal Project.

The Draft FS/EIS Appendix G – Public Involvement V.04 provides guidelines to gain public feedback on the proposed alternatives in order to satisfy the requirements of HRS Chapter 343 and NEPA. These guidelines were designed to provide opportunities to raise issues and receive early feedback from as early as June 2013. The document specifically mentions as participants in "Section 2 Public Involvement", "2.1 Individual Interviews and Small Group Meetings" for the purpose of getting early feedback on specific flood reduction measures, Participants to be included are "Landowners and community leaders". We believe that we fit this category and in addition are qualified "primary stakeholders" in the Ala Wai Canal Project who were omitted from the process.

The Draft FS/EIS study was authorized by Section 209 of the Federal Flood Control Act of 1962. We don't believe Section 209 authorizes implementation of the proposed Ala Wai Canal Project. The Draft FS/EIS study comes up a benefit/cost ratio of 2.38. This benefit/cost ratio was calculated by considering only flood damage reduction and mitigation. We believe that this approach is not comprehensive and is less than satisfactory and ignores the potential costs/benefits associated with the development and implementation of a Total Maximum Daily Load plan for the Ala Wai Canal, as required by Section 303 of the US Clean Water Act of 1972.

At the public hearing held on September 30, 2015 we questioned the late notice given us (a few weeks) and the short cutoff date for public feedback given to us as affected landowners and primary stakeholders in the Ala Wai Canal Project. In response, we were told that there where many other opportunities given to the public to participate and give feedback on the development of the FS/EIS for the Ala Wai Canal Project and that notices were published in the newspaper. All the information on the Ala Wai Canal Project including what would be presented at the September 30, 2015 meeting would be on the website and all questions and concerns would be addressed and that the cutoff date for public feedback was extended to November 9, 2015.

After listening to presentation and testimonies at the September 30, 2015 public hearing at Washington Middle School, we couldn't help but wonder to what degree the DLNR and USACE has really gone out to seek the input and opinions of the landowners adjacent to the proposed alternatives of the Ala Wai Canal Project.

It seems as though the large landowners like the City and County of Honolulu, and State of Hawaii received special treatment and were invited and participated in these meeting from a very early stage in the process which dates back over two years ago whereas some private landowners whose properties are to be purchased and taken from them in part or in whole where totally excluded from the process and only recently notified and made aware of the website and that their properties are included in the Draft FS/EIS with resources already spent on doing 10% Engineering on their properties, schematics, aerial pictures, value assessments and other studies performed and incorporated into the report without even a phone call, a letter, an email, or a knock on the door.

The small private landowners were not invited to your "Open House Meetings" which states "All stakeholders would be invited to attend". "Section 2.6 Project Website" was developed "to provide the larger public with background information and materials to keep them apprised of the project progress, next steps, and how they can provide input" but again, we were not notified or aware of this website until a few weeks ago which is unfair. "Section 2.7 Email Updates" was designed "to an alert key stakeholders and interested parties of the project milestones" but again we were excluded from these updates and processes.

In reviewing hundreds of pages of minutes, testimonies, and summaries of several of these public hearing and open house meetings we couldn't find anyone who represented, spoke on our behalf our feeling, concerns, issues, and interests from the viewpoint of the small private landowners (key stakeholders) who are at risk of losing their privately owned property to this project.

We also don't believe that the DLNR and USACE have faithfully and earnestly gone out to make contact with those landowners who are adjacent to the proposed alternative flood mitigation measures. We believe it is a short cut to assume that the community associations and neighborhood board members will represent us or our interests and concerns unless they have each walked house to house and made an attempt to individually hear every affected property owner's concerns and agreed to represent their interests and to forward the affected property owners concerns to the PDT, DLNR, and USACE.

It is vitally important not only with providing an opportunity for feedback but equally important that you invite and hear voices from the right people. For example, we wouldn't be surprised if you walk along the perimeter of the Kanewai Detention Basin that none of the adjacent homeowners even have a clue about the Ala Wai Canal project and what you are proposing next to their backyards. How many teachers, students, and parent at Hokulani School are aware of your project and of the Kanewai Detention Basin alternative? My guess is zero. Recently, we went down to Hokulani School to see if they were aware of the detention basin proposed for Kanewai Park. None of the staff members were aware of the Ala Wai Canal Project and while they agreed it would affect their access to the park area used for their playground, none of them were interested in taking any action and said that it was the DOE's responsibility to respond to concerns like these. Other schools such as Iolani School and the Ala Wai Elementary School are also affected by the Ala Wai Canal Project and we question to what extent they were given the opportunity to participate and provide feedback.

We believe it is the DLNR and USACE obligation to find or at least make a strong attempt to find people who care enough so that you can get honest and accurate opinions and not just wash everything over by simply going through the motions and procedures. It is not enough just to print a miniature notice buried in some obscure corner of the paper amongst hundreds of ads in the newspaper which no one subscribed to anymore and say we gave proper notice.

As we all know, most of these positions for community association and neighborhood boards are voluntary and do not require any qualifications. Most of these volunteers have their own jobs, their own families that must come first even though they are busy community minded and serving individuals with good intentions. They may only represent the overall good of the whole community and not necessarily care about how a project like this would impact a single property owner. In their mind "Not in My Backyard" may not apply unless the backyard was the whole community. They may not be qualified to understand the technical issues that are presented in the Draft FS/EIS, they may not even read through the thousands of pages of document, and may not even give it a second of thought.

Some Neighborhood Board members may have hidden agendas and sole purpose on the Board to push for conservation and environments issues and careless about anything else. The person who wants a bike path, more trees planted along any improvements, doesn't have to spend hours upon hours researching all the FS/EIS documents … they only care about one thing. We simply can't imagine any Neighborhood Board Member taking enough interest in this project or being able to give us fair representation or be able to express our true feelings and concerns.

There are other stakeholders who are paid employees of various agencies, groups, and organizations whose job it is to make sure things like the oopu (catfish) and opae (shrimp) are properly protected and well taken care of. Many of these organizations were invited to participate at the onset of this project receiving special treatment. It is well documented in the Draft FS/EIS though the display of mitigation measures taken by the DLNR and USACE in response to the concerns raised by these agencies, groups, and organizations.

The whole idea of condemnation and eminent domain is scary to us. We think we understand the process and reasoning behind it or at least what the good intent suppose to be as by design but we've heard it really doesn't matter and the powers of government can do what they want and need little justification legally as long as there is a public need. Our ignorance might be our greatest fear so we are searching and scrambling to try to put up our best defense and to buy us time to understand.

There are several speakers who spoke at the Public Hearing held at Washington Middle School on September 30, 2015 that stick out in our minds whose comments might pertain to our property that we feel are important to expand upon.

There was a speaker that said to leave Palolo alone and not to push the Ala Wai Canal's problem upstream and to leave the stream as natural as possible. This statement has a lot of merit because Palolo existed way before Waikiki became such a valuable entity justifying a $178 million in cost protection. We believe there are better options near the Ala Wai Canal that should be considered first to solve and protect Waikiki before looking upside to the watershed. We don't believe the detention basins and other Palolo alternatives would be economically justifiable if evaluated as a standalone sub-watershed project. This statement is also supported by your community consultant's statement from Ms. Dwynn Kamai who " recalled about the waterways of Palolo was that they never flooded or caused damage to life and/or property that she knows of" and this was she goes back to when there was a 9-hole golf course in Palolo Valley before World War II.

Another speaker at the September 30, 2015 meeting said he studied all the Hawaiian History regarding all the streams above the Ala Wai Canal and said his kumu or father and Halau directed him to speak. He was also against pushing the flood mitigating measures upstream stating that his ancestors where first living in Waikiki and got pushed up into Palolo Valley because of all of the development. Fishponds and streams got filled and redirected but nature has a way of wanting to go the route of old ways. So, that no matter what you do to try and that protect there still will be consequences. What we gathered and sensed from his statements and those of a few other speakers was that those who live along the river banks understand that there is an inherent risk of flooding and many don't necessarily want more concrete to protect them from a flood that may never happen or cause only a small amount of damage.

The sentiment was "leave us alone and don't touch our streams, we can take care of ourselves". Many speakers expressed the need to leave thing as natural as possible which goes against the design of the Waiomao Detention Basin which has a monstrous construction zone footprint, will have a 130 feet of ugly unnatural rock faced slope, debris pipes, and will require the excavation of 2,000 cubic yards of material which would leave a scar in the ground to hold a massive 1,500,000 cubic feet of water. The dredged area will destroy almost 450 feet of the Waiomao Stream and leave behind a bare rock quarry looking pit in its place. To put this in perspective, we are talking about destroying a length of one and a half football fields of Waiomao Stream.

Another community consultant Professor Makahiapo Cashman, who is a director of the Hawaiian Cultural Research and Outreach Program for the UH Manoa emphasized the need for maintenance and care of the streams and how his staff and volunteers on a regular basis clean and maintain the stream near Kanewai and he believes that is the solution to mitigate flooding problems. Prof. Cashman is adamantly opposed to inputting more concrete or combs to mitigate the flooding problems. We believe Prof. Cashman's statements have merit because it is well documented in on the Ala Wai Canal website that the 2004 Flood that did nearly $80 million of damage primarily to the UH Manoa was a result of blockage from debris at the East Manoa and Woodlawn bridges. The Woodlawn bridge opening was halfway full of sediment from its original design and if it had been properly maintained and free of debris that the UH Manoa would not have had any damage at all from the 2004 storm.I

It is our understanding that improvements to correct the problems with the East Manoa Bridge and Woodlawn Bridge to protect the University of Hawaii from a similar damage that resulted from the 2004 storm. We believe it is not accurate to use potential damage figures to the UH Manoa and any damage figures following along that flooding stream path which might include the UH quarry and athletic facilities, the Puck Alley and Moiliili areas in your cost to benefit justifications. In addition, any reference, to the 2004 flood and damage should not be used because the damage was primarily a result of poor maintenance rather than inadequate channel design sizes and is misleading. Damage figures should also be brought to present values as well as current construction estimates and land acquisition pricing. Many claimed statements used justify the Draft FS/EIS need to be questioned and not just assumed to be related or true. An example is the reference is made to 2 known deaths being storm related to the December 1918 and December 1950 storm but what is really known about these deaths. Is it really related or could it just have been someone playing in the stream that no matter what would have drowned in a flashflood. People fall of cliff hiking, die from flashfloods, down in the ocean all the time. People die falling of their roof trying to fix a leak when it's raining. The Draft FS/EIS states the Ala Wai Canal has overtopped many times but no specifics are mentioned on the storm rating for each time the Ala Wai Canal overtopped and what the dollar amount of damage was each time the Ala Wai Canal overtopped. We would like to see a summary of each overtopping, the storm ratings, dates, flows at all major junctions and Ala Wai Canal outlet, duration of storm and time it took to overtop the Ala Wai Canal with corresponding damage figures.

References are made primarily to the November 1965 and December 1967 storms and during the passage of Hurricane Iniki in 1992 and the overtopping of the canal resulting in the flooding of Waikiki. Yet the summary of information is hard to find or nonexistent on the damage figure done by the flooding of these very major events and we are not clear of USACE storm ratings for these major events. We would like to know how long it took the Ala Wai Canal to reach the stage of overtopping (or to fill up to overspill), how deep was the flooding, how much was due to the Waikiki storm drainage infrastructure and how much was damage was due to the Ala Wai Canal overtopping and how long it took to recede or empty out for each of these storms. It would at least help a layperson gauge the validity of your statements and representations.

Unfortunately, we were drawn into this situation not by choice but because the DNLR and USACE designated our privately owned property for use for the Waiomao Detention Basin. Otherwise, we really would have nothing to say and would not even be involved. We are being forced to protect our property ownership and rights. We really don't get involved with politics, culture and environmental issues. We no longer subscribe to cable and don't watch the evening news. We don't search out the newspaper for community hearing and generally keep our personal opinions of ongoing issues and events to ourselves. Normally, we are just occupied with raising our family and focused on our children's activities. We volunteer for many activities including our church and other coaching activities. So, our lives have been placed a little out of sync and a lot of time we would have otherwise spend on relaxing and getting things done around the house has been spend cramming to prepare our response before the public feedback deadline of November 9, 2015 and we've had to do a major cutback on our Korean Drama shows.

We humbly request that you remove our privately owned property TMK: 34016059, located at 2532 Waiomao Road in Palolo Valley as a potential site for the Waiomao Detention Basin.

Very truly yours,

Dave and Nola Watase

Cc: Gayson Ching, DLNR
Derek Chow, USACE
Ann H. Kobayashi, Honolulu City Council
Calvin Say, State of Hawaii, Representative
Les Ihara, State of Hawaii, Senate

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October 30, 2015

Suzanne D. Case, Chairperson
State of Hawaii, DLNR
P.O. Box 621
Honolulu, HI 96809

Re: Ala Wai Canal Project
Other Government owned lands and possible alternatives below the proposed Waiomao Detention Basin

Dear Ms. Case,

As previously stated in my letter dated September 28, 2015, we are totally against your purchasing of our privately owned, residentially zoned property, TMK 34016059, located at 2532 Waiomao Road in Palolo Valley for the construction of the Waiomao Detention Basin which is a part of the $173 million Ala Wai Canal Project. We also believe other private landowners in the same situation as us will have identical concerns and feelings. While we are focused on Palolo Valley many of our issues, concerns and recommendations can be applied to Manoa Valley, Makiki and Tantalus areas. Thus, we speak out on their behalf as well.

We believe that there are plenty of flood alternatives that can be designed to utilize government owned lands both above and below the proposed Waiomao Detention Basin. These government owned lands are owned by the C&C of Honolulu, State of Hawaii, Department of Education, Public Housing Authority, and other governmental agencies. The government lands follow the Pukele, Waiomao, Palolo, and Manoa/Palolo Streams and may include remnant lands, leasehold lands, schools, parks, drainage easements, and other public utilities and facilities.

Listed below are government owned lands that follow the Pukele Stream, Waiomao Stream, Palolo Stream, and Manoa/Palolo Stream down to the Ala Wai Canal:

Exhibit A-1: TMK: 340120230000 - Pukele Stream above 10th Ave.
Exhibit A-2: TMK: 340040080000 - Pukele Stream below 10th Ave.
Exhibit A-3: TMK: 340040070000 - Pukele Stream - Anuenue School
Exhibit A-4: TMK: 340040020000 - Pukele Stream - Anuenue School
Exhibit A-5: TMK: 340040060000 - Pukele Stream - Anuenue School
Exhibit A-6: TMK: 340070160000 - Pukele Stream - Public Housing

Exhibit A-7: TMK: 340070180000 - Pukele Stream & Waiomao Stream Public Housing
Exhibit A-8: TMK: 340030100000 - Waiomoa Stream
Exhibit A-9: TMK: 340030090000 - Waiomao Stream
Exhibit A-10: TMK: 340030300000 - Waiomao Stream
Exhibit A-11: TMK: 340020010000 - Waiomao Stream - Palolo Elementary
Exhibit A-12: TMK: 340020020000 - Pukele/Waiomao/Palolo Stream - Palolo Elementary
Exhibit A-13: TMK: 340070170000 - Palolo Stream
Exhibit A-14: TMK: 340020440000 - Palolo Stream - concrete channel
Exhibit A-15: TMK: 340040100000 - Palolo District Park
Exhibit A-16: TMK: 340070140000 - Palolo District Park
Exhibit A-17: TMK: 340070030000 - Palolo District Park
Exhibit A-18: TMK: 340070130000 - Palolo District Park
Exhibit A-19: TMK: 340070090000 - Jarrett Middle School
Exhibit A-20: TMK: 340011220000 - Palolo Stream concrete channel - next to Jarrett
Exhibit A-21: TMK: 340070010000 - Palolo Stream concrete channel - next to Jarrett
Exhibit A-22: TMK: 330380960000 - Palolo Stream concrete channel - residential
Exhibit A-23: TMK: 330450670000 - Palolo Stream concrete channel
Exhibit A-24: TMK: 330020540000 - Palolo Stream concrete channel - next to St. Louis
Exhibit A-25: TMK: 330010050000 - Palolo Stream concrete channel - next to City Mill
Exhibit A-26: TMK: 280280360000 - Palolo Stream concrete channel - Ewa of St. Louis Drive
Exhibit A-27: TMK: unknown - Government land at the merge of Manoa and Palolo Stream.
Exhibit A-28: TMK: 270240010000 - Kaimuki High School
Exhibit A-29: TMK: 270240000000 - Manoa Stream next to Kaimuki High School
Exhibit A-30: TMK: 270360010000 - Ala Wai Park

As mentioned in the September 30, 2015 Public Review Meeting held at Washington Middle School the Ala Wai Canal Project began almost 18 years ago in 1998 and over the years the project has gone through several revisions and an expansion in the scope of the project. What started off small as mostly a waterway management and water quality project has grown into a major $173 million project.

The documents on the Ala Wai Canal Project's website include multiple feasibility, hydrology, and impact statements which include all kinds of alternatives from basically nothing to a mind numbing 1,600 ft. long dam, 50 ft. high, covering 23 acres of land in the backside of Manoa Valley capable of holding 17,000,0000 cubic feet. We question the legitimacy of the alternatives being explored because it appears that many of the 23 alternatives evaluated in 2008 would have been rejected by the community at the very first sight of the renderings. Of course, if all went as planned on the last go around in 2008 the Ala Wai Canal project would probably be completed by now.

One should consider that a delay or extension of the project's timeline is very possible given the history of the Ala Wai Canal Project and the fact that public input is still being accepted and evaluated which may lead to further changes in the flood mitigation alternatives. We were told at the September 30, 2015 Public Review Meeting that nothing was certain and if project deadlines are not meet that the project could even be terminated. We believe the inherent uncertainty in the future of the Ala Wai Canal Project is the strongest reason that government

lands should be targeted for use in the flood mitigation alternatives. Private landowners should not be used as a first choice as land conditions and uses, market values, and ownership may change and the process for condemnation may also pose as additional risks to the project if the land cannot be secured. It is also not fair to the private landowners to be under the veil of condemnation and be threatened and restricted in their use of their property on a whim of certainty and/or a project that may take decades to get off the ground.

We are proposing several alternatives, ideas, or suggestions in lieu of the upstream Waiomao Detention Basin on 2532 and 2550 Waiomao Road. They are as follows:

1. We favor a series of smaller less obtrusive designs that have smaller footprints and require lower walls or embankments. TMK: 340120230000 (Exhibit B-1) potentially could hold a small detention basin or channel that would be held back by 10th Avenue which would act in place of constructing a new standalone berm or earth dam. The area can also be used a diverter to segregate water from larger storms (spillway) to government lands further downstream through a series of pipes, culverts, open channels etc., similar to an "auwai" feeding a series of taro patches that are playground and unused open areas capable to store or detain flood waters.

2. TMK: 340040080000 (Exhibit B-2) can be used as a channel detention area or an area to selectively direct larger flows to potential detention areas on Anuenue School's playground and open areas. A chain of smaller detention areas each with restricted outflows back to Pukele Stream that would utilize low walls and berms in the range of 2 or 3 feet with overflow spillways to other open areas and parcels on Anuenue School grounds TMK: 340040070000 (Exhibit B3), TMK: 40040020000 (Exhibit B4), and TMK: 340040060000 (Exhibit B5). The playground and unused open areas on Anuenue School could be used like the "auwai" feeding a series of taro patches which are instead detention basin.

3. TMK: 340070160000 (Exhibit B-6) is land used for Public Housing and a very long portion of Pukele Stream follows this property line in the form of an open concrete lined channel. We are not clear if the concrete channel and stream is split between the residential properties and the Public Housing property or if the concrete channel is exclusively in government owned land. An alternative to upstream detention basins would be to store water in areas of the channel where there is excess capacity. Excess capacity can also be created by enlarging the channels by widening or heightening the side wall of the channel. In some cases heightening the wall of the channel could cause problems to areas adjacent to the channel and could cause backflow if storm drainage is not designed correctly. Backflow preventers are an option and another option is to extend the storm drainage entry further downstream at a lower elevation. Aerial pictures from Google maps and MSN maps show a lot of vegetation growth in the concrete channel and a neglect of proper channel maintenance. The visual impact to this area is minimal since it already consists of a man made concrete lined channel.

4. TMK: 340070180000 (Exhibit B-7) is land used for Public Housing. The property lines follow both Pukele Stream and Waiomao Stream with concrete lined channels. We believe the concrete lined channels can be used to store water wherever there is excess capacity. Excess capacity can also be created by heightening walls or widening channels. TMK: 34002001000 (Exhibit B-11), TMK: 340020020000 (Exhibit B-12), TMK: 340070170000 (Exhibit B-13), TMK: 340020010000 (Exhibit B-11) border the Waiomao Stream and after the merge of the Pukele Stream into the Palolo Stream. There is a pretty large strip of unusable land that follows the Palolo Elementary School along the concrete lined channel. The surrounding structures are at a much higher elevation. This area is a good location for increasing the channel capacity or even creating a detention basin area using Kiwila Street as the natural dam. This area can also be used as a segregation or area to divert higher overflows (spillway pipes, culverts, or channels) to larger storage areas such as the Palolo Valley District Park and other government owned lands further downstream. Construction in this area will have a minimal visual impact because the area is already lined with a man made concrete channel and bridge over Kiwila Street.

5. TMK: 340030300000 (Exhibit B-10) is government owned land that is being leased out to a private entity. The Waiomao Stream flows through a major portion of this property and the location is ideal for a small detention area or an area to be used to segregate flows from different storm levels to larger detention areas downstream like the Palolo Valley District Park and other government owned lands and use pipes, culverts, and separate channels similar to an "auwai" feeding taro patches downstream with gravity flows. The Government owns TMK: 34003009000 (Exhibit B-9) and TMK: 340030100000 (Exhibit B-8) which appear to be leased out to private entities. We don't know the lease agreements or the terms for cancellation. An option might be for the Government to use these lands to exchange for easement rights for the footprint of detention basin in this area for the 100-year flood. This area is a natural low spot following the Waiomao Stream and might be a suitable area for a detention basin.

6. Most of the local damage of a 100-year storm in the Palolo area is along the concrete culverts next to the Palolo Valley District Park and below Kiwila St. and extends down to the area adjacent to St. Louis School. So, if the objective is to prevent residential damage from the 100-year flood and if the cost to benefit justifies the flood mitigation measures then something would need to be done to either pass the water more quickly through the area preventing the concrete channel from overflowing or detaining the water in a detention basin. The Ala Wai Canal Project justification for the Pukele Detention Basin and Waiomao Detention Basin is dual purpose. It would protect both the Palolo residential areas and would help hold back water from the Ala Wai Canal at the critical time factor. The Government owns the concrete lined channel and adjacent areas for two blocks and near St. Louis School; TMK: 340020440000 (Exhibit B-14), TMK: 340011220000 (Exhibit B-20), TMK: 340070010000 (Exhibit B-21), TMK: 330380960000 (Exhibit B-22), TMK: 33045067000 (Exhibit B23), TMK: 330020540000 (Exhibit B-24). An option would be to increase the height of the concrete channel walls or widen the channel in areas adjacent to government owned lands so that the channel does not overflow into the residential areas. If the channel wall heights are increased then a study of the backflow for local storm drainage would need to be looked into or the

installation of backflow preventers or extending the channel invert further downstream at a lower elevation.

7. TMK: 340070100000 (Exhibit 15), TMK: 640070140000 (Exhibit B-16), TMK: 340070030000 (Exhibit 17) of the Palolo District Park which consists primarily of the baseball field can be like the first low level detention basin. What we propose is not building those high embankments that require mechanical gates but rather a smaller berms or walls 2-3 in height. Walls can be designed to blend and enhance the park. Walls could be designed at a seat level similar to how Punahou has a series of small retaining walls along their track and football field that act as bench seating. This first area might be designed to detain flood water from a smaller storm (lets say 50-year) and if a larger storm hits it will overflow into a second detention area.

8. TMK: 340070030000 (Exhibit B-18) which is below the Palolo Valley District Park's swimming pool could be used for the second storm water detention area. This grassy area which is shared by Jarrett Middle School is largely unusable because of the slope. However, the area can easily be regraded and cut down to accommodate a second detention area. This area would be beautified by adding a 2-3 ft. perimeter wall and can also be used as a playground for Jarrett Middle School and for a soccer field and football field as a side benefits. This area would be utilized in a time of flood between a 50-year and 100-year storm and overflow would spillover to a third detention area.

9. TMK: 340070090000 (Exhibit B-19) which is Jarret Middle School could use their playground area adjacent to the concrete lined channel of Palolo Stream. This area is sloping down toward Palolo Stream and is relatively unusable for organized sports because of the slope. Cut from the area above near the Palolo Valley District Park's pool area for the second detention area can be used to fill and level off this area. A small perimeter retaining wall for flood detention can beautify the boundary. This area would flood only if a 100-year storm hit. Again, the area would be enhanced for the school and community because this area could be used by organized sports. Maybe a small softball field.

10. TMK: 330010050000 (Exhibit B-20) is the concrete lined trapezoidal channel. This area is prime for a detention basin and a dam can be built under the St. Louis Drive bridge. What makes this area prime is the height potential of the dam and the large area behind it to hold water goes all the way back to St. Louis School. Waialae Avenue and most of the adjacent areas that dump storm water into the channel are an estimated 40-50 feet above the channel elevation and backflow issues should not exist.

11. We believe a major flaw in the concept of the Ala Wai Canal Project is that the Ala Wai Canal is treated as a reservoir. The point and time of concentration basically starts and ends at the Ala Wai Canal thus the Ala Wai Canal fills up like a bath tub and without any slope the flowrate is an issue. An analogy would be similar to our freeway mess. We got a bunch of cars that need to get from Point A to Point B and the roadway has only so much capacity. We can (1) add more lanes to increase the capacity, (2) increase the speed limit, or (3) increase the time period available for travel. (1) We could add several

more lanes to handle the peak capacity at peak time but this may not be cost effective because for the most part of the day the lanes will be empty and unused. (2) We could increase the speed limit but terrain and design speeds of the roadway might dictate the maximum speeds and safety issues may arise. A combination of increased lanes and increased speeds may help satisfy the traffic at peak times. (3) Spread out or stretch out the traffic period. This is obtained by earlier and later starts. California has traffic signals on their freeway onramps to dictate the flow of traffic. If government workers would all start and finish work earlier it might make a difference on the peak times. If schools started later it might make a difference in the peak times.

The problem with the Ala Wai Canal Project concept is mainly detention methods are considered to control the peak flow, peak volume at the critical time at the Ala Wai Canal. Certain areas of certain sub watersheds can be accelerated to beat the critical peak volume at the Ala Wai Canal. The Waikiki subwatershed as an example should totally bypass the Ala Wai Canal in time of flood. Why dump the storm water into the Ala Wai Canal when the threat is of the Ala Wai Canal overflowing. Waikiki is right next to the ocean and that's the ultimate place you want the storm water to end up. Why not pump the storm drainage from Waikiki directly into the ocean and bypass the Ala Wai Canal. It can be pumped or gravity flowed straight into the ocean off shore. If necessary it can be pumped through pipes in or under the Ala Wai Canal out into the ocean near the Ala Wai Boat Harbor or wherever is far enough so that it doesn't backflow into the Ala Wai Canal. It can be pumped to an emergency spillway through Fort Derussey or Kapiolani Park and have a designated low ground pathway to the ocean similar to a large sheet flow of low velocity to minimize erosion.

12. New Orleans is protected by a large number of high capacity pumps. One pump can empty an Olympic swimming pool in 30 seconds. Again, since the Ala Wai Canal is treated like a reservoir the major problem is getting the storm water out of the canal so the best solution is to beat the critical flow, critical volume, and critical time by bypassing the Ala Wai Canal by pumping excess volume through pipes and conduits directly to the ocean. Pipes and conduits could be placed in the Ala Wai Canal similar to how the temporary force sewer main was put in the Ala Wai Canal. The velocity and volume per area of pipe can be extremely higher because it will be pushed or forced out to the ocean rather than relying on gravity flow of the Ala Wai Canal which is almost zero. Pumping storm water straight to the ocean will not be greatly affected by the ocean tide while relying on gravity flow in the Ala Wai Canal can greatly be impacted by the tides height or tidal surge in a hurricane storm.

13. TMK: 330010050000 (Exhibit B-20) the concrete lined trapezoidal channel behind the City Mill. Storm water can be collected or detained at the St. Louis Drive Detention Basin which we think is about 30-40 feet above sea level and can be filled much higher to get a head or pressure. Much like a drinking water reservoir the storm water can under normal gravity flow be forced through pipes and conduit bypassing the Ala Wai Canal and straight into the ocean past the Ala Wai Boat Harbor. This would also be a way of moving water in front of the critical time and volume out of the canal. The pipes or conduits can be pump assisted if friction or drag is too great or if higher velocities are

required. Screening of debris and safety measures would need to be implemented at the inlets. A similar plan can be used on the Manoa Stream and water can be collected near the University of Hawaii above the East West Center.

14. TMK: 280280360000 (Exhibit B-26) are concrete lined rectangle channels and (Exhibit B-27) which includes the merger of the Palolo Stream and Manoa Streams and includes the Old Waialae Road Bridge, King Street Bridge, and Kapiolani Bridge . If there is excess flow capacity in the channel it can be used for storage. The area is government owned so if the capacity of the channel can be expanded if necessary. This area under and around the bridges are pretty massive and can hold large volumes of stormwater. They can be expanded if necessary and are high enough to build up head pressure to capture storm water and pipe it under pressure out to the ocean and bypass the Ala Wai Canal.

15. TMK: 270240010000 (Exhibit B-28) is Kaimuki High School. The athletic field areas can be used as an added detention area much like the Ala Wai Golf Course is being used. Rather than pushing the detention areas upstream into Palolo Valley on privately owned properties. Large government owned land with areas as like these should be considered first. A more elaborate option for the athletic field area would be to excavate and have underground flood storage detention area with the athletic fields above. Storage could also be above the stream level if overflow waters are captured upstream like the "auwai".

16. TMK: 270240000000 (Exhibit B-29) this is the Manoa Stream area adjacent to Kaimuki High School. This area can be expanded and used as a detention basin in conjunction to the Kaimuki High School athletic fields. This area is long and very level and is more ideal for a location for a silt collection basin before entering the Ala Wai Canal.

17. TMK: 270360010000 (Exhibit B-30) is of the Ala Wai Park and baseball fields. What we don't understand is why the Ala Wai Canal Project includes using only a smaller portion of the Ala Wai Park for the Hausten Detention Ditch. We believe this should be expanded to include the additional two baseball field areas of the park and if done may decrease the need for upstream detention basins in Palolo Valley.

18. We an option could be an Ala Wai Canal emergency spillway. This could be though high capacity pumps as mentioned in above or could be natural gravity flow through Fort Derussey and Kapiolani Park. If pumped at the far end of the Ala Wai Canal, it could either go straight out to walls or be pumped to Kapiolani Park and exit near the War Memorial Natatorium. If by natural flow, a sheet flow that could possible exit between Queens Surf Beach and the Waikiki Aquarium which is walled and beachless there by minimizing the beach sand erosion concern.

19. We believe an option would be to segregate the stormwater generated from the Waikiki subwatershed (W1,W2,W3) and bypass the Ala Wai Canal and go straight to the ocean.

20. We believe an option would be to segregate the stormwater generated from the upper Kaimuki area subwatersheds (A6, JA1, A6, A7) and bypass the Ala Wai Canal andgo straight to the ocean.

While our proposed alternatives are not engineered and not thoroughly evaluated for feasibility and cost, we spent a hell of a lot of time going through all of documents on the Ala Wai Canal Project's website to get up to speed on what was going on, what the problems were, and what solutions were being proposed. We drove around the whole Ala Wai Canal Project's watershed looking at the critical areas and most of site locations for the proposed alternatives. We also walked several areas that thought might be suitable for detention basin within the watershed looking for viable alternatives instead of our personally owned property located at 2532 Waiomao Road. So, we hope you will give each one of our proposed ideas, suggestions, and alternatives enough thought and evaluation based on its merit and given application(s) as ligitimate flood mitigation measures.

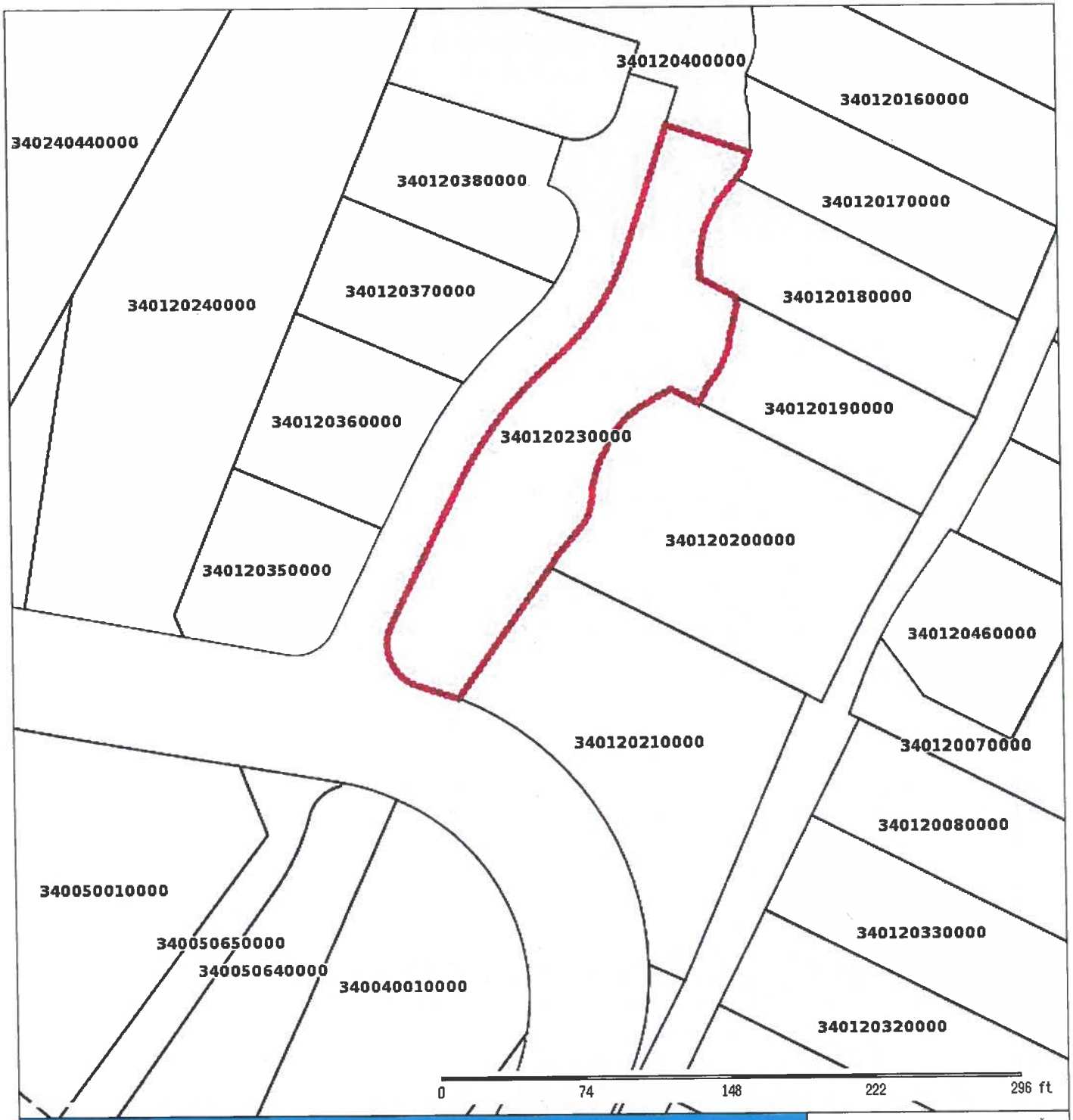
Ultimately, we hope a better solution can be found in place of place of the Waiomao Detention Basin. We humbly request that you take out of consideration the use of our privately owned property located at 2532 Waiomao Road for use as a detention basin.

Very truly yours,

Dave and Nola Watase

Attachments: Exhibits "A-1 to A-30"
Exhibits "B-1 to B-30"

Cc: Gayson Ching, DLNR
Derek Chow, USACE
Ann H. Kobayashi, Honolulu City Council
Calvin Say, State of Hawaii Representative
Les Ihara, State of Hawaii, Senate



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Parcel: 340120230000 Acres: 0.3191			
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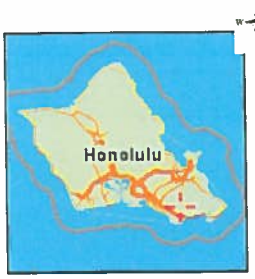
Sale:		Exempt Value:	434800
Mail:	Exhibit A-1	Taxable Value:	0



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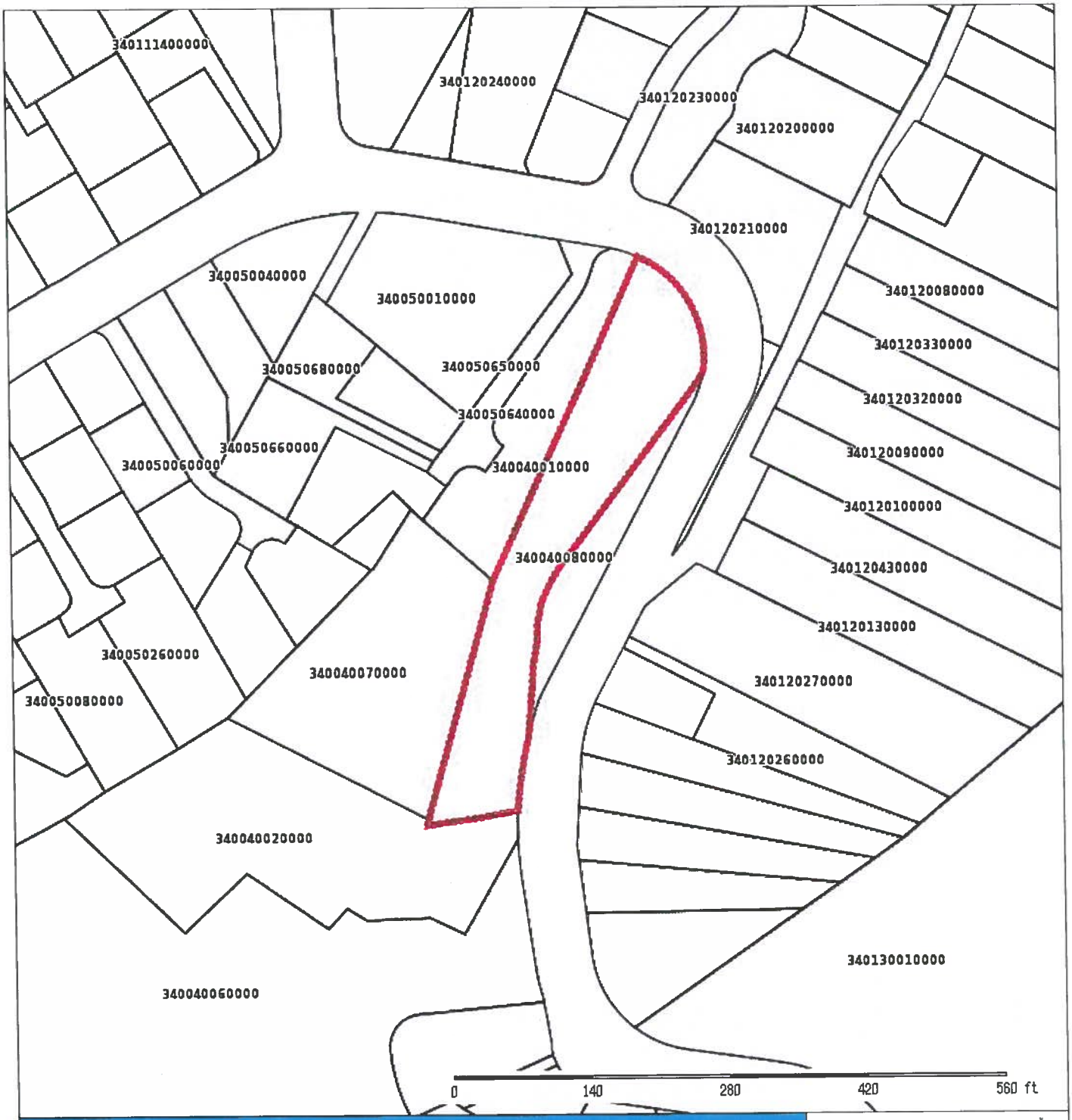
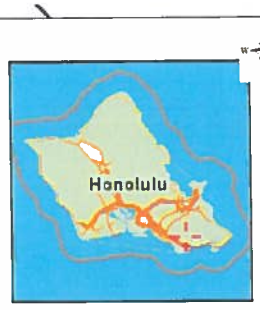


Honolulu County Assessor			
Parcel: 340040010000 Acres: 0.7473			
Name:	STATE OF HAWAII	Land Value:	86400
Site:	2546 10TH AVE	Building Value:	0
Sale:		Exempt Value:	0
Mail:	Exhibit A-2	Taxable Value:	86400



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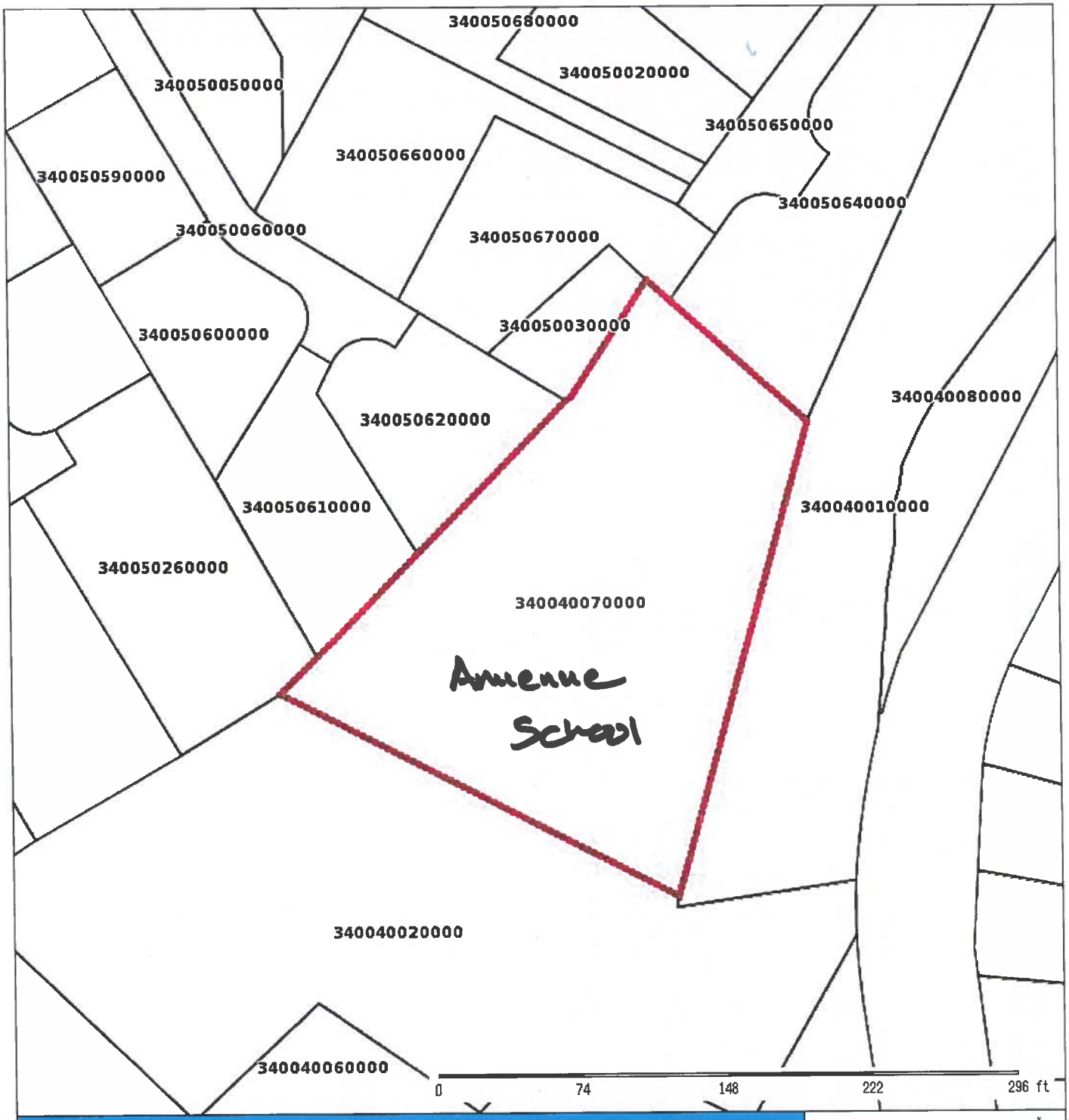

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Site:	10TH AVE	Building Value:	0
Sale:		Exempt Value:	983500
Mail:	Exhibit A-3	Taxable Value:	0

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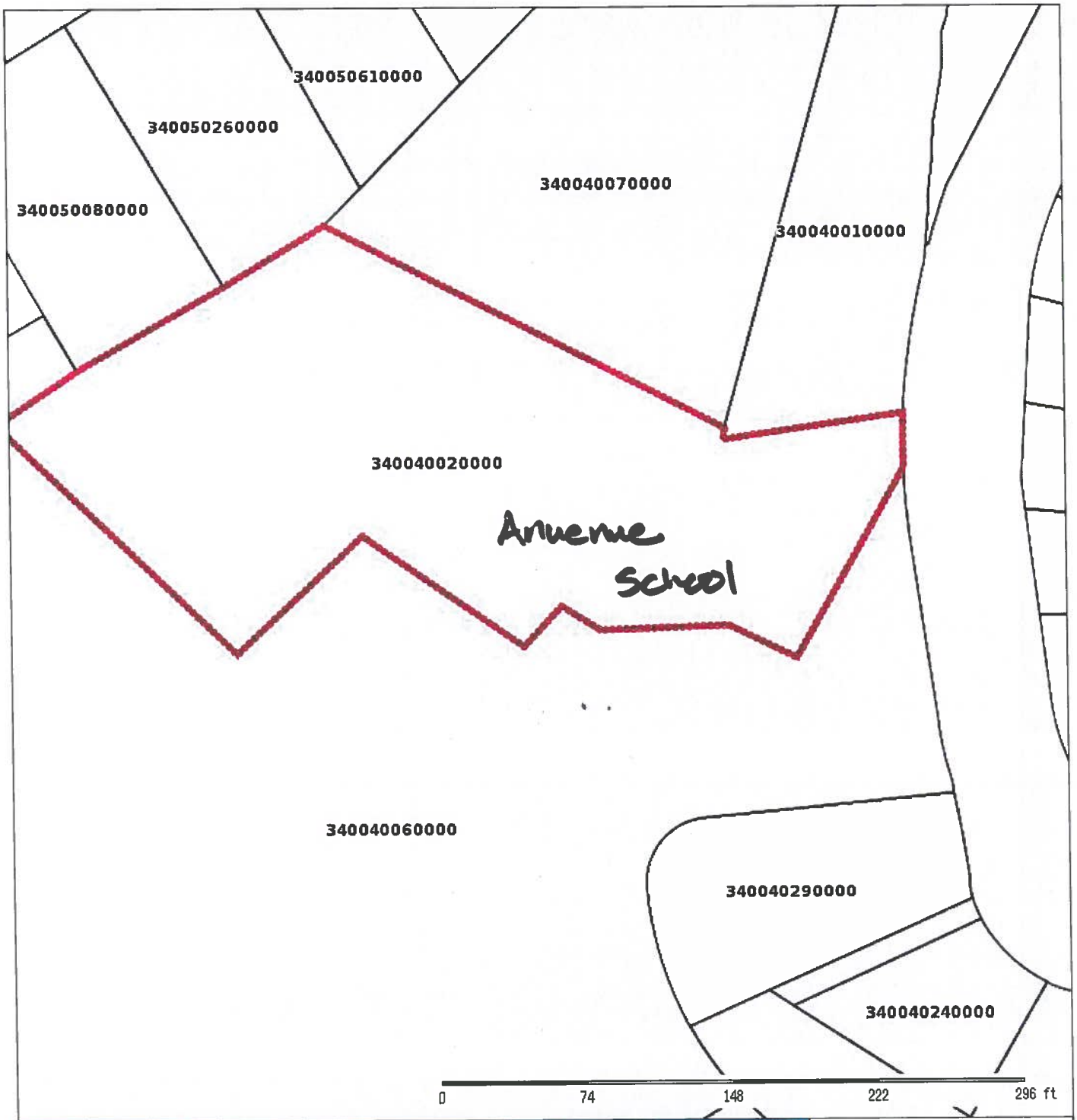

Honolulu County Assessor			
Parcel: 340040020000 Acres: 1.0969			
Name:	DEPARTMENT OF EDUCATION	Land Value:	1213900
Site:	2542 10TH AVE	Building Value:	84800
Sale:		Exempt Value:	1298700
Mail:	Exhibit A-4	Taxable Value:	0

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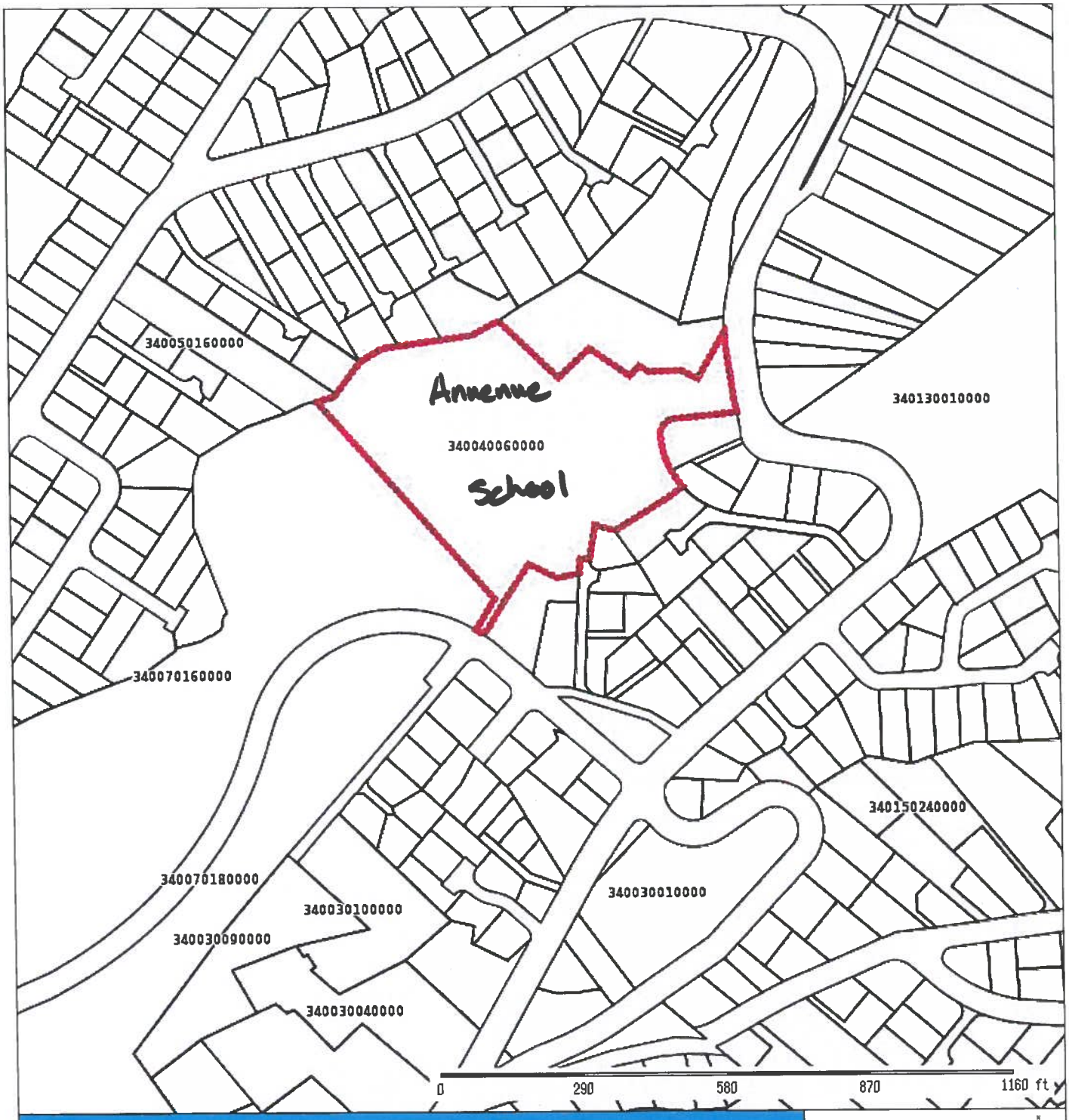

Honolulu County Assessor

Parcel: 340040060000 Acres: 5.2092

Name:	CITY AND COUNTY OF HONOLULU	Land Value:	5303400
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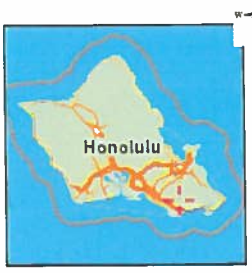
Sale:		Exempt Value:	6056200
Mail:	Exhibit A-5	Taxable Value:	0



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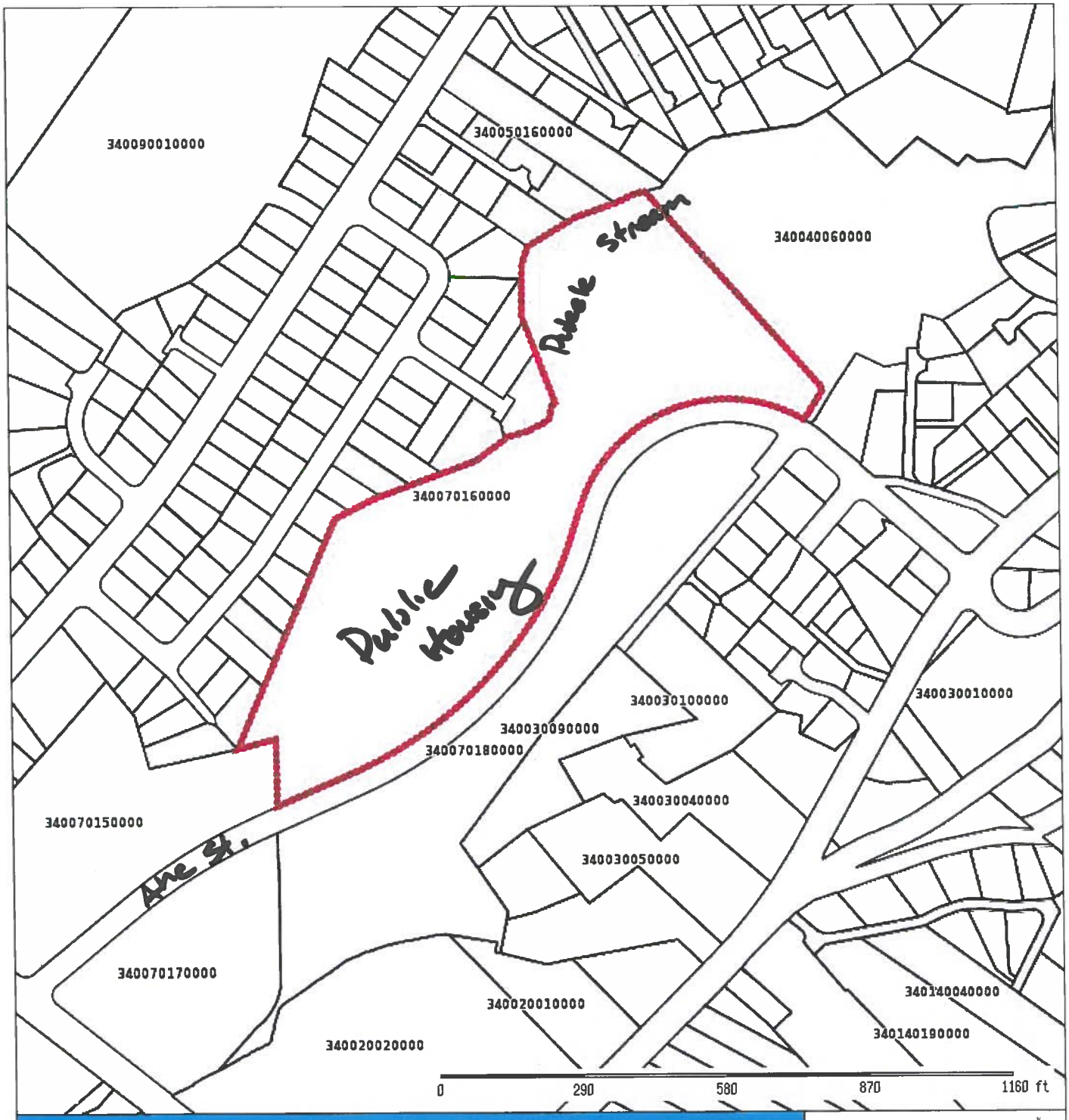
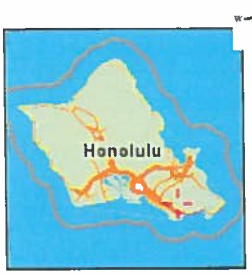


Honolulu County Assessor			
Parcel: 340070160000 Acres: 9.114			
Name:	HAWAII PUBLIC HOUSING AUTHORITY	Land Value:	3919000
Site:	2108 AHE ST	Building Value:	1500000
Sale:	$3997500 on 2002-03-04 Reason=1 Qual=	Exempt Value:	5419000
Mail:	Exhibit A-6	Taxable Value:	0



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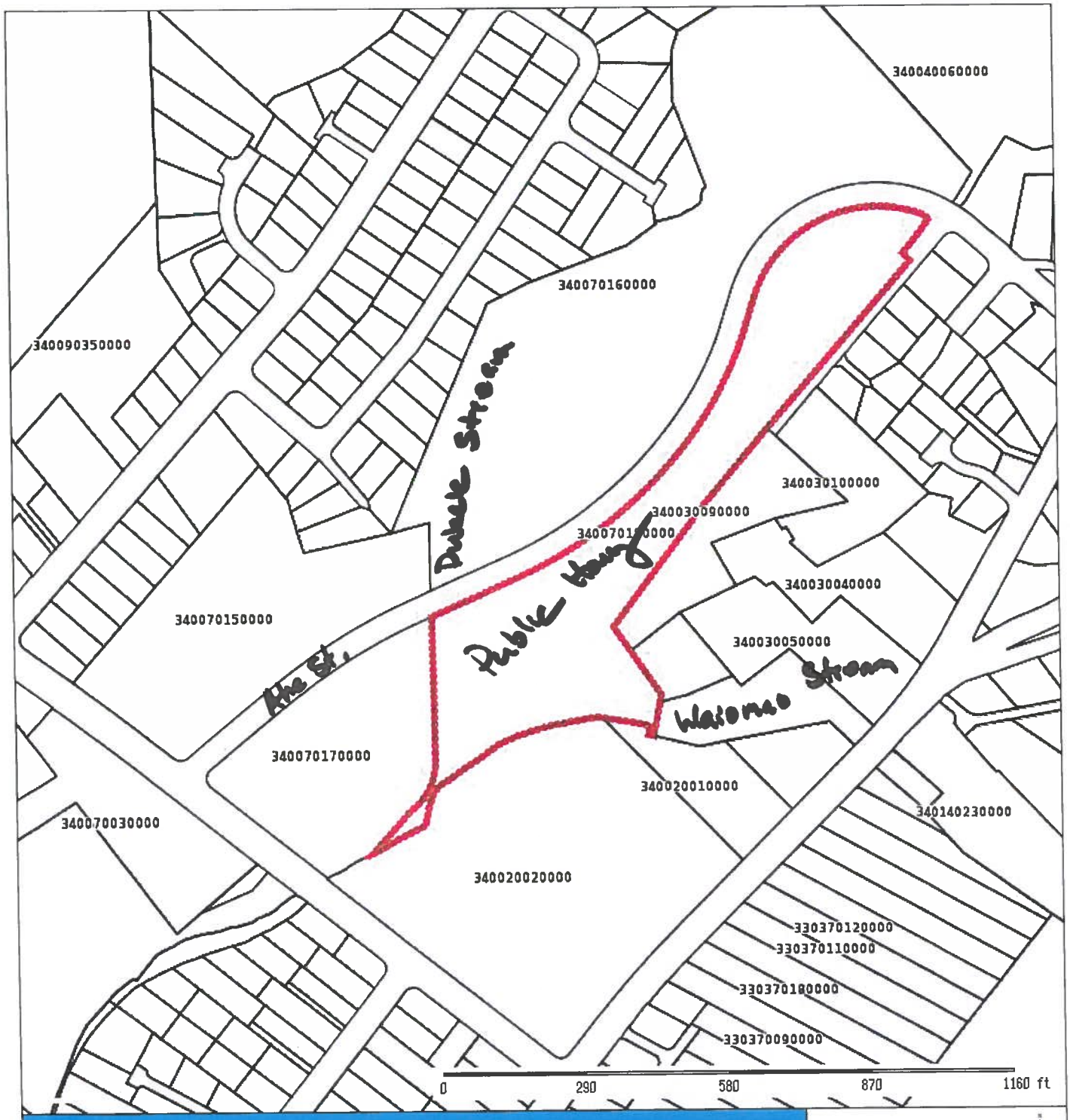
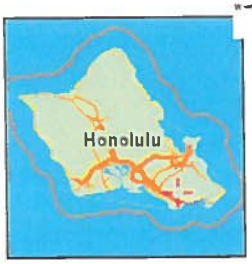


Honolulu County Assessor			
Parcel: 340070180000 Acres: 5.459			
Name:	HAWAII PUBLIC HOUSING AUTHORITY	Land Value:	2347400
Site:	2232 AHE PL	Building Value:	1500000
Sale:	$3997500 on 2002-03-04 Reason=1 Qual=	Exempt Value:	3847400
Mail:	Exhibit A-7	Taxable Value:	0



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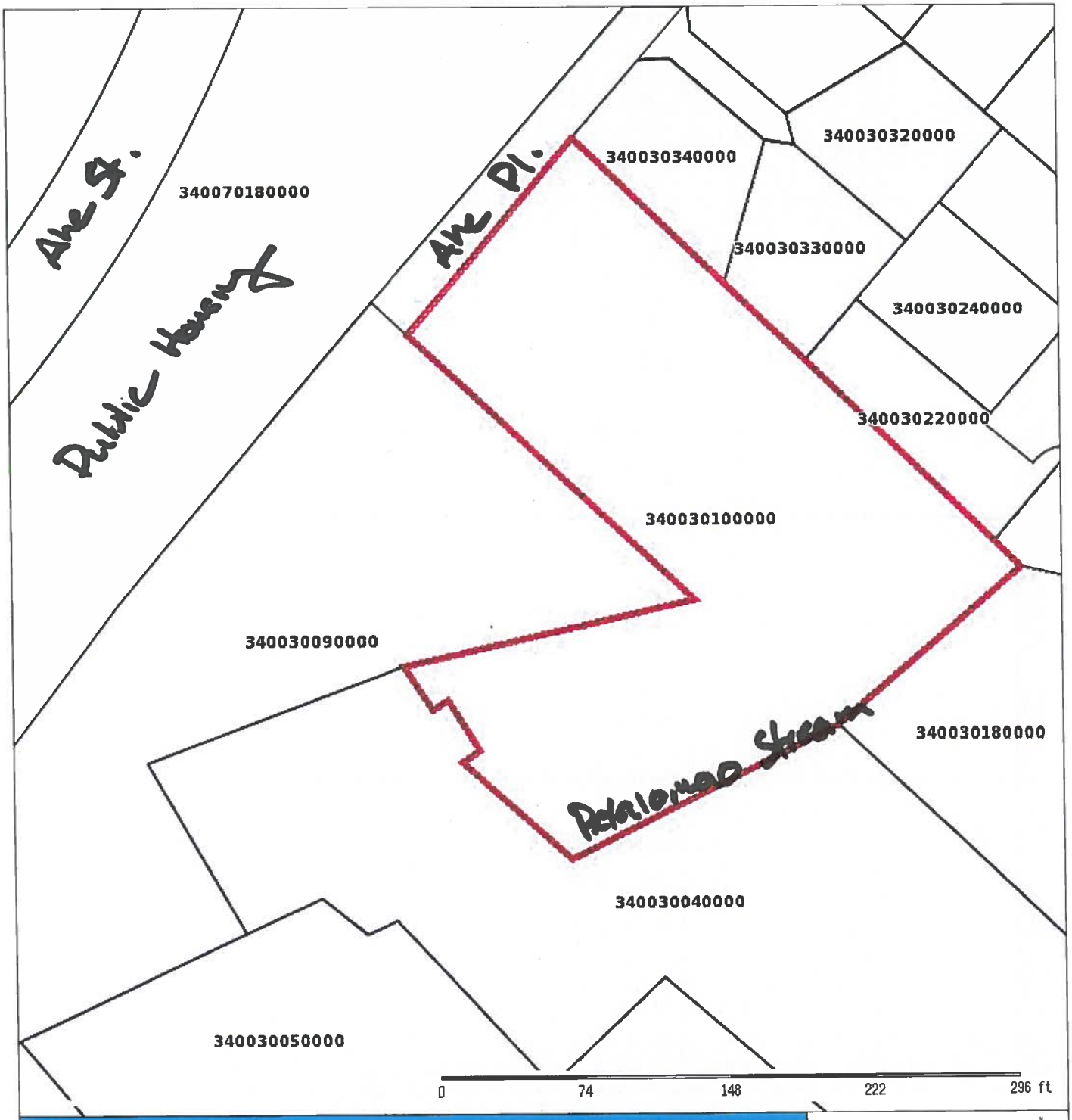

Honolulu County Assessor			
Parcel: 340030100000 Acres: 1.08			
Name:	STATE OF HAWAII	Land Value:	245700
Site:	2203 AHE PL	Building Value:	182500
Sale:		Exempt Value:	80000
Mail:	Exhibit A-8	Taxable Value:	348200

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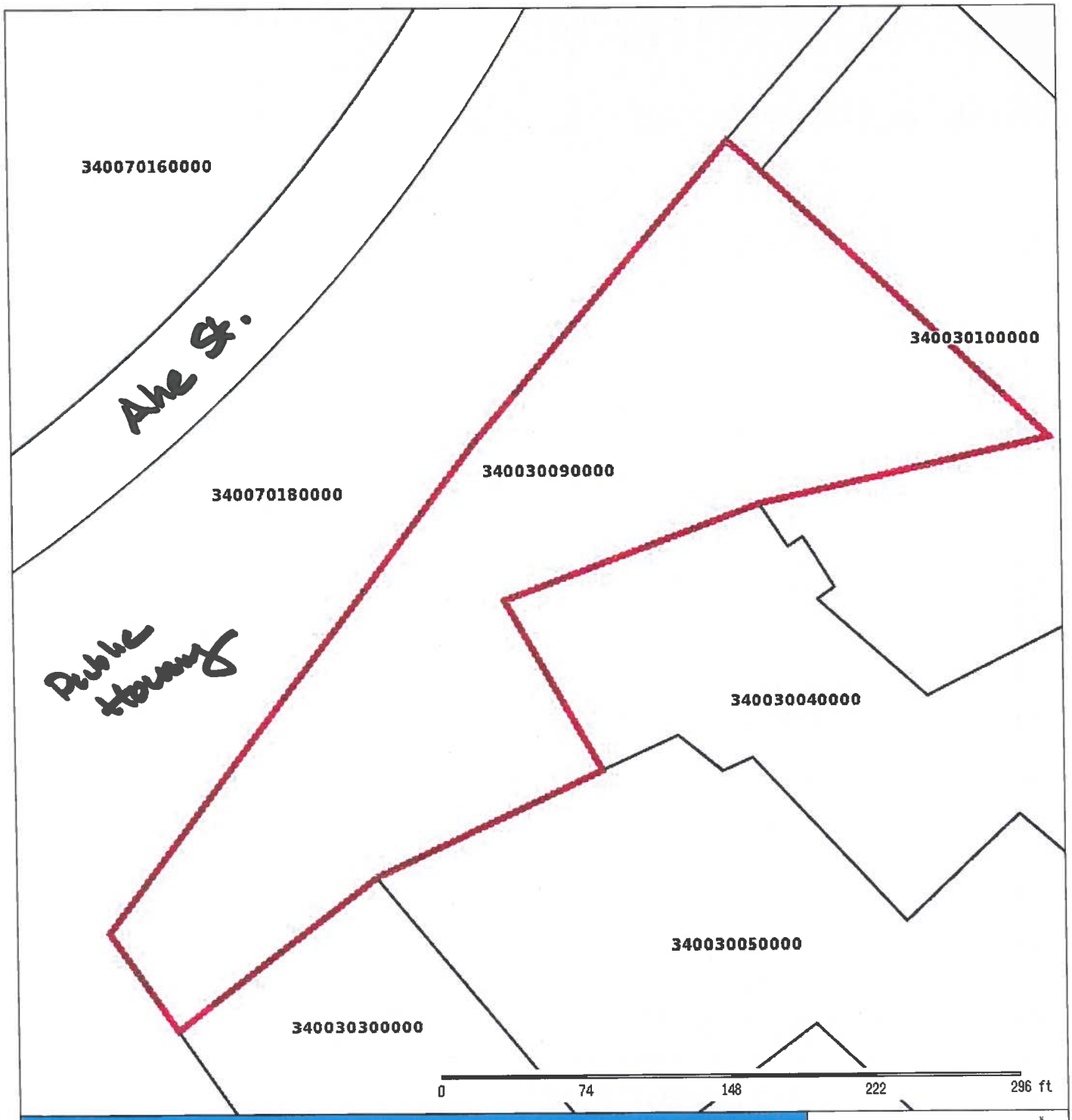

Honolulu County Assessor			
Parcel: 340030090000 Acres: 1.183			
Name:	STATE OF HAWAII	Land Value:	257300
Site:	2201 AHE PL	Building Value:	75600
Sale:		Exempt Value:	120000
Mail:	Exhibit A-9	Taxable Value:	212900

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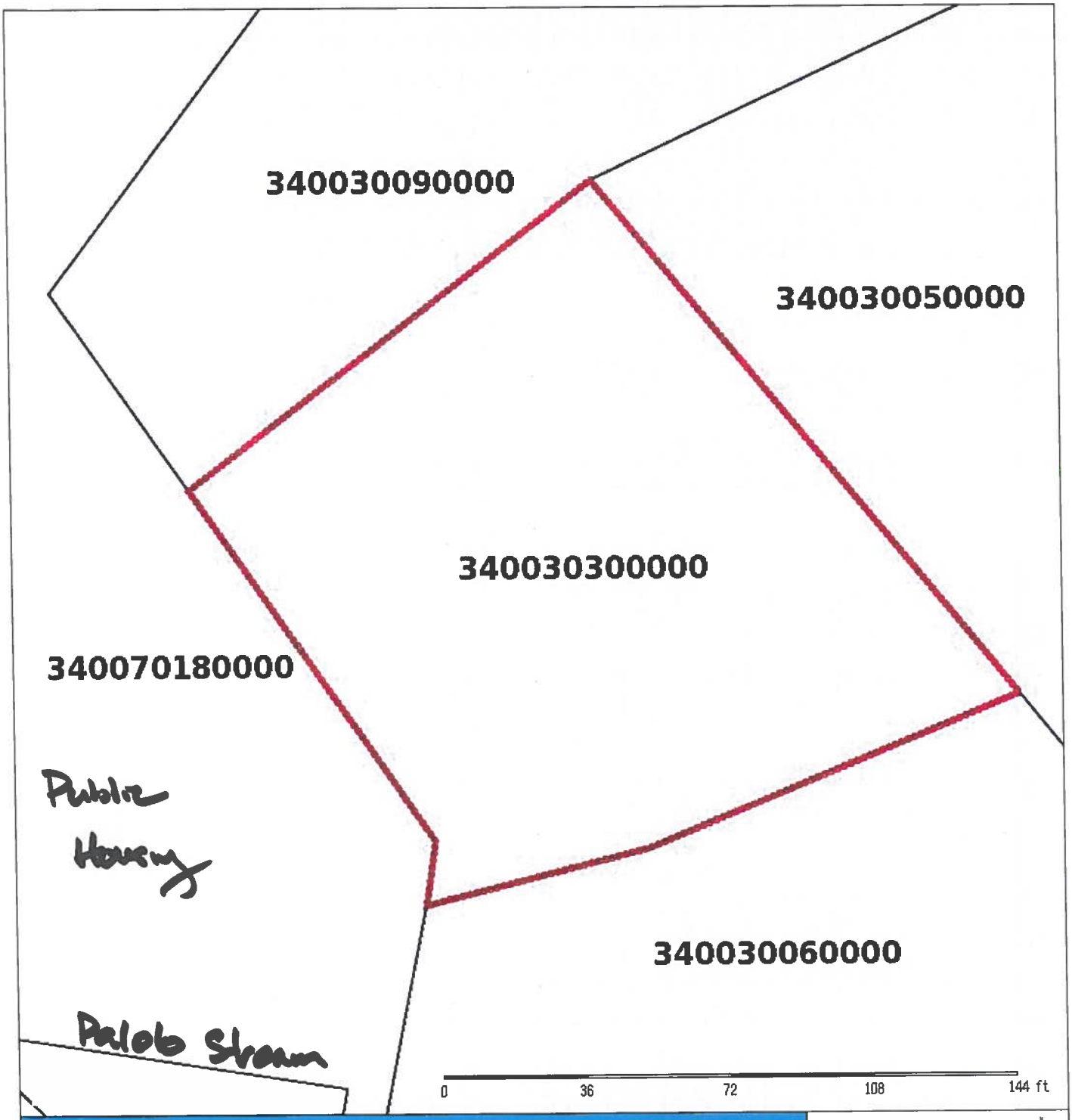
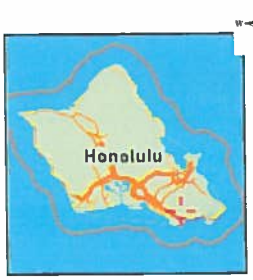


Honolulu County Assessor			
Parcel: 340030300000 Acres: 0.396			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	112600
Site:	POOKELA ST	Building Value:	0
Sale:		Exempt Value:	112600
Mail:	Exhibit A-10	Taxable Value:	0



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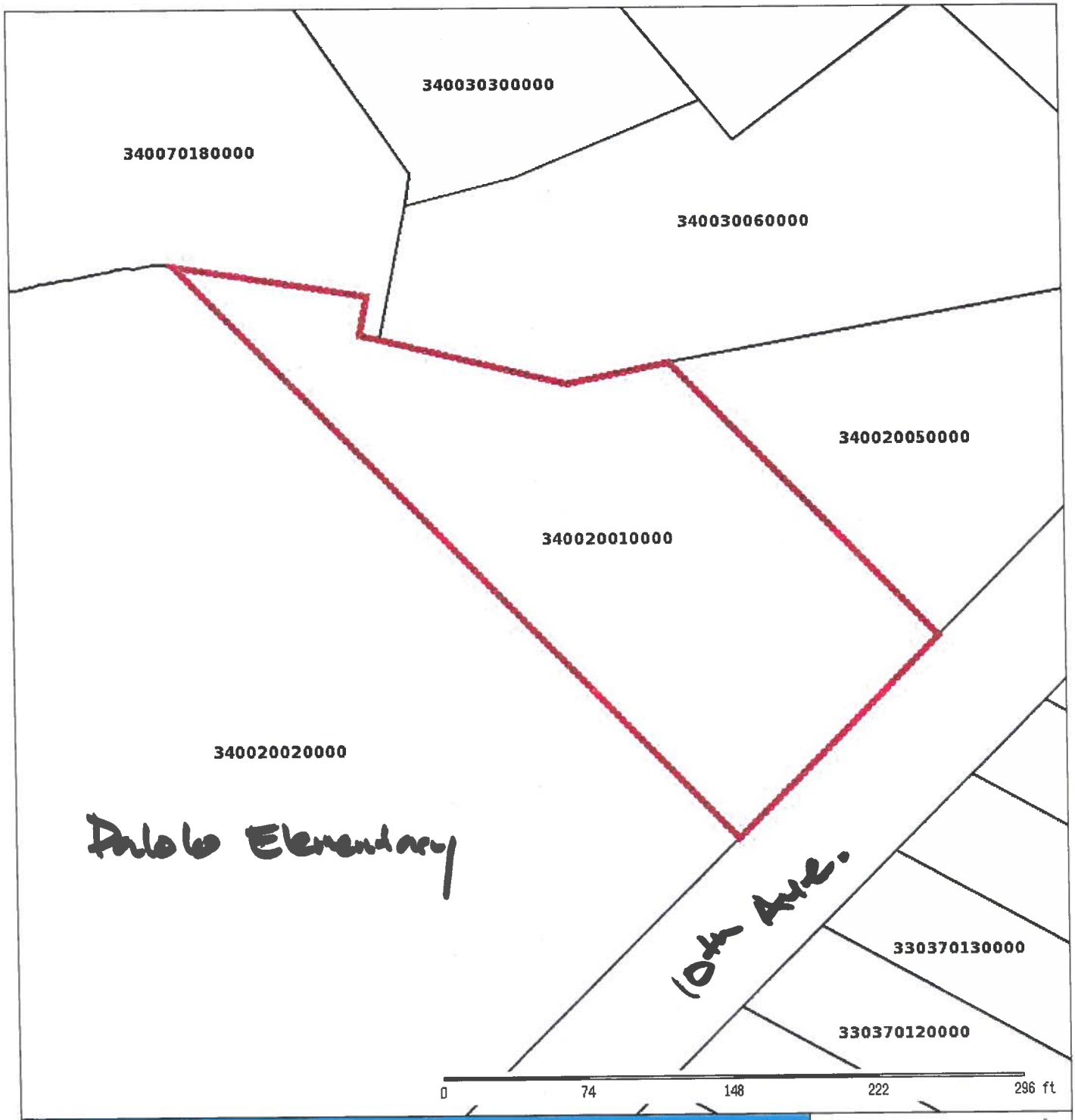

Honolulu County Assessor			
Parcel: 340020010000 Acres: 0.812			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	928500
Site:	2106 10TH AVE	Building Value:	0
Sale:		Exempt Value:	928500
Mail:	Exhibit A-11	Taxable Value:	0

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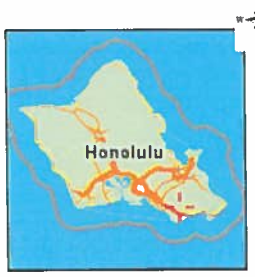
Honolulu County Assessor			
Parcel: 340020020000 Acres: 6.213			
Name:	DEPARTMENT OF EDUCATION	Land Value:	3106500
Site:	2106 10TH AVE	Building Value:	735900
Sale:		Exempt Value:	3842400
Mail:	Exhibit A-12	Taxable Value:	0



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Honolulu County Assessor			
Parcel: 340070170000 Acres: 2.747			
Name:	HAWAII PUBLIC HOUSING AUTHORITY	Land Value:	1181200
Site:	2232 AHE PL	Building Value:	1000000
Sale:		Exempt Value:	2181200
Mail:	Exhibit A-13	Taxable Value:	0

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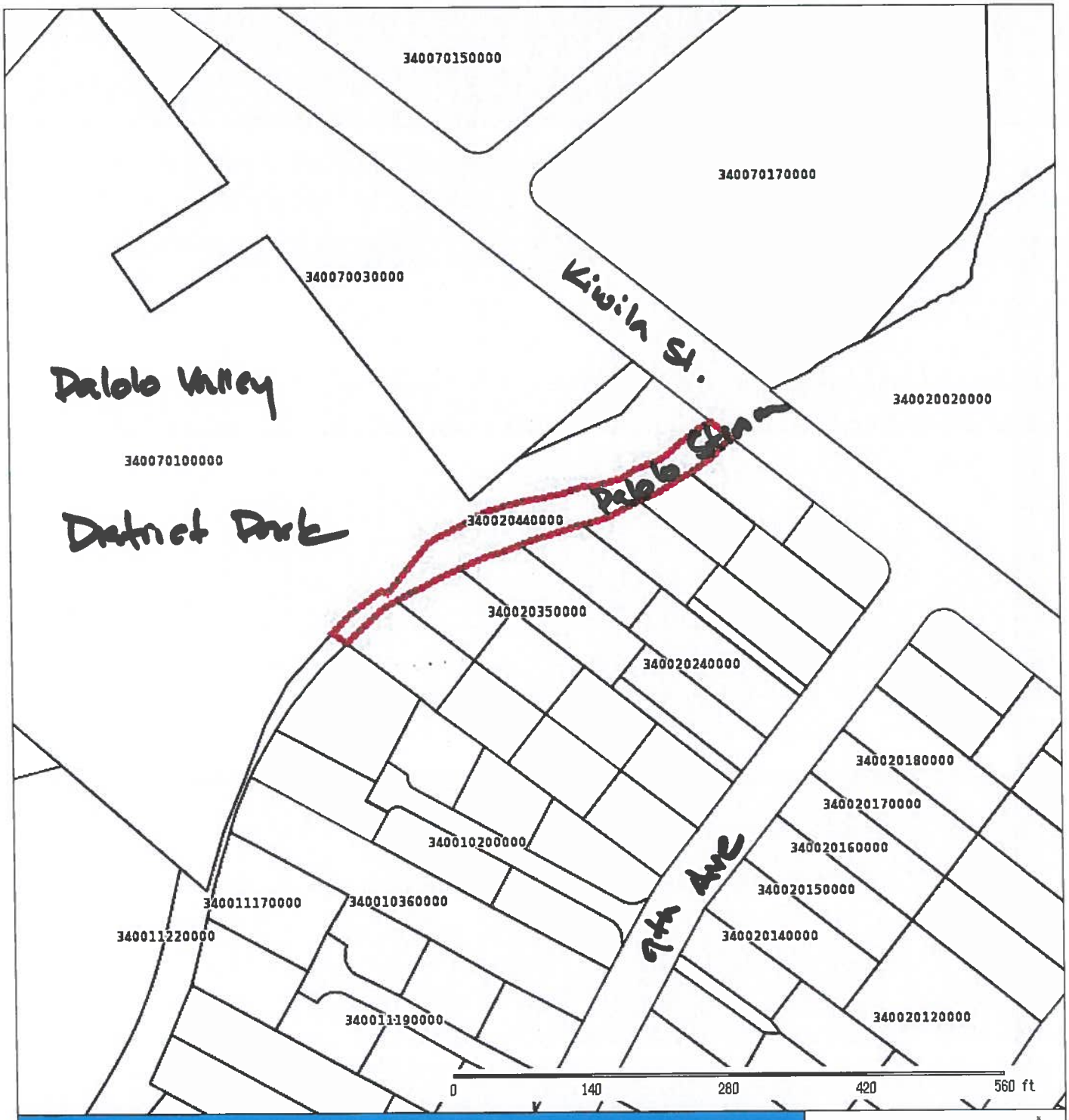

Honolulu County Assessor			
Parcel: 340020440000 Acres: 0.2687			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	100
Site:	KIWILA ST	Building Value:	0
Sale:		Exempt Value:	100
Mail:	Exhibit A-14	Taxable Value:	0

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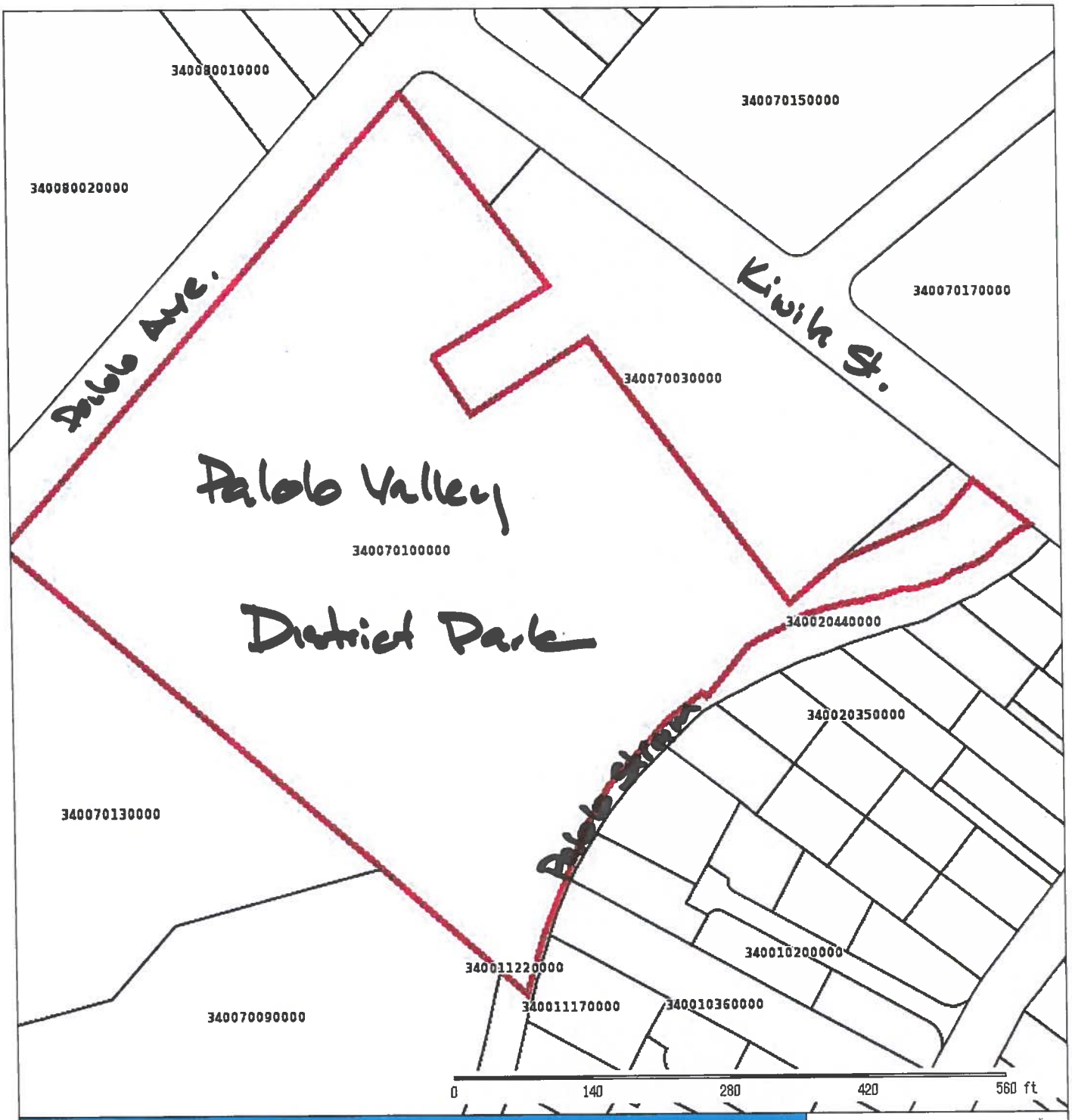

Honolulu County Assessor			
Parcel: 340070100000 Acres: 6.9			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	2443100
Site:	PALOLO AVE	Building Value:	1651300
Sale:		Exempt Value:	4094400
Mail:	Exhibit A-15	Taxable Value:	0

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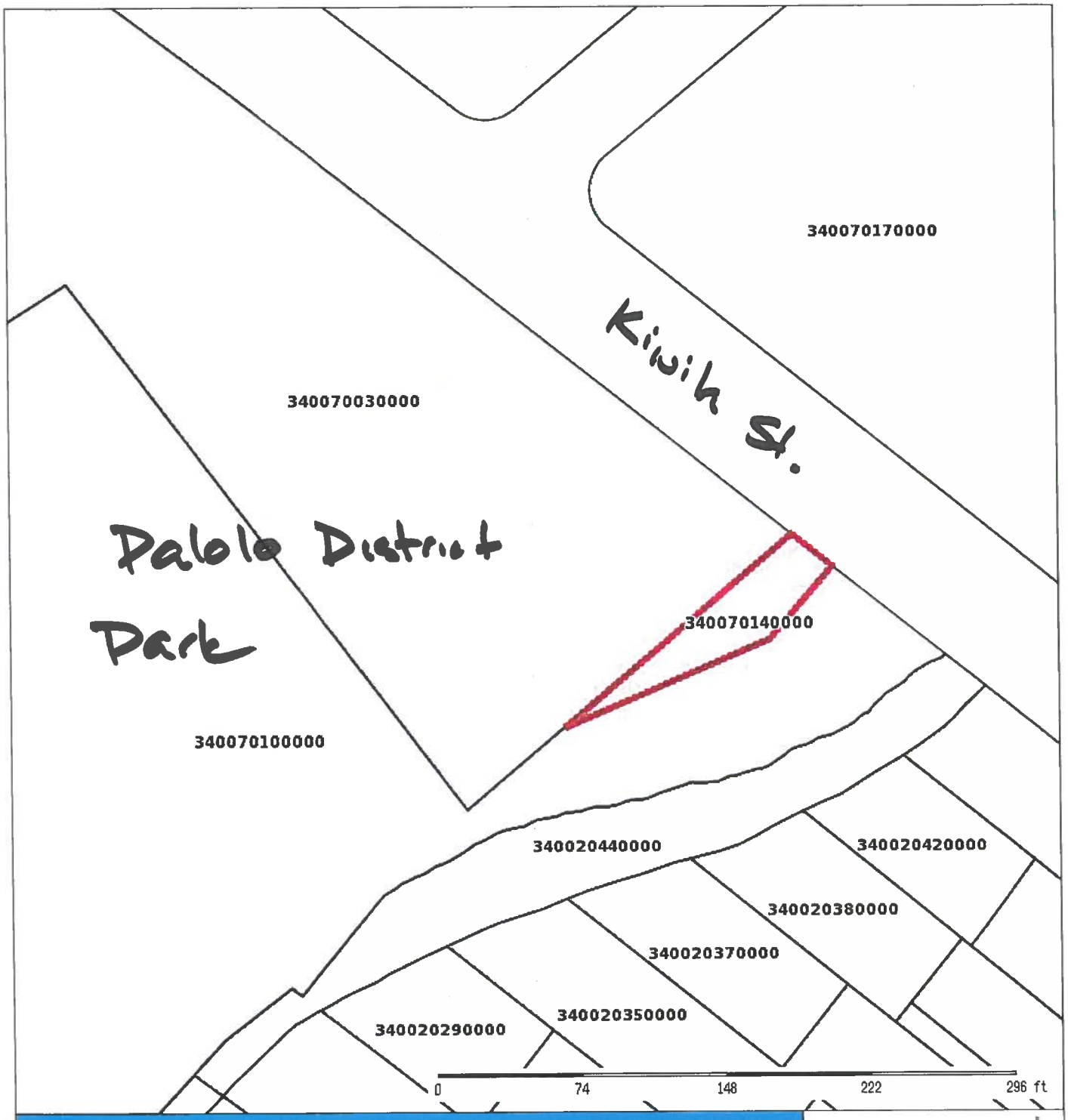
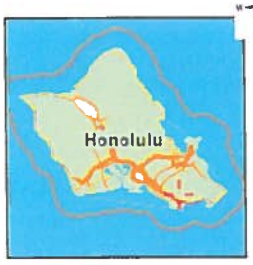


Honolulu County Assessor

Parcel: 340070140000 Acres: 0.062

Name:	STATE OF HAWAII	Land Value:	24600
Site:	PALOLO AVE	Building Value:	0
Sale:		Exempt Value:	24600
Mail:	Exhibit A-16	Taxable Value:	0



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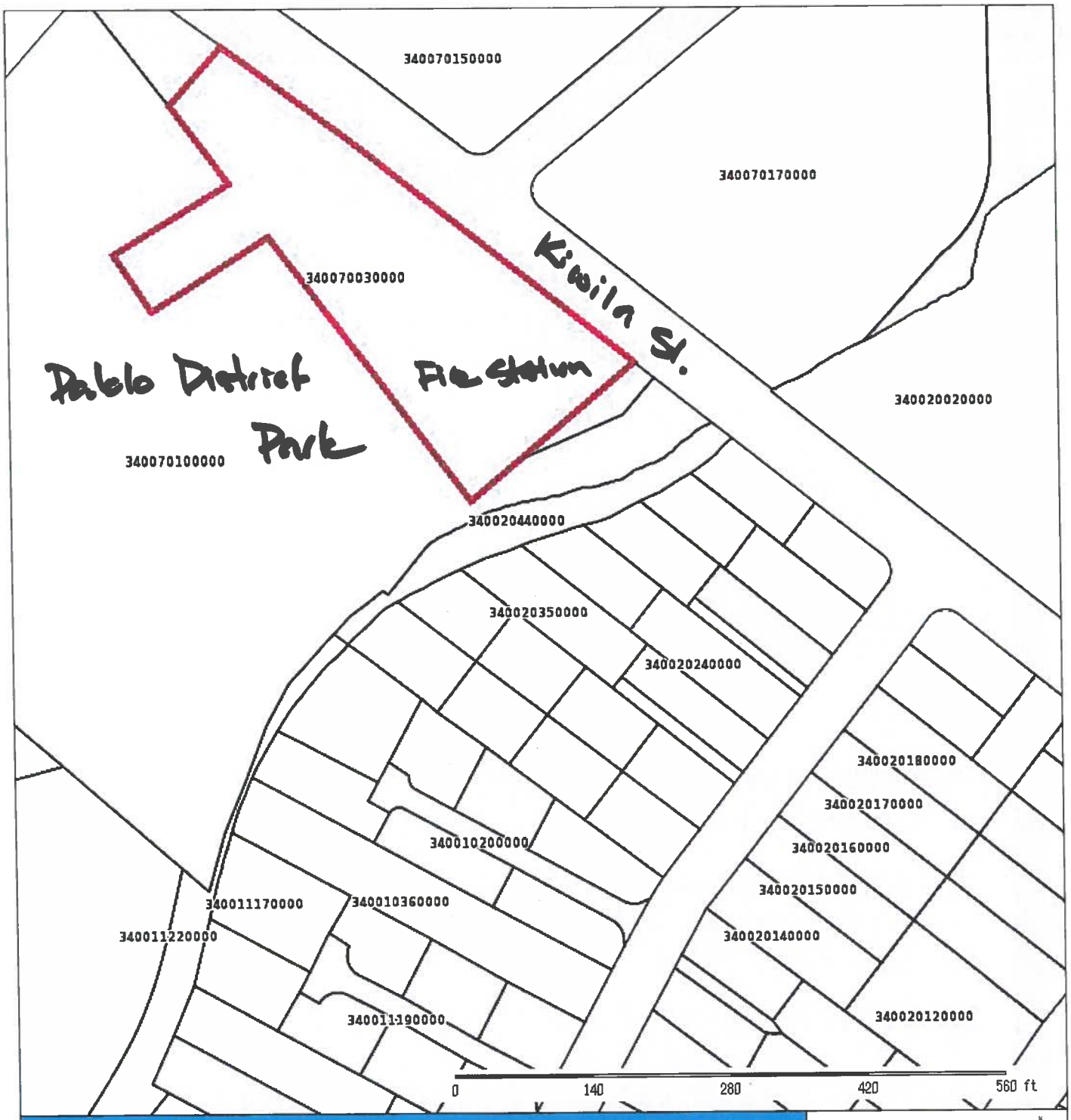
Date printed: 10/29/15 : 16:08:02



Honolulu County Assessor

Parcel: 340070030000 Acres: 1.747

Name:	CITY AND COUNTY OF HONOLULU	Land Value:	692800
Site:	3345 KIWILA ST	Building Value:	233300
Sale:		Exempt Value:	926100
Mail:	Exhibit A-17	Taxable Value:	0

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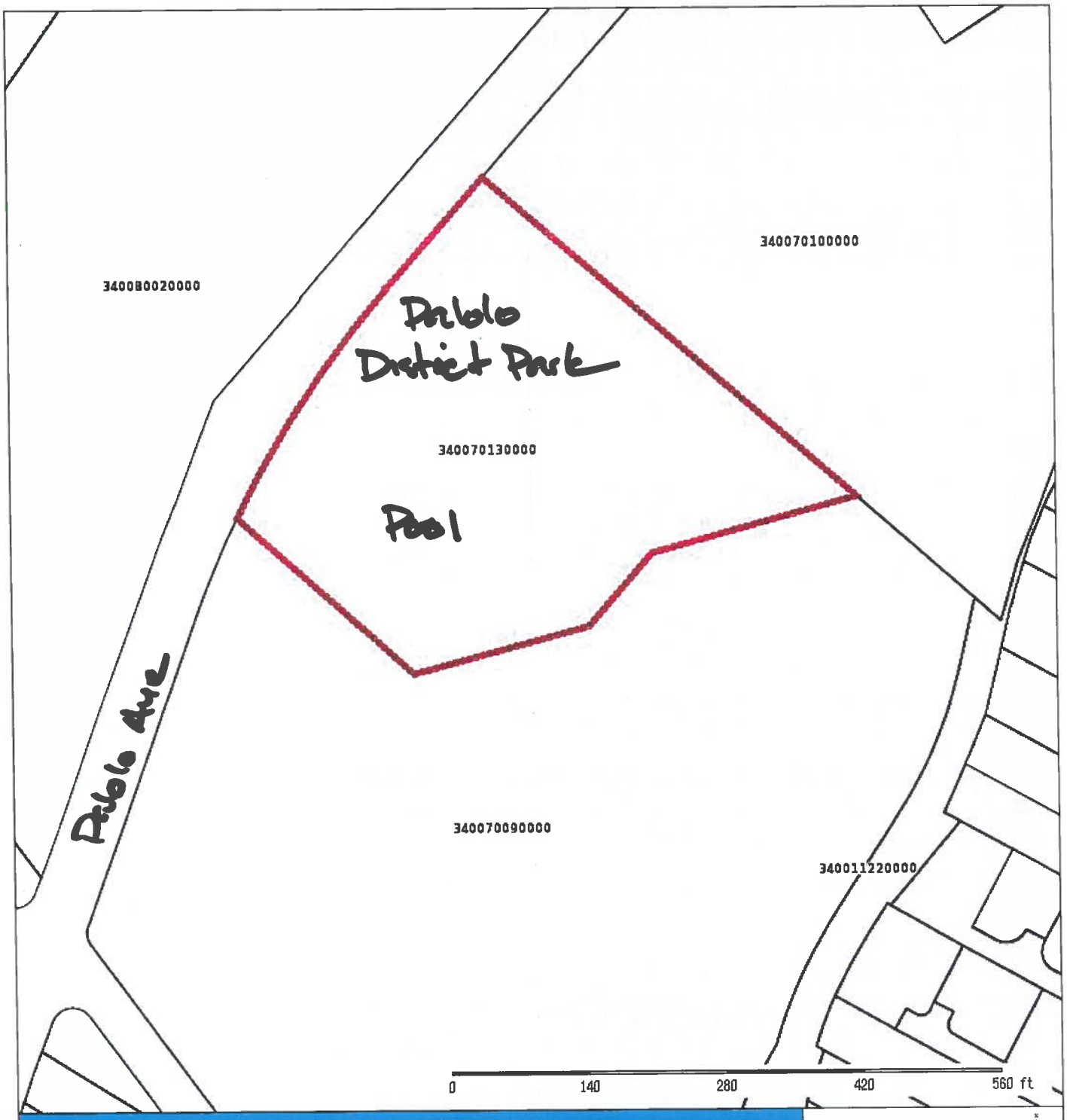
Date printed: 10/14/15 : 22:03:34



Honolulu County Assessor			
Parcel: 340070130000 Acres: 3.208			
Name:	STATE OF HAWAII	Land Value:	1142700
Site:	PALOLO AVE	Building Value:	0
Sale:		Exempt Value:	1142700
Mail:	Exhibit A-18	Taxable Value:	0

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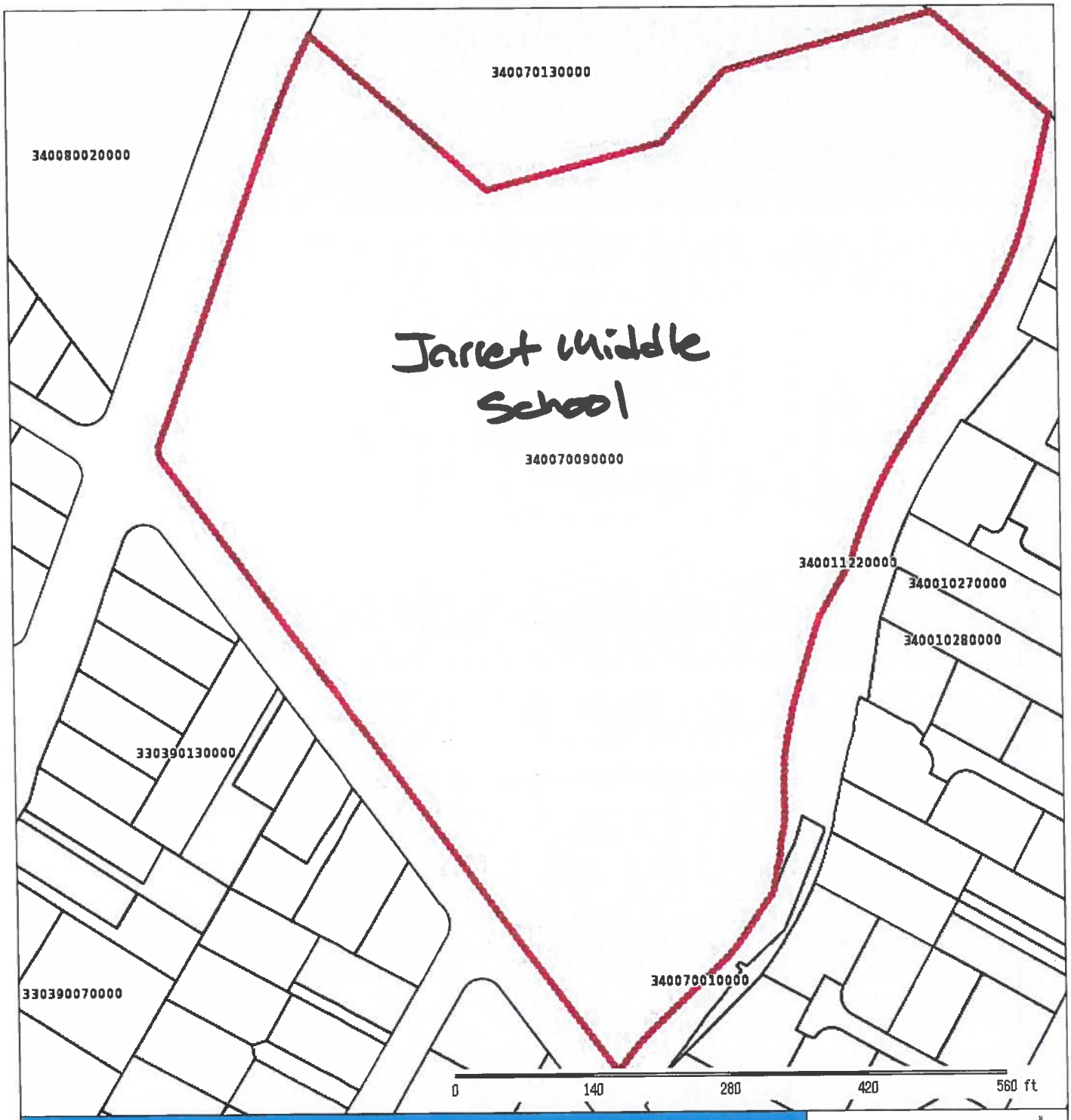
Date printed: 10/14/15 : 22:05:51



Honolulu County Assessor			
Parcel: 340070090000 Acres: 10.864			
Name:	DEPARTMENT OF EDUCATION	Land Value:	3903800
Site:	3360 KALUA RD	Building Value:	1837700
Sale:		Exempt Value:	5741500
Mail:	Exhibit A-19	Taxable Value:	0

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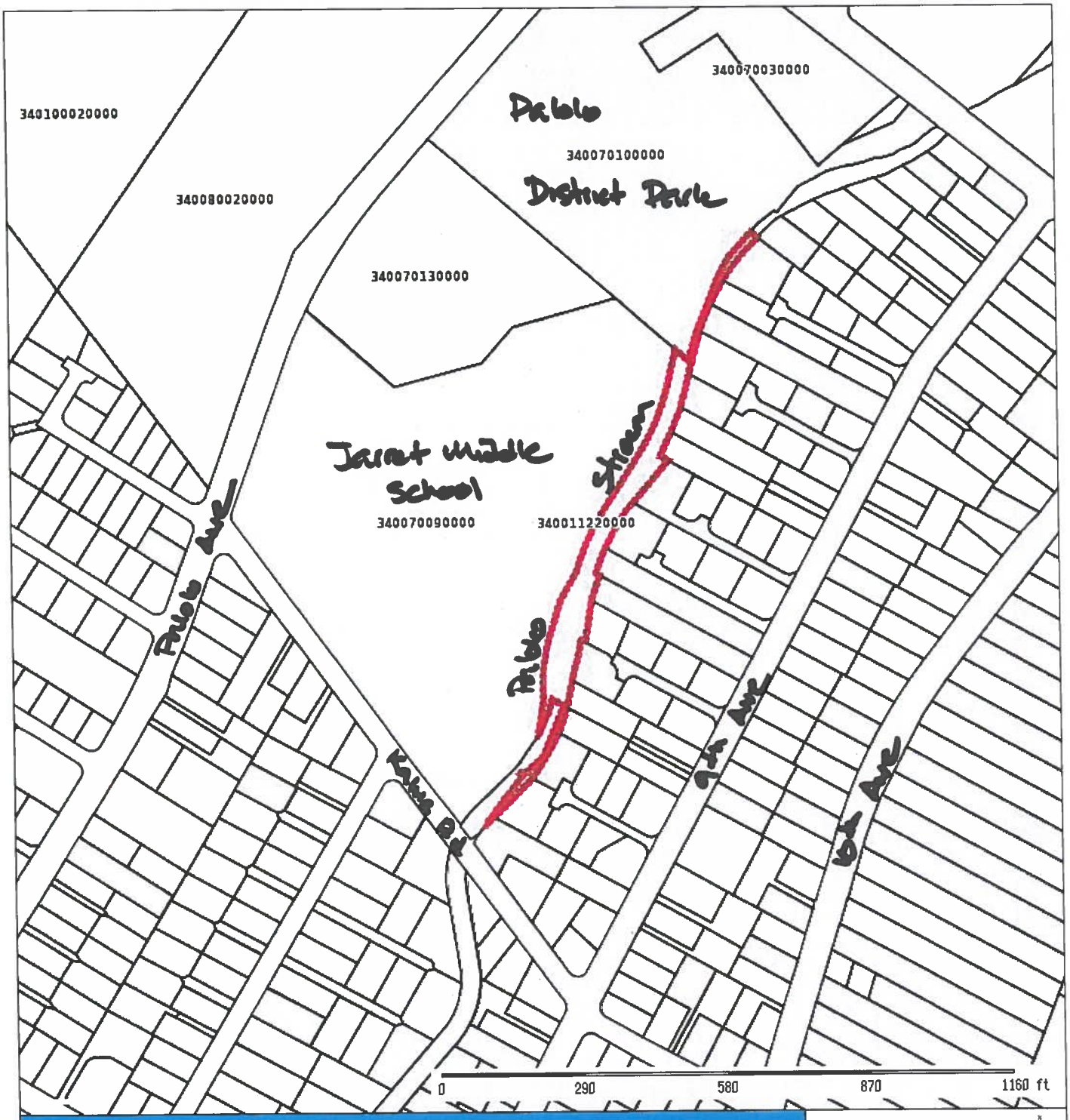
Date printed: 10/14/15 : 22:08:00



Honolulu County Assessor			
Parcel: 340011220000 Acres: 0.8435			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	100
Site:	9TH AVE	Building Value:	0
Sale:		Exempt Value:	100
Mail:	Exhibit A-20	Taxable Value:	0

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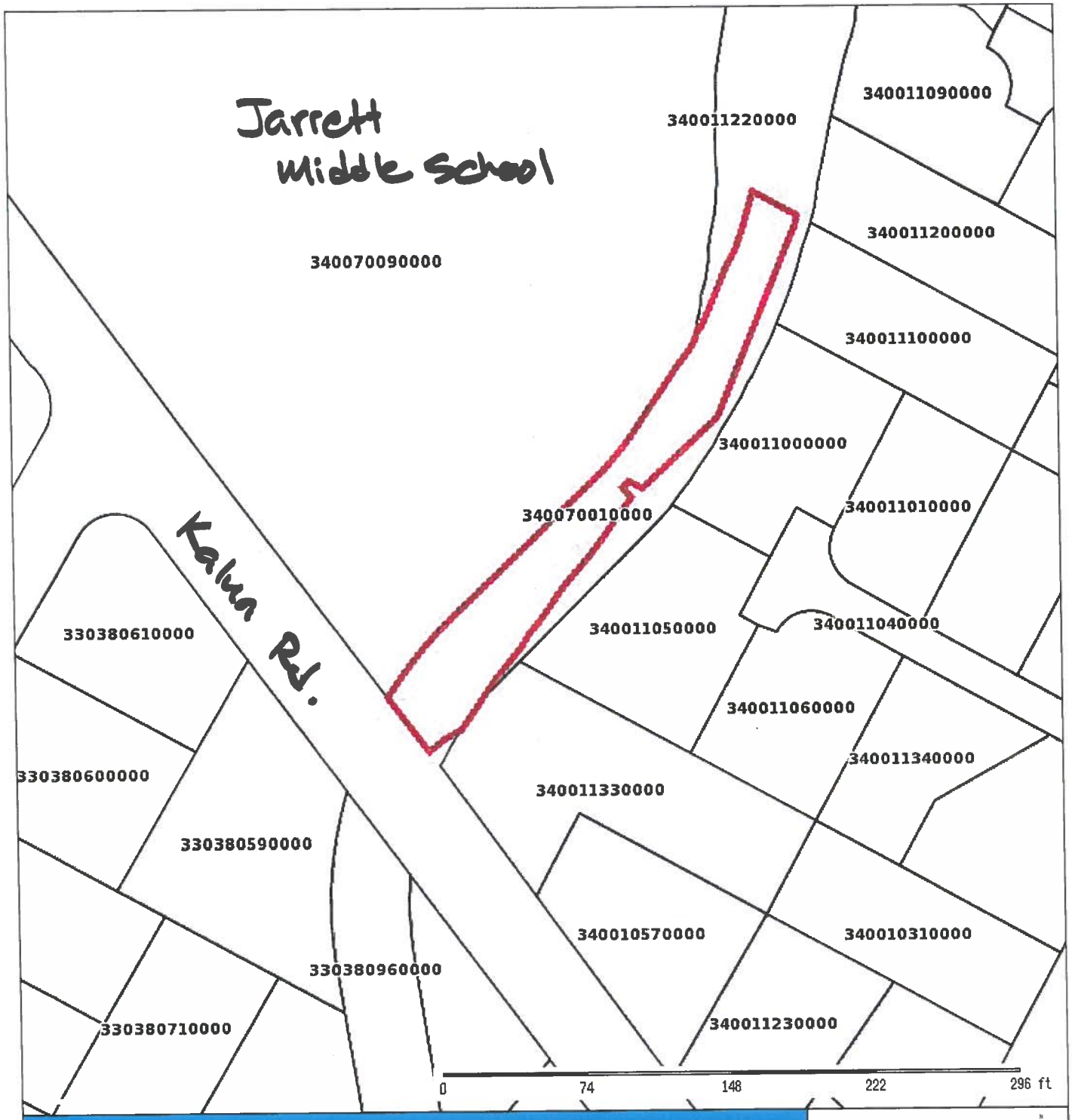
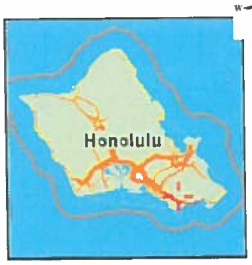
Date printed: 10/14/15 : 22:09:04



Honolulu County Assessor			
Parcel: 340070010000 Acres: 0.1108			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	100
Site:	KIWILA AT	Building Value:	0
Sale:		Exempt Value:	100
Mail:	Exhibit A-21	Taxable Value:	0



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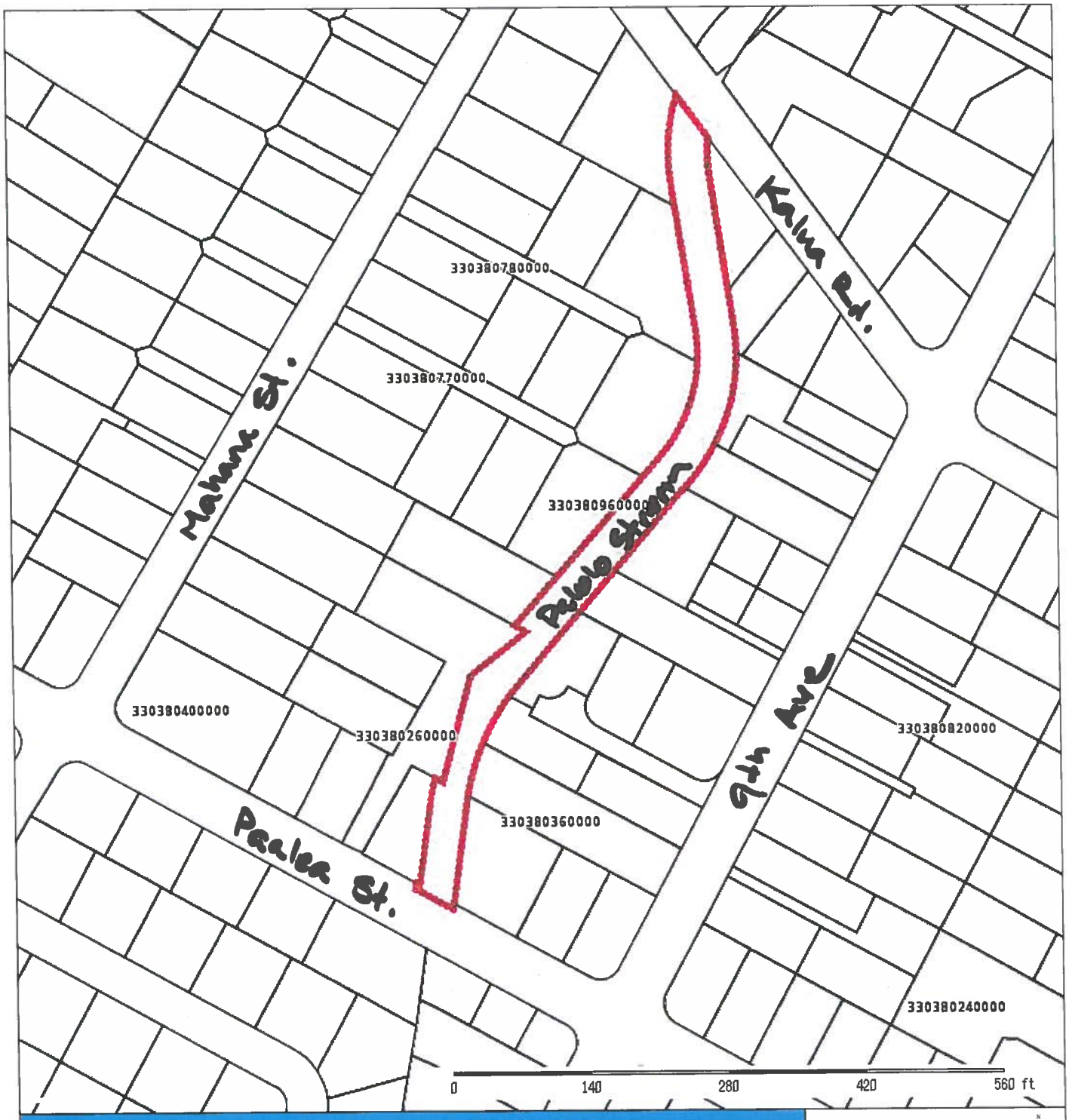
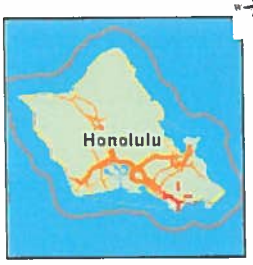
Date printed: 10/29/15 : 16:32:21



Honolulu County Assessor			
Parcel: 330380960000 Acres: 0.669			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	100
Site:	PAALEA ST	Building Value:	0
Sale:		Exempt Value:	100
Mail:	Exhibit A-22	Taxable Value:	0



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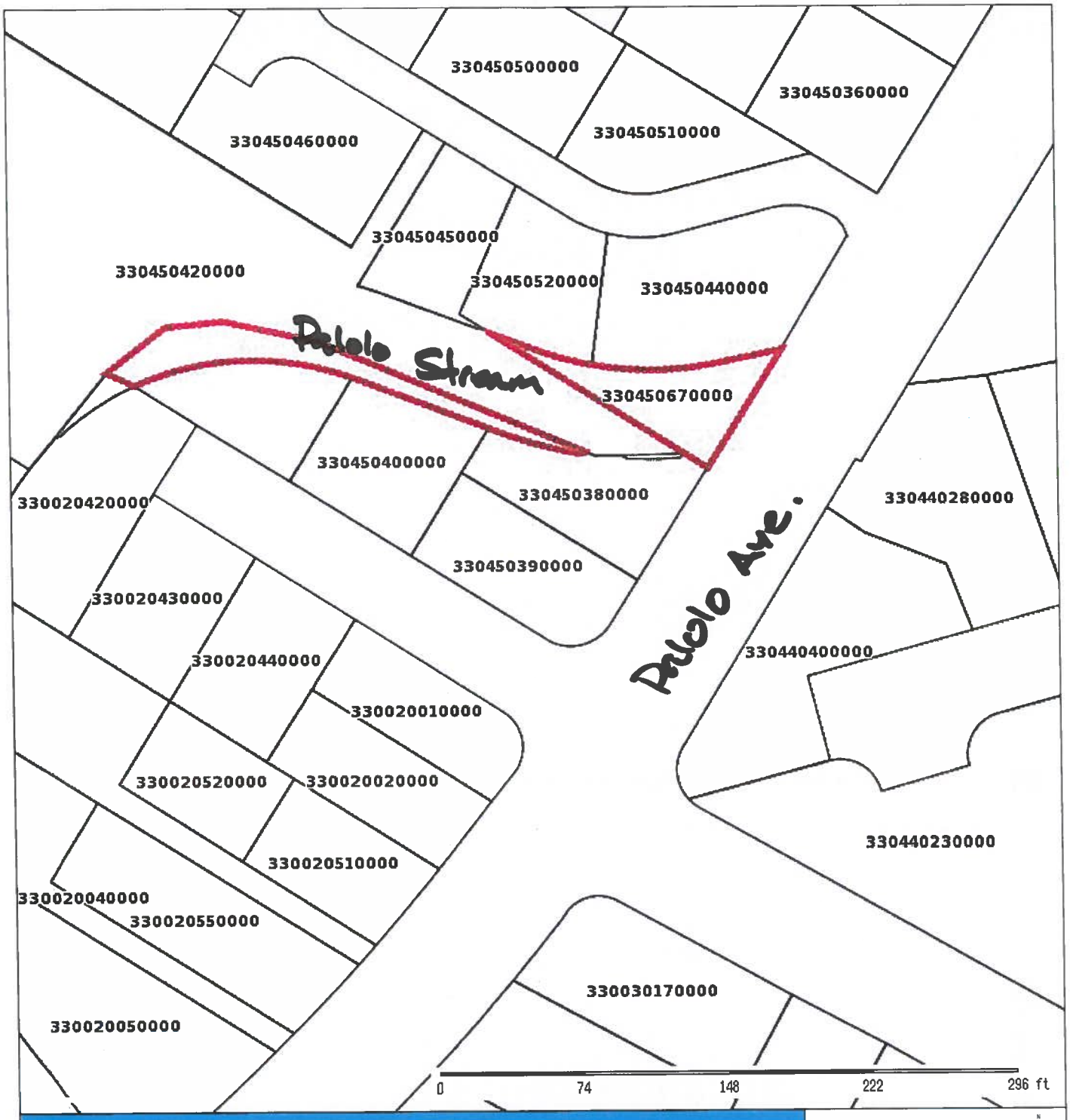
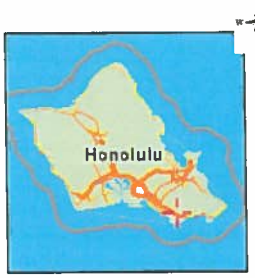
Date printed: 10/29/15 : 16:35:00



Honolulu County Assessor			
Parcel: 330450670000 Acres: 0.107			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	100
Site:	AHINAHINA PL	Building Value:	0
Sale:		Exempt Value:	100
Mail:	Exhibit A-23	Taxable Value:	0



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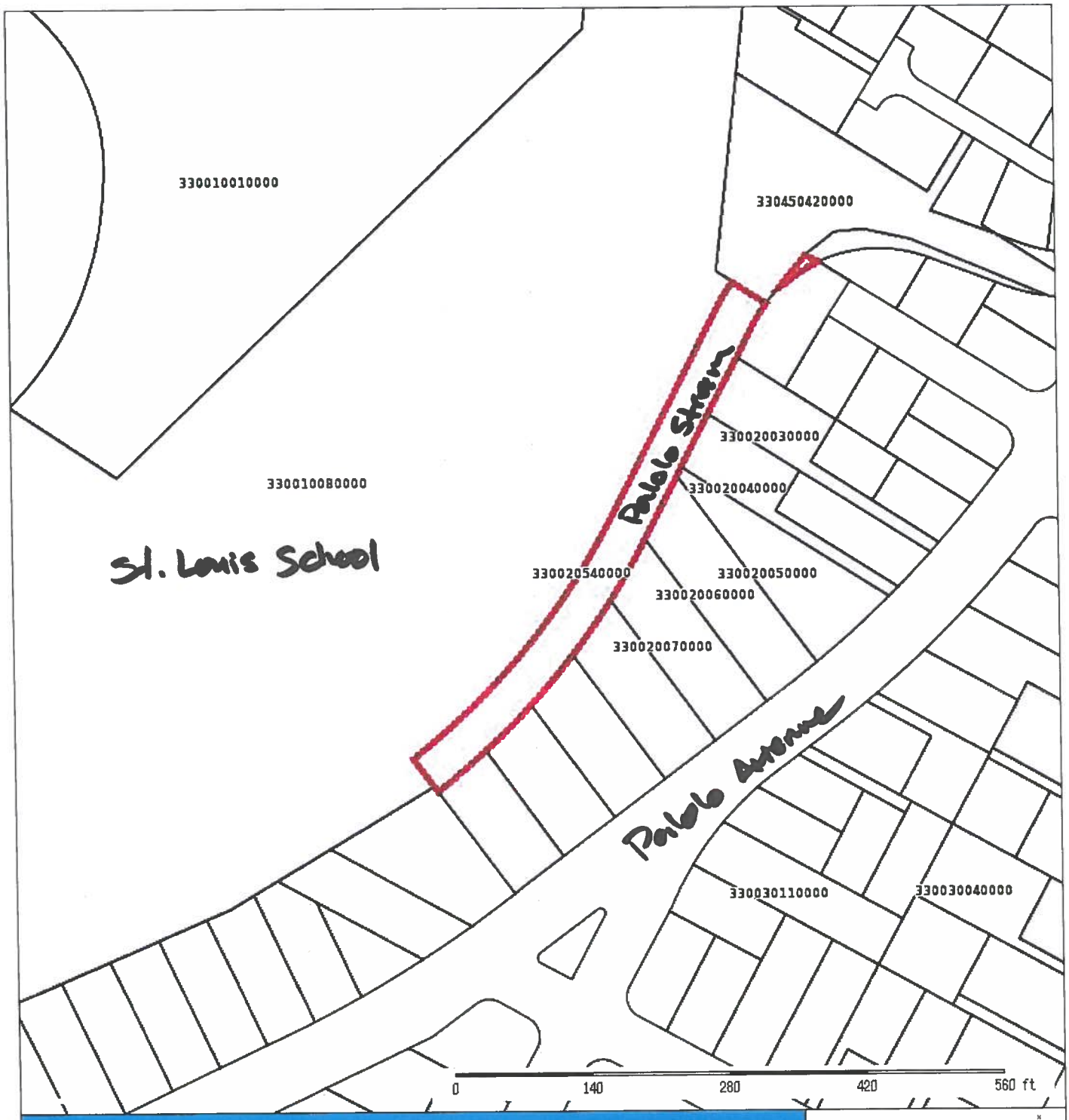
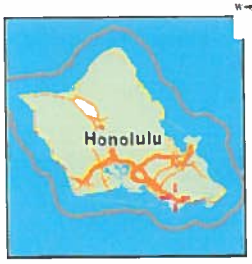
Date printed: 10/14/15 : 22:27:53



Honolulu County Assessor			
Parcel: 330020540000 Acres: 0.5437			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	100
Site:	WAIALAE AVE	Building Value:	0
Sale:		Exempt Value:	100
Mail:	Exhibit A-24	Taxable Value:	0



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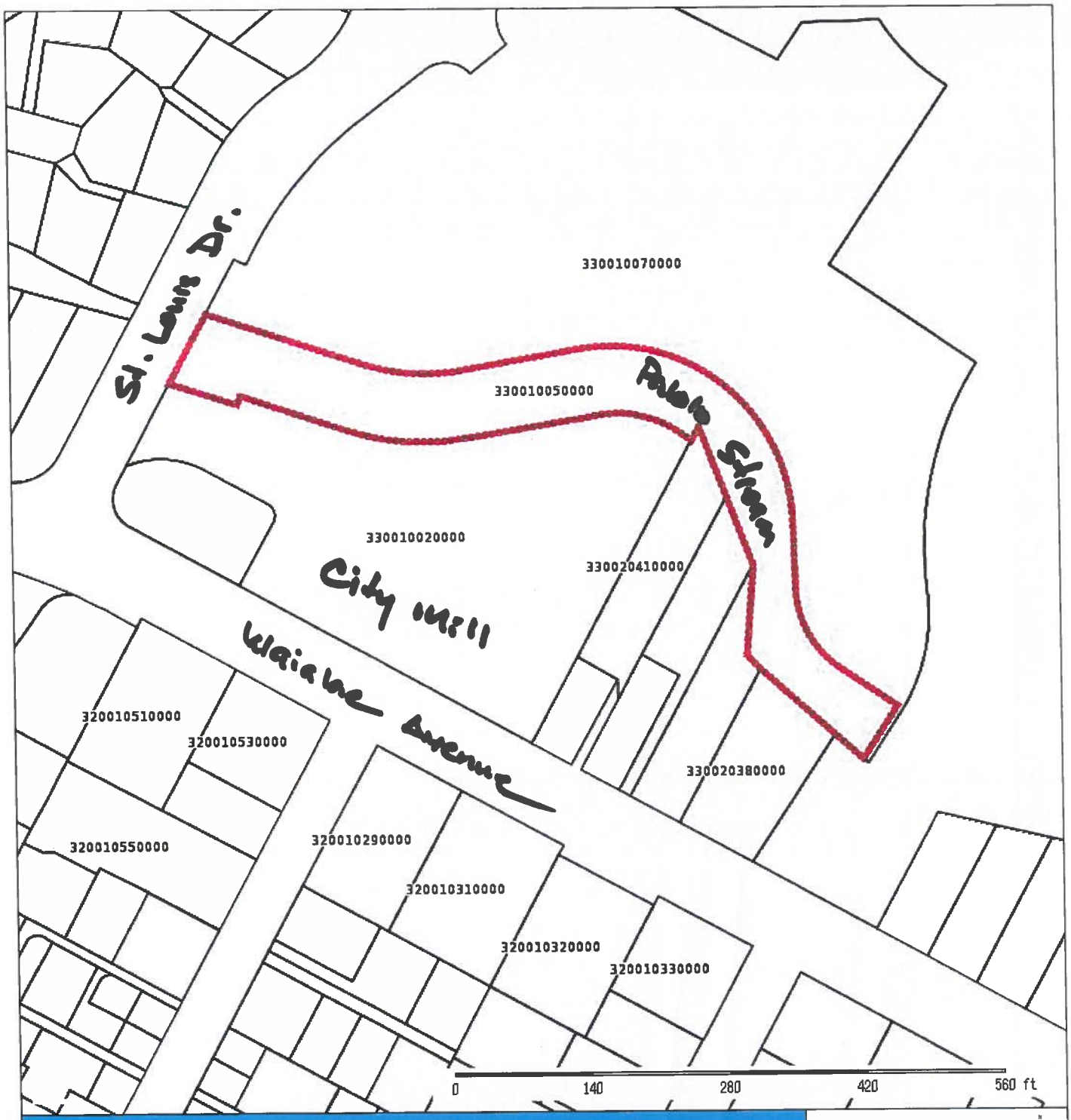
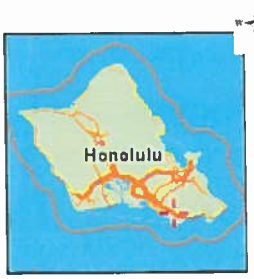
Date printed: 10/29/15 : 16:44:29



Honolulu County Assessor			
Parcel: 330010050000 Acres: 1.1791			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	100
Site:	WAIALAE AVE	Building Value:	0
Sale:		Exempt Value:	100
Mail:	Exhibit A-25	Taxable Value:	0



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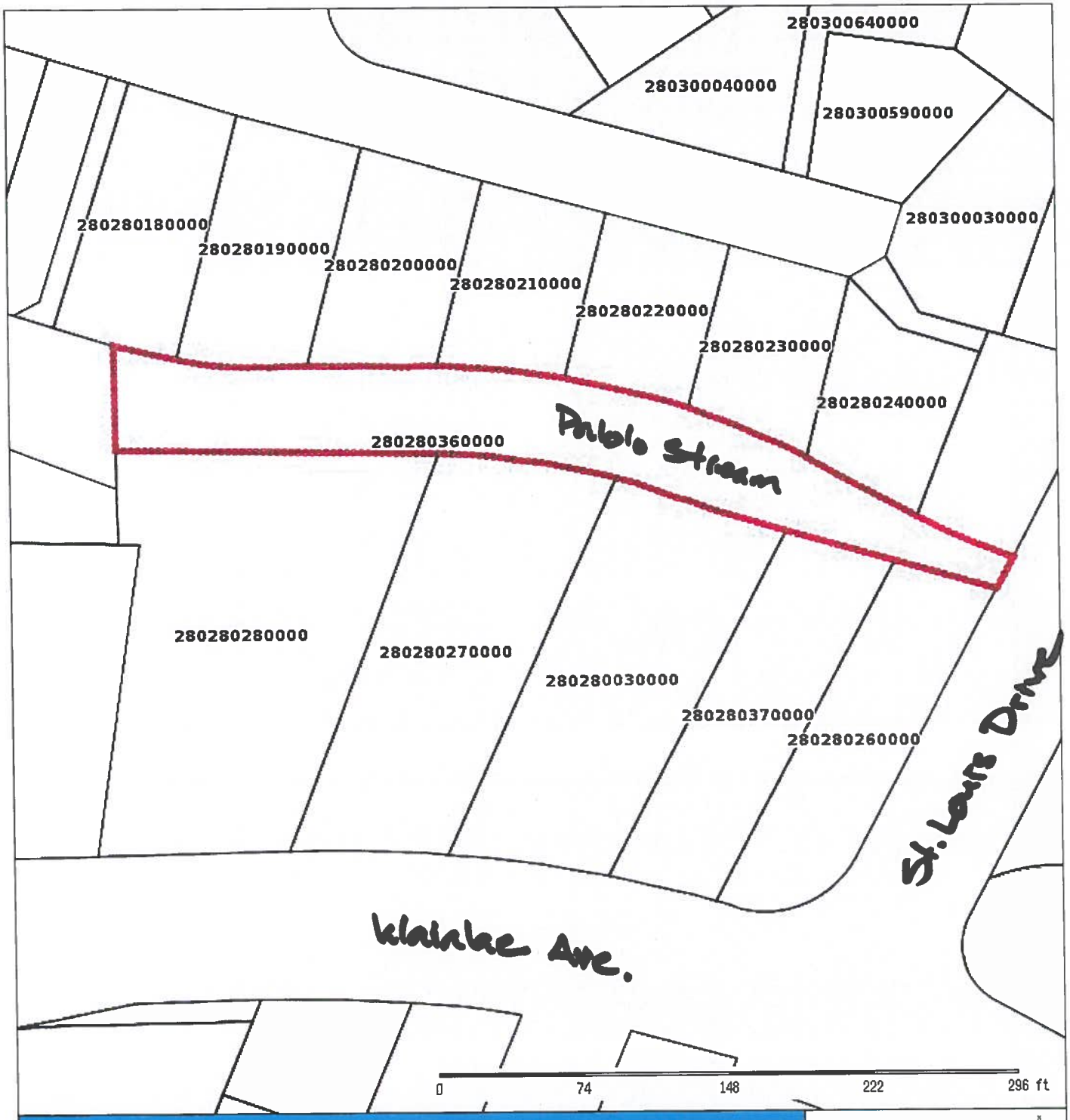
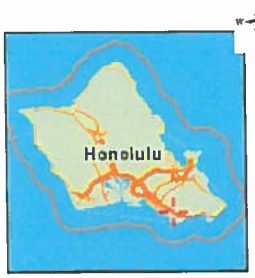
Date printed: 10/14/15 : 22:25:26



Honolulu County Assessor			
Parcel: 280280360000 Acres: 0.3697			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	100
Site:	ST LOUIS DR	Building Value:	0
Sale:		Exempt Value:	100
Mail:	Exhibit A-26	Taxable Value:	0



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Date printed: 10/14/15 : 22:34:51

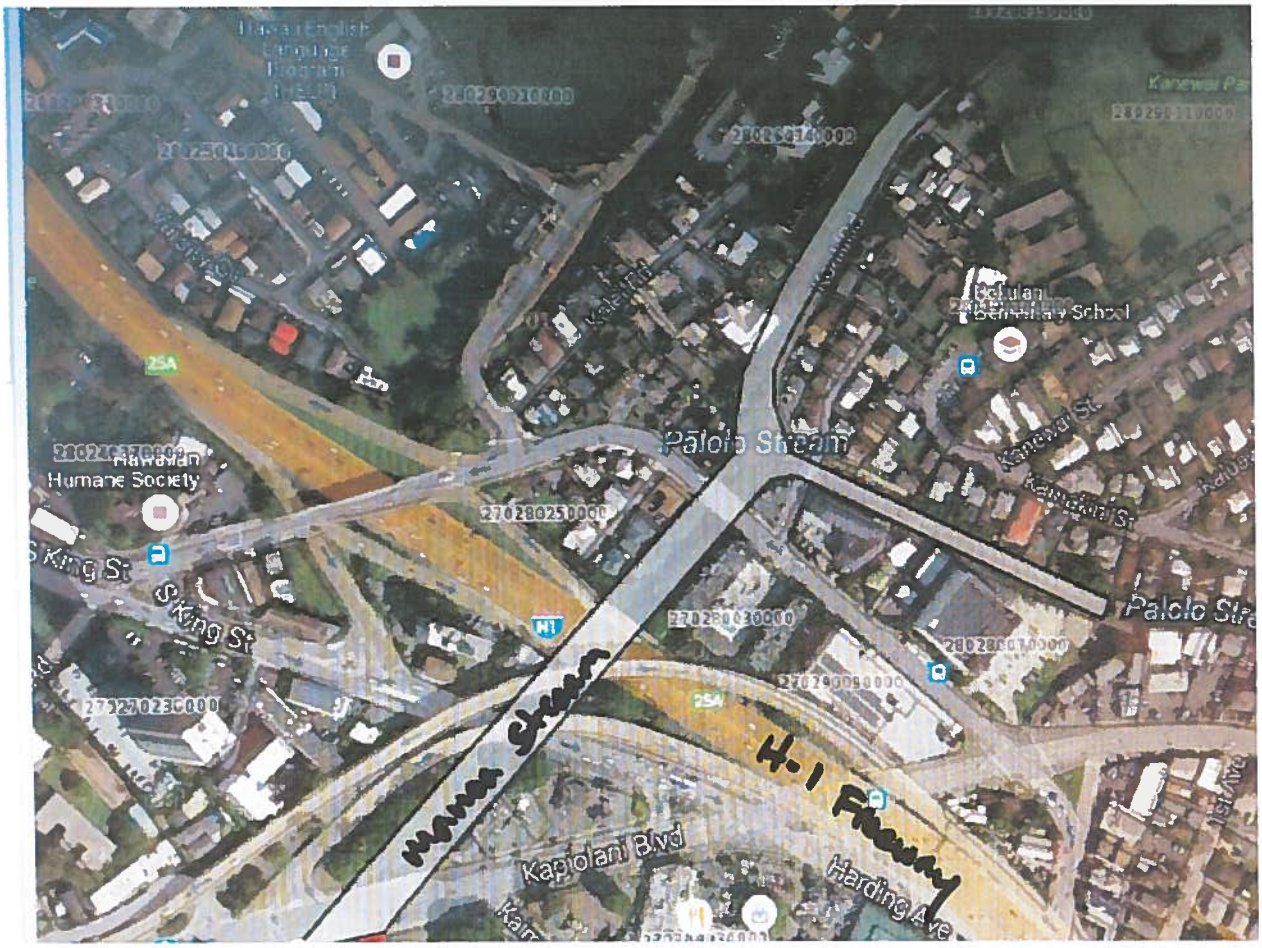
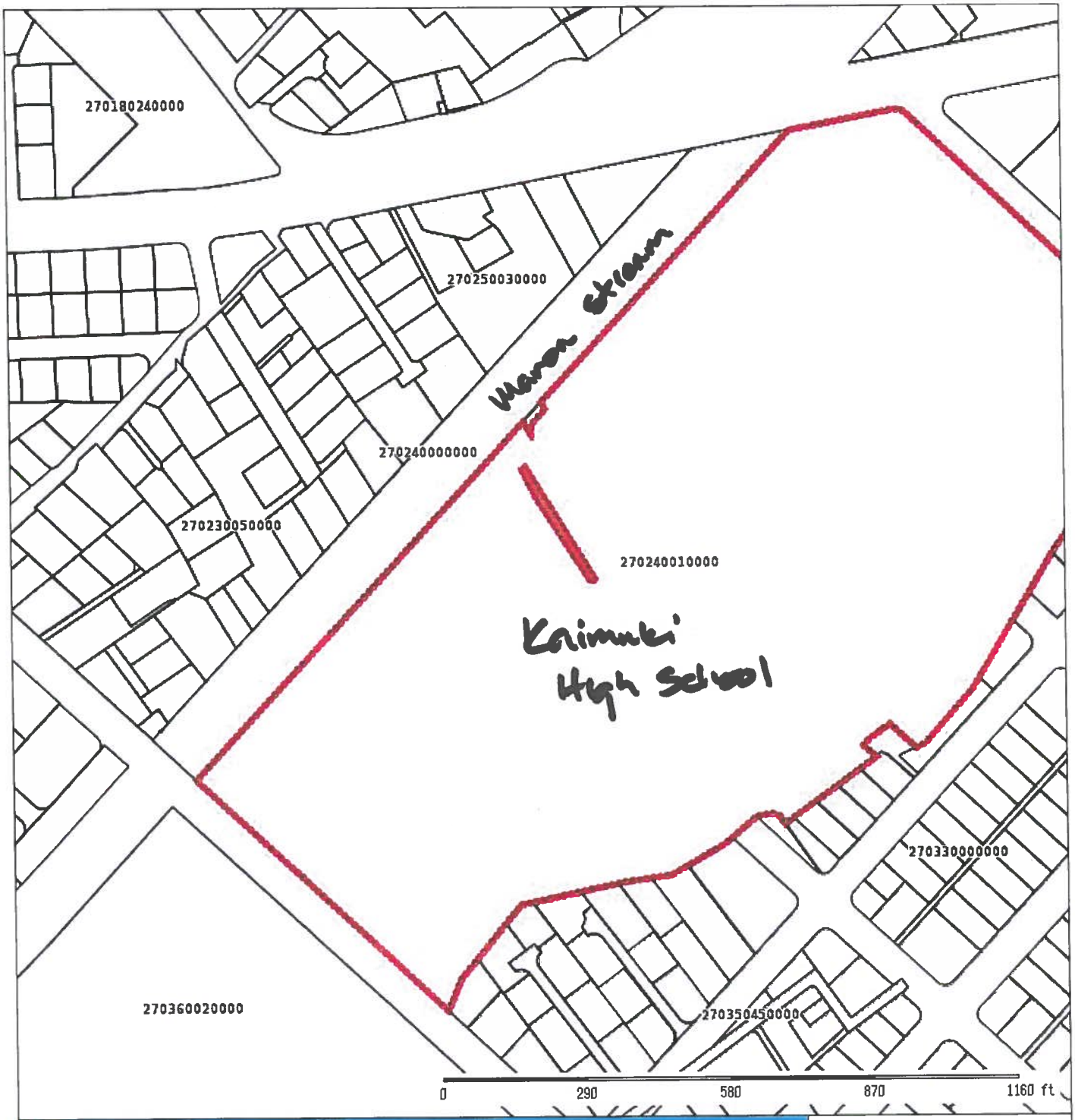

Hawaiian
Humane Society
S King St
Palolo Stream
Kapiolani Blvd
Harding Ave
H1
Kaimuki St

Exhibit A-27



Honolulu County Assessor			
Parcel: 270240010000 Acres: 34.413			
Name:	CITY AND COUNTY OF HONOLULU	Land Value:	78249400
Site:	2705 KAIMUKI AVE	Building Value:	6408000
Sale:		Exempt Value:	84657400
Mail:	Exhibit A-28	Taxable Value:	0

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Date printed: 10/29/15 : 17:12:58

Honolulu County Assessor

Parcel: 270240000000 Acres:

Name:		Land Value:	
Site:		Building Value:	
Sale:		Exempt Value:	
Mail:		Taxable Value:	

Exhibit A-29

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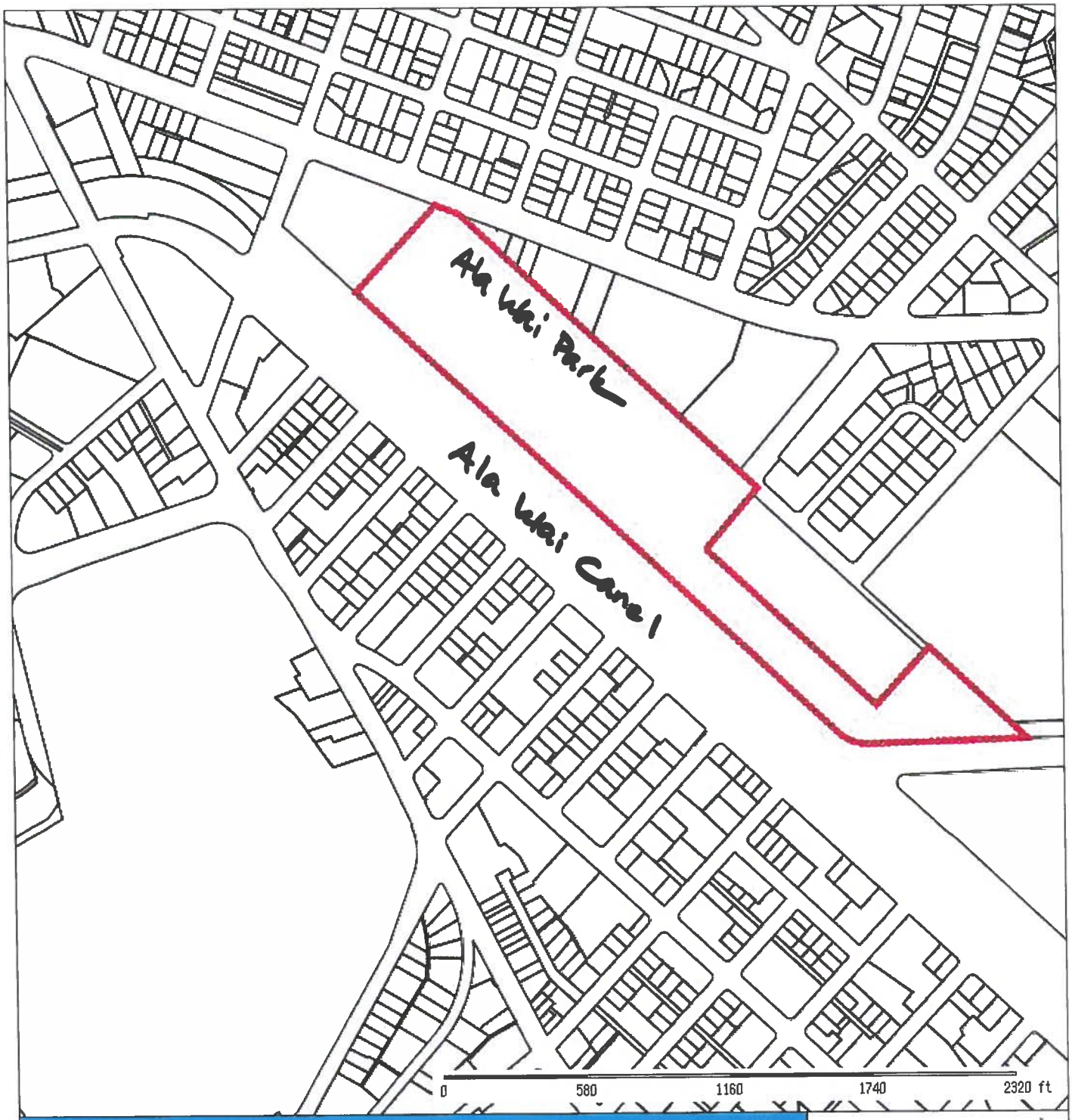
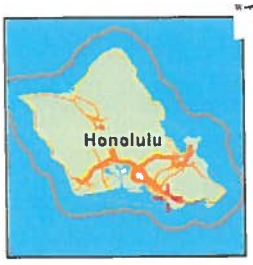
Date printed: 10/29/15 : 17:15:17



Honolulu County Assessor			
Parcel: 270360010000 Acres: 24.011			
Name:	STATE OF HAWAII	Land Value:	28239800
Site:	2021 KAPIOLANI BLVD	Building Value:	146000
Sale:		Exempt Value:	28385800
Mail:	Exhibit A-30	Taxable Value:	0



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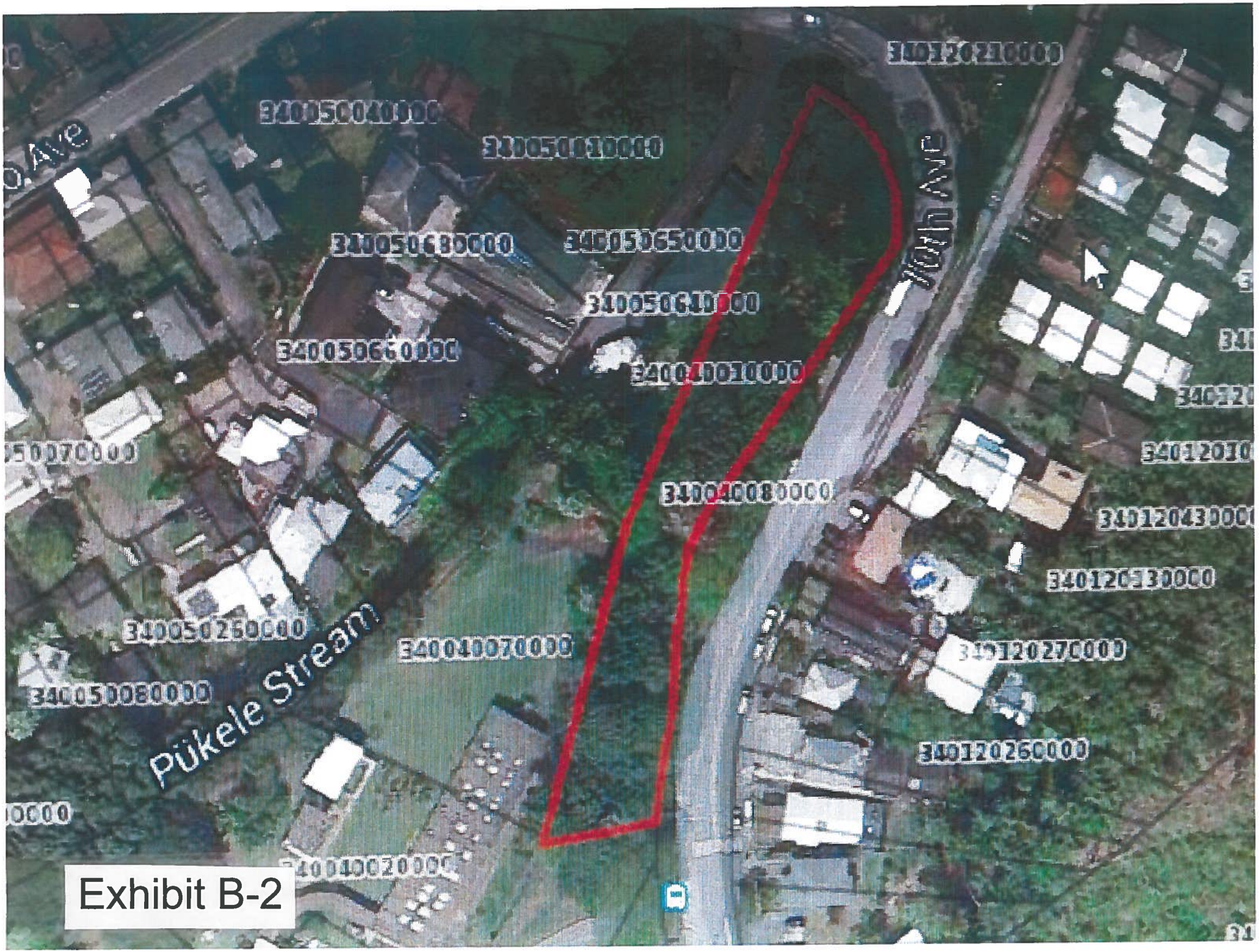
Date printed: 10/29/15 : 17:21:22


Palolo Pl
La-i Rd
Exhibit B-1


Pükele Stream
Exhibit B-2


Pukele Stream
Exhibit B-3


Pukele Stream
Kuhio Ave
Kula Kaiaulu
O Anuenue
Exhibit B-4

Exhibit B-5

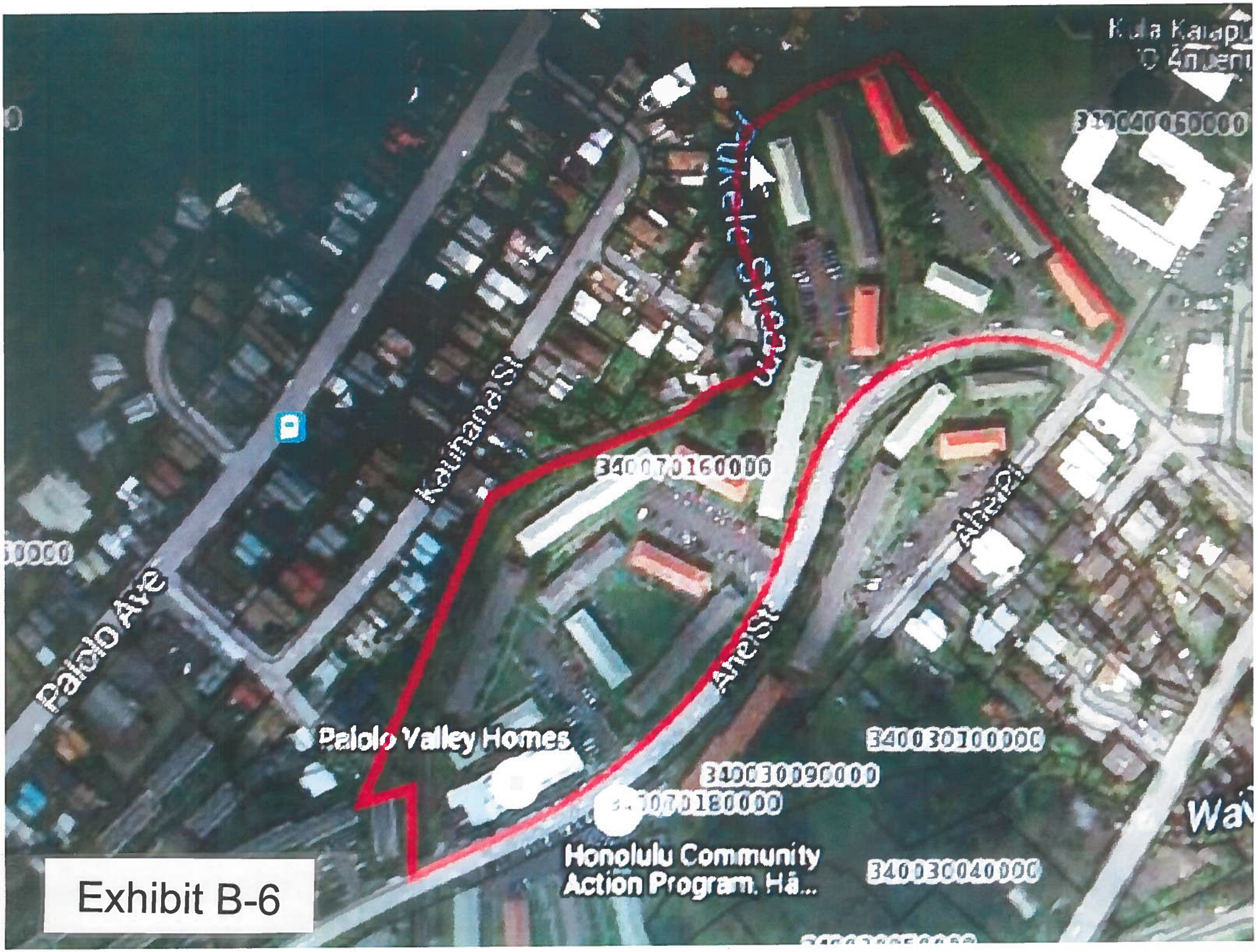
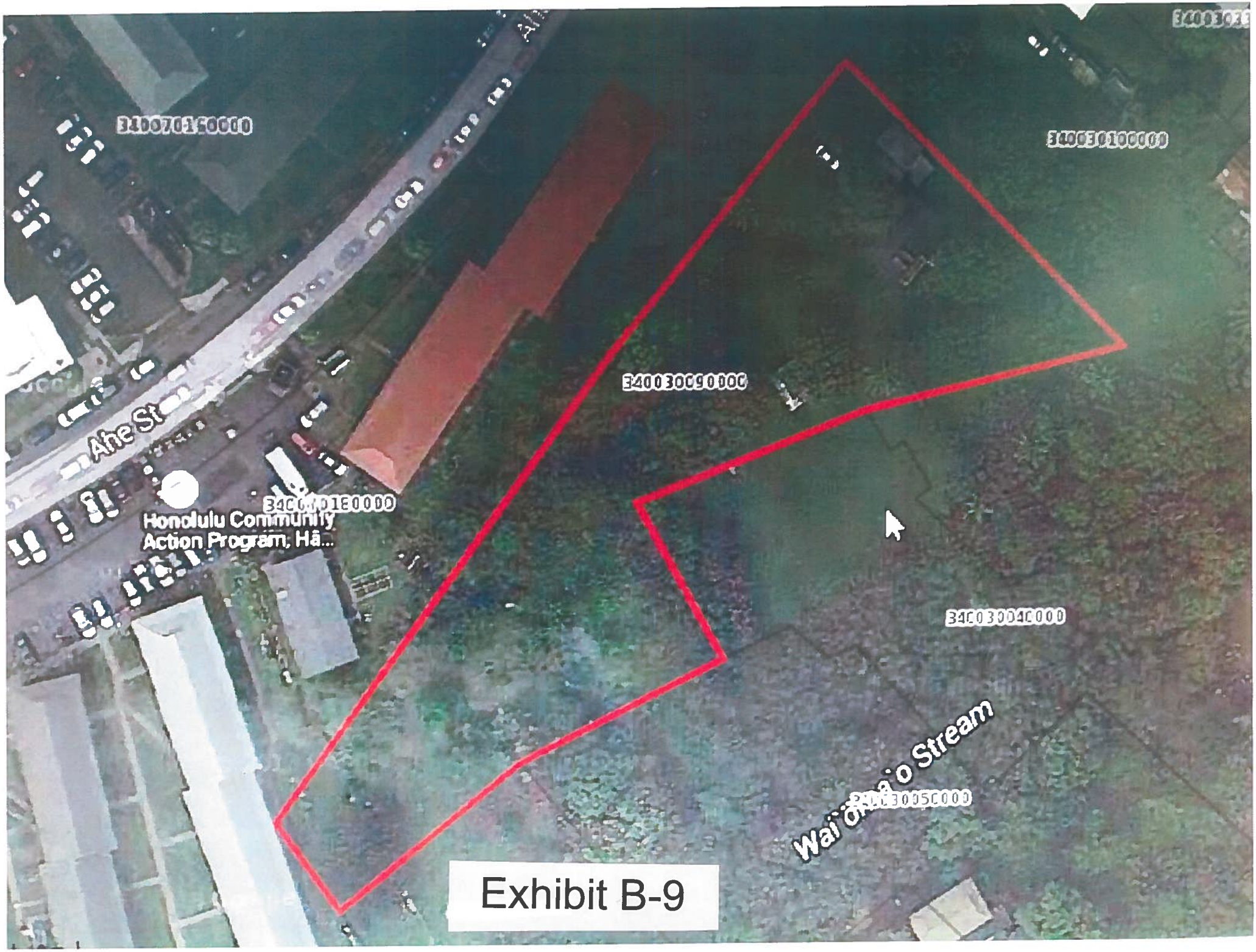

Paiolo Ave
Kaunaoa St
Ahe St
Paiolo Valley Homes
Honolulu Community Action Program, Hā...
340030100000
340030090000
340030040000

Exhibit B-6


Palolo Valley Homes
Honolulu Community Action Program, Ha...
Ahe St
Wai`oma`o Stream
Exhibit B-7

Exhibit B-8


Ahe St
Honolulu Community Action Program, Hā...
Waiʻōma'o Stream
Exhibit B-9


340030090000
340030050000
340030300000
340070180000
Wai'öma'o Stream
Wai'öma'o Stream
340030060000

Exhibit B-10


Wai'oma'o Stream
Pelolo Elementary School
10th Ave
Exhibit B-11


Palolo Elementary School
Kiwila St
10th Ave
Exhibit B-12


Palolo Valley
Exhibit B-13

Palolo Stream
Kiwila St
340070100000
340070140000
340020440000
340020420000
340020380000
340020370000
340020290000
340020300000
340020390000
340020280000
340020310000
340020250000
340020330000
340020230000

Exhibit B-14


Palolo Ave
Palolo Valley
District Park
Palolo Valley
Swimming Pool
Palolo Valley
Kiwila St
Palolo Stream
Exhibit B-15

Exhibit B-16


340070150000
340080020000
340070170000
Palolo Ave
Palolo Valley
340070030000
Palolo Valley
District Park
Palolo Valley
Swimming Pool
340070100000
Palolo Strea
340020350000
340010810000

Exhibit B-17


Palolo Valley
Swimming Pool
New Jersey Ave
Palolo Ave
Stream
Exhibit B-18


Kalua Pl
Paloloave
Kikilia Pl
Lake Pl
Jarrett Middle School
Palolo Stream
Fix All Electronic
Sales & Services
Kalua Rd
9th Ave

Exhibit B-19


Palolo Valley
Swimming Pool
District Park
Kalua Pl
Palolo Ave
Palolo Stream
Kikilia Pl
Loke Pl
Fix All Electronic
Sales & Services
Exhibit B-20

Exhibit B-21
Palolo Stream
Kalua Rd
Sales & Services


Malhama St
9th Ave
Palolo Kwannon Temple
Palolo Stream
Maoi Pl
Paalea St
Exhibit B-22


Palolo Stream
Palolo Stream
Palolo Ave
Kekona Pl
330450450000
330450520000
330450440000
330450400000
330020120000
330020430000
330020440000
330020030000
Exhibit B-23


Mystical Rose Oratory
Palolo Stream
Palolo Ave
Exhibit B-24

Exhibit B-25
Waiakoa Ave
Palolo Stream
W&M Bar-B-Q Burger
Fuji City Mill Co., Ltd.


Palolo Stream
Palolo Stream
Swedish Motors
Sakura
Seab Hawaii
Sabrina's
Kaimuki Sushiman
Exhibit B-26


Hawaii English Language Program (HELP)
280290010000
Kanewai P
280290110000
280260140000
Palolo Stream
Hawaiian Humane Society
270280250000
S King St
S King St
Kanewai St
Palolo St
270280030000
280280070000
270290090000
270270230000
Kapiolani Blvd
Harding Ave
1st Ave
25A
H1

Exhibit B-27


Kaimuki High School
Kaimuki High School Trail
Date St
Laau St
Olokele Ave
Winam Ave
Leialoha Ave
Kaimuki Ave
Crane Ballfi
270250030000
270240000000
270230050000
270240010000
270330000000
270350450100
270360020000

Exhibit B-28


Kapiolani Blvd
Kaiulu St
Makiki St
Date St
Kaimuki High School Trail
Kaimuki High
270250030000
270240000000
270230050000
270240010000

Exhibit B-29


Ala Wai Community Park
McCully St
Kapiolani B
Ala Wai Canal
Ala Wai Park
Niu St
Ala Wai Blvd

Exhibit B-30

Dave and Nola Watase
1537 Ala Aoloa Loop
Honolulu, HI 96819
Email: dwatase@hotmail.com
Cel. 808-728-0759

October 22, 2015

Suzanne D. Case, Chairperson
State of Hawaii, DLNR
P.O. Box 621
Honolulu, HI 96809

Re: Ala Wai Canal Project
Objection to the use of Earth Detention Basins in Palolo Valley

Dear Ms. Case,

Hawaii is a beautiful place. My parents were born in Kohala on the Big Island and in Waimea on Kauai. I grew up on St. Louis Heights and Manoa and Palolo were my stomping grounds. I went to Hokulani School, played Little League Baseball at Kanewai Park, and almost every Saturday from around 1st grade to 4th grade would ride my Schwinn Stingray bike (banana seat and all) down to Kanewai River (Manoa Stream) to catch crayfish, dojos, and guppies with a scoop net. This was before the UH Manoa dorms were built and way before the Hawaiian Studies Center. The taro patch was neglected and didn't resemble anything like what it looks like today. The UH Manoa quarry was a coral gravel parking lot with old telephone poles demarcating the rows of parking with the only visible structures being Klum Gym, track, asphalt basketball court, and a bunch of portables. The tall old wooden stairway leading from campus to the quarry never ceased to amaze me as I would race up and down it with my friends.

Chico's Pizza and P&P Super Market (now the location of City Mill) and the Phillips 66 gas station at the corner of St. Louis Drive and Waialae Avenue are things of the past. Don't remember the specifics but gas was like 30 cents a gallon and they would wipe your windows and check under your hood every time you did a fill up and the attendants knew your name. I used to buy my rabbits foot (don't ask me why but I used to have a collection of those things of all different colors) and peas to shoot in my cheap plastic pellet pistol (because the clay pellets where too expensive) that I would buy at Nakamura's Feed Store and we'd shoot each other playing army or Cowboy and Indians (eye protection and liability lawsuits). My foggy recollection only goes back a short 50 years and is really nothing compared to my parent's generation, their stories growing up on the sugar plantations, living through World War II, and Hawaii as a territory. Their struggles and determination to have a better life has always made me appreciate everything I've been blessed with and usually take for granted.

I grew up when things were carefree and much less structured compared to how I've raised my own children. I got to explore my neighborhood and surrounding mountains and streams in a very natural environment. I can remember seeing most of Waikiki Beach and the ocean from my parent's home before the big hotel boom. I believe any flood mitigation measures should blend into the natural surroundings as much as possible with least impact.I've attached a description, schematics, and renderings of the Waiomao Detention shown on some of the documents for the Draft FS/EIS Ala Wai Canal Project (Exhibit A-1, A-2, A-3, A-4)

I am against the use of Earth Detention Basins for the following reasons:

1. The footprint of the earth berm of Detention Basin is too large and other construction techniques using reinforced concrete take up less space.

2. Although the height of the earth berm approximately 24', the rock face of the earth filled berm may be 2-4 times the length on each side and when looking up the face from the bottom it will look a lot larger and intimidating even from the top view as shown in the drawing shows the massive amount of space of the footprint.

3. Even though rocks from the surrounding area will be used to face the earth filled berm of the detention basin. It will look ugly and out of place. It is located in the middle of a neighborhood residential area and clearly visible. As we all know, maintenance will most likely be lacking and the site will become full of weeds and overgrowth and silt and ponding will develop on the backside of the detention basin.

4. The design calls for the excavation of 2,000 cubic yards of material behind the detention basin. This is a huge unnatural and ugly scar that will be replacing several hundred feet of beautiful natural stream bed. The monstrous construction zoned area spans the length of almost two football fields and will have a totally unnatural pit carved out of the mountain side to hold a massive 1,500,000 cubic feet of water. These things are not welcomed sights for anyone to have in their backyard or when looking down the valley from their living room window. The slogan "out of sight and out of mind" holds true because what we don't see we really don't have time to think about. Many of utilities infrastructure are located in conservation and remote locations from water tunnels and pumps, to reservoirs, to electrical transfer stations and their corresponding access roads of which probably 99.9999 percent of the public has no clue of their whereabouts or daily importance to our way of life.

5. We favor placing the detention basin on Government owned land. In the case of Waiomao Detention Basin, the State owns over 450 acres of land which generates most of the storm flows. There is a very popular hiking trail and the area has limited access and limited parking. An idea might be to incorporate a parking area that also acts a detention basin, similar to how Kanewai Park's baseball fields are proposed for use as a detention basin. The steam itself should remain untouched in its natural state. This would provide better access and enjoyment of State lands for the public benefit and provide flood protection. It will improve access both for enjoyment as well as maintenance. Trash receptacles that can be accessed by maintenance personnel will better keep the area litter free. Additional measure to reduce the footprint would be to use reinforced concrete in place of the earth berms. The reinforced concrete walls can be designed to hold back the forces of the floodwaters and can be faced to naturally blend in to the environment. Kanewai park has a large retaining wall and it is faced to look like moss rock. The USACE at Fort Shafter uses concrete barriers or dividers that are made of concrete but have a stone facing design.

6. We favor a series of smaller detention basins without the use of excavating large unnatural pits to increase the water retainage volume. We feel if designed correctly a series of smaller detention basins could be designed to withhold the same volumes of water. As the bigger the storm the more basins will fill up. Each smaller basins can be designed to spillover as it reaches capacity. The smaller basins can be designed in to a meandering trail that also serves as the access for maintenance vehicles. A series of smaller detention basins meandering back and forth over a stream will provide access to hikers to both sides of the stream. These smaller detention basins can be designed to look like coble stone bridges (except with stone or stone facing matching the location). If hand railings are placed on the smaller basins they can act as debris screens. The controlled outlet area for each smaller detention basin won't necessarily need large debris screens (metal poles embedded in concrete) to filter large tree branches and stumps because each smaller detention basin is designed for spillover (have an engineered spillway that won't erode if used). The stream bed will remain natural and regular maintenance should be done to remove any debris blocking the restricted flow vents of the smaller detention basins. Smaller detention basins made of reinforced concrete, simulating a cobble stone bridge is more applicable to Hawaii as land is more of a commodity whereas on the mainland land is plenty and larger footprint detention basins are more applicable.

7. It should be noted that according to the Ala Wai Canal Project FS/EIS there is a rain gauge further up near the property owned by the City and County of Honolulu's Board of Water Supply as well as a tunnel for pumping drinking water. There may already be an access road to some of the areas that potentially could be used to relocate the Waiomao Detention Basin at 2532 & 2550 Waiomao Road. Access roads to Government owned lands can be constructed in coordination with other utility companies that may have a need to access other side further up the valley. What is the BWS has a need to dig another water tunnel to meet the ever growing water demands of Honolulu?

We've attached some picture of Waiomao Stream on our property and of our neighbor's property which would be destroyed if the Waiomao Detention Basin is constructed (Exhibit "B-1", "B-2", "B-3", "B-4". As mentioned in our previous letter, we believe our property TMK: 34016059, located at 2532 Waiomao Road in Palolo Valley provides our family one of a kind beauty and surroundings that is irreplaceable.

We are against using our property for the Waiomao Detention Basin. We are also against any detention basin or flood mitigation measures being with view or close proximity to our property.

We've attached additional pictures of the following:

(a) Exhibit "C" – Rock faced Detention Basin on Associated Road in Fullerton California near where our daughter is going to Optometry School. This detention basin is much longer in width but not much higher than the proposed Waiomao Detention Basin which is 120' wide but this detention basin in Fullerton, CA demonstrates the large footprint and ugliness of this man made structure which really does not fit into the natural environment.

(b) Exhibit "D" – This is one of Heco's electrical transfer stations deep inside Halawa Valley far out of sight from the public demonstrating the slogan "out of sight and out of mind"

(c) Exhibit "E" – This is a detention basin in Moanalua Valley which is next to residential properties and in plain view of dozens of homes above on the hillside. It is unsightly and not something you would want in your backyard instead of a natural stream. Please take note of the silt build up and areas of no vegetation.

(d) Exhibit "F" – This is a detention basin in Niu Valley along Anolani St. which is located and adjacent to a residential home. It is unsightly and has restricted the natural flow of the stream causing ponding. The large detention area is an eye sore and does not blend in with the natural hillside.

(e) Exhibit "G" – This is a detention basin in Niu Valley adjacent to a residential home. What would you rather have behind your home? A naturally flowing stream or a big excavated area the size of a parking lot not well maintained and filled with weeds.

(f) Exhibit "H" – This is a concrete lined detention basin in Hahaione Valley and is adjacent to several homes and looks a gigantic empty swimming pool. This is an example what we do not want in Palolo Valley or something in our backyard or something visible from our homes.

(g) Exhibit "I" – This is an image of a cobble stone bridge found on a Google search. A similar design could be incorporated for a series of small detention basins that leave the stream bed untouched and natural. The opening size would be designed to restrict the flow. This is just a concept of what ultimately could be used further up Palolo Valley on Government land.

(h) Exhibit "J" – This is another image of a cobble stone bridge found on a Google search. Again, just to reinforce the point of how a maintenance road, hiking trail and pathway can be incorporated into a detention basin and naturally fit into the environment. If done correctly it can be an enhancement to the area by providing greater access to the public.

We think you will agree after looking Exhibits of what is being proposed with the Waiomao Detention Basin and then look at the Exhibits of the pictures showing the natural beauty of the Waiomao Stream on our property that you will all agree that a better solution can be found further up into the valley on Government owned land.

We humbly request that you remove our privately owned property TMK: 34016059, located at 2532 Waiomao Road in Palolo Valley as a potential site for the Waiomao Detention Basin.

Very truly yours,

Dave and Nola Watase

Attachements: Exhibit "A-F"

Cc: Gayson Ching, DLNR
Derek Chow, USACE
Ann H. Kobayashi, Honolulu City Council
Calvin Say, State of Hawaii, Representative
Les Ihara, State of Hawaii, Senate

Palolo Valley
Measure No. 8: Waiomao Debris and Detention Basin

a. Description of the measure

Earthen berm, approximately 24' high and 120' across, with an arch culvert to allow small storm flows to pass. Construct a concrete spillway above culvert, with riprap on upstream and downstream side. A 20-foot-wide area around the perimeter of the berm will be cleared and maintained. Excavate approximately 2,000 cubic yards of soil to provide required detention volume. Existing Waiomao USGS gauging station will be demolished during construction of this measure.

b. Why this is the best location for the proposed measure

Macrositing - Needs to be in upper watershed to capture peak flows, but as close to urban area as possible. Could not go higher in watershed because of topographic access, and cultural sensitivity in higher areas.

Micrositing – Location provides access to public roads, and will allow feature with least amount of earthwork.

c. What the area looks like now: See Figure 31 (access to preferred location was not granted by landowner)

d. What will it look like with the measure in place: See Figure 32

e. What is the area used for now

Proposed location is a forested upper watershed, adjacent to residential area; no formal recreational access; no agricultural or commercial practices within footprint.

f. What can it be used for after the measure

Normal stream flow will not be affected; will impound water and debris only during flood conditions (pooling will last for less than 12 hours); will require occasional maintenance; land use will not change; no significant changes to access within project vicinity.

g. Will the measure only be used in the event of a large storm event, or will it also be utilized for smaller, frequent storm events

This measure will be used for all flood events, but would only impound water (pool in basin) above a five-year flood event.

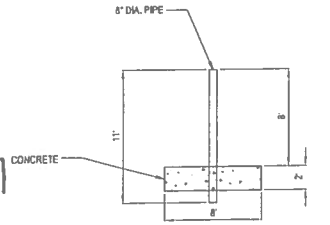
h. Flexibility of proposed measure location

Location of the Waiomao Debris and Detention Basin is flexible. Design can microsite upstream/downstream to avoid resources.

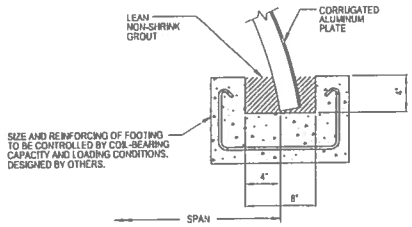
i. Direct APE acreage: 1.3 acres

Exhibit "A-1"

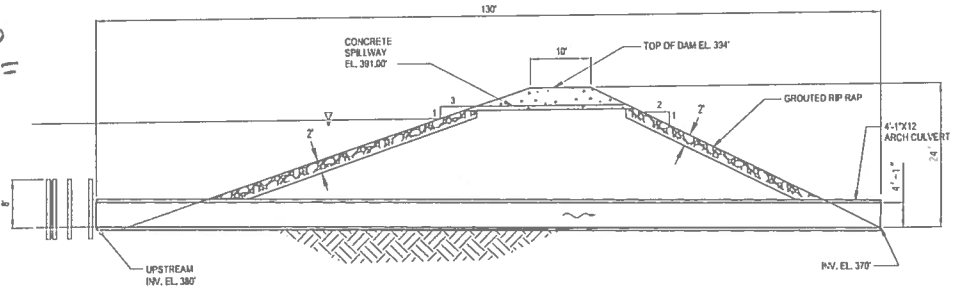
Exhibit "A-2"



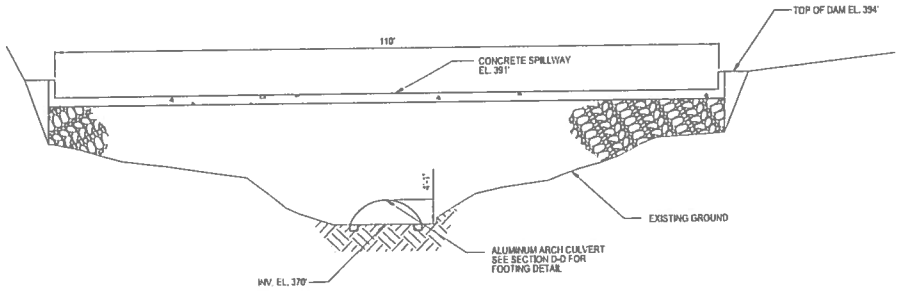
WAIOMAO DEBRIS AND DETENTION BASIN
SECTION C-C
SCALE: 1"=5'



SLOTTED CONCRETE FOOTING
WAIOMAO DEBRIS AND DETENTION BASIN
SECTION D-D
SCALE: NTS



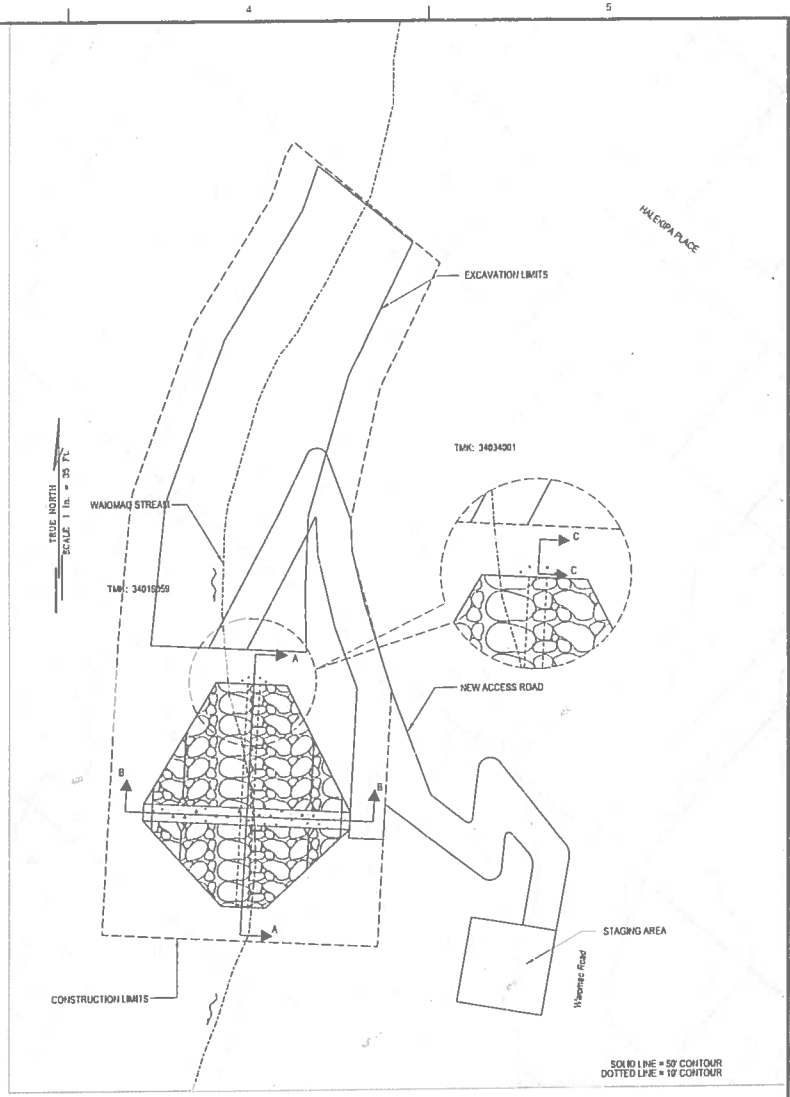
WAIOMAO DEBRIS AND DETENTION BASIN
SECTION A-A
SCALE: 1"=10'



WAIOMAO DEBRIS AND DETENTION BASIN
SECTION B-B
SCALE: 1"=10'

10 5 0 10 20
SCALE: 1" = 10'

Note: All elevations are feet MSL



PLAN
SCALE: 1"=35'

35 17.5 0 35 70
SCALE: 1" = 35'

NOTES:

1. ALUMINUM ARCH CULVERT METAL THICKNESS IS 1.50". WITH A NATURAL BOTTOM.
2. THE APPROXIMATE AREA UNDER THE ARCH CULVERT IS 35.3 SQ FT.

US Army Corps of Engineers
HONOLULU DISTRICT

NO.	DESCRIPTION	DATE	APPD
	PRELIMINARY DESIGN		

US ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
HONOLULU, HAWAII

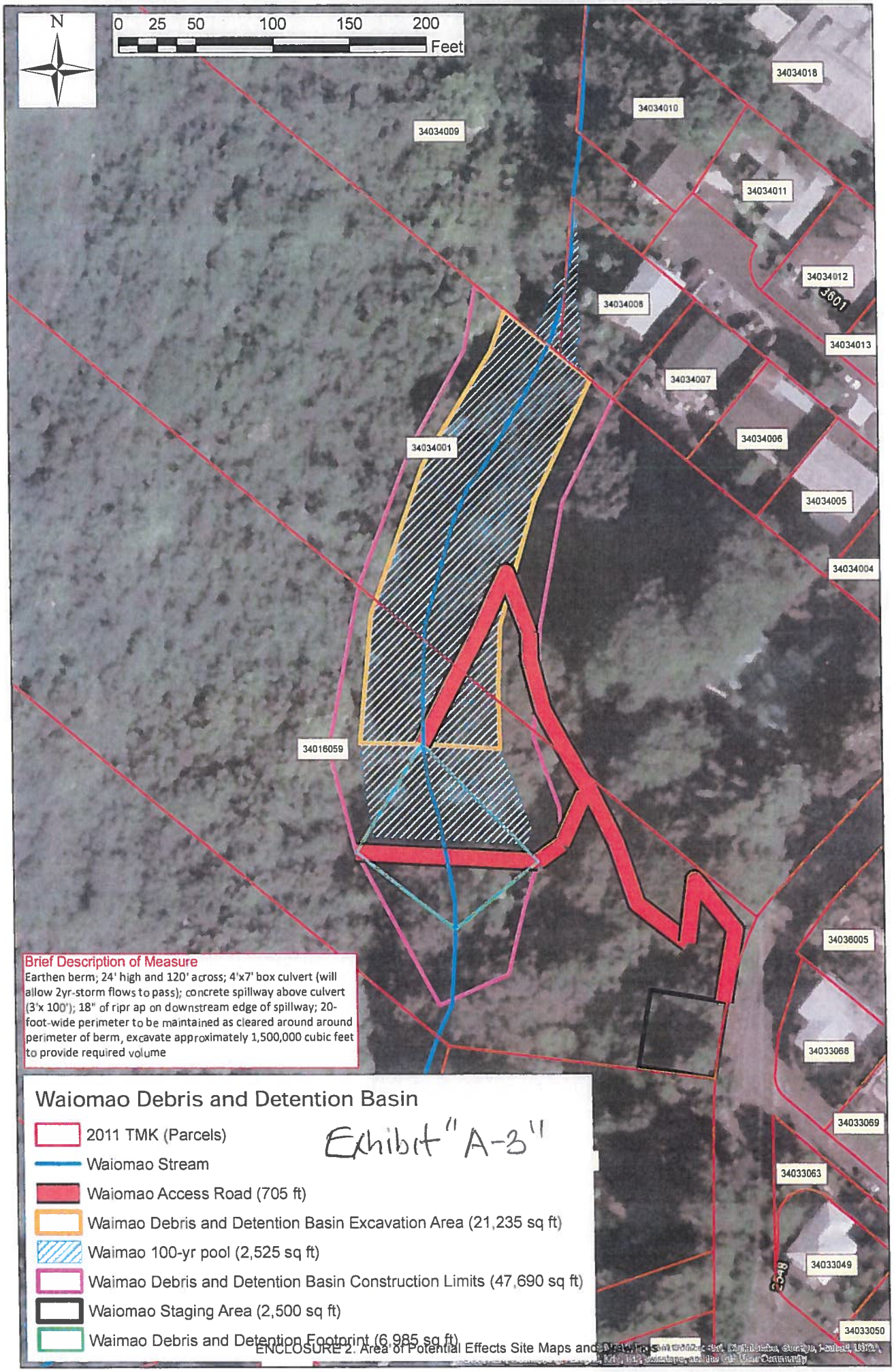
DESIGNED BY: JAS
DRAWN BY:
CHECKED BY:
SUBMITTED BY:
DATE:
REVISION
ESUCT. CONTRACT NO.
LOCATION CODE
DRAWING NUMBER
PLOT SCALE:
PLOT DATE:
SCALE
AS NOTED
FILE NAME:

ALA WAI WATERSHED PROJECT

WAIOMAO DEBRIS AND DETENTION BASIN
PLAN AND SECTIONS

SHEET IDENTIFICATION
C-308
SHEET 17 OF 29

ENCLOSURE 2. Area of Potential Effects Site Maps and Drawings



ENCLOSURE 2: Area of Potential Effects Site Maps and Drawings

Figure 31 Photo of Waiomao Debris and Detention Basin at Present

Figure 32 Conceptual Rendering of Waiomao Debris and Detention Basin with Measure (modified from Pukele detention basin measure)

Exhibit "A-4"

Exhibit "B-1"

Waiomao Stream

at 2532 Waiomao Rd

Exhibit "B-2"
Waiomao Stream
at 2532 Waiomao Rd.

Exhibit "B-3"
Waiomao Stream
at 2532 Waiomao Rd.

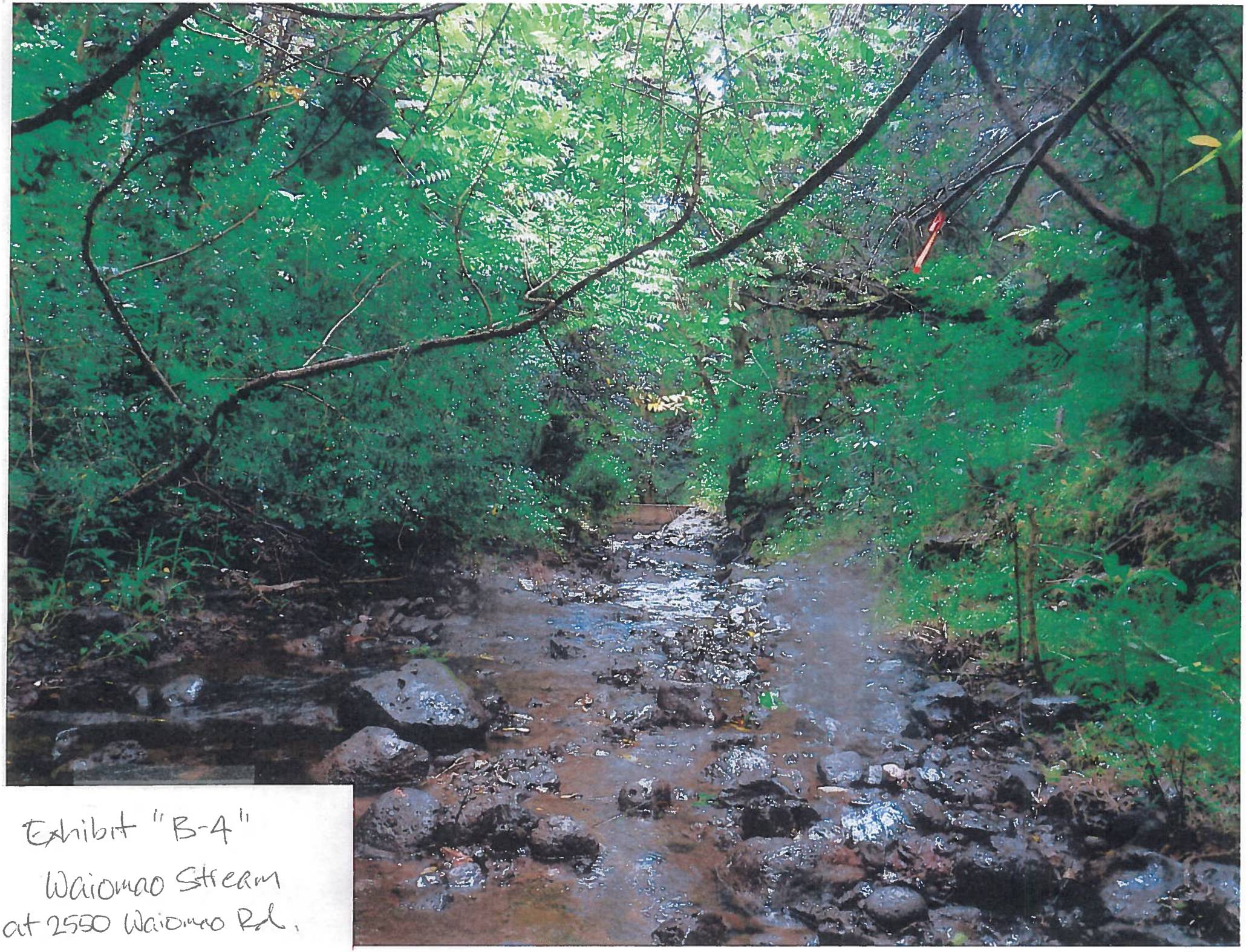


Exhibit "B-4"

Waiomao Stream

at 2550 Waiomao Rd.

Exhibit "C"

Detention Basin

Fullerton, CA

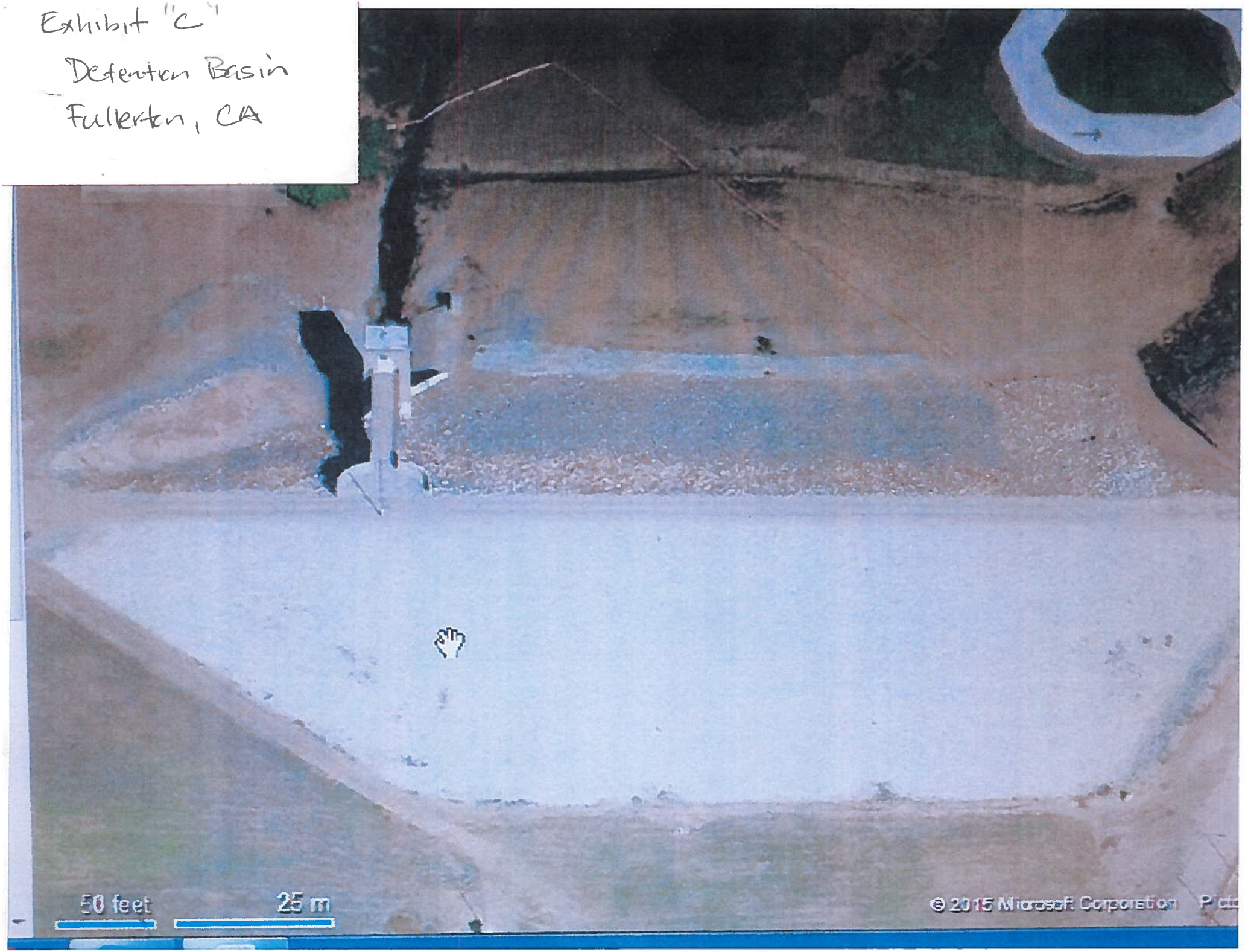


Exhibit "D"

Halawa Valley
Electrical Transfer
Station

Exhibit "E"

Moanalua Valley Detention Basin

Exhibit "F"
Mililani, Anolani St.
Detention Basin

Exhibit "G"
Nim Valley
Detention Basin

Exhibit "H"
Hahaione St.
Detention Basin

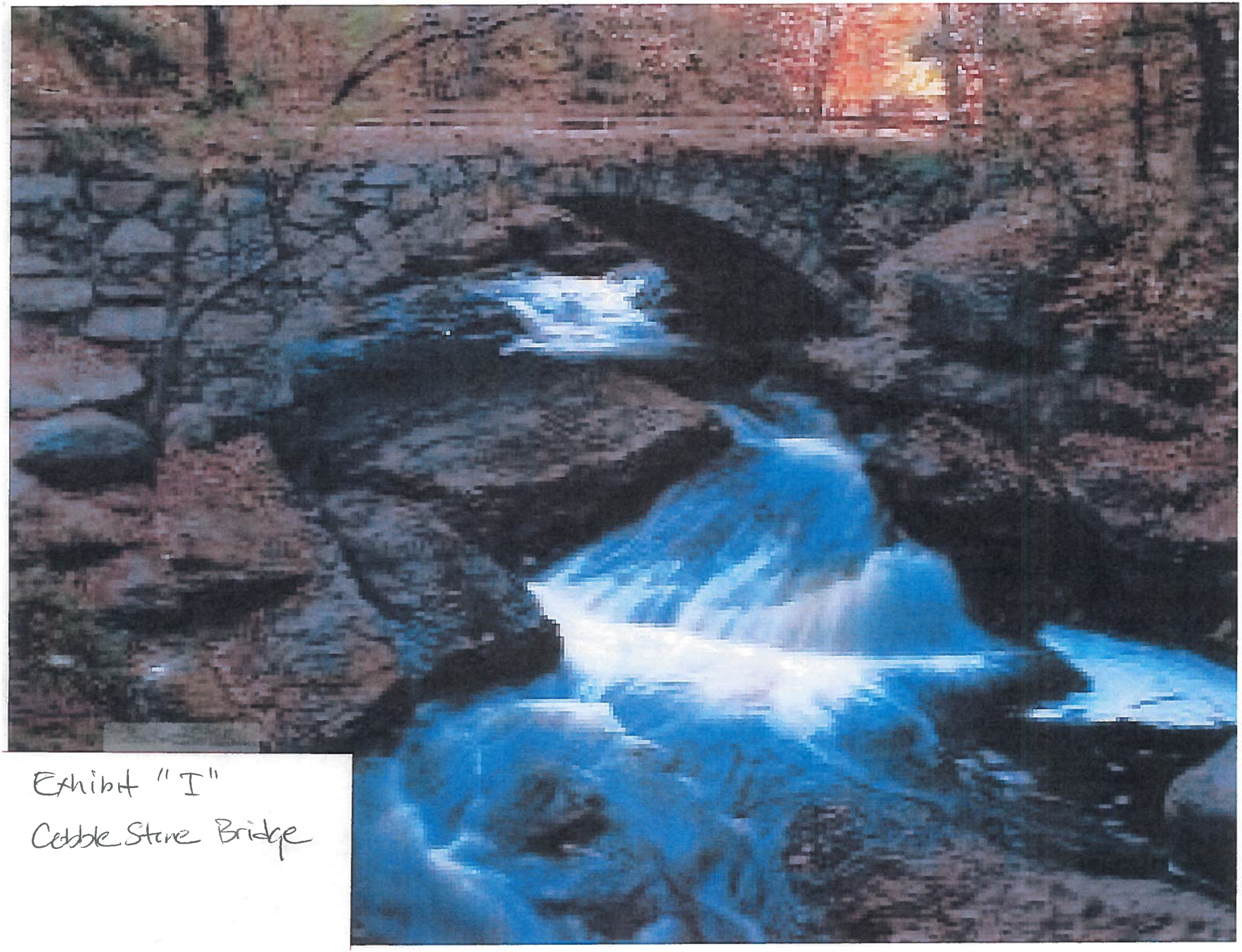


Exhibit "I"

Cobble Stone Bridge

Exhibit "J"
Cobble Stone Bridge

Dave and Nola Watase
1537 Ala Aoloa Loop
Honolulu, HI 96819
Email: dwatase@hotmail.com
Cel. 808-728-0759

October 20, 2015

Suzanne D. Case, Chairperson
State of Hawaii, DLNR
P.O. Box 621
Honolulu, HI 96809

Re: Ala Wai Canal Project
Request to consider using Government owned lands for Flood Mitigation Alternatives instead of using the property located at 2532 Waiomao Road, Honolulu, HI, 96816.

Dear Ms. Case,

As previously stated in my letter dated September 28, 2015, we (my family and I) are totally against your purchasing of our privately owned, residentially zoned property, TMK 34016059, located at 2532 Waiomao Road in Palolo Valley for the construction of the Waiomao Detention Basin which is a part of the $173 million Ala Wai Canal Project.

We are in our mid 50's in age and our children were born and raised in Honolulu, the property was purchased with the intent to develop several homes on the land. It is our desire to be able to provide each of our children a place in town to build a home as an incentive for them to remain in Hawaii as they finish college, get married, and start their own families.

In review of your Draft FS/EIS we found that the majority of the benefits which would be derived by this project would occur mainly along the Ala Wai Canal, while the adopted alternative (Alternative 3) consists largely of structural measures in the upper watershed. This action is not fair to the residents and property owners in the upper portions of the watershed especially when built on privately owned land for the following reasons:

1. Much of the upper portions of the watershed by themselves do not justify the need for major flood mitigation measures for the residential homes and areas. Smaller less costly alternatives can be pursed to protect the residential areas if the need and cost are justified.

2. Several speakers at your September 30, 2015 Public Review meeting were against pushing the problem at the Ala Wai Canal upstream and were against your proposed alternative measures located in the upper watershed. A few speakers specifically were against doing anything in Palolo Valley and a few stated the lack of maintenance and cleaning of the existing streams as the primary reason for localized flooding. They were additional speakers who where against using residentially zone land in an already tight housing market with severe shortage of rentals units and a need for the creation of more housing.

3. The bulk of the hotels in Waikiki were built between the mid 60's to mid 70's and Waikiki has since become a major economic driving force justifying your need for flood protection. However, most of the residential properties in the upper watershed existed long before the Waikiki hotel boom. The residential properties shouldn't be burdened with having to protect Waikiki from flooding with upper watershed alternatives when many residents have been negatively impacted by lost ocean and beach views from high rise hotel developments in Waikiki.

4. We believe there are several alternate measures that could also be incorporated into the lower portion of the Ala Wai Canal Project's watershed instead of constructing detention basins in the upper portion of the watershed that could also protect Waikiki from flooding. A speaker at the September 30, 2015 Public Review meeting mentioned that the condition of the Ala Wai Canal was deteriorating. He felt confident that Waikiki could be protected from flooding using modern engineering and state of the art technology. The speaker made some valid point because the Ala Wai Canal may be deteriorating a lot faster than expected and may not last the approximately 140 year design life. The original designers of the Ala Wai Canal in the 1920's most likely did not envision the heavy development of the Ala Wai Canal watershed and of Waikiki. Inherent problems in the design are sedimentation and maintenance issues and extremely low flow rates. Why waste money building a flood protection wall on an already crumbling infrastructure with several inherent design issues?

5. The State and C&C of Honolulu are owners of thousands of acres of land in the upper portions of the Ala Wai Canal Watershed. It is not fair to propose detention basins on individual privately owned properties when the bulk of the floodwater generated from a 100-year storm are coming from the Governments land. We believe the Government has more than enough land of their own along the routes from the upper most portion of the watershed to the Ala Wai Canal suitable to be used for flood protection. This would include Government owned remnant parcels, schools, parks, and drainage easements lands.

6. Government owns more than 1100 acres of land in the upper extreme portion of the Palolo watershed (Exhibit A, B, C, D, E, F, G, & H). The proposed two detention basins in Palolo Valley involving privately owned land are designed primarily to hold storm water from the Government owned land. It is our opinion that the Government should use their own lands for any storm water protection alternatives. The following TMK are Government owned properties located above the proposed Detention Basins in Palolo Valley:

    a) TMK: 340220010000 - State of Hawaii (691.9 acres)
    b) TMK: 340220060000 - C&C of Honolulu (387 acres)
    c) TMK: 340180030000 - C&C of Honolulu, BWS (10.89 acres)
    d) TMK: 340180020000 - C&C of Honolulu, BWS (9.31 acres)
    e) TMK: 340350240000 - C&C of Honolulu, BWS (1.802 acres)

Designating our privately owned land for your uses without notifying us and allowing us due process is very detrimental to us. Personally, we can't imagine anyone on your Project Delivery Team, the USACE or the DLNR who would be happy to give up their property under the same circumstance. We believe our property cannot simply be replaced because it is one of a kind and basically nonexistent in today's real estate market in town. We don't ever want to sell because we don't think we could ever find a replacement property as beautiful with the same potential.

We believe this hurts our ability, freedom, and right to use of our property. The liquidity of our property has been altered because of your designation. We would have to disclose your designations to any potential buyer, if we faced an emergency and needed to sell our property. We feel threatened and restricted in our options so long as we are under your veil of condemnation. We believe the appreciation in value of our property will stagnate and anything we do on the property may be at risk of being taken away through the Governments power of eminent domain.

We humbly request that you remove our privately owned property TMK: 34016059, located at 2532 Waiomao Road in Palolo Valley as a potential site for the Waiomao Detention Basin.

Very truly yours,

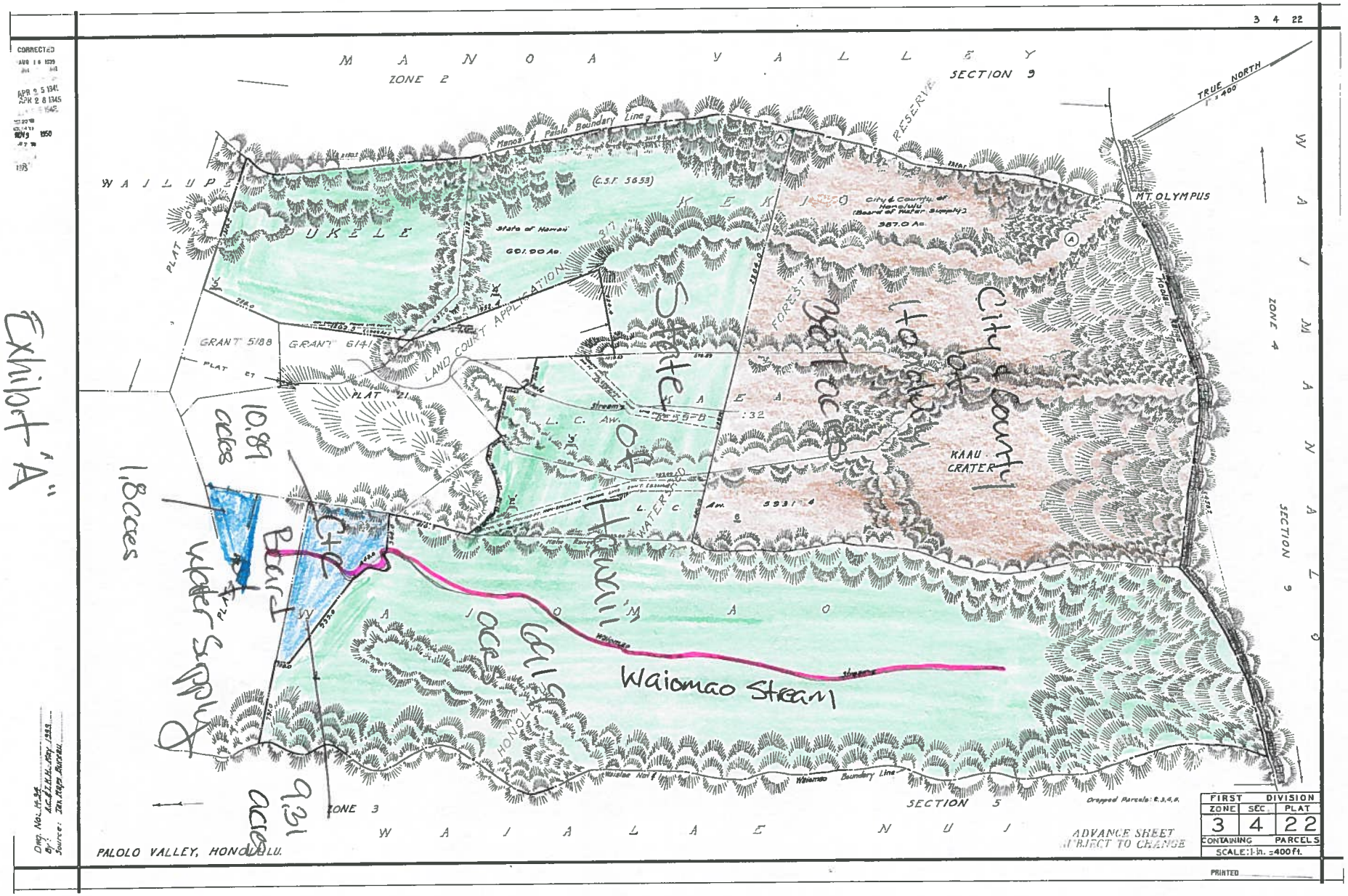
Dave and Nola Watase

Attachments: (Exhibits "A" to "H")

Cc: Gayson Ching, DLNR
Derek Chow, USACE
Ann H. Kobayashi, Honolulu City Council
Calvin Say, State of Hawaii, Representative
Les Ihara, State of Hawaii, Senator

TMK: 3402200100000 - State of Hawaii 691.9 acres

TMK: 3402200600000 - C&C of Honolulu 387. acres

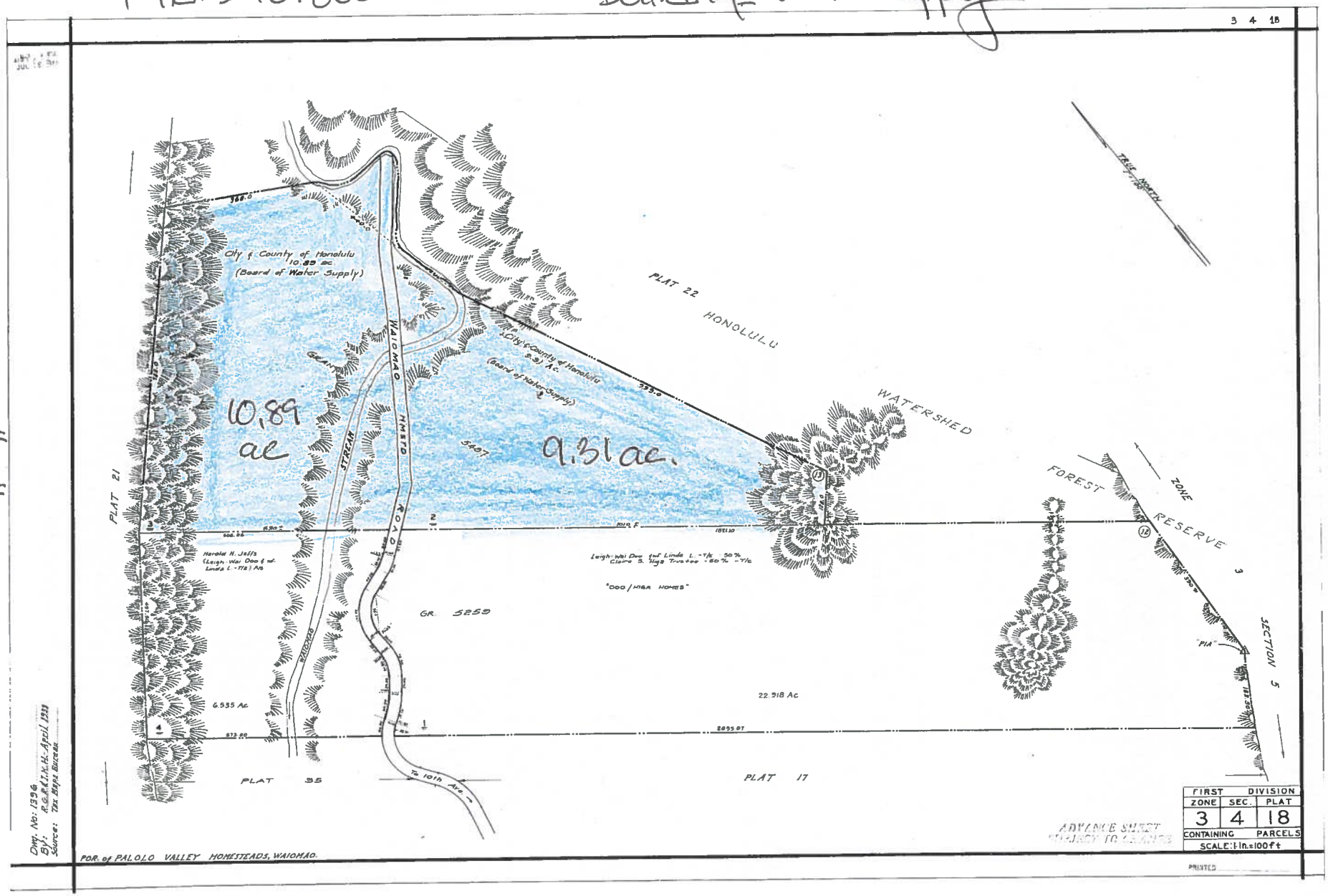


TMK: 3401800300000

TMK: 3401800200000

C+C of Honolulu
Board of Water Supply

Exhibit "B"



TMK: 3403502400000 C+C of Honolulu
Board of Water Supply

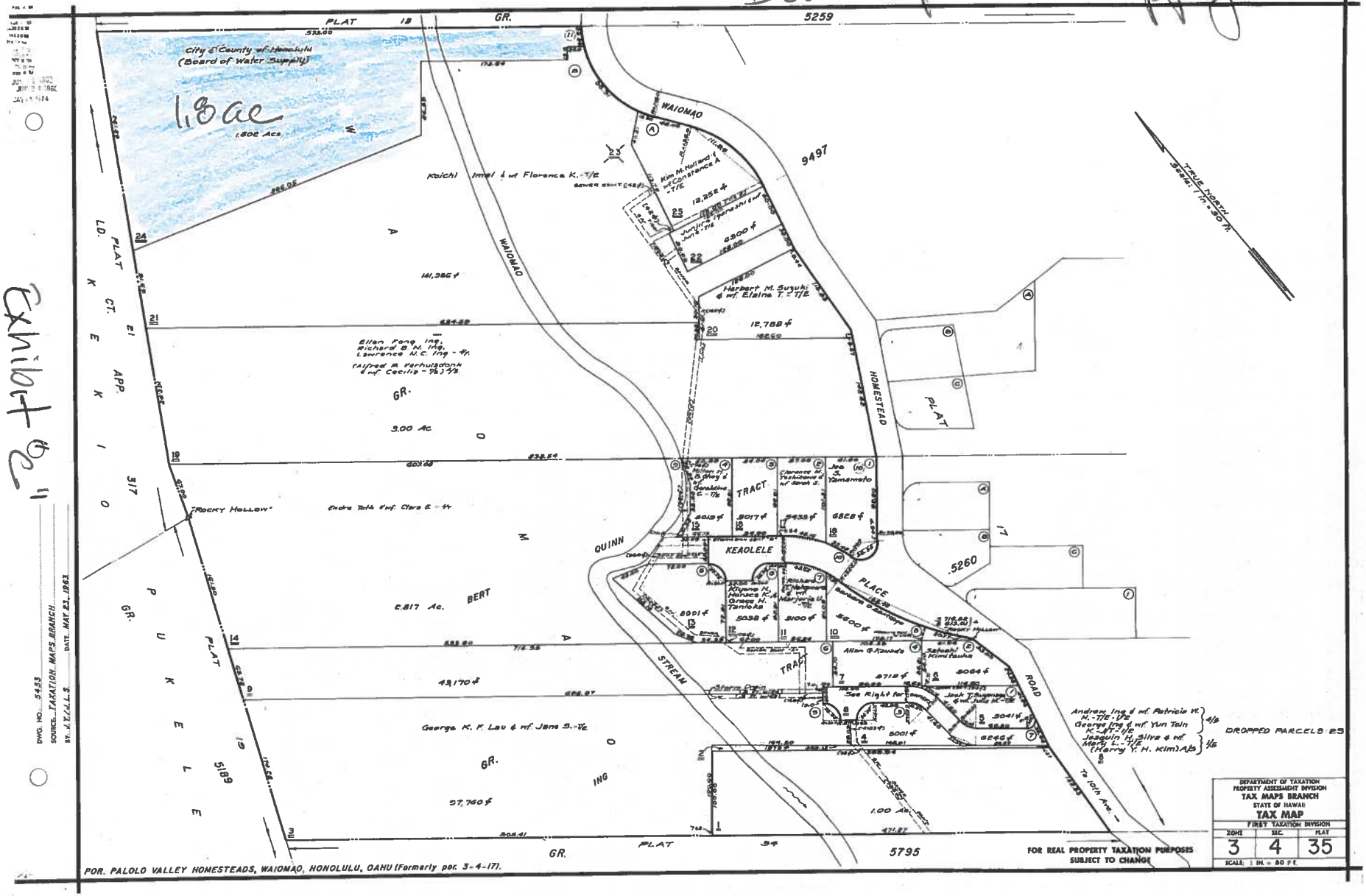
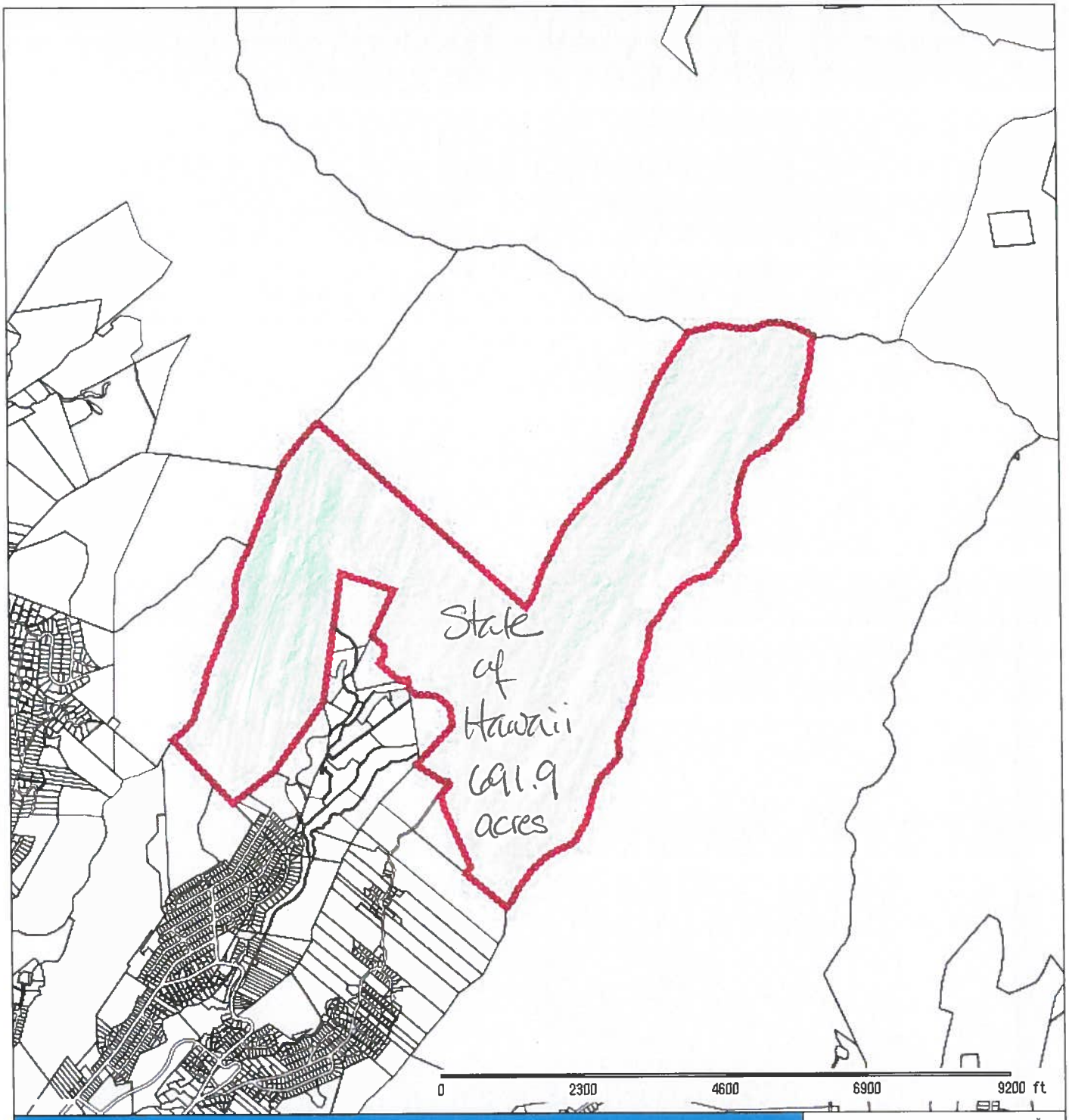
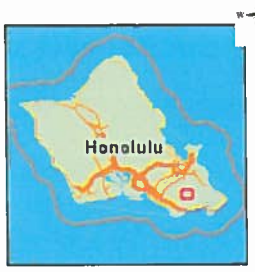


Exhibit #2



Honolulu County Assessor			
Parcel: 340220010000 Acres: 691.9			
Name:	STATE OF HAWAII	Land Value:	1037900
Site:	LA I RD	Building Value:	0
Sale:		Exempt Value:	1037900
Mail:	,	Taxable Value:	0



*Honolulu County makes every effort to produce the most accurate information possible. No warranties, expressed or implied, are provided for the data herein, its use or interpretation. The assessment information is from the last certified taxroll. All data is subject to change before the next certified taxroll. The 'parcels' layer is intended to be used for visual purposes only and should not be used for boundary interpretations or other spatial analysis beyond the limitations of the data. The 'parcels' data layer does not contain metes and bounds described accuracy therefore, please use caution when viewing this data. Overlaying this layer with other data layers that may not have used this layer as a base may not produce precise results. GPS and imagery data will not overlay exactly.

Date printed: 10/14/15 : 21:38:58

Exhibit "D"

Honolulu County Assessor

Parcel: 340220060000 Acres: 387

Name:	BOARD OF WATER SUPPLY	Land Value:	580500
Site:	LA I RD	Building Value:	0
Sale:		Exempt Value:	580500
Mail:	630 S BERETANIA ST HONOLULU, HI 96843	Taxable Value:	0

*Honolulu County makes every effort to produce the most accurate information possible. No warranties, expressed or implied, are provided for the data herein, its use or interpretation. The assessment information is from the last certified taxroll. All data is subject to change before the next certified taxroll. The 'parcels' layer is intended to be used for visual purposes only and should not be used for boundary interpretations or other spatial analysis beyond the limitations of the data. The 'parcels' data layer does not contain metes and bounds described accuracy therefore, please use caution when viewing this data. Overlaying this layer with other data layers that may not have used this layer as a base may not produce precise results. GPS and imagery data will not overlay exactly.

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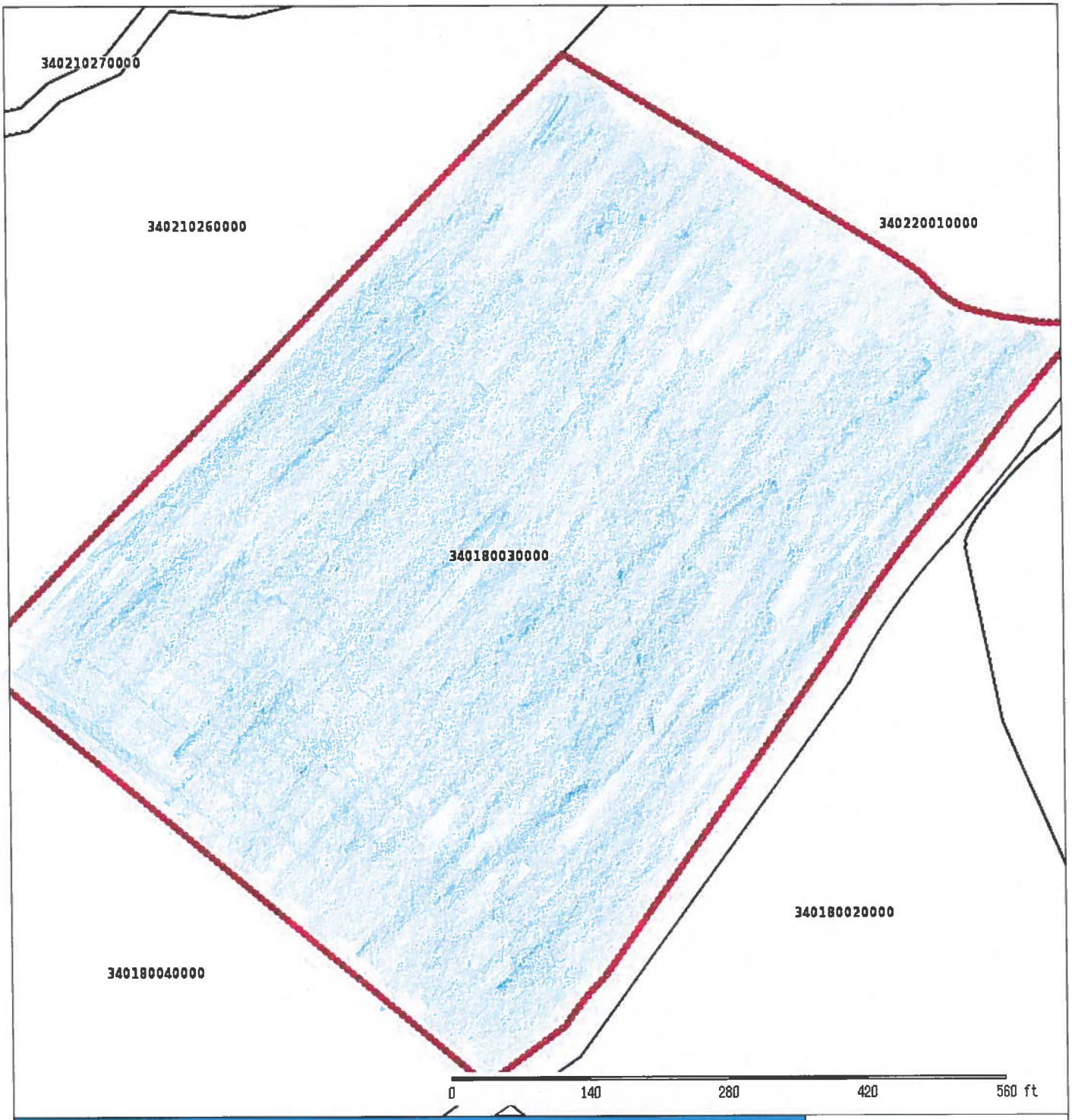
Exhibit "E"



Honolulu County Assessor

Parcel: 340180030000 Acres: 10.89

Name:	BOARD OF WATER SUPPLY	Land Value:	16300
Site:	WAIOMAO RD	Building Value:	0
Sale:		Exempt Value:	16300
Mail:	630 S BERETANIA ST HONOLULU, HI 96843	Taxable Value:	0

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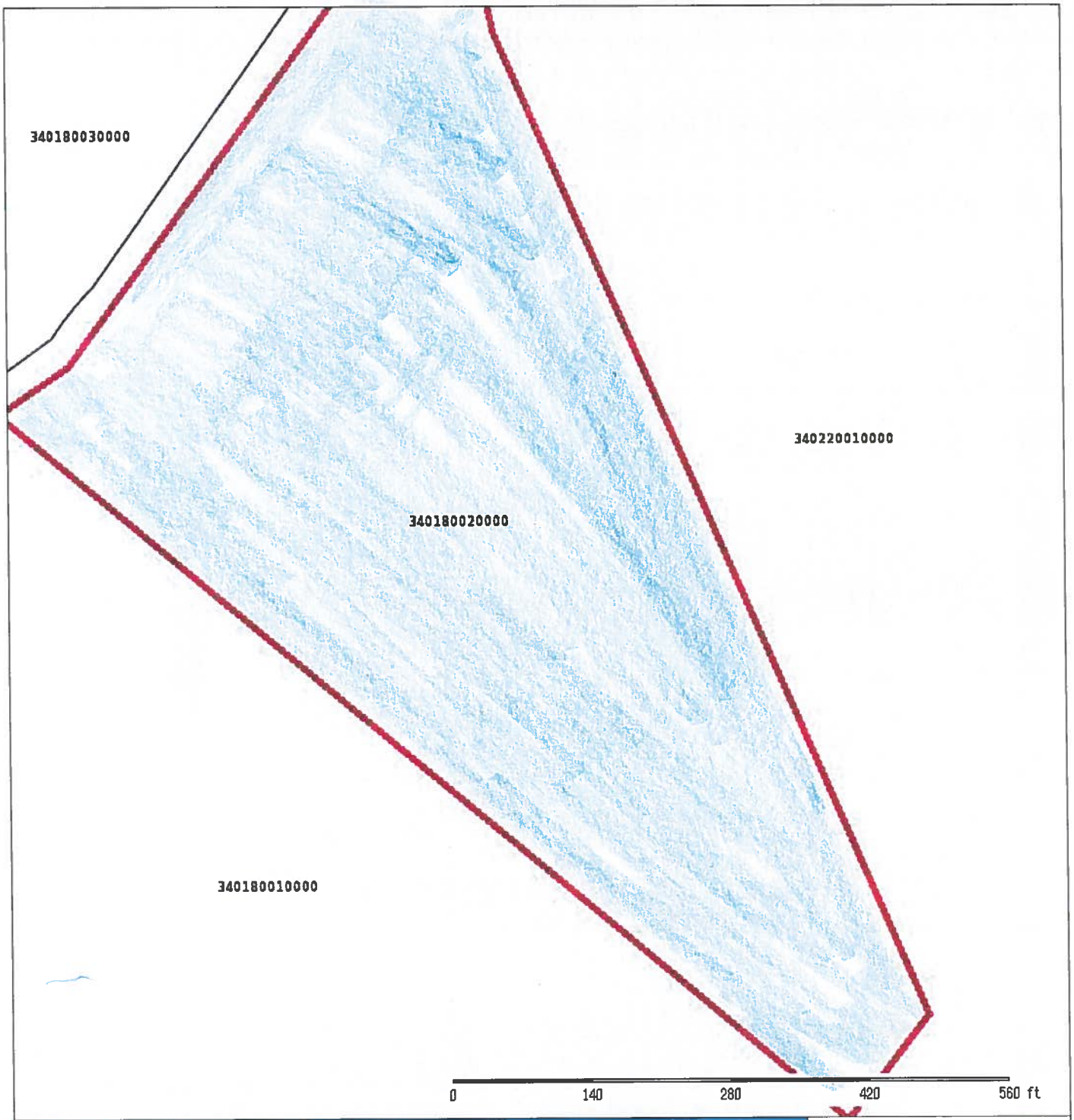
Exhibit "F"



Honolulu County Assessor			
Parcel: 340180020000 Acres: 9.31			
Name:	BOARD OF WATER SUPPLY	Land Value:	20400
Site:	2821 *WAIOMAO RD	Building Value:	20300
Sale:		Exempt Value:	40700
Mail:	630 S BERETANIA ST HONOLULU, HI 96843	Taxable Value:	0

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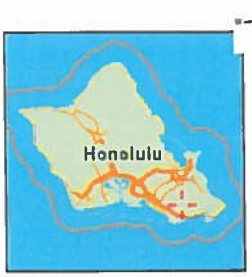
Exhibit "G"

Honolulu County Assessor			
Parcel: 340350240000 Acres: 1.802			
Name:	BOARD OF WATER SUPPLY	Land Value:	265300
Site:	WAIOMAO RD	Building Value:	0
Sale:		Exempt Value:	265300
Mail:	630 S BERETANIA ST HONOLULU, HI 96843	Taxable Value:	0



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Date printed: 10/14/15 : 21:35:19

Exhibit "H"

Dave K. Watase
1537 Ala Aoloa Loop
Honolulu, HI 96819
Cel. 728-0759
Email: dwatase@hotmail.com

September 30, 2015

Ms. Suzanne D. Case, Chairperson
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Re: Ala Canal Project
Prepared for September 30, 2015 Public Review Meeting

Dear Ms. Case,

I am in receipt of your letter date stamped August 14, 2015 regarding the above project and informing us for the first time that our privately owned property TMK 34016059, located at 2532 Waiomao Road, Honolulu, HI 96816 is a part of the Ala Wai Canal Flood Risk Management Feasibility Study and that the US Army Corps of Engineers are recommending the purchase of our property for the construction of the Waiomao Detention Basin.

Your letter to me states that "The Corps estimates that another major flooding event would result in damages to more than 3,000 structures in the watershed with a total damage of about $723 million."

- How precise and accurate is the claim of damage to 3,000 structures?
- How precise and accurate is your claim of the $723 million dollar damage figure? Most of the references on your website use a $314 million figure based on 2013 prices. Seems to be ballooning like the cost of the Honolulu Rail Project which started out at $2.7 billion in 2008 and now less than halfway completed at $6 billion.

Your letter to me states that "The canal has overtopped and previously flooded Waikiki during the November 1965 and December 1967 storms and the passage of Huriicane Iniki in 1992"as a basis to support the project.

- What percentage ratings were each of these 3 storms?
- What were the dollar damage figures for each of these 3 storms?
- What are the associated flow rates and rain gauge reading tied into determining the storm percentage?

Your letter to me states that "An October 2004 storm flooded Manoa Valley and a March 2005 storm flooded Makiki causing a combined $85 million dollar damages" and the claim is used in support of the project.

- I believe the University of Hawaii and Waikiki are highest valued areas of potential damage and comprise the majority of the claimed damage of a 100-year storm. The storm was estimated to be a 20-year or a 25-year storm. What impact did this storm have on Ala Wai Canal and the flow rates at the mouth of the Canal?
- Should the damage claim and any reference to the October 2004 be stricken because had the Woodlawn bridge been properly maintained and not been half filled with sediment, and had the canal ways been properly cleared of tree branches which clogged the remaining passage way, the Woodlawn bridge would have been able to accommodate the estimated flows from the October 2004 resulting in no damage to the UH.
- Also, isn't the USACE already in the process of improving the Woodlawn bridge to prevent the sedimentation buildup? The inclusion becomes a double request in my view. The current Woodlawn bridge improvements should be designed so that UH never gets flooded even with a 500-year storm. This can be done by adding a box culvert conduit around each side of the bridge as a spillway in case of a 500-year storm. Third level of protection can be accomplished by intercepting any overflows somewhere near Noelani School play area and channel directly to Manoa Stream after the Woodlawn bridge.

In the Executive Summary for your Draft EIS, it is claimed that "The tentatively selected plan is 99.8 percent reliable in protecting portions of Honolulu Hawaii from a flood which has a 1 percent chance of occurrence in any year. The tentatively selected plan would reduce the average annual flood risk and would leave the average annual residual damage estimated at $999,999. ... The benefit-cost ratio is approximately 2.38:1.

Your studies make thousands of assumptions, are one dimensional, use coefficients that may not pertain to Hawaii's geography and tropical forest and uses an average of a handful of different methodologies that are all claimed to be the best but have different results. Throughout your engineering studies they use the word "peaky" as a basis for unpredictability and to justify themselves if the calibrated results don't correlate to the rain gauge readings and flow rates.

- How can you substantiate such a high claim of protection and certainty?
- Is the average residual damage estimated to be $999,999 accurate to one dollar?
- How much of the benefit-cost ratio be adjusted if you took UH out of the picture?
- If you just focused on saving Waikiki and used improvements only on public lands, how would that lower the benefit-cost ratio?
- I believe the ES-1 USACE computer generated rendering showing the 100-year storm affected area is a "SCARE tactic" , misleading, and not be accurately portrayed with the lack of information and data.
- I'm also against using the 2006 storm and the flooding on H-1 as a means to justify this project. If I recall correctly, the flooding had nothing to do with the intensity of the storm but more of a breakdown of a pump at the Punahou overpass bridge.

I question the reliability of all the methodologies being use because they are only as good as the data that you feed into them.

- There are only about a dozen of rain gauge stations and some are automatically read and some are manually read.
- For the size of the watershed and vast different in topography and one that has over 30 subbasins. Isn't there a severe lack of rain gauge stations and a lack of data?
- There are over 30 subbasins most of which contain rain gauges. Isn't it common knowledge that what is going on in one subbasin may be totally different in another?, How can you reasonably interpolate data from one rain gauge and apply it to several subbasins?
- Rain gauges in adjacent watersheds because a lack of data collection within the Ala Wai Watershed. Doesn't this reduce accuracy?
- Not a single rain gauge up St. Louis Heights and the ridge to the other side of the Koolaus?
- Data is used from a rain gauge located on Wilhelmina that is not included in the Ala Wai watershed. Again a lack of data collection and it should result in a lack of accuracy.
- How can a few rain gauges on the lower extremes of backside of Manoa accurately reflect what is going on at the top of the mountain?
- You use rain gauge collections on the Windward side of the island to support your claim of the severity of a storm. Doesn't this clear identify the lack of measurement facilities? A lack of accuracy and precision/
- Your modelings and diagrams are generated on data that has been interpolated over and over again and computed on shaky data.
- There is a lack of flow rate data at each subbasin and each fork of the streams and each bridge passings. There is no reason to interpolate or guess when you can easily install data collection equipment to improve your accuracy?
- Are the rain gauges and stream flow equipment calibrated and certified?
- What is the accuracy of the equipment and error tolerances?
- Are the reading bulletproof or can they be affected by the environment to give incorrect results? For example, a bird, branch, or insect plugging the intake of a rain gauge and debris blocking the stream giving a false height of the flow?
- Data stretches back for almost a century. How reliable is it to use this old data to compute the storm frequencies?
- Isn't it important to have accurate data? How valuable is it to have real ocean level measurements at the mouth of the Ala Wai Canal? Again, I don't think you can accurately interpolate data from Honolulu Harbor which is several miles away?
- Isn't it possible to have a rain gauge reading signaling a 500-year storm and have flow readings of maybe a 2-year storm?
- Isn't it possible to have a rain gauge reading signaling only a 10-year storm and have flow reading of a 100-year storm?
- The New Year's Flood of 1987 in Hahaione Valley was said to be a 500-year storm? Can data from that area be interpolated with accuracy to the Ala Wai Canal Watershed or or vice versa?

In a rather rushed review of the Ala Wai Canal Project, I have generated some questions, alternative thoughts and suggestions as follows:

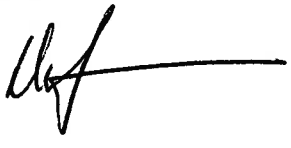
- What percentage of the rain runoff and storm drainage system dumps into the Ala Wai?
- Will there be backflow as the level of the Ala Wai exceeds the ground elevation of Waikiki?
- Why not install pumps to force main the rain runoff from Waikiki straight into the ocean?
- Why not use Kapiolani park as an emergency spillway?
- Why not use Fort DeRussy as an emergency spillway?
- Does the Upper Kaimuki subbasin dump into the Ala Wai?
- Why not install high capacity pumps similar to what is used in New Orleans and force main the Ala Wai Canal overflow straight off offshore into the ocean in the event of a 100-year storm?
- When is the intended design life of the Ala Wai Canal coming to an end in 2076 or 61 years from now? Why are we pouring all this improvements into the perimeter of the canal. Isn't it a waste of taxpayers money? Maybe the whole canal should be redesigned and improved with the latest engineering technologies to accommodate the 100-year storm.
- Alternate 1, a large detention basin designed to hold 11.5 million cubic feet or a series of smaller less visible detention basins on public land would be more viable? The larger landowners like the Catholic Church are in a better position to exchange land and work something out in the preliminary stages. They are better equipped to afford professional consultants to ensure fairness and are less likely to be personally affected by use of their lands.
- The the amount of water retained can be increased for the Ala Wai golf ?
- Channels next to Kaimuki High School and all the way up to Woodlawn can be expanded and used as Channel Full retention channel with adequate overflow capacities.
- Kanewai field should be reversed so that the school doesn't have a berm to cross over to use. Rather than a berm a concrete retaining wall similar to the Ala Wai Canal wall should be built and lined with moss rock along the residential side and replacing the corroded chainlink fence. Any use of the public parks or schools should be done in a way to enhance the area and improve the parks and schools uses to the benefit of the public. Why build something that is ugly or an eyesore with the sole intent of only solving the problem? Let's use Federal money to the maximum benefit of the public? Hey may be a portion of the maintenance of the park can paid for by the Feds to maintain the joint park and detention basin.
- Manoa Park and Palolo Park should also be looked at as suitable locations for detention basins. Storm water can be captured up stream at higher elevations through a spillway and channeled downstream to the public parks detention basins which will only function in times of the most severe storms and will naturally drain over a short period of time to reduce the time of concentrations. Much like how the taro patches of old Hawaii worked.
- Other alternative to handle the storm water from Palolo would be to use State Lands or other public lands. The State School properties throughout the watershed can be used and maybe even improved through the use of the public lands.
- Kaimuki High School Field is a large area?

- The volume capacity behind Dole Street bride next to the UH is huge.
- The volume capacity behind the St. Louis Drive bridge next to City Mill is huge.
- Several locations can be detained and have enough elevation and depth to develop head pressure. Storm water can be force main at a much higher velocity and a larger volume of storm water can be move down stream in a shorter amount of time through the Ala Wai Canal to a point where overflow risk is minimal? The Ala Wai Canal and the channel next to Kaimuki School is relatively flat with little slope. The velocities are very low and the Ala Wai Canal is like a slow moving reservoir with zero slope. High capacity pumps can assist. Pumps don't need the head so they can even be position anywhere within the Ala Wai Canal.
- What do the pumps at the end of Ala Wai Canal do? Low volume pumps into the ground? That doesn't make any sense. High capacity emergency pumps should be put in place to pump to a spillway through Kapiolani Park or directly off shore to the ocean.
- The same concept can be used adjacent to Fort DeRussey. Pump to an emergency spillway or out to the ocean. Other locations to consider would be adjacent to the major watershed intakes alone the Ala Wai Canal.
- Is the only alternative for several detention basins in the upper areas of Tantalus, Manoa, and Palolo absolutely necessary?
- Are there better site locations or alternatives that would comparable retention of storm water?
- It seems as though the use of public lands first was too quickly passed over and the small private landowners did not have a representative in the Project Delivery Team or have access to the Technical Advisory Team which placed the private landowners at a severe disadvantage compared to other stakeholders who were invited at the onset of the project.
- Your guidelines specifically states that you should get early feedback from the private landowner stakeholder in Section 2.1. The private landowner stakeholders were supposed to be invited to the "Open House Meetings" and the EIS process should be deemed not in compliance with HRS Chapter 343 and NEPA.
- It should not be assumed that a Neighborhood Board, a Condo Association, a Community Association will properly represent the individual property owners who are directly affected by the Ala Wai Canal Project. Many of these other Stakeholders are government agencies with paid staff members to lookout for only their personal agencies interest. Most will not even read or take the time to study the technical data, results, and designs. The Catfish had better representation than the private landowners.
- Developable residential properties are very scarce in town and even more so in Manoa Valley and Palolo Valley. Why reduce the development potential of providing much needed housing to these areas? Let alone condemn properties with homes on it and directly affect the housing inventory.
- Private land and values can substantially change in value and use from now to the time the project receives all the necessary approvals and funding? This can be a major setback in the projects schedule or budgeting.
- Property values in many areas of Oahu have more than doubled in 10 years. Your economic assessment is outdated and several year old and based on property tax assessment which in many cases could be way low from an appraisal or best use of the land or income valuation based on rental income potential.

- Basically, the Ala Wai Canal Project has less control of what a private landowner does until you secure the property unless an agreement is reached prior to condemnation whereas very little will change on government and public lands.
- Considering that the composition of the project could change, or different alternatives selected, or the project not receive funding for several years. It is detrimental, highly restrictive, ads risk, and limits a private landowner's rights and free uses of their land. For example, upon your designating the use on an individual's property the appreciation in value will come to a halt. The property becomes less valuable and unsellable. The property is less liquid and if for some reason the owner needed to sell, he would have to disclose the situation, and who on earth would want to buy a property that is in limbo.
- A better solutions would be to look for a site further up the watershed or stream. Some of these areas have hiking trails that are difficult to access and have very limited parking. Access to public lands for public recreational uses have a very high value and are popular if done the right way. Detention basins don't have to be a large earthen dam. The can be thinner concrete walls with moss rock facing. They can be integrated into a trail that meanders through a winding stream. Leave the natural stream and don't excavate for increased volume. It destroys the natural beauty of the streams so what if you have to put a series of smaller detention basins, if done right it can be a thing of beauty and would provide access to areas otherwise unaccessable. Other options would be to incorporate the detention area in to a parking lot but disguised in such a way that no one can tell. Access is important to our public lands and better access also permits better maintenance and upkeep with trash receptacles to keep the place clean.
- A lot of our playground areas and public park spaces are unusable because of the grading. These unusable spaces have been like that for all my life and will never change. But this can be an opportunity to improve and expand a public playground or park facility again if done correctly.

In short, I believe there is a need for improved storm protection for the Ala Wai Canal Project. I favor eliminating the use of all private properties unless the current ownership is will to partner with the project. The PDT should work with owners of potential sites at the very earliest stages. I favor coordinating this project and integrating it with not only flood protection but use it as an avenue for better access to public lands and hiking trails, improvement to public parks, public district parks, and school lands. I'm in favor of eliminating all controversial and unpopular designs and focus on less impacted parties. For example, focus on the Ala Wai Canal wall and the Ala Wai Golf Course and other flood protections at the lower extreme of the watershed. Stay within the Ala Wai Channel area. Ala Wai District Park, Kaimuki High School field. Fort DeRussy, Kapiolani Park. Fix Woodland bridge and East Manoa bridge to make sure UH is protected from a 100-year plus storm. I think the project the way it stands is too complicated and has too many elements that will only slow down the project and/or kill it. Good for job security for a bunch of people and consultants but does little to help solve the problem and highest economical risk to Waikiki and UH. I hope to add and expand to my comments and concerns. This letter was put together on short notice and rush so my be incomplete and in some cases unverified. Thank you for your time and consideration. Should you have any questions, you can reach me on my cel at 728-0759 or email me at dwatase@hotmail.com.

Aloha, Dave Watase



Dave and Nola Watase
1537 Ala Aoloa Loop
Honolulu, HI 96819
Email: dwatase@hotmail.com
Cel. 808-728-0759

September 28, 2015

Suzanne D. Case, Chairperson
State of Hawaii, DLNR
P.O. Box 621
Honolulu, HI 96809

Re: Ala Wai Canal Project

Dear Ms. Case,

We are in receipt of your letter date stamped August 14, 2015 regarding the above project and informing us for the first time that our privately owned property TMK 34016059, located at 2532 Waiomao Road, Honolulu, HI 96816 is a part of the Ala Wai Canal Flood Risk Management Feasibility Study and that the US Army Corps of Engineers are recommending the purchase of our property for the construction of the Waiomao Detention Basin.

We received your certified letter in the week of September 14, 2015 only a few weeks prior to your September 30, 2015 public review meeting which gives us very little time to digest the thousands of pages of technical documents surrounding this massive $200 million project. It is very stressful and disturbing to us personally to see our privately owned property targeted as a site for a detention basin and included in several voluminous reports with schematic drawings and feasibility studies.

Your letter states that you look forward to partnering with us but in reality your letter is not good news for any private landowner. The fact that you would even consider using someone else's property without even giving them advance notice and an opportunity to express their position and concerns prior to site selections demonstrates a lack of respect for our individual rights and is flat out distasteful. The cutoff date for public input of October 7, 2015 is relatively short considering your experts have taken years to put this approximately $200 million project together up until this point.

My wife and I are AGAINST your plan to purchase our property and use it for a detention basin. This property was purchased with the intent to CPR it for our children so that they each could build a beautiful home overlooking the tranquil Waiomao stream untouched with its natural beauty and a 1000' lush green mountain in preservation as the backdrop. Two of our 3 children will be graduating from college and graduate school next year. Our children are well aware of the beauty and development potential of our property. It is our lifetime investment and dream to be able to provide our children with an incentive to stay in Hawaii, to stay close to family, and to be able to afford a home with a peaceful country atmosphere in Palolo Valley in town.

Very truly yours,

Dave and Nola Watase

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Dave and Nola Watase
1537 Ala Aoloa Loop
Honolulu, Hawaii 96819

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Concerns regarding public outreach
- Alternative Plan Selection
- Uncertainties related to the technical analysis

Public involvement and agency coordination is summarized in Section 6 of the FEIS. Initial scoping of the EIS was conducted in 2004 with a supplemental scoping meeting conducted in 2008. Table 38 details public and agency coordination that has been undertaken since the re-scoping of the study in 2012. This includes over forty separate outreach measures. A public meeting to review the FEIS during the public review period was conducted in September 2015 along with multiple follow-up meetings with legislators, interested stakeholders, neighborhood commissions and property owners directly affected by the recommended plan. No further public meetings are planned during the feasibility phase of the FEIS.

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints. Criteria considered is provided in Table 2 which includes the availability of land, the degree to which people or existing uses would be displaced and the consistency with applicable laws and regulations. Siting of

detention basins in particular is generally focused on stream reaches where natural stream beds and banks exist to maximize the effectiveness and efficiency of the structures.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

Designs and engineering associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs and benefits, and consider environmental impacts. The design and engineering of project features has undergone both an internal agency technical review as well as an independent external peer review and was deemed sufficient for the purposes of the FEIS. Following technical reviews, changes to input parameters for hydrology, hydraulic and economic analysis have been completed to fully comply with current USACE policies and regulations. Hydrology and hydraulic analyses are discussed in detail in Appendix A, and the economic analysis completed for the study is included in Appendix B of the final FEIS. The result of the revised technical analysis has not changed the recommended plan. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase.

Implementation of the recommended plan will require the acquisition of private property. The exact timing of land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature, including any necessary amendments for public safety. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. A property by property assessment will be conducted in coordination with the non-Federal sponsor after project authorization, if the project is authorized by Congress.

The process of acquiring property for a project is highly regulated. The Fifth Amendment of the Constitution states that private property shall not be taken for public use without just compensation. To address what constitutes just compensation, Congress passed the Uniform Relocation Assistance and

Real Property Acquisition Policies Act of 1970 (“Uniform Act”). The non-federal sponsors will be required to follow the Uniform Act in acquiring any lands. USACE will work with the non-Federal sponsors to ensure the correct process and procedures are adhered to throughout the process.

Generally speaking the value of land acquired is the fair market value of the property. The fair market value includes many aspects of the property in question. Earning potential is one of those aspects to be addressed in developing a fair market value. Regardless of the value determined, Public Law 91-646 outlines the requirements that must be followed to ensure a homeowner/landowner is compensated justly.

Part of the process will be an appraisal, which determines the fair market value of the property. Fair market value is an estimate of the market value of a property based upon what a knowledgeable, willing, and unpressured buyer would pay. The appraisal will attempt to take all objective property features into account when determining fair market value. The fair market value is determined without consideration for the effect the project has had on the value of the land. For more information on the process for acquisitions please go to: http://www.fhwa.dot.gov/realestate

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

CITY COUNCIL
CITY AND COUNTY OF HONOLULU
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CHAIR, COMMITTEE ON BUDGET
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EMAIL: akobayashi@honolulu.gov

November 5, 2015

Derek J. Chow
Civil and Public Works Branch
Honolulu District, USACE
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

RE: ALA WAI CANAL PROJECT

Dear Mr. Chow,

I am writing this letter on behalf of my constituents, who have expressed concerns regarding the Ala Wai Canal Project Draft Feasibility Report. As the Councilmember representing the Palolo and Manoa neighborhoods, I agree with their concerns that privately owned properties not be used for any detention basins, and that other alternatives such as public lands be seriously considered before implementation of the proposals.

I have also included a letter from a resident to the State of Hawaii Department of Land and Natural Resources, requesting answers to several questions in regard to the study's methodology, proposals, and conclusions.

In addition, Iolani School, Ala Wai Elementary School, and a number of condominium owners have also expressed concerns that the proposed project will place their properties in a floodway. The proposals are disconcerting for the residents and both schools' officials, who were only recently notified of the plan.

Their safety and the safety of our residents is of primary importance, therefore, I respectfully request that the U.S. Army Corps of Engineers seriously address the residents' and schools' concerns and reevaluate its proposals.

I further request that USACE and DLNR provide answers to the community's questions, including the attached letter, before it issues a Final Feasibility Report. I also request that more outreach and communication be provided to the residents and businesses, especially to those who are directly affected by the Project's proposals.

A majority of the proposals affect many of the neighborhoods in my district, as well as both Iolani School and Ala Wai Elementary. I am in accord with their concerns and fully support their requests to reconsider the Project's proposals.

I look forward to your responses to the questions provided, as well as those from the community in order to fully address the community's concerns, and more importantly, to address the health and safety of our residents.

Sincerely,

Ann H. Kobayashi, Councilmember
District V

ENCLOSURES

Dave K. Watase
1537 Ala Aoloa Loop
Honolulu, HI 96819
Cel. 728-0759
Email: dwatase@hotmail.com

September 30, 2015

Ms. Suzanne D. Case, Chairperson
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Re: Ala Canal Project
Prepared for September 30, 2015 Public Review Meeting

Dear Ms. Case,

I am in receipt of your letter date stamped August 14, 2015 regarding the above project and informing us for the first time that our privately owned property TMK 34016059, located at 2532 Waiomao Road, Honolulu, HI 96816 is a part of the Ala Wai Canal Flood Risk Management Feasibility Study and that the US Army Corps of Engineers are recommending the purchase of our property for the construction of the Waiomao Detention Basin.

Your letter to me states that "The Corps estimates that another major flooding event would result in damages to more than 3,000 structures in the watershed with a total damage of about $723 million."

- How precise and accurate is the claim of damage to 3,000 structures?
- How precise and accurate is your claim of the $723 million dollar damage figure? Most of the references on your website use a $314 million figure based on 2013 prices. Seems to be ballooning like the cost of the Honolulu Rail Project which started out at $2.7 billion in 2008 and now less than halfway completed at $6 billion.

Your letter to me states that "The canal has overtopped and previously flooded Waikiki during the November 1965 and December 1967 storms and the passage of Huriicane Iniki in 1992"as a basis to support the project.

- What percentage ratings were each of these 3 storms?
- What were the dollar damage figures for each of these 3 storms?
- What are the associated flow rates and rain gauge reading tied into determining the storm percentage?

Your letter to me states that "An October 2004 storm flooded Manoa Valley and a March 2005 storm flooded Makiki causing a combined $85 million dollar damages" and the claim is used in support of the project.

- I believe the University of Hawaii and Waikiki are highest valued areas of potential damage and comprise the majority of the claimed damage of a 100-year storm. The storm was estimated to be a 20-year or a 25-year storm. What impact did this storm have on Ala Wai Canal and the flow rates at the mouth of the Canal?
- Should the damage claim and any reference to the October 2004 be stricken because had the Woodlawn bridge been properly maintained and not been half filled with sediment, and had the canal ways been properly cleared of tree branches which clogged the remaining passage way, the Woodlawn bridge would have been able to accommodate the estimated flows from the October 2004 resulting in no damage to the UH.
- Also, isn't the USACE already in the process of improving the Woodlawn bridge to prevent the sedimentation buildup? The inclusion becomes a double request in my view. The current Woodlawn bridge improvements should be designed so that UH never gets flooded even with a 500-year storm. This can be done by adding a box culvert conduit around each side of the bridge as a spillway in case of a 500-year storm. Third level of protection can be accomplished by intercepting any overflows somewhere near Noelani School play area and channel directly to Manoa Stream after the Woodlawn bridge.

In the Executive Summary for your Draft EIS, it is claimed that "The tentatively selected plan is 99.8 percent reliable in protecting portions of Honolulu Hawaii from a flood which has a 1 percent chance of occurrence in any year. The tentatively selected plan would reduce the average annual flood risk and would leave the average annual residual damage estimated at $999,999. ... The benefit-cost ratio is approximately 2.38:1.

Your studies make thousands of assumptions, are one dimensional, use coefficients that may not pertain to Hawaii's geography and tropical forest and uses an average of a handful of different methodologies that are all claimed to be the best but have different results. Throughout your engineering studies they use the word "peaky" as a basis for unpredictability and to justify themselves if the calibrated results don't correlate to the rain gauge readings and flow rates.

- How can you substantiate such a high claim of protection and certainty?
- Is the average residual damage estimated to be $999,999 accurate to one dollar?
- How much of the benefit-cost ratio be adjusted if you took UH out of the picture?
- If you just focused on saving Waikiki and used improvements only on public lands, how would that lower the benefit-cost ratio?
- I believe the ES-1 USACE computer generated rendering showing the 100-year storm affected area is a "SCARE tactic" , misleading, and not be accurately portrayed with the lack of information and data.
- I'm also against using the 2006 storm and the flooding on H-1 as a means to justify this project. If I recall correctly, the flooding had nothing to do with the intensity of the storm but more of a breakdown of a pump at the Punahou overpass bridge.

I question the reliability of all the methodologies being use because they are only as good as the data that you feed into them.

- There are only about a dozen of rain gauge stations and some are automatically read and some are manually read.
- For the size of the watershed and vast different in topography and one that has over 30 subbasins. Isn't there a severe lack of rain gauge stations and a lack of data?
- There are over 30 subbasins most of which contain rain gauges. Isn't it common knowledge that what is going on in one subbasin may be totally different in another?, How can you reasonably interpolate data from one rain gauge and apply it to several subbasins?
- Rain gauges in adjacent watersheds because a lack of data collection within the Ala Wai Watershed. Doesn't this reduce accuracy?
- Not a single rain gauge up St. Louis Heights and the ridge to the other side of the Koolaus?
- Data is used from a rain gauge located on Wilhelmina that is not included in the Ala Wai watershed. Again a lack of data collection and it should result in a lack of accuracy.
- How can a few rain gauges on the lower extremes of backside of Manoa accurately reflect what is going on at the top of the mountain?
- You use rain gauge collections on the Windward side of the island to support your claim of the severity of a storm. Doesn't this clear identify the lack of measurement facilities? A lack of accuracy and precision/
- Your modelings and diagrams are generated on data that has been interpolated over and over again and computed on shaky data.
- There is a lack of flow rate data at each subbasin and each fork of the streams and each bridge passings. There is no reason to interpolate or guess when you can easily install data collection equipment to improve your accuracy?
- Are the rain gauges and stream flow equipment calibrated and certified?
- What is the accuracy of the equipment and error tolerances?
- Are the reading bulletproof or can they be affected by the environment to give incorrect results? For example, a bird, branch, or insect plugging the intake of a rain gauge and debris blocking the stream giving a false height of the flow?
- Data stretches back for almost a century. How reliable is it to use this old data to compute the storm frequencies?
- Isn't it important to have accurate data? How valuable is it to have real ocean level measurements at the mouth of the Ala Wai Canal? Again, I don't think you can accurately interpolate data from Honolulu Harbor which is several miles away?
- Isn't it possible to have a rain gauge reading signaling a 500-year storm and have flow readings of maybe a 2-year storm?
- Isn't it possible to have a rain gauge reading signaling only a 10-year storm and have flow reading of a 100-year storm?
- The New Year's Flood of 1987 in Hahaione Valley was said to be a 500-year storm? Can data from that area be interpolated with accuracy to the Ala Wai Canal Watershed or or vice versa?

In a rather rushed review of the Ala Wai Canal Project, I have generated some questions, alternative thoughts and suggestions as follows:

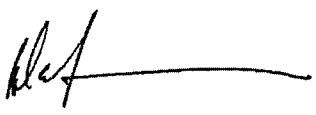
- What percentage of the rain runoff and storm drainage system dumps into the Ala Wai?
- Will there be backflow as the level of the Ala Wai exceeds the ground elevation of Waikiki?
- Why not install pumps to force main the rain runoff from Waikiki straight into the ocean?
- Why not use Kapiolani park as an emergency spillway?
- Why not use Fort DeRussy as an emergency spillway?
- Does the Upper Kaimuki subbasin dump into the Ala Wai?
- Why not install high capacity pumps similar to what is used in New Orleans and force main the Ala Wai Canal overflow straight off offshore into the ocean in the event of a 100-year storm?
- When is the intended design life of the Ala Wai Canal coming to an end in 2076 or 61 years from now? Why are we pouring all this improvements into the perimeter of the canal. Isn't it a waste of taxpayers money? Maybe the whole canal should be redesigned and improved with the latest engineering technologies to accommodate the 100-year storm.
- Alternate 1, a large detention basin designed to hold 11.5 million cubic feet or a series of smaller less visible detention basins on public land would be more viable? The larger landowners like the Catholic Church are in a better position to exchange land and work something out in the preliminary stages. They are better equipped to afford professional consultants to ensure fairness and are less likely to be personally affected by use of their lands.
- The the amount of water retained can be increased for the Ala Wai golf ?
- Channels next to Kaimuki High School and all the way up to Woodlawn can be expanded and used as Channel Full retention channel with adequate overflow capacities.
- Kanewai field should be reversed so that the school doesn't have a berm to cross over to use. Rather than a berm a concrete retaining wall similar to the Ala Wai Canal wall should be built and lined with moss rock along the residential side and replacing the corroded chainlink fence. Any use of the public parks or schools should be done in a way to enhance the area and improve the parks and schools uses to the benefit of the public. Why build something that is ugly or an eyesore with the sole intent of only solving the problem? Let's use Federal money to the maximum benefit of the public? Hey may be a portion of the maintenance of the park can paid for by the Feds to maintain the joint park and detention basin.
- Manoa Park and Palolo Park should also be looked at as suitable locations for detention basins. Storm water can be captured up stream at higher elevations through a spillway and channeled downstream to the public parks detention basins which will only function in times of the most severe storms and will naturally drain over a short period of time to reduce the time of concentrations. Much like how the taro patches of old Hawaii worked.
- Other alternative to handle the storm water from Palolo would be to use State Lands or other public lands. The State School properties throughout the watershed can be used and maybe even improved through the use of the public lands.
- Kaimuki High School Field is a large area?

- The volume capacity behind Dole Street bride next to the UH is huge.
- The volume capacity behind the St. Louis Drive bridge next to City Mill is huge.
- Several locations can be detained and have enough elevation and depth to develop head pressure. Storm water can be force main at a much higher velocity and a larger volume of storm water can be move down stream in a shorter amount of time through the Ala Wai Canal to a point where overflow risk is minimal? The Ala Wai Canal and the channel next to Kaimuki School is relatively flat with little slope. The velocities are very low and the Ala Wai Canal is like a slow moving reservoir with zero slope. High capacity pumps can assist. Pumps don't need the head so they can even be position anywhere within the Ala Wai Canal.
- What do the pumps at the end of Ala Wai Canal do? Low volume pumps into the ground? That doesn't make any sense. High capacity emergency pumps should be put in place to pump to a spillway through Kapiolani Park or directly off shore to the ocean.
- The same concept can be used adjacent to Fort DeRussey. Pump to an emergency spillway or out to the ocean. Other locations to consider would be adjacent to the major watershed intakes alone the Ala Wai Canal.
- Is the only alternative for several detention basins in the upper areas of Tantalus, Manoa, and Palolo absolutely necessary?
- Are there better site locations or alternatives that would comparable retention of storm water?
- It seems as though the use of public lands first was too quickly passed over and the small private landowners did not have a representative in the Project Delivery Team or have access to the Technical Advisory Team which placed the private landowners at a severe disadvantage compared to other stakeholders who were invited at the onset of the project.
- Your guidelines specifically states that you should get early feedback from the private landowner stakeholder in Section 2.1. The private landowner stakeholders were supposed to be invited to the "Open House Meetings" and the EIS process should be deemed not in compliance with HRS Chapter 343 and NEPA.
- It should not be assumed that a Neighborhood Board, a Condo Association, a Community Association will properly represent the individual property owners who are directly affected by the Ala Wai Canal Project. Many of these other Stakeholders are government agencies with paid staff members to lookout for only their personal agencies interest. Most will not even read or take the time to study the technical data, results, and designs. The Catfish had better representation than the private landowners.
- Developable residential properties are very scarce in town and even more so in Manoa Valley and Palolo Valley. Why reduce the development potential of providing much needed housing to these areas? Let alone condemn properties with homes on it and directly affect the housing inventory.
- Private land and values can substantially change in value and use from now to the time the project receives all the necessary approvals and funding? This can be a major setback in the projects schedule or budgeting.
- Property values in many areas of Oahu have more than doubled in 10 years. Your economic assessment is outdated and several year old and based on property tax assessment which in many cases could be way low from an appraisal or best use of the land or income valuation based on rental income potential.

- Basically, the Ala Wai Canal Project has less control of what a private landowner does until you secure the property unless an agreement is reached prior to condemnation whereas very little will change on government and public lands.
- Considering that the composition of the project could change, or different alternatives selected, or the project not receive funding for several years. It is detrimental, highly restrictive, ads risk, and limits a private landowner's rights and free uses of their land. For example, upon your designating the use on an individual's property the appreciation in value will come to a halt. The property becomes less valuable and unsellable. The property is less liquid and if for some reason the owner needed to sell, he would have to disclose the situation, and who on earth would want to buy a property that is in limbo.
- A better solutions would be to look for a site further up the watershed or stream. Some of these areas have hiking trails that are difficult to access and have very limited parking. Access to public lands for public recreational uses have a very high value and are popular if done the right way. Detention basins don't have to be a large earthen dam. The can be thinner concrete walls with moss rock facing. They can be integrated into a trail that meanders through a winding stream. Leave the natural stream and don't excavate for increased volume. It destroys the natural beauty of the streams so what if you have to put a series of smaller detention basins, if done right it can be a thing of beauty and would provide access to areas otherwise unaccessable. Other options would be to incorporate the detention area in to a parking lot but disguised in such a way that no one can tell. Access is important to our public lands and better access also permits better maintenance and upkeep with trash receptacles to keep the place clean.
- A lot of our playground areas and public park spaces are unusable because of the grading. These unusable spaces have been like that for all my life and will never change. But this can be an opportunity to improve and expand a public playground or park facility again if done correctly.

In short, I believe there is a need for improved storm protection for the Ala Wai Canal Project. I favor eliminating the use of all private properties unless the current ownership is will to partner with the project. The PDT should work with owners of potential sites at the very earliest stages. I favor coordinating this project and integrating it with not only flood protection but use it as an avenue for better access to public lands and hiking trails, improvement to public parks, public district parks, and school lands. I'm in favor of eliminating all controversial and unpopular designs and focus on less impacted parties. For example, focus on the Ala Wai Canal wall and the Ala Wai Golf Course and other flood protections at the lower extreme of the watershed. Stay within the Ala Wai Channel area. Ala Wai Districk Park, Kaimuki High School field. Fort DeRussy, Kapiolani Park. Fix Woodland bridge and East Manoa bridge to make sure UH is protected from a 100-year plus storm. I think the project the way it stands is too complicated and has too many elements that will only slow down the project and/or kill it. Good for job security for a bunch of people and consultants but does little to help solve the problem and highest economical risk to Waikiki and UH. I hope to add and expand to my comments and concerns. This letter was put together on short notice and rush so my be incomplete and in some cases unverified. Thank you for your time and consideration. Should you have any questions, you can reach me on my cel at 728-0759 or email me at dwatase@hotmail.com.

Aloha, Dave Watase



US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Councilmember Ann Kobayashi
City and County of Honolulu
530 South King Street, Room 202
Honolulu, Hawaii 96813-3065

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments on behalf of your constituents including Iolani School and David Watase. Response to both parties has been provided in writing and are attached to this letter.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Timothy Cottrell
Iolani School
563 Kamoku Street
Honolulu, Hawaii 96826

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Concerns regarding public outreach
- Alternative Plan Selection
- Concerns of Iolani School regarding the absence of a floodwall on school property
- Economic optimization of the recommended plan
- FEMA Floodzone Designation

Public involvement and agency coordination is summarized in Section 6 of the FEIS. Initial scoping of the EIS was conducted in 2004 with a supplemental scoping meeting conducted in 2008. Iolani School feedback was solicited at both EIS scoping points. Summaries of feedback received is attached to this letter. The following individuals are included on e-mail distributions as representatives of the school:

- Glenn Ching
- Reid Gushiken
- Dr. Yvonne Chan
- Megan Kawatachi
- Hye Jung Kim

Table 38 details public and agency coordination that has been undertaken since the re-scoping of the study in 2012. This includes over forty separate outreach measures. During this period, the following notices were provided to those individuals on the e-mail distribution list:

- 19 MAY 2014 Open House invitation
- 03 JUN 2014 Open House slideshow availability
- 24 AUG 2015 Draft FR/EIS and Public Meeting initial notice
- 26 SEP 2015 Draft FR/EIS Public Meeting reminder
- 07 OCT 2015 Draft FR/EIS Public Meeting follow up

As noted above, a public meeting to review the FEIS during the public review period was conducted in September 2015 along with multiple follow-up meetings with legislators, interested stakeholders and neighborhood commissions. No further public meetings are planned during the feasibility phase of the FEIS.

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

When evaluating the effectiveness of the recommended plan included in the FEIS, it is important to recognize that the threat and consequence of flooding to the Iolani School in the existing study area conditions is significant. If the school does not have plans in place to manage the safety of students during a flood event, you are strongly encouraged to develop such plans to address the current existing threat (in the FEIS, this is defined as the without-project condition). If implemented, the recommended plan included in the FEIS reduces, but does not eliminate that flood risk for the school property relative to the without-project condition. Note that the recommended plan neither induces flooding on the property nor increases the existing flood stage but rather is projected to reduce flood stages by approximately two feet resulting from a 100-year flood event (1-percent chance annual exceedance), measured at a node immediately upstream of the school location on the Manoa Stream. The reduction of the flood stage at the site is due to the upstream storage provided by the recommended plan. As a result, both the likelihood of flooding and the consequences of flooding will be reduced for the school if

the recommended plan is constructed. With that said, even with implementation of the recommended plan, residual risk of flooding remains throughout the watershed. The flood warning system proposed as a part of the recommended plan will notify those threatened by flood risk when both water levels are rising and when action should be taken to vacate flood prone regions of the study area.

Designs and engineering associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs and benefits, and consider environmental impacts. The design and engineering of project features has undergone both an internal agency technical review as well as an independent external peer review and was deemed sufficient for the purposes of the FEIS. Following technical reviews, changes to input parameters for hydrology, hydraulic and economic analysis have been completed to fully comply with current USACE policies and regulations. Hydrology and hydraulic analyses are discussed in detail in Appendix A, and the economic analysis completed for the study is included in Appendix B of the final FEIS. Sea level rise is included in the analysis provided under Appendix A for the purpose of evaluating the resiliency of the recommended plan to a changing environment; sea level varies over time and increases under a number of scenarios. The result of the revised technical analysis has not changed the recommended plan. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase.

USACE has developed hydraulic information which can be utilized by regulatory agencies and the public as a part of the National Flood Insurance Program (NFIP). It is possible that FEMA could make adjustments to the floodplain without the project in place; however, USACE cannot speculate on the timing of any potential FEMA floodplain map revisions. All property owners are encouraged to participate in the NFIP to manage risks associated with flooding.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

July 6, 2004

Ms. Sherri Hiraoka
Townscape, Inc.
Environmental and Community Planning
900 Fort Street Mall, Suite 1160
Honolulu, HI 96813

RE: ALA WAI CANAL PROJECT EIS SCOPE

Dear Ms. Hiraoka:

We appreciate this opportunity to submit comments to the Ala Wai Canal project.

In reviewing the information presented on June 29, we have the following observations:

1. There seems to be an over-reliance on the Manoa-Palolo Drainage Canal to handle the volume of water coming down from the mountain areas in the event of the 100-year storm. High tides would prevent drainage and while Ala Wai Golf Course and Kaimuki High School fields act as detention areas, they also appear inadequate.

2. Parts of the Manoa-Palolo drainage canal have concrete ducts while the canal area makai of Kaimuki High School does not. Vegetation and debris along the banks would cause refuse washed down to become entangled, thus restricting flow. The banks makai of the Date Street bridge are relatively low allowing flooding near Iolani School.

3. Dredging of the Ala Wai Canal to a deeper depth did not pass beyond the Manoa-Palolo drainage canal in the Diamond Head direction, and dredging of the Manoa-Palolo canal stopped adjacent to the Ala Wai B softball field, well short of the Date Street bridge.

4. The price tag of $30 - $60 million did not seem to include regular, periodic maintenance of the canal depth, bridge spans, concrete channels, and bank clean up.

5. Erection of floodwalls around the canal, while an engineering solution, would not be conducive to the Waikiki vistas and would be subject to graffiti and vandalism.

6. Widening the lower section of the Ala Wai Canal is a good engineering solution.

We have the following comments:

1. Allow a connection of the Ala Wai Canal to the ocean on the Kapahulu end to have a "flushing" action and to equalize water volume on both ends.

2. Allow Kapiolani Park to also become a water detention area through the "Kapahulu" connection.

3. Build up concrete banks and remove vegetation along the Manoa-Palolo Drainage Canal especially makai of the Date Street bridge. Since it is the area which empties into the Ala Wai Canal, it would be susceptible to blockage.

4. Construct spill ways along the Manoa-Palolo Drainage Canal which allow flood waters to go into the designated detention areas when the water levels rise above a certain height.

5. Reinstate the original stream path which traversed the Ala Wai Golf Course. It emptied near the Waikiki Library. Restoration of the natural habitat can happen here relatively undisturbed and made part of the golf course challenges.

6. Dredge the Manoa-Palolo drainage canal and the entire Ala Wai Canal length on a regular basis.

7. Examine whether the spans of the other bridges along the drainage canal need modifications like the McCully and Ala Moana bridges.

8. Continue community education and bulk refuse collection efforts to reduce dumping into the streams feeding into the Manoa-Palolo drainage canal.

9. The project's funding should also include regular, periodic maintenance to the flood mitigation measures.

Thank you for your consideration. Please contact me at 943-2209 if you have questions.

Sincerely,

Glenn Ching
Director of Finance

cc: State of Hawaii
Department of Land and Natural Resources, Engineering Division
P.O. Box 373
Honolulu, HI 96809
Attn: Andrew Monden

TOWNSCAPE, INC.
ENVIRONMENTAL AND COMMUNITY PLANNING

900 Fort Street Mall, Suite 1160, Honolulu, HI 96813
Telephone (808) 536-6999 Facsimile (808) 524-4998
email address: mail@townscapeinc.com

ALA WAI WATERSHED PROJECT (AWWP)
COMMUNITY CONSULTATION

Date: **June 17, 2009**
To: **Project Files**
From: **Townscape**
RE: **Meeting with Glenn Ching**

Participants: Glenn Ching, ʻIolani School, Director of Finance; Agnes Topp, Townscape.

The purpose of the meeting was to discuss issues associated with the lower portion of the Mānoa-Pālolo stream, near ʻIolani School, and to provide an update to Mr. Ching on the Ala Wai Watershed Project.

Background on the Ala Wai Watershed Project

- The Ala Wai Watershed Project (AWWP) is a partnership between the Army Corps of Engineers, the State Department of Land and Natural Resources, and City and County Environmental Services. After earlier iterations that looked at portions of the Ala Wai Watershed (specifically, the Ala Wai Canal and Mānoa Stream), the project is now taking a more holistic approach, looking at potential issues and mitigation in the entire watershed, which includes the neighborhoods of Makiki, Mānoa, Pālolo, St Louis-Kapahulu-Diamond Head, McCully-Mōʻiliʻili-Ala Moana, and Waikīkī.
- The project is currently in the feasibility phase, where we are gathering all necessary information to design flooding mitigation and ecosystem restoration measures. When the project team has preliminary measures designed, we will begin conducting neighborhood-level meetings to discuss potential measures and collect feedback from affected communities. These meetings should occur some time in the fall of 2009.

Lower Mānoa-Pālolo Stream Issues in the vicinity of Iolani School

- Upstream of the Date Street bridge, the Mānoa-Pālolo drainage canal has concrete banks and bottom, while on the *ma kai* side it has natural banks and bottom. This causes buildup of soil in the lower portion of the canal.
- The canal by ʻIolani School is about 5 feet deep. Silt buildup at the bottom is visible at low tide. When the Ala Wai Canal was dredged a few years back, they did not dredge the Mānoa-Pālolo drainage canal.
- ʻIolani School is concerned about the maintenance of the stream banks and vegetation in the lower Mānoa-Pālolo drainage canal. Stream banks are vegetated primarily with kiawe trees, milo trees, and mangrove. The mangrove in certain areas is encroaching into the stream and causing additional silt buildup.
- ʻIolani has been doing maintenance of the vegetation along the stream banks next to the portion of the bike path that the school maintains as part the Adopt-A-Park program. Maintenance includes removing broken branches in the stream, cutting tree branches that hang too low over the stream, and cutting some of the mangrove that is encroaching into the stream. ʻIolani is interested doing additional maintenance, such as removing more of the mangrove, and the nearby community has been proactive in helping to clean up the area, but they are not sure what they are allowed to do. (I provided Glenn with information about the "Adopt-A-Stream" program managed by the City's Environmental Services Division.) In the portion of the stream *ma kai* of Iolani, very little maintenance is being done and the vegetation encroaches farther into the stream.
- During the 2004 flood, the stream came up onto the road adjacent to ʻIolani School. The flood did not affect the school.
- Stream bank stabilization and increased bank height would be a good idea to decrease flooding in that area.

Community Members to Involve in Neighborhood-level Meetings

- 100th Infantry Battalion veterans club – located across the street from ʻIolani School at 520 Kamoku Street.
- Ala Wai School
- Condos in the neighborhood, including Kaimana Lanai Condo and 500 University.

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Dave and Nola Watase
1537 Ala Aoloa Loop
Honolulu, Hawaii 96819

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Concerns regarding public outreach
- Alternative Plan Selection
- Uncertainties related to the technical analysis

Public involvement and agency coordination is summarized in Section 6 of the FEIS. Initial scoping of the EIS was conducted in 2004 with a supplemental scoping meeting conducted in 2008. Table 38 details public and agency coordination that has been undertaken since the re-scoping of the study in 2012. This includes over forty separate outreach measures. A public meeting to review the FEIS during the public review period was conducted in September 2015 along with multiple follow-up meetings with legislators, interested stakeholders, neighborhood commissions and property owners directly affected by the recommended plan. No further public meetings are planned during the feasibility phase of the FEIS.

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints. Criteria considered is provided in Table 2 which includes the availability of land, the degree to which people or existing uses would be displaced and the consistency with applicable laws and regulations. Siting of

detention basins in particular is generally focused on stream reaches where natural stream beds and banks exist to maximize the effectiveness and efficiency of the structures.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

Designs and engineering associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs and benefits, and consider environmental impacts. The design and engineering of project features has undergone both an internal agency technical review as well as an independent external peer review and was deemed sufficient for the purposes of the FEIS. Following technical reviews, changes to input parameters for hydrology, hydraulic and economic analysis have been completed to fully comply with current USACE policies and regulations. Hydrology and hydraulic analyses are discussed in detail in Appendix A, and the economic analysis completed for the study is included in Appendix B of the final FEIS. The result of the revised technical analysis has not changed the recommended plan. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase.

Implementation of the recommended plan will require the acquisition of private property. The exact timing of land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature, including any necessary amendments for public safety. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. A property by property assessment will be conducted in coordination with the non-Federal sponsor after project authorization, if the project is authorized by Congress.

The process of acquiring property for a project is highly regulated. The Fifth Amendment of the Constitution states that private property shall not be taken for public use without just compensation. To address what constitutes just compensation, Congress passed the Uniform Relocation Assistance and

Real Property Acquisition Policies Act of 1970 (“Uniform Act”). The non-federal sponsors will be required to follow the Uniform Act in acquiring any lands. USACE will work with the non-Federal sponsors to ensure the correct process and procedures are adhered to throughout the process.

Generally speaking the value of land acquired is the fair market value of the property. The fair market value includes many aspects of the property in question. Earning potential is one of those aspects to be addressed in developing a fair market value. Regardless of the value determined, Public Law 91-646 outlines the requirements that must be followed to ensure a homeowner/landowner is compensated justly.

Part of the process will be an appraisal, which determines the fair market value of the property. Fair market value is an estimate of the market value of a property based upon what a knowledgeable, willing, and unpressured buyer would pay. The appraisal will attempt to take all objective property features into account when determining fair market value. The fair market value is determined without consideration for the effect the project has had on the value of the land. For more information on the process for acquisitions please go to: http://www.fhwa.dot.gov/realestate

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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The Senate

STATE CAPITOL
HONOLULU, HAWAII 96813

November 9, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

State of Hawai`i, DLNR Engineering Division
ATTN: Gayson Ching
P. O. Box 373
Honolulu, HI 96809

RE: Ala Wai Canal Project, O`ahu, Hawai`i
Draft Report: Feasibility Study with Integrated Environmental Impact Statement

Dear U.S. Army Corps of Engineers and
State of Hawai`i Department of Land and Natural Resources:

Thank you for the opportunity to submit these comments on the above Draft Report. The Ala Wai Canal Project was initiated in 1998, and it has been a long process to get to this point.

A significant expansion of the project's study area to include the mauka areas of the Ala Wai Watershed to the Koolau crest occurred after the very destructive October 30, 2004 Mānoa Stream flood, which was estimated to have been a 5-percent annual chance ("20-year level") event. In 2006 occurred a period of more than 40 consecutive days of significant rainfall on O`ahu, which resulted in mud flow damage to the Puuhonua neighborhood in Mānoa, cinder soil landslides on Round Top and into Maunalaha Valley, and Makiki Stream floods makai of South King Street. These are the recently experienced major storm and flood events in the Ala Wai Watershed; the next events are only a question of when, not if, they will occur.

The Draft Report does not adequately address the need for ecosystem restoration in the upper areas of the Ala Wai Watershed. I understand that the feasibility study was rescoped to focus on flood risk management, thereby eliminating other project objectives. However, the Final Report should provide more information to guide the U.S. Congress, the local sponsors, potential private partners, and community at large about the overall scope of measures that would serve to mitigate storm water runoff and further improve flood risk management in the Ala Wai Watershed. This information would help to guide the decision-making necessary for Congressional authorization and approval of the project, and future public and private funding needs and efforts to further improve the resilience and stewardship of the area.

Also needed before completion of the Final Report is direct outreach to those real property owners who may be affected by the proposed siting of and means of access to the

detention basins included in the Tentatively Selected Plan. Many residents in Palolo and Mānoa have expressed their concerns about likely losing their real property to eminent domain after discovering at the USACE September 30, 2015 public meeting that their lots would be directly affected by the Plan.

I strongly encourage the U.S. Army Corps of Engineers and Department of Land and Natural Resources to fully complete the Final Feasibility Report/EIS by the end of 2016 to be able to move ahead with seeking Congressional authorization and approval.

I also strongly encourage DLNR and the City and County of Honolulu as the local sponsors to make the necessary commitments for the Ala Wai Canal Project to continue to move forward.

Many decisions in addition to providing the required cost share funding remain to be made and must be addressed to accomplish the flood risk management, public safety, and economic protection objectives of the Ala Wai Canal Project. Significant efforts began in January 2015 that have led to the formation of the Ala Wai Watershed Partnership, which recognizes the need for private participation to help fund elements of the project and to address other resilience and long-term sustainability needs of the Ala Wai Watershed through public-private partnering.

Please keep me informed of the progress on the Final Feasibility Report/EIS and what steps are needed to accomplish the commitments of the local sponsors to assure submittal of the Final Report to the U.S. Congress.

Sincerely,

Brian T. Taniguchi
Hawaii State Senator, District 11

Senator Brian T. Taniguchi
District 11: Mānoa, Makiki, Punchbowl, Papakōlea – O'ahu
State Capitol, Room 219 • 415 South Beretania Street • Honolulu, Hawai'i 96813
Telephone 808-586-6460 • Fax 808-586-6461 • E-mail sentaniguchi@capitol.hawaii.gov

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Senator Brian Taniguchi
Senate, State of Hawaii Capitol
415 South Beretania Street, Room 219
Honolulu, Hawaii 96813

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Absence of ecosystem restoration features within the recommended plan
- Concerns of affected landowners regarding real estate acquisition

As noted, the Ala Wai Canal study was originally developed as a multi-purpose flood risk management and ecosystem restoration study. Congressional mandates forced USACE to focus on critical issues with the study area to bring the on-going study to a conclusion within a mandated three year period, starting in late 2012. Discussions during this time between the USACE Honolulu District, USACE Headquarters, and the non-Federal sponsor, the DLNR, led the study team to focus exclusively on the flood risk portion of the study. This is the foundation of the current recommended plan. Opportunities for ecosystem restoration within the Ala Wai Canal Basin remain and are currently being evaluated by the non-Federal sponsor and others, however, ecosystem restoration features will not be a part of the FEIS recommended plan or a Federal recommendation to Congress.

Implementation of the recommended plan will require the acquisition of private property. The exact timing of land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. A property by property assessment will be conducted in coordination with the non-Federal sponsor after project authorization, if the project is authorized by Congress.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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2716A S. King Street
Honolulu, Hawaii 96826
November 8, 2015

Honolulu District Office, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, Hi 96858

Dear Sirs:

My concern is that even after the Manoa Stream overflowed in 2004 and damaged the nearby neighborhood and the University of Hawaii Hamilton Library, the project to address flood controls in the Ala Wai Watershed will not be implemented until 2021.

My understanding is that the U.S. Army Corps of Engineers will send the final version of the proposed Ala Wai Canal Project in January 2017 for congressional approval; then, the project is expected to start in 2021.

However, within six years before the start of the project, the State and City could mitigate future damage from heavy rains and storms by, intermittently, clearing the debris and rocks in the streams. One problem is that private owners of part of the streams may not wish to incur that expense. Also, because of financial and budget concerns, the State and City may not approve expending the money for the above.

Therefore, the neighborhoods of Makiki, Manoa, Palolo, Moiliili, Kapahulu, and Waikiki could be damaged from heavy rains and storms until the Ala Wai Canal Project is implemented in 2021.

Sincerely,

Janet Inamine

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Janet Inamine
2716A South King Street
Honolulu, HI 96826

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Concerns regarding flood risk prior to project implementation

The FEIS is currently in the feasibility phase which is concluded with a recommendation to Congress for both an investment of Federal funding and authorization for construction. Without funding and authorization, the role of USACE in assisting with flood risk management within the basin is limited. Should Congress provide the authorization and funding required, USACE will execute designs and construction activities with the most efficient schedule allowed, but the flood risk management contemplated in the FEIS would not become fully functional until completion of the construction.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

McCULLY/MO'ILI'ILI NEIGHBORHOOD BOARD NO. 8

c/o NEIGHBORHOOD COMMISSION • 530 SOUTH KING STREET, ROOM 406 • HONOLULU, HAWAII, 96813
TELEPHONE: (808) 768-3710 • FAX: (808) 768-3711 • INTERNET: http://www.honolulu.gov/nco

9 November 2015

Honolulu District USACE
ATTN: Ala Wai Canal project
Bldg. 230, CEPOH - PP – C
Fort Shafter, HI 96858

Aloha,

I've been tasked by the McCully – Mo'ili'ili Neighborhood Board #8 to write a letter expressing our concerns, on the Ala Wai Canal Project, rather than doing a Resolution.

1. Operation & Maintenance. (O & M)
   A. I believe I've heard USACE state, "they will develop an O & M manual for local sponsors. Will only state and city agencies be included in the generation of this manual, or will the public stakeholders be included also?
   B. Costs for the O & M were stated as $1 million/ year for the entire project. Can this be broken down to each catchment/retention area? City, state and stakeholders need to know the size and scope of their monetary involvement. Especially the stakeholders.
   C. Debris catchment. Will the O & M manual specify/mandate/lay out a timetable or schedule for clearing these catchments? Ingress, liability and security for entering these areas also need further clarification.
   D. Size and Depth of Catchment/Retention basins. Will these become an "attractive nuisance" for our young people and visitors as a place to swim, etc.?

2. Other Concerns.
   A. The use of eminent domain to acquire private property has been expressed as a concern from Makiki, Palolo and Manoa valley residents. Response to these stakeholders? Especially to the property owners that will live "next door" to these basins re: liability, trespassers, etc.
   B. Why isn't Kanewai Park being utilized as a retention/detention basin?
   C. Iolani and Ala Wai Elementary Schools are next to the Manoa/Palolo Streams as it enters the Ala Wai Canal. Why is there no floodwall being recommended to protect these properties?

Respectfully,

Ron Lockwood, Chair
McCully – Mo'ili'ili Neighborhood Board #8

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Ron Lockwood
McCully/Moiliili Neighborhood Board No. 8
530 South King Street, Room 406
Honolulu, HI 96813

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Operations and maintenance of the recommended plan
- Private property acquisition
- Plan formulation and consideration of alternative plans

Table 9, page 3-22 of the draft FEIS (page 3-23 of the final) details cursory operations and maintenance requirements based on project feature. These obligations are identified during the feasibility phase for the purpose of developing initial cost estimates. If approved, a detailed operations and maintenance plan will be developed during the design phase of the study. Operations and maintenance are the responsibility of the non-Federal sponsor, however, it is not anticipated that the general public would be involved in operations and maintenance of flood risk management features. Debris and detention structures are intended to pass normal stream flows. The structures are designed to function only during storm events, therefore, no impoundment of water is anticipated outside of such storm events.

Implementation of the recommended plan will require the acquisition of private property. The exact timing of land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. The FEIS includes the estimated costs of real estate acquisition required for implementation of the recommended plan based on a gross appraisal. A property by property assessment will be conducted after project authorization, if the project is authorized by Congress.

Real estate acquisitions are the responsibility of the non-Federal sponsors. The non-Federal sponsors will establish timetables for real estate acquisitions once the project has been authorized and funded based upon the needs of the project and available resources. If a property, or a portion of it, needs to be acquired, the property owner will be notified as soon as possible of the need to acquire the property. A qualified appraiser will be hired by the non-federal sponsors to determine the market value of the property. The appraiser must make a detailed appraisal report of his or her findings. The sponsors forward the report to USACE for review and confirmation of the quality and validity of the findings. Once the market value report is accepted, the property owner will be notified of the findings and the value determined will be the starting point for negotiations. For more information on the process for acquisitions please go to: http://www.fhwa.dot.gov/realestate

USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water

Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints. Specific line-of-protection for the Iolani and Ala Wai Elementary Schools was eliminated from consideration using the criteria specific in the FEIS, however, both facilities will benefit from a reduction in flood risk due to the measures recommended in the upstream watershed.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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HAWAII STATE SENATE

Senator Les Ihara, Jr. • Hawaii State Senate
State Capitol, Room 220 • Honolulu, HI 96813

November 9, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

Subject: Ala Wai Canal Project Draft Feasibility Study and Integrated EIS

It has been almost twenty years since the Ala Wai Canal Project was launched by the U.S. Army Corps of Engineers and Hawaii's Department of Land and Natural Resources to address flooding concerns along the canal. I appreciate USACE for taking the lead to plan, design, and produce project materials, including the draft feasibility study and integrated environmental impact statement. My comments on this feasibility study and EIS are provided below.

Several constituents and organizations in my senate district have expressed concerns about potential project impacts on their property, and I'm confident they will submit their comments. To ensure that constituents have adequate opportunity to express concerns, I may request meetings with USACE and consideration of constituent proposals or mitigation measures.

As you know, Iolani School would like to avoid having half their school campus flooded a few inches during a 100-year flood. To address this, they have requested that the project include a wall along the Manoa-Palolo Drainage Canal adjacent to their property. I would like to request that USACE estimate the construction cost of a wall or berm at the minimum height necessary to avoid flooding of the Iolani School campus.

I understand that several privately owned parcels in Palolo Valley are proposed for use as a debris and detention basin, and that USACE is now aware of several publicly owned alternative sites. I would like to request that USACE determine the feasibility of using public lands in order to avoid condemning private property where possible.

It appears the USACE feasibility study and EIS does not discuss the criteria for selecting use of a floodwall or a berm, nor the feasibility of placing pumping stations underground. I would like to request inclusion of such discussion of criteria in the final report. Finally, while a tsunami is unlikely to occur during a 100-year storm event, I would like the report to discuss the impacts a tsunami might have on the community after the project is completed.

If you have any questions, or if I can be of assistance in addressing concerns of constituents, please feel free to contact me. Thank you.

Sincerely,

Les Ihara, Jr.
State Senator, 10th District

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Senator Les Ihara
Senate, State of Hawaii Capitol
415 South Beretania Street, Room 220
Honolulu, Hawaii 96813

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Concerns of Iolani School regarding the absence of a floodwall on school property
- Concerns of affected landowners regarding real estate acquisition
- Selection of project features and aesthetics of proposed designs

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. Details regarding planning considerations leading to the development of alternative plans can be found in Section 3 of the FEIS. As noted, a floodwall has not been proposed on the property owned by the Iolani School. Section 8.3.1 describes the rationale for excluding this area from floodwall protection. However, the Iolani School property will benefit from the recommended plan as upstream storage is projected to reduce the projected 100-year flood stage (1-percent annual chance exceedance event) by approximately two-feet directly upstream of the school. The economic analysis presented in the Feasibility Report and integrated Environmental Impact Statement uses the standard methodology prescribed by the Water Resources Council's "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" and the USACE Engineer Regulation 1105-2-100. All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts.

Implementation of the recommended plan will require the acquisition of private property. The exact timing of land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. A property by property

assessment will be conducted in coordination with the non-Federal sponsor after project authorization, if the project is authorized by Congress.

The design of project features is focused on the most economical design that will provide the needed function while observing compliance with applicable Federal law. Pump stations are above ground to avoid costs associated with sub-surface placement and must contain maintenance features which will allow for annual remove and inspection of pumps. The design of floodwalls and the pump stations must meet the criteria set forth in Section 106 of the Historic Preservation Act. This design will be coordinated with the State Historic Preservation Office to ensure appropriate design aspects are integrated into the project to ensure preservation of the historic value of the area.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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TO: Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

State of Hawai`i, DLNR Engineering Division
ATTN: Gayson Ching
P. O. Box 373
Honolulu, HI 96809

FROM: Tom Heinrich, President JTH
Ala Wai Watershed Association
P. O. Box 2808
Honolulu, HI 96803-2808

Work: 808-586-6042
Cell: 808-551-4098

DATE: November 9, 2015

RE: Ala Wai Canal Project, O`ahu, Hawai`i
Draft Report: Feasibility Study with Integrated Environmental Impact Statement

Aloha! Thank you for the opportunity to submit these comments on the above Public Review Draft Report. I offer these summary comments in my capacity as President of the Ala Wai Watershed Association (AWWA). The Ala Wai Canal Project was formally initiated in 1998, and it has been a long process to get to this point. AWWA has followed the Project since the start and participated in a number of Project activities over the years, including providing volunteer assistance to do stream assessments and data collection.

AWWA had consistently advocated for the Ala Wai Canal Project study to include the mauka lands of the entire Ala Wai Watershed, which contributes the largest amount of water to the Canal. The original scope of the study was in fact expanded to the crest of the Koolau after the occurrence of the October 30, 2004 Mānoa Stream flood, which was estimated to have been a 5-percent annual chance ("20-year level") event.

In 2006 occurred a period of more than 40 consecutive days of significant rainfall on O`ahu, which resulted in mud flow damage to the Pu'uhonua neighborhood in Mānoa, cinder soil landslides on Round Top and into Maunalaha Valley, and Makiki Stream floods makai of South King Street. The State of Hawai'i Department of Land and Natural Resources (DLNR) has since completed two major projects on the east and west sides of Puu Ualakaa (Round Top) necessitated by the 2006 events.

These recently experienced major storm and flood events in the Ala Wai Watershed caused significant damage to residential, institutional, public, and infrastructure resources. The University of Hawai'i at Mānoa alone suffered more than $85,000,000 in damages from the 2004 flood. It is not a question of if, only *when*, the next storm events will occur. The effects of climate change on the frequency and magnitude of storm events and sea level rise have greatly increased the risks of flooding.

Due to other factors with the U.S. Congress and changes to the U.S. Army Corps of Engineers (USACE) study scoping process, the present Ala Wai Canal Project feasibility study was unfortunately rescoped to focus on flood risk management only, thereby eliminating other project objectives that had been considered and studied. These other objectives are necessary for the long-term for the resilience of the Ala Wai Watershed – the most densely populated area of the State, and to protect the role of Waikiki to the State economy.

Summary Comments

Community Outreach. In anticipation of the completion of the Final Report, USACE and DLNR need to significantly improve their outreach to the community by updating and broadening the scope of identified persons and organizations who should be notified and consulted as the Ala Wai Canal Project progresses. AWWA can help with that process, as personal networking is critical to the success of this task.

Cost vs. Cost Avoidance. The Project summary materials must make clear that while the Tentatively Selected Plan is directed at the 1% annual chance exceedance (ACE) level, the ultimate level of flood protection desired (ACE events of 5%, 2%, 1%, more/less?) is a political decision based on demand, available funding, economic benefit, effect on flood insurance rates, public-private partnering opportunities, the law governing the mission and duties of USACE, etc. The scope and final plan may be significantly different than the draft plan, as determined by those political choices and other factors.

Ecosystem Restoration. The Draft Report does not adequately address the need for ecosystem restoration in the upper areas of the Ala Wai Watershed. The Final Report should provide more information to guide the U.S. Congress, the local sponsors, potential private partners, and community at large about the overall scope of measures that would serve to mitigate storm water runoff and further improve flood risk management in the Ala Wai Watershed. This information would help to guide the decision-making necessary for Congressional authorization and approval of the project, and future public and private funding needs and efforts to further improve the resilience and stewardship of the area.

Ecosystem restoration especially in the mountainous and forested uplands of the Ala Wai Watershed is a long-term process and will require the community's participation, but is critical to O'ahu's water conservation and supply, storm water management, disaster preparedness, resilience, and sustainability as an isolated island community. Identification of the effects of invasive species (e.g., albizia trees and their high canopy) underscores the need for ecosystem restoration in the mauka areas.

Eminent Domain; Public Safety. At and since the USACE September 30, 2015 Draft Report public information meeting at Washington Middle School and November 5, 2015 discussion at Paradise Park hosted by the South O'ahu Soil and Water Conservation District, a number of residents of Palolo and Mānoa have expressed their concerns about likely losing their real property to eminent domain after discovering that their lots would be directly affected by the detention basins identified in the Tentatively Selected Plan (TSP).

While the design is currently only to the 35% level, before the Final Report is completed, direct outreach is needed to those real property owners who may be affected by the proposed siting of and means of access to the detention basins included in the TSP. Folks in the far mauka areas like Paradise Park in Mānoa (Waihi and Waiakeakua Detention Basins) and Carlos Long Street and La`i Road in Palolo (Pukele Detention Basin) are especially concerned about public safety and security risks by the creation of service road access to the secluded detention basins through their back of valley areas.

Operations and Maintenance; *Kuleana.* The local sponsors – the State of Hawai'i and City and County of Honolulu – are identified as being responsible for the long-term operation and maintenance of the Ala Wai Canal Project elements after completion of construction. The cost is estimated as

$928,000 annually. The Final Report needs to include the community at large as a responsible partner to assist with some of the O&M tasks and to revitalize the Hawaiian cultural practice of *kuleana* – everyone sharing in the tasks of stewardship of the watercourses, debris catchments, detention basins, and flood walls. Timely and consistent O&M is an absolute requirement to protect public safety.

USACE said it would develop an O&M manual for the local sponsors. AWWA strongly encourages the preparation of such a manual, inclusion of public participation plans for O&M, and the identification of best management practices for the community.

Drainage Culverts. Residents have expressed concerns about the size and length of the detention basin drainage culverts as posing risks to children, becoming an attractive nuisance, and increasing the risk of drowning during flood events. What can be done to prevent entry into the drainage culverts?

Use of Manoa Valley District Park. The TSP shows only an in-stream debris catchment on Manoa Stream at the Manoa Valley District Park site. Due to the damage incurred by the Lowrey Avenue and East Manoa Road neighborhoods upstream of the Woodlawn Drive Bridge from the flood waters that came through the field areas of Manoa Valley District Park, this large public open space should be included in the TSP as a detention basin site.

Stream Gages. There is an urgent need for a more comprehensive system of stream gages for real-time data collection and historical records. The Final Report should include this objective and provide information concerning how gages may be privately sponsored though the U.S. Geological Service.

'Iolani School has voiced concerns that the TSP does not provide any floodwall along the west side of the Manoa-Palolo Drainage Canal between the Ala Wai Canal and Date Street. Please explain why not.

Water Quality. Much of the preliminary effort that began in 1995 focused on possible measures, including by the community, that would help to improve water quality in the Ala Wai Canal. This objective needs to be addressed in the Final Report.

Agency Collaboration. The Final Report should include recommendations for complementary components that should be considered and list the types of things that other agencies (e.g., the Natural Resources Conservation Service) could help with as a basis for community follow-up.

Private-public partnering opportunities are developing to help fund the project and other resilience efforts in the Ala Wai Watershed. "Precovery" efforts for the long-term in the Ala Wai Watershed are in development, using the area as a "pilot/model project."

Other master plans are needed re ecosystem restoration, infrastructure resilience (e.g, bridges, utility structures), storm water drainage system capacity improvements (e.g., the University of Hawai'i at Mānoa campus), and building code requirements.

The Ala Wai Watershed Association strongly encourages the U.S. Army Corps of Engineers and Department of Land and Natural Resources to fully complete the Final Feasibility Report/EIS by the end of 2016 to be able to move ahead with seeking Congressional authorization and approval.

The Ala Wai Watershed Association also strongly encourages DLNR and the City and County of Honolulu as the local sponsors to make the necessary commitments for the Ala Wai Canal Project to continue to move forward, and when appropriate, fund their portion of construction costs once the U.S. Congress provides authorization for the project.

Many decisions in addition to providing the required cost share funding remain to be made and must be addressed to accomplish the flood risk management, public safety, and economic protection objectives of the Ala Wai Canal Project. Significant efforts began in January 2015 that have led to the formation of the Ala Wai Watershed Partnership, which recognizes the need for private participation to help fund elements of the project and to address other resilience and long-term sustainability needs of the Ala Wai Watershed through public-private partnering.

Please keep the Ala Wai Watershed Association informed of the progress on the Final Feasibility Report/EIS and what steps are needed to accomplish the commitments of the local sponsors to assure submittal of the Final Report to the U.S. Congress.

Thank you for your consideration of these comments.

Tom Heinrich

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Tom Heinrich
Ala Wai Watershed Association
PO Box 2808
Honolulu, Hawaii 96803-2808

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Concerns regarding public outreach
- Alternative Plan Selection
- Concerns of Iolani School regarding the absence of a floodwall on school property
- Economic optimization of the recommended plan
- Absence of ecosystem restoration features within the recommended plan
- Concerns of affected landowners regarding real estate acquisition
- Operations and maintenance of the project features
- Improvement to water quality within Ala Wai Canal
- Planning and collaboration with other agencies

Public involvement and agency coordination is summarized in Section 6 of the FEIS. Initial scoping of the EIS was conducted in 2004 with a supplemental scoping meeting conducted in 2008. Table 38 details public and agency coordination that has been undertaken since the re-scoping of the study in 2012. This includes over forty separate outreach measures including a presentation to your organization. In addition, a public meeting to review the FEIS during the public review period was conducted in September 2015 along with multiple follow-up meetings with legislators, interested stakeholders and neighborhood commissions. No further public meetings are planned during the feasibility phase of the FEIS.

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. Details regarding planning considerations leading to the development of alternative plans can be found in Section 3 of the FEIS. As noted, a floodwall has not been proposed on the property owned by the Iolani School. Section 8.3.1 describes the rationale for excluding this area from floodwall protection. However, the Iolani School property will benefit from the recommended plan as upstream storage is projected to reduce the projected 100-year flood stage (1-percent annual chance exceedance event) by approximately two-feet directly upstream of the school. The economic analysis presented in the Feasibility Report and integrated Environmental Impact Statement uses the standard methodology prescribed by the Water Resources Council's "Economic and

Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" and the USACE Engineer Regulation 1105-2-100. All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. The recommended plan includes 100-year protection (1-percent annual chance exceedance event) for areas along the Ala Wai Canal; the level of protection provided by the recommended plan was selected as the economically optimized plan.

As noted, the Ala Wai Canal study was originally developed as a multi-purpose flood risk management and ecosystem restoration study. Congressional mandates forced USACE to focus on critical issues with the study area to bring the on-going study to a conclusion within a mandated three year period, starting in late 2012. Discussions during this time between the USACE Honolulu District, USACE Headquarters, and the non-Federal sponsor, the DLNR, led the study team to focus exclusively on the flood risk portion of the study. This is the foundation of the current recommended plan. Opportunities for ecosystem restoration within the Ala Wai Canal Basin remain and are currently being evaluated by the non-Federal sponsor and others, however, ecosystem restoration features will not be a part of the FEIS recommended plan or a Federal recommendation to Congress.

Implementation of the recommended plan will require the acquisition of private property. The exact timing of land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. A property by property assessment will be conducted in coordination with the non-Federal sponsor after project authorization, if the project is authorized by Congress.

Attached is the 35% design for the Pukele Debris and Detention Structure. The top of the structure is intended to serve as an overflow spillway, not a structure utilized for public access. Section C-C shows that the top of the structure is 441' in elevation whereas the spillway elevation is located at 437' with vertical side slopes on the furthest lateral extent of the spillway. The assumed four foot elevation difference would not be conducive to either vehicle or pedestrian traffic across the structure. If constructed, ownership, operations and maintenance of the structure would be the responsibility of the non-Federal sponsor.

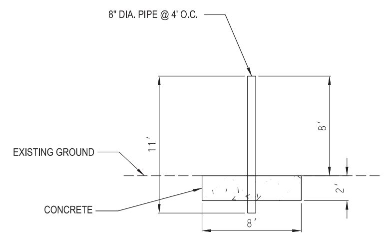
Table 9, page 3-22 of the draft FEIS details (page 3-23 of the final) cursory operations and maintenance requirements based on project feature. These obligations are identified during the feasibility phase for the purpose of developing initial cost estimates. If approved, a detailed operations and maintenance plan will be developed during the design phase of the study. Operations and maintenance are the responsibility of the non-Federal sponsor, however, it is not anticipated that the general public would be involved in operations and maintenance of flood risk management features. Debris and detention structures are intended to pass normal stream flows without impounding water. The structures are designed to function only during storm events, therefore, no impoundment of water is anticipated outside of such storm events.

The non-Federal sponsors must enter into a Project Partnership Agreement with USACE to construct the Project. This agreement sets the required cost sharing of the Project between the non-Federal sponsors and the Federal government and requires that the non-Federal sponsors be solely responsible for the Operation and Maintenance of the Project. The sponsors are responsible for financing their local share and operation and maintenance costs.

Note that while streamflow gauges are proposed for Ala Wai Canal as a part of the flood warning system, unfortunately, the issues related to water quality, additional stream gauge network installation and terrestrial ecosystem improvements are not topics addressed by the FEIS nor does USACE have the authorization to study those issues. It is suggested that you contact the State of Hawaii Department of Health for information related to water quality, the US Geological Survey for information on stream gauges and the USDA Natural Resources Conservation Service (NRCS) for implementation of terrestrial ecosystem improvements.

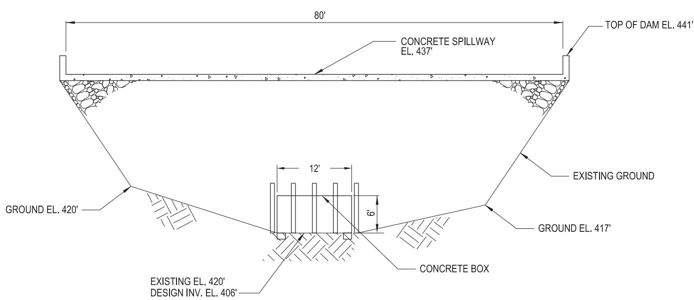
Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx



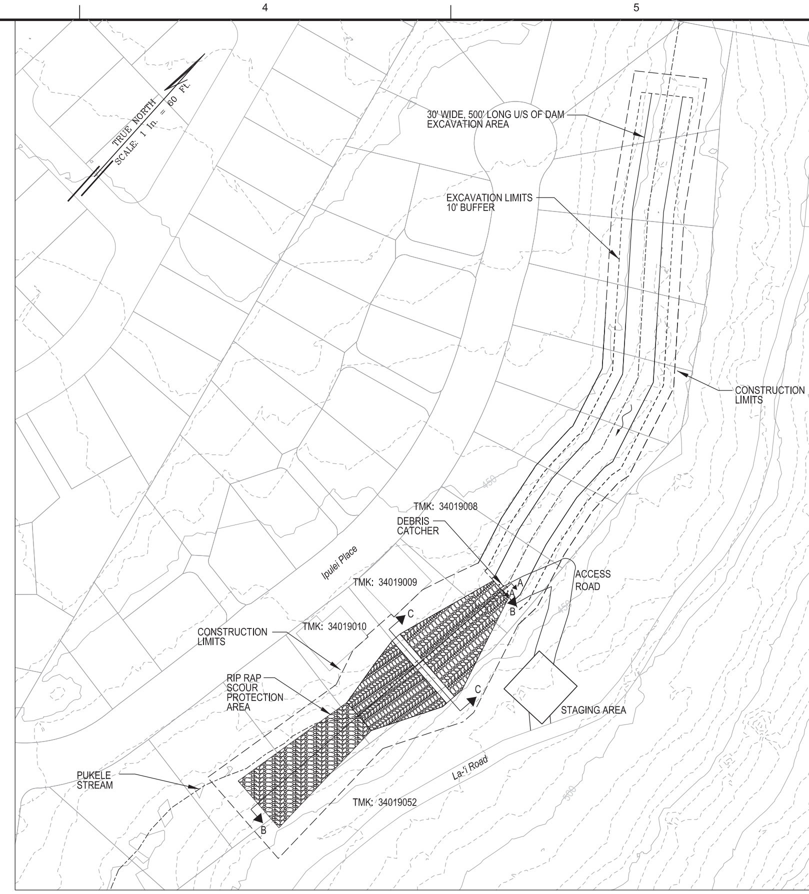
PUKELE DEBRIS AND DETENTION BASIN
SECTION A-A

SCALE: 1"=5'



PUKELE DEBRIS AND DETENTION BASIN
SECTION C-C

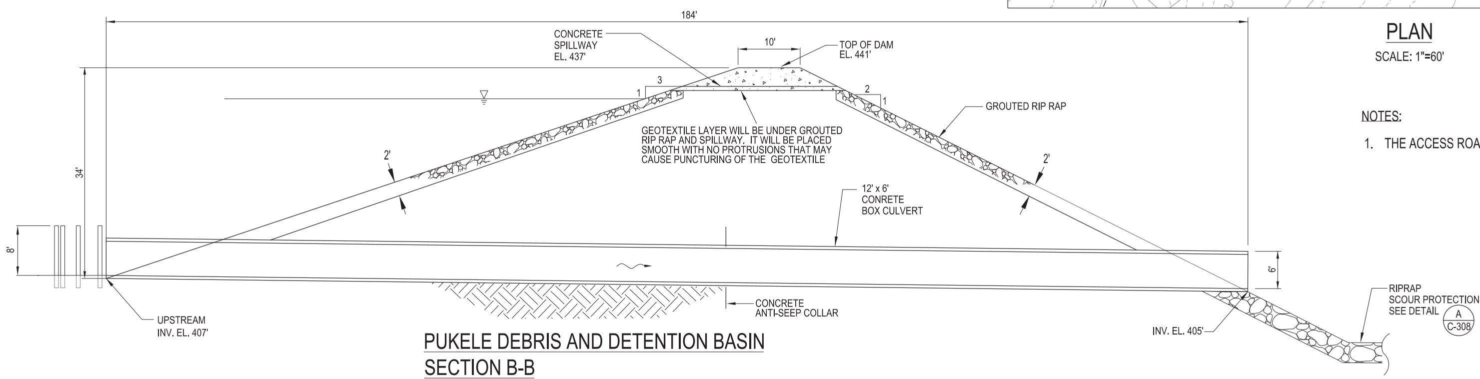
SCALE: 1"=5'



PLAN

SCALE: 1"=60'

SOLID LINE = 50' CONTOURS
DOTTED LINE = 10' CONTOURS



PUKELE DEBRIS AND DETENTION BASIN
SECTION B-B

SCALE: 1"=5'

NOTES:

1. THE ACCESS ROAD WILL ALSO BE USED FOR MAINTENANCE.

5 2.5' 0 5 10
SCALE: 1" = 5'
Note: All elevations are feet MSL

US Army Corps of Engineers® Honolulu District

MARK	DESCRIPTION	DATE	APPR.	MARK	DESCRIPTION	DATE	APPR.

35% DESIGN

US ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
HONOLULU, HAWAII

DESIGNED BY: JHH	DATE:	REVISION:	
DRAWN BY:	CHECKED BY:	SOLICIT./ CONTRACT NO.:	
SUBMITTED BY:		LOCATION CODE	
PLOT SCALE:	PLOT DATE: 8/30/2016	DRAWING NUMBER:	
SIZE: ANSI D	FILE NAME: Ala_Wai_C-313xxx		

ALA WAI CANAL PROJECT

PUKELE DEBRIS AND DETENTION BASIN
PLAN AND SECTIONS

SHEET IDENTIFICATION
C-313
SHEET 18 OF 31

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'IOLANI SCHOOL

November 9, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

Re: *Draft Feasibility Report/Environmental Impact Statement for the Ala Wai Canal Project*

To whom it may concern:

On behalf of 'Iolani School and our thousands of Alumni, students, parents, teachers and supporters, we write to submit comments on the U.S. Army Corps of Engineers (USACE) Draft Feasibility Report/Environmental Impact Statement for the Ala Wai Canal Project. Please include these comments in the administrative record.

'Iolani School with 1,900 students, 300+ faculty and staff, and significant real property, assets and resources is a critical stakeholder in this plan and stands to be dramatically and negatively impacted by the proposed plan specifically due to the potential for flooding and damage to 'Iolani's campus. In addition, the campus serves many more members of the community through the numerous academic, arts and sporting events that are open to educators and students from throughout the state and beyond. The school is also the site for conferences, summits, and non-profit organization meetings. In the Tentatively Selected Plan, the potential for flooding 'Iolani School has been identified as an "acceptable risk." We strongly disagree.

- The first building to be impacted in a flood is our Kindergarten and 1st Grade Building, which serves as the primary education space for more than 140 of our youngest students. The ability to evacuate the school's students, faculty, and staff onto a street that is already congested, and would most likely be flooded, is not realistic.

- We believe the proposed plan causes a significant public safety hazard to our entire school community and it is unacceptable to put our students at risk in the event of a flood. We feel it is possible to engineer a workable solution that protects 'Iolani School and the residents in the area, while not prioritizing the safety and well-being of visitors and Waikiki hotels over the safety and well-being of our students and 'ohana.

- The current cost benefit analysis of project plan 3A vastly underestimates the amount of loss that would be incurred by 'Iolani School and the neighboring community as it has not appropriately captured the value of the true damage to buildings and infrastructure that we believe would occur in a flood (both on 'Iolani's campus and the neighboring community)

and does not consider the economic costs associated with other consequences that the proposed plan would potentially result in, including increased liability and the cost of additional insurance. Beyond underestimating the monetary loss that would be incurred, the cost benefit analysis used to support plan 3A completely ignores the negative impact to public safety for the students and families in our neighborhood as it does not take into consideration the "costs" associated with the risk of loss of life or other health concerns due to flood-water contaminants. If these safety concerns were properly incorporated into the analysis, we find it hard to believe that anybody would conclude that flooding 'Iolani School would be identified as an "acceptable risk" as stated in the Draft Feasibility Report.

- 'Iolani School has not been adequately engaged as a stakeholder in this process, despite the fact that our students, faculty and staff stand to be dramatically impacted by this Project.

We look forward to the opportunity to have more thorough and in-depth conversations with USACE and DLNR to work towards a more acceptable solution for everyone.

Sincerely yours,

Reid Gushiken
'Iolani School
Chief Financial Officer

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Reid Gushiken
Iolani School
563 Kamoku Street
Honolulu, Hawaii 96826

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Concerns regarding public outreach
- Alternative Plan Selection
- Concerns of Iolani School regarding the absence of a floodwall on school property
- Economic optimization of the recommended plan
- FEMA Floodzone Designation

Public involvement and agency coordination is summarized in Section 6 of the FEIS. Initial scoping of the EIS was conducted in 2004 with a supplemental scoping meeting conducted in 2008. Iolani School feedback was solicited at both EIS scoping points. Summaries of feedback received is attached to this letter. The following individuals are included on e-mail distributions as representatives of the school:

- Glenn Ching
- Reid Gushiken
- Dr. Yvonne Chan
- Megan Kawatachi
- Hye Jung Kim

Table 38 details public and agency coordination that has been undertaken since the re-scoping of the study in 2012. This includes over forty separate outreach measures. During this period, the following notices were provided to those individuals on the e-mail distribution list:

- 19 MAY 2014 Open House invitation
- 03 JUN 2014 Open House slideshow availability
- 24 AUG 2015 Draft FR/EIS and Public Meeting initial notice
- 26 SEP 2015 Draft FR/EIS Public Meeting reminder
- 07 OCT 2015 Draft FR/EIS Public Meeting follow up

As noted above, a public meeting to review the FEIS during the public review period was conducted in September 2015 along with multiple follow-up meetings with legislators, interested stakeholders and neighborhood commissions. No further public meetings are planned during the feasibility phase of the FEIS.

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

When evaluating the effectiveness of the recommended plan included in the FEIS, it is important to recognize that the threat and consequence of flooding to the Iolani School in the existing study area conditions is significant. If the school does not have plans in place to manage the safety of students during a flood event, you are strongly encouraged to develop such plans to address the current existing threat (in the FEIS, this is defined as the without-project condition). If implemented, the recommended plan included in the FEIS reduces, but does not eliminate that flood risk for the school property relative to the without-project condition. Note that the recommended plan neither induces flooding on the property nor increases the existing flood stage but rather is projected to reduce flood stages by approximately two feet resulting from a 100-year flood event (1-percent chance annual exceedance), measured at a node immediately upstream of the school location on the Manoa Stream. The reduction of the flood stage at the site is due to the upstream storage provided by the recommended plan. As a result, both the likelihood of flooding and the consequences of flooding will be reduced for the school if

the recommended plan is constructed. With that said, even with implementation of the recommended plan, residual risk of flooding remains throughout the watershed. The flood warning system proposed as a part of the recommended plan will notify those threatened by flood risk when both water levels are rising and when action should be taken to vacate flood prone regions of the study area.

Designs and engineering associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs and benefits, and consider environmental impacts. The design and engineering of project features has undergone both an internal agency technical review as well as an independent external peer review and was deemed sufficient for the purposes of the FEIS. Following technical reviews, changes to input parameters for hydrology, hydraulic and economic analysis have been completed to fully comply with current USACE policies and regulations. Hydrology and hydraulic analyses are discussed in detail in Appendix A, and the economic analysis completed for the study is included in Appendix B of the final FEIS. Sea level rise is included in the analysis provided under Appendix A for the purpose of evaluating the resiliency of the recommended plan to a changing environment; sea level varies over time and increases under a number of scenarios. The result of the revised technical analysis has not changed the recommended plan. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase.

USACE has developed hydraulic information which can be utilized by regulatory agencies and the public as a part of the National Flood Insurance Program (NFIP). It is possible that FEMA could make adjustments to the floodplain without the project in place; however, USACE cannot speculate on the timing of any potential FEMA floodplain map revisions. All property owners are encouraged to participate in the NFIP to manage risks associated with flooding.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

July 6, 2004

Ms. Sherri Hiraoka
Townscape, Inc.
Environmental and Community Planning
900 Fort Street Mall, Suite 1160
Honolulu, HI 96813

RE: ALA WAI CANAL PROJECT EIS SCOPE

Dear Ms. Hiraoka:

We appreciate this opportunity to submit comments to the Ala Wai Canal project.

In reviewing the information presented on June 29, we have the following observations:

1. There seems to be an over-reliance on the Manoa-Palolo Drainage Canal to handle the volume of water coming down from the mountain areas in the event of the 100-year storm. High tides would prevent drainage and while Ala Wai Golf Course and Kaimuki High School fields act as detention areas, they also appear inadequate.

2. Parts of the Manoa-Palolo drainage canal have concrete ducts while the canal area makai of Kaimuki High School does not. Vegetation and debris along the banks would cause refuse washed down to become entangled, thus restricting flow. The banks makai of the Date Street bridge are relatively low allowing flooding near Iolani School.

3. Dredging of the Ala Wai Canal to a deeper depth did not pass beyond the Manoa-Palolo drainage canal in the Diamond Head direction, and dredging of the Manoa-Palolo canal stopped adjacent to the Ala Wai B softball field, well short of the Date Street bridge.

4. The price tag of $30 - $60 million did not seem to include regular, periodic maintenance of the canal depth, bridge spans, concrete channels, and bank clean up.

5. Erection of floodwalls around the canal, while an engineering solution, would not be conducive to the Waikiki vistas and would be subject to graffiti and vandalism.

6. Widening the lower section of the Ala Wai Canal is a good engineering solution.

We have the following comments:

1. Allow a connection of the Ala Wai Canal to the ocean on the Kapahulu end to have a "flushing" action and to equalize water volume on both ends.

2. Allow Kapiolani Park to also become a water detention area through the "Kapahulu" connection.

3. Build up concrete banks and remove vegetation along the Manoa-Palolo Drainage Canal especially makai of the Date Street bridge. Since it is the area which empties into the Ala Wai Canal, it would be susceptible to blockage.

4. Construct spill ways along the Manoa-Palolo Drainage Canal which allow flood waters to go into the designated detention areas when the water levels rise above a certain height.

5. Reinstate the original stream path which traversed the Ala Wai Golf Course. It emptied near the Waikiki Library. Restoration of the natural habitat can happen here relatively undisturbed and made part of the golf course challenges.

6. Dredge the Manoa-Palolo drainage canal and the entire Ala Wai Canal length on a regular basis.

7. Examine whether the spans of the other bridges along the drainage canal need modifications like the McCully and Ala Moana bridges.

8. Continue community education and bulk refuse collection efforts to reduce dumping into the streams feeding into the Manoa-Palolo drainage canal.

9. The project's funding should also include regular, periodic maintenance to the flood mitigation measures.

Thank you for your consideration. Please contact me at 943-2209 if you have questions.

Sincerely,

Glenn Ching
Director of Finance

cc: State of Hawaii
Department of Land and Natural Resources, Engineering Division
P.O. Box 373
Honolulu, HI 96809
Attn: Andrew Monden

TOWNSCAPE, INC.
ENVIRONMENTAL AND COMMUNITY PLANNING

900 Fort Street Mall, Suite 1160, Honolulu, HI 96813
Telephone (808) 536-6999 Facsimile (808) 524-4998
email address: mail@townscapeinc.com

ALA WAI WATERSHED PROJECT (AWWP)
COMMUNITY CONSULTATION

Date: **June 17, 2009**
To: **Project Files**
From: **Townscape**
RE: **Meeting with Glenn Ching**

Participants: Glenn Ching, ʻIolani School, Director of Finance; Agnes Topp, Townscape.

The purpose of the meeting was to discuss issues associated with the lower portion of the Mānoa-Pālolo stream, near ʻIolani School, and to provide an update to Mr. Ching on the Ala Wai Watershed Project.

Background on the Ala Wai Watershed Project

- The Ala Wai Watershed Project (AWWP) is a partnership between the Army Corps of Engineers, the State Department of Land and Natural Resources, and City and County Environmental Services. After earlier iterations that looked at portions of the Ala Wai Watershed (specifically, the Ala Wai Canal and Mānoa Stream), the project is now taking a more holistic approach, looking at potential issues and mitigation in the entire watershed, which includes the neighborhoods of Makiki, Mānoa, Pālolo, St Louis-Kapahulu-Diamond Head, McCully-Mōʻiliʻili-Ala Moana, and Waikīkī.
- The project is currently in the feasibility phase, where we are gathering all necessary information to design flooding mitigation and ecosystem restoration measures. When the project team has preliminary measures designed, we will begin conducting neighborhood-level meetings to discuss potential measures and collect feedback from affected communities. These meetings should occur some time in the fall of 2009.

Lower Mānoa-Pālolo Stream Issues in the vicinity of Iolani School

- Upstream of the Date Street bridge, the Mānoa-Pālolo drainage canal has concrete banks and bottom, while on the *ma kai* side it has natural banks and bottom. This causes buildup of soil in the lower portion of the canal.
- The canal by ʻIolani School is about 5 feet deep. Silt buildup at the bottom is visible at low tide. When the Ala Wai Canal was dredged a few years back, they did not dredge the Mānoa-Pālolo drainage canal.
- ʻIolani School is concerned about the maintenance of the stream banks and vegetation in the lower Mānoa-Pālolo drainage canal. Stream banks are vegetated primarily with kiawe trees, milo trees, and mangrove. The mangrove in certain areas is encroaching into the stream and causing additional silt buildup.
- ʻIolani has been doing maintenance of the vegetation along the stream banks next to the portion of the bike path that the school maintains as part the Adopt-A-Park program. Maintenance includes removing broken branches in the stream, cutting tree branches that hang too low over the stream, and cutting some of the mangrove that is encroaching into the stream. ʻIolani is interested doing additional maintenance, such as removing more of the mangrove, and the nearby community has been proactive in helping to clean up the area, but they are not sure what they are allowed to do. (I provided Glenn with information about the "Adopt-A-Stream" program managed by the City's Environmental Services Division.) In the portion of the stream *ma kai* of Iolani, very little maintenance is being done and the vegetation encroaches farther into the stream.
- During the 2004 flood, the stream came up onto the road adjacent to ʻIolani School. The flood did not affect the school.
- Stream bank stabilization and increased bank height would be a good idea to decrease flooding in that area.

Community Members to Involve in Neighborhood-level Meetings

- 100th Infantry Battalion veterans club – located across the street from ʻIolani School at 520 Kamoku Street.
- Ala Wai School
- Condos in the neighborhood, including Kaimana Lanai Condo and 500 University.

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ʻIolani School

HEAD OF SCHOOL

November 9, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

RE: Ala Wai Canal Project ("Project") – Draft Feasibility Study Report with Integrated Environmental Impact Statement dated August 2015 (the "Draft Report/EIS" or "Report")

Dear Sir or Madam:

`Iolani School respectfully submits these comments in response to the U.S. Army Corps of Engineers ("USACE") and State of Hawaii Department of Land and Natural Resources' ("DLNR") (USACE and DLNR, collectively, are the "Agencies") request for public input regarding their Draft Report/EIS.[1] We request that these comments and attachments be included in the administrative record.[2]

As of the date of submission of this letter, the Project website (www.alawaicanalproject.com) requested that written comments regarding the Draft Report/EIS be submitted to the USACE pursuant to NEPA and DLNR pursuant to HEPA, with a postmark no later than November 9, 2015. `Iolani School is submitting its comments within the deadline prescribed and advertised by the Agencies.[3]

[1] `Iolani School requests that it be a consulting party and/or stakeholder under both NEPA and HEPA.

[2] We understand that comments may be submitted separately by government agencies, members of the public, community organizations, and the like. All of those comments are hereby incorporated by reference.

[3] Note that the presentation distributed at the public meeting on September 30, 2015 also notes a public comment deadline of November 9, 2015 for both the USACE under NEPA and DLNR under HEPA. Accordingly, `Iolani School believes that its comments are timely under both NEPA and HEPA and must be considered and responded to.

Executive Summary.

At the request of the DLNR Division of Engineering, the USACE has conducted a feasibility study for the proposed Ala Wai Canal Project, Oahu, Hawaii. The purpose of this Project in its current scope is to reduce riverine flood risks in the Ala Wai Watershed. After considering several alternatives, the USACE has identified Plan 3A in the Report as its preferred plan ("Tentatively Selected Plan" or "TSP"). The analyses produced as a result of this study show the 1-percent annual chance exceedance ("ACE") floodplain extending into approximately 1,358 acres of the watershed with modeling results indicating resultant damages to more than 3,000 structures and approximately $318 million in structural damages, not including loss to business income or loss of life.

`Iolani School, with 1,900 students, over 300 faculty and staff, and significant real property, assets and resources, is a critical stakeholder in this plan and stands to be dramatically and negatively impacted by the proposed plan specifically due to the potential for flooding and damage to `Iolani's campus. In addition, the campus serves many more members of the community through numerous academic, arts and sporting events that are open to educators and students from throughout the state and beyond. The school is also the frequent site for conferences, summits, and meetings. In the Tentatively Selected Plan, the potential for flooding `Iolani School has been identified as an acceptable risk. We strongly disagree.

The Report states:

> The risk of flooding `Iolani School could be further reduced by extending the floodwalls to protect the school, but it would induce higher water surface elevations on the Waikīkī side of the Ala Wai Canal, as well as limit the effectiveness of the Ala Wai Golf Course detention improvement. The modeling results indicate that this would be an unacceptable trade-off, as the additional induced damages in Waikīkī would greatly exceed any benefit associated with `Iolani School. Nonstructural solutions were evaluated as a means of providing additional protection in lieu of extending the floodwalls, but none were found to be economically feasible.

See Report at 8-6. Additionally, Appendix B to the Report notes: "One area of significance that does not stand to benefit from a reduction in flood damages and risk of loss of life, as the project is now formulated (under the Tentatively Selected Plan), is the `Iolani School buildings and campus grounds."

While two other plans that were considered included floodwalls to protect `Iolani School, those plans were not selected and the floodwalls are not included in the Tentatively Selected Plan being proposed by the USACE. The Report further explains that while other schools and properties will be protected, `Iolani School will remain in the 1% annual chance exceedance (ACE) floodplain:

> In addition to reducing health and safety risks to the affected population, critical infrastructure and other public facilities would be removed from the

> 1-percent ACE floodplain, thus contributing to health and safety through increased resiliency in response to flood events (IMP SAF-2). Specifically, the project would provide protection for 2 of the 4 fire stations, the police station, both medical clinics, and 6 of the 9 emergency shelters that are currently in the 1- percent ACE floodplain. Critical infrastructure that would remain in the floodplain includes 2 fire stations (the Makaloa station in Ala Moana and the Wilder station in Makiki), and 2 emergency shelters (Lunalilo Elementary and Washington Intermediate in McCully/Mō'ili'ili). In addition to the three schools that serve as emergency shelters, the only other school that would remain in the 1-percent ACE floodplain would be a portion of `Iolani School; the other 7 schools that are currently in the floodplain would be protected by the project.

See Report at 5-80.

`Iolani School has reached out to the USACE and the State sponsor, DLNR, in hopes of working towards a collaborative solution that permits the Project to move forward while still adequately protecting the `Iolani community and area residents. While `Iolani School supports the overall intent of this flood mitigation project, we do not support the Project in its current scope with Plan 3A as the TSP as the TSP is based upon engineering that lacks scientific integrity. The TSP erroneously excludes significant economic impacts not considered by the Agencies, as well as includes unacceptable risk to the life and safety of the students and surrounding community.

`Iolani School also believes that the Agencies did not adequately engage `Iolani School or other stakeholders since the October 2012 re-scoping of the Project. For these reasons and others discussed in further detail below, we believe that the Draft Report/EIS must be significantly revised and reissued in a separate draft for further public review and comment.

NEPA.

The National Environmental Policy Act ("NEPA") requires all federal agencies to prepare an environmental impact statement ("EIS") for all "major Federal actions significantly affecting the quality of the human environment." 42 U.S.C. § 4332. "The primary purpose of an EIS is to serve as an action-forcing device to insure that the policies and goals defined in the Act NEPA are infused into the ongoing programs and actions of the Federal Government." 40 C.F.R. § 1502.1. An EIS must "provide full and fair discussion of significant environmental impacts and inform decision makers and the public of the reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment." Id. Among other things, an EIS must discuss the environmental impact of the proposed federal action, any adverse and avoidable environmental effects, any alternatives to the proposed action, and any irreversible and irretrievable commitment of resources involved in the proposed action. 42 U.S.C. § 4332(2)(C) and (2)(E).

Exploring alternatives is at the heart of the EIS. Federal agencies must, among other things, (1) rigorously explore and objectively evaluate all reasonable alternatives, and

for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated, (2) devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits, and (3) include appropriate mitigation measures not already included in the proposed action or alternatives. 40 C.F.R. § 1502.14.

Under NEPA, federal agencies must, to the fullest extent possible, encourage and facilitate public involvement in decisions which affect the quality of the human environment, and use all practicable means, consistent with the requirements of NEPA and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions upon the quality of the human environment. 40 C.F.R. § 1500.2(d) and (f).

HEPA.

The Hawaii Environmental Policy Act ("HEPA"), Hawaii Revised Statutes Chapter 343, is intended to ensure that environmental concerns are given appropriate consideration in decision making along with economic and technical considerations. Hawaii Administrative Rules ("HAR") § 11-200-1. Specifically,

> Chapter 343, HRS, directs that in both agency and applicant actions where statements are required, the preparing party shall prepare the EIS, submit it for review and comments, and revise it, taking into account all critiques and responses. Consequently, the EIS process involves more than the preparation of a document; it involves the entire process of research, discussion, preparation of a statement, and review. The EIS process shall involve at a minimum: identifying environmental concerns, obtaining various relevant data, conducting necessary studies, receiving public and agency input, evaluating alternatives, and proposing measures for avoiding, minimizing, rectifying or reducing adverse impacts. An EIS is meaningless without the conscientious application of the EIS process as a whole, and shall not be merely a self-serving recitation of benefits and a rationalization of the proposed action. Agencies shall ensure that statements are prepared at the earliest opportunity in the planning and decision-making process. This shall assure an early open forum for discussion of adverse effects and available alternatives, and that the decision-makers will be enlightened to any environmental consequences of the proposed action.

HAR § 11-200-14.

Consultation is critical to the HEPA process. Accordingly, agencies are required to endeavor to develop a fully acceptable EIS prior to the time the EIS is filed with the appropriate office, "through a full and complete consultation process." HEPA requires that proposing agencies not rely solely upon the review process to expose environmental concerns. HAR § 11-200-15.

The Agencies did not take a "hard look" under Either NEPA or HEPA.

A federal agency must take a "hard look" at the environmental consequences of the proposed action before the decision to proceed is made. Earth Island Inst. V. U.S. Forest Serv., 351 F.3d 1291, 1300 (9th Cir. 2003); see 40 C.F.R. § 1500.1(b). Under state law, state agencies must ensure that environmental concerns are given appropriate consideration in decision making. HAR § 11-200-1. In this instance, the Agencies failed to meet these standards.

Modeling for the TSP 3A was based on erroneous topographical analysis which does not reflect the current elevation and building structures at `Iolani School. This resulted in an improper projection of environmental consequences and economic damage.

The Tentatively Selected Plan lacks scientific integrity and should be rejected.

NEPA recognizes that sound methodology and scientific accuracy are paramount to the integrity of the NEPA process. Section 1502.24 specifically provides,

> Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement.

40 C.F.R. § 1502.24 (emphasis added). Section 1500.1(b) further affirms that,

> NEPA procedures must insure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. "The information must be of high quality. Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA".

40 C.F.R. § 1500.1(b) (emphasis added).

In this case, it is clear that the scientific analysis, modeling and methodology are flawed and cannot be relied upon. `Iolani School requested and attended a meeting with USACE and DLNR on October 30, 2015. Upon being questioned at the meeting regarding the engineering analysis and validity of the inundation area modeling associated with the TSP, Mike Wong, P.E. USACE, admitted that the modeling was flawed, contained artifacts and represented flood boundaries as 1 ft. deep edges. Gayson Ching, P.E. DLNR, graphically illustrated how their model represented a completely unrealistic model of what would happen in a flood. Given the lack of scientific integrity and low quality of the information utilized in the Project analysis, the TSP cannot be accepted in its current form and the Report must be significantly revised and reissued after further public review and comment.

The Agencies should have involved `Iolani School in the NEPA and HEPA process.

Federal agencies are required by NEPA to "make diligent efforts to involve the public in preparing and implementing their NEPA procedures." 40 C.F.R. § 1506.6. Further, for any proposed action, NEPA requires that there be an early and open process for

determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action. This process is known as the scoping process. As part of the scoping process the lead agency must, among other things, invite the participation of affected agencies, any affected Indian tribe, the proponent of the action, and "other interested persons (including those who might not be in accord with the action on environmental grounds) . . ." 40 C.F.R. § 1501.7 (emphasis added).

Similarly, HEPA requires the involvement of the public and concerned individuals. HEPA provides that a proposing agency must "seek, at the earliest practicable time, the advice and input of the county agency responsible for implementing the county's general plan for each county in which the proposed action is to occur, and consult with other agencies having jurisdiction or expertise as well as those citizen groups and individuals which the proposing agency reasonably believes to be affected." HAR § 11-200-9(a)(1) (emphasis added). Pursuant to HAR Section 11-200-15, "[i]n the preparation of a draft EIS, proposing agencies . . . shall consult all appropriate agencies . . . and other citizen groups, and concerned individuals as noted in sections 11-200-9 and 11-200-9.1." HAR § 11-200-15(a). Concerned individuals include those individuals which the proposing agency reasonably believes to be affected. See HAR § 11-200-9.

In this instance, the Agencies failed to properly reach out to `Iolani School and include it in the NEPA and HEPA process despite the fact that the Draft Report/EIS clearly indicates that `Iolani School will be affected. Project records show that `Iolani School was involved at a minimal level when the Project was focused on watershed restoration. However,

`Iolani School was neither involved in nor contacted regarding the re-scoping of the Project, despite the fact that the Project included negative impacts on the school and prominent mention in the Report. While two emails regarding the Project were sent to `Iolani School in 2014 and three emails in 2015, the USACE and DLNR failed to make any meaningful effort to communicate with `Iolani School beyond sending these emails between 2009 and 2015. USACE and DLNR did not respond to `Iolani School's requests for an extension to the public comment period or requests for additional meetings with the `Iolani School community. It is clear the attempts to communicate and collaborate with `Iolani School were insufficient.

Specific questions regarding the Project and TSP.

`Iolani School has several questions and comments related to the Tentatively Selected Plan and is hereby requesting specific answers and/or responses to the following questions and/or comments:

1. Page ES-7 states that the Tentatively Selected Plan "allows for 2 feet of freeboard."

    a. Because the proposed floodwalls are four feet tall, a 2-foot freeboard would result in a backwater effect upstream in the Mānoa-Pālolo Drainage Canal and cause floodwaters to

overtop the drainage canal's west bank. Such flooding is not indicated in Figure 12b. Note that the elevations of the Ala Wai Golf Course and east bank of the Mānoa-Pālolo Drainage Canal are significantly higher than the elevations of the `Iolani School, Ala Wai Elementary School, and east bank of the drainage canal.

2. Page ES-12 states that implementation of the Tentatively Selected Plan would substantially reduce the 1-percent ACE floodplain, with decreased water surface elevations of approximately 2.2 feet.

    a. Is the 2.2 feet reduction an average value? What is the range in the reduction of the water surface elevation across the watershed? Stating a 2.2 feet reduction over the entire 1-percent ACE floodplain oversimplifies the true benefit of the Tentatively Selected Plan. Table 10 clearly shows a wide range of reduced flood depths so that some areas in the watershed clearly gain more benefits than other areas.

    b. When the Report says a reduction in water surface elevation, does the Report mean a reduction in the base flood elevation? Will this Report or the data in the Report be used by DLNR, USACE or other government agencies to change the accepted FIRMs in the Ala Wai Canal Watershed? Does the hydrologic and hydraulic analysis, surveying data, and mapping comply with FEMA standards?

    c. Are there any areas where the proposed measures of the Tentatively Selected Plan would actually increase flood elevations from current conditions?

3. Figure 12b Tentatively Selected Plan (Alternative 3A-2.2).

    a. This figure shows flooding of the southern end of `Iolani School's campus. In addition to `Iolani School, Ala Wai Elementary School would also be at risk to flooding. The extent of the flooding shown on this figure does not correspond to existing topography at either the school campus or the immediately adjacent areas. The topography in this area is flat. However, this figure shows the floodwaters stopping arbitrarily along several buildings and an athletic field. If floodwaters overtopped the existing west bank of the Mānoa-Pālolo Drainage Canal, the topography at `Iolani School and Ala Wai Elementary School is relatively flat such that the floodwaters would extend further than the area shown in this figure, perhaps even as far as Kamoku Street. No depressions, basins or other structures to detain floodwaters are in this area as indicated in the figure.

b. This figure shows the Ala Wai Golf Course as a multi-purpose detention basin with an earthen berm only along the east and northeast perimeter of the golf course. The figure also shows the golf course being almost completely underwater. The elevations of the golf course and the east bank of the Mānoa-Pālolo Drainage Canal are significantly higher than the elevation at `Iolani School and Ala Wai Elementary School. Both schools would be flooded before the golf course could act as an effective detention basin. Floodwaters detained on the golf course would raise the floodwater elevations at both schools, further exacerbating the flooding beyond that shown in the figure.

4. Page 8-4 states that a limited level of protection for `Iolani School is "provided not by the Ala Wai Canal floodwalls, but through detention of floodwaters upstream and within the adjacent Ala Wai Golf Course."

    a. Did the hydraulic analysis assume all measures were constructed and operating under optimal conditions? Or did the analysis account for reduced capacity or effectiveness of the measures due to inadequate or infrequent maintenance?

    b. Did the detention basin measures incorporate capacity to account for sediment accumulation so as not to reduce the flood attenuation capacity of the basins?

    c. If a factor of safety was not incorporated into the hydraulic model to account for inadequate or infrequent maintenance of or sediment accumulation with the various detention basin measures, then the figures in the report do not accurately represent real world conditions and flooding would be more severe and extensive than that presented in Figure 12b. See previous comment on Figure 12b.

5. Page 3-4 provides a range of sea-level rise but doesn't state the specific value that was used in the hydraulic model.

    a. What is the actual value of the sea-level rise assumed in the model?

    b. What was the basis of the sea-level rise estimates?

    c. Did the sea-level rise estimates match or correspond to values estimated by other organizations and scientists working on sea-level rise in Hawaii?

    d. Did the hydraulic analysis incorporate storm surge effects in addition to sea-level rise?

6. What was the model used to conduct the hydraulic analysis? Was it a one-dimensional model like HEC-RAS? Was a 2-dimensional model used to conduct a hydraulic analysis or even considered for the analysis? Two-dimensional hydraulic models tend to give better, more accurate representation of actual flooding conditions.

7. How was the hydraulic model quality controlled? The results presented in the Report and by USACE's own admission appear to be flawed. Was a third-party evaluation of the hydraulic model conducted? Because the selected alternative will affect such a large number of businesses, residents, and visitors, should not that the hydraulic model undergo a more rigorous quality control procedure than USACE may normally conduct?

8. The executive summary (page ES-5) states that life safety considerations were taken into consideration. However, the Tentatively Selected Plan still leaves schools with children within the 1% ACE. How do you reconcile this statement on page ES-5 with the Tentatively Selected Plan that fails to provide protection for some of the schools within the watershed?

9. Was the survey used for the hydraulic analysis ground-truthed and when? What was the method used for the ground-truthing? Ground-truthing of the `Iolani School and Ala Wai Elementary School campuses does not appear to have been conducted based on the results of the model.

10. Figure 21: Potential Areas of Shallow Flooding due to Overtopping of Floodwalls/Berms or Failure of Interior Drainage Systems.

    a. This figure shows the inundation due to overtopping of the floodwalls along the north bank of the Ala Wai Canal. This figure contradicts the floodwater extent shown in Figure 12b, which limited flooding at `Iolani School to the southern portion of the campus. Furthermore, Page 8-9 states that "There is no bathtub effect in any overtopping area and ponding is expected to be in the 1-to 2-foot range. Damages would be related to those at the 2-foot depth for those overtopping areas illustrated." The flooding extent in Figure 12b does not reflect the existing topography at either `Iolani School or Ala Wai Elementary School.

    b. Figure 21 illustrates a condition with zero freeboard at the floodwalls and shows that the flooding would be extensive north of the floodwall. A 1- to 2-foot depth would result in a large volume of water in the shaded area shown in Figure 21 and result in significant damage to school property. As the water surface elevation in the Ala Wai Canal would increase to the full height of the floodwall, floodwaters would overtop the west bank of the Mānoa-Pālolo Drainage Canal (even before the floodwalls are overtopped) on to `Iolani School

and Ala Wai Elementary School property. Because "there is no bathtub effect" in this area, floodwaters would flow relatively freely across the flat terrain of the two schools. Any sediment and debris carried with the floodwaters would remain on the school properties as floodwaters either infiltrated or receded. The cleanup of the properties would be expensive and reduce the usefulness of the inundated areas for an unknown period, potentially harming the educational missions of both schools to our island's keiki. In addition, the waters of the Ala Wai Canal and sediment and debris may attract nuisance vectors and pose potential health risks to schoolchildren, depending on the nature and quality of the water, sediment and debris.

Conclusion:

`Iolani School understands the importance of flood risk management and appreciates the USACE and DLNR's efforts to mitigate flooding in the Project areas. However, in evaluating a plan to address flooding, NEPA and HEPA must be followed and the environmental impacts of the action must be appropriately and accurately considered. The Agencies must follow the correct process, take a hard look at the environmental effects of the proposed action, analyze reasonable alternatives, utilize proper scientific methods, and mitigate negative environmental impacts to the extent practicable. Because NEPA and HEPA were not adhered to in this case, the Draft Report/EIS must be significantly revised and reissued in a separate draft for further public review and comment.

Sincerely,

Timothy R. Cottrell
Head of School

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Timothy Cottrell
Iolani School
563 Kamoku Street
Honolulu, Hawaii 96826

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Concerns regarding public outreach
- Alternative Plan Selection
- Concerns of Iolani School regarding the absence of a floodwall on school property
- Economic optimization of the recommended plan
- FEMA Floodzone Designation

Public involvement and agency coordination is summarized in Section 6 of the FEIS. Initial scoping of the EIS was conducted in 2004 with a supplemental scoping meeting conducted in 2008. Iolani School feedback was solicited at both EIS scoping points. Summaries of feedback received is attached to this letter. The following individuals are included on e-mail distributions as representatives of the school:

- Glenn Ching
- Reid Gushiken
- Dr. Yvonne Chan
- Megan Kawatachi
- Hye Jung Kim

Table 38 details public and agency coordination that has been undertaken since the re-scoping of the study in 2012. This includes over forty separate outreach measures. During this period, the following notices were provided to those individuals on the e-mail distribution list:

- 19 MAY 2014 Open House invitation
- 03 JUN 2014 Open House slideshow availability
- 24 AUG 2015 Draft FR/EIS and Public Meeting initial notice
- 26 SEP 2015 Draft FR/EIS Public Meeting reminder
- 07 OCT 2015 Draft FR/EIS Public Meeting follow up

As noted above, a public meeting to review the FEIS during the public review period was conducted in September 2015 along with multiple follow-up meetings with legislators, interested stakeholders and neighborhood commissions. No further public meetings are planned during the feasibility phase of the FEIS.

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

When evaluating the effectiveness of the recommended plan included in the FEIS, it is important to recognize that the threat and consequence of flooding to the Iolani School in the existing study area conditions is significant. If the school does not have plans in place to manage the safety of students during a flood event, you are strongly encouraged to develop such plans to address the current existing threat (in the FEIS, this is defined as the without-project condition). If implemented, the recommended plan included in the FEIS reduces, but does not eliminate that flood risk for the school property relative to the without-project condition. Note that the recommended plan neither induces flooding on the property nor increases the existing flood stage but rather is projected to reduce flood stages by approximately two feet resulting from a 100-year flood event (1-percent chance annual exceedance), measured at a node immediately upstream of the school location on the Manoa Stream. The reduction of the flood stage at the site is due to the upstream storage provided by the recommended plan. As a result, both the likelihood of flooding and the consequences of flooding will be reduced for the school if

the recommended plan is constructed. With that said, even with implementation of the recommended plan, residual risk of flooding remains throughout the watershed. The flood warning system proposed as a part of the recommended plan will notify those threatened by flood risk when both water levels are rising and when action should be taken to vacate flood prone regions of the study area.

Designs and engineering associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs and benefits, and consider environmental impacts. The design and engineering of project features has undergone both an internal agency technical review as well as an independent external peer review and was deemed sufficient for the purposes of the FEIS. Following technical reviews, changes to input parameters for hydrology, hydraulic and economic analysis have been completed to fully comply with current USACE policies and regulations. Hydrology and hydraulic analyses are discussed in detail in Appendix A, and the economic analysis completed for the study is included in Appendix B of the final FEIS. Sea level rise is included in the analysis provided under Appendix A for the purpose of evaluating the resiliency of the recommended plan to a changing environment; sea level varies over time and increases under a number of scenarios. The result of the revised technical analysis has not changed the recommended plan. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase.

USACE has developed hydraulic information which can be utilized by regulatory agencies and the public as a part of the National Flood Insurance Program (NFIP). It is possible that FEMA could make adjustments to the floodplain without the project in place; however, USACE cannot speculate on the timing of any potential FEMA floodplain map revisions. All property owners are encouraged to participate in the NFIP to manage risks associated with flooding.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

July 6, 2004

Ms. Sherri Hiraoka
Townscape, Inc.
Environmental and Community Planning
900 Fort Street Mall, Suite 1160
Honolulu, HI 96813

RE: ALA WAI CANAL PROJECT EIS SCOPE

Dear Ms. Hiraoka:

We appreciate this opportunity to submit comments to the Ala Wai Canal project.

In reviewing the information presented on June 29, we have the following observations:

1. There seems to be an over-reliance on the Manoa-Palolo Drainage Canal to handle the volume of water coming down from the mountain areas in the event of the 100-year storm. High tides would prevent drainage and while Ala Wai Golf Course and Kaimuki High School fields act as detention areas, they also appear inadequate.

2. Parts of the Manoa-Palolo drainage canal have concrete ducts while the canal area makai of Kaimuki High School does not. Vegetation and debris along the banks would cause refuse washed down to become entangled, thus restricting flow. The banks makai of the Date Street bridge are relatively low allowing flooding near Iolani School.

3. Dredging of the Ala Wai Canal to a deeper depth did not pass beyond the Manoa-Palolo drainage canal in the Diamond Head direction, and dredging of the Manoa-Palolo canal stopped adjacent to the Ala Wai B softball field, well short of the Date Street bridge.

4. The price tag of $30 - $60 million did not seem to include regular, periodic maintenance of the canal depth, bridge spans, concrete channels, and bank clean up.

5. Erection of floodwalls around the canal, while an engineering solution, would not be conducive to the Waikiki vistas and would be subject to graffiti and vandalism.

6. Widening the lower section of the Ala Wai Canal is a good engineering solution.

We have the following comments:

1. Allow a connection of the Ala Wai Canal to the ocean on the Kapahulu end to have a "flushing" action and to equalize water volume on both ends.

2. Allow Kapiolani Park to also become a water detention area through the "Kapahulu" connection.

3. Build up concrete banks and remove vegetation along the Manoa-Palolo Drainage Canal especially makai of the Date Street bridge. Since it is the area which empties into the Ala Wai Canal, it would be susceptible to blockage.

4. Construct spill ways along the Manoa-Palolo Drainage Canal which allow flood waters to go into the designated detention areas when the water levels rise above a certain height.

5. Reinstate the original stream path which traversed the Ala Wai Golf Course. It emptied near the Waikiki Library. Restoration of the natural habitat can happen here relatively undisturbed and made part of the golf course challenges.

6. Dredge the Manoa-Palolo drainage canal and the entire Ala Wai Canal length on a regular basis.

7. Examine whether the spans of the other bridges along the drainage canal need modifications like the McCully and Ala Moana bridges.

8. Continue community education and bulk refuse collection efforts to reduce dumping into the streams feeding into the Manoa-Palolo drainage canal.

9. The project's funding should also include regular, periodic maintenance to the flood mitigation measures.

Thank you for your consideration. Please contact me at 943-2209 if you have questions.

Sincerely,

Glenn Ching
Director of Finance

cc: State of Hawaii
Department of Land and Natural Resources, Engineering Division
P.O. Box 373
Honolulu, HI 96809
Attn: Andrew Monden

TOWNSCAPE, INC.
ENVIRONMENTAL AND COMMUNITY PLANNING

900 Fort Street Mall, Suite 1160, Honolulu, HI 96813
Telephone (808) 536-6999 Facsimile (808) 524-4998
email address: mail@townscapeinc.com

ALA WAI WATERSHED PROJECT (AWWP)
COMMUNITY CONSULTATION

Date: **June 17, 2009**
To: **Project Files**
From: **Townscape**
RE: **Meeting with Glenn Ching**

Participants: Glenn Ching, ʻIolani School, Director of Finance; Agnes Topp, Townscape.

The purpose of the meeting was to discuss issues associated with the lower portion of the Mānoa-Pālolo stream, near ʻIolani School, and to provide an update to Mr. Ching on the Ala Wai Watershed Project.

Background on the Ala Wai Watershed Project

- The Ala Wai Watershed Project (AWWP) is a partnership between the Army Corps of Engineers, the State Department of Land and Natural Resources, and City and County Environmental Services. After earlier iterations that looked at portions of the Ala Wai Watershed (specifically, the Ala Wai Canal and Mānoa Stream), the project is now taking a more holistic approach, looking at potential issues and mitigation in the entire watershed, which includes the neighborhoods of Makiki, Mānoa, Pālolo, St Louis-Kapahulu-Diamond Head, McCully-Mōʻiliʻili-Ala Moana, and Waikīkī.
- The project is currently in the feasibility phase, where we are gathering all necessary information to design flooding mitigation and ecosystem restoration measures. When the project team has preliminary measures designed, we will begin conducting neighborhood-level meetings to discuss potential measures and collect feedback from affected communities. These meetings should occur some time in the fall of 2009.

Lower Mānoa-Pālolo Stream Issues in the vicinity of Iolani School

- Upstream of the Date Street bridge, the Mānoa-Pālolo drainage canal has concrete banks and bottom, while on the *ma kai* side it has natural banks and bottom. This causes buildup of soil in the lower portion of the canal.
- The canal by ʻIolani School is about 5 feet deep. Silt buildup at the bottom is visible at low tide. When the Ala Wai Canal was dredged a few years back, they did not dredge the Mānoa-Pālolo drainage canal.
- ʻIolani School is concerned about the maintenance of the stream banks and vegetation in the lower Mānoa-Pālolo drainage canal. Stream banks are vegetated primarily with kiawe trees, milo trees, and mangrove. The mangrove in certain areas is encroaching into the stream and causing additional silt buildup.
- ʻIolani has been doing maintenance of the vegetation along the stream banks next to the portion of the bike path that the school maintains as part the Adopt-A-Park program. Maintenance includes removing broken branches in the stream, cutting tree branches that hang too low over the stream, and cutting some of the mangrove that is encroaching into the stream. ʻIolani is interested doing additional maintenance, such as removing more of the mangrove, and the nearby community has been proactive in helping to clean up the area, but they are not sure what they are allowed to do. (I provided Glenn with information about the "Adopt-A-Stream" program managed by the City's Environmental Services Division.) In the portion of the stream *ma kai* of Iolani, very little maintenance is being done and the vegetation encroaches farther into the stream.
- During the 2004 flood, the stream came up onto the road adjacent to ʻIolani School. The flood did not affect the school.
- Stream bank stabilization and increased bank height would be a good idea to decrease flooding in that area.

Community Members to Involve in Neighborhood-level Meetings

- 100th Infantry Battalion veterans club – located across the street from ʻIolani School at 520 Kamoku Street.
- Ala Wai School
- Condos in the neighborhood, including Kaimana Lanai Condo and 500 University.

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DATE: November 9, 2015

TO: Honolulu District, USACE

ATTN: Ala Wai Canal Project

Building 230, CEPOH-PP-C

Fort Shafter, HI 96858

FR: Steve Holmes

2541 Ipulei Way

Honolulu, HI 98816

RE: Ala Wai Canal Project

To Whom It May Concern:

Upon my review of The Ala Wai Canal Project I would like to offer these observations regarding the Pukele portion of the project:

Any site selection should be made via "boots on the ground" assessment and not only via topographical maps or aerial observations. I am aware that the Pukele project never had the advantage of a "boots on the ground" assessment.

All effort must be made that any site selection seriously take into consideration the economic impact on those directly affected including individual land holders and the entire neighborhoods in which the projects will be constructed.

That the report states that 3 fee real estate lots will be "damaged" by the berm feature what guarantee is there that fair market and future market value be taken into consideration?

That the report stated that 6 additional fee lots will be impacted by the flowage easement but the flowage will remain within the stream banks and have "limited" impact on these 6 lots relies on the engineering expertise of the USACE and the adequate maintenance of the area around the berm and upstream after the project is complete. As a resident of Hawaii it is my experience that the USACE often makes decisions that are revealed in the future to be wrong. The State and The City of Honolulu usually fails in maintaining streams and man-made features and this failure is often the cause of flood damage.

Sincerely,

Steve Holmes

Steve Holmes

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Steve Holmes
2541 Ipulei Way
Honolulu, Hawaii 96858

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Concerns of affected landowners regarding real estate acquisition
- Operations and maintenance of the project features

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. The engineering analysis presented in the FEIS uses the standard methodology prescribed by the Water Resources Council's "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" and the USACE Engineer Regulation 1105-2-100. All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts.

Implementation of the recommended plan will require the acquisition of private property. The exact timing of land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. A property by property assessment will be conducted in coordination with the non-Federal sponsor after project authorization, if the project is authorized by Congress.

The process of acquiring property for a project is highly regulated. The Fifth Amendment of the Constitution states that private property shall not be taken for public use without just compensation. To address what constitutes just compensation, Congress passed the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 ("Uniform Act"). The non-federal sponsors will be required

to follow the Uniform Act in acquiring any lands. USACE will work with the non-Federal sponsors to ensure the correct process and procedures are adhered to throughout the process.

Generally speaking the value of land acquired is the fair market value of the property. The fair market value includes many aspects of the property in question. Earning potential is one of those aspects to be addressed in developing a fair market value. Regardless of the value determined, Public Law 91-646 outlines the requirements that must be followed to ensure a homeowner/landowner is compensated justly.

Part of the process will be an appraisal, which determines the fair market value of the property. Fair market value is an estimate of the market value of a property based upon what a knowledgeable, willing, and unpressured buyer would pay. The appraisal will attempt to take all objective property features into account when determining fair market value. The fair market value is determined without consideration for the effect the project has had on the value of the land. For more information on the process for acquisitions please go to: http://www.fhwa.dot.gov/realestate

Table 9, page 3-22 of the draft FEIS (page 3-23 of the final) details cursory operations and maintenance requirements based on project feature. These obligations are identified during the feasibility phase for the purpose of developing initial cost estimates. If approved, a detailed operations and maintenance plan will be developed during the design phase of the study. Operations and maintenance are the responsibility of the non-Federal sponsor, however, it is not anticipated that the general public would be involved in operations and maintenance of flood risk management features. Debris and detention structures are intended to pass normal stream flows without impounding water. The structures are designed to function only during storm events, therefore, no impoundment of water is anticipated outside of such storm events.

The non-Federal sponsors must enter into a Project Partnership Agreement with USACE to construct the Project. This agreement sets the required cost sharing of the Project between the non-Federal sponsors and the Federal government and requires that the non-Federal sponsors be solely responsible for the operation and maintenance of the Project. The sponsors are responsible for financing their local share and operation and maintenance costs.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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November 8, 2015

Honolulu District, USACE

ATTN: Ala Wai Canal Project

Building 230, CEPOH-PP-C

Fort Shafter, HI 96858

To Whom It May Concern,

My name is Winona Holmes and I am writing regarding the Ala Wai Canal project and specifically the installation of a berm on Ipulei Place affecting Pukele Stream. I think the idea of protecting Waikiki, Honolulu's crown jewel, from flooding from the Ala Wai may seem like a great idea, I personally think the concept of creating berms on the arteries leading down to the Ala Wai is too extreme.

Living up on Ipulei Way for over thirty years, this berm concept seems like overkill. The amount/output of water, even after an extremely high rainfall, doesn't warrant condemning two homes and a vacant lot on Ipulei Place from Baruch Bakar. I find it hard to believe if you monitored the amount of water volume coming from Pukele Stream throughout the year, even at its highest point wouldn't need to be controlled this drastically. Please consider other existing methods using existing structures such as controlling the drainage canal though a series of locks which runs through Palolo Avenue to slow down the water flow. For the time, effort, and federal/state dollars expended on a plan that may never really may happen (100+ year flood) for Pukele Stream it seems incredible that plans have gotten this far. Instead work with the City and County on maintaining and clearing debris from the stream to prevent what happened during the flood in 2004 in Manoa. With our tax dollars going toward prevent flooding during a time of current drought conditions seems foolish.

There should be more environmental studies done as well as site work, and community/neighborhood awareness. I would have never known this would be happening in my neighborhood had I not being a part of the Baruch Bakar partnership. Having a large berm in this neighborhood would be an eyesore, impact on reduced housing, property values, and possible issues and problems that may arise that we don't even know yet from the construction and maintenance of this berm.

Maybe you may feel the need for berms for this Ala Wai project, but I think the USACE/DLNR should really look closely to see if berms for all three streams are necessary. It's too bad places like Waihole, Waikane, and Hauula don't generate the same kind of income like Waikiki to the state – they certainly could get the attention of their flooding and property loss taken care of. Thank you for allowing me to share my opinion on this important manner. If you like to contact me, please call me at 735-5014.

Best regards,

Winona Holmes

Winona Holmes
2541 Ipulei Way
Honolulu, HI 96816

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Winona Holmes
2541 Ipulei Way
Honolulu, Hawaii 96858

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to Alternative Plan Selection.

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. Details regarding planning considerations leading to the development of alternative plans can be found in Section 3 of the FEIS.

USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins

- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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Goro Sulijoadikusumo
3810 Claudine St.
Honolulu, Hawaii 96816

November 9, 2015

Gayson Ching
Engineering Division
State of Hawaii
Department of Land and Natural Resources (DLNR)
P.O. Box 373
Honolulu, HI 96809

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

Dear Messrs. Gayson Ching et alia:

Subject: Ala Wai Canal Project EIS

The EIS and proposed solutions do not seem to adequately study and address the project's impacts from the brown water discharges of the Ala Wai canal on the Waikiki ocean water quality and particularly the long term impacts on the adjacent reef from the resulting flocculation of the fine sediments distributed there by the project over the long term. I would appreciate a formal determination as to whether it is required by Department of Land and Natural Resources (DLNR) or federal rules to do the water quality assessments/monitoring and have some best practices approved or any other state approvals/permits for the water quality prior to constructing proposed improvements.

The University of Hawaii has done many studies and produced many papers over the years that show the kind of flocculation induced by the proposed project improvements is harmful to the reef over the long term and can have some toxic impacts to the overall environment. Relevant facts are provided in the first two attachments to this letter.

As shown in Article 1, the team of Wolanski et al. at UH Kewalo found and state in part that: "It is suggested that successful management of fringing coral reefs

adjacent to volcanic islands may not be possible without proper land use management in the surrounding catchment."

As shown in Article 2, Banner of UH HIMB on Coconut island in Kaneohe Bay found that flocculation could provide an environment suitable for the spread of ciguatera.

The study seems incomplete as also not all of the pertinent environment and in turn their alternatives was assessed. Most of the proposed solutions involve building mostly up and above ground with retention ponds and higher levee walls; however, there does not seem to be an adequate assessment and consideration of the underground environment for storing and helping prevent excessive brown water and flocculation impacts on the nearby ocean reef environment. This is even though it has been documented and studied that the area around the University of Hawaii has many underground caves and lava tubes such as in the quarry and Puck's Alley area that may have the potential to help handle and alleviate some of the surface runoff, etc.

Furthermore, building underground multi-use structures through public-private partnerships has recently been shown to be a successful strategy used by citys with complex problems similar to ours. For example, Santiago, Chile has built some very successful private tollways under the rivers that goes through the center of town to the airport. Since there is no direct connection from Waikiki to the freeway or airport and with 80,000 tourists in Waikiki every day, a public-private partnership for a multiuse tunnel could be a potential way to improve the project and make it sustainable for the long term.

As shown in Attachment 3, the City of Kuala Lumpur in Malaysia successfully built a private-publice multi-use tunnel to address both its needs in traffic and emergency flooding events. I would like the EIS to also address some of these alternatives to make the project both more successful and sustainable for the long term.

Sincerely,

Goro Sulijoadikusumo

Attachments

Available online at www.sciencedirect.com
SCIENCE DIRECT®
Estuarine, Coastal and Shelf Science 56 (2003) 1029–1040
ESTUARINE COASTAL AND SHELF SCIENCE

Water and fine sediment dynamics in transient river plumes in a small, reef-fringed bay, Guam

Eric Wolanski[a,*], Robert H. Richmond[b], Gerald Davis[c], Victor Bonito[b]

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[b]*Marine Laboratory, University of Guam, UOG Station, Mangilao 96923, Guam*
[c]*Division of Aquatic and Wildlife Resources, Department of Agriculture, 192 Dairy Road, Mangilao 96923, Guam*

Received 26 January 2002; received in revised form 17 May 2002; accepted 17 May 2002

Abstract

Fouha Bay is a 400-m-long funnel-shaped, 10-m-deep, coral-fringed embayment on the southwest coast of Guam. It drains a small catchment area (5 km^2) of steeply sloping, highly erodible lateritic soils. River floods are short-lived and the sediment load is very large, with suspended sediment concentration (SSC) exceeding 1000 $mg\,l^{-1}$. The resulting river plume is about 1 m thick and is pulsing in a series of 1–2 h-long events, with outflow velocity peaking at 0.05 $m\,s^{-1}$. Turbulent entrainment results in an oceanic inflow at depth into the bay. As soon as river flow stops, the plume floats passively and takes 5 days to be flushed out of Fouha Bay. The suspended fine sediment flocculates in 5 min and aggregates on ambient transparent exopolymer particles to form muddy marine snow flocs. In calm weather, about 75% of the riverine mud settles out of the river plume into the underlying oceanic water where it forms a transient nepheloid layer. This mud ultimately settles and is trapped in Fouha Bay. Under typhoon-driven, swell waves, the surface plume is at least 7 m thick and bottom entrainment of mud results in SSC exceeding 1000 $mg\,l^{-1}$ for several days. It is suggested that successful management of fringing coral reefs adjacent to volcanic islands may not be possible without proper land use management in the surrounding catchment.

Keywords: river plume; fine sediment; flocculation; sedimentation; muddy marine snow; coral; Guam

1. Introduction

The impact of sediment-laden river runoff on fringing coral reefs has been the subject of intensive research (see reviews in Fortes, 2001; McCook, Wolanski, & Spagnol, 2001; McManus, Menez, Reyes, Vergara, & Ablan, 2000), yet knowledge of the effects remains qualitative. This is because much of the research to date has focused on studying the changes in coral and algae cover on impacted reefs while little quantitative data have been collected on the quantity and quality of suspended sediments impacting the fringing coral reefs. Quantity is important because sediment can literally bury coral; sedimentation is a major cause of mortality in the initial life stages of hard corals (Cnidaria: Scleractinia). It can locally reduce recruitment rates (Gilmour, 1999; Sato, 1985) and at higher concentrations affects a range of life history parameters in juvenile and adult corals (Richmond, 1994; Rogers, 1990). Quality is also important because the sediment can contain substances harmful to corals such as pesticides and nutrients (Peters, Gassman, Firman, Richmond, & Power, 1997; Richmond, 1993). Additionally, the level of effect also depends on whether or not the suspended sediment is aggregated into marine snow (Fabricius & Wolanski, 2000). Because of increasing levels of reef degradation in coastal waters worldwide, a predictive, quantitative model for this impact is needed to facilitate appropriate coastal zone management.

To develop such a model, a detailed study of the dynamics of fine sediments in a fringing coral reef environment was carried out at Fouha Bay, Guam (143°39′E, 13°17′N; Fig. 1). Fouha Bay is reef-fringed, funnel-shaped, about 400 m wide at the mouth, and 10 m deep on average with a depth varying between

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doi:10.1016/S0272-7714(02)00321-9

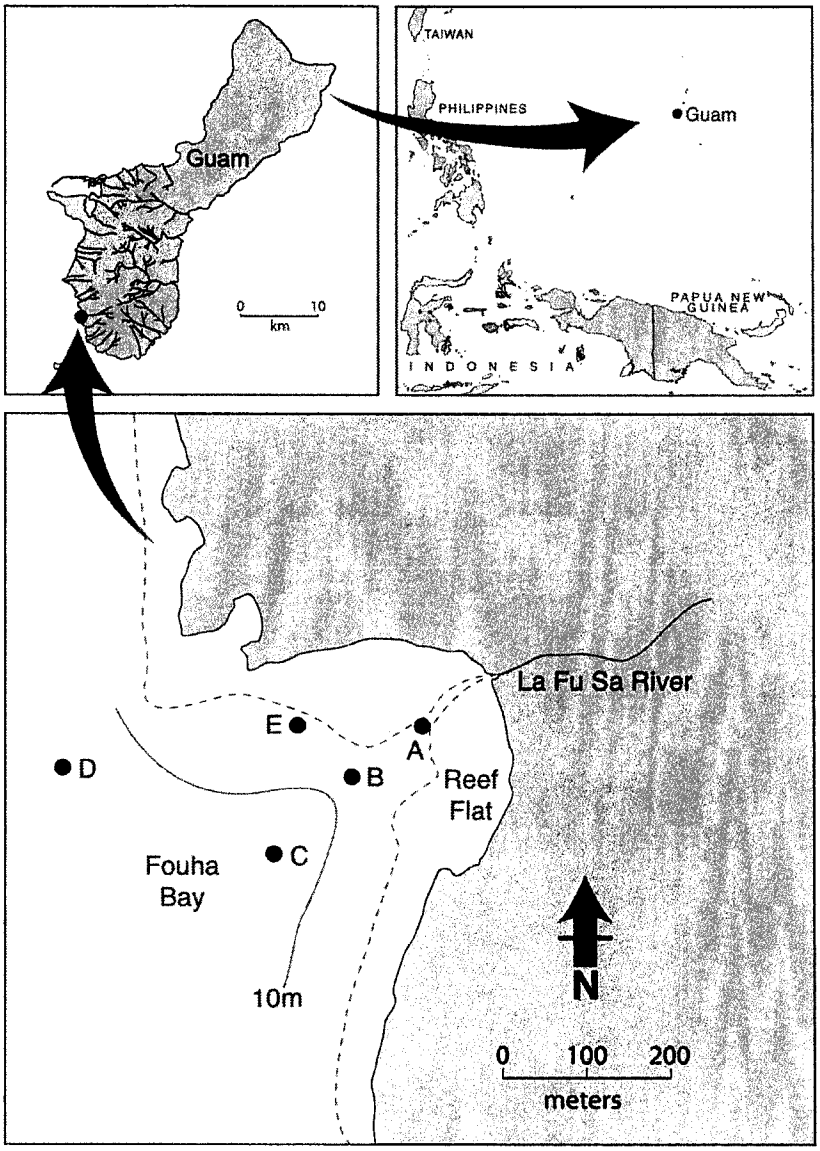

Fig. 1. Map of Fouha Bay in Guam showing the mooring sites and general location maps.

8 m at the base of the reef flat to about 11 m at the mouth of the bay. The adjoining La Sa Fua River catchment area is 5 km^2 and much of it is composed of volcanic, steeply sloping, highly erodible lateritic soils. Annual rainfall is about 2.5 m. The dry season extends from December to June, while the wet season usually lasts from July through November with August to October as the wettest months having a mean rainfall of 35 cm $month^{-1}$. Much of this rainfall occurs in a few days from local storms or the passage of a typhoon. This causes short, transient river floods, because the La Sa Fua River catchment is small. Minimum and maximum river discharges measured over a 5-year period were, respectively, 0.008 and 29.7 $m^3 s^{-1}$ (Randall & Birkeland, 1978). The La Sa Fua River discharges into Fouha Bay through a small canyon cut through the reef flat. This canyon is about 20–30 m wide with depth varying between 0.5 m at the shore and about 7 m at the reef edge. The canyon is studded with coral outcrops, the tops of which are emergent at low tide. Several other coral outcrops are scattered around Fouha Bay. The coral reef over the reef flat and the coral outcrops were still healthy in 1978 (Birkeland, Tsuda, Lassuy, & Hedlund, 1978; Randall & Birkeland, 1978). Much of the coral died after being buried by sediment in between 1988 and 1990 as a result of sediment-laden runoff following land clearing and road construction (Richmond, 1993). Algal overgrowth followed soon after.

Eleven years later, in 2001, we found that the reef was still heavily overgrown with an algae mat. These algae trapped a large amount of fine sediment that was readily

released as a muddy plume when the algal mat was manually shaken. In 2001, hard coral cover in the bay on the outcrops and reef areas along the canyon edge was only 30% with the greatest coral cover found in the inner half of the bay. Total species richness for the bay included 102 hard corals, with the greatest species richness found in the outer half of the bay. Coral cover on the surrounding fringe reef outside the bay was 5%. Species richness on the surrounding fringe reef included 77 hard corals. Substrate in the bay and on the surrounding fringe reef that was not living coral was predominantly covered with turf algae, however, seasonal blooms of *Padina* sp. and cyanobacteria can overgrow the turf algae and dominate the benthos. In 2001, the bottom of Fouha Bay between the opposing reef flats was muddy.

This article reports on a study of the hydrodynamics and fine sediment dynamics in Fouha Bay, during the wet season of July to September 2001. The fresh water/sediment plume has an active and a passive stage. In the active stage, river water forms a jet about 1 m thick and with a velocity of about $0.05\,m\,s^{-1}$. This jet lasts only as long as the river floods, typically a few hours. As soon as significant river runoff stops, the plume floats passively over the underlying oceanic water. The plume thickness is typically 1 m in calm weather and up to 7 m under typhoon-driven swell. In both weather conditions, salinity values seldom are less than 30 in the plume. The riverine suspended sediment concentration (SSC) varies between 1000 and $5000\,mg\,l^{-1}$.

2. Methods

Two field experiments were carried out in Fouha Bay. In the first experiment, five oceanographic moorings were deployed at sites A–E (see location map in Fig. 1) for 2 weeks in July–August 2001. Sites A–D formed an along-bay transect while sites D and E measured the across-bay variability. Salinity, temperature and SSC were measured using self-logging Analite nephelometers, DataFlow salinometers and a YSI self-logging CTD-cum nephelometer. The Analite nephelometers and YSI instrument were equipped with wipers that cleaned the sensor every 30 and 10 min, respectively. The instruments logged data at 10 min intervals. The data were sampled at 0.5 s intervals and averaged over 1 min for all sensors except the YSI, which logged data continuously without averaging. The salinometers and nephelometers were deployed at nominal depths of 1.5 and 2 m, respectively. At site C, the vertical profiles of horizontal currents were measured using a bottom-mounted Workhorse ADCP. Sites A and B were coral outcrops and the instruments were attached onto star pickets (rebar) driven into the carbonate substratum. At the other sites, the instruments were attached onto mooring lines kept taut by a subsurface buoy. In addition, the vertical profile of salinity, temperature and SSC was measured at intervals of 2–5 days from a ship-born YSI CTD profiler-cum nephelometer.

In the second experiment, the self-logging YSI CTD-cum nephelometer was deployed at site A at 3 m depth. Also at site A, a Dataflow salinometer was deployed at 7 m depth, which was 1 m above the bottom. The vertical profile of salinity, temperature and SSC was measured at deployment.

The nephelometers were calibrated in situ using water samples brought to the laboratory and filtered on 0.45 μm filters. These were dried and weighed. The SSC in riverine water during flood periods was also occasionally measured by this method.

Samples for microscopic observations of suspended matter were obtained using the modified technique of Ayukai and Wolanski (1997). Briefly, water samples were collected using a 2.5-cm diameter tube moored at the sampling sites for 10 min. The tube was then capped and the suspended matter settled onto a microscope slide with a 3-mm-deep well. A cover glass was then pushed over the microscope slide. The seal between the slide and cover glass was made water tight, so that settling particles intercepted into the well were recovered without being physically disturbed. The sample was immediately examined under an Olympus inverted microscope with a Sony CCD video camera. The images were captured on an IBM-compatible PC with an interface video card. Riverine water collected during a flood was also examined using this method.

The microscope and image capture facility was also used in a laboratory experiment to determine the speed of flocculation. Turbid freshwater sampled during a local flood of the La Sa Fua River was diluted with unfiltered reef seawater to reach a salinity of 17 and the size of the suspended matter was monitored at 5 min intervals over 1 h.

La Sa Fua River hourly discharge and SSC data were provided by the United States Geological Survey. Discharge was measured at a gaging station located approximately 1 km upstream from the bay and gages just over 50% of the watershed. Reliable river SSC data were obtained from only one flood event.

3. Results

3.1. Calm weather—ship born observations

River runoff was minimal ($\approx 0.1\,m^3\,s^{-1}$) on July 27, 2001, when calm weather prevailed. Fouha Bay waters were vertically fairly well mixed in salinity and SSC (Fig. 2a); the surface river plume was only 0.5 m thick

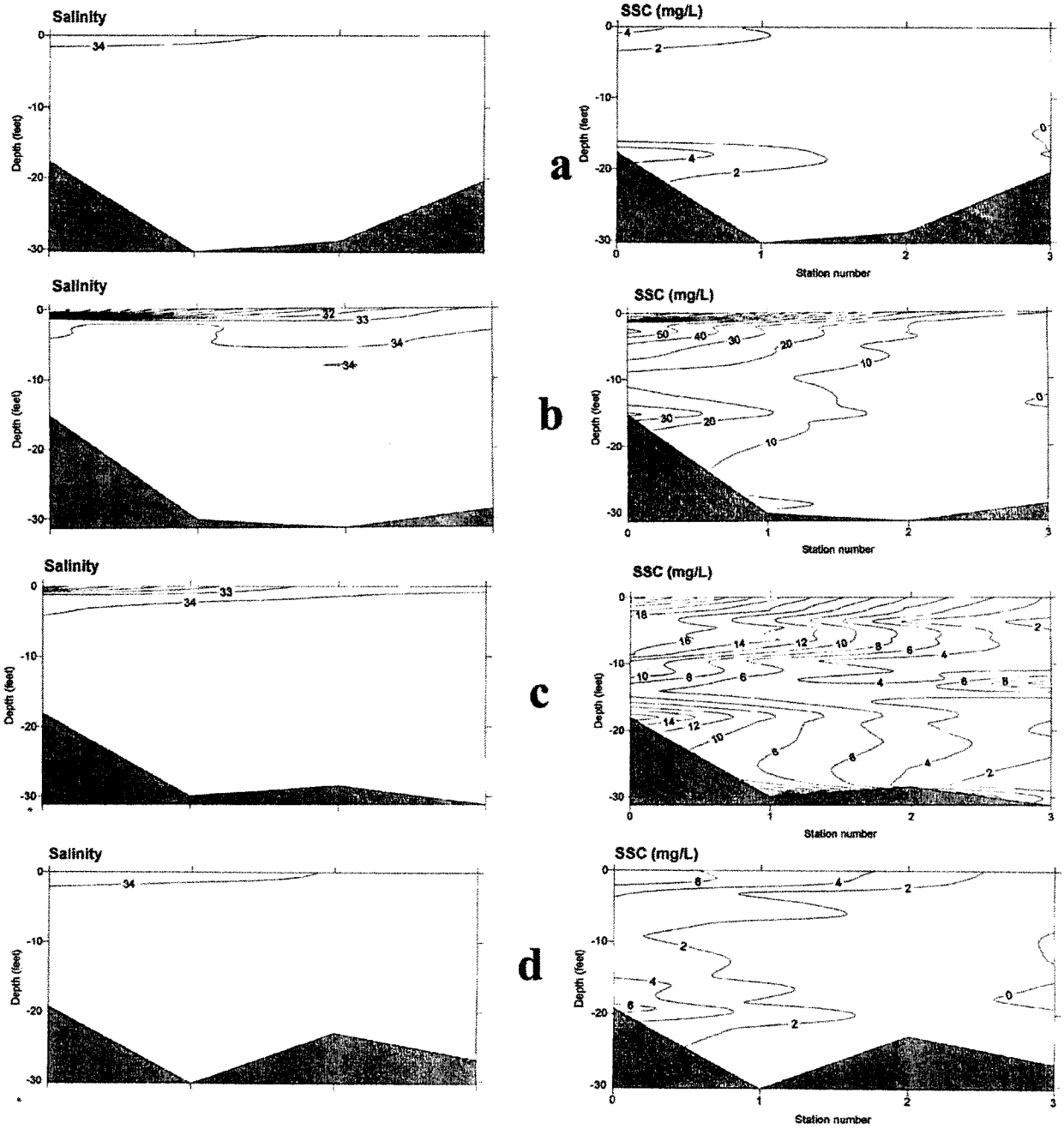

Fig. 2. Along-bay transect of (left) salinity and (right) SSC on (a) 27 July 2001, (b) 30 July 2001, (c) 1 August 2001 and (d) 3 August 2001. Stations 0–3 are labelled A, B, C and D in Fig. 1.

and the minimum salinity about 34. SSC values peaked at $4\,mg\,l^{-1}$ in the river plume near the surface and near the bottom while the mid-waters SSC were less than $2\,mg\,l^{-1}$.

Intense rainfall on July 28, 2001, generated a rapid, short-lived, rise of the discharge of the La Sa Fua River, peaking at $2\,m^3\,s^{-1}$ (Fig. 3). On July 30, 2001, a flood plume was present in Fouha Bay (Fig. 2b). This flood plume was about 1.5 m thick with a minimum surface salinity of 22 at site A and 33 at site D, indicating vertical mixing as river water moved offshore. The isohalines were practically horizontal, indicating that the vertical mixing between fresh and salt water was compensated by radial spreading of the plume made possible by the funnel-shape of Fouha Bay. No major temperature plume was observed. At the same time, the SSC distribution (Fig. 2b) showed no measurable increase of SSC offshore (site D), indicating that much of the riverine sediment remained trapped in Fouha Bay. Within the Fouha Bay there was a 2-m-thick,

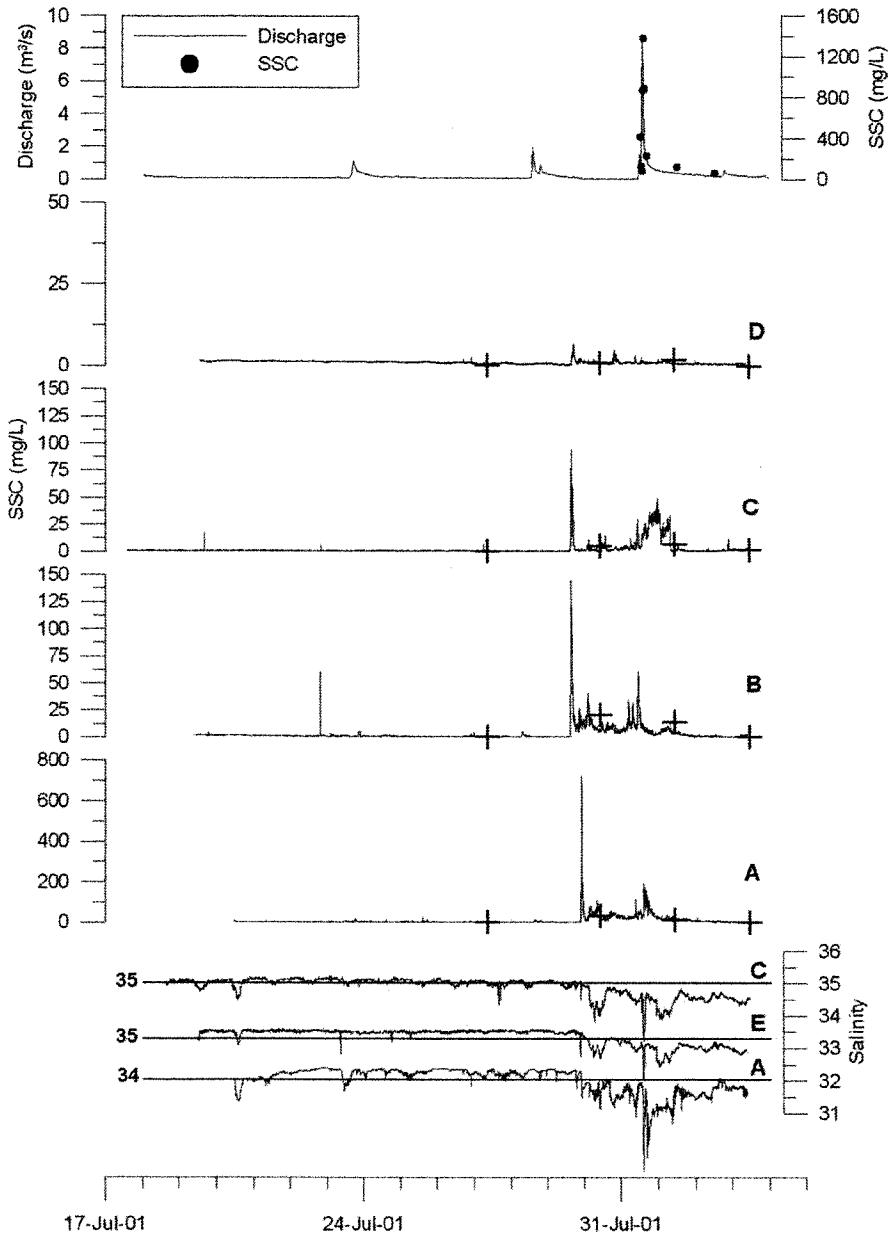

Fig. 3. Time series plot of the discharge ($m^3 s^{-1}$) and SSC of the La Sa Fua River, and the SSC ($mg l^{-1}$) and salinity at the mooring sites A–D in July 18–August 3, when calm weather prevailed. Depth is shown in feet (1 ft = 0.3048 m). The crosses indicate independent SSC measurements made using the ship-born YSI nephelometer.

turbidity plume, with SSC peaking at $100 mg l^{-1}$ at site A and $20 mg l^{-1}$ at site C. Contrary to the isohalines, which were nearly horizontal, the SSC contour lines sloped upward with increasing distance offshore, indicating that the suspended matter was settling out of the river plume. The settling, riverine sediment was found throughout the water column below the river plume, with SSC values in the range $10–50 mg l^{-1}$ and decreasing with increasing depth. The settling sediment formed a nepheloid layer with SSC values of about $30 mg l^{-1}$ at 5 m depth between sites A and B.

As shown in Fig. 3, the La Sa Fua River flooded with a peak discharge of about $8 m^3 s^{-1}$ on July 31, 2001; this flood was very short-lived. Indeed, the river discharge was ten times smaller 3 h later. River SSC values peaked at $1382 mg l^{-1}$ for this flood with a mean SSC of $528 mg l^{-1}$ during the event. On August 1, 2001 (Fig. 2c), the salinity plume was 1 m thick, with a minimum salinity of 29 at site A and 34 at site D (Fig. 2c). The SSC values were maximum near the surface, peaking at $28 mg l^{-1}$ at site A and $6 mg l^{-1}$ at site C. A second maximum in SSC occurred in the near-bottom nepheloid

layer, which covered the sea floor over the whole bay with a peak SSC of 20 mg l^{-1}.

Another 2 days later, on August 3, 2001 (Fig. 2d), the bulk of the salinity plume was flushed out of Fouha Bay and the minimum salinity was about 34. Much of the suspended sediment had been removed based on the maximum values of SSC that peaked at 6 mg l^{-1}. These maximum SSC values occurred both near the surface and near the bottom at site A.

3.2. Calm weather—mooring observations

Semi-diurnal tides prevailed with an amplitude usually less than 0.6 m (see Fig. 5 discussed later).

Three small river floods were experienced peaking at about 1, 2 and 8 m^3 s^{-1} on, respectively, July 23, July 28, and July 31, 2001 (Fig. 3). All these floods were short-lived; the river discharge increased to peak values in 2 h and decreased to baseflow values about 10 h later. There was no significant decrease in salinity at the mooring sites until July 29, after which time the salinity fluctuated widely (see Fig. 3). The fluctuations were highly coherent at all sites in Fouha Bay, indicating that the plume affected the whole bay more or less simultaneously. Minimum salinity was about 31 at the instrument depth (1.5 m) and this agreed closely with that from the ship-born CTD.

The SSC time series at the mooring sites shows a very different pattern than that of the salinity (Fig. 3). The river flood caused no measurable SSC increase at site D (offshore), the maximum SSC increase was about 5 mg l^{-1}, and this was short-lived and occurred immediately following a river flood. Large and rapid SSC fluctuations occurred throughout Fouha Bay following river floods. The largest SSC fluctuations occurred on July 29, 2001 (day 210) immediately following the river flood, peak SSC was about 700 mg l^{-1} at site A (inshore), 150 mg l^{-1} at site B (mid-bay) and 100 mg l^{-1} at site C (mouth of Fouha Bay). This peak presumably corresponds to the initial river plume forming and spreading throughout Fouha Bay, the initial pulse of freshwater containing most of the eroded soil. The salinity time series shows little freshening of the water at the time of peak SSC, implying that this peak was due to sediment that had settled out of the surface plume into the underlying oceanic water. For the next 2 days, SSC fluctuated widely with peak values of 200 mg l^{-1} at site A and about 50 mg l^{-1} at both sites B and C. These peaks occurred during a period of decreased salinity in Fouha Bay, however, there was no apparent correlation between SSC and salinity fluctuations. This observation suggests that riverine sediment reached the instruments both directly with the river plume and by settling from the overlying river plume.

Before the river flood, the currents peaked at 0.02 m s^{-1}, fluctuated with the tides, and were fairly uniform with depth (Fig. 4a). In Fig. 4 the data appear noisy, this is because these small velocities are only slightly above the resolution ($\approx$0.01 m s^{-1}) of the ADCP.

During the river flood starting in the early hours of day 210, the currents fluctuated rapidly (Fig. 4b). From day 210 to 210.5, the mid-water and surface currents were small (<0.02 m s^{-1}) and uniform with depth. Near the surface the currents were different during most of the day, as there were several events (marked O, P, Q, R and S), each lasting 1–2 h, of outflow of water from Fouha Bay with velocities peaking at 0.05 m s^{-1}. This outflow is due to the buoyant jet formed by the river discharge exiting Fouha Bay. During the periods of surface outflow, there was also an inflow into Fouha Bay in the bottom half of the water column (Fig. 4b). This flow is interpreted as a return flow of oceanic water entrained into the surface buoyant jet. Hence, there was an outflow of freshwater at the surface and an inflow of saline water underneath the plume. There were also occasional events of inflow in Fouha Bay at the surface (e.g. between events R and S in Fig. 4b), suggesting that internal waves were generated on the pycnocline.

On day 211, the currents were once more fairly uniform with depth, suggesting that the river discharge was small again and the freshwater plume seen in our CTD casts (Fig. 3c) had become passive.

3.3. Typhoon swell—mooring observations

The La Sa Fua River flooded several times between August 11 and 17, 2001, and once on August 21, 2001 (Fig. 5).

The time series of the depth, as measured by the YSI instrument, shows tidal fluctuations with a normal range less than 0.6 m (Fig. 5). From August 13 to 20, 2001, the depth sensor also recorded wide fluctuations, up to 4 m peak to trough, due to swell waves driven by the passage of a typhoon. There was a second, smaller, typhoon between August 26 and 29, 2001.

There were small differences in temperature (up to 0.4 °C; the top waters being warmer) between top and bottom waters before the typhoon passed nearby, and no differences during and after the typhoon (Fig. 5). There were small differences in salinity (up to 0.7; the top waters being fresher) between top and bottom waters before the typhoon, and no differences during the typhoon. This indicates that the swell waves were able to vertically mix the river plume to at least 7 m depth. During the typhoon, which was accompanied by several river floods, minimum salinity was 30 for about 3 h on August 13, 2001. A second, major low salinity event occurred on August 21, when the minimum salinity was about 24 and this lasted about an hour. The salinity data (Fig. 5) show that freshwater was

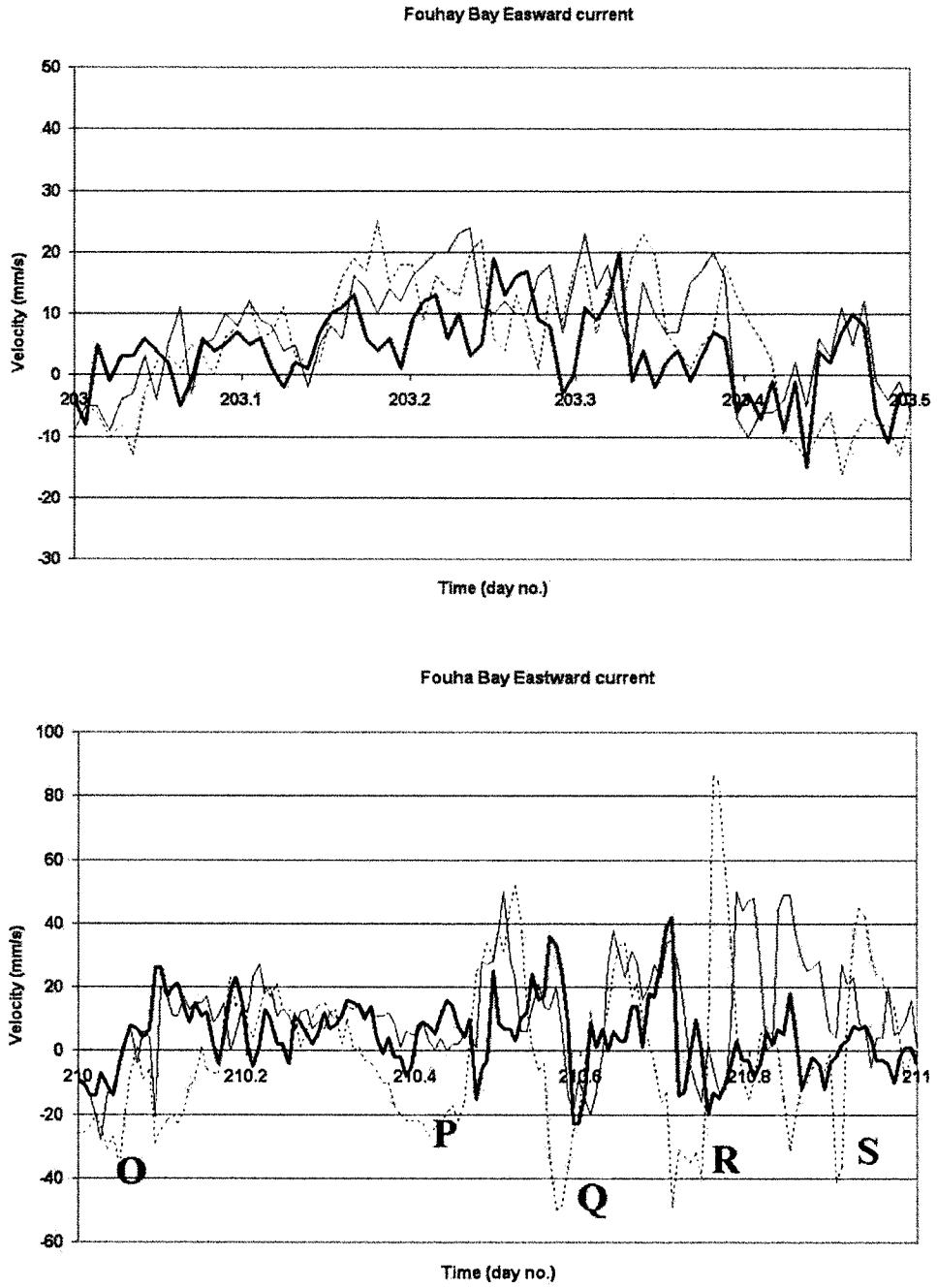

Fig. 4. (a) Time series plot of the along-axis (positive for eastward, i.e. shoreward) current at site C at (thick line) 1 m off the bottom, (thin line) mid-depth and (dotted line) 1 m off the surface during day 203 when calm weather prevailed and river runoff was negligible. (b) Same as (a) for day 210 when calm weather prevailed and the La Sa Fua River was in flood. The symbols O, P, Q, R and S indicate pulses of freshwater outflow (see text).

flushed out in 2 days from Fouha Bay under the typhoon-generated swell.

During the typhoon, SSC values at 3 m depth peaked at 2000 mg l^{-1} (Fig. 5) and this peak occurred at the same time as the minimum salinity, suggesting this sediment pulse was a river-driven event. From August 15 to 19, SSC values at 3 m depth frequently exceeded 1000 mg l^{-1}, with a maximum value of 2000 mg l^{-1}. These high SSC values were due both to mud resuspension from the bottom and runoff (the latter mainly on August 15 and 16).

There was a second period of high SSC during the period 27–28 August 2001, when no significant salinity decrease was observed (Fig. 5). This period also corresponds to high wave activity. This suggests that waves resuspended the bottom. There was also a small flood on the 27th but no SSC reported from the river.

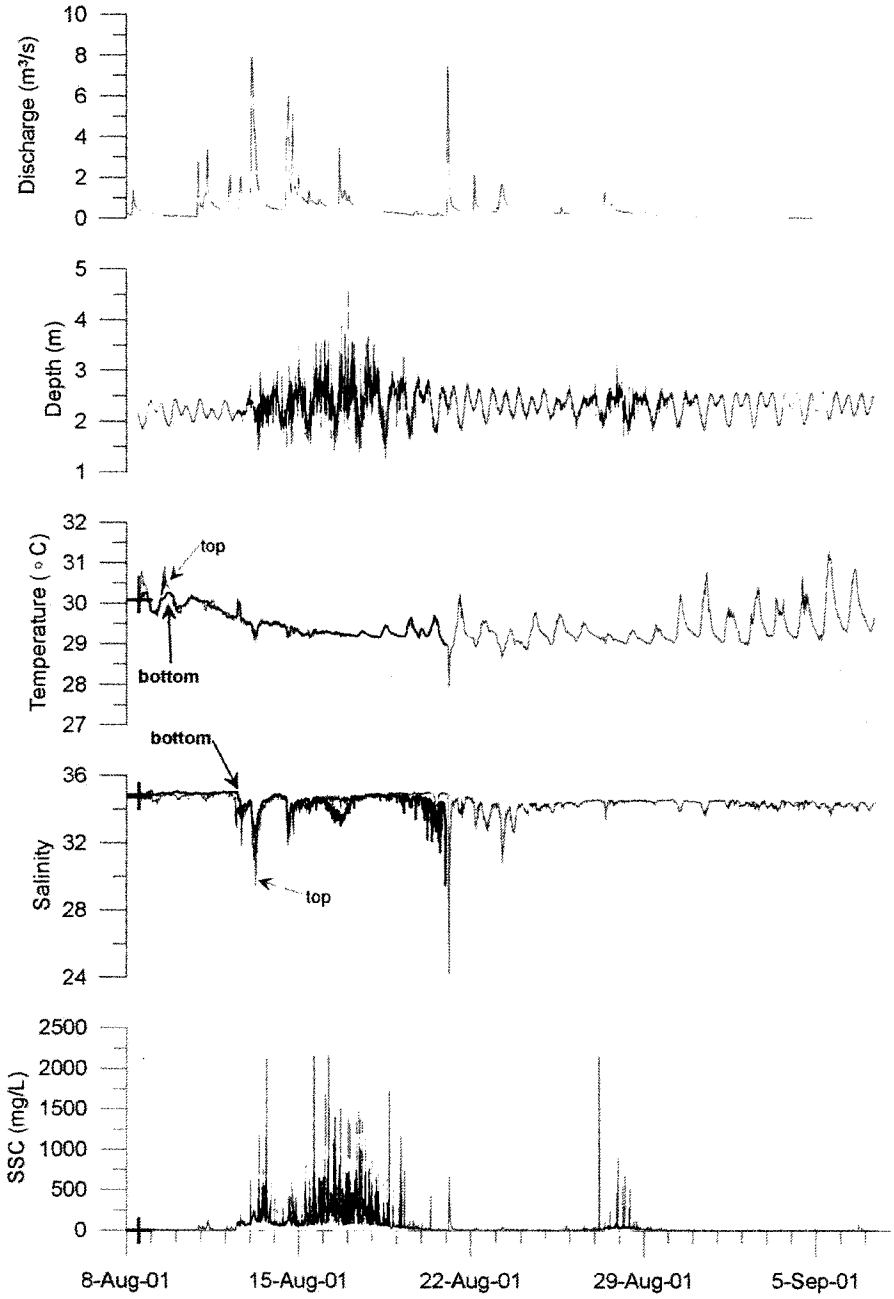

Fig. 5. Time series plot from August 8, 2001 to September 12, 2001, of the discharge of the La Sa Fua River ($m^3 s^{-1}$) and the water depth (m), temperature (°C), salinity and SSC ($mg l^{-1}$) at mooring site A. Water depth and SSC were measured by the YSI CTD attached to a coral outcrop at a nominal depth of 2 m; salinity and temperature were measured both by (top) the YSI CTD at 2 m depth and by (bottom) a DataFlow salinometer attached to the same coral outcrop at 7 m depth which was 1 m off the bottom.

3.4. Flocculation

The suspended matter in Fouha Bay underneath the river plume was observed to be composed of muddy marine snow flocs (Fig. 6), that is, aggregates of mud and transparent exopolymer particles (TEP). These flocs were similar in size and appearance to those described by Ayukai and Wolanski (1997) and Wolanski, Spagnol, and Ayukai (1998). Water containing such flocs was sampled in tubes and allowed to settle in quiet conditions. The floc settling velocity was found to be typically 0.5–1 $mm s^{-1}$, according to the size and shape of the floc and the mud content. Typical floc size was 200–700 μm before the river flood (Fig. 6). In the river flood plume, the floc size was similar and the settling velocity appeared higher, peaking at 3 $mm s^{-1}$. Visual

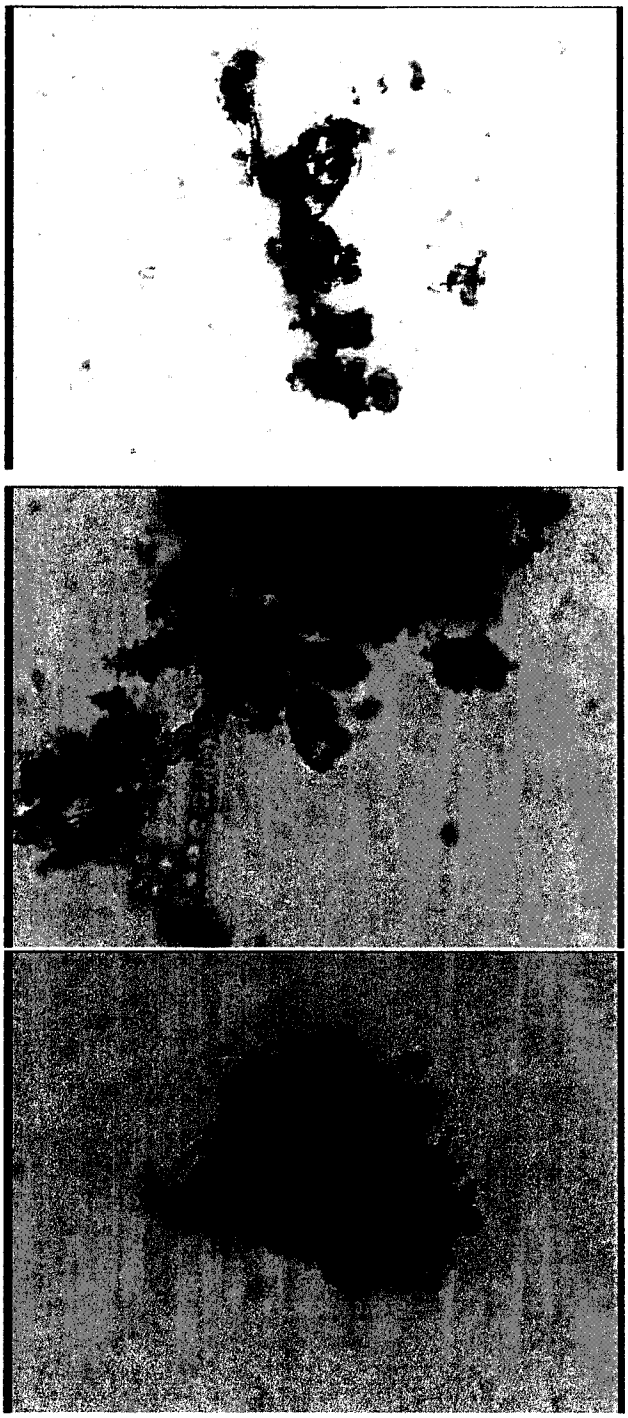

Fig. 6. Microphotographs of typical muddy marine snow in Fouha Bay (top and middle) below the river plume and (bottom) in the river plume. The width of the photograph is 1 mm.

observations using a microscope suggest that this higher settling velocity may be due to the higher mud concentration on the flocs, the mud behaving like a ballast for the marine snow. During river floods the flocs were observed to host numerous zooplankton that were feeding on organic matter, similarly as reported by Ayukai and Wolanski (1997).

The suspended sediment in the river was observed (not shown) to be largely unflocculated. No flocs greater than 50 μm were observed and flocs greater than 30 μm were rare. After this water was mixed in a ratio of 1 : 1 with clear, unfiltered reef seawater, the sediment was observed to flocculate rapidly, with flocs of 300 μm formed in 5 min. Floc size reached 1000 μm in 10 min and did not increase thereafter (not shown).

4. Discussion

River runoff is minimal in fall, winter and spring. In summer, the wet season, rainfall often results from local storms as well as from typhoons. Because of the small catchment, the river floods are short-lived, typically lasting less than 12 h. Several such events were sampled in July–September, 2001. Our study showed that the dynamics of river runoff and suspended sediment dynamics fluctuated at time scales of hours. These short time scales may invalidate the conclusions from previous studies of salinity and suspended sediment in Fouha Bay, since these were carried out at monthly intervals (Randall & Birkeland, 1978).

The field data highlight the key processes controlling the fate of river runoff for small rivers in coastal waters in poorly flushed embayments such as Fouha Bay; these are sketched in Fig. 7. When the river flood occurred in calm weather, i.e. when rainfall results from local, short-lived storms, the river plume was less than 1 m thick with a minimum salinity of about 30. The active stage of the river plume, i.e. the period when brackish water formed a surface jet, occurred in a series of events, each lasting about 1–2 h for a total of about 8 h. This pulsing of the jet outflow, at few hourly periods, may be due to non-linear dynamics of the buoyant jet (Garvine, 1995). After cessation of the river discharge, the plume floated passively at the surface. The maximum along-bay flow velocity in the plume peaked at $0.05\,m\,s^{-1}$ during an outflow event; the mean velocity during an outflow event was about $0.025\,m\,s^{-1}$. Outflow events were accompanied by a return flow of oceanic water, due to turbulent entrainment into the jet. After the flood, the surface freshwater plume was passive and negligible net currents resulted. Flushing was thus very slow; the salinity data revealed that it took 5 days for the plume to be flushed out from Fouha Bay after a river flood.

When the river flood occurred accompanied by a 4-m typhoon-driven swell, vertical mixing was enhanced and the plume reached 7 m in thickness, with minimum salinity of 25, but more commonly 30. The salinity data revealed that in such cases flushing is much more rapid, with time scales of 1–2 days.

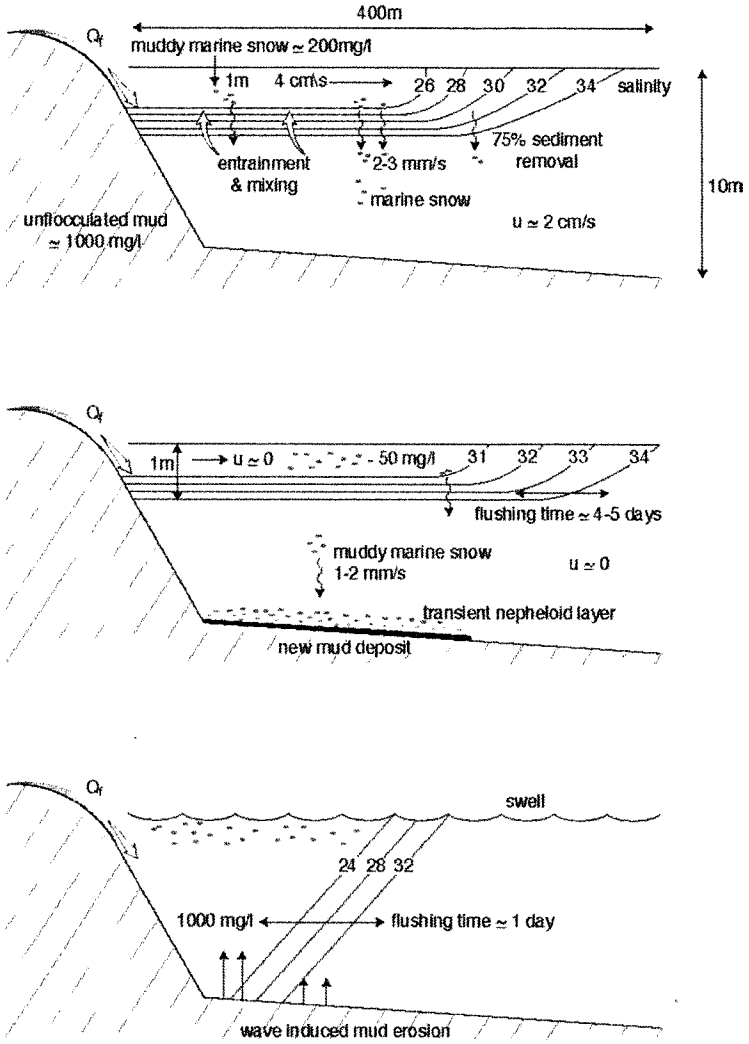

Fig. 7. Sketch of the dynamics of river and fine sediment in the transient river plume in Fouha Bay (top) during the river flood in calm weather, (middle) after the river flood in calm weather, and (bottom) during the river flood under a typhoon-driven swell.

The river inflow was extremely muddy, with SSC in the range of 1000–5000 mg l^{-1}. In reaching Fouha Bay, the fine sediment in suspension coagulated on the existing marine snow and formed muddy marine snow. In calm weather, this material settled out of the plume to mix in the bulk of the coral-containing seawater underneath the plume (Fig. 7). It formed a transient, near-bottom nepheloid layer.

It is possible to estimate the riverine sediment budget in calm weather for the river flood of July 29, 2001. The ADCP data suggest that during the active stage of the plume, freshwater took about 8 h to exit Fouha Bay. With a typical settling velocity of 2 mm s^{-1}, the bulk of the suspended sediment settled out of the river plume in 6 h into the oceanic waters of Fouha Bay which has negligible flushing in calm weather, as shown by the ADCP data. Thus, about 75% of the riverine sediment exited the plume and mixed in the underlying oceanic water of Fouha Bay in calm weather. Because these waters are little-flushed, and indeed are entrained shoreward during a surface outflow event, this sediment is effectively trapped in Fouha Bay.

SSC values were even higher under a typhoon-driven swell, reaching 2500 mg l^{-1} in hours-long events that were frequently repeated during a week. Such high SSC values were probably caused by bottom sediment resuspension by the 4-m typhoon-driven swell. At such high SSC the corals in the bay lived in complete darkness for a week.

On September 16, 2001 a flood occurred in Fouha Bay from which river SSC data were obtained (not shown). River SSC peaked at 3759 mg l^{-1} with a mean value of 1497 mg l^{-1} for the event. Based on two flood events recorded by the USGS, a mean river SSC value of 1000 mg l^{-1} during flood events is a reasonable assumption.

The La Sa Fua River has a mean discharge of $0.125\,m^3\,s^{-1}$, 70% occurring in the wet season. During the wet season, the bulk of the flow is made up of about 10 river floods, each lasting 10 h, with a peak discharge of about $8\,m^3\,s^{-1}$. These floods bring eroded, fine sediment in Fouha Bay at a mean concentration of about $1000\,mg\,l^{-1}$. If the bay has a sediment trapping efficiency of 75%, the annual sedimentation rate in Fouha Bay is about $1.8 \times 10^6\,kg\,year^{-1}$. With a surface area of about $4 \times 10^4\,m^2$, Fouha Bay sedimentation rate is about $2.2\,cm\,year^{-1}$. Some of this sediment may be removed by wave action associated with passing typhoons. The typhoon of August 2001, kept $4 \times 10^5\,kg$ of fine sediment in suspension during 7 days. During those 7 days there were four periods when the SSC values decreased to values less than $50\,mg\,l^{-1}$ while the rest of the time SSC values were larger than $500\,mg\,l^{-1}$. This suggests that the bay was cleared of suspended sediment four times, i.e. a total of $1.6 \times 10^6\,kg$ of mud either settled or was exported out of Fouha Bay during this typhoon. Settling appears unlikely because swell was experienced throughout. Thus, the data suggest that 7 days of typhoon-driven swell may flush out the annual riverine sediment inflow.

Observations by divers suggest that the central part of Fouha Bay is covered by 0.5 m of mud, corresponding to a deposit of $7 \times 10^6\,kg$ of mud. The mean residence time of riverine fine sediment in Fouha Bay is thus 4.3 years. In the absence of any additional riverine sediment inflow, this sediment could be exported after 30 days of typhoon-driven waves, for a similar typhoon strength as the one in August 2001. Such flushing of a bay was observed at a nearby site, Facpi Point, following a relatively dry typhoon in 1992 (Richmond, 1993).

In calm weather, freshwater runoff probably had no major impact on coral because it floated on the ocean surface. Only during typhoons could brackish water impact the corals below 1 m depth. Riverine sediment may, however, strongly impact coral in Fouha Bay. The data show that much of the terrigenous mud was trapped and settled in Fouha Bay. A key reason for that was the formation of muddy marine snow. The unconsolidated clay particles in riverine water have a settling velocity of about $0.001\,mm\,s^{-1}$ (Gibbs, 1985), thus they are readily carried by the turbulent river flow to the coast. There they coagulated within 5 min—as our laboratory experiments showed—into ambient TEP (or marine snow; Alldredge, Passow, & Logan, 1993; Passow & Alldredge, 1994), forming muddy marine snow. This muddy marine snow had a settling velocity of typically $0.05–3\,mm\,s^{-1}$. Such high settling velocities have been observed in other muddy, organic-rich coastal environments (e.g. Eisma, 1986). The origin of TEP may be due to microbes, diatoms and metazoans such as appendicularians, that exude dissolved mucopolysaccharides that may become particulate through the formation of cation bridges (Alldredge, Cole, & Caron, 1986; Hansen, Kiørboe, & Alldredge, 1996; Logan, Passow, Alldredge, Grossart, & Simon, 1995). They also serve as substrate for microbes (Alldredge et al., 1986) and as particulate food for grazing plankton (our observations).

In Fouha Bay, the formation of muddy marine snow may be the key process leading to reef degradation for a number of reasons. Firstly, it leads to rapid settling of the suspended mud out of the river plume, thereby preventing the export of this material out of Fouha Bay. About 75% of the riverine sediment inflow may be trapped in the bay. This sedimentation occurs during the wet season, which is also when juvenile corals of many, but not all, species have just settled on the substrate, and these juveniles are particularly susceptible to sedimentation even if they are spared freshwater impacts if the river plume floats on top of them. Secondly, since Fouha Bay is a fine sediment trap, mud has presumably accumulated in quantity since the adjoining land was cleared. This mud resuspends under typhoon-driven swell. This may occur few times a year. In each such event, high SSCs ($\approx 1000\,mg\,l^{-1}$) essentially shuts off all light at a few meter depth for several days. When the weather calms down after the typhoon leaves, this sediment settles on both adult and juvenile corals. Thirdly, high turbidity may lead, in the nepheloid layer, to oxygen consumption exceeding production (Richmond, 1987); if this lasts several days in calm weather, significant dissolved oxygen may result that will further stress the juvenile corals.

5. Conclusions

It appears thus that terrigenous mud, and not freshwater, may be responsible for the failure of coral to recover in Fouha Bay. The implication is that coral conservation and management may not be possible in fringing reefs facing volcanic islands without simultaneously preventing soil erosion in the surrounding catchment.

The data suggest that Fouha Bay is flushed annually by waves generated from typhoons passing to the south of Guam. If sediment input can be substantially reduced through improved land-use practices, water and substratum quality should improve and provide the conditions for reef regeneration to occur.

Acknowledgements

The University of Guam, the Australian Institute of Marine Science, US-EPA and the Guam Department of Agriculture supported this study. It is a pleasure to thank T. Quinata and B. Irish. River discharge and SSC data were provided by the US Geological Survey.

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May 18, 1978

ON A CULTURE OF MIXED ALGAE PRODUCING CIGUATOXIN IN HAWAII

Albert H. Banner
University of Hawaii

As is known, Hawaii has had and continues to have sporadic outbreaks of ciguatera, usually mild, and these attacks have continued. In the last decade cases have come from two fishes: Most came from the large carnivore, *Seriola dumerilii* or amberjack (*kahala* in Hawaiian); these cases are so random that one is tempted to suggest that these fish, which are known to migrate, have come to the waters of the main Hawaiian Islands from the leeward Hawaiian chain where many fishes are known to be toxic. However, some cases of ciguatera caused by the pisciverous *Chelinus rhodochrous* (*po'ou* in Hawaiian); this fish may reach the length of 60 cm, but is usually much smaller and it is not migratory. Therefore it must be presumed that the Hawaiian reef ecosystem is producing ciguatoxin, albeit in small amounts.

Therefore, after Dr. Yasumoto announced in February, 1977 the association of the yet unnamed dinoflagellate with ciguatoxin production in the Gambier Islands, and spoke of its benthic habits and association with the alga *Turbinaria* we made an initial exploratory survey of *Turbinaria* on various reefs of the island of Oahu. No dinoflagellates were found and the search was discontinued.

In early January, 1978 I was searching at the Hawaii Institute of Marine Biology for some tanaids, a near-microscopic crustacean living in bottom debris. I looked in an unused water-table where an experiment had been abandoned some months before but the running sea water from the Institute's system had been left on. The source of this water was the shallow water from the reef immediately adjacent to the laboratory. The table is about 0.6 by 1.4 m and the water is 14 cm deep. The bottom of the table was covered with a brown flocculant film which at times would cover small tufts of a red alga a centimeter or more high. Macroscopic life consisted of one xanthid crab, several small tubeworms under small sheets of transite abandoned from the previous experiment, and some amphipods a few millimeters long. Where the currents accumulated the fine debris, the bottom of these deposits were black from anaerobic decomposition.

It should be remembered that Kaneohe Bay has been subject to high levels of plant nutrients from a municipal sewage discharge and has become quite eutrophic. While the sewage outlet was abandoned in mid-December 1977, the nitrate and phosphate levels in the open bay waters have not markedly decreased due to the leaching of the nutrient ions from the organically-rich bottom deposits.

When I examined the bottom crud under the binocular dissecting scope I discovered it to be largely an amorphous grey flocculant material pierced by strands of a blue-green alga - I have later determined that the flocculant material is the "sheath material" produced by the alga. This deposit would

almost engulf the tufts of red alga, leaving only the growing tips bare. Living on - actually "sitting" on - the flocculant material was a biconvex thecate dinoflagellate; examination under ultraviolet microscopy showed it carried chlorophyll a and that it was therefore autotrophic. The behavior of the dinoflagellate was strange: very seldom would it swim into the water column above the deposit, but at times it would slowly move from one place to another and at times it would turn the sulcus down as if it were actually feeding on the deposit. The culture was literally teeming with the flagellate, with at times a hundred or more in the field of a dissecting microscope at 50 diameters magnification.

There were other plants and animals in the wild culture: almost as abundant as the dinoflagellate was a flattened ciliate of about the same size (about 70 µm), also carrying chlorophyll. There were diatoms and a few naked green flagellates. Other animals included a few nematode worms, some harpaticoid copepods but little else.

Upon the discovery of the dinoflagellate-blue-green algal culture I was struck with how parallel this was to Dr. Yasumoto's report of another dinoflagellate (as I then thought) in association with another species of alga. I immediately wrote about it to both Dr. Yasumoto and Dr. F. J. R. Taylor of the University of British Columbia who is the specialist in tropical dinoflatellates to whom Dr. Yasumoto had sent some of his specimens. Dr. Taylor soon replied that he thought from the sketch I had enclosed that the dinoflagellate might be the same as Dr. Yasumoto had found in the Gambiers. I immediately sent him some specimens for confirmation and gave some of the culture to Dr. Hokama for preliminary testing.

Dr. Taylor replied that the dinoflagellate was the same as that found by Dr. Yasumoto, and that it would be described as a new genus, new species. Dr. Hokama applied his ELISA test (enzyme linked immunological sensitivity assay) and found a strong positive for ciguatoxin.

At that point my interest in the culture markedly increased and I hired a technician to help me explore the cultural requirements for ciguatoxin production. I also had the major components identified: as I said, the dinoflagellate will be described as a new genus and species; the blue-green was identified as *Microcoelous lyngbyaceous* - it is the form previously known as *Lyngbya majescula*, a known toxigenic form; the two red algae were identified as *Centroceras clavulatum* and *Ceranium* sp., and a less common fine brown algae as *Giffordia mitchelliae*; I have the common ciliate in the hands of an expert but he has not yet given me the identification.

One of the first things we did was to spot check other algae in the vicinity of the laboratory in Kaneohe Bay. We found the dinoflagellate in many places but not in the abundance found on the water-table.

In our study of the cultures we have had and are having numerous difficulties. For example, while we have been able to separate the blue-green alga and raise it in uni-algal culture, we have not yet been able to grow the isolated dinoflagellate, although the individual cells remain alive for some time. Because of the sessil habits of the dinoflagellate and its spotty distribution, we have been unable to quantify our results except by such subjective methods as "few" or "many." Therefore we are unable to tabulate any firm results.

In general, however, our original wild culture, our sub-cultures in running sea water on tables, and our enriched static cultures, both in flasks and in tanks similar in size to the water-tables, all produce products that give positive tests for ciguatoxin by the radioimmunoassay, in counts per minute per gram of material. Some of these are higher and some are lower, reflecting in part, our crude estimates of dinoflagellate abundance. We have tried enrichment of the sea water with four different media recommended for dinoflagellate culture and all seem to stimulate initially the bloom of the other algal components. It is only when the peak of the bloom of the other algae passes that the dinoflagellates appear to greatly increase in numbers. We have also tried the addition of soil extracts, both in the Erdschreiber medium and with a standard enrichment medium to which soil extract has been added, and found them both to stimulate growth of the dinoflagellates. However, in a series of six test cultures which were harvested in early May, the highest count by the RIA in any of the six experimental cultures was equalled by the control which contained only Kaneohe Bay water with nothing added.

We have not yet been able to obtain a confirmatory test for ciguatoxin by Dr. Rayner's pharmacological test for he needs amounts in the hundreds of grams for extraction, while Dr. Hokama is happy with milligram amounts. However, we have about 100 g of the mixed culture now being extracted under Dr. Scheuer's supervision and we expect that the pharmacological test will be run soon.

If we presume that our dinoflagellate behaves the same as Dr. Yasumoto's dinoflagellate, the cultures present us with an interesting biological problem. Dr. Yasumoto's wild material from the Gambiers and our wild culture is producing ciguatoxin by our tests and if our dinoflagellate like Dr. Yasumoto's produces only maitotoxin in axenic culture, then we have a far more complex situation that is found in the other toxigenic dinoflagellates such as *Gonyaulax*. Four hypotheses suggest themselves:

I. That the dinoflagellate has the capability of producing either maitotoxin or ciguatoxin and the toxin production is switched from one to the other by some regulatory substance given off by another member of the mixed culture.

II. That the dinoflagellate continues to produce maitotoxin but some other component of the mixture, possibly some bacterium, is converting it to ciguatoxin; this would presume that maitotoxin is chemically related to ciguatoxin.

III. That some other member of the mixture is producing a precursor - possibly non-toxic - of ciguatoxin that is modified to ciguatoxin by the dinoflagellate.

IV. That the dinoflagellate has nothing to do with ciguatoxin production but some other member of the mixture is producing the ciguatoxin independently; here the blue-green would be most suspect.

Our plans for the summer include the continuation of our experimental rearing of the mixed culture and the attempts to raise the dinoflagellate in an uni-algal culture. To assist us in the last, we hope to have two dinoflagellate experts join us separately for periods of two to three weeks.

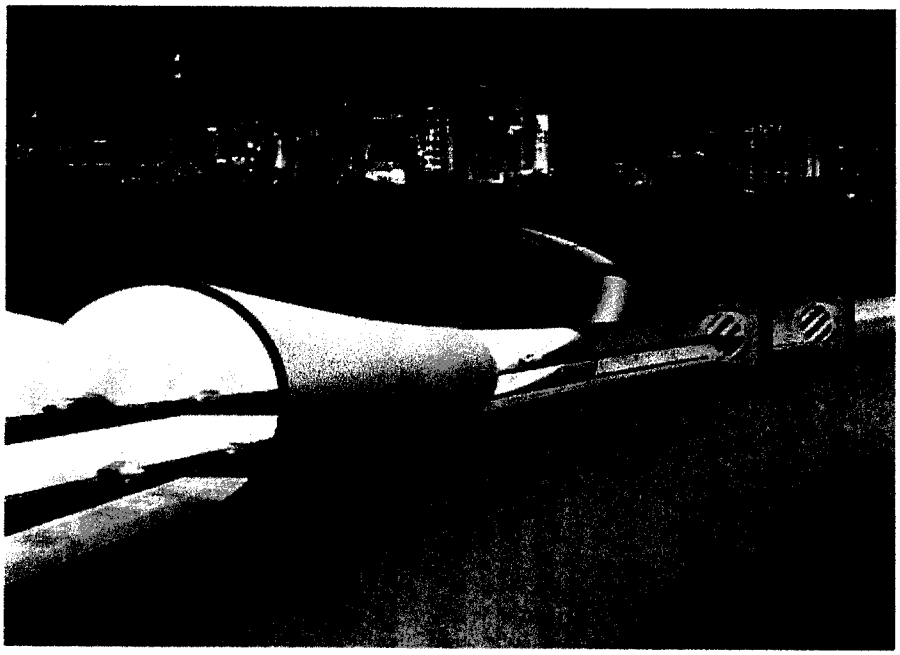
When we have enough favorable data accumulated to warrant a request for research aid, we plan to submit a grant proposal to some agency of the National Institute of Health or the Food and Drug Administration. I now have two preliminary letters of inquiry in the mail. When we submit, we will give two aims: First, to determine the ecological requirements of ciguatoxin production in the laboratory so that the information can be applied to field situations, possibly to prevent or even to reduce epidemics of ciguatera. Second, to develop mass culture techniques so that ciguatoxin can be cheaply and abundantly produced for further studies on the molecular structure of the toxin and for further deliniation of its pharmacological effects. I envision a basic biological staff of one person at the doctoral level experienced in dinoflagellate culture, aided by one or more technicians, and the collateral support of technicians in immunology, chemistry and pharmacology. Our group will again be working as a multidisciplinary team.

ITS International

Success of Kuala Lumpur's dual purpose tunnel

First published in ITS International July August 2012 as Two issues, one solution

Malaysia's capital boasts a unique piece of



infrastructure; a combined stormwater and motorway tunnel, the longest multi-purpose tunnel in the world.

Kuala Lumpur's Stormwater Management and Road Tunnel (Smart) was conceived as a project under the Malaysian Federal Government to alleviate the flooding problem in the city centre. Although a booming city and the nerve centre for Malaysia's economy, KL was built along the flood plains of the Klang River and, since its earliest days has been subjected to flooding.

In 1971, for instance, a serious flood lasted for five days; inundated some 445 hectares of land in the centre of the city, and resulted in extensive damage. Incidences of flooding have become more frequent in recent years.

The Smart project was implemented through a joint venture pact between MMC Corp Berhad and Gamuda Berhad with the Department of Irrigation And Drainage Malaysia and the Malaysian Highway Authority as the executing government agencies.

It was at the beginning of the design stage of a dedicated stormwater tunnel that the dual purpose concept was born – one which would simultaneously address

both the Malaysian capital's flooding and traffic management problems.

The MMC-Gamuda Joint Venture presented the idea of incorporating two major infrastructure components into one mega structure to the Government of Malaysia which gave the project the go-ahead in 2003.

Smart is a dual purpose tunnel, incorporating a double deck motorway within the middle section of a stormwater tunnel. It was completed on 30 June, 2007.

Kuala Lumpur's Stormwater Management and Road Tunnel (Smart)

Cost: US$515 million

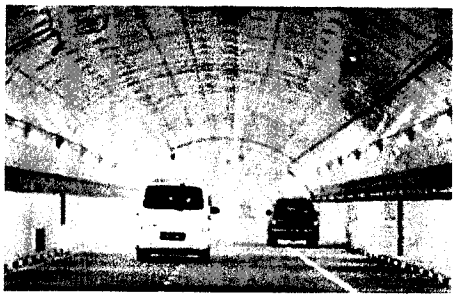
Benefits: (over 30 year concession period):

- US$1.58 billion of possible flood damage prevented
- Up to $1.26 billion savings from traffic congestion

Smart operations

Smart tunnel is designed first and foremost for flood control and this role will always over ride its other role as a congestion relieving motorway. To ensure this protocol is maintained, the decision to close the motorway section for flood operation has been retained by the Government through its agency, the Department of Irrigation and Drainage, Malaysia (DID).

There are three modes of operation of the tunnel. In Mode I (for most of the time) there is no storm or low rainfall, which means there is no discharge of water into the tunnel in this mode.



The road section operates normally and traffic is able to use the tunnel from Kuala Lumpur city centre - Seremban Highway and vice versa.

Mode 2 - minor storm. When there are moderate or minor storms and the river flow at the confluence exceeds 70 cumsec (cubic meter per second), the Stormwater tunnel is activated to "semi-open" status by allowing diversion of water flow from the confluence of Klang and Ampang rivers through the lowest channel of the road tunnel section. The motorway section operates normally and there is no traffic disruption since only the lowest channel is being used at this juncture.

Mode 3 - major storm. When the FDS detects a reading at the river confluence of more than 150 cumsec and predicts a heavy and prolonged downpour, the Stormwater tunnel is activated to "fully open" status. The radial gates at the diversion weir are lowered to divert water flow in full capacity from the confluence of two rivers into the holding pond. At the same time, the entrances to the motorway section are closed to traffic while all vehicles in the tunnel are evacuated and the entire structure checked, a process that takes less than an hour.

Once the FDS indicates that the Mode 3 status is over and the weather is back to normal, flood water is pumped out of the tunnel and the tunnel is cleaned of mud and small debris.

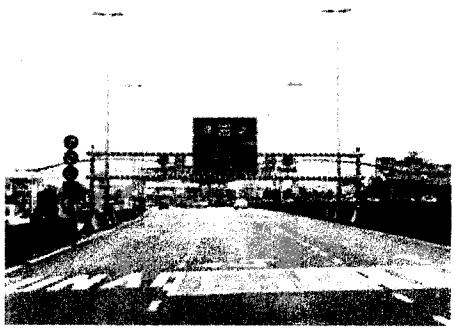
In normal process of cleaning and inspection of the tunnel condition, **Smart tunnel** is reinstated within 48 hours after the water channelisation is made and traffic for the motorway section is allowed back for usage as normal thereafter.

Smart cost benefits

Smart tunnel has proven to be a success in meeting its primary and secondary objectives. Because of this infrastructure, areas such as Masjid Jamek area, Dataran Merdeka, Leboh Ampang and Jalan Melaka have witnessed no flooding incidents since Smart opened in 2007.

In May this year, DID (Department of Irrigation and Drainage) released the findings of a survey carried out on the first five years of operation of Smart.

Mode 3 operation was activated to prevent potentially severe flooding of Kuala Lumpur city centre a total of seven times: two times each in 2007, 2008, and 2012 (up to May) and once in 2011. Mode 2 operation, which does not affect use the road tunnel was activated dozens of time in the period.



In terms of its role in traffic relief, Smart has minimised the journey for cars into KL city centre from the southern gateway from the normal 20 minutes when using the federal road to only eight minutes when using Smart. Around 38,000 vehicles use the double deck motorway each day.

Putting a financial value these benefits, the DID survey concluded that, within the concession period spanning three decades, Smart is expected to prevent US$1.58 billion of possible flood damage and up to $1.26 billion savings from traffic congestion. The savings are likely to be significantly more, since these estimates are only for the duration of the concession – the tunnel has a design life of some 100 years.

A MATTER OF LIFE AND DEATH

Monitoring and safety systems in any road tunnel anywhere are of vital importance and in KL's Smart these systems are even more critical; were anyone to be anywhere inside the road tunnel section when it is activated for stormwater relief, they would face certain death. So the SCADA monitoring and surveillance system has additional features that are unique in normal motorway tunnel operation. From a central control room which is manned 24/7, over 200 CCTV cameras, linked to an advanced automatic incident detection (AID) system keep watch on every section and can intervene when necessary – through the use of variable message signs or activation of first responder vehicles and personnel which are on permanent stand-by.

The control centre also monitors and operates the 38 sets of air quality monitoring equipment that analyses carbon monoxide, nitrogen monoxide, and particulate matter deployed throughout the upper and lower motorway decks. Depending on the equipment returns, four ventilation shafts, each containing eight sets of fans, can be activated. Control for the automated flood control gates is also incorporated within the SCADA system.

While Smart bristles with CCTV, when Mode 3 to flood the motorway decks is activated, barriers prevent any further traffic entering the tunnel. For safety reasons, cross-passage decks inside the motorway section placed at 250m intervals to act as emergency exits, have to be manually checked by personnel, along with ventilation/escape shafts which are placed at 1km intervals. The entire process, to ensure that there is no possibility that anyone could be inside the facility, takes from 45-60 minutes before the flood control gates are activated.

Re-opening the tunnel after an incident typically takes 48 hours. Although booms, barriers and filtration ponds prevent debris from entering the tunnel and causing damage to the fabric of the motorway section and its sensitive equipment, sediment carried with the water coats the entire surface. As a result, the installation needs to be pressure washed and all equipment checked.

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Sections...

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Goro Sulijoadikusumo
3810 Claudine Street
Honolulu, HI 96816

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Consideration of sub-surface storage for flood risk management
- Improvement to water quality within Ala Wai Canal

Table 3 of the report details a number of different management measures considered in the initial array. This includes sub-surface storage of stormwater for the purposes of managing stream flows. This idea was eliminated from further consideration due to the limited storage capacity and high implementation costs.

Unfortunately, the issue of water quality improvement is not a topic addressed by the FEIS nor does USACE have the authorization to study that issue. It is suggested that you contact the State of Hawaii Department of Health for information related to water quality.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

P.O. Box 10564
Honolulu, Hawaii 96816-0564
November 9, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, Hawaii 96858

SENT BY CERTIFIED/
RETURN RECEIPT REQUESTED
7015 0640 0006 3395 1598

Dear Sir or Madam:

On behalf of Baruch Bakar, I am writing to you to express opposition to the proposed berm in Pukele Stream as part of the Ala Wai Canal Project. Baruch Bakar, a family limited partnership, is the owner of parcels 1-3-4-019-010, 1-3-4-019-009, and 1-3-4-019-008. These parcels would be damaged by and forced to be sold for the construction of said berm.

We recognize that the USACE has spent years and a great deal of resources to compile the Draft Feasibility Report and Environmental Impact Statement (EIS). However, we take issue with the fact that while potential adverse impacts related to "biological resources, cultural resources, recreation, and visual resources" were considered, no consideration was made for potential adverse impacts to the health and lives of the greater Carlos Long/Waiomao residents who would be affected by the proposed berm.

The berm would require the loss of three residential properties, depriving the neighborhood of a duplex residence, a single-family residence, and a prospective fourth residence. No amount of compensation will enable our partnership to purchase replacement properties comparable in natural beauty and proximity to town. Moreover, any connection the berm may afford to La'I Road across the stream would provide another entry into Ipulei Place and is strongly opposed by the greater Carlos Long neighborhood (see included petition). Our Neighborhood Watch works hard to keep intruders out of the neighborhood and sees the berm as a threat to our efforts.

The proposed Pukele Stream berm will likely create a number of other problems that do not currently exist:

1) The berm fails to address one of the specific flood-related problems defined by your flood-risk management goal: "Stream channel capacities are diminished due to debris and sediment" -- see ES-5 Objectives & Constraints. Events from the past illustrate the very problem that the berm would create. On March 24, 1994, "*flooding in Manoa (occurred) when a tree lodged itself at the* Woodlawn Drive *bridge*." "And *when debris washed down and choked two bridges*, at Lowry Avenue and Woodlawn Drive, *Manoa Stream had no place to go but onto the streets, into homes and across the campus of*

the University of Hawai'i" during the October 30, 2004 flood. (See http://the.honoluluadvertiser.com/article/2004/Nov/02/ln/ln27p.html -- emphasis added). The USACE representatives at the Manoa meeting confirmed that the USACE will not be responsible for the clearance of debris and maintenance of the berm once it is built. Whereas Pukele Stream has not ever flooded its banks in the over 45 years that we have owned the subject parcels, we believe that a berm will cause debris to collect and obstruct water flow, causing flooding to adjacent homes and the neighborhood, just as debris clogged the bridges in Manoa and caused the flooding and massive damage in Manoa and at the University of Hawai'i.

2) With debris obstruction, the collection of stagnant water in the detention basin will provide a prime breeding ground for mosquitoes and may promote the spread of dengue fever. The Ala Wai Canal project seeks to save Waikiki from massive flooding, but dengue fever will cause many visitors to take pause before booking their trips.

3) Also of concern is the over-saturation of nearby land while water sits in the detention basin. Could this compromise the foundation of homes built along Pukele Stream?

4) A detention basin filled with water can pose a drowning hazard as well. Any fencing to prevent accidental falls or drownings will likely prevent or make difficult access for maintenance purposes and the removal of any debris/obstructions. There are many young children in the neighborhood and this is a real concern for residents on Ipulei Place. Fencing for safety measures will have a negative visual impact that will be difficult to mitigate.

As Mr. Derek Chow stated at the public hearing on September 30, 2015, the Ala Wai Canal Project has spanned the course of several years. Indeed, Section ES-7 states that Alternatives 2A and 3A, which include the construction of berms and detention basins in the upper watershed, were chosen based on a process that "incorporated agency and public input obtained through scoping efforts and other stakeholder engagement activities." Baruch Bakar is a "stakeholder" that stands to lose much in this Project as proposed, yet we were not notified of our involvement until one month prior to the above-mentioned hearing. The placards that presented the Project's Impact and Mitigation at the public hearing failed to make any mention of the loss of private land required for the proposed berms and detention basins in Manoa, Palolo, and Waiomao. While we have been assured by representatives of the USACE and the DLNR that this Project is in its very early, developmental stages, we understandably feel that there has been much behind-the-scenes maneuvering and our input is being solicited very late in the process.

We, therefore, now ask why the obvious and possibly most cost-effective options that were omitted from the feasibility study were not considered first. Section ES-5 states: "Other opportunities that were identified, but were determined to be outside the scope of the study include reducing runoff and improving the storm drainage system, routine dredging of the Canal, and addressing ownership boundaries and maintenance responsibilities." Instead of proposing the disruption of the natural flow of upper

watershed streams, depriving private citizens the ownership and use of their property, and creating hazards to neighborhoods, clearly the USACE and the DLNR should consider the other obvious, viable options available. While not engineers, a number of residents that stand to be affected by the Pukele Stream berm offer the following suggestions:

1) Devise a method of slowing water flow in existing Palolo Stream channels. In this day of advanced technology, surely the USACE can create a series of low dams to function as "speed bumps" instead of displacing households and creating problems in the upper watershed areas. This would also meet the objective of slowing the water flow as far downstream as possible, allowing as much rain and water flow from the contributing streams to be absorbed upstream.

2) The end of Ahe street where Pukele and Waiomao streams feed into Palolo Stream should be considered as a point of intervention in the water flow.

3) This Project is meant to prepare for a 100-year flood with a 1% annual chance of occurring. A large area of public land, such as Palolo Valley District Park, could provide a detention basin that would be utilized only in the event of such a flood. That land could continue to be used for its original purpose until the 100-year flood occurs, instead of using private land to create potential problems that residents would have to live with 100% of the time, every year.

In short, the residents of Ipulei Place and the greater Carlos Long/Waiomao neighborhood oppose the construction of the Pukele Stream berm and detention basin. The two enclosed petitions were circulated by different individuals at different times, so some residents signed both petitions. However, each petition contains some signatures of residents not contained in the other. Together, the petitions reflect the unanimous opposition of Ipulei Place residents to the proposed berm and detention basin. The petitions with original signatures are being sent to the USACE with copies to the DLNR.

I appreciate the opportunity to voice community concerns and look forward to receiving your response.

Yours truly,

Wilma Youtz
President
Baruch Bakar Management Corp,
General Partner
Baruch Bakar

Enclosures

Petition to the USACE and the DLNR

November 7, 2015

Nextdoor Carlos Long/Waiomao

Save Pukele Stream (SPS)

c/o (808) 368-5240

We, the undersigned, petition the USACE and the DLNR to revise the Ala Wai Project to delete the proposed berm in Pukele Stream which would require the loss of housing and private use of land on Ipulei Place or anywhere in the Carlos Long neighborhod and to consider alternative measures for flood risk management.

Name	Address	Signature
Eric Yoshimoto	2662 Ipulei PL.	
Mark Lindbeg	2649 Ipulei Pl	
Wataru Kumagai	2649A Ipulei Place	
Eva Morales	2649A Ipulei PL	
Gordean Hanatani	2643 Ipulei PL	
Joseph Cantos	2640 Ipulei PL	
Mark Cantos	2640 Ipulei PL	
Branson Atkins	2636 Ipulei Pl.	
Donna Au	2632 Ipulei Pl.	
Erika Tanuvasa	2635 Ipulei Pl.	
Jordan Tanuvasa	2635 Ipulei PL.	
Alicia Bawbridge	2640 Ipulei PL.	
Ashlynn Duncan	2646 Ipulei Pl.	
Number of signatures on page		13

We, the undersigned, petition the USACE and the DLNR to revise the Ala Wai Project to delete the proposed berm in Pukele Stream which would require the loss of housing and private use of land on Ipulei Place or anywhere in the Carlos Long neighborhod and to consider alternative measures for flood risk management.

Name	Address	Signature
Jeanette Clark	2646 Ipulei Pl	
TIANYA MALAMA	2650 Ipulei Pl	
CHOKO YAMAGUCHI	2660 IPULEI PL	
ALBERT MULFORD	2668 IPULEI PL	
Danika Hazard	2664 Ipulei pl	
RICHARD SEARS	2695 Ipulei Pl.	
Fernando Murguia	2690 Ipulei pl	
Martin Martensen	2682 Ipulei pl	
Millard Wong	2680 Ipulei Pl.	
Tiani Joaquin-Foster	2678 Ipulei PL	
Jordan Wong	2677 Ipulei Pl.	
Jennifer Wong	2677 Ipulei Place.	
Todd Toney	2696 Ipulei Place	
[illegible]	2685 Ipulei Pl.	
Rachelle Wa	94-1241 Waipahu St	
Sean L. Nagao	2529 Gardenia St.	
Wendy Yamaguchi	2539 Gardenia St.	
MARVIN YAMAGUCHI	2539 GARDENIA ST	
DARRIN AU	2632 IPULEI PL	
	Number of signatures on page	19

We, the undersigned, petition the USACE and the DLNR to revise the Ala Wai Project to delete the proposed berm in Pukele Stream which would require the loss of housing and private use of land on Ipulei Place or anywhere in the Carlos Long neighborhod and to consider alternative measures for flood risk management.

Name	Address	Signature
Madge Nicolas	3184 Holly Pl. Hon. HI. 96816	Madge Nicolas
Denele Chang	2635 Gardenia st Hon 96816	[signature]
Hom Colwet	3170 Holly 96816	[signature]
Wilma Youtz	2671 Ipulei Place Honolulu, HI 96816	Wilma Youtz

Number of signatures on page 4

We, the undersigned, petition the USACE and the DLNR to revise the Ala Wai Project to delete the proposed berm in Pukele Stream which would require the loss of housing and private use of land on Ipulei Place or anywhere in the Carlos Long neighborhod and to consider alternative measures for flood risk management.

Name	Address	Signature
David Youtz	2671 Ipulei Place	
	Number of signatures on page	7

We are against the DLNR and the US Army Corps of Engineers ~~Confiscating~~ Purchasing ~~6~~ 3 lots on Ipulei Place to build a Berm Dam across Pukele Stream connecting La'i Rd and Ipulei Place potentially increasing foot traffic/access to our neighborhood

Date	Printed Name	Signature	Address	Email
9/27/15	R Mori		2676 Ipulei Pl	
9/27/15	Eric Yoshimoto			
9/27/15	Danika Hazard		2678 Ipulei Pl	danika.hazard@gmail.com
9/27/15	Briana Rowe	Briana Rowe	" "	rowe7@hawaii.edu
9/27/15	Reina yamaguchi		26660 Ipulei Pl	
9/27/15	AKIO YAMAGUCHI		26660 Ipulei Pl	
9/27/15	CHOKO YAMAGUCHI		" "	
9/27/15	Stephan Balogh		2676 Ipulei Pl	
9/27/15	ALBERT MULFORD		2631 Ipulei Pl	
9/27/15	Micah McCaughin		2649 Ipulei Pl	

We are against the DLNR and the US Army Corps of Engineers ~~Confiscating~~ Purchasing 3 ~~6~~ lots on Ipulei Place to build a Berm Dam across Pukele Stream connecting La'i Rd and Ipulei Place potentially increasing foot traffic/access to our neighborhood

Date	Printed Name	Signature	~~Phone Number~~ Address	Email
9/27/15	Todd Toney		2696 Ipulei Place	totoney9878gmail.com
"	Joey Blankman		2696 Ipulei Pl.	JMBlankman@gmail.com
"	David Kashege		2696 Ipulei Pl	dkashege@gmail.com
"	Mark Jimenez		2696 Ipulei Pl	mjimenez601@gmail.com
"	Jonathan Jimenez		2696 Ipulei Pl	
"	Christina Yan		2696 Ipulei Pl	~~efgeh~~
"	Ashlynn Duncan		2696 Ipulei Pl	
"	Mason Rodriguez		2696 Ipulei Pl	
"	Celeste Olivera		=	
"	Jessica Thawley		=	

We are against the DLNR and the US Army Corps of Engineers ~~Confiscating~~ Purchasing 3 6 lots on Ipulei Place to build a Berm Dam across Pukele Stream connecting La'i Rd and Ipulei Place potentially increasing foot traffic/access to our neighborhood

Date	Printed Name	Signature	Address ~~Phone Number~~	~~Email~~
9/24/15	JUNO GALANG		2640 IPU LEI PL. Hon. HI 96816	junogalangstudio@mac.com
"	Johnny Matarazzi		2595 IPU LEI Way Hon HI 96816	~~grantcarter~~
"	Cameron Hoffer		2544 Ipulei Way Honolulu 96816	cameron.hoffer@gmail.com
"	Napuakoli Nicholas		2544 Ipulei Way Hon HI 96816	
"	Kawanola Tamanaha		2544 A-Ipulei Way Hon., HI 96816	
"	Chelsea Gonsalves		2544 A-Ipulei Way Honolulu, HI 96816	
"	Brea Caley		2560-A Ipulei Way Honolulu, HI 96816	
"	Martin Mortensen		2682 Ipulei Pl Honolulu, HI 96816	
"	Jennifer Mortensen		2682 Ipulei Pl Honolulu, HI 96816	
"				

We are against the DLNR and the US Army Corps of Engineers ~~Confiscating~~ purchasing ~~6~~ 2 lots on Ipulei Place to build a Berm Dam across Pukele Stream connecting La'i Rd and Ipulei Place potentially increasing foot traffic/access to our neighborhood

Date	Printed Name	Signature	Address	Email
9/27/2015	PAUL NELSON	[signature]		paulkalikokou@gmail.com
"	Gordon Hanohano	[signature]		kehauhanohano@yahoo.com
"	Dan Kirkham	[signature]	2569 Ipulei Wy	
"	Sean Zosimo	[signature]		
"	Liz King Salz	[signature]	2560 Ipulei Way	
"	Winona Holmes	[signature]	2541 Ipulei Wy	[illegible]
"	M. GRANT Tector	[signature]	2547 Ipulei Wy	ev@keecom.com
"	Ginger Long	[signature]	268 Ipulei Pl	
"	Tiani Joaquin-Foster	[signature]	"	
"				

We are against the DLNR and the US Army Corps of Engineers ~~Confiscating~~ Purchasing ~~6~~ 3 lots on Ipulei Place to build a Berm Dam across Pukele Stream connecting La'i Rd and Ipulei Place potentially increasing foot traffic/access to our neighborhood

Date	Printed Name	Signature	~~Phone Number~~ Address	Email
9/27/15	HEEJOON I. SEARS		2695 Ipulei Pl	rsears@hawaii.edu
"	OLIVIA WOOD		2690 IPULEI	
"	WATARU KUMAGAI		2649 IPULEI PLACE	watarukumagai@doh.hawaii.gov
"	Eva Morales		2649 Ipulei Place	eva.p.morales@gmail.com
"	Deborah Garzona		2649 Ipulei place	dg36@hawaii.edu
"	Mason Rodriguez		2646 Ipuki Pl	MRodriguez12@
"	JESSICA THRAWLEY		2646 IPULEI PL	jthrawley@hawaii.edu
"	CHRISTOPHER COOK		2611b IPULEI PL	
"	LIV WHEELER		2646 IPULEI PL	
"	Jennie Kobata		2648 Ipulei Pl	jckobata1@gmail.com

We are against the DLNR and the US Army Corps of Engineers ~~Confiscating~~ purchase 3 lots on Ipulei Place to build a Berm Dam across Pukele Stream connecting La'i Rd and Ipulei Place potentially increasing foot traffic/access to our neighborhood

Date	Printed Name	Signature	Phone Number	Email
5/30/15	JEAN Scanlan		277-7577	2625 Ipulei Pl. 96816

Subject: 1 new message from your neighbors today
From: "Nextdoor Carlos Long / Waiomao" <nextdoor@nextdoor.com>
Date: 11/8/2015 2:06 PM
To: wilmayoutz@hawaii.rr.com

Nextdoor Carlos Long / Waiomao
Daily Digest

Help Carlos Long / Waiomao get to 200 members!
Invite your neighbors »

New Replies

Re: Sign Petition to Save Pukele Stream

1 new reply:

Sharon Young-Nakaue, Carlos Long / Waiomao
I vote No! to berm in the Pukele Stream bed because of history in the above article, If built it needs to be maintained. No more Flooding... Read more

Upcoming Events

- Neighborhood board meeting · Nov 11
- Noelani School's 26th annual Craft & Children's Fair · Nov 14
- 2015 Holiday Plant & Craft Sale · Nov 21
- Mayor's Annual Craft & Country Fair 2015 · Nov 21

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Wilma Youtz
2671 Ipulei Place
Honolulu, Hawaii 96816

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Concerns of affected landowners regarding real estate acquisition
- Operations, maintenance and public safety of the project features
- Connecting La'I Road to Ipulei Place via the Pukele Debris and Detention Structure
- Concerns regarding sub-surface saturation of soils due to impoundment of water
- Mosquito control

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints. Criteria considered is provided in Table 2 which includes the availability of land, the degree to which people or existing uses would be displaced and the consistency with applicable laws and regulations.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS

includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

Implementation of the recommended plan will require the acquisition of private property. The exact timing of land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature, including any necessary amendments for public safety. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. A property by property assessment will be conducted in coordination with the non-Federal sponsor after project authorization, if the project is authorized by Congress.

The process of acquiring property for a project is highly regulated. The Fifth Amendment of the Constitution states that private property shall not be taken for public use without just compensation. To address what constitutes just compensation, Congress passed the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 ("Uniform Act"). The non-federal sponsors will be required to follow the Uniform Act in acquiring any lands. USACE will work with the non-Federal sponsors to ensure the correct process and procedures are adhered to throughout the process.

Generally speaking the value of land acquired is the fair market value of the property. The fair market value includes many aspects of the property in question. Earning potential is one of those aspects to be addressed in developing a fair market value. Regardless of the value determined, Public Law 91-646 outlines the requirements that must be followed to ensure a homeowner/landowner is compensated justly.

Part of the process will be an appraisal, which determines the fair market value of the property. Fair market value is an estimate of the market value of a property based upon what a knowledgeable, willing, and unpressured buyer would pay. The appraisal will attempt to take all objective property features into account when determining fair market value. The fair market value is determined without consideration for the effect the project has had on the value of the land. For more information on the process for acquisitions please go to: http://www.fhwa.dot.gov/realestate

Attached is the 35% design for the Pukele Debris and Detention Structure. The top of the structure is intended to serve as an overflow spillway, not a structure utilized for public access. Section C-C shows that the top of the structure is 441' in elevation whereas the spillway elevation is located at 437' with vertical side slopes on the furthest lateral extent of the spillway. The assumed four foot elevation difference would not be conducive to either vehicle or pedestrian traffic across the structure. If

constructed, ownership, operations and maintenance of the structure would be the responsibility of the non-Federal sponsor.

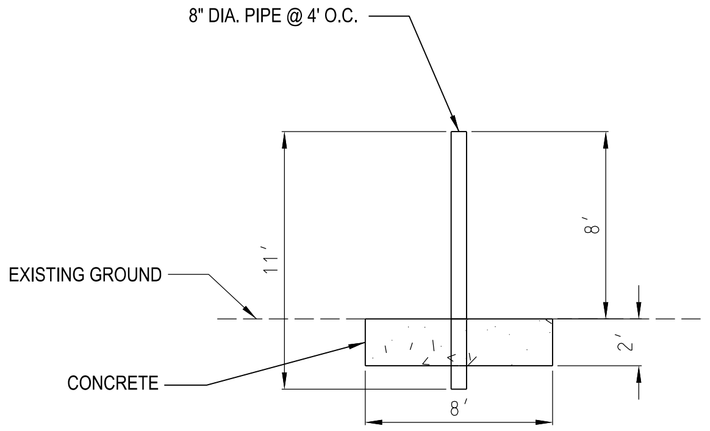
Table 9, page 3-22 of the draft FEIS (page 3-23 of the final) details cursory operations and maintenance requirements based on project feature. These obligations are identified during the feasibility phase for the purpose of developing initial cost estimates. If approved, a detailed operations and maintenance plan will be developed during the design phase of the study. Debris and detention structures are intended to pass normal stream flows without impounding water. The structure are designed to function only during storm events, therefore, no impoundment of water is anticipated outside of such storm events.

The non-Federal sponsors must enter into a Project Partnership Agreement with USACE to construct the Project. This agreement sets the required cost sharing of the Project between the non-Federal sponsors and the Federal government and requires that the non-Federal sponsors be solely responsible for the operation and maintenance of the Project. The sponsors are responsible for financing their local share and operation and maintenance costs.

Unfortunately, the issue of mosquito control is not a topic addressed by the FEIS nor does USACE have the authorization to study that issue. Mosquitoes live in riparian environments and it is not anticipated that the availability of habitat will change as result of the recommended plan. For concerns regarding mosquitoes as disease vectors, it is suggested that you contact the State of Hawaii Department of Health.

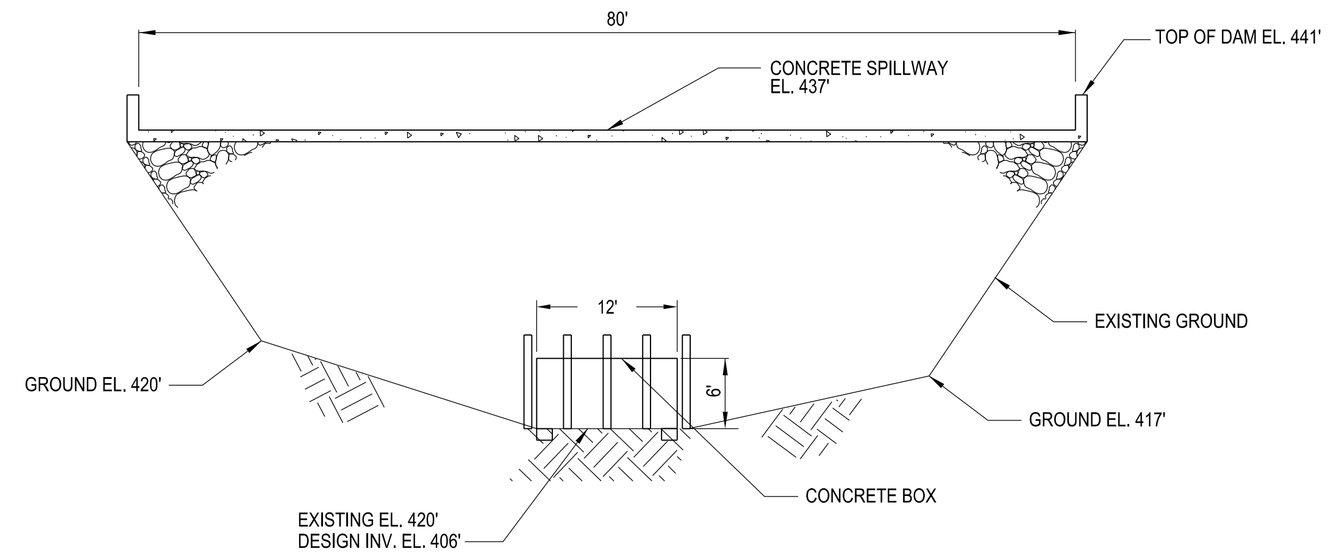
Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx



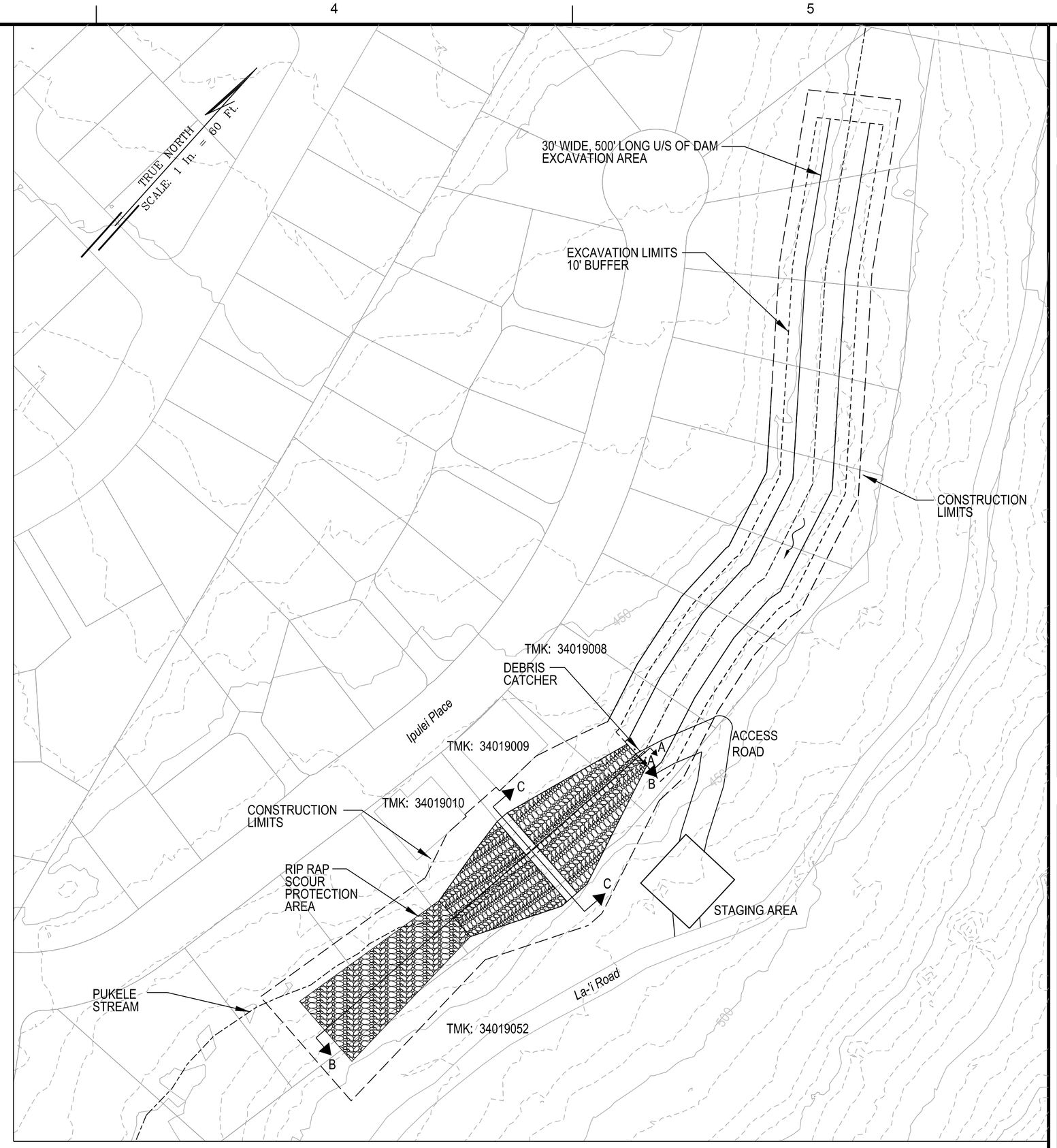
PUKELE DEBRIS AND DETENTION BASIN SECTION A-A

SCALE: 1"=5'



PUKELE DEBRIS AND DETENTION BASIN SECTION C-C

SCALE: 1"=5'



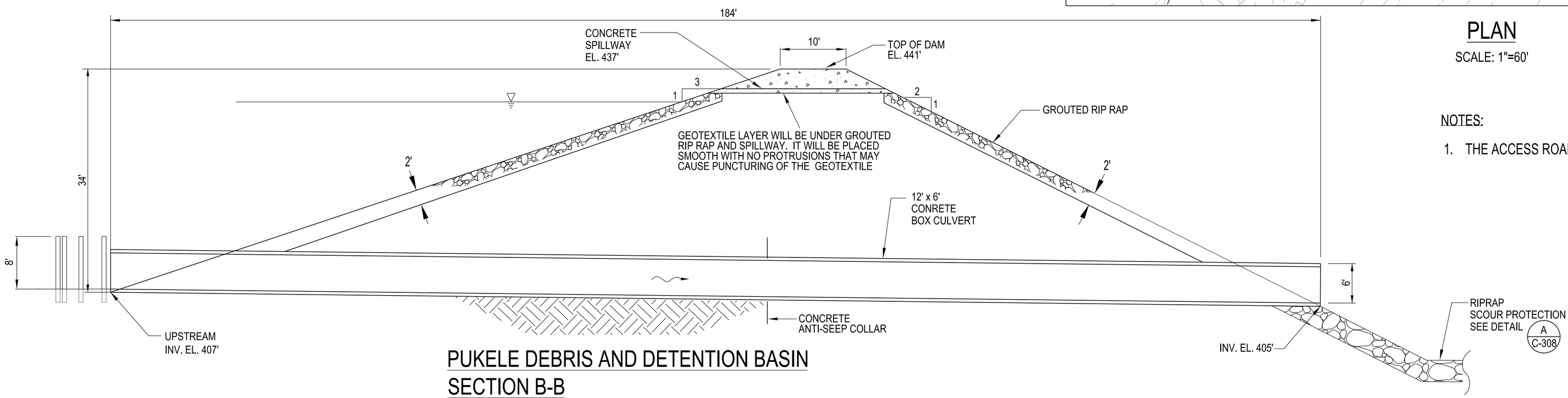
PLAN

SCALE: 1"=60'

SOLID LINE = 50' CONTOURS
DOTTED LINE = 10' CONTOURS

NOTES:

1. THE ACCESS ROAD WILL ALSO BE USED FOR MAINTENANCE.



PUKELE DEBRIS AND DETENTION BASIN SECTION B-B

SCALE: 1"=5'

5 2.5' 0 5 10

SCALE: 1" = 5'

Note: All elevations are feet MSL

US Army Corps of Engineers®
Honolulu District

35% DESIGN

MARK	DESCRIPTION	DATE	APPR.

DESIGNED BY: JHH	DRAWN BY:	CHECKED BY:	SUBMITTED BY:	PLOT SCALE:	PLOT DATE:
SIZE: ANSI D	FILE NAME: Ala_Wai_C-313xxx				

US ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
HONOLULU, HAWAII

REVISION:
DATE:
SOLICIT / CONTRACT NO.:
LOCATION CODE
DRAWING NUMBER:

ALA WAI CANAL PROJECT

PUKELE DEBRIS AND DETENTION BASIN
PLAN AND SECTIONS

SHEET IDENTIFICATION
C-313
SHEET 18 OF 31

FILE: pw:\\COE-POHPWP08FTS.poh.ds.usace.army.mil:coe-pohpwp08fts.poh.ds.usace.army.mil\Documents\11 Other Locations\2 - O'ahu\Civil Works\Ala Wai Canal Project\01-Drawings\Civil\Final\NEW TSP\Ala_Wai_C-313xxx
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BA/G

November 6, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

Subject: Ala Wai Canal Project – Chapter 343, Hawaii Revised Statutes Draft Feasibility Report and Integrated Environmental Impact Statement (EIS)

Thank you for the opportunity to comment on the subject project. Hawaiian Electric Company has no objection to the project. It is noted that Hawaiian Electric's project is referred to as "Cable Protection Project" in the Draft Feasibility Report and EIS. Hawaiian Electric would like the project to be referred to as "Ala Wai 46kV Underground Cable Relocation Project". Also, should Hawaiian Electric have existing easements and facilities on the subject properties, we will need continued access for maintenance of our facilities.

We appreciate your efforts to keep us apprised of the subject project in the planning process. As the proposed Ala Wai Canal Project comes to fruition, please continue to keep us informed. Further along in the design, we will be better able to evaluate the effects on our system facilities.

If you have any questions, please call me at (808) 543-7902.

Sincerely,

Jayson K. Shibata
Project Manager

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Jayson Shibata
Hawaiian Electric Company
PO Box 2750
Honolulu, HI 96840-0001

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization has no objections to the recommendations of the FEIS. Temporary and permanent relocation of utilities have been evaluated and are included in Appendix I3 of the final FEIS. Relocation of utilities will be revisited in detail during the design phase of the study and will be the responsibility of the non-Federal sponsor.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

ALA WAI CANAL PROJECT DRAFT FEASIBILITY REPORT / EIS
PUBLIC MEETING - COMMENT SHEET

September 30, 2015

Pls. see attached pp 1-4.

Thank you for participating in the Public Meeting on the ALA WAI CANAL PROJECT DRAFT FEASIBILITY REPORT/ENVIRONMENTAL IMPACT STATEMENT. Please use this form to submit any questions or comments you may have on the Draft Feasibility Report/EIS. Completed forms may be submitted to a project team member or mailed by **November 9, 2015**. Comments may be also emailed to: AlaWaiCanalProject@USACE.Army.mil. Please note that comments must include a name and physical address to receive a written response. To review the Draft Feasibility Report/EIS, visit www.AlaWaiCanalProject.com.

TAKE LAURA RUBY, COMMUNITY EXPERT SERIOUSLY.
BLUE STONE IS THE APPROPRIATE STONE TO USE.
PUT ALL PUMPING STATIONS UNDERGROUND. PLS. INVITE HER TO BE A MEMBER OF A SERIOUR REVIEW PANEL.
WHAT CAN THE AGENCIES DO TO ENSURE NO MORE SEWAGE GETS DUMPED INTO THE ALA WAI BY ANY AGENGIES OR MAN KIND? BY FOOLISHNESS, BAD DECISIONS OR JUST DUMB LUCK?
ANY MORE POLLUTION OF THE ALA WAI CANAL SHOULD NOT BE TOLERATED AND THIS EVENT COULD GO ALONG WAY TO PREVENT SUCH TRAGEDIES.
ALA WAI CANAL IS A HISTORIC SITE (REGISTERED) 3 PUMPING STATIONS ARE 4 STORIES HIGH. WALLS AROUND ARE 3'. THIS IS UNACCEPTABLE. THE WALLS AT THE EWA DEAD END OF KALAKAUA AV ARE ON A BERM. BERMS AND LOW WALLS WITH SEMI CIRCLE HOLES ARE GOOD IDEAS.
WHAT ARE THE NOISE MIDIGATION SERVICES, ESPECIALLY IN THE DIAMOND HEAD AREA, ALSO: THE TIME FRAME WITH POSSIBLE OVERRUNS OF TIME AND MONEY.

CONTACT INFORMATION

Please note that comments must include a name and physical address to receive a written response.

Name: LINDA WONG

Address: 3071 PUALEI CIRCLE #203
HON. HI 96815

Phone: (808) 923-7484

Email: leighi@me.com

ALA WAI CANAL PROJECT DRAFT FEASIBILITY REPORT/EIS
PUBLIC MEETING – COMMENT SHEET
November 30, 2015

Page 2

To the Ala Wai Canal Project members and the Army Corps of Engineers,

I am a resident of Diamond Head and the Vice Chair and past Chair of the Diamond Head, Kapahulu, St. Louis Heights Neighborhood Board although I am not representing them at this time. I have also been a member of the Ala Wai Watershed Committee plus almost countless other community groups. I have been living in these communities for over 30 years. I worked with Laura Ruby during the "Oral History of Mo'ili'ili" during my career at Kuhio Elementary School. I agree with her of the following points and ask you to consider them seriously.

Linda Wong
3071 Pualei Circle #203
Honolulu HI 96815
808-923-7484
leiahi@me.com

Letter from Laura Ruby:

To the Ala Wai Canal Project members and the Army Corps of Engineers,

I am a resident of Moiliili and the editor and writer of the book *Moiliili–The Life of a Community,* and I have been observing the community, and especially the water patterns, for over 35 years.

I was also one of the community "experts/consultants" queried at the outset of this project. I told of the high water incidents that I had witnessed and the mitigation steps that might be taken to protect the community–and the Waikiki economic engine. Unfortunately, the Army Corp of Engineers took very little of what I, or others, said seriously.

Further, at the more recent meeting presenting the ACE plans I made comments on the mistaken proposals with specifics for mitigation. And, now the 2015 version of the ACE's plans show no evidence that it has listened to the community experts/consultants. I wish to testify before all committees hearing this Ala Wai Watershed re-formation.

This email will not be exhaustive so I will present a few bullet points:

ALA WAI CANAL PROJECT DRAFT FEASIBILITY REPORT/EIS
PUBLIC MEETING – COMMENT SHEET
November 30, 2015

To the Ala Wai Canal Project members and the Army Corps of Engineers,

" multi-purpose detention basins in open space areas in the urbanized portion of the watershed"

- Add 3 more "detention basins," that is open field areas to contain and slow storm waters– 1) Kaimuki High School field; 2) the Ala Wai Park area Ewa of the juncture of the Manoa stream and the Ala Wai Canal (with low berm around the edges of Ala Wai School, as well as berms at Hokulani School and Iolani School); 3) the entire Ala Wai Park area between the Ala Wai School and the Ala Wai Clubhouse. (2) and 3) already have captured previous storm waters–with water dissipating naturally after a storm event.)

"Floodwalls along the Ala Wai Canal (including 3 associated pump stations)"

- The only floodwalls that might be appropriate to "save" the Waikiki economic engine are on the Waikiki side of the canal. Unfortunately, the ACE's solutions are overkill, visually off-putting, difficult, and scary to navigate. Instead hide the floodwall inside the berm and a raised-up canal wall and build the railing/parapet with blue stone (moss rock is not appropriate, nor as it ever been used for canals, bridges, or walls). Please see the example of the open (though it could be closed) parapet/railing located closer to Kalakaua. And put the pedestrian and bike paths on top of the berm (with the "protection" for the parapet/railing). Floodwalls do not need to be installed elsewhere in Moiliili.

- I'm not sure about pumping stations–they appear huge and ugly with a gable roof topknot. Put the whole pumping station underground. The sewage spill remediation dug a huge hole between the canal and community gardens. And please look to Tokyo's solutions.

"In-stream improvements to restore passage for native aquatic species as compensatory mitigation for impacts to aquatic habitat"

- This is something of a mystery: has the ACE looked closely at the aquatic species in the Manoa Stream, let alone the canal? Is the ACE suggesting that it remove all the invasive species such as tilapia and armored catfish and restore the fresh and brackish native species? Further, where are the ACE plans to more fully remediate the polluted water with such riparian plants as *akulikuli*? An experimental test has already been done.

ALA WAI CANAL PROJECT DRAFT FEASIBILITY REPORT/EIS
PUBLIC MEETING – COMMENT SHEET
November 30, 2015

Page 4

To the Ala Wai Canal Project members and the Army Corps of Engineers,

One other point, has the ACE designed the "sluice gates" (I assume these are backflow preventers) as a way to keep the waters from backing up and popping many storm drain covers on higher ground? This water surge does happen in hurricanes and other fierce storms.

Again, please invite me to be a member of a serious review panel. Thank you,

Laura Ruby
509 University Ave. #902
947-3641
lruby@hawaii.edu

HONOLULU HI 968

09 NOV 2015 PM 1 L

ALA WAI CANAL PROJECT, O'ahu, Hawai'i

Honolulu District, U.S. Army Corps of Engineers
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

96858

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Derek Wong
3590 Waakaua Street
Honolulu, Hawaii 96822

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Operations, maintenance and public safety of the project features
- Effects of noise as a result of the recommended plan

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins

- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

Attached is the 35% design for the Waikeakua Debris and Detention Structure. Table 49 details the general construction schedule which extends from 2021-2024. It is likely that the construction of the debris and detention basins would occur first in this schedule and be completed prior to the 2024 date. The details relating to construction schedule will be further explored in the design phase of the study. If constructed, ownership, operations and maintenance of the structure would be the responsibility of the non-Federal sponsor.

Table 9, page 3-22 of the draft FEIS (page 3-23 of the final) details cursory operations and maintenance requirements based on project feature. These obligations are identified during the feasibility phase for the purpose of developing initial cost estimates. If approved, a detailed operations and maintenance plan will be developed during the design phase of the study. Debris and detention structures are intended to pass normal stream flows without impounding water. The structure are designed to function only during storm events, therefore, no impoundment of water is anticipated outside of such storm events. Maintenance for specific project features is detailed in Table 9 of the FEIS. General maintenance will consist of clearing vegetation 20-feet around the structure twice per year and an annual inspection of the debris catchment or more frequent if flood events occur. Debris catchments must be cleared as needed.

The non-Federal sponsors must enter into a Project Partnership Agreement with USACE to construct the Project. This agreement sets the required cost sharing of the Project between the non-Federal sponsors and the Federal government and requires that the non-Federal sponsors be solely responsible for the Operation and Maintenance of the Project. The sponsors are responsible for financing their local share and operation and maintenance costs.

The effects of noise created by the recommended plan are documented in Section 5.14 of the FEIS. Permissible standards are established by the State of Hawaii and vary between allowable daytime and nighttime noise levels. Permissible noise levels will likely be exceeded temporarily within areas of close proximately to the constructed features. Several best management practices are proposed within the FEIS including proper tuning and balancing of construction equipment, use of noise barriers and/or mufflers on engines, restriction of construction activities to typical working days/hours, and keeping unnecessary noise to a minimum during the construction period.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

NOV 9 2015

Ala Wai Canal Project
U.S. Army Corps of Engineers
Honolulu District
ATTN: Mr. Derek Chow
Chief, Civil and Public Works Branch
Building 230 (CEPOH-PP-C)
Fort Shafter, HI 96858-5440

Subject: Ala Wai Canal Project Draft Feasibility Study with Integrated Environmental Impact Statement, Oahu, Hawaii [CEQ# 20150273]

Dear Mr. Chow:

The U.S. Environmental Protection Agency has reviewed the Draft Feasibility Study with Integrated Environmental Impact Statement (DFS/EIS) for the Ala Wai Canal Project, Oahu, Hawaii. Our review and comments are pursuant to the National Environmental Policy Act, Council on Environmental Quality regulations (40 CFR Parts 1500-1508), and our NEPA review authority under Section 309 of the Clean Air Act.

The EPA supports the U.S. Army Corps of Engineers' goal of reducing flood risk in the Ala Wai Watershed. According to the DFS/EIS, a high risk of flooding exists within the watershed because of natural geography, coupled with aging and undersized flood conveyance infrastructure. The Notices of Intent for this project, published on June 14, 2004 and October 2, 2008, indicated dual goals of flood hazard reduction and ecosystem restoration. The feasibility study has since been re-scoped to focus on flood risk management, with ecosystem restoration eliminated as an objective.

The DFS/EIS identifies Alternative 3A-2.2 as the tentatively selected plan, and as the least environmentally damaging practicable alternative (LEDPA) for the project. Alternative 3A-2.2 would reduce flood risks by improving the flood warning system, and constructing six in-stream debris and detention basins in the upper reaches of Makiki, Manoa, and Palolo streams, one stand-alone debris catchment feature, three multi-purpose detention areas in open spaces in the developed watershed, and concrete floodwalls up to four feet tall along the Ala Wai Canal (including three pump stations). Given the extent of development within the watershed, and the fact that flooding is likely to be exacerbated by climate change and associated projected increases in sea level rise in the future, we recognize the need for improved flood risk management. Investing in a suite of management measures, as described in Alternative 3A-2.2, should be helpful in reducing flood risk and property damage within the watershed.

Although we reviewed all of the alternatives evaluated in the DFS/EIS, our rating is based on our evaluation of Alternative 3A-2.2. We have rated Alternative 3A-2.2 and the DFS/EIS document as *Environmental Concerns – Insufficient Information* (EC-2). Please see the enclosed "Summary of EPA

Rating Definitions." We understand that a formal jurisdictional delineation of Waters of the U.S. has not yet been completed for the project area and the full extent of impacts to jurisdictional waters, including *special aquatic sites*, is not known. We recommend that the Final Feasibility Study/Environmental Impact Statement (FFS/EIS) include the verified jurisdictional delineation and demonstrate more clearly that the preferred alternative is the LEDPA.

We understand that the endangered blackline Hawaiian damselfly has been identified within the proposed footprint of the Waihi debris and detention basin, a component of Alternative 3A-2.2, and that the Corps intends to consult with the U.S. Fish and Wildlife Service regarding this species. EPA is concerned about potential impacts to this species, and the possibility that it may be present at other locations. Options to avoid known populations of this endangered species should be considered, including locating the Waihi debris and detention basin at an alternative site, or eliminating this component altogether. EPA is also concerned that the proposed project may result in increased dispersal of contaminated sediment that may impact water quality and fish and wildlife resources. We recommend that the FFS/EIS include an update on the Corps' consultation with the FWS.

Although the Ala Wai Canal Project incorporated several strategies to reduce flood risk, some actions, such as improving the storm drainage system and routine dredging of the canal, were determined to be outside the scope of the study. Understanding the current condition of the stormwater management system and how dredging the Canal could affect flood risk, as well as water quality, are intrinsically important in understanding how the watershed functions. We recommend that the FFS/EIS discuss these topics in greater detail. We also recommend that the FFS/EIS provide additional information on proposed maintenance of the detention basins, critical infrastructure remaining in the floodplain, and flood risk associated with tsunamis and hurricane storm surge. Please see the enclosed detailed comments for additional concerns and recommendations.

We appreciate the opportunity to review and comment on this DFS/EIS, and are available to discuss the recommendations provided. When the FFS/EIS is released for public review, please send one hard copy and one CD to the address above (Mail Code: ENF 4-2). Should you have any questions, please contact me at (415) 972-3521, or contact Ann McPherson, the lead reviewer for the project. Ann can be reached at (415) 972-3545 or mcpherson.ann@epa.gov.

Sincerely,

Kathleen Martyn Goforth, Manager
Environmental Review Section

Enclosures: Summary of EPA Rating Definitions
EPA Detailed Comments

SUMMARY OF EPA RATING DEFINITIONS*

This rating system was developed as a means to summarize the U.S. Environmental Protection Agency's (EPA) level of concern with a proposed action. The ratings are a combination of alphabetical categories for evaluation of the environmental impacts of the proposal and numerical categories for evaluation of the adequacy of the Environmental Impact Statement (EIS).

ENVIRONMENTAL IMPACT OF THE ACTION

"LO" (Lack of Objections)

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

"EC" (Environmental Concerns)

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

"EO" (Environmental Objections)

The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

"EU" (Environmentally Unsatisfactory)

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

ADEQUACY OF THE IMPACT STATEMENT

"Category 1" (Adequate)

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

"Category 2" (Insufficient Information)

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analysed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

"Category 3" (Inadequate)

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analysed in the draft EIS, which should be analysed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640, Policy and Procedures for the Review of Federal Actions Impacting the Environment.

U.S. EPA DETAILED COMMENTS ON THE ALA WAI CANAL PROJECT DRAFT FEASIBILITY STUDY WITH INTEGRATED ENVIRONMENTAL IMPACT STATEMENT, OAHU, HAWAII, NOVEMBER 9, 2015

Impacts to Waters of the United States

The Ala Wai Canal Project Draft Feasibility Study with Integrated Environmental Impact Statement (DFS/EIS) includes a draft Clean Water Act Section 404(b)(1) Evaluation that describes flood risk management measures and associated compensatory mitigation measures for the proposed project (Appendix E-3). The DFS/EIS identifies the tentatively selected plan as the least environmentally damaging practicable alternative (LEDPA) and includes estimated excavation and discharge of fill within Waters of the U.S. (pgs. 5-12, 13). According to the DFS/EIS, proposed fill activities would comply with Section 404(b)(1) guidelines; however, a formal jurisdictional determination of Waters of the U.S. has not yet been completed for the project area (pg. 5-11). The upper reaches of the streams contain riffle and pool complexes that qualify as *special aquatic sites*, a subset of Waters of the U.S. that is afforded additional consideration (pg. 5-11).

Recommendations:
Include, in the Final Feasibility Study/Integrated Environmental Impact Statement (FFS/EIS), the verified jurisdictional delineation of Waters of the U.S. by the U.S. Army Corps of Engineers. Describe the condition of Waters of the U.S. and quantify anticipated impacts, in acres, including any impacts to riffle and pool complexes or other *special aquatic sites*. Given the extent of riffle and pool complexes, EPA strongly recommends that a comprehensive alternatives analysis be completed in order to ensure compliance with the CWA Section 404(b)(1) guidelines.

Discuss, in the FFS/EIS, the reasons why the tentatively selected plan was identified as the LEDPA. Identify other alternatives considered in the CWA Section 404(b)(1) evaluation.

Disclose, in the FFS/EIS, whether there are any wetlands or sensitive habitat adjacent to the Ala Wai Canal, and if so, identify and quantify the potential impacts to these features, in acres.

Impacts to Endangered Species and Habitat Loss

Although the endangered blackline Hawaiian damselfly was originally thought to be restricted to higher elevations and not present in the project area, it was identified by the U.S. Fish and Wildlife Service within the proposed footprint of the Waihi debris and detention basin on July 28, 2015 (Appendix E1, pg. 2). According to the DFS/EIS, the Corps intends to initiate formal Section 7 consultation upon receipt of species information from the FWS. The U.S. Environmental Protection Agency is concerned about potential impacts to this species, including loss of habitat, and the possibility that it may be present at other locations in the project area. Options to avoid known populations of the blackline Hawaiian damselfly should be considered, including siting the Waihi debris and detention basin at an alternative location, or eliminating it altogether.

Recommendations:
Update, in the FFS/EIS, the discussion of how the tentatively selected plan would comply with the Endangered Species Act. Include additional documents (e.g. Biological Assessment and Biological Opinion) associated with the ESA Section 7 consultation process in Appendix E5.

Discuss, in the FFS/EIS, the potential loss of blackline Hawaiian damselflies and its breeding habitat. Disclose whether biologists have conducted surveys for black Hawaiian damselflies at

the other sites in the study area and whether they were found elsewhere. Quantify the loss of aquatic habitat associated with the black Hawaiian damselfly.

Consider options to avoid known populations of the blackline Hawaiian damselfly, including siting the Waihi debris and detention basin at an alternative location, or eliminating it altogether.

Hawaiian Stream Habitat Evaluation Procedure (HSHEP) Model

According to the DFS/EIS, the Hawaiian Stream Habitat Evaluation Procedure (HSHEP) model was used to quantify the loss of aquatic habitat associated with the proposed project (pg. 5-43). The results indicate the tentatively selected plan would result in a total loss of 192 habitat units. The project incorporates compensatory mitigation to offset these anticipated losses. Mitigation measures identified include in-stream improvements to eliminate migratory passage barriers for native species at two locations in Manoa Stream. It is not clear, however, whether the HSHEP model accounts for the loss of black Hawaiian damselflies and its breeding habitat, or the loss of habitat resulting from the construction and use of debris and detention basins in the study area. It is also not clear whether the HSHEP model accounts for degraded water quality due to mobilized contaminated sediment, or the increased exposure risk for fish and wildlife found within stream and coral reef habitat.

Recommendations:
Discuss, in the FFS/EIS, whether the HSHEP model accounts for: 1) the loss of blackline Hawaiian damselflies and its breeding areas; 2) the loss of aquatic habitat associated with debris and detention basins in the study area; 3) degraded water quality due to mobilized contaminated sediment; and 4) increased exposure risk for fish and wildlife resources found within stream and coral reef habitat. Incorporate these factors into the HSHEP model, if feasible, and summarize the results, accordingly.

Identify, in the FFS/EIS, additional mitigation measures to offset specific project impacts that cannot be avoided or further minimized.

Dispersal of Contaminated Sediment

Historically, large quantities of sediment have been deposited in nearshore waters during storm events. Sediment loading contributes to habitat degradation in the streams and in the nearshore marine environment by smothering substrate, filling interstitial spaces, and harming coral reef communities. Both dieldrin and chlordane have been detected in fish and stream bed sediment samples from Manoa Stream in quantities that exceed aquatic life and wildlife protection guidelines (pg. 5-27). According to the DFS/EIS, the project is not expected to result in significant water quality impacts, either within the streams or nearshore waters (including essential fish habitat); rather, some degree of benefit may be realized through the capture and removal of sediment from the debris and detention basins (pg. 5-45).

According to the DFS/EIS, the detention basins will require periodic removal of sediment/debris (pg. 5-31). The document does not discuss how this will be accomplished, what type of equipment will be required, the frequency of clean-up or other maintenance activities, such as erosion control, that may be necessary. After a storm event, sediment and debris will cover the detention basins. The sediment may contain contaminants and could pose a health risk. Rainfall will generate overland flow and may cause erosion. Infiltration could also lead to further dispersal of contaminants. Removal of sediment and debris from the detention basins will likely be accomplished using heavy equipment and this will be destructive to the natural habitat. Exposure of topsoil to erosive forces may also result in increased transport of

sediment downstream. The mobilized contaminants in the sediment have the potential to impact water quality, as well as fish and wildlife resources within stream and coral reef habitat. These impacts, however, are not discussed within the DFS/EIS.

Recommendations:
Discuss, in the FFS/EIS, the potential for sediment reaching nearshore waters during storm events, or possibly during tidal fluctuations, and how contaminants in the sediment could impact water quality as well as fish and wildlife resources within stream and coral reef habitat.

Describe, in the FFS/EIS, maintenance activities that would be conducted for the detention basins, including the types of equipment required to remove sediment and debris, how frequently the basins would be inspected and cleaned, whether the sediment would be tested for contaminants prior to disposal, where the sediment and debris would be transported, and how long these activities are anticipated to take.

Describe any management actions that would be taken in the event that new vegetation infills the detention basins. For example, would it be allowed to grow or would it be removed? If the latter, how would it be removed and how frequently?

Incorporating Strategies to Improve Stormwater Management and Reduce Nonpoint Source Pollution

Nonpoint source pollution can be reduced with smart planning efforts. When properly designed and maintained, detention basins can reduce fine sediment concentrations in suspension; trap large particles, resulting in protection and maintenance of downstream channel geometry and flow conveyance; reduce downstream peak flows, decreasing in-channel erosion rates; enhance groundwater recharge; and attenuate flood impacts. We urge the Corps to consider ways to reduce nonpoint source pollution in tandem with the design of components (debris and detention basins) in the tentatively selected plan.

Recommendations:
Consider ways to minimize nonpoint source pollution, particularly during the design of the debris and detention basins. For example, revegetation practices can decrease overland flow and erosion. Baffle boxes can be used to reduce the concentration of fine sediments, nutrients, and other NPS pollutants.

Consider other opportunities or programs to reduce runoff volumes and improve runoff/water quality in the project area. For example, harvesting runoff and storing it in rain barrels or subsurface water tanks can also be effective in reducing peak flows.

Describe, in the FFS/EIS, the Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) permit. Consider this regulatory overlay and any pertinent requirements of the NPDES MS4 permit when looking for additional opportunities to reduce runoff volumes and improve runoff water quality.

Dredging of the Ala Wai Canal

As noted in the DFS/EIS, the Ala Wai Canal was originally constructed to provide drainage, not flood protection. Based on current modeling, the Canal is expected to only contain a 20-percent annual chance exceedance (ACE) flood (pg. 2-4). The Ala Wai Canal captures sediment that is transported via its tributary streams and generally serves as a sink for the watershed (pg. 5-28). According to the DFS/EIS,

maintenance dredging of the Canal is expected to start in 2017, but is not expected to reduce flood impacts, or significantly affect potential flood damages (pg. 1-8).

Recommendations:
Explain, in the FFS/EIS, why maintenance dredging of the Canal would not result in a reduction in flood impacts. Provide, if possible, the ACE flood the Canal would be expected to contain after dredging.

Clarify, in the FFS/EIS, whether the current capacity and post-dredging capacity of the Ala Wai Canal have been accounted for during the design of the upstream detention basins, as well as the design of the floodwalls along the Canal.

Discuss, briefly, the environmental benefits that may be realized in conjunction with regular dredging of the Canal.

Implications of Aging and Undersized Infrastructure

According to the DFS/EIS, the City and County of Honolulu (CCH) is responsible for the island's storm drain system, which captures storm water and conveys it directly to streams, canals, and/or the ocean to prevent flooding in developed areas (pg. 5-82). The storm drainage system is aging and in need of improvements to meet present day development and runoff levels (pg. 2-4). Portions of the drainage system in the lower elevations of the watershed are also influenced by tidal waters, further reducing their capacity (pg. 5-11). The extent to which the aging and undersized infrastructure affects flooding within the study area is not discussed, except to note that CCH is developing plans and projects to address storm drainage issues (pg. 2-4).

Recommendations:
Discuss, in the FFS/EIS, the deficits associated with aging and undersized infrastructure in the project area. Describe, at least qualitatively, how these deficits contribute to flooding, both on a local and regional scale, within the project area.

Describe, in the FFS/EIS, how projected sea level rise will further impact stormwater conveyance infrastructure and how this may contribute to an increase in flooding within the lower reaches of the watershed.

Provide, in the FFS/EIS, an update on CCH plans and projects to address storm drainage infrastructure. Evaluate the extent to which these plans and projects can be expected to reduce flood risk within the project area.

Critical Infrastructure Remaining in the 1-percent ACE Floodplain

According to the DFS/EIS, although Alternative 3A.2-2 would protect the majority of the watershed from the 1-percent ACE floodplain, it would not entirely eliminate flood risk, and areas of the Makiki watershed would incur greater damage than other areas (pg. 8-4). For Alternative 2A, infrastructure remaining in the 1-percent ACE floodplain includes two fire stations (Makaloa station in Ala Moana and Wilder station in Makiki), two nursing facilities (Hale Nani in Makiki and Manoa Cottage in Kaimuki), and two emergency shelters (Lunalilo Elementary and Washington Intermediate in McCully-Moiliili). It is unclear whether Alternative 3A would reduce flood risk to these six structures. Notably, Hale Nani is a large skilled nursing facility with approximately 288 beds. Given the aforementioned vulnerability to

damage of areas in the Makiki watershed and the challenges of evacuating residents in a skilled nursing facility during an emergency, EPA is concerned about the residual flood risk in that area.

Recommendations:
Illustrate, in the FFS/EIS, the location of critical infrastructure that would remain in the 1-percent ACE floodplain for both Alternative 2A and 3A. Clarify whether Alternative 3A would reduce the flood risk to such structures and assess the likely effectiveness of any measures in place to protect critical infrastructure or inhabitants in the event of flooding, such as plans to evacuate residents at Hale Nani and Manoa Cottage.

Evaluate, in the FFS/EIS, whether incorporating the Roosevelt debris and detention basin, or other measures, would reduce the residual flood risk, particularly to the Hale Nani nursing facility and other critical infrastructure. If so, reconsider adding these measures to the tentatively selected plan.

Flood Risk from Tsunamis and Hurricanes

The management measures proposed are designed specifically to reduce riverine flood risks in the Ala Wai Watershed and are not designed to protect against hurricane storm surge or tsunamis. As noted, hurricane-related storm surge and tsunamis can cause flood damage in the lower portions of the watershed (pg. 2-5). Flood-producing rainfall usually occurs during the wet season (October to April); whereas, hurricanes are most likely to occur between June and November. The DFS/EIS indicates that, given the low probability of these events occurring at the same time, it was decided that potential storm surge would not be included as part of the hydraulic modeling (pg. 2-5). The EPA is concerned about the decision to not include storm surge in the hydraulic model, as it seems possible that a slow moving hurricane could drop a significant amount of rainfall over the watershed, resulting in riverine flooding as well as storm surge. It is important to understand the limitations associated with flood protection measures that focus on riverine flooding, as opposed to flooding from storm surge or tsunamis.

Figures 15a and b illustrate the 1-percent ACE flood, as well as the Flood Insurance Rate Map (FIRM) 1-percent ACE flood boundary and coastal surge zone (pgs. 5-19 and 20). The FEMA Flood Zone A encompasses a large area outside the 1-percent ACE flood. According to the DFS/EIS, some of the flood-risk reduction measures – such as the Ala Wai Canal floodwalls – would be expected to provide protection from storm surge (pg. 2-5). The extent to which the walls would provide protection, however, is unknown. According to the DFS/EIS, additional risk analysis may be conducted by running a performance check of a worst-case scenario involving coincident events (e.g., hurricane-related surge at high tide, with 1-percent ACE riverine flooding), and comparing the effect relative to the height of the proposed floodwalls (pg. 8-7).

Recommendations:
Describe, qualitatively, in the FFS/EIS, how storm surge and tsunamis could impact the Ala Wai Watershed. Illustrate the storm surge zone clearly.

Run a performance check of coincident rainfall and storm surge or tsunami events, as described above, and discuss the results in the FFS/EIS.

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Kathleen Martyn Goforth
US Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Impacts to Waters of the United States
- Impacts to Endangered Species and Habitat Loss
- Hawaiian Stream Habitat Evaluation Procedure (HSHEP) Model
- Dispersal of Contaminated Sediment
- Incorporating Strategies to Improve Stormwater Management and Reduce Nonpoint Source Pollution
- Dredging of the Ala Wai Canal
- Implications of Aging and Undersized Infrastructure
- Critical Infrastructure Remaining in the 1-percent ACE Floodplain
- Flood Risk from Tsunamis and Hurricanes

Designs associated with the FEIS are developed to a 35% level in order to adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the designs of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. Materials utilized in the designs may also be reevaluated to meet site conditions. Given the level of certainty, impacts to waters of the United States in the form of wetlands, riffle and pool complexes have been estimated, but not delineated. Estimates are included in the 404(b)(1) determination included in Appendix E3 of the FEIS. Results included in the draft FEIS are updated in the final FEIS based on information received from US Fish and Wildlife Service (USFWS) since the release of the draft FEIS.

Comparison of the final array of alternative plans to determine the least environmentally damaging practicable alternative (LEDPA) is included in Sections 5.4.2.2 and 5.4.2.3. Work within channel areas of streams is assumed to be jurisdictional wetland (see Appendix E, 404(b)(1) analysis). Impacts identified to stream riffle and pool habitat are therefore assumed to be impacts to jurisdictional wetlands. Table 19 is amended with the acreage of impacts to wetlands as requested based on an assessment of the area of project features within wetland areas identified by the National Wetland Inventory.

Formal Endangered Species Act (ESA) Section 7 consultation has been completed with USFWS since the release of the draft FEIS. The terms a biological opinion to determine compliance with ESA is complete and included the final FEIS. Section 5.7.3 and Appendix E5 are updated in the final FEIS to document the outcome of ESA consultation.

Appendix E2 details the species-specific analysis included in the Hawaiian Stream Habitat Evaluation Procedure (HSHEP) Model. The ESA-protected blackline Hawaiian damselfly is not included in this analysis and has been evaluated under biological assessment completed by USACE and the biological opinion negotiated between USACE and USFWS under ESA consultation. The methodology outlined in the HSHEP mimics the habitat modeling developed by USFWS under the Habitat Evaluation Procedure (HEP). This approach is rooted in the use of the habitat suitability of specific species serving as proxies for evaluation of the impact of an action on the larger environment. Species are selected which are believed to be representative of the important ecosystem functions and values found within the study area. Species evaluated under HSHEP are listed in Appendix E2 and include five species of freshwater fish, two species of freshwater crustaceans and a species of freshwater snail. A suite of habitat mitigation measures has been proposed and evaluated in detail in Appendix E2. The recommended plan includes mitigation to compensate for quantified impacts.

The potential for the project to mobilize stream sediment and potential contaminants is addressed in Section 5.4 (Surface Water) and Section 5.6 (Water Quality) of the FEIS, and discussed in particular in Section 5.6.2.2. The recommended plan is designed to generally reduce stream velocities during flood events, but allow normal flows otherwise. The in-stream structures are not specifically designed to capture sediment, but to the extent that they do trap sediment and contaminants that would then be removed and properly disposed of, they may in the long-term provide some water quality benefit to the watershed (Section 5.6.2.2). In the short term, impacts from sediment mobilized during construction and maintenance would be minimized through the selection of appropriate BMPs, which, as is discussed elsewhere, will be identified in future phases of the project. On 26 FEB 2016, USFWS hosted an interagency meeting which included USFWS, EPA, and National Marine Fisheries Service staff to discuss the impacts of the Ala Wai Canal FEIS recommended plan on the loss of pool and riffle habitat and effect on sedimentation in downstream waters. Based on that discussion, two conclusions were reached:

1. The mitigation plan included in the FEIS for compensation for loss of pool and riffle habitat with measures that improve fish passage is acceptable to review agencies; and
2. The characterization of sediment and sediment impacts included in the FEIS is acceptable to review agencies provided that temporary best management measures are in place during construction to off-set construction site erosion

Table 9, page 3-22 of the draft FEIS (page 3-23 of the final) details cursory operations and maintenance requirements based on project feature. Table 18 further elaborates on each feature by site. These operations and maintenance obligations are identified during the feasibility phase for the purpose of developing initial cost estimates and evaluating environmental impacts. If approved, a detailed operations and maintenance plan will be developed during the design phase of the study. The non-Federal sponsors must enter into a Project Partnership Agreement with USACE to construct the Project. This agreement sets the required cost sharing of the Project between the non-Federal sponsors and the Federal government and requires that the non-Federal sponsors be solely responsible for the operation and maintenance of the project, per the guidelines of the operation and maintenance plan. For vegetation maintenance, woody vegetation around detention basins is of primary concern and the

frequency of clearing around these structures is currently anticipated at twice per year (Table 9). The area to be maintained for this purpose includes the immediate project area and a twenty-foot buffer around the permanent structure. The FEIS does not designate a specific method for removal, but will detail further requirements in the design phase of the study.

Compliance with the Non-Point Discharge Elimination System (NPDES) is described in Section 5.6.2.2 of the report. Control measures (i.e. best management practices) to demonstrate compliance with NPDES are detailed in Table 24 of the final FEIS. As described in Appendix E3, the 404(b)(1) analysis details the construction intent of constructing detention basins during periods of low flow with diversion/dewatering of flows around the area of disturbance to minimize the risk of downstream sediment transport during construction.

The Ala Wai Canal study was originally developed as a multi-purpose flood risk management and ecosystem restoration study. Congressional mandates forced USACE to focus on critical issues with the study area to bring the on-going study to a conclusion within a mandated three year period, starting in late 2012. Discussions during this time between the USACE Honolulu District, USACE Headquarters, and the non-Federal sponsor, the DLNR, led the study team to focus exclusively on the flood risk portion of the study. This is the foundation of the current recommended plan. Opportunities for ecosystem restoration within the Ala Wai Canal Basin remain and are currently being evaluated by the non-Federal sponsor and others, however, ecosystem restoration features will not be a part of the FEIS recommended plan or a Federal recommendation to Congress. Dredging was initially considered as a management measure to obtain the multiple benefits of water quality and ecosystem improvement. Dredging, in the vertical sense, does not lower the water surface elevation of the canal given that dredged sediments are displaced with water and water surface elevations in the canal are tidal-dependent, therefore no subsequent flood storage is provided by dredging and this action was dropped from consideration as a flood risk management feature. Dredging of the Ala Wai Canal and its effects are described in Table 1 of the draft FEIS.

USACE is limited by policy from addressing flood problems that are deemed to be local in nature, defined as follows:

“Water damage problems may be addressed under the flood control authorities downstream from the point where the flood discharge is greater than 800 cubic feet per second for the 10 percent flood (one chance in ten of being exceeded in any given year) under conditions expected to prevail during the period of analysis. Drainage areas of less than 1.5 square miles shall be assumed to lack adequate discharge to meet the above criterion.” (USACE Engineering Regulation 1165-2-21)

As such, the FEIS makes reference to the real problems experienced by the undersized infrastructure, but does not evaluate flooding resulting from undersized infrastructure, as the agency is prevented from doing so by policy. Damages resulting from undersized infrastructure are not taken into account in the FEIS analysis nor are the benefits of local improvements to that system. The FEIS does not propose changes to the existing local drainage system with the exception of the installation of flap gates at stormsewer outfalls on the Ala Wai Canal to prevent backwater flooding and utilize storage within the canal for a flood risk benefit. Appendix A3 accounts for the effects of sea level change on flooding in the with- and without-project conditions. This analysis will be updated in the final FEIS to better assess the effects of a projected high level of sea level change on the residual economic flood risk.

The final FEIS is updated to evaluate the remaining critical infrastructure in the .2-percent ACE floodplain resulting from the implementation of the recommended plan. Review of Table 23 of the final FEIS

shows that within the Makiki drainage, the recommended plan (identified as NED) shows flood stages less than or equal to Alternative 2A, the alternative which includes the Roosevelt Debris and Detention Basin.

Coastal storm damage and flood risk management are separate authorities for USACE. Coastal storm damage in the study area would primarily focus on wave run-up to the shoreline and the resulting flooding, whereas, flood risk management will focus on riverine flooding from rainfall runoff in the watershed. The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. While implementation of the recommended plan will produce a benefit from wave run-up through the canal reaches, protection from coastal storm damage to Waikiki would involve study of shoreline protection measures which is not a part of this study.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

ALA WAI CANAL PROJECT DRAFT FEASIBILITY REPORT / EIS
PUBLIC MEETING - COMMENT SHEET
September 30, 2015

Thank you for participating in the Public Meeting on the ALA WAI CANAL PROJECT DRAFT FEASIBILITY REPORT/ENVIRONMENTAL IMPACT STATEMENT. Please use this form to submit any questions or comments you may have on the Draft Feasibility Report/EIS. Completed forms may be submitted to a project team member or mailed by **November 9, 2015**. Comments may be also emailed to: AlaWaiCanalProject@USACE.Army.mil. Please note that comments must include a name and physical address to receive a written response. To review the Draft Feasibility Report/EIS, visit www.AlaWaiCanalProject.com.

I am opposed to the construction of an earthen dam on the Pukele Stream in the Carlos Long area.

First of all as a homeowner on Ipulei Place, I am directly impacted by the proposed project. The stream bed runs through an easement on my property. In its natural state the Pukele stream cleans itself of debris and stagnant water. I believe this dam would require frequent maintenance to keep it free flowing. I seriously doubt that maintenance will be performed often enough since similar existing structures already suffer from lack of maintenance. Accumulated debris and water will surely be a breeding ground for mosquitoes which would be health concern for neighborhood residents.

It is also a serious concern for many residents that this dam could cause flooding in the immediate area our neighborhood – an area which should never have had to worry about flooding. Heavy storms can bring a great amount of large debris downstream, perhaps enough to clog even the overflow and divert water into the neighborhood. Fallen trees would be enough of a concern even without a dam in place.

I also believe this structure will be an eyesore that none of the homeowners in this area ever thought a possibility. The entire site is located on beautiful private land which is to be seized from unwilling owners and spoiled. I also know that this seizure of land takes away housing and revenue producing property from private individuals. I think this is morally wrong, especially when there are alternatives.

Finally, I think that the necessity of this project as a whole could be questioned. Computer modelling on this scale is not a proven science. And some of the presentation of this project to the public seems to me to be exaggerated. Figure ES-1 on page 7 of the Main Report showing the "extent of inundation" is very misleading. This "rendering" suggests to the casual viewer that this inundation covers entire neighborhoods to above the rooftops! I have also noticed that the use of the word "berm" seems to have supplanted the more accurate term "dam", perhaps to make the project sound more innocuous and avoid scrutiny. I think a more thorough vetting by the public is called for, this period of public discussion has been far too brief for a project of this extent.

Thank you for your consideration,

Sincerely, David Youtz

CONTACT INFORMATION

Please note that comments must include a name and physical address to receive a written response.

Name: David Youtz

Address: 2671 Ipulei Place
Honolulu HI 96816

Phone: (808) 368-5239

Email: youtz@hawaii.rr.com

ALA WAI CANAL PROJECT, O'ahu, Hawai'i

Honolulu District, U.S. Army Corps of Engineers
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

From:	David Youtz
To:	Ala Wai Canal Project
Subject:	[EXTERNAL] Opposition to Pukele stream earthen dam
Date:	Monday, November 09, 2015 11:00:50 AM

---

to whom it may concern,
I am opposed to the construction of an earthen dam on the Pukele Stream in the Carlos Long area.

First of all as a homeowner on Ipulei Place, I am directly impacted by the proposed project. The stream bed runs through an easement on my property. In its natural state the Pukele stream cleans itself of debris and stagnant water. I believe this dam would require frequent maintenance to keep it free flowing. I seriously doubt that maintenance will be performed often enough since similar existing structures already suffer from lack of maintenance. Accumulated debris and water will surely be a breeding ground for mosquitoes which would be health concern for neighborhood residents.

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Finally, I think that the necessity of this project as a whole could be questioned. Computer modelling on this scale is not a proven science. And some of the presentation of this project to the public seems to me to be exaggerated. Figure ES-1 on page 7 of the Main Report showing the “extent of inundation” is very misleading. This “rendering” suggests to the casual viewer that this inundation covers entire neighborhoods to above the rooftops! I have also noticed that the use of the word “berm” seems to have supplanted the more accurate term “dam”, perhaps to make the project sound more innocuous and avoid scrutiny. I think a more thorough vetting by the public is called for, this period of public discussion has been far too brief for a project of this extent.

Thank you for your consideration,
Sincerely, David Youtz

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: David Youtz
2671 Ipulei Place
Honolulu, Hawaii 96816

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Design elements of debris and detention basins
- Concerns of affected landowners regarding real estate acquisition
- Operations, maintenance and public safety of the project features
- Mosquito control

Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the designs of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. Any inconsistencies between current designs and site specific conditions will be corrected during this upcoming phase. The specific location and scale of project features may change as additional information is acquired from the site. Materials utilized in the designs will be reevaluated to meet site conditions. The design and engineering of project features has undergone both an internal agency technical review as well as an independent external peer review and was deemed sufficient for the purposes of the FEIS.

As noted, the debris and detention basins are designed to overtop should functionality be reduced by debris or if event conditions exceed the capacity of the structure. Future design efforts will take these concerns into account and attempt to minimize future flood risk to downstream structures.

Implementation of the recommended plan will require the acquisition of private property. The exact timing of land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature, including any necessary amendments for public safety. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. A property by property assessment will be conducted in coordination with the non-Federal sponsor after project authorization, if the project is authorized by Congress.

The process of acquiring property for a project is highly regulated. The Fifth Amendment of the Constitution states that private property shall not be taken for public use without just compensation. To address what constitutes just compensation, Congress passed the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 ("Uniform Act"). The non-federal sponsors will be required to follow the Uniform Act in acquiring any lands. USACE will work with the non-Federal sponsors to ensure the correct process and procedures are adhered to throughout the process.

Generally speaking the value of land acquired is the fair market value of the property. The fair market value includes many aspects of the property in question. Earning potential is one of those aspects to be addressed in developing a fair market value. Regardless of the value determined, Public Law 91-646 outlines the requirements that must be followed to ensure a homeowner/landowner is compensated justly.

Part of the process will be an appraisal, which determines the fair market value of the property. Fair market value is an estimate of the market value of a property based upon what a knowledgeable, willing, and unpressured buyer would pay. The appraisal will attempt to take all objective property features into account when determining fair market value. The fair market value is determined without consideration for the effect the project has had on the value of the land. For more information on the process for acquisitions please go to: http://www.fhwa.dot.gov/realestate

Table 9, page 3-22 of the draft FEIS (page 3-23 in the final) details cursory operations and maintenance requirements based on project feature. These obligations are identified during the feasibility phase for the purpose of developing initial cost estimates. If approved, a detailed operations and maintenance plan will be developed during the design phase of the study. Debris and detention structures are intended to pass normal stream flows without impounding water. The structure are designed to function only during storm events, therefore, no impoundment of water is anticipated outside of such storm events.

The non-Federal sponsors must enter into a Project Partnership Agreement with USACE to construct the Project. This agreement sets the required cost sharing of the Project between the non-Federal sponsors and the Federal government and requires that the non-Federal sponsors be solely responsible for the Operation and Maintenance of the Project. The sponsors are responsible for financing their local share and operation and maintenance costs.

Unfortunately, the issue of mosquito control is not a topic addressed by the FEIS nor does USACE have the authorization to study that issue. Mosquitoes live in riparian environments and it is not anticipated that the availability of habitat will change as result of the recommended plan. For concerns regarding mosquitoes as disease vectors, it is suggested that you contact the State of Hawaii Department of Health.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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P O Box 2902
Honolulu, HI 96802
October 8, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

To the Project engineers:

I have lived in Palolo Valley near Pukele Stream for 40 years and in Waikiki for several years. A landscape architect and planner, I have worked on the University of Hawaii Manoa campus for 24 years. I appreciate the tremendous amount of data collection and analysis represented in the DEIS.

While you have outlined a feasible plan to minimize the risk to Waikiki from a catastrophic flood produced by a 1% or 2% chance storm event, I am concerned that the focus on Waikiki , per the stated objective in the funding request for the study, has left too much land and valuable public infrastructure in the path of the 2004 storm too vulnerable in the Tentatively Selected Plan to another overflow due to sediment and debris blockage at the Woodlawn bridge. The problem at the bridge and the high cost of the 2004 flood damages are reported in the DEIS but there is no follow-up on the choice to drop the Innovation Center measure in Alternate 2A that would address this.

The stream bed upstream and downstream from the bridge has very low slope gradient, which makes that part of Manoa Stream a natural place for sediment deposit. This situation puts a continuing maintenance burden on either the State or the City because dredging will need to be done regularly. I urge you to revisit this part of the Manoa Stream and look for other alternatives to reduce the risk it poses. Perhaps the bed could be altered to stop most of the sediment drop just upstream of the bridge, together with a service road and debris catchment measure. Perhaps the raising the elevation of the bridge 2 or 3 feet and addition of debris catchment would be more feasible. The Palolo Avenue road surface rises at the bridge over Palolo Stream. In the larger picture, since, as noted in the DEIS, the volume of sediment reaching the Ala Wai Canal is a problem, a natural sediment place well above the Canal is beneficial.

The 7 foot high berms associated with the proposed use of Kanewai Park field as a detention and debris catchment basin takes good advantage of this green open space but presents another risk along Manoa Stream unless the invert at the outflow spillway is carefully calibrated to minimize flooding of the University student housing area on the other side of the stream.

Increasing the amount of stream water that beneficially infiltrates into the aquifer is a measure that would benefit both the Ala Wai Canal and the inland watershed aquifer. Although the DEIS notes that high amount of run-off from the urbanized valleys and the encasement of much of the length of the streams in concrete through the urban areas add to the flood risk to Waikiki, there is no mention of reducing the volume of storm water reaching the Canal. This could at least be capped via the City's 2013

amendment of its storm water rules that require Low Impact Development measures for commercial areas to be extended to residential areas.

Most of Palolo Stream has a concrete floor as well as walls, and this stream passes over part of the basal lens of the most valuable part of the Honolulu aquifer. The DEIS notes that water levels in the aquifer underlying the Ala Wai watershed have declined due to urbanization. Retro-fitting the bottom of the approximately 2 miles of Palolo Stream, along the lines of a recent USACE project for Menomonee River in urban Milwaukee, which replaced the concrete bottom with a gravel and boulder bed that allows water to infiltrate through part of the new river bed while it restores fish migration. Such a measure in at least some of the Ala Wai watershed, such as in Palolo Stream, might produce enough future benefit to offset the construction cost.

Many people have been concerned about the visual impact from the prospect of 4 foot high flood walls along the Ala Wai Canal. It would seem better to put the wall along the Ala Wai Park, on the mauka side of the canal, back from the edge, such as where the chainlink fence boundary at the Ala Wai School is located. This would also widen the canal's flood capacity during major storms. Together with reducing runoff in the middle reaches, these measures might reduce the canal floodwall height to a more acceptable level.

Last, but not least, as a landscape architect, I am very troubled by the prohibition of any woody vegetation in the basins and on the earth berms in the table that describes the Alternate 2A and 3A measures. The assessment of"No significant impact" is not correct. In addition to the obvious negative visual impact of the removal of the many beautiful and large trees in the middle and lower reaches, including the Kanewai field and , even more, the Ala Wai Golf Course, the removal of this large amount of tree roots and canopy does not recognize the substantial ecosystem services they provide. These include absorption of large amounts of storm water as well as carbon dioxide and air pollutants.

Thank you for considering my concerns.

Janet Thebaud Gillmar

Janet Thebaud Gillmar / ASLA

US Army Corps of Engine
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Janet Thebaud Gillmar
PO Box 2902
Honolulu, Hawaii 96802

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Concerns with flooding at the Woodlawn bridge
- Economic optimization of the recommended plan
- Absence of ecosystem restoration features within the recommended plan
- Loss of trees associated with the recommended plan

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. Details regarding planning considerations leading to the development of alternative plans can be found in Section 3 of the FEIS. The economic analysis presented in the Feasibility Report and integrated Environmental Impact Statement uses the standard methodology prescribed by the Water Resources Council's "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" and the USACE Engineer Regulation 1105-2-100. All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. The floodwall height at the Ala Wai Canal and the resulting level of protection was selected as the economically optimized plan. The recommended plan assumes that hydraulic improvements to the Woodlawn bridge are completed. The City-County is currently planning this construction and anticipates completion in 2016.

Designs associated with the FEIS are developed to a 35% level in order to adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the designs of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase.

As noted, the Ala Wai Canal study was originally developed as a multi-purpose flood risk management and ecosystem restoration study. Congressional mandates forced USACE to focus on critical issues with

the study area to bring the on-going study to a conclusion within a mandated three year period, starting in late 2012. Discussions during this time between the USACE Honolulu District, USACE Headquarters, and the non-Federal sponsor, the DLNR, led the study team to focus exclusively on the flood risk portion of the study. This is the foundation of the current recommended plan. Previous ecosystem restoration improvements considered options for naturalizing stream beds, however, the focus on flood risk management has excluded further consideration of those features. Opportunities for ecosystem restoration within the Ala Wai Canal Basin remain and are currently being evaluated by the non-Federal sponsor and others, however, ecosystem restoration features will not be a part of the FEIS recommended plan or a Federal recommendation to Congress.

Section 5.7.2.2 of the FEIS details the effect of the recommended plan on vegetation. Site restoration will occur throughout impacted areas following construction. At select locations identified in the report where significant trees exist, this site restoration will involve tree planting.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

UNIVERSITY OF HAWAIʻI

Sea Grant College Program
School of Ocean and Earth Science and Technology

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858
Submitted via E-mail: alawaicanalproject@usace.army.mil

State of Hawai'i, DLNR Engineering Division
ATTN: Gayson Ching
P.O. Box 373
Honolulu, HI 96809
Submitted via E-mail: Gayson.Y.Ching@hawaii.gov

November 9, 2015

RE: Draft Feasibility Report and Integrated Environmental Impact Statement (EIS) for USACE Ala Wai Canal Project

Dear Mr. Ching,

In my capacity as the Director of the University of Hawaiʻi Sea Grant College Program (Hawaiʻi Sea Grant), I respectfully submit the following comments on the Ala Wai Canal flood mitigation draft feasibility study. We hope this project can further enhance and support community hazard resilience efforts in the community through the flood mitigation component of the project and likewise foster beneficial sustainable resource management and ecosystem restoration efforts as a broader community-lead effort.

Hawaiʻi Sea Grant is a multi-disciplinary unit of the University of Hawaiʻi which supports an innovative program of research, education and extension services, directed to the improved understanding and stewardship of coastal and marine resources. Founded in 1968, the University of Hawaiʻi Sea Grant College Program is part of a National Oceanographic and Atmospheric Administration (NOAA) affiliated network of 32 programs that promote better understanding, conservation, and use of coastal resources. Hawaiʻi Sea Grant works in partnership with local, state and federal partners to identify Hawaiʻi's critical resource

2525 Correa Road • HIG Room 238 • Honolulu, Hawaiʻi 96822

Telephone: (808) 956-7031 • Facsimile: (808) 956-3014

management issues and guide cutting-edge scientific research to address these challenges.

Hawai‘i Sea Grant supports an innovative program of research, extension, education, and communication services directed to the improved understanding and stewardship of coastal and marine resources. Realizing the necessity of collaboration to address coastal resource issues, Hawai‘i Sea Grant also provides links between academia, federal, state and local government agencies, industries, and local community members. Hawai‘i Sea Grant has five primary focus areas which include; *Sustainable Coastal Development, Hazard Resilience in Coastal Communities, Sustainable Coastal Tourism, Indigenous Cultural Heritage and Water Resource Sustainability*

These five interrelated focus areas emerged from the strategic planning process as areas of critical importance to the health and vitality of the nation's coastal resources and communities. They respond to issues of major importance to NOAA, are consistent with the work of the NOAA coastal program integration effort, and are topical areas in which Sea Grant has made substantial contributions in the past and is positioned to make significant contributions in the future. These focus areas and the broader Sea Grant mission are embodied in components of the proposed flood mitigation plan.

The proposed Army Corps Ala Wai project (Project) has great potential to support and enhance the Hawai‘i Sea Grant goals. Hawai‘i Sea Grant can and has, been assisting in coordinating community and stakeholder engagement for the Ala Wai Project. Our staff have been participating in and facilitating the Ala Wai Watershed Partnership (AWWP) as part of our education, outreach and extension efforts to engage in high-priority natural resource and hazard mitigation projects locally.

At the September 30, 2015 public information meeting on the Ala Wai Flood Control project we heard from a number of stakeholders and community members with a direct interest in the project. A majority of these comments were supportive of the project but also pointed out potential partnership opportunities to expand the scope of the project beyond just flood mitigation. Some of these comments illustrated the need to enhance and foster public private partnerships to leverage federal and local sponsor funding with other non-flood mitigation efforts and better align the project scope with local interests beyond just flood mitigation. Some of these projects include environmental education and outreach, environmental restoration, water quality, recreational use enhancement, Ahupua'a watershed management and wetland restoration. We realize most of these efforts are currently beyond the mandate and scope for the Army Corps of Engineers but we hope the Hawai‘i Sea Grant provide a conduit to facilitate these important project

components and leverage the federal project with local and private interests that may be able to support these non-flood mitigation components.

With respect to the project scope and water quality, Hawai‘i Sea Grant is in support of expanding the scope of this project to include partnerships for other beneficial efforts to improve the water quality of the Ala Wai canal as state receiving waters. Water quality conditions, debris management issues and emergency evacuation are a major community and stakeholder concern and are ongoing problems for the Ala Wai canal. During the development of the flood mitigation design for the Ala Wai, there is an opportunity to invest in an effort to improve the condition of the Ala Wai water quality. There are many benefits and advantages to expanding the current flood mitigation effort to better support improvements to the Ala Wai water quality and ecosystem services either through direct inclusion of ecosystem restoration measures such as wetlands or directly addressing non and point source pollution water quality efforts.

There are many novel and innovative solutions presented in the *2003 Ala Wai Watershed Analysis Final Report*[1]. Hawai‘i Sea Grant believes some of these recommendations could be revisited as part of the flood mitigation effort. Day to day benefits and improvements like these may also further motivate and benefit the community to become more engaged in and supportive of the project. The recreational and aesthetic value of the Ala Wai Canal speaks for itself. Proceeding with this project without water quality and ecosystem restoration as leveraged efforts may be a major missed opportunity.

The Ala Wai Canal flood mitigation project will make important improvements to support the resiliency of the Ala Wai Watersheds and help mitigate flood risk in Waikīkī and the surrounding communities. As with numerous resilient infrastructure projects across the country, the Ala Wai flood Project faces potential hurdles, including possible community opposition, insufficient public funding, and future operating and maintenance costs. However, the Project offers a unique opportunity to facilitate and catalyze important stakeholder partnerships and generate opportunity to create innovative financing and design solutions that can serve as a model for how the United States can begin to close its estimated $3.6 trillion infrastructure gap. This project can also serve as an example for how communities can collaborate with all levels of government, the private sector and the University to develop local solutions to local challenges.

---

[1] Prepared By: Townscape, Inc. and Eugene P. Dashiell, AICP in cooperation with Oceanit
Prepared For: Department of Land and Natural Resources and U.S. Army Corps of Engineers
July 2003

Thank you for the opportunity to provide comments on the Ala Wai Watershed Flood Mitigation Project. We hope to the Hawai‘i Sea Grant can serve an important role in providing a partnership framework for a resilient community and look forward to developing a strong and effective affiliation through the Hawai‘i Sea Grant that includes the critical participation of the U.S. Army Corps of Engineers.

Sincerely yours,

Darren T. Lerner

Darren T. Lerner, PhD
Director, University of Hawai‘i Sea Grant College Program

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Darren Lerner
University of Hawaii – Sea Grant College Program
PO Box 2808
Honolulu, Hawaii 96803-2808

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Absence of ecosystem restoration features within the recommended plan
- Planning and collaboration with other agencies
- Improvement to water quality within Ala Wai Canal

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. Details regarding planning considerations leading to the development of alternative plans can be found in Section 3 of the FEIS. The economic analysis presented in the Feasibility Report and integrated Environmental Impact Statement uses the standard methodology prescribed by the Water Resources Council's "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" and the USACE Engineer Regulation 1105-2-100. All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts

As noted, the Ala Wai Canal study was originally developed as a multi-purpose flood risk management and ecosystem restoration study. Congressional mandates forced USACE to focus on critical issues with the study area to bring the on-going study to a conclusion within a mandated three year period, starting in late 2012. Discussions during this time between the USACE Honolulu District, USACE Headquarters, and the non-Federal sponsor, the DLNR, led the study team to focus exclusively on the flood risk portion of the study. This is the foundation of the current recommended plan. Opportunities for ecosystem restoration within the Ala Wai Canal Basin remain and are currently being evaluated by the non-Federal sponsor and others including public-private partnerships, however, ecosystem restoration features will not be a part of the FEIS recommended plan or a Federal recommendation to Congress.

Unfortunately, the issue of water quality improvement is not a topic addressed by the FEIS nor does USACE have the authorization to study that issues. It is suggested that you contact the State of Hawaii Department of Health for information related to water quality.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

Testimony Re: Ala Wai Canal Project, O’ahu, Hawai'i

Feasibility Study With Integrated Environmental Impact Statement

Public ReviewDraft Report: August 2015

Attention: The Ala Wai Canal Project/USACE and Gayson Ching/DLNR

The Draft Feasibility Study Report with integrated Environmental Impact Statement (EIS) “assesses the risk of flooding in the Ala Wai Watershed, and describes a range of potential alternative plans formulated to reduce flood risk, with identification of a tentatively selected plan for implementation.” (Executive Summary, p. ES-1)

Comments:

The engineering solutions offered in the ‘Tentatively Selected Plan’ indicate acres of soil disturbance, erosion, sedimentation, the possibility of landslides, and the addition of fill materials to riffle and pool complexes. Although the impacts of these actions are claimed to be “less than significant; no mitigation required,” that is difficult to verify given the insufficient information provided in the report.

The Integrated Environmental Study embedded in the Feasibility Study seems inadequate given the complexity of the proposed actions on three major stream systems, the Ala Wai Canal and Waikiki. As readers, we feel overwhelmed by the amount of information and the responsibility to objectively evaluate whether the plan, as proposed, is the best one to address the problem of flooding in the Ala Wai watershed. The cost of being wrong goes beyond the waste of federal and state dollars. Being wrong is likely to have catastrophic consequences for infrastructure within the formerly drained wetland of Waikiki; for the tourism economy that depends on it; and for the long term health and safety of residents in the Waikiki/Ala Wai sub-watershed as well as those living at higher elevations.

The project plan would benefit from revision based on continued public evaluation before an EIS is submitted for approval.

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If the intent of the Ala Wai Canal Project is to reduce riverine flood risks in the Ala Wai Watershed (see Abstract), then it should address the role suburban property owners could play in lessening the intensity and amount of water flowing from their land. According to the Tentatively Selected Plan, the drainage pipe system of the City will not handle extreme events—most of the water will be flowing down streets. Part of the problem is the urbanization of our watershed and the resulting uncontrolled sheeting of rainwater over impervious concrete surfaces that sidestep City drainage systems, carrying sediment, pollutants and debris into neighboring yards and waterways.

Given the State and City's public interest responsibility, the updating of storm water regulations to require property owners to institute water capture and containment measures should be part of the plan and listed under "Non-structural measures." Given the state's apparent willingness to commit approximately $1 million dollars per year to the management of the proposed system, wouldn't that money be better directed to funding the installation of systems, such as rain gardens, on private properties draining into our streams and waterways? Collecting water at the mid sub-watershed level would greatly reduce the intensity and volume of water flowing into the Ala Wai Canal during extreme storm events.

Since the Draft Feasibility Study report indicates that the majority of rainfall occurs at the upper elevations, and that the upper elevations are less subject to property owner control, the majority of the proposed debris and detentions systems should be located in the upper areas of the watershed. Detention systems in the upper watershed would also replenish Oahu's reserves of potable water. These detention basins should not be placed within the stream itself, but rather, as an option in the report suggested, should be built parallel to and along the sides of the streams. Every effort should be made to clean (and re-establish if necessary) natural stream segments and to place concrete strips and debris collection poles in the side detention areas to help attenuate heavy rain fall and capture sediment before the water re-enters the natural stream system. Reducing the force of water flow by directing it into side channels would weaken flash flooding, reduce the likelihood of stream channel erosion and capture sediment that otherwise would

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reduce the effectiveness of the flow. Well designed and managed side detention systems at the upper elevations would alleviate flooding problems throughout the Ala Wai watershed.

If improvements are made at the mid and upper levels of the watershed, flood water pressures at the lower sub-watersheds will be reduced and there would be no need for four foot-high walls along the Ala Wai
Canal. The proposed walls, in addition to being a visual blight, are acknowledged in the report to be insufficient to protect the expansive lower watershed from flooding, and while walls may provide the illusion of protection, they will have no preventative effect on sea level rise or tsunami inundation.

To summarize:

1. The Corps of Engineer's efforts in flood water attenuation and retention should focus on the mid and upper level sub-watershed areas.

2. A four foot wall along the Ala Wai Canal should not be built.
3. More community input and review are needed before an EIS is submitted for approval.

TOC has a long-time commitment to clean water, clean air and beautiful view planes. We request continuing participation as a consulting party in the review process.

Respectfully submitted,

Winston Welch

Executive Director, Outdoor Circle

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US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Winston Welch
The Outdoor Circle
1314 South King Street, #306
Honolulu, Hawaii 96814

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Aesthetics of the floodwalls
- Concerns regarding public outreach

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed.

USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed

- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

The design of project features is focused on the most economical design that will provide the needed function while observing compliance with applicable Federal law. The design of floodwalls must meet the criteria set forth in Section 106 of the Historic Preservation Act. This design will be coordinated with the State Historic Preservation Office to ensure appropriate design aspects are integrated into the project to ensure preservation of the historic value of the area.

Public involvement and agency coordination is summarized in Section 6 of the FEIS. Initial scoping of the EIS was conducted in 2004 with a supplemental scoping meeting conducted in 2008. Table 38 details public and agency coordination that has been undertaken since the re-scoping of the study in 2012. This includes over forty separate outreach measures. In addition, a public meeting to review the FEIS during the public review period was conducted in September 2015 along with multiple follow-up meetings with legislators, interested stakeholders and neighborhood commissions. No further public meetings are planned during the feasibility phase of the FEIS.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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11/8/15

To Whom It May Concern,

My name is Sean Scanlan. My address is 2625 Ipulei Place, Honolulu, HI 96816. I am writing in opposition of the proposed Pukele Stream berm. Pukele Stream is actually part of my property, and my house looks down onto the stream. My opposition has 3 parts.

1. No one is even sure if the berm intervention will even work.

First, the idea of controlling the debris is not well-founded. You haven't seen the stream when it's been raging. The debris only comes down when it rains very hard for several days. Assuming that a 4 foot tube will somehow control this is illogical. Because I've seen firsthand how the stream acts during storms, this is what will happen: Normally, the stream will flow through the tube fine or even dry out. Then the rains will come, then the debris will quickly block the mouth of the tube. Then the water will build and easily flow over the berm. Along with all the water will be any debris, and essentially the berm did nothing. The only way you could reduce debris from flowing downstream would be to have workers come up right when the water starts to rage and somehow remove that flowing debris. Any work before or after that point will be for naught. I'm assuming that you don't have emergency workers to do that difficult task, so I'm certain the berm will not work for what it is intended.

2. No one is even sure if the berm will help.

According to the report, there was a flood in the mid-1900's before much of the infrastructure was built, so we can't really use that as an example. But if we did, we can assume that the Ala Wai portion of the project can prevent that, even if the Pukele stream isn't built. Since that flood, there were only 2 other floods cited. Both occurred on the Manoa side of this project. So technically, there is no cited problems with the Pukele-Palolo flow. The small-to-no impact of a Pukele Stream berm is cited by the report, as it is only a small fraction of the overall flow and has the lowest annual chance of exedance. So to summarize, we're not even sure if the Pukele berm would help; it definitely wouldn't have helped in the last 2 floods, so why would we expect anything different?

3. No one is even sure if the Pukele costs are worth the money and disruption.

The cost of the project in dollars is an easy item to dispute. Obviously, if the berm won't work OR won't help, then it isn't worth the millions of dollars involved. I'd like to at least propose only spending the money for the Pukele Stream project if the other more important portions of this project (i.e., Ala Wai, Manoa) are on or under budget.

But there are other costs. Right now, Pukele is the lowest flood rating for insurance/real estate designations. That is, to my insurance company, my property is not a flood zone, and I don't pay any more than someone on Waialae Iki, for example. However, if you intend to create a berm to actually *retain* water in our backyards, then my insurance company is likely to see things differently and increase my rates. Is that considered anywhere in the drafts? Will my flood zone change from X to D? Will I be compensated by the state for this increase? Will we be compensated for the loss of property value? Another issue is the idea of buying privately owned properties for the sake of this berm. First, I don't want my tax dollars buying land from citizens without a very compelling reason. Second, many of us who bought land in town, bought it with the premise of keeping that land for our families in perpetuity. This land is for generations after

us because of the probable inability to buy land in the future. Again, considering the questionable function of the berm, is all this cost worth it?

To be clear, I am not in opposition to the project as a whole. I absolutely agree that the Ala Wai Canal portion is necessary. Also, the Manoa portion apparently needs to be addressed. However, I am having a hard time understanding why Pukele Stream needs to be included in this project, especially considering that 1) it's questionable if it will work, 2) it's questionable if it will help, and 3) if it's worth the cost to the taxpayers and homeowners. In Palolo, we already have a catch basin in Ka'au Crater and all the pools below it. I am pleading that you please consider removing Pukele Stream from the project. Me, my family, and my neighbors look forward to your response.

Mahalo,

Sean W. Scanlan, Ph.D.
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US Army Corps of Engine
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Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Sean Scanlon
2625 Ipulei Place
Honolulu, Hawaii 96826

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Design elements of debris and detention basins
- FEMA Floodzone Designation
- Concerns of affected landowners regarding real estate acquisition

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the designs of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site. Materials utilized in the designs will be reevaluated to meet site conditions. The design and engineering of project features has undergone both an internal agency technical review as well as an independent external peer review and was deemed sufficient for the purposes of the FEIS. As noted, the debris and detention basins are designed to overtop should functionality be reduced by debris or if

event conditions exceed the capacity of the structure. Future design efforts will take these concerns into account and attempt to minimize future flood risk to downstream structures.

USACE has developed hydraulic information which can be utilized by regulatory agencies and the public as a part of the National Flood Insurance Program (NFIP). It is possible that FEMA could make adjustments to the floodplain without the project in place; however, USACE cannot speculate on the timing of any potential FEMA floodplain map revisions. All homeowners are encouraged to participate in the NFIP to manage risks associated with flooding. Detention basins associated with the recommended plan are designed to be overtopped in high volume flood events. By including these project features it is not anticipated that the recommended detention basins will induce upstream flooding to area homes. Areas of inundation associated with the detention basins has been calculated as a part of the FEIS. These inundation areas will require acquisition of an easement for those portions that adversely affect private property.

Implementation of the recommended plan will require the acquisition of private property. The exact timing of land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature, including any necessary amendments for public safety. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. A property by property assessment will be conducted in coordination with the non-Federal sponsor after project authorization, if the project is authorized by Congress.

The process of acquiring property for a project is highly regulated. The Fifth Amendment of the Constitution states that private property shall not be taken for public use without just compensation. To address what constitutes just compensation, Congress passed the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (“Uniform Act”). The non-federal sponsors will be required to follow the Uniform Act in acquiring any lands. USACE will work with the non-Federal sponsors to ensure the correct process and procedures are adhered to throughout the process.

Generally speaking the value of land acquired is the fair market value of the property. The fair market value includes many aspects of the property in question. Earning potential is one of those aspects to be addressed in developing a fair market value. Regardless of the value determined, Public Law 91-646 outlines the requirements that must be followed to ensure a homeowner/landowner is compensated justly.

Part of the process will be an appraisal, which determines the fair market value of the property. Fair market value is an estimate of the market value of a property based upon what a knowledgeable, willing, and unpressured buyer would pay. The appraisal will attempt to take all objective property features into account when determining fair market value. The fair market value is determined without consideration for the effect the project has had on the value of the land. For more information on the process for acquisitions please go to: http://www.fhwa.dot.gov/realestate

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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From: Paula Ress
To: Ala Wai Canal Project
Subject: [EXTERNAL] Ala Wai Canal Project
Date: Monday, November 09, 2015 9:14:22 PM

Building walls along the canal is an ill-conceived idea. Does the water just stay behind the walls? What happens when where the walls end? Are you creating another man-made disaster zone like the one in New Orleans?

What will happen to the trees along the promenade?

Please concentrate on flood mitigation along the three streams that feed the Ala Wai. There are demonstration projects all over the country.

Paula Ress (R)
RB16124
Coldwell Banker Pacific Properties
970 N. Kalaheo C-215
Kailua, HI 96734
808-384-9439

US Army Corps of Engine
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Paula Ress
Colwell Banker Pacific Properties
970 North Kalaheo C-215
Kailua, Hawaii 96734

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Functional elements of the recommended plan
- Loss of trees associated with the recommended plan

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. As a result of the recommended plan, water surface elevations within the canal during flood events will be lower than without the project and contained by the proposed floodwall as the water drains from the canal to the ocean. If the floodwall is overtopped, pump stations are designed to assist in the removal of water from the landward side of the wall.

Section 5.7.2.2 of the FEIS details the effect of the recommended plan on vegetation. Site restoration will occur throughout impacted areas following construction. At select locations identified in the report where significant trees exist, this site restoration will involve tree planting.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

O‘ahu Island
Parks Conservancy

November 9, 2015

Derek J. Chow, Civil & Public Works Branch Chief
Lt. Col. Christopher W. Crary, Honolulu District Engineer
U.S. Army Corps of Engineers
Building 230, CEPOH-PP-C
Fort Shafter, Hawai‘i 96858-5440
Via email to: AlaWaiCanalProject@usace.army.mil

Carty Chang, Chief, Engineering Division
Gayson Ching, Engineering Division
State of Hawaii Department of Land and Natural Resources
Post Office Box 373
Honolulu, Hawaii 96809
Via email to: Gayson.Y.Ching@hawaii.gov

Re: Proposed Ala Wai Canal Project, O‘ahu, Hawai‘i

Aloha:

The O‘ahu Island Parks Conservancy herein provides review comments on the Draft Feasibility Study Report and integrated environmental impact report for the Army Corps of Engineers (ACOE) proposed Ala Wai Canal Project on O‘ahu Island, Hawaii. The ACOE proposes a determination of “no adverse effect” for the subject undertaking. The O‘ahu Island Parks Conservancy strongly disagrees with this determination and submits associated comments, clarifications and recommendations.

Sincerely,

MichelleS.Matson

Michelle S. Matson
President, O‘ahu Island Parks Conservancy

Copies via email:
Brian Turner, National Trust for Historic Preservation, Region 9
Brian Lusher, National Advisory Council on Historic Preservation
Charles R. Smith, CIV, USACOE Federal Preservation Officer
Suzanne Case, Director, State Department of Land and Natural Resources
Hawaii State Historic Preservation Officer
Alan S. Downer and Jessica Puff, Hawai‘i State Historic Preservation Division
Kiersten Faulkner, Executive Director, Historic Hawaii Foundation
Scott Wilson AIA, President, American Institute of Architects, Hawaii Chapter
John P. Whalen AICP
State Senator Les Ihara, Jr. and State Senator Sam Slom
State Representative Scott Nishimoto and State Representative Bert Kobayashi
City Councilmember Ann Kobayashi
Donna Wong, Executive Director, Hawaii’s Thousand Friends
George West, Chair, Diamond Head/Kapahulu/St. Louis Heights Neighborhood Board

Ala Wai Canal Proposed Flood Risk Management Project
Draft Feasibility Report and Integrated Environmental Impact Statement

An Ala Wai Canal Flood Mitigation Project Proposal
by the Army Corps of Engineers, Honolulu District

The Draft Feasibility Study Report, with a prematurely integrated Environmental Impact Statement, "assesses the risk of flooding in the Ala Wai Watershed, and describes a range of potential alternative plans formulated to reduce flood risk, with identification of a tentatively selected plan for implementation," according to the Executive Summary. The "Tentatively Selected Plan," as explained by applicant Army Corps of Engineers (ACOE), is the "Recommended Plan" - a proposed $170-200 million public works project geared to an envisioned 100-year, 1% chance of occurrence flood event. Notably, the feasibility study readily admits that stormwater flooding cannot be entirely eliminated.

Summary of Proposed Project Review:

- Ala Wai Canal Encasement Walls

  - Strongly Oppose this Significant Cumulative Adverse Impact to the Historic Character, Integrity, Setting, Feeling, and Viewplanes of the following recognized historic structures:
    - The Ala Wai Canal
    - The Ala Wai Clubhouse and Canoe Hale
    - The McCully Street Bridge
    - The Kalakaua Avenue Bridge

- Ala Wai Canal and Ala Wai Golf Course Pump Stations and Flap/Sluice Gates

  - Strongly Oppose this Significant Cumulative Adverse Impact to:
    - The Protected Ala Wai Golf Course Open Space within the Diamond Head Special District
    - The setting, feeling, visual integrity and cultural association of the Ala Wai Canal and its associated historic features including the Ala Wai Clubhouse and Canoe Hale.

- Koo'lau, Manoa, Palolo, St. Louis Heights, Kapahulu and Mo'ili'ili Inland Debris and Water Retention Basins.

  - Support regular debris catchment, cleaning and maintenance program by the City and State to protect against any flood conditions.
  - Support returning designated stormwater detention locations to normal use following any flood event.
  - Oppose the taking of private property for floodwater detention
  - Oppose concrete hardening of streambeds

1. Some History

The Ala Wai Canal was carved out of shoreline wetlands between 1921 and 1928 to drain agricultural fields in the shoreline plain and build up the planned seaside enclave of Waikiki for well-heeled property owners. The canal functioned as a water reclamation project, diverting natural stream waters flowing from Manoa, Palolo and the Tam Pong Ditch that traversed the plain and was used to irrigate Kapi'olani Park following its dedication in 1887 by King Kalakaua.

Throughout the following decades, the Aa Wai Canal became a popular scenic point of interest and recreational waterway for residents and visitors alike. The Ala Wai Canal was listed on the Hawaii State Register of Historic Places in 1992 together with Kapi‘olani Park.

A 1996 Consent Decree between the US Environmental Protection Agency (EPA), the State of Hawaii, and the City and County of Honolulu created and funded a $2.1 million plan for watershed protection "to empower the community to improve… the many watershed areas that drain into the Ala Wai Canal." Community stewardship groups from Makiki, Manoa, Palolo and Diamond Head formed an Ala Wai Watershed Association to embark on stream and waterway projects to restore their natural conditions, including clearing streams of debris and integrating native vegetation within the surrounding landscape. Notable working projects included the Palolo community's stewardship of Pukele and Waiomao streams, and the Diamond Head community's restoration of the Kaneloa Wetland in Kapi‘olani Park, among others.

2. Floodwater Source

Throughout the island of O‘ahu, storm water percolates into the ground and through the porous subsurface where the surface has not been paved over, capped with development foundations or otherwise rendered impermeable. Impermeable surfaces increase floodwater inundation, which must then be controlled by means of constructed infrastructure.

The ACOE concept of 1% flooding throughout the ahupua‘a, from the Ko‘olau Mountains to the Shoreline, is derived from the mauka water flow as the primary source of floodwater gravitating downhill from the mountain ridges, through the valleys, across the Ala Wai plain and jumping the Ala Wai Canal into Waikiki.

Thus retention of the mauka water flow, repairing and improving aging and inadequate storm drain infrastructure, and responsible stream and storm drain maintenance by public agencies should be the primary focus of any flood control project, whether 10-year (10%), 50-year (2%) or 100-year (1%) percentage chance of occurring.

3. Floodwater Retention and Debris Catchment

The ACOE's recommended plan proposes to provide the following designated locations for floodwater detention and debris catchment:

1) Ko‘olau Waiaukeakua debris/water detention basin
2) Palolo Pukele debris/water detention basin
3) Palolo Waiomao debris/water detention basin
4) Manoa Woodlawn water detention basin
5) Manoa in-stream debris catchment
6) St. Louis Heights Kanewai Park Field water detention basin
7) Mo‘ili‘ili Hausten Ditch water detention basin
8) Ala Wai Golf Course water detention basin

The City and State as public property owners and land managers, as well as some private property owners, have been notoriously negligent in clearing, cleaning and maintaining upland stream beds, crossings, channels, and storm drains. These neglected conditions have become a common source of flooding, and at times a significant source.

The State has neglected to regularly dredge the Ala Wai Canal, while the layers of sediment gravitating from higher land contours increase annually. In addition, the canal’s waters are turbid with toxins, heavy metals and bacteria causing health risks to paddlers, fishers, and other recreational users.

The City has been remiss by not addressing commonly-occurring rainwater flood conditions with storm drain improvements along shoreline roadways – especially along Kapi‘olani Park’s Leahi Street and Paki Avenue across from Ala Wai Boulevard. The feasibility study recognizes that, despite ACOE’s well-intentioned flood control pursuits, “localized flooding could still occur due to internal drainage issues (e.g., along streets, etc.).”

These local deferred maintenance practices should be corrected regardless of any proposed flood control projects. A regular stream and culvert debris catchment and sediment cleaning and maintenance program must be responsibly instituted by the City and State to protect against flood conditions, regardless of the level of the event.

Further, private property owners should be encouraged with incentives to incorporate stormwater containment features and other active measures to protect their properties, as will also benefit the lower watershed.

In addition, strategically-placed upper elevation basin areas proposed for floodwater detention and debris catchment will serve to augment responsible and regular public maintenance of streams, crossings, channels, culverts and storm drains under any flood conditions. No private property should be taken for this purpose, and following such flood events the designated locations should be cleaned of collected debris and sediment, restored, and returned to their normal public uses and purposes in the public interest.

The ACOE feasibility study estimates Operations and Maintenance costs for the proposed flood control and mitigation plan to be $1 million annually, and further envisions that the non-federal sponsor, the Hawaii Department of Land and Natural Resources, “is responsible for O & M.” Has the State Legislature agreed and committed to this as a DLNR budget item? If not, such understandings between both the DLNR and the State Legislature through its House Finance and Senate Ways and Means Committees should be achieved and confirmed with notices of intent of budgetary allocation before proceeding further on this proposed project.

4. Central Reservoir

Given the envisioned example of a 100-year, 1% chance of occurrence, flood event[1] within the studied flood plain of 1,358 acres, and potential impacts (to public health and safety, including residents, students, workers and tourists**;** utilities, including power water, sewer and telecommunications**;** streets, including traffic control and emergency response**;** and other infrastructure, including fire and police stations, and hospitals, nursing facilities and emergency shelters), a centralized water reservoir midway between the upper water detention basins and the Ala Wai Canal would serve a multitude of purposes. Together with expanding the water retention and detention purposes of the proposed remote detention basins with a connection system, a centralized mid-level watershed reservoir on State land and/or expansion of the existing reservoir would help ensure the necessary increase in the provision of localized fresh water supply

O‘ahu Island has a finite fresh water supply. Existing subsurface aquifers are shrinking from the effects of high-density development and reduced recharge, and are threatened with toxic pollution from percolating jet fuel as well as corporate agricultural tract herbicides and pesticides. The formerly plentiful cane-field water recharge of the ‘Ewa aquifer has been significantly reduced by sprawling development replacing the irrigated fields and capping permeable surfaces. The Pearl City aquifer is in imminent danger of hydrocarbon infiltration and toxic pollution from leaking jet-fuel storage tanks.

Increasing population and urban high-density development is requiring more fresh water usage, further diminishing the island’s fresh water supply. The Board of Water Supply has been attempting to develop a water “master plan” based on present conditions, but this has been years in the making and has yet to be completed.

The increased reduction of Oahu’s fresh water supply demonstrates the growing need to supplement the diminishing fresh water supply and promote stream ecosystem restoration by providing non-potable water reuse and service connections for sustainable residential, hotel, and street landscaping, public parks, golf courses and agricultural uses, and various commercial and industrial uses. Separate non-potable water conveyance and storage should be integrated with the connected detention basin system, and a separate central fresh water reservoir system should properly and safely serve the residents and businesses within this ahupua‘a.

5. Kapi‘olani Park Karst Connection

The ACOE appears to neglect information provided by Cultural Surveys in the Ala Wai Canal Project Cultural Resources Appendix E. This relates to the 1998 Ala Wai Watershed Kaneloa Wetland Project in Kapi‘olani Park, where tilapia were discovered entering the wetland from a drainage opening during periods of heavy rain. It is known that this area is permeated with a natural underground drainage system within the coastal coral bed between the Ala Wai Canal and the Shoreline.

[1] A 1% ACOE flood prediction has a 1-in-100 chance of occurring in any given year, with a 26% chance of a 1% ACOE flood prediction over a 30-year period, and a 100% chance in a 100-years.

The ACOE should take into account that a calculated topping of the Ala Wai Canal during a 1%, 100-year flood event may be well reduced, and likely non-existent with this subsurface connection to Kapi‘olani Park’s wetland and the swale below sea level near the Waikiki Shell.

6. ACOE Evaluations and Determinations

Formulation of Alternative Plans and Strategies

It is noted on the ACOE “Formulation of Alternative Plans” diagram (ACOE Presentation slide #13) that the significant categories of Environmental Impact and Cultural Resources are placed at the bottom of the list. Please explain.

ACOE flood control strategies are listed as the following:

- Hold back water in upper Manoa and Palolo where most peak flows occur;
- Utilize water retention/detention basins to minimize stream channel modifications;
- Focus on the Ala Wai Canal area envisioned as having the highest flood risk.

Yet the feasibility study indeed recognizes the following:

- There are public acceptability issues with the proposed measures recommended over other alternatives;
- Using open space for water storage to reduce stormwater flood damage to urban areas;
- Detaining water in the upper watershed versus building floodwalls in Waikiki.

Adverse Effects

Adverse effects occur when a proposed undertaking has the potential to directly or indirectly alter any characteristics of historic properties, including sites, structures and landscapes, that have been listed on or are eligible for National and State Registers of Historic Places. Adverse effects are those that would directly, indirectly, cumulatively, or foreseeably in the future diminish or destroy the character and integrity of a historic property’s location, setting, feeling, design, materials, workmanship, or association within a historic complex or with important historic events or people.

ACOE has proposed a determination of “no adverse effect” for the Ala Wai Canal Project undertaking. The O‘ahu Island Parks Conservancy strongly disagrees with this determination.

Impacts and Mitigation

The ACOE’s summary of Impacts and Mitigation lists the following:

- “Potential adverse impacts primarily include:
  Biological resources
  Cultural Resources (no mention of Historic Resources)
  Visual Resources
  Recreation”

Further, the ACOE's summary of Impacts and Mitigation is fraught with circumvention, conjecture, misconception and/or misrepresentation, as follows:

- "Measures to avoid, minimize and mitigate impacts have been incorporated"

  This cannot be stated for the Ala Wai Canal historic complex or the Ala Wai Golf Course recreational open space.

- "Analysis did not identify significant, unavoidable adverse impacts that would remain after implementation of mitigation measures."

  This is highly irregular. Why were such identifications not performed?

- "Flood risk management benefits expected to outweigh remaining adverse impacts."

  This is a subjective and open-ended expectation, as several cumulative adverse impacts have yet to be resolved.

Programmatic Agreement Warranted

The ACOE appears to confuse the difference between avoiding adverse effects and mitigating such effects of the proposed project. Further, ACOE proposes findings of "conditional adverse effect" given unknown future conditions and modifications yet to be determined. In addition, the ACOE's claim of "no adverse effect" does not demonstrate that the proposed undertaking will or can avoid adverse conditions and impacts.

National Historic Preservation Act Section 106 requires that adverse effects shall be resolved prior to approval of the project undertaking, agencies' final decisions, and any expenditure of federal funds. Thus the ACOE's suggested intended attempts to "blend," work out", "solicit design" as "feasible" at a future time, together with the ACOE's proposed determination of "no adverse effect" at this time, are inadequate to meet such determination requirements under 36 CFR Part 800 for the proposed undertaking.

Therefore, a Project Programmatic Agreement is needed to resolve several foreseen adverse effects prior to publication of the Final Feasibility Report. The O'ahu Island Parks Conservancy supports development of a Project Programmatic Agreement between the ACOE and interested and affected state, city and community consulting parties to resolve the adverse effects associated with the Ala Wai Canal Project undertaking.

7. Ala Wai Golf Course and the Diamond Head Special District Protected Area

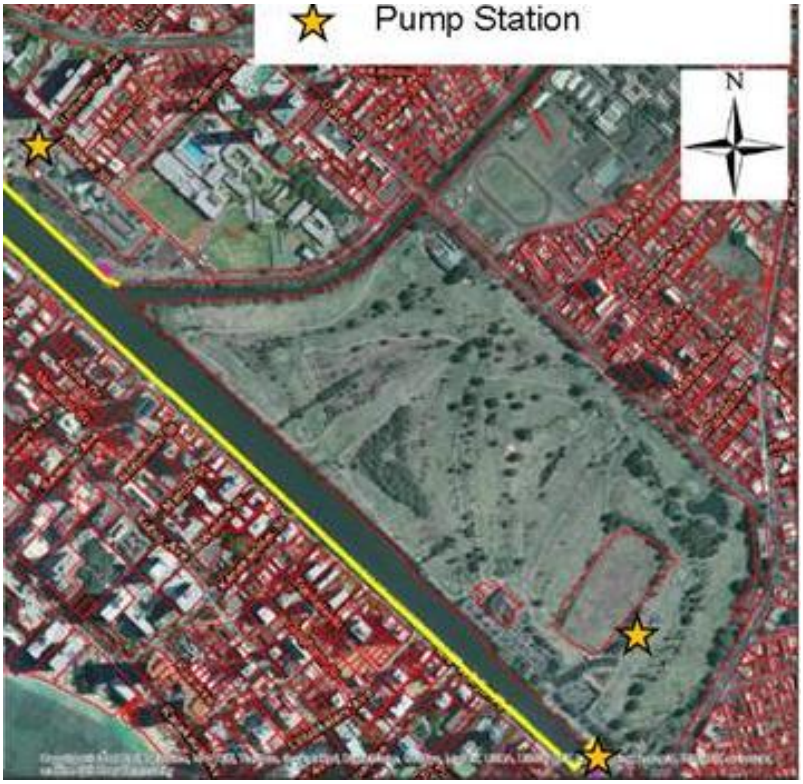
The ACOE completely avoids discussion of the fact that the historic Ala Wai Golf Course public recreational open space is protected under the regulatory guidelines of the Diamond Head Special District, and conversely proposes to industrialize this protected area. In addition, the Draft Feasibility Report fails to list Diamond Head Special District permitting requirements under Required Permits and Environmental Compliance.

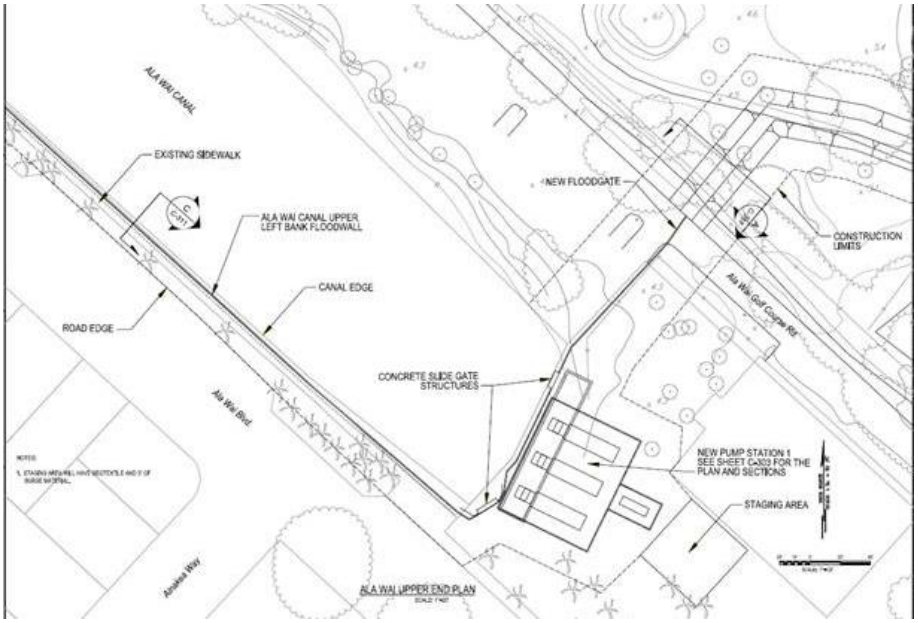
Diamond Head Special District Provisions, Land Use Ordinance of Honolulu
Chapter 21, Revised Ordinances of Honolulu, Section 21-9.40

> "Diamond Head is a volcanic crater that has been declared a state and national monument. Its natural appearance and prominent public views have special values of local, state, national and international significance and are in danger of being lost or seriously diminished through changes in land use and accompanying land development. In accordance with these findings and established pubic policies, it is necessary to protect the views of the Diamond Head monument."
>
> Diamond Head Special District boundaries include all of the Ala Wai Golf Course public open space, Ala Wai School, Ala Wai Park, Ala Wai Field, the historic Ala Wai Clubhouse and Canoe Hale at the McCully Street Bridge, Kapahulu Avenue from Date Street to the Shoreline, the Ala Wai Canal terminus and the Kapahulu Library, Ala Wai Boulevard fronting Jefferson School, the Jefferson School campus, Kapi'olani Park, Diamond Head Crater inclusive of its slopes and beach parks, and the residential areas surrounding the crater to the Kapahulu/Date Street intersection.
>
> Any cumulative, direct, indirect, and foreseeable effects of the proposed undertaking on the above Areas of Potential Effect (APE), including Kapi'olani Park and Diamond Head Crater, should be discussed and evaluated in the Feasibility Report and related documents.
>
> Objectives of the Diamond Head special district are to preserve existing prominent public views and the natural appearance of Diamond Head by modifying construction projects that would diminish these resources. Prominent Diamond Head Special District public viewplane vantage points include:
>
> - Ala Wai Boulevard from McCully Street to Kapahulu Avenue
> - Ala Wai Golf Course
> - Ala Wai Park and Ala Wai School
> - Date Street from the Manoa-Palolo Canal to Kapahulu Avenue
> - Kapahulu Avenue in the vicinity the Ala Wai Golf Course
>
> **The Diamond Head Special District designation for the Ala Wai Golf Course public open space is a zero (0) foot building height precinct.**

Yet, flying in the face of neglected Diamond Head Special District requirements and safeguards, the ACOE proposes to alter the historic, recreational and visual character of Ala Wai Golf Course and its significant views to and from Diamond Head by industrializing this protected recreational open space with three (3) industrial pump stations forty (40) feet in height and sixty (60) feet in width, each displacing 2,400 square feet, totaling 7,200 square feet, at the following locations with significant visual and physical impacts:

- ★ Ala Wai Canal terminus at Ala Wai Boulevard and Kapahulu Avenue
- ★ Ala Wai Golf Course open space in the vicinity of Date Street and Kapahulu Avenue
- ★ University Avenue terminus at Ala Wai Park and Ala Wai Elementary School


Pump Station
N



ACOE Industrialization of the Ala Wai Canal and Golf Course Open Space

The ACOE proposes four-story pump stations with flap/slide/sluice gates to prevent backflow via existing storm drains. The ACOE claims there is no alternative. This ignores substantial preventive and remedial functions that can be reasonably implemented for watershed flood control from the slopes of the Koʻolau Mountains, through the valleys and along the Ala Wai plain before reaching the Ala Wai Canal.

Apart from the above proposed conflicting industrialization and irreversible adverse impacts, reserving an area within this open space for water detention during any level of flood conditions appears to be a proactive measure with minimal impact to the scenic and recreational quality of this protected area. In addition, a contoured 24”+/- berm co-located and integrated with the golf cart path would appear to be compatible with the existing open space contours to not adversely impact the historic open space, protected viewplanes and public recreational use.

8. Ala Wai Canal

Significant Cumulative Adverse Impacts

The ACOE is proposing significant cumulative adverse impacts to the Ala Wai Canal's historic character and integrity, cultural recreational waterway and landscaped sense of place appreciated and enjoyed by residents and visitors alike. The ACOE proposes construction of concrete flood walls encasing the perimeter of the Ala Wai Canal historic structure, ranging from four (4) to five (5) feet in height and formerly proposed to be eleven (11) to thirteen (13) feet in height, to mitigate water overtopping the canal in the event of a 1%, 100-year storm. The ACOE claims there is no alternative to this fixed, irreversible impact to the Aa Wai Canal's historic structure and visual character and integrity. This claim ignores substantial preventive and remedial functions that can be reasonably implemented and increased for watershed flood control from the slopes of the Koʻolau Mountains, through the valleys and along the Ala Wai plain before reaching the Ala Wai Canal.

The Ala Wai Canal is a Historic Scenic and Cultural Resource. The Ala Wai Canal is a significant feature of Honolulu and its intrinsic qualities are appreciated by residents and visitors alike, who regularly experience the Ala Wai Canal's pedestrian promenade as a scenic greenway together with recreational waterway's resplendent cultural Hawaiian canoe paddling activities. Construction of alien floodwall encasements and pump stations will have a significant adverse effect on the Ala Wai Canal's setting, feeling, visual integrity and cultural association.

Recreational access must continue to be provided to and along the length of the Ala Wai Canal for public recreation and enjoyment without altering and disrupting its historic character, integrity, visual association and cultural use. Canoe slips proposed to be built into flood control walls would be unwieldy, difficult to access and dangerous.

The following registered and eligible historic structures will be significantly adversely impacted in their setting, feeling, visual integrity and association by the construction of this secondary wall:

- Ala Wai Canal, State Historic Register Site 50-80-14-9757
- Ala Wai Clubhouse and Boathouse, State Historic Register Site 50-80-14-1388/ Inventory # 90, at the McCully Bridge and Kapiʻolani Boulevard.
- Kalakaua Avenue Bridge, Inventory #2
- McCully Street Bridge, Inventory #3

Contrary to the ACOE claim that the proposed floodwalls and pump stations will result in "no adverse effect" on the above historic properties within the construction footprint, and regardless of ACOE intended attempts to "blend," work out", "solicit design" as "feasible," the proposed connection of floodwalls and a floodgate directly attached to the historic Ala Wai Clubhouse and Canoe Hale will have a significant adverse impact on the historic design integrity and structural character of this historic building. Further, proposed the construction of floodwalls encasing the historic Ala Wai Canal, as well as the proposed addition of three four-story pump stations within the adjacent protected public open space, will significantly cumulatively adversely impact the historic character and integrity of the Ala Wai Canal, its associated contiguous historic features, and the protected viewplanes from and toward Diamond Head, Waikiki and the Ala Wai Golf Course public open space.

9. Aesthetic Improvements

The ACOE claims future opportunity to "partner with organizations to aesthetically improve flood measures." The most necessary aesthetic improvements to the proposed undertaking will be to eliminate the proposed artificial wall encompassing the historic Ala Wai Canal and the four-story pump stations within the adjacent protected public open space.

10. Waikiki and Sea Level Rise

The ACOE estimates 3 feet of flood water moving through Waikiki in the event of a 1%, 100-year flood, and 1-1/2 feet of water moving through Waikiki in the event of a 50-year flood if inland floodwaters top the Ala Wai Canal. This does not appear to take into account the natural subsurface drainage system between the Ala Wai Canal embankments and the Shoreline that is also connected to Kapiʻolani Park wetland and swale areas. Thus this estimate may amount to zero (0).

In addition, in 100 years or less by recent updates, 3 to 4 feet of sea level rise will cause ocean water to move through Waikiki. Will this necessitate the same extreme measures of building walls around the entire perimeter of Waikiki? If so, public monies might be best used for such planning instead.

11. Conjoined Public Review Documents

Since an Environmental Impact Statement, as should be developed in accordance with the National Environmental Policy Act (NEPA) and Hawaii Revised Statutes (HRS) Chapter 343, has been optionally integrated with the Draft Feasibility Report, we must express strong concern that these two distinct documents have been "integrated."

The combination of a draft planning report with an environmental impact statement precludes public due process for each separate and distinct document**:** the first as a preliminary planning document for a recommended project, and the second as a disclosure document for potential environmental effects and impacts of said project. The latter must be developed on the findings, review comments and revisions of the former. Notably, throughout the Draft Feasibility Report the following footnote appears:

"THIS DRAFT DOCUMENT IS BASED ON THE INFORMATION AVAILABLE AT THE TIME OF PUBLICATION . . . IT IS POSSIBLE THAT THE CONTENT HEREIN MAY CHANGE AS A RESULT OF REVIEW COMMENTS RECEIVED."

Indeed, a Final Feasibility Report should address the draft Report's omissions, oversights and shortcomings together with recognition of the stated concerns, considerations and recommendations provided through comprehensive public comments delivered in response to the Draft Feasibility Report. Further, given the shortcomings and oversights within the ACOE Draft Feasibility Report, the conjoined Environmental Impact Study prevents proper sequence of adequate public review and comment, first on the Draft Feasibility Report and followed by the Environmental Impact Statement review process, including a Draft Environmental Assessment with the Findings of Significant Impacts and the Draft Environmental Impact Statement, both with required opportunities for public comment before the final documents are issued and potentially approved.

The present, incomplete Draft Feasibility Report should substantially benefit from the many significant comments provided in response to this draft to produce a revised and refined Final Feasibility Report so as not to continue to confuse the public. Further, the Draft Environmental Assessment and Draft Environmental Impact Statement are separate documents that should be sequentially provided for required public review and comment.

By combining the draft feasibility and environmental disclosure documents from the outset, regardless of such option provided under 40 CFR 1502.25, the ACOE has in effect halved the requisite opportunity for comprehensive public review and comment with the absence of a Draft Environmental Assessment and Draft Environmental Impact Statement developed from the Final Feasibility Report. Noting the ACOE timeline, the often erratic and unpredictable schedule of the US Congress should not be dictating that approval is needed by 2017 in order to begin construction in 2021, thus shortcutting comprehensive analysis, fast-tracking public comment in avoidance of due process, and thwarting necessary reconsideration and refinement of the presently proposed Ala Wai watershed flood control measures and their cumulative effects.

US Army Corps of Engine
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Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Michelle Matson
Oahu Island Parks Conservancy
e-mail: msmatson@hawaii.rr.com

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Concerns related to the integrated Feasibility Study and Environmental Impact Statement (FEIS)
- Concerns regarding public outreach
- Alternative Plan Selection
- Concerns of affected landowners regarding real estate acquisition
- Operations and maintenance of the project features
- Aesthetics of the floodwalls and pump stations
- Concerns regarding sea level change

For Federal decision documents, integrating Feasibility Study reports with NEPA documents is allowed under 40 CFR 1500.4(o) and 1506.4 and is required under USACE Engineering Regulations (ER) 1105-2-100 unless an exception is warranted. The integrated FEIS, therefore, is the standard utilized for decision documents. At a Federal level, the National Environmental Policy Act (NEPA) public review process is no different for integrated documents than separate Feasibility Reports and Environmental Impact Statements.

Public involvement and agency coordination is summarized in Section 6 of the FEIS. Initial scoping of the EIS was conducted in 2004 with a supplemental scoping meeting conducted in 2008. Table 38 details public and agency coordination that has been undertaken since the re-scoping of the study in 2012. This includes over forty separate outreach measures. In addition, a public meeting to review the FEIS during the public review period was conducted in September 2015 along with multiple follow-up meetings with legislators, interested stakeholders and neighborhood commissions. No further public meetings are planned during the feasibility phase of the FEIS.

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. Details regarding planning considerations leading to the development of alternative plans can be found in Section 3 of the FEIS. The economic analysis presented in the Feasibility Report and integrated Environmental Impact Statement uses the standard methodology prescribed by the Water Resources Council's "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" and the USACE ER 1105-2-100. All flood risk management alternatives considered for the study have a variety of impacts; there is

no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

Designs associated with the FEIS are developed to a 35% level in order to adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the designs of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. Materials utilized in the designs may also be reevaluated to meet site conditions.

Implementation of the recommended plan will require the acquisition of private property. The exact timing of land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. A property by property assessment will be conducted in coordination with the non-Federal sponsor after project authorization, if the project is authorized by Congress.

Operations and maintenance are the responsibility of the non-Federal sponsor which may be State or local government. Debris and detention structures are intended to pass normal stream flows without impounding water. The structures are designed to function only during storm events, therefore, no impoundment of water is anticipated outside of such storm events nor is a significant increase in groundwater recharge expected. The non-Federal sponsors must enter into a Project Partnership Agreement with USACE to construct the Project. This agreement sets the required cost sharing of the Project between the non-Federal sponsors and the Federal government and requires that the non-Federal sponsors be solely responsible for the operation and maintenance of the Project. The sponsors are responsible for financing their local share and operation and maintenance costs.

The design of project features is focused on the most economical design that will provide the needed function while observing compliance with applicable Federal law. Pump stations are above ground to avoid costs associated with sub-surface placement and must contain maintenance features which will

allow for annual remove and inspection of pumps. The design of floodwalls and the pump stations must meet the criteria set forth in Section 106 of the Historic Preservation Act. This design will be coordinated with the State Historic Preservation Office to ensure appropriate design aspects are integrated into the project to ensure preservation of the historic value of the area. A programmatic agreement has been executed between agencies to memorialize the negotiated outcome of these discussions.

Coastal storm damage and flood risk management are separate authorities for USACE. Coastal storm damage in the study area would primarily focus on wave run-up to the shoreline and the resulting flooding, whereas, flood risk management will focus on riverine flooding from rainfall runoff in the watershed. The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. While implementation of the recommended plan may produce a benefit from wave run-up through the canal reaches, protection from coastal storm damage to Waikiki would involve study of shoreline protection measures which is not a part of this study.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

Nancy L. Marker
2740 Kuilei St. #804
Honolulu, HI 96826

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858
Submitted via E-mail: AlaWaiCanalProject@usace.army.mil

State of Hawai'i, DLNR Engineering Division
ATTN: Gayson Ching
P.O. Box 373
Honolulu, HI 96809
Submitted via E-mail: Gayson.Y.Ching@hawaii.gov

November 9, 2015

RE: **RE: Draft Feasibility Report and Integrated Environmental Impact Statement (EIS) for USACE Ala Wai Canal Project**

As a Moiliili resident I thank you for this opportunity to submit comments on the DEIS and for your public meetings. I regularly observe the Streams and Canal and pay attention to their conditions, especially during heavy rains. In our highly urbanized neighborhoods, health and safety concerns are a priority as is the quality of living in a pleasing, attractive environment that supports people, animals and plants. Our water quality and our ability to enjoy activities along our waters and green spaces are important to Honolulu residents.

From the documents and presentations it appears that the Ala Wai Canal flood mitigation project will make important improvements for the resiliency of the Ala Wai Watersheds and help mitigate flood risk, most clearly in Waikīkī. In conjunction with other potential government, community-based, and private sector activities to protect our neighborhoods and to address the environment and aesthetics of these communities, the Canal project is worthwhile.

These impacts of the proposed design and construction of the project on Moiliili stand out in what I've read and viewed:

First, the overflow onto Ala Wai Golf Course may pose a greater hazard to Moiliili residents and institutions (Ala Wai School and Iolani School) than anticipated. It appears that in order to protect Waikiki, the plan calls for allowing overflow on the golf course, a recreation site and our side of the Canal. This provides no protection in Moiliili (aside from the proposed wall) in the case that the Ala Wai Golf Course cannot retain the projected 1%

floodwater. This section of the plan to prevent Moiliili (and possibly Kapahulu) flooding needs more explanation and time for community review.

Second, the design for the two walls along the Canal should be at the same level rather than having Waikiki's wall be higher than Moiliili's.

Third, the affected areas would be better served with underground detention basins with pumps because it would reduce the surface footprint, thus allowing for better use of limited space in the city. Admittedly, these would be more costly but this is the type of measure taken in a city that cares about its urban, livable environment.

Lastly, the original Canal construction that was completed without the Kapahulu outlet appears to have created the problems we've had these years with flooding and flushing of the Canal and its contents. The need remains today for two outlets to the sea not just at the Ala Wai Boat Harbor that becomes filled with debris.

Thank you for this opportunity to provide comments.

Sincerely,

Nancy L. Marker
Moiliili resident

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Nancy Marker
2740 Kuilei Street, #804
Honolulu, HI 96826

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Level of protection in the vicinity of Ala Wai Canal
- Consideration of sub-surface storage for flood risk management
- Constructing a secondary outlet on Ala Wai Canal

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. Details regarding planning considerations leading to the development of alternative plans can be found in Section 3 of the FEIS.

The recommended plan includes a floodwall on both sides of the canal and a levee on the perimeter of the Ala Wai Golf Course. The elevation of the top of the floodwall is generally equal on both sides of the canal and corresponds to the 100-year (1-percent chance annual exceedance) flood elevation. The current design does not intentionally flood one area over another. If the floodwall were to overtop, there are two pump stations that will assist in the removal of water from the landward side of the floodwall.

Table 3 of the report details a number of different management measures considered in the initial array. This includes sub-surface storage of stormwater for the purposes of managing stream flows. This idea was eliminated from further consideration due to the limited storage capacity and high implementation costs.

Of historical note, Ala Wai Canal was originally designed with a secondary outlet. This outlet was never constructed and would have negligible effect of water surface elevations within the canal due to the tidal connection. Section 3.6.3 of the FEIS includes documentation of this consideration however the measure was eliminated due to its ineffectiveness and environmental impacts.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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From: Montana Hunter
To: Ala Wai Canal Project
Subject: [EXTERNAL] Question
Date: Friday, November 06, 2015 2:04:20 PM

Hi,
My name is Montana Hunter. I am a junior at Iolani and I just had a few questions about the project for a journalism story I am writing.

Has there been any opposition to the plan? If so what kind/from who?

How much money and time will it take for the project to be completed if put into action?

What are expected advantages and disadvantages to the project?

If you could please answer these questions or add anything else that I could use in my story that would be fantastic.

Thank you,
Montana

US Army Corps of Engineers
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Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Montana Hunter
e-mail: mkh1702@iolani.org

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Opposition to the recommended plan
- Schedule and budget for construction
- Advantages and disadvantages of the project

In compliance with the National Environmental Policy Act (NEPA), the Federal government has developed an integrated FEIS to document the decisions related to the Ala Wai Canal Flood Risk Management Study. As a part of this process, the draft FEIS is released to the public and USACE holds a public hearing to discuss the study with interested parties. It is not uncommon for citizens directly and indirectly affected by the recommended plan to have concerns with a Federal study. During this study, USACE received 62 comment letters from interested parties. As noted below, the comments received and subsequent responses will be included in an appendix to the final FEIS.

Section 8.12 of the FEIS (Section 8.13 of the final) contains the implementation schedule for the recommended plan which includes a design phase (2018-2020) and a construction phase (2021-2024). Implementation costs are estimated in Section 8.9 (Section 8.2 of the final) and total approximately $306 million which would be cost-shared between the Federal government and a non-Federal sponsor.

Table 14 contains a quick comparison between doing nothing (the No Action Alternative) and the two alternatives of the final array. Selecting a recommendation is a comparison of tradeoffs between plans. Section 5 contains a much more in-depth analysis of the specific differences between the plans. All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. The recommended plan is included in Section 8 of the FEIS.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

From:	clucas9@gmail.com on behalf of C. Kaui Lucas
To:	Ala Wai Canal Project; Gayson.Y.Ching@hawaii.gov
Subject:	[EXTERNAL] Ala Wai Canal Project
Date:	Monday, November 09, 2015 8:24:34 PM

Honolulu District, U.S. Army Corps of Engineers
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858
email: AlaWaiCanalProject@usace.army.mil <mailto:AlaWaiCanalProject@usace.army.mil>

State of Hawai'i DLNR Engineering Division
ATTN: Gayson Ching
P.O. Box 373
Honolulu, HI 96809
email: Gayson.Y.Ching@hawaii.gov <mailto:Gayson.Y.Ching@hawaii.gov>
Testimony Re:
Ala Wai Canal Project, O'ahu, Hawai'i
Feasibility Study With Integrated Environmental Impact Statement
Public Review Draft Report: August 2015

Attention:
The Ala Wai Canal Project/USACE
and
Gayson Ching/DLNR

Fellow Outdoor Circle member Pauline MacNeil submitted an exceptionally well thought out and presented testimony, with which I fully concur. I will repeat here only her summary:

1. The Corps of Engineer's efforts in flood water attenuation and retention should focus on the mid and upper level sub-watershed areas.

2. A four foot wall along the Ala Wai Canal should not be built.

3. More community input and review are needed before an EIS is submitted for approval.

To which I add,

4. the loss of the soccer field to a pump station in the Ala Wai Golf course is too great a loss to the community. The Community at large would be better served by a reduction tin the golf operation area.

5. Fifteen years ago native water plants were successfully employed for water quality remediation, that program should be re-instated and expanded.

6. Reducing channelization, increasing permeable surfaces, and storm water retention on smaller scales are less expensive and far better long term strategies.

7. Rather than separating the Ala Wai Canal further visually and physically, we should incorporate it into an overall redesign of the canal/golf course ecosystem which makes it more safe, clean and user friendly for residents and visitors. Paris has recently done this along the Seine. <http://lesberges.paris.fr/en/become-a-partner/> Two years

ago the project completed its first section, and I happened to be there. This year again I was lucky enough to be invited to Paris and was able to see how it has become a focal point of the city and they've expanded the project to the other side of the river. There's more than one way to divert storm water.

malama honua,

Kaui Lucas

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Kaui Lucas
e-mail: clucas9@gmail.com

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Aesthetics of the floodwalls
- Concerns regarding public outreach
- Improvement of water quality within Ala Wai Canal

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed.

USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

The design of project features is focused on the most economical design that will provide the needed function while observing compliance with applicable Federal law. The design of floodwalls must meet the criteria set forth in Section 106 of the Historic Preservation Act. This design will be coordinated with the State Historic Preservation Office to ensure appropriate design aspects are integrated into the project to ensure preservation of the historic value of the area.

Public involvement and agency coordination is summarized in Section 6 of the FEIS. Initial scoping of the EIS was conducted in 2004 with a supplemental scoping meeting conducted in 2008. Table 38 details public and agency coordination that has been undertaken since the re-scoping of the study in 2012. This includes over forty separate outreach measures. In addition, a public meeting to review the FEIS during the public review period was conducted in September 2015 along with multiple follow-up meetings with legislators, interested stakeholders and neighborhood commissions. No further public meetings are planned during the feasibility phase of the FEIS.

Unfortunately, the issue of water quality improvement is not a topic addressed by the FEIS nor does USACE have the authorization to study that issue. It is suggested that you contact the State of Hawaii Department of Health for information related to water quality.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

Ala Wai Watershed Association
2146 St. Louis Drive
Honolulu, HI 96816

November 9, 2015

To: Ala Wai Canal Project
Honolulu District, US Army Corps of Engineers
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858

From: Karen Ah Mai, Executive Director

Subject: Comments on AWC Project DEIS

Thank you for attending the **Community Conversation** on the Ala Wai Canal Project on October 5, 2015 sponsored by the South Oahu Soil and Water Conservation District, the Ala Wai Watershed Association, and the League of Women Voters Environment Committee. We think the format enabled landowners to respectfully express their concerns regarding their properties to real people, one-on-one, rather than to a monolithic person behind a microphone. Judging from the extended interaction of attendees after the session ended, it brought people together and enhanced the connection between the Corps (and DLNR) and the community. Special thanks to Michael Wyatt, Michael Wong, and Gayson Ching (DLNR) for their presence.

Comments

1. Most of the public are not capable of understanding the technical aspects of flood mitigation in the Ala Wai watershed. They tend to be most concerned with effects of the project that have an immediate impact on their properties. We suspect that many comments will concentrate on these.

2. However, in the larger context, we see flood mitigation as only one component in the protection of the watershed leading to the possible inundation of the low-lying areas, the Ala Wai Canal, and Waikiki. Other factors include ecosystem restoration and maintenance, disaster preparedness, community resiliency, and the incorporation of community benefits into the structural elements proposed. Taken together, a successful cooperative venture can be accomplished that would benefit most. If only the structural elements are considered, along with negative impacts to specific properties, the project's long-term success is questionable.

3. We are aware that the Corps is restricted to certain types of activities related to their core mission. Communication with the community is important to avoid a backlash of public opinion. We note the lingering resentment for Hawaii's Superferry venture and the H-3.

We also note the Corps' project at Hoomaluhia Botanical Gardens, providing public benefit and enjoyment 99% of the time, while serving as flood protection for surrounding communities. We hope that this would be a model for the Ala Wai project.

4. We highly encourage community interaction for the Corps project with the understanding that it is only one component of the defense against devastating flooding. Residents and businesses must also be prepared. Give-and-take in engineering designs would also be requisite to involve the stakeholders in survival and resilience plans. At this time, from public comments, we do not sense whole-hearted support behind the project. The checklist delivery of information from Corps to public is insufficient. Interaction and stakeholder involvement is key – it is a relatively inexpensive investment that would be well worth it in the future.

   It is not within the Corps' purview to accomplish the external elements but it is within their capacity to accommodate the community's concerns so that other entities can be encouraged, not stifled, in providing the political will for maintenance and in building resilience needed if the 1% occurs.

US Army Corps of Engine
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Karen Ah Mai
Ala Wai Watershed Association
2146 St. Louis Drive
Honolulu, Hawaii 96816

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Concerns regarding public outreach
- Absence of ecosystem restoration features within the recommended plan

Public involvement and agency coordination is summarized in Section 6 of the FEIS. Initial scoping of the EIS was conducted in 2004 with a supplemental scoping meeting conducted in 2008. Table 38 details public and agency coordination that has been undertaken since the re-scoping of the study in 2012. This includes over forty separate outreach measures including a presentation to your organization. In addition, a public meeting to review the FEIS during the public review period was conducted in September 2015 along with multiple follow-up meetings with legislators, interested stakeholders and neighborhood commissions. No further public meetings are planned during the feasibility phase of the FEIS.

As noted, the Ala Wai Canal study was originally developed as a multi-purpose flood risk management and ecosystem restoration study. Congressional mandates forced USACE to focus on critical issues with the study area to bring the on-going study to a conclusion within a mandated three year period, starting in late 2012. Discussions during this time between the USACE Honolulu District, USACE Headquarters, and the non-Federal sponsor, the DLNR, led the study team to focus exclusively on the flood risk portion of the study. This is the foundation of the current recommended plan. Opportunities for ecosystem restoration within the Ala Wai Canal Basin remain and are currently being evaluated by the non-Federal sponsor and others, however, ecosystem restoration features will not be a part of the FEIS recommended plan or a Federal recommendation to Congress.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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November 2, 2015

Christopher W. Crary
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Honolulu, Hawai`i 96813
Gayson.Y.Ching@hawaii.gov

RE: Ala Wai Canal Project, O`ahu, Hawai`i Feasibility Study
With Integrated Environmental Impact Statement

Hawaii's Thousand Friends (HTF) has the following comments on the proposed Ala Wai Canal flood control project.

The EIS states that while maintenance of stream channels is shared between property owners who own to the middle of a stream channel and the City and County of Honolulu (CCH) regular maintenance has been limited to the properties and bridges owned by CCH or the State of Hawai`i.

The EIS points out, "There is no regular comprehensive maintenance program for the entire stream system within the watershed."

2.1.1 Flood related problems states that the CCH storm drainage system is aging and in need of improvements to "meet the present day development and runoff levels." While CCHs drainage system is not in the scope of this EIS project it is assumed that for the project to operate effectively a reliable and functioning storm drainage system is essential.

The EIS states that CCH is preparing storm drainage plans. Where in the approval, funding and implementation process are CCHs plans? What is the scope of those plans?

Where in the approval, funding and implementation process are the projects needed to address storm drainage issues within the project area?

What are the short and long-term and cumulative adverse impacts to the operation and effectiveness of each facet of this project if CCH does not implement needed storm drain improvements?

While Operational and Maintenance (O&M) activities for project structures are outlined in the EIS identification of government agencies responsible for operation and maintenance of the various aspects of the project such as 1) cutting and clearing vegetation from debris and detention basins and multi-purpose detention basins including sediment removal twice a year, 2) cleaning accumulated debris twice a year, 3) inspecting and repairing floodwalls, 4) inspecting for erosion and 5) on going mowing and vegetation clearing from certain areas are not identified.

What government agencies will be responsible for each of the above maintenance activities?

If government agencies and their specific responsibilities are not identified for O&M it is feared that once again there will be "no regular comprehensive maintenance program" and structures will fall into disrepair and stream health and native flora and fauna will negatively impacted and further decline.

The EIS and Appendix E mentions O&M for structures but there is little to no mention of monitoring the health of each stream. Since trees will be cut, stream beds disturbed and altered, and new structures built in the streams it is critical for the streams to be monitored for increase or loss of in-stream and riparian habitat, increase or decrease of native stream life, and increase or decrease of native birds who use these streams for foraging, nesting and habitat.

Once structures are built and streams altered which government agency or agencies are responsible for monitoring the health of the streams ecosystem to ensure that the streams are healthy and native plants and animals that rely on them are thriving?

What agency(s) are responsible for monitoring the streams during construction? Is there a stream monitoring plan?

If it is discovered that that stream alteration and construction of structures within each stream has had a devastating affect on the stream ecosystem, native aquatic species and plants and animals what agency(s) are responsible for correcting the decline?

What remedies will be implemented to help reverse any detected decline in native aquatic and plants and animals within the project streams and area?

Before this EIS is accepted government agencies and their Operational and Maintenance responsibilities must be identified. Including responsibility for monitoring stream ecosystems.
Hawaii's Thousand Friends is extremely troubled by the statement "Biological assessment was transmitted to the USFWS with a request for concurrence with the USACE's determination that the *project may affect but is not likely to adversely affect* the Hawaiian hoary bat, O`ahu `elepaio, and coot, stilt and moorhen." (Emphasis added)

The severity, duration, and physical scope of the adverse impacts associated with this mega project and proposed actions on the fragile and finite native aquatic, plants and animals within the streams and project area warrant special attention and should not be summarily dismissed.

When Hawaii's endemic federally listed threatened and endangered birds like the O`ahu `elepaio are counted in the dozens, 12 birds (5 pairs and 2 single males) within one area that shows that the population is not stable. Any loss of critical habitat, nesting and foraging areas could reduce this fragile population further.

Given the precariousness of Hawaii's endemic and endangered native species isn't the loss of even one O`ahu `elepaio, it's nesting or foraging areas an *adverse affect?*

The EIS only considers impacts to the Oahu `elevation during nesting season January through June.

What are the anticipated short and long-term, direct and indirect and cumulative adverse impacts from construction activities, placement of fill in streams, cutting and clearing riparian vegetation and building structures in the project area streams on the O`ahu `elepaio's foraging, nesting and resting areas in the other months?

What are the anticipated short and long-term, direct and indirect and cumulative adverse impacts to the O`ahu `elepaio if the continuous tree canopy and dense understory is removed?

What is the difference between "may affect" and "not likely to adversely affect?

HTF is offended by the statement "based on project review at the charrett, ecosystem restoration was eliminated as a study objective, as it was determined that the biological resources within the watershed *do not have enough national significance* to adequately justify ecosystem restoration as an objective." (Emphasis added)

The fate of Hawaii's native flora and fauna should be of national concern since our islands have the dubious distinction as the endangered species capital of the world with many of our islands remaining native species counted by the dozens and single digits.

Hawai`i makes up less than 0.2% of U.S. land, but over 25% of species found on the nations endangered species list are endemic to Hawaii.

Preserving Hawaii's diminishing biological resources and endemic species should be a priority and not summarily dismissed as not being *nationally significant.*

What threshold must our endemic and endangered native plants and animals have to reach before being considered *nationally significant*?

ES-16 Environmental Consequences
This section states that, no "identified significant, unavoidable adverse impacts would remain after implementation of proposed mitigation measures" but this is only in reference to impacts to residents and tourists.

There is no reference on how the limited mitigation measures would protect Hawaii's stream ecosystems and native plants and animals even though it was found that there would be:

- Increased channel/bank erosion due to construction
- A new 600 ft culvert along Manoa Stream
- Increased sediment and associated pollutants in stormwater runoff during construction
- Accidental release of hazardous materials during construction
- Displacement of kukui copse at Makiki Detention Basin, and niu and milo trees along Ala Wai floodwall.
- Impacts to in stream aquatic habitat. Approx 1,638 linear ft of stream within construction limits would be lost; compensatory mitigation would be implemented (removal of existing barriers to native species passage at 2 in stream structures
- Potential impacts to Hawaiian hoary bat from construction
- Potential impacts to Oahu `elevation from construction activities
- Potential impacts to Hawaiian waterbirds from construction-related disturbance and increased predation in detention basin during inundation
- Potential impacts to blackline Hawaiian damselfly from construction activities (use of heavy equipment, vegetation removal).

It is not sufficient to state that BMPs will be used without describing the practices in detail including when and where they will be used.

What specific BMPs will be used prevent short and long-term, direct and indirect and cumulative adverse impacts to each streams ecosystem, native aquatic life and plants and animals during construction and after projects are completed?

It is not acceptable to state that approximately 1,638 linear feet of stream within construction limits would be lost but mitigation measures at other streams should compensate for the loss. Each stream is its own diverse ecosystem, which cannot be compensated by measures in two other streams.

What are the anticipated direct and indirect, short and long-term and cumulative adverse impacts to each stream ecosystem and native species within the 1,638 linear feet?

It is unacceptable to state that the placement of 1,234 cubic yards of fill is *less than significant with implementation measures* without defining how the fill will not be insignificant.

What are the anticipated direct and indirect, short and long-term and cumulative adverse impacts on each stream, ecosystem and native plants and animals that will receive fill?

Describe the specific implementation mitigation measures to be used in each stream to combat the negative impacts of construction activities, placement of structures in streams and placing fill in a streambed.

What are the BMPS that will be implemented to prevent and clean up "accidental" releases of hazardous materials?

Identify the BMPS that will be used to prevent increased sediment and stormwater runoff into streams during construction.

The EIS does not provide specific information on where or what trees can be relocated or replaced. Maintaining a healthy tree canopy is critical to ensuring a vibrant understory needed for nesting, resting and foraging.

The determination of "less than signification with mitigation" in relation to tree removal and relocation is insufficient information.

Identify the trees and their location that are slated for removal. Identify the trees and their location that are slated for relocation and identify the relocation sites. Identify the types of trees that will replace displaced trees and identify the location of each.

5.4 Surface Water Resources

Hausten Ditch, as it is now called, is part of a much larger under ground karst and spring system, This underground system once fed many ponds located above an existing network of lava tubes and is a conduit for the waters flowing from Manoa Stream to the ocean off Waikiki.

Blind mullet, blind spiders and shrimp inhabit this underground system, which has a perennial flow.

In 1934 the pond was abruptly lost when a construction accident struck a master conduit of the underground network. The water drained causing a drastic lowering of the water table that had sever consequences for the surrounding area – sidewalks split, water and gas mains ruptured, trees sank, and houses rose and settled.

This proposed project adds a detention/pump system with concrete floodwalls with four floodgates and disturb 70 feet of the stream and require 26 yards of fill.

What are the anticipated direct/indirect, short and long-term and cumulative adverse impacts on the existing underground water system and its inhabitants?

Do the losses at Housten Ditch mentioned in Appendix E refer to adverse impacts to the subterranean inhabitants or the fish and wildlife in the stream?

Water Quality
The high levels of fecal coloriform, enterococcus bacteria, pesticides, and trace metals, found in the Ala Way Canal is not surprising since it is a closed system with no natural flushing ability. What is surprising is the detection of dieldrin and chlordane in fish and Manoa Stream bed that exceed life and wildlife protection guidelines.

Manoa Stream, Makiki Stream, Palolo Stream and the Ala Wai Canal all within the project area have been placed on the Clean Water Act Section 303(d) List of Impaired Waters. For each water body on the Section 303(d) list, a Total Maximum Daily Load (TMDL) must be developed. Unfortunately, the State Department of Health has given the establishment of TMDS a low priority.

If TMDLs are not created for eligible and listed streams what are the anticipated long and short-term, direct and indirect and cumulative adverse impacts to each stream ecosystem, native aquatic species, plants and animals and the ocean? How will these adverse impacts be mitigated?

What are the short and long-term, direct and cumulative adverse impacts on human health, stream flora and fauna from placing fill and doing construction work in highly contaminated project area streams?

What are the short and long-term, direct and cumulative adverse impacts on existing human health and near shore ecosystems from doing construction and placing fill in streams whose contaminated water flows into the ocean?

What "analysis" is referred to in the statement "Although some degree of impact would occur, the analysis has not identified significant, unavoidable adverse impacts that would remain after implementation of proposed mitigation measures"? What does "unavoidable adverse impacts" refer too?

Freshwater Aquatic Species
Hawaii's native freshwater fish are limited to five goby (o`opu) species, including one indigenous (o`opu nakea) and three endemic (o`opu alomo`), o`opu nopili, and o`opu naniha and one endemic eleotrid (o`opu akupa). Native stream species also include several shrimp species and mollusk.

The lifecycle of these species requires the adults to live and breed in freshwater streams where newly hatched larvae drift to the ocean where they remain for several months before migrating back to freshwater habitat. As Hawaii's streams become hardened and channelized this migration becomes very more challenging.

It is noted that while not abundant native species have been documented in all the streams in the project area including the Ala Way Canal. So it is evident that even against great odds these native aquatic species are able to migrate and maneuver through streams that are degraded and fragmented. The question is what and when is the final point of no return. Will placing fill and building structures in these vulnerable streams be the final blow to the fragile and finite aquatic population?

We note that some mitigation measures are planned but those measures are way to few to combat the extreme amount of disturbance that will take place in and around the streams in the project area.

The fate of the native aquatic species must be taken seriously and more protective measures even avoidance must be put in place before this project can proceed.

What are the long and short-term, direct and indirect and cumulative adverse impacts from construction in the project area streams, placement of fill and creation of permanent in the project area streams structures on the native aquatic species that rely on the stream and ocean connection?

Will unobstructed pathways be created in each stream and remain open during construction activities so that the evasive goby and shrimp can be swept out to sea and migrate back to complete their life cycle?

Protected Species and Critical Habitat

Potential impacts to the Federal and State listed hoary bat have been identified during construction, use of heavy equipment and vegetation removal. The only mitigation measures is to remove vegetation outside the breeding season (June 1 through September 15) and require all construction activities to occur during daytime hours to avoid potential bat foraging activities.

What are the short and long-term, direct and indirect and cumulative adverse impacts to the hoary bat's ability to nest and forage from constant construction noise during the day, loss of tree canopy and removal of vegetation?

Identify the streams where dewatering techniques will be implemented.

What are the short and long-term, direct and indirect and cumulative adverse impacts of dewatering on each stream ecosystem, the native aquatic and bird species that rely on a steady flowing stream for foraging?

What are the short and long-term, direct and indirect and cumulative adverse impacts to stream ecosystems, stream flows, and aquatic migration from dewatering streams and routing stream flows through pipes?

What are the short and long-term, direct and indirect and cumulative adverse impacts to stream ecosystems, native aquatic and birds when a pump is used to dewater a stream?

In conclusion the EIS reveals that native aquatic species, plants and animals and their habitat, nesting and foraging areas will be directly and indirectly adversely affected for the long term or completely lost by construction activities, placement of fill in stream beds, dewatering and loss of tree canopy.

The EIS reveals that fill placed in streambeds will migrate to the near shore waters at the mouth of the Ala Wai Canal increasing turbidity and smothering near shore ecosystems

The EIS reveals that increased sediment will create a smoother stream bottom substrate degrading water quality and significantly impacting essential fish habitat.

HTF understands the intent of this project is to reduce riverine flood risks in the Ala Wai Watershed but question whether the project needs to be so extension, invasive and devastating to the native plant, aquatic and animal species who rely on these streams for habitat, foraging and life cycle.

Section 7 of the Endangered Species Act (ESA; 16 U.S.C. 1536) prohibits Federal agencies from authorizing, funding, or carrying out activities that are likely to jeopardize the continued existence of a listed species or destroy or adversely modify its critical habitat.

According to the EIS this project will do all of these and should be reconsidered.

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Hawaii's Thousand Friends
300 Kuulei Road, Unit A, Suite A
Kailua, HI 96734

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Assessment of environmental effects
- Implications of Aging and Undersized Infrastructure
- Operations and maintenance of the project features
- Impacts to Endangered Species and Habitat Loss
- Loss of trees associated with the recommended plan

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. Details regarding planning considerations leading to the development of alternative plans can be found in Section 3 of the FEIS. The economic analysis presented in the Feasibility Report and integrated Environmental Impact Statement uses the standard methodology prescribed by the Water Resources Council's "Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies" and the USACE ER 1105-2-100. All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 5 in particular includes detailed analysis of the effects of the final array of alternative plans on the environment, including consideration of the following issues:

- Geology, seismicity and soils
- Groundwater resources
- Surface water resources
- Hydrology and hydraulics
- Water quality
- Biological resources
- Cultural resources
- Land use
- Recreation
- Visual resources
- Hazardous and toxic waste
- Air quality and climate change
- Noise
- Transportation and traffic

- Public health and safety
- Public services and utilities
- Socioeconomic and environmental justice

Thresholds of significance are identified within each sub-section as well as methods to avoid, minimize and/or implement specific best management practices (BMPs) or environmental mitigation to off-set adverse effects, if necessary. Section 5 serves as the basis for demonstration of compliance with applicable Federal laws and policies for discussion with environmental review agencies. Effects of the array of alternative plans is evaluated for geology and groundwater resources in Section 5.2 and for biological resources in Section 5.7. Impacts to specific species of concern have been coordinated with applicable Federal agencies and, in the case of Federally-protected species (see below), consultation is on-going. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure
- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

Designs associated with the FEIS are developed to a 35% level in order to adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the designs of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. Materials utilized in the designs may also be reevaluated to meet site conditions.

The Ala Wai Canal study was originally developed as a multi-purpose flood risk management and ecosystem restoration study. Congressional mandates forced USACE to focus on critical issues with the study area to bring the on-going study to a conclusion within a mandated three year period, starting in late 2012. Discussions during this time between the USACE Honolulu District, USACE Headquarters, and the non-Federal sponsor, the DLNR, led the study team to focus exclusively on the flood risk portion of the study. This is the foundation of the current recommended plan. Opportunities for ecosystem restoration within the Ala Wai Canal Basin remain and are currently being evaluated by the non-Federal sponsor and others, however, ecosystem restoration features will not be a part of the FEIS recommended plan or a Federal recommendation to Congress.

USACE is limited by policy from addressing flood problems that are deemed to be local in nature, defined as follows:

“Water damage problems may be addressed under the flood control authorities downstream from the point where the flood discharge is greater than 800 cubic feet per second for the 10 percent flood (one chance in ten of being exceeded in any given year) under conditions expected to prevail during the period of analysis. Drainage areas of less than 1.5 square miles shall be assumed to lack adequate discharge to meet the above criterion.” (USACE Engineering Regulation 1165-2-21)

As such, the FEIS makes reference to the real problems experienced by the undersized infrastructure, but does not evaluate flooding resulting from undersized infrastructure, as the agency is prevented from doing so by policy. Damages resulting from undersized infrastructure are not taken into account in the FEIS analysis nor are the benefits of local improvements to that system. The FEIS does not propose changes to the existing local drainage system with the exception of the installation of flap gates at storm-sewer outfalls on the Ala Wai Canal to prevent backwater flooding and utilize storage within the canal for a flood risk benefit.

Operations and maintenance are the responsibility of the non-Federal sponsor which may be State or local government. Debris and Detention Structures are intended to pass normal stream flows without impounding water. The structures are designed to function only during storm events, therefore, no impoundment of water is anticipated outside of such storm events nor is a significant increase in groundwater recharge expected. The non-Federal sponsors must enter into a Project Partnership Agreement with USACE to construct the Project. This agreement sets the required cost sharing of the Project between the non-Federal sponsors and the Federal government and requires that the non-Federal sponsors be solely responsible for the Operation and Maintenance of the Project. The sponsors are responsible for financing their local share and operation and maintenance costs. Table 9, page 3-22 of the draft FEIS (page 3-23 of the final) details cursory operations and maintenance requirements based on project feature. Table 18 further elaborates on each feature by site. These operations and maintenance obligations are identified during the feasibility phase for the purpose of developing initial cost estimates and evaluating environmental impacts. If approved, a detailed operations and maintenance plan will be developed during the design phase of the study. Monitoring of in-stream habitat will occur following implementation of the recommended plan, but only for environmental mitigation features (i.e. fish passage features) to ensure that the measures function as designed. Monitoring is detailed in the “Monitoring and Adaptive Management Plan” included in Appendix E.

Formal Endangered Species Act (ESA) Section 7 consultation has been completed with USFWS since the release of the draft FEIS. The terms of the biological opinion to determine compliance with ESA requirements is complete and included in the final FEIS. Section 5.7.3 and Appendix E5 are updated in the final FEIS to document the outcome of ESA consultation.

Section 5.7.2.2 of the FEIS details the effect of the recommended plan on vegetation. Site restoration will occur throughout impacted areas following construction. At select locations identified in the report where significant trees exist, this site restoration will involve tree planting.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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ADDRESS
3442 Waialae Ave., Suite 1
Honolulu, HI 96816

PHONE
808-735-5756

FAX
808-735-7989

EMAIL
bicycle@hbl.org

November 9, 2015

Ala Wai Canal Project
Draft Feasibility Report and Integrated Environmental Impact Statement
Comments

Aloha,
The Ala Wai Canal Project provides the opportunity to not just protect our community from flooding, but to provide new bicycle and pedestrian transportation and recreation facilities in unison, at minimal additional costs.

The Oahu Bike Plan (2012) and Primary Urban Center Development Plan (1999) both include a multi-use path along Manoa Stream from where the stream passes under Kapiolani Boulevard to Dole Street. The project should seek to integrate implementation of this planned path.

While absent from the Oahu Bike Plan, draft City and Count of Honolulu Department of Transportation Services bikeway plans include a multi-use path along the makai bank of the Ala Wai Canal. The project should seek to integrate implementation of this multi-use path with the new wall construction.

The document states that no transportation facilities will be displaced or damaged when construction is complete, however there is no specific mention of the multi-use path and promenade along the mauka bank of the Ala Wai Canal between the Manoa/Palolo Channel outlet and Ala Moana Boulevard. In many places, the multi-use path is in extremely close proximity to the existing canal walls. The project should ensure these important transportation and recreation facilities are not damaged in any way.

We understand that some of the proposed items may add cost to the project, but it is very likely that they can be included at a fraction of the cost compared to constructing them as stand alone improvements. If cost is a limiting factor, we suggest that these items be covered by supplementary funds from the City (likely DTS' budget).

Lastly, we strongly recommend that the City DTS Bicycle Coordinator, Chris Sayers, be contacted to discuss the above comments.

Thank you very much for considering these comments. If you have any questions or would like to discuss these matters further, please contact Chad Taniguchi (chad@hbl.org) or Daniel Alexander (808-275-6717, daniel@hbl.org).

Ride and Drive Aloha,

Chad Taniguchi
Executive Director

Daniel Alexander
Advocacy & Planning Director

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Chad Taniguchi/Daniel Alexander
Hawaii Bicycle League
3442 Waialae Avenue, Suite 1
Honolulu, HI 96816

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Absence of bike paths along Ala Wai Canal within the recommended plan

Any existing pathways impacted by the implementation of the recommended plan will be restored to the current conditions, as site conditions permit. Unfortunately, the integration of new pathways is not an issue addressed by the FEIS nor does USACE have the authorization to study that issue. The non-Federal sponsor for construction, however, may amend the existing recommended plan with additional amenities at 100% non-Federal cost during the construction to improve existing access to the area (known as a “betterment”). This approach would allow the sponsor to capitalize on the existing construction activity at the site. Otherwise, sponsor-implemented recreation features may be coordinated with USACE following construction completion, provided that such features do not inhibit the project function.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

Date: November 9, 2015

From: Craig C. M. Chun
7948 145th Ave NE
Newcastle Wa. 98059
cgchun@comcast.net

Janice R. Mende
698 Hahaione St
Honolulu, Hi. 96825
janice@pacificpropertygrouphawaii.com

Peggy S. Kawano
3450 Pinao St.
Honolulu, Hi. 96822

To: Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858
AlaWaiCanalProject@usace.army.mil

State of Hawai'i, DLNR Engineering Division
ATTN: Gayson Ching
P.O. Box 373
Honolulu, HI 96809
Gayson.Y.Ching@hawaii.gov

Subject: Ala Wai Canal Project, Comments and Questions:

Dear Sir:

1) Our comments and questions are on the planned passage barrier removal at Falls 7 and the increased erosion that will occur downstream of the falls if preventative measures are not included in the Falls 7 improvement plan.
2) The Environmental Impact Statement (Draft Feasibility Report/EIS) and mitigation plan in Appendix E (Environmental and Regulatory Compliance) addresses the important benefit to the native fish habitat and its ability to swim upstream if improvements are made to the Falls 7 location. In the 10% level of design description, an embankment rebuild is proposed for Falls 7, but the improvements described in the EIS do not address how the surrounding downstream embankments will be protected or reinforced to minimize erosion and damage to the surrounding properties. Thus this EIS is incomplete in that it does not address the relevant effects of this development on the existing surrounding areas.
3) This downstream erosion concern could be easily addressed in the design description with a mitigation plan that includes not only a reinforced Falls 7 embankment, but also an additional reinforced embankment immediately downstream of the falls to protect the surrounding properties, and to restore the stream shores to their original site lines.
4) My question is who is the responsible agency to address these issues? And what is the mechanism to ensure that the EIS for Falls 7 provides a mitigation plan that addresses these additional erosion risks?
5) In our discussions with the Corps of Engineers and study contractors before the open community comments (September 30, 2015 Ala Wai Canal Project Public Meeting), it was brought to our attention that the proposed Falls 7 and Falls 8 improvements are not directly a part of the flood mitigation proposal, and is just a part of the documented report. But if Falls 7 and Falls 8 are included in this proposal and is requesting funds for this added construction as an improvement to the community, then the study should take the responsibility for a more inclusive EIS that at least acknowledges the downstream erosion issue to be included in a follow on to the current 10% design effort in the study's final report. Given the cost, study and design effort invested in the assessment of Falls 7 and Falls 8, it would be a beneficial addition to this project by improving its environmental score (metrics) to proceed for funding.
6) I believe that the Ala Wai Canal project is a good endeavor and that its intentions are admirable. We just want to make sure the EIS is inclusive in addressing and mitigating the inherent downstream erosion risks in the proposed improvements.


Pawaina St
Manoa Rd
Falls 8
Structure Footprint
Construction Limits
Peneku Pl
Falls 7
Footpath Access Route
Structure Footprint
Pinao St
Construction Limits

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Craig Chun/Janice Mende/Peggy Kawano
7948 145th Avenue NE
Newcastle, WA 98059

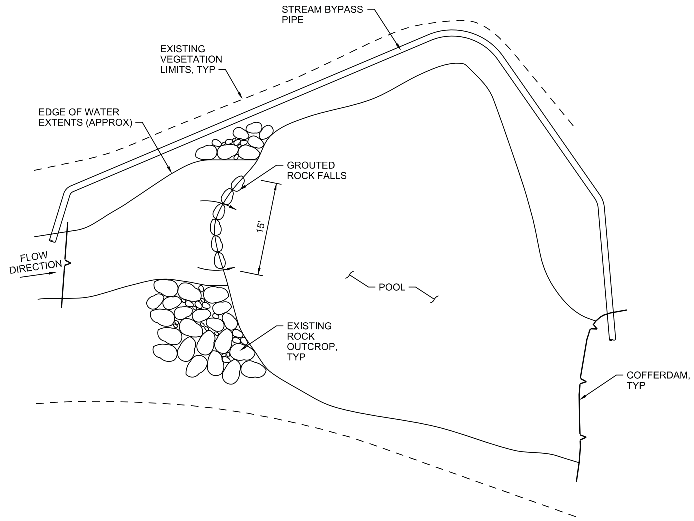
This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Erosion in Manoa Stream and effect of environmental mitigation measures

Implementation of the recommended plan will involve the construction of environmental mitigation measures in Manoa Stream at two sites, identified as Falls 7 and Falls 8. As you note, an existing erosion issue has occurred on your property from shear stress associated with stream flows. The intent of the USACE effort is not to address existing erosion problems, but to increase the viability of fish passage through this reach of the stream. The responsibility for protection of private property from streambank erosion generally lies with the property owner. Site drawing C-107 is attached to this letter. This conceptual drawing shows that approximately a 16-foot section of the current vertical barrier will be altered with grouted rock to enable fish passage. The reduction in slope is not expected to increase stream velocities and the vector of flow will be directed towards the existing pool at the site. It is not anticipated that erosion potential will increase as a result of the construction of this feature. Further, detention provided by basins upstream constructed in conjunction with the recommended plan will reduce peak flow velocities within the stream and further lower erosion potential during flood flows.

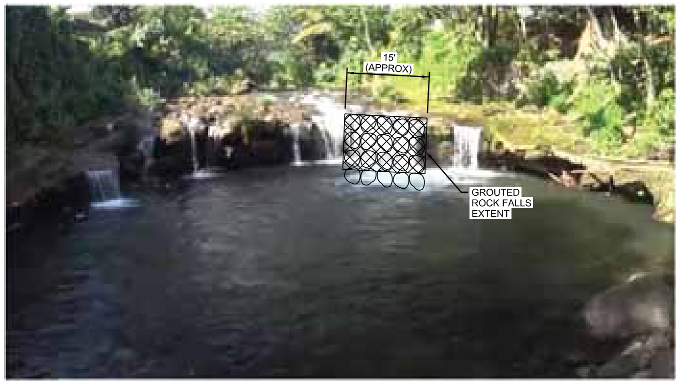
Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx



PLAN

NTS

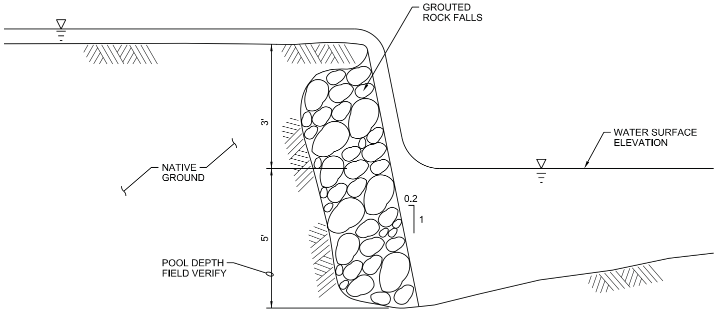


NOTE:

DIMENSIONS ARE APPROXIMATED BASED ON FIELD PHOTO.

SITE PHOTO

NTS



NOTE:

DIMENSIONS ARE APPROXIMATED BASED ON FIELD PHOTO.

SECTION

NTS

US Army Corps of Engineers

10% DESIGN

MARK	DESCRIPTION	DATE	APPR.	MARK	DESCRIPTION	DATE	APPR.

US ARMY CORPS OF ENGINEERS
HONOLULU DISTRICT
HONOLULU, HAWAII

CH2M HILL, INC.
1132 BISHOP STREET, SUITE 1100
HONOLULU, HI 96813

DESIGNED BY: L HAYS		DATE: 5/XX/2015	REVISION:
DRAWN BY: T STIMPSON	CHECKED BY: J YOUNG	SOLICIT./ CONTRACT NO.: 481684	
SUBMITTED BY: J YOUNG		LOCATION CODE	
PLOT SCALE: AS NOTED	PLOT DATE: 2015\05\12	DRAWING NUMBER:	
SIZE: ANSI D	FILE NAME: FILENAME		

ALA WAI CANAL PROJECT
MITIGATION MEASURES

MANOA STREAM FALLS 7
REHABILITATION CONCEPT

SHEET IDENTIFICATION
C-107
SHEET 10 OF 14

FILE: $FILEL$
MODEL NAME: $MODELNAME$
DATE & TIME: $DATE$ $TIME$
LAST SAVED BY:

PLOTDRIVER: $PLTDRVS$
PEN TABLE: $PENTBLS$
PRINTED BY: $USER$

From: Bruce Black
To: Ala Wai Canal Project
Subject: [EXTERNAL] Ala Wai Canal Natural Ahupua?a Restoration
Date: Monday, November 09, 2015 9:34:52 PM
Attachments: Screen Shot 2015-11-09 at 8.47.38 PM.png

Bruce Black
3715 Diamond Head Circle
Honolulu, Hawaii 96815
(808) 341-5111

Aloha,

These are my comments on the Ala Wai Canal Project 2015. It needs to be revised or rejected because it has no restoration aspect. It destroys the Hawaiian people‘s natural Ahupua‘a system for the benefit of the Waikiki Hotels and not the larger community.

My name is Bruce Black I am a resident of the Waikiki Ahupua‘a Water Shed, a teacher a Mid-Pacific School which does service learning projects with students in Manoa Stream, an Outrigger Canoe Club Member who has paddled for decades in the Ala Wai Canal and surfs Ala Moana Bowl, A Polynesian Voyaging Society Member and Hokule‘a Malama Honua Worldwide Voyage Crew member, and an advocate for the “Hawaii Exemplary State Initiative”.

I made a promise to the children of Hawaii, as a steward and navigator of Hawaii‘s educational community, to teach our students the importance of understanding how to take care of the environment, enabling them to have a healthy sustainable future. Children want clean streams they can play in, plants they can grow and eat, beaches where they can safely surf and fish, and they are willing to do their part to see that it happens. This meeting is an intricate part of that learning process because plans are being presented here about their future. I am here to make sure that their voice is heard and we are all addressing their wants and concerns along with special interest groups.

I am also here today, as all of us are, to HELP stop the perpetuation of the Ala Wai Canals problems. Hundreds of millions of tax payer‘s dollars continue to be spent on piece-meal projects like irregular dredging and flood mitigation projects with out addressing the health of the Wakiki Ahupua‘a System as a whole. The increasing number of heavy rain storms has spiked our community‘s present health concerns, draws fear of the economic impact to tourism when beaches are polluted, and makes us question the sustainable environment‘s well being for our children‘s future. This is a massive problem that will require the unity, collaboration, and aloha of the entire Waikiki Ahupua‘a community. Our resources and commitment to solving the problem needs to be inclusive and use old technology as well as new technology to achieve a sustainable solution.

The propose Ala Wai Canal Project presented by the USACE and the DLNR focuses primarily on flood mitigation for Waikiki Hotels by building higher retention walls and dam basins. We need to broaden the long-term benefits of Ala Wai Canel Project by supporting the community‘s commitment to a sustainable solution which supports ecosystem restoration, an essential part of any kind of flood mitigation project. The Ahupua‘a System has a proven track record for successful conservation and sustainability. We need to perfect it with present day technology and present it as a viable ecological model to the world. The Ala Wai Project can be that model.

I am here with fellow educators, students, and environmentalist, to encourage you to help us help you, help Hawaii

help the World. The inclusion of the "Hawaii Exemplary State Initiative" which plans to band the community together as an Ahupuaʻa Ohana to address and solve real problems at the grassroots level, needs to be a driving force in any Ala Wai improvement effort. It is a win-win solution to solving the Ala Wai Canal Problems that gives ownership to the community, accomplishment to our students, and prosperity and pride to our state.

Ala Wai Canal Natural Ahupuaʻa Restoration

This project has no environmental restoration component, and it will destroy a traditional and cultural Ahupuaʻa System.
There is no indication on the effects to the stream environment, endangered marine life, birds, and plants in the estuary.
It also will not elevate the sediment build up and future flooding will continue to occur. This project is in violation of many law and against the best interest of the greater community and future generation. It is being pushed through to stop the occasional flooding of hotels and does nothing for the surrounding communities, potentially making flooding worse in those communities.

The community needs to be able to provide input into the alteration of the communities watershed and Ahupuaʻa

Sediment accumulation will continue with the building of higher walls and this plan does not address this issue. Restoration would provide sediment reduction by creating a wetland estuary along the golf course

ALA WAI CANAL WATERSHED WATER QUALITY IMPROVEMENT PROJECT STEERING COMMITTEE • CITY & COUNTY OF HONOLULU • STATE OF HAWAII 1998

1. Vehicle Contaminant Reduction

2. Manoa Recreation Center: Stream Bank Erosion Control

3. Ala Wai Canal to Manoa Trail System

4. Kaimuki High School Stream Bank Improvement

5. St. Louis Heights Trail & Erosion Reduction

6. Beautification of Makiki Stream from King St. Along

7. Kalakaua Avenue.

8. Kanaha Stream Restoration and Landscaping
9. Pukele Stream Lo'i Restoration and Trail

10. Waiomao Stream Restoration, Trail and Community Garden

11. Upper Palolo Valley and Ka'au Crater Trail and Stream Restoration
12. Erosion Control in the Urban District, Especially Along Stream Banks
13. Greenbelts and Vegetative Buffers
14. Dredge Manoa-Palolo Canal Between the Ala Wai Canal & Date St. to Serve as a Sediment Catchment Basin

15. Inject Seawater Into the Ala Wai Canal to Clarify the Water, Reduce Odor……

16. Reduce Cans, Bottles, Bags, Cups, and Fast Food Debris from Entering Streams and Canal

17. Reduce Neighborhood Rubbish Collection Problems
18. Flood Damage Reduction Investigation of the Ala Wai Canal
19. Stop Illegal Construction, Filling in Streams and Reduce Rubbish Dumping ….

20. Dredge Ala Wai Canal between Kapahulu Av. & the Ala Wai Boat Harbor
21. Reduce Erosion and Improve Vegetative Cover in the Conservation District

22. Centralize All Watershed Water Quality Implementation within DLNR,

Especially Streams
23. Prepare a Master Plan for Watershed Management Including Project Designs,

plans, and Specifications for Construction and an Environmental Impact Statement

Fishers Study
Paddlers Health Survey
Fish Consumption Risk Assessment

Benefit/Cost Analysis Manoa Stream Restoration & Bike Path Project

None of the recommendation from this 1998 steering committee plans have been included in the 2015 Ala Wai Canal Project, Proposed Flood Risk Management Project, Draft Feasibility Repot. Why Not ! ?

Environmental Impact Statement (EIS) will be required. The EIS will describe the TSP (proposed action) and the range of reasonable alternatives, and will address the potential for direct, indirect, and cumulative effects on the human, natural, and cultural environment; mitigation measures that avoid or minimize the potential adverse effects will also be identified.(2014)

There has not been sufficient number of community meetings to address the publics concerns and it should not be railroaded through by the hotel industry at the expense of tax payers and the natural environment.

Mahalo, Bruce Black

US Army Corps of Engine
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Bruce Black
3715 Diamond Head Circle
Honolulu, Hawaii 96815

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Concerns regarding public outreach
- Absence of ecosystem restoration features within the recommended plan
- Issues outside of the scope and authority of USACE study

Public involvement and agency coordination is summarized in Section 6 of the FEIS. Initial scoping of the EIS was conducted in 2004 with a supplemental scoping meeting conducted in 2008. Table 38 details public and agency coordination that has been undertaken since the re-scoping of the study in 2012. This includes over forty separate outreach measures. In addition, a public meeting to review the FEIS during the public review period was conducted in September 2015 along with multiple follow-up meetings with legislators, interested stakeholders and neighborhood commissions. No further public meetings are planned during the feasibility phase of the FEIS.

As noted, the Ala Wai Canal study was originally developed as a multi-purpose flood risk management and ecosystem restoration study. Congressional mandates forced USACE to focus on critical issues with the study area to bring the on-going study to a conclusion within a mandated three year period, starting in late 2012. Discussions during this time between the USACE Honolulu District, USACE Headquarters, and the non-Federal sponsor, the DLNR, led the study team to focus exclusively on the flood risk portion of the study. This is the foundation of the current recommended plan. Opportunities for ecosystem restoration within the Ala Wai Canal Basin remain and are currently being evaluated by the non-Federal sponsor and others, however, ecosystem restoration features will not be a part of the FEIS recommended plan or a Federal recommendation to Congress.

Unfortunately, the issues of vehicle contaminant reduction, stream bank erosion control, construction of a trail system, stream bank improvements, erosion reduction, stream beautification, traffic improvements, landscaping, community gardens, greenbelts, vegetative buffers, dredging Ala Wai Canal, water quality improvements, garbage and debris control, land use planning, conducting a fishers study, paddlers survey, or fish consumption advisories are not a topics addressed by the FEIS nor does USACE have the authorization to study those issues.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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Derek J Chow
Civil & Public Works Branch
Honolulu District
US Army Corps of Engineers
Building 230, CEPOH-PP-C
Fort Shafter HI 96858
Sent to - email: AlaWaiCanalProject@usace.army.mil

Gayson Ching
State of Hawaii
DLNR Engineering Division
PO Box 373
Honolulu HI 96809
Sent to - email: gayson.Y.Ching@hawaii.gov

From:
Brian G Bagnall
1551 Ala Wai Blvd Apt 3004
Honolulu HI 96815
Sent from - email: bbagnall@yahoo.com
Date: 8th November, 2015

RE: ALA WAI CANAL PROJECT - DRAFT EIS - PUBLIC COMMENT

I am a private Waikiki resident who lives right on the Ala Wai Canal and knows it well every day.

My position is:

1. I totally oppose the building of four-foot-high solid walls on both sides of the canal.
This "heavy engineering" solution to prevent a 100-year flood emergency would amount to permanent massive destruction of the canal's historic contribution to the beautiful environment of Waikiki.

2. I am very concerned that the precious trees along and near the canal would be damaged or removed by the construction.
I understand that the Corps will only spend money on strict flood control installations, leaving the costs for environmental preservation and beautification to other unnamed and unfunded parties.

3. I respectfully request that the Corps study other far less damaging solutions to the canal flooding risk.
The current canal flood plan is simply too much industrialization of our neighborhood waterway treasure. There is a commonly used expression - *"Don't Throw The Baby Out With The Bathwater"* - that is exactly what you have proposed with this current plan. Your brilliant engineers need to meet with experienced town planners to reach a compromise that is acceptable to we the residents of Waikiki who live and pay our taxes here.

Respectfully Submitted by email on 8th November, 2015

US Army Corps of Engine
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Brian Bagnall
1551 Ala Wai Boulevard, Apt 3004
Honolulu, Hawaii 96815

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Alternative Plan Selection
- Aesthetics of the floodwalls
- Loss of trees associated with the recommended plan

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed.

USACE conducts planning efforts in accordance with the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, established by the Water Resources Council in 1983. This study has been guided by this planning process though each phase. The general problems and opportunities are stated as specific planning objectives and constraints to provide focus for the formulation of alternatives. These objectives and constraints have been documented since 2012 when the study was rescoped to focus exclusively on flood risk management. The formulation of alternatives is an iterative process and plans are evaluated and compared to determine which alternative achieves the study objectives and avoids study constraints in the most effective and efficient manner. Objectives and constraints are detailed in Section 2 of the FEIS, and Section 3 includes details of the process by which alternatives were selected and eliminated, leading to a final array of viable alternative plans. Each of the alternative plans in this final array was a valid plan that achieved planning objectives and avoided planning constraints to some degree. These plans were screened against multiple criteria and compared to determine which plan was most effective and efficient in achieving study objectives and avoiding study constraints.

All flood risk management alternatives considered for the study have a variety of impacts; there is no alternative that has no impacts, and there is no alternative that has only positive impacts. USACE policy requires a recommendation consistent with the alternative plan that reasonably maximizes the net economic benefits with consideration to the environmental impacts. Sections 4 and 5 of the FEIS includes an evaluation and comparison of these alternative plans. Section 8 outlines the recommended plan. This plan includes:

- Six in-stream debris and detention basins in the upper reaches of the watershed
- One stand-alone debris catchment structure

- Three multi-purpose detention basins
- Floodwalls along the Ala Wai Canal (including two pump stations); a levee on the outer perimeter of the Ala Wai Golf Course
- A flood warning system
- Fish passage environmental mitigation features at two locations

The design of project features is focused on the most economical design that will provide the needed function while observing compliance with applicable Federal law. The design of floodwalls must meet the criteria set forth in Section 106 of the Historic Preservation Act. This design will be coordinated with the State Historic Preservation Office to ensure appropriate design aspects are integrated into the project to ensure preservation of the historic value of the area.

Section 5.7.2.2 of the FEIS details the effect of the recommended plan on vegetation. Site restoration will occur throughout impacted areas following construction. At select locations identified in the report where significant trees exist, this site restoration will involve tree planting.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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From: Barry Brennan
To: Ala Wai Canal Project; Gayson.Y.Ching@hawaii.gov
Cc: Sherri Hiraoka
Subject: [EXTERNAL] Draft Feasibility Report/EIS Comments
Date: Sunday, November 08, 2015 4:39:44 PM

Honolulu District, USACE

ATTN: Ala Wai Canal Project

State of Hawai‘i, DLNR Engineering Division

ATTN: Gayson Ching

Gentlemen,

First, I would like to compliment both of you on the Ala Wai Draft Feasibility Report/EIS. It is well-written and has a considerable amount of detail. Thank you.

Whatever action you agree to pursue will likely have an impact on my property which straddles Manoa Stream where it intersects with Kolomona Ditch (which, I believe was built by the state, federal, and possibly the City and County, governments in the mid-50s). My property straddles Manoa Stream because one of more government agencies "straightened it out" by cutting across it. A short-term fix on a long-term problem.

When Manoa Gardens (next to Manoa Park) was built about 20 years ago I notified the City and County that I was willing to deed them the portion of my land next to the City's Manoa Gardens. The C&C installed a five foot culvert to drain the Manoa Gardens land. The culvert opens up directly across from Kolomona Ditch. Shortly thereafter I notified the C&C when my neighbor, Mr. Takugawa was filling in Manoa Stream to extend his land to the middle of Manoa Stream. The C&C inspector who investigated the incident told me she couldn't do anything about it since she was retiring at the end of the year and her position was not going to be filled. As a result of these two incidents (filling in Manoa Stream and building a culvert directly across from Kolomona Ditch) both my neighbor and I lost portions of our property during the flood of 2004.

Five years ago I agreed to participate in the C&C's Department of Environmental Services' Adopt-a-Stream program. I’ve attempted to control weeds growing in Kolomona Ditch. On several occasions (including last week) the water in the ditch nearly overflowed. To me, Kolomona Ditch is an important, but overlooked, component of the Ala Wai Watershed. Are there any plans to mitigate its potential impact on flooding?

Alternative 3A 2.2 will again involve my property. In particular, I am concerned about the location of the debris detention basin. On one of your figures it appears to be at the junction of Kolomona Ditch, the culvert outlet, and Manoa Stream. Will I lose more land? Will the construction of the proposed retention basin impact my property?

I am perfectly willing to work with you to facilitate whatever proposed flood mitigation measures are adopted, at least insofar as they do not involve uncompensated taking of my property.

Please contact me if you would like to discuss my comments.

Aloha,

Barry M. Brennan

Emeritus Professor

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Barry Brennan
e-mail: barryb@hawaii.edu

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Design elements of debris and detention basins
- Concerns of affected landowners regarding real estate acquisition

The strategy towards managing the flood risk utilized in the plan formulation contained within the FEIS is the dual approach of detention of flood flows in the upper watershed combined with line of protection features (i.e. floodwalls and levees) in the lower watershed. This approach provides benefits for those within the upper watershed, but also reduces the scale of the features necessary for flood risk management in the lower watershed. Details regarding planning considerations leading to the development of alternative plans can be found in Section 3 of the FEIS.

Designs associated with the FEIS are developed to a 35% level adequately assess effectiveness, estimate costs, and consider environmental impacts. If approved, the designs of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature. Any inconsistencies between current designs and site specific conditions will be corrected during this upcoming phase. The specific location and scale of project features may change as additional information is acquired from the site. Materials utilized in the designs will be reevaluated to meet site conditions.

Implementation of the recommended plan will require the acquisition of private property. Please note that there are two properties in the vicinity of Manoa Park for which acquisition is anticipated, one is owned by the City and County and the other owned by a private party. Your name is not listed as the owner of this parcel. All landowners affected by private land acquisition were notified prior to the 30 SEP 2015 public meeting. The exact timing of future land acquisition is unknown at this time. The Ala Wai Canal Flood Risk Management Study is only in the feasibility stage, and land acquisitions are contingent upon Congress authorizing and funding the project. If approved, the elements of the FEIS will be carried forward to the design phase of the study where site specific surveys and investigations will be conducted for each element of the recommended plan to further refine the level of detail of the proposed feature, including any necessary amendments for public safety. The specific location and scale of project features may change as additional information is acquired from the site during the design phase. A property by property assessment will be conducted in coordination with the non-Federal sponsor after project authorization, if the project is authorized by Congress.

The process of acquiring property for a project is highly regulated. The Fifth Amendment of the Constitution states that private property shall not be taken for public use without just compensation. To

address what constitutes just compensation, Congress passed the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 ("Uniform Act"). The non-federal sponsors will be required to follow the Uniform Act in acquiring any lands. USACE will work with the non-Federal sponsors to ensure the correct process and procedures are adhered to throughout the process.

Generally speaking the value of land acquired is the fair market value of the property. The fair market value includes many aspects of the property in question. Earning potential is one of those aspects to be addressed in developing a fair market value. Regardless of the value determined, Public Law 91-646 outlines the requirements that must be followed to ensure a homeowner/landowner is compensated justly.

Part of the process will be an appraisal, which determines the fair market value of the property. Fair market value is an estimate of the market value of a property based upon what a knowledgeable, willing, and unpressured buyer would pay. The appraisal will attempt to take all objective property features into account when determining fair market value. The fair market value is determined without consideration for the effect the project has had on the value of the land. For more information on the process for acquisitions please go to: http://www.fhwa.dot.gov/realestate

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

UNIVERSITY OF HAWAI'I AT MĀNOA
Social Science Research Institute

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858
Submitted via E-mail: AlaWaiCanalProject@usace.army.mil

State of Hawai'i, DLNR Engineering Division
ATTN: Gayson Ching
P.O. Box 373
Honolulu, HI 96809
Submitted via E-mail: Gayson.Y.Ching@hawaii.gov

November 09, 2015

RE: Draft Feasibility Report and Integrated Environmental Impact Statement (EIS) for USACE Ala Wai Canal Project

Dear Mr. Ching,

In my capacity as the Coordinator for the Ala Wai Watershed Partnership (AWWP), I respectfully submit the following comments on the U.S. Army Corps of Engineers (USACE) Ala Wai Canal flood mitigation project ("Project"). The AWWP is a multi-sector partnership that coordinates stakeholders across the public, private, academic, non-governmental, community and philanthropic sectors with a joint interest in the Ala Wai Watershed. The AWWP goals include: increasing awareness about catastrophic natural disaster risk; communicating the risk of natural disasters in the Ala Wai Watershed, Waikīkī, and Hawai'i; and forging new partnerships in a variety of sectors to help mitigate current and future climate risks. The AWWP strives to leverage public finances to catalyze private investment in designing, building, maintaining, and operating the Ala Wai Watershed flood mitigation project and associated projects. The AWWP is committed to increasing communication with key community groups, engaging the private sector, and developing and implementing innovative financing and regional planning solutions.

At the September 30, 2015 public information meeting on the Project, we heard from a number of stakeholders and community members with a direct interest in the Project. A majority of these comments were supportive of the Project but also pointed out potential partnership opportunities to expand the scope of the Project beyond just flood mitigation. Some of these comments illustrated the need to enhance and foster public private partnerships (P3) to leverage federal and local sponsor funding with other non-flood mitigation efforts and better align the project scope with local interests beyond just flood mitigation. Some of these projects include environmental education and outreach, environmental restoration, water quality improvement, recreational use enhancement, Ahupua'a watershed management and wetland restoration. We realize

most of these efforts are currently beyond the mandate and scope for the USACE, but we hope to provide a conduit to facilitate these important project components and leverage the federal project with local and private interests that may be able to support these non-flood mitigation components.

The proposed Project has great potential to support and enhance the AWWP goals and in turn, the AWWP can assist in coordinating community and stakeholder engagement for the Project. As presented in the Draft Feasibility Report and Integrated Environmental Impact Statement (DEIS), the Project can be adjusted to better support these goals on several fronts. These can be categorized under the following four overarching themes: (1) Whole Community Education and Preparedness; (2) Risk Transfer; (3) Public-Private Partnerships (P3) and Innovative Finance, including creating a Community Investment Vehicle (CiVic) to manage public and private sector investment; and (4) Ecosystem Restoration.

The Project will make important improvements to support the resiliency of the Ala Wai Watersheds and help mitigate flood risk in Waikīkī. The Project calls for approximately four-foot floodwalls along the canal and improved water detention in the upper and middle watershed. As with numerous resilient infrastructure projects across the country, this Project faces potential hurdles, including possible community opposition, insufficient public funding, and future operating and maintenance costs. However, the Project offers a unique opportunity to facilitate and catalyze important stakeholder partnerships and generate opportunity to create innovative financing and design solutions that can serve as a model for how the United States can begin to close its estimated $3.6 trillion infrastructure investment gap. This project can also serve as an example for how communities can collaborate with all levels of government, the private sector, and civil society to develop local solutions to local challenges.

The Project may help demonstrate how, as outlined in President Obama's Climate Action Plan, climate resilience can create shared value for local communities, mitigate the damage resulting from the current and future climate-related events, and close the national infrastructure gap by leveraging innovative partnerships. Furthermore, the Project – as a result of Hawaii's social, cultural, and economic connections to small island developing states (SIDS) – may be a model for climate resiliency projects in the Pacific islands, Caribbean, and other regions facing increasing climate-related challenges. The Project could be featured at the U.S.-hosted 2016 International Union for the Conservation of Nature (IUCN) World Conservation Congress (WCC) in Hawai'i as a high-level commitment to support resilient infrastructure investments through innovative financing and P3, while also restoring and protecting critical watersheds.

I provide below a condensed summary from the "Hawai'i Disaster Risk Workshop: Mitigating Catastrophic Disaster Risk and Building Resilience in the Ala Wai Watershed" workshop held in Honolulu on January 14, 2015. As an outcome of the workshop, the participants recommended forming the Ala Wai Watershed Partnership to support the below goals (an AWWP was first proposed in the USACE "Ala Wai Watershed Analysis Final Report" (July 2003), Project No. 28, pp.86-87). We believe

the goals of the AWWP are consistent with this Project and could support the Project goals and outcomes.

The Ala Wai Partnership Road Map

Launch a Working Group to increase awareness about catastrophic natural disaster risk, and facilitate stakeholder engagement in designing, funding, building and maintaining integrated infrastructure systems that improve the resilience of vulnerable communities in the Ala Wai Watershed and Waikīkī.

- Coordinate with local, state, and national governments, the private sector, philanthropies, and academic institutions.
- Identify opportunities to leverage the US Army Corps of Engineers Ala Wai Flood Mitigation project to mobilize private investment, engage the community, support ecosystem restoration, and serve as a model for resilient infrastructure initiatives across the country and globally.
- Work with City and State officials to develop the operations and maintenance framework and a new designation for the watershed that facilitates creative financing solutions and encourages private property owners' role in maintaining the system.
- Coordinate with elected officials to draft necessary legislation and identify viable regulatory mechanisms to support risk reduction efforts and the creation of an entity that can formally oversee the resilient infrastructure initiatives in the Ala Wai Watershed.

Communicate the economic, political, and social risk of natural disasters in the Ala Wai Watershed, Waikīkī, and Hawai‘i.

- Develop stakeholder-based strategies to communicate catastrophic natural disaster risk in Hawai‘i, specifically within the Ala Wai Watershed and Waikīkī, and develop a holistic risk reduction strategy, and focused hazard mitigation planning in each community.
- Engage local communities through local stakeholder groups such as neighborhood associations, early and often, on relevant topics, including disaster risk reduction, urban design, ecosystem restoration, and regional planning.

Forge new partnerships with the reinsurance industry to help mitigate current and future climate risks that place substantial financial and political burden on the State economy and on state and county governments.

- Support risk transfer solutions that help protect Waikīkī, the Ala Wai watershed, and the State of Hawai‘i from the devastating impacts of catastrophic natural disasters.
- Engage the private sector in transferring disaster risk to the private market that would provide Hawai‘i with the budgetary certainty and financial liquidity necessary to recover rapidly in the event of a catastrophic natural disaster.

Create an Ala Wai regional planning entity that also serves as a community investment vehicle (CIVic) to align public funds and catalyze private investment in designing, building and maintaining resilient infrastructure.

- Develop new and innovative financing strategies for climate resilient infrastructure projects in the Ala Wai Watershed, including storm water reuse, water efficiency measures, and insurance premium savings securitization.
- Launch and coordinate a prize competition that connects world-class urban planners, engineers, and designers with business groups, policymakers, and community leaders in the Ala Wai watershed to design climate resilient infrastructure and support ecosystem restoration.

I also include here a brief summary of a high-level meeting that took place in Washington, D.C. during Infrastructure Week 2015, "Building Resilience Through New Financing Vehicles – The Ala Wai Watershed Case Study." This meeting, of which participation included USACE leadership, identified specific partnerships and financing opportunities the Ala Wai Project presents.

<u>New Public-Private Partnership Model to support USACE Strategic Initiatives</u>
Participants at a meeting held during Infrastructure Week 2015 discussed that USACE could explore innovative financing options, including public-private partnership (P3) models, using existing authorities. Further, USACE could serve as the lead design entity that could take the project to private market through strategic partnership initiatives. The application of P3s is highly project specific and should be contextualized according to the project's business line and to be locally appropriate. It was noted that a new Community Investment Vehicle (CIVic) could serve as a financing model for other USACE priority infrastructure projects across the country.

Thank you for the opportunity to provide comments on the Ala Wai Watershed Flood Mitigation Project. We hope the AWWP can serve an important role in providing a partnership framework for a resilient community and look forward to developing a strong and effective affiliation through the AWWP that includes the critical participation of the U.S. Army Corps of Engineers.

Sincerely yours,

Michael P. Hamnett
Researcher

2424 Maile Way, Social Sciences Building 704, Honolulu, Hawai'i 96822
Telephone: (808) 959-8930, Facsimile: (808) 959-2884

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Michael Hamnett
Ala Wai Watershed Partnership
2424 Maile Way, Social Sciences Building 704
Honolulu, Hawaii 96822

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Absence of ecosystem restoration features within the recommended plan
- Planning and collaboration with other agencies

As noted, the Ala Wai Canal study was originally developed as a multi-purpose flood risk management and ecosystem restoration study. Congressional mandates forced USACE to focus on critical issues with the study area to bring the on-going study to a conclusion within a mandated three year period, starting in late 2012. Discussions during this time between the USACE Honolulu District, USACE Headquarters, and the non-Federal sponsor, the DLNR, led the study team to focus exclusively on the flood risk portion of the study. This is the foundation of the current recommended plan. Opportunities for ecosystem restoration within the Ala Wai Canal Basin remain and are currently being evaluated by the non-Federal sponsor and others, however, ecosystem restoration features will not be a part of the FEIS recommended plan or a Federal recommendation to Congress.

Unfortunately, the issues related to water quality improvements, environmental education, recreational use enhancement and wetland restoration are not topics addressed by the FEIS nor does USACE have the authorization to study those issues. Use of public-private partnerships is currently being explored at a local level to potentially serve as a non-Federal sponsor for implementation of the recommended plan.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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WAIKĪKĪ BEACH
SPECIAL IMPROVEMENT DISTRICT ASSOCIATION

November 6, 2015

Honolulu District, USACE
ATTN: Ala Wai Canal Project
Building 230, CEPOH-PP-C
Fort Shafter, HI 96858
Submitted via E-mail: AlaWaiCanalProject@usace.army.mil

State of Hawai'i, DLNR Engineering Division
ATTN: Gayson Ching
P.O. Box 373
Honolulu, HI 96809
Submitted via E-mail: Gayson.Y.Ching@hawaii.gov

RE: Draft Feasibility Report and Integrated Environmental Impact Statement (EIS) for USACE Ala Wai Canal Project

Dear Mr. Ching,

In my capacity as the President of the Waikīkī Beach Special Improvement District Association (WBSIDA), I respectfully submit the following comments on the Ala Wai Canal project. The Waikīkī Beach Special Improvement District Association (WBSIDA) is a multi-sector partnership that coordinates Waikīkī stakeholders across the public, private, academic, non-governmental, community and philanthropic sectors with a joint interest in Waikīkī Beach. The WBSIDA is dedicated to enhancing the quality of life in Waikīkī, which shall exemplify the quality of life throughout the State of Hawaii, by ensuring the coordinated management and long-term sustainability of Waikīkī Beach. The Waikīkī Beach Special Improvement District works in partnership with government and the private sector to develop and implement programs that promote the overall vitality of Waikīkī Beach and the State of Hawaii by strengthening their roles on behalf of all residents of Hawai'i and as a world-class resort destination area for visitors.

At the September 30, 2015 public information meeting on the Ala Wai Flood Control project we heard from a number of stakeholders and community members with a direct interest in the project. A majority of these comments were supportive of the project but also pointed out potential partnership opportunities to expand the scope of the project beyond just flood mitigation. Some of these comments illustrated the need to enhance and foster public private partnerships to leverage federal and local sponsor funding with other non-flood mitigation efforts and better align the project scope with local interests beyond just flood mitigation. Some of these projects include environmental education and outreach, environmental restoration, water quality, recreational use enhancement, Ahupua'a watershed management and wetland restoration. We realize most of these efforts are currently beyond the mandate and scope for the Army Corps of Engineers but we hope the WBSIDA provide a

conduit to facilitate these important project components and leverage the federal project with local and private interests that may be able to support these non-flood mitigation components.

The proposed Army Corps Ala Wai project (Project) has great potential to support and enhance the WBSIDA goals and in turn, the WBSIDA can assist in coordinating community and stakeholder engagement for the Ala Wai Project. As presented in the EIS, the project can be improved to better support these goals on several fronts. These can be categorized under the following four overarching themes: (1) Watershed management and water quality; (2) Risk Transfer; (3) Public-Private Partnerships (P3) and Innovative Finance, including creating a Community Investment Vehicle (CiVic) to manage public and private sector investment; and (4) Ecosystem Restoration.

With respect to the project scope and water quality the WBSIDA is strongly in support of expanding the scope of this project to include efforts to improve the water quality of the Ala Wai canal as state receiving waters. Water quality conditions and debris management issues are a major community and stakeholder complaint to our organization and are ongoing problems for the Ala Wai canal. It would be irresponsible to invest in the Ala Wai flood mitigation project without some effort to also improve the condition of the Ala Wai water quality. In fact, the Ala Wai receiving waters are in violation of federal and state water quality standards. The WBSIDA would like to see the flood mitigation effort better support the effort to meet federal standards either through direct inclusion of ecosystem restoration measures such as wetlands to directly addressing water quality efforts.

There are many novel and innovative solutions presented in the *2003 Ala Wai Watershed Analysis Final Report*[1]. The WBSIDA believes some of these recommendations need to be revisited as part of the flood mitigation effort. The recreational and aesthetic value of the Ala Wai Canal speaks for its self however to proceed with this project without water quality and ecosystem restoration as a leveraged effort is a major missed opportunity that we cannot afford to let pass by. Without serious consideration of exploring opportunities and supporting partnerships to leverage these water quality and ecosystem restoration components, it will be difficult for the WBSIDA to fully support the project as proposed purely and exclusively as a flood mitigation project.

The Ala Wai Canal flood mitigation project will make important improvements to support the resiliency of the Ala Wai Watersheds and help mitigate flood risk in Waikīkī. The project calls for approximately four to five-foot floodwalls along the canal and improved water detention in the upper and middle watershed. As with numerous resilient infrastructure projects across the country, the Ala Wai flood Project faces potential hurdles, including possible community opposition, insufficient public funding, and future operating and maintenance costs. However, the Project offers a unique opportunity to facilitate and catalyze

[1] Prepared By: Townscape, Inc. and Eugene P. Dashiell, AICP in cooperation with Oceanit
Prepared For: Department of Land and Natural Resources and U.S. Army Corps of Engineers
July 2003

important stakeholder partnerships and generate opportunity to create innovative financing and design solutions that can serve as a model for how the United States can begin to close its estimated $3.6 trillion infrastructure gap. This project can also serve as an example for how communities can collaborate with all levels of government, the private sector, and civil society to develop local solutions to local challenges.

Thank you for the opportunity to provide comments on the Ala Wai Watershed Flood Mitigation Project. We hope to the WBSIDA can serve an important role in providing a partnership framework for a resilient community and look forward to developing a strong and effective affiliation through the WBSIDA that includes the critical participation of the US Army Corps of Engineers.

Sincerely yours,

Rick Egged, President
Waikīkī Beach Special Improvement District Association

For additional information, questions or concerns please contact:

Waikīkī Beach Special Improvement District Association
(808) 923-0775
rickegged@waikikiimprovement.com

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Rick Egged
Waikiki Beach Special Improvement Association
2250 Kalakaua Avenue, Suite 315
Honolulu, Hawaii 96815

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Absence of ecosystem restoration features within the recommended plan
- Planning and collaboration with other agencies

As noted, the Ala Wai Canal study was originally developed as a multi-purpose flood risk management and ecosystem restoration study. Congressional mandates forced USACE to focus on critical issues with the study area to bring the on-going study to a conclusion within a mandated three year period, starting in late 2012. Discussions during this time between the USACE Honolulu District, USACE Headquarters, and the non-Federal sponsor, the DLNR, led the study team to focus exclusively on the flood risk portion of the study. This is the foundation of the current recommended plan. Opportunities for ecosystem restoration within the Ala Wai Canal Basin remain and are currently being evaluated by the non-Federal sponsor and others, however, ecosystem restoration features will not be a part of the FEIS recommended plan or a Federal recommendation to Congress.

Unfortunately, the issues related to water quality improvements, environmental education, recreational use enhancement and wetland restoration are not topics addressed by the FEIS nor does USACE have the authorization to study those issues. Use of public-private partnerships is currently being explored at a local level to potentially serve as a non-Federal sponsor for implementation of the recommended plan.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

From: Glen D. Lindbo
To: Ala Wai Canal Project
Cc: Wyatt, Michael D POH; wilmayoutz@hawaii.rr.com; Jared Miyahana; Patrick Gilg; Graham Mcivor
Subject: [EXTERNAL] RE: Ala Wai Canal Project Draft Feasibility Report Public Meeting Comments
Date: Thursday, October 01, 2015 1:35:10 PM

Dear All,

My apologies, Our contact for Cultec is now Mr. John Ditullio. His e-mail address is jditullio@cultec.com

Regards,

Glen D. Lindbo

International Wastewater Technologies, Inc.

Phone: 808-833-2298

Fax: 808-842-7719

glen@iwt-epw.com <mailto:jared@iwt-epw.com>

Striving For A Cleaner Environment

Blockedwww.internationalwastewater.com <Blockedhttp://www.internationalwastewater.com/>

Thank you.

From: Glen D. Lindbo
Sent: Thursday, October 01, 2015 12:46 PM
To: 'Alawaicanalproject@USACE.Army.mil'
Cc: 'michael.d.wyatt@usace.army.mil'; 'wilmayoutz@hawaii.rr.com'; Jared Miyahana; 'Bill Argeros'; 'Patrick Gilg'; 'Graham Mcivor'
Subject: Ala Wai Canal Project Draft Feasibility Report Public Meeting Comments

Dear All,

I would like to thank you all for your time. Although I was not a speaker, I do represent equipment that can help answer some of our needs and concerns brought up at your Public Meeting. We in Hawaii as mentioned have a chance to have flooding conditions. Although not as frequent as in other parts of the world, this can be quite devastating to our economy and livelihood.

I did have a short time to meet and speak to Ms. Wilma Youtz who spoke at the meeting, and Michael Wyatt of the Army Core of Engineers. I promised that I would send them some information therefore I am including them on this transmittal as well as my product contact e-mail addresses.

I would like to offer some products that can assist with some of the issues. I'll place them in the order of the flow of water.

1. Cultec Storm Chambers--Contact is Bill Ageros---Very strong product that allows for storage of water below ground. Open ponds create an environment for other pests such as mosquitoes, hazards for curious children, etc.

a. Place them at every home--a flash rain will run off the roof, down the down spout and into a chamber. This will minimize flows into the streams--recharging the ground water supply.

b. Place them under every parking lot. Water run-off will then enter the chambers--replenishing the ground water supply.

c. Place them "Under" the AlaWai Golf course for underground storage instead of eliminating a number of fairways.

d. Place them in strategic areas instead of open water storage. You can have a park above the storage areas.

e. Multiple other areas to place them.

f. Attached are case studies, and a brochure.

2. IBS Gruppe Flood Protection--Contact is Patrick Gilg-- Specialize in Property Flood Protection systems, Demountable Aluminum Flood Defense Systems, Flood Gates, container loaders and the like.

a. A proposal was to install a permanent flood protection wall. This being said, I since impeding 100 year floods are very rare, it may be a solution in which we could install a lower wall that would eliminate the requirement for property acquisition, and be less obtrusive to our views and sight lines. We can also install the product in a flush concrete floor. The only visible item will be the 4-ea hex bolts in the concrete that remain there until the time is required to install the flood protection system.

b. Please see the attached IBS Product pictures. Please watch the YouTube video at this link to gain a better understanding of the product. Blockedhttps://www.youtube.com/watch?v=PBfZ--0a9QA

3. Clear Water Controls Ltd-- Contact is Graham McIvor--

a. The concern was that pumps in Waikiki were failing causing sewage spills. Clear water controls module actually monitors the pump and it's various electrical characteristics. When the load on the pump increases as would be in the event of a clog, a 3-phase pump can reverse rotation to clear the clog. This function is calculated, and set for a predetermined period, and cycle.

b. Energy savings--Grease and other products accumulate on the leading edge of a pump impeller. This being the case, on a determined time, the pump will reverse its rotation cleaning the impeller, increasing efficiency and thus saving energy.

c. There are other modes and information that can be tracked and uploaded to a smart device.

d. Can be retrofit into most if not all 3-phase panels.

e. Physical size is very small.

Conclusion, we have options, and we should also look at protecting our infrastructure such as electrical plants, pump stations, at grade and below grade equipment. Protection of these items comes with a cost, but we should not sacrifice our homes, our aesthetics, our livelihood unless all options are considered.

I would be more than happy to send you additional information on any or all of our products.

Thank you for your time.

Regards,

Glen D. Lindbo

International Wastewater Technologies, Inc.

Phone: 808-833-2298

Fax: 808-842-7719

glen@iwt-epw.com <mailto:jared@iwt-epw.com>

Striving For A Cleaner Environment

Blockedwww.internationalwastewater.com <Blockedhttp://www.internationalwastewater.com/>

immediately notify the sender at (808) 833-2298 if you received it in error and delete this message and any attachment(s) from your system.

Thank you.

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Glen Lindbo
International Wastewater Technologies, Inc.
1931 Kahai Street
Honolulu, HI 96819

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you have submitted comments pertaining to the following issues:

- Consideration of sub-surface storage for flood risk management
- Design components of floodwalls
- Improvement to water quality within Ala Wai Canal

Table 3 of the report details a number of different management measures considered in the initial array. This includes sub-surface storage of stormwater for the purposes of managing stream flows. This idea was eliminated from further consideration due to the limited storage capacity and high implementation costs.

The design of project features is focused on the most economical design that will provide the needed function while observing compliance with applicable Federal law. The design of floodwalls must meet the criteria set forth in Section 106 of the Historic Preservation Act. This design will be coordinated with the State Historic Preservation Office to ensure appropriate design aspects are integrated into the project to ensure preservation of the historic value of the area.

Unfortunately, the issue of water quality improvement is not a topic addressed by the FEIS nor does USACE have the authorization to study that issue. It is suggested that you contact the State of Hawaii Department of Health for information related to water quality.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

http://www.poh.usace.army.mil/Missions/CivilWorks/CivilWorksProjects/AlaWaiCanal.aspx

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Rachel Sterling

Period 8

10/28/15

Ala Wai Canal Draft Feasibility Report

The Ala Wai Canal Project's purpose is to reduce flood risks in the Ala Wai Watershed. The 1-percent chance that extreme flooding would occur in Honolulu, Hawaii, causing disruptions in town and the wildlife should be taken very seriously. I believe that this project will help prepare us for that miniscule chance, yet there are many consequences that come with this project.

It is shown that rainfall has been increasing over the years in Hawaii and that the project will improve "navigation, flood control, hydroelectric power development, and other beneficial water uses, and related land resources", which will greatly benefit three thousand properties in risk of being flooded. This will help infrastructures and protect Hawaii's beaches, such as Waikiki, to not experience an overwhelming amount of debris when flooding occurs. The necessity of the concrete floodwalls, debris catchment feature, detention areas in developed watershed, and pump stations is important to Hawaii's nature as the hypothetical floods will bring in trash from the ocean and risk endangered animals and plants' lives.

On the other hand, these new constructions do impact Hawaii's economic state, as these inventions are not cheap. The State of Hawaii Department of Land and Natural Resources Engineering Division predicted that the total project cost would be $173,364,000 over the course of five years. These humongous pieces of

concrete material also negatively impact the visual effect of Hawaii, especially when tourism is the largest source of revenue for the state. Financially, some might argue that this money will come out of the taxpayers; the truth of the matter is that the expected annual benefits of these new constructions are estimated to be $20,256,000 with net average annual benefits of $11,752,000, while the annual cost would only be $8,504,000. Additionally, those who were worried about the health of the aquatic wildlife living in the beaches or in the Ala Wai Canal should be informed that the project includes migratory passage barriers in the Manoa stream to improve connectivity for native species.

Therefore, I believe that this project is considered beneficial to the State of Hawaii because even if the 1 percent chance is not significant, it does not hurt to be prepared and protect our lands before it is too late. Although, there should be more research done on the cultural and resources side of the argument, economically and environmentally, this project should be favorable.

US Army Corps of Engineers
BUILDING STRONG

Ala Wai Canal Flood Risk Management Study
Response to Public Comments Received from Review
of the Draft Feasibility Report
02 May 2017

ATTN: Rachel Sterling
1048 Iiwi Street
Honolulu, Hawaii 96816

This letter is written in response to the receipt of your comments submitted to the U.S. Army Corps of Engineers (USACE) and/or the State of Hawaii Department of Lands and Natural Resources (DLNR) during the public review of the Ala Wai Canal Flood Risk Management Feasibility Study and Integrated Environmental Impact Statement (FEIS) which occurred from 20 AUG 2015-09 NOV 2015. Thank you for taking the time to review the draft FEIS and submit comments. It is noted that you and/or your organization has no comments, requests for information, or concerns regarding adverse effects of the FEIS and are generally supportive of the recommended plan.

Thank you for your interest in the study. Your written comments and this response are included as an appendix to the final FEIS. An electronic copy of this document is currently available to the public at the following location:

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