DRAFT ENVIRONMENTAL ASSESSMENT

AHUALOA TO HONOKAʻA TRANSMISSION WATERLINE

DWS JOB NO. 2008-945

Various County and State Rights-of-Way
Within TMK (3rd.) Sections 4-5 and 4-6
Ahualoa and Honokaʻa, Hāmākua District, Hawaiʻi Island, State of Hawaiʻi

August 2010

Hawaiʻi County
Department of Water Supply
345 Kekuanaoa Street, Suite 20
Hilo, Hawaiʻi 96720

DRAFT ENVIRONMENTAL ASSESSMENT

AHUALOA TO HONOKAʻA TRANSMISSION WATERLINE

DWS JOB NO. 2008-945

Various County and State Rights-of-Way
Within TMK (3rd.) Sections 4-5 and 4-6
Ahualoa and Honokaʻa, Hāmākua District, Hawaiʻi Island, State of Hawaiʻi

PROPOSING/
APPROVING AGENCY:

County of Hawaiʻi
Department of Water Supply
345 Kekuanaoa Street, Suite 20
Hilo, Hawaiʻi 96720

CONSULTANT:

Geometrician Associates LLC
PO Box 396
Hilo HI 96721

CLASS OF ACTION:

Use of County Land
Use of County Funds

This document is prepared pursuant to:

The Hawaiʻi Environmental Policy Act,
Chapter 343, Hawaiʻi Revised Statutes (HRS), and
Title 11, Chapter 200, Hawaiʻi Department of Health Administrative Rules (HAR).

[This page intentionally left blank]

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

SUMMARY OF THE PROPOSED ACTION, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The County of Hawai‘i, Department of Water Supply (DWS), plans to construct a new transmission waterline extending from the DWS’s Ahualoa Well site, along the Old Mamalahoa Highway, to Ohia Street in Honoka‘a. The approximately 5.1-mile transmission waterline will increase transmission capacity, making the system more reliable, providing better service to customers, and improving fire protection capabilities. The improvements also include pressure reducing valves and modification of controls at existing reservoirs along the waterline route. The improvements are expected to be constructed within existing County or State rights-of-way or property, and no undisturbed area is involved.

The contractor will obtain an NPDES permit and develop and implement a Storm Water Pollution Prevention Plan (SWPPP) to contain sediment and storm water runoff during construction. In order to minimize the potential to disrupt traffic and pose a hazard, contractors will utilize a “cut and cover” method, in which asphalt pavement will be saw cut, and base course and underlying material will be removed by a backhoe. This material will be hauled to a stockpile site. The contractor will coordinate trench excavation, delivery of material to the work site, and waterline installation to minimize inconvenience to the public. Except for several streets in Honoka‘a and a crossing of the Hawai‘i Belt Road, most construction is along the Old Mamalahoa Highway. Traffic control will be used to ensure access to properties and safe and efficient traffic flow. The State Historic Preservation Division (SHPD) has determined that, with mitigation, the project will have no adverse effect on significant historic sites. No archaeological sites appear to be present, but archaeological monitoring will be required during ground-disturbing activities. If archaeological resources or human remains are encountered, work in the immediate area of the discovery will be halted and SHPD will be contacted. Design has taken into account several historic-era bridges, which will not be adversely affected. The Project will enable no more than negligible geographic expansion of the service area.

The combination of the new Ahualoa Well and the proposed transmission waterline may allow additional water services, the number of which will not be known until after the system is installed and evaluated. This growth will occur gradually and will be shared among existing serviceable properties that have not acquired a meter, properties with water variances that may now have the opportunity to acquire a meter, and newly subdivided properties. Given the context – a large number of existing properties that even without additional water services could be developed with homes or subdivisions but have not done so, as well as other and often more difficult to overcome requirements for subdivision including roads, drainage improvements, and markets for lots – the proposed transmission waterline is unlikely to trigger any large or rapid growth spurt in Hāmākua. Secondary effects of rapid, unplanned growth, such as overcrowded schools or traffic congestion, do not appear likely. However, the provision of more secure and reliable water service, improved fire protection, and perhaps substantial additional water services represents an opportunity for existing commercial lots. It may also serve additional development that serves community vision, which is being defined in the ongoing Hāmākua Community Development Plan.

[this page intentionally left blank]

PART 1: PROJECT DESCRIPTION, PURPOSE AND NEED AND ENVIRONMENTAL ASSESSMENT PROCESS

1.1 Project Description, Location and Property Ownership

The County of Hawai‘i, Department of Water Supply (DWS), plans to construct a new 12-inch ductile iron transmission waterline extending from the newly constructed Ahualoa Well and Tank Facility in Ahualoa, along the Old Mamalahoa Highway to Honoka‘a (Figures 1-2) (the “Project”). The approximately 5.1-mile transmission waterline would be installed within the Old Mamalahoa Highway, Kapuna Road, Pakalana Street, Lehua Street, Kamani Street, and Pikake Street, with a final connection to an existing waterline within Ohia Street in Honoka‘a Town. The Project will replace two existing fire hydrants along Old Mamalahoa Highway and install three new fire hydrants along Kamani Street. There are currently no fire hydrants along Kamani Street, so this project will provide much needed fire protection in this area. The project will also “loop” the existing Honoka‘a water system, which will improve the overall fire fighting capacity within Honoka‘a town. It will also include construction of three pressure reducing and sustaining valve stations, modifications to the inlet control valve stations at four existing tank sites, and installation of stub-outs along Lehua Street to a proposed future tank site. Except for several streets in Honoka‘a and a crossing of the Hawai‘i Belt Road (State Highway 19), most construction is along the Old Mamalahoa Highway.

At this stage of design, it appears that all improvements will be constructed wholly within existing County or State rights-of-way or property, and no undisturbed area is involved. The new waterline will be going through a number of existing driveways, which will be trenched, have waterlines installed across them, and then restored to at least their original condition. As design develops, it may occur that very minor acquisitions of private property right-of-way will be required. The Project is expected to enable an increase in the maximum number of water services within the DWS service areas of Honokaa, Ahualoa and Paauilo[1]. The actual number of potential additional services cannot be determined until after the system is installed and evaluated.

In order to minimize the potential to disrupt traffic and pose a hazard during the excavation and cover involved in placing the pipeline beneath the shoulder and road, contractors will utilize a “cut and cover” method, in which asphalt pavement will be saw cut, and base course and underlying material will be removed by a backhoe. This material will be hauled to a stockpile site. The contractor will coordinate trench excavation, delivery of material to the work site, and waterline installation to minimize inconvenience to the public. Traffic control in conformance with the most current edition or revision of the Manual on Uniform Traffic Control Devices for Streets and Highways will be used to ensure access to properties and safe and efficient traffic flow.

[1] DWS systems in Hāmākua consist of the Honoka‘a, Ahualoa-Pohakea-Pauuilo Mauka, and Paauilo Water Systems, which are interconnected to some degree. The village of Kukaiau is served from the Paauilo Water System. Kukuihaele and Ookala are served by their own separate water systems.

The new pipeline will cross a number of drainages along the Old Mamalahoa Highway, including 27 wet gulches (streams), dry gulches, and road drainage culverts (see Figure 1b). These include mapped main streams or tributaries of Inoino Gulch, Ahualoa Gulch, Kuilei Gulch, and Nienie Gulch, as well as other smaller, unmapped drainages. On most of these crossings, the pipeline will be attached to the side or underside of existing bridges or culvert, similar to existing pipelines (see Figure 2b). Areas of very minor drainage where runoff now crosses the stream in culverts will generally be handled by burying the pipe above the culvert either in the roadway or on the adjacent shoulder. At one minor swale the pipeline will be buried beneath the drainage, and at two locations a culvert will be dug up and replaced in order to allow the pipeline to pass within the road prism under the culvert. A National Pollutant Discharge Elimination System permit will be obtained for the Project, which will implement Best Management Practices to avoid or minimize impacts to any surface waters.

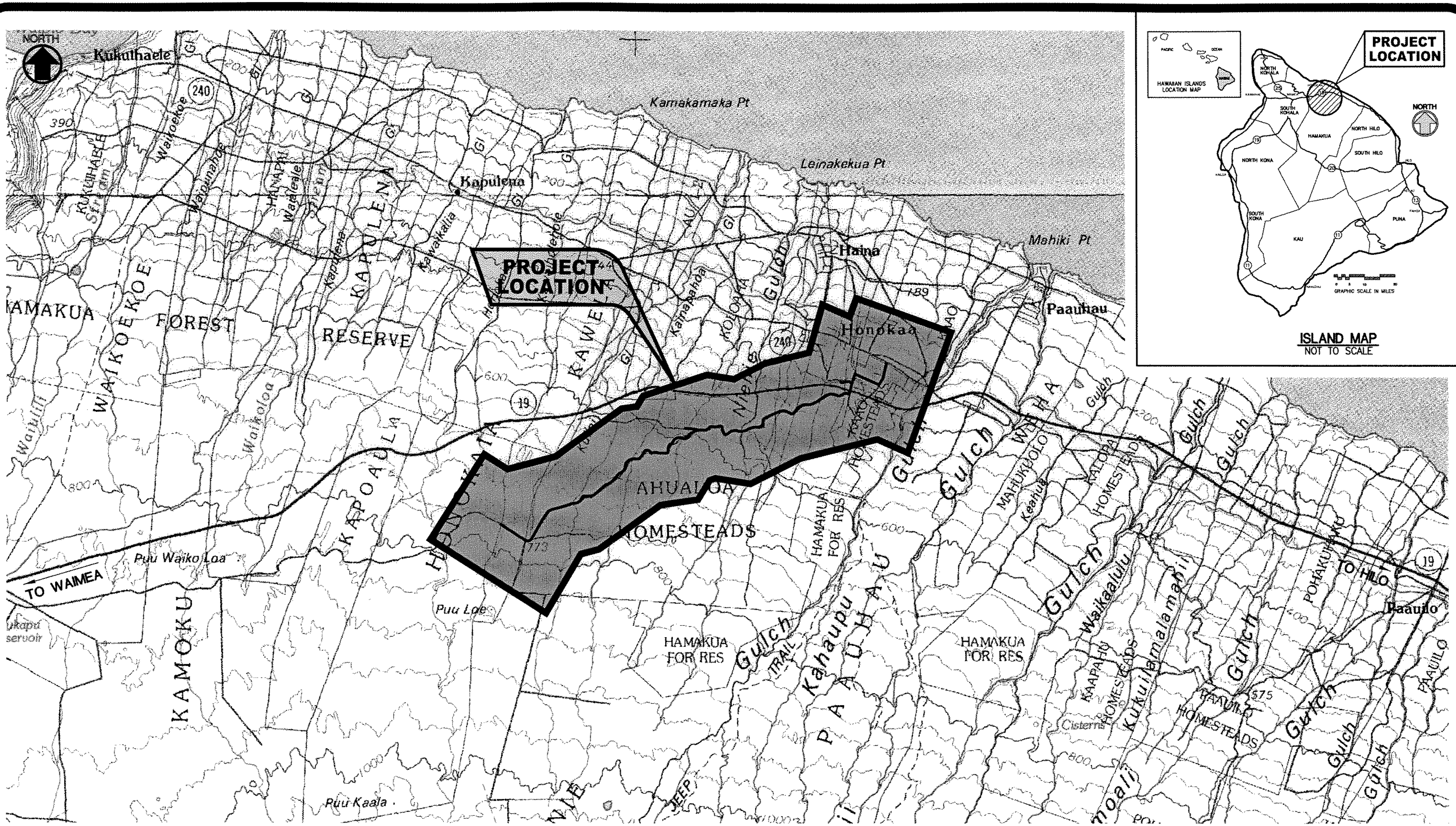
No firm cost estimates are yet available for the Project, but preliminary estimates for the cost is expected to be in the range of $6,500,000. Installation of the transmission waterline within the roadways should take about 12-14 months, and the entire Project should be complete within 18 months, weather permitting. These estimates will be refined as the Project proceeds.

1.2 Purpose and Need

The improvements would allow DWS transmission waterlines to deliver more water from the Ahualoa Well to make the system more reliable and provide better service to existing customers, as well as increase fire-fighting capacity. Currently, the Honokaʻa system and those interconnected to it have inadequate supply and redundancy. Most of the Ahualoa, Kalopa, Pohakea, and Paauilo mauka areas receive water from the Waimea water system via a cross-country transmission waterline that is decades old and subject to frequent main breaks, which is not as reliable and efficient as water from a local source. It is important for any water system to have extra capacity for the sake of redundancy, so that if the largest source in the particular water system is temporarily out of service, the system continues to have adequate capacity. The new Ahualoa Well and Ahualoa Well 1.0 MG Reservoir will offer adequate source and storage capacities, and the new transmission waterline will add the necessary key element of transmission to fully improve the system. The improvements are meant to promote public health and safety by improving water service for the Ahualoa and Honokaʻa communities.

1.3 Environmental Assessment Process

This Environmental Assessment (EA) is being conducted in accordance with Chapter 343 of the Hawaiʻi Revised Statutes (HRS). This law, along with its implementing regulations, Title 11, Chapter 200, of the Hawaiʻi Administrative Rules (HAR), is the basis for the environmental impact process in the State of Hawaiʻi. According to Chapter 343, an EA is prepared to determine impacts associated with an action, to develop mitigation measures for adverse impacts, and to determine whether any of the impacts are significant according to thirteen specific criteria. Part 4 of this document states the anticipated finding that no significant impacts are expected to occur; Part 5 lists each criterion and presents the preliminary findings for each made by the Hawaiʻi County



SCALE: 1" = 5000'
5000' 2500' 0 5000' 10000'

TITLE	**GENERAL LOCATION MAP** COUNTY OF HAWAII, DEPT. OF WATER SUPPLY	FIGURE 1
PROJECT	AHUALOA TO HONOKA'A TRANSMISSION WATERLINE, PROJECT NO. 2008-945 AHUALOA/HONOKA'A, HAWAII	DATE 06/2010

O:\Oproj\Joel\209-013 Ahualoa Waterline\Cadd\EA Graphics\FIG01.dwg\Scale: 1:1

NORTH

BEGIN PROJECT
(TIE-IN AT
AHUALOA WELL)

END PROJECT
(TIE-IN AT OHIA ST.)

TO WAIMEA

TO HILO

COSTA TANK

DESILVA TANK

SAWMILL TANK

NEW PRV

NEW PRV

FUTURE TANK

Honokaa

Camp Honokaia

Kawela Loa

KaLehua (Site)

Puu Loe

AHUALOA HOMESTEADS

HAMAKUA FOREST RESERVE

1 2 3 4 4a 5 6 7 8 9 9a 10 11 12 13 13a 13b 13c 14 15 16 17 18 19 20 21 22 23 24 25 26

LEGEND

NEW 12" TRANSMISSION WATERLINE

DRAINAGE CROSSING – ABOVE CULVERT

DRAINAGE CROSSING – BELOW CULVERT , REPLACE PORTION OF EXIST. CULVERT

DRAINAGE CROSSING – ATTACH PIPE TO EXIST. BRIDGE OR HEADWALL

SCALE: 1" = 2000'

2000' 1000' 0 2000' 4000'

TITLE	**SITE PLAN** COUNTY OF HAWAII, DEPT. OF WATER SUPPLY	FIGURE **1b**
PROJECT	AHUALOA TO HONOKA'A TRANSMISSION WATERLINE, PROJECT NO. 2008-945 AHUALOA/HONOKA'A, HAWAII	DATE 06/2010

O:\Oproj\Joel\209-013 Ahualoa Waterline\Cadd\EA Graphics\FIG01.dwg\Scale: 1:1

Figure 2 Photographs

2a Old Mamalahoa Highway Roadside ▲ ▼ 2b Pipe Hanging from Bridge

Department of Water Supply, the proposing/approving agency. If, after considering comments to the Draft EA, the agency concludes that, as anticipated, no significant impacts would be expected to occur, then the agency will issue a Finding of No Significant Impact (FONSI), and the action will be permitted to occur. If the agency concludes that significant impacts are expected to occur as a result of the proposed action, then an Environmental Impact Statement (EIS) will be prepared. DWS may also seek U.S. Safe Drinking Water Act State Revolving Funds for the improvements, which require addressing federal "cross-cutter" authorities, as discussed in Section 3.7 of this EA.

1.4 Public Involvement and Agency Coordination

The following agencies and organizations were consulted or will be consulted in development of the environmental assessment:

Federal:
- U.S. Army Corps of Engineers
- U.S. Department of Agriculture, Natural Resources Conservation Service
- U.S. Fish and Wildlife Service

State:
- Department of Health
- Office of Hawaiian Affairs
- Office of Planning, Hawai‘i CZM Program
- State Historic Preservation Division

County:
- County Councilman Dominic Yagong
- Department of Environmental Management
- Department of Public Works
- Planning Department
- Police Department
- County Council

Private:
- Hawai‘i Island Chamber of Commerce
- Sierra Club

Copies of communications received during early consultation are contained in Appendix 1a.

PART 2: ALTERNATIVES

2.1 No Action

Under the No Action Alternative, the existing transmission waterline would not be replaced and upgraded. The quality of water service in Honokaʻa, Ahualoa and Paauilo would not be adequately dependable and at some point in the near future would not be able to meet the normal growth in demand within the service areas. The opportunities to improve the water system offered by the new Ahualoa Well and Ahualoa Well 1.0 MG Reservoir would not be realized. Because of its mandate to provide reliable and high-quality water service to all its customers, the Hawaiʻi County Department of Water Supply considers the No Action Alternative undesirable. However, the No Action Alternative would also avoid disturbance of the roadside and temporary construction-related impacts to air quality, noise and traffic, and is an important baseline for evaluating environmental impacts of the proposed project.

2.2 Alternative Locations or Strategies

During early phases of project planning for the Ahualoa Well, which preceded this project, DWS engineers examined various potential routes and system configurations that could accomplish the goal of connecting water from the Ahualoa Well to the three existing DWS tank sites (Sawmill Tank Site, Costa Tank Site, and DeSilva Tank Site) and to Honokaʻa, where it is needed. Only Old Mamalahoa Highway provides an uninterrupted, cleared, direct, County-owned route to the tank sites and to Honokaʻa town. Other routes would be highly roundabout and/or require significant purchase of right-of-way and ground disturbance, while providing no offsetting benefit. It was determined that the proposed transmission waterline alignment provided the best overall route on most important criteria, including system interconnection, private property disturbance, ease of construction, construction costs, and future maintenance costs and logistics. The only disadvantage is traffic disruption during construction. Aside from this, there do not appear to be any environmental or other disadvantages associated with the proposed route, which has good access and no apparent environmental issues. No other potential routes without severe disadvantages are present. Accordingly, no alternative routes have been advanced in the Environmental Assessment. Given the location of the Ahualoa Well 1.0 MG Reservoir in upper Ahualoa, there is no other strategy or approach to water transmission and the connection to existing water storage that would accomplish the goals of the Project.

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

Basic Geographic Setting

The route for the new transmission waterline and appurtenant facilities is referred to throughout this EA as the *project site*. The term *project area* is used to describe the general environs of Ahualoa and Honokaʻa as well as the Hāmākua District.

The project site stretches between the access to the Ahualoa Well and Ahualoa Well 1.0 MG Reservoir on Old Mamalahoa Highway along a 5.1-mile transmission route along Old Mamalahoa Highway, Kapuna Road, Pakalana Street, Lehua Street, Kamani Street, and Pikake Street, with a final connection to an existing water main at the intersection of Pikake Street and Ohia Street in Honokaʻa Town. It ranges in elevation from about 2,530 feet to 1,150 feet above mean sea level. The climate of the project area is mild and moist, with an average annual rainfall of 75 to 80 inches (U.H. Hilo-Geography 1998:57). Adjacent use is primarily residential with scattered agriculture and undeveloped lots.

3.1 Physical Environment

3.1.1 Geology, Soils and Geologic Hazards

Environmental Setting

Geologically, this part of Hāmākua is located on the lower flank of Mauna Kea volcano. The surface of most of the project site consists of weathered basalt soils on Holocene- and Pleistocene-era lava flows of the Laupahoehoe Volcanics series (Wolfe and Morris 1996). In the vicinity of the Ahualoa Well, the surface consists of weathered basalt soils on Pleistocene-era lava flows of the Hāmākua Volcanics series.

The soil on the *mauka* portion of the project site, including the vicinity of the Ahualoa Well, is classified by the U.S. Natural Resources Conservation Service (formerly Soil Conservation Service) as Honokaʻa silty clay loam (HTD) (U.S. Soil Conservation Service 1973). Near the intersection of the Old Mamalahoa Highway and Kumuhele Road, the soil is classified as Rough Broken land (RB). Moving further *makai* toward Honokaʻa, in the area of Kapuna Road, the soil is classified as "low-elevation" Honokaʻa silty clay loam (HsD). Moving closer to Honokaʻa, project site soils include more rough broken land, more low-elevation Honokaʻa silty clay loam, and then Kukaiau silty clay loam on 12 to 20 percent slopes (KuD) and Kukaiau silty clay loam, 6 to 12 percent slopes (KuC). The latter type of Kukaiau soil is also found at the site of a proposed water tank located in Honokaʻa town off Lehua Street. Kukaiau silty clay loams prevail on the remainder of the project site in Honokaʻa, including a small area of Kukaiau silty clay loam on 20 to 35 percent slopes (KuE) on a short portion of Kamani Street, followed by KuD and then KuC as the proposed water line route reaches its terminus at Ohia Street.

Both the Honokaʻa and Kukaiau soil series are deep and formed from weathered volcanic ash. Honokaʻa soils are s well-drained, with slow runoff and rapid permeability, and may be up to 65 inches deep. Kukaiau soils are also well-drained, with slow to rapid runoff and moderate permeability, and are usually 48 to 75 inches deep before lithic bedrock is encountered. Both types of soil are typically used for sugarcane cultivation, and now support diversified agriculture, secondary forest, or pasture. The natural vegetation for both includes guava and Hilo grass. Rough broken land typically consists of well-drained silty clay loam up to 30 inches deep.

The entire Big Island is subject to lava flows and earthquakes. Volcanic hazard as assessed by the U.S. Geological Survey in this area of Hāmākua is Zone 8, on a scale of ascending risk from 9 to 1 (Heliker 1990:23). The low hazard risk is based on the fact that Mauna Kea is presently considered a dormant volcano. Only a few percent of Zone 8 areas have been covered by lava in the past 10,000 years and they are therefore considered among the least hazardous areas on the island. As such, there is negligible risk of lava inundation over relatively short time scales in the project area.

In terms of seismic risk, the entire Island of Hawaiʻi is rated Zone 4 Seismic Hazard (*Uniform Building Code, 1997 Edition*, Figure 16-2). Zone 4 areas are at risk from major earthquake damage, especially to structures that are poorly designed or built, as demonstrated in the 6.7-magnitude quake of October 15, 2006. Certain cut-slopes on the Old Mamalahoa Highway may be subject to minor incidents of mass wasting including rockfall and soil slumps.

Impacts and Mitigation Measures

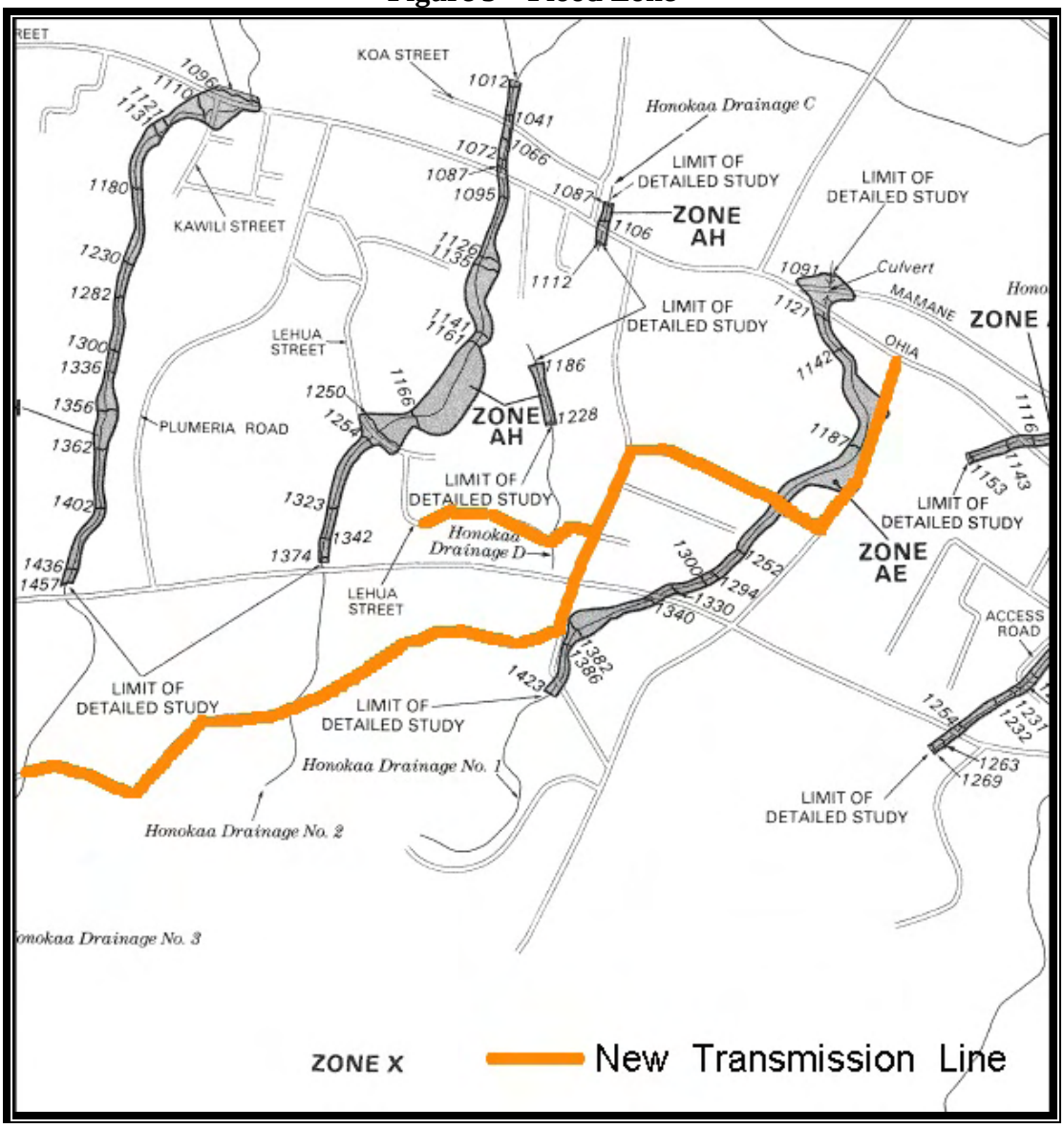
In general, geologic conditions impose only minor constraints on the proposed action that can be mitigated in design, and the proposed water system improvements are not imprudent to construct. The soils do not pose any problems in terms of excavation or stability to the proposed water line. Where disturbance to existing slopes are unavoidable, potential mass wasting will be mitigated through slope stabilization where appropriate.

3.1.2 Drainage, Water Features and Water Quality

Existing Environment

The Hāmākua District is heavily dissected by a radial network of sub-parallel ephemeral streams, typical of weathered volcanoes in humid climates. The project area has no perennial streams, but several gulches cross the route of the transmission waterline, including Kuilei Gulch, Ahualoa Gulch and Nienie Gulch. No known areas of local (non-stream related) flooding are present. Local ephemeral drainages may overflow after very heavy rains. The Flood Insurance Rate Maps (FIRM) show that nearly all of the project site is located within Zone X, areas not known to be within the 500-year floodplain (only a portion of the project site, as shown in Figure 3, has been flood mapped). A portion of the route along Kamani Street and Pikake Street in Honokaʻa town lies within Zone AE. This is defined as the area subject to inundation from a flood having a 1 percent chance of occurring in any given year. This flood is referred to as the “100-year” flood or “base flood,” and it may occur more or less often than once every 100 years.

Figure 3 Flood Zone



Source: FEMA Flood Insurance Rate Map Panel FM 1551660205 C, Sept. 16, 1988

Impacts and Mitigation Measure

Because of the limited nature of disturbance at any particular portion of the project site, the risks for flooding or impacts to water quality are negligible along most of the route. Trenching of a water line within a floodplain will not have adverse effects upon the floodplain. However, because the Project will cross a number of intermittent streams, special precautions must be taken during construction and as part of design to avoid temporary and permanent impacts.

Wherever practical, the transmission waterline will be attached to the side of existing bridges to minimize impacts. In areas without bridges or where this is otherwise impractical, design has sought to bury the transmission waterline above or below the culvert within or adjacent to the right-of-way, avoiding disturbance to stream banks or beds. Figure 1b depicts the nature of each crossing.

The U.S. Army Corps of Engineers (USACOE) was consulted as part of this EA process to determine whether Section 404 Clean Water Act permits will be required (see Appendix 3 for correspondence). The letter to the USACOE discussed all the areas in which the proposed pipeline approaches waters of the U.S. but specifically requested information on three crossings that involved work in the sides or beds of road drainage ditches or topographic swales, which are indicated in Figure 1b as Crossings 12, 13 and 27. In only one instance will the pipeline be buried beneath a crossing that will disturb the drainage channel, at Crossing 27. This minor unmapped topographic gully between two homes does not appear to have any of the characteristics of a water of the U.S., as it flows rarely and only in the case of a heavy rain, and lacks a channel or an ordinary high water mark. At Crossing 13, the culvert section within the trench excavation will be dug up and reconstructed in order to allow the waterline to pass within the road prism under the culvert. At Crossing 12, the waterline will be installed above the culvert. These are very minor culverts that permit road-generated runoff to pass across rather than over the road, as opposed to natural swales or ephemeral streams.

The USACOE stated in a letter of April 21, 2010, that:

> "We have reviewed your submittal pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404). We have determined that the three crossings are not jurisdictional; therefore, a Department of Army (DA) permit is not required for any proposed or future work.
>
> Section 10 requires that a DA permit be obtained for certain structures or work in or affecting navigable waters of the United States (U.S.), prior to conducting the work (33 U.S.C. 403). Because the sites are not a navigable water, a Section 10 DA permit is not required. Section 404 requires that a DA permit be obtained for the discharge of dredged and/or fill material into waters of the U.S., including wetlands and navigable waters of the U.S, prior to conducting the work (33 U.S.C. 1344).
>
> We have reviewed the submitted information, as well as all available in-office reference materials. We have determined that Crossing Nos. 12 and 13 are not considered a water of the U.S. As such, work that would occur within these areas does not require DA authorization under Section 404 of the Clean Water Act. While we do consider the unnamed swale at Crossing No. 27 to be a non-relatively permanent water of the U.S., we do not believe there to be a significant nexus to the chemical, physical, or biological integrity of the Pacific Ocean, a traditional navigable water. Therefore, work that would occur at this location does not require DA authorization under Section 404.

This letter contains an approved JD for Crossing No. 27 and is valid for a period of 5 years from the date of this letter unless new information warrants revisions of the determination."

In order to minimize the potential for sedimentation and erosion, the contractor shall perform all earthwork and grading in conformance with Chapter 10, Erosion and Sediment Control, Hawai'i County Code. Because the Project will disturb more than one acre of soil, a National Pollutant Discharge Elimination System (NPDES) permit must be obtained by the contractor before the Project commences. This permit requires the completion of a Storm Water Pollution Prevention Plan (SWPPP). In order to properly manage storm water runoff, the SWPPP will describe the emplacement of a number of best management practices (BMPs) for the Project. These BMPs may include, but will not be limited to, the following:

- Minimization of soil loss and erosion by revegetation and stabilization of slopes and disturbed areas of soil, possibly using hydromulch, geotextiles, or binding substances, as soon as possible after working;
- Minimization of sediment loss by emplacement of structural controls possibly including silt fences, gravel bags, sediment ponds, check dams, and other barriers in order to retard and prevent the loss of sediment from the site;
- Minimizing disturbance of soil during periods of heavy rain;
- Phasing of the Project to disturb the minimum area of soil at a particular time;
- Application of protective covers to soil and material stockpiles;
- Use of drip pans beneath vehicles not in use in order to trap vehicle fluids;
- Routine maintenance of BMPs by adequately trained personnel; and
- Proper cleanup and disposal at an approved site of material from significant leaks or spills, if they occur.

3.1.3 Flora, Fauna and Ecosystems

Existing Environment

The natural vegetation of this part of Hāmākua was most likely sub-montane rain forest dominated by *'ōhi'a* (*Metrosideros polymorpha*) and *koa* (*Acacia koa)* (Gagne and Cuddihy 1990). These original communities, however, have been destroyed or heavily degraded by sugar cane cultivation, cattle grazing, and clearing for small farms and residences, and the vegetation of Ahualoa and Honoka'a is now either managed vegetation (i.e., farms, pasture or landscaped grounds) or adventive "communities" of various alien weeds, with only small areas of remnant forest, mainly present in the upper areas of the Hāmākua coast.

The project site is adjacent to paved roadways. The current vegetation along Old Mamalahoa Highway is dominated by the typical non-native roadside trees, shrubs and ferns of lowland Hāmākua, including *Eucalyptus grandis*, *Eucalpytus robustus*, paperbark tree (*Melaleuca*

quinquenervia), rose apple (*Syzygium jambos*), ironwood (*Casuarina equisetifolia*), Kahili ginger (*Hedychium gardnerianum*), guinea grass (*Panicum maximum*), and elephant grass (*Pennisetum purpureum*), as well as some more unusual non-native trees such as mountain ash (*Fraxinus uhdei*) and Padang cassia (*Cinnamomum burmannii*). At higher elevations, native species including *ʻōhiʻa*, *hapuʻu* (*Cibotium glaucum*), and *uluhe* fern (*Dicranopteris linearis*) appear. In lower areas, guava (*Psidium guajava*), ironwood, and guinea grass tend to dominate. At the very lowest elevations of Old Mamalahoa Highway, sugar cane (*Saccharum officinarum*), a relic of cultivation, is still present. *Makai* (downhill) of Highway 19 the vegetation consists of the grasses and sedges within the managed road verge and landscaped edges of yards. A complete list of species found in the project site is contained in Appendix 4.

The project site in general does not provide habitat for native animals. Cats, dogs, mice, rats and mongooses probably all occupy land adjacent to the transmission waterline route, which also supports pasture for cows, horses, sheep and goats. A large variety of alien birds makes up the avifauna of this area.

It is recognized that listed terrestrial vertebrates may be present in this part of Hāmākua and may overfly, roost, nest, or utilize resources here, including the endangered Hawaiian Hawk (*Buteo solitarius*), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), the endangered Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened Newell's Shearwater (*Puffinus auricularis newelli*). No temporary or permanent lighting or erect structures such as poles are planned, and therefore no impacts to listed seabirds are anticipated. There are tall trees of various species (notably eucalyptus) present along Old Mamalahoa Highway, some of which may be conducive to providing nesting sites for Hawaiian Hawks. It is not currently anticipated that any large trees would need to be removed. Furthermore, the area in question is in active use as a rural highway with farms and homes on both sides, and it appears unlikely that the Project, which involves a narrow and relatively shallow trench, would provide levels of disturbance to hawks significantly greater than the extensive tree-trimming, pasture and lawn mowing, truck movement, cattle operations, and structure construction that occur on a daily basis along the route.

It is conceivable that the pipeline construction will require the removal of a small amount of shrubby vegetation or small trees that currently encroach into the highway shoulder. There is at least some chance that some of Hawaiian hoary bats may utilize the roadside vegetation for roosts. In order to avoid impacts to the bat, the County of Hawaiʻi and its contractors will specifically refrain from activities that trims or removes trees larger than 15 feet in height during the critical pupping months for the Hawaiian hoary bat, from May 15 to August 15 of each year.

Impacts and Mitigation Measures

Because of the lack of native ecosystems and threatened or endangered species in the roadside areas to be affected by construction and use of the transmission waterline, it would appear that the Project would likely have no adverse impacts to biological resources.

3.1.4 Air Quality, Noise, and Scenic Resources

Environmental Setting

Air pollution in Hāmākua is minimal, and is mainly derived from volcanic emissions of sulfur dioxide, which convert into particulate sulfate and produce a volcanic haze (vog) that occasionally blankets the district. The persistent tradewinds keep the project area free of vog for most of the year.

Noise on the project site is low and derived mainly from motor vehicles, with occasional noise from residential, farming and road maintenance activities.

Most of the transmission waterline route is along the Old Mamalahoa Highway, a rural road regarded by most residents and visitors as highly scenic, although not officially noted in the General Plan as a scenic resource.

Impacts and Mitigation Measures

The proposed action would not measurably affect air quality or noise levels except during the trenching associated with construction. Operationally, noise levels would be unchanged for most of the route, as the Project involves replacement of an existing transmission waterline. The three new pressure reducing valve stations will be located in underground reinforced concrete boxes and will not produce noise. There will be two new reservoir influent control valve stations (one at the Sawmill Tank and one at the Costa Tank) that will be equipped with anti-cavitation trim, which will eliminate the high pitched hissing and knocking noise associated with cavitation that are sometimes heard with water pipes.

In order to minimize construction noise impacts to nearby sensitive receptors, construction will be conducted only during reasonable hours. Development would entail limited excavation, grading, compressors, vehicle and equipment engine operation, and construction of new infrastructure. These activities may generate noise exceeding 95 decibels at times, impacting nearby sensitive noise receptors, including residences. In cases where construction noise is expected to exceed the Department of Health's (DOH) "maximum permissible" property-line noise levels, contractors would obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction. DOH would review the proposed activity, location, equipment, project purpose, and timetable in order to decide upon conditions and mitigation measures, such as restriction of equipment type, maintenance requirements, restricted hours, and portable noise barriers.

The project site is adjacent to paved roadways, but the above ground, independently supported or bridge-fastened pipeline will be minimally visible from the roadway. There will be a minor addition of pavement or geotextile fabric in certain unpaved areas where the transmission waterline passes through, in order to ensure safety, provide stability and prevent erosion. No aspect of the Project would have a substantial permanent effect on the scenery of the route.

3.1.5 Hazardous Substances, Toxic Waste and Hazardous Conditions

The proposed improvements traverse a long route with longstanding agricultural, residential, transportation, and utility uses. No systematic assessment of the roadway or the several hundred adjacent properties was conducted to determine if hazardous materials, toxic waste or other hazardous conditions may have been present on the site. Reconnaissance of the site during topographic, botanical and design surveys did not reveal any evidence of such conditions, nor have there been reports of such conditions. Based on this, there does not appear at this time to be any outstanding concern related to these issues. If evidence of suspicious materials or conditions appears during excavation or other construction, the County may undertake a systematic assessment of the area in question to determine if remediation is required.

3.2 Socioeconomic and Cultural

3.2.1 Socioeconomic Characteristics

The Project would affect the district of Hāmākua and more specifically Honokaʻa and Ahualoa. Table 1 provides information on the socioeconomic characteristics of the Honokaʻa CDP along with those of Hawaiʻi County as a whole for comparison, from the U.S. 2000 Census of Population.

Table 1: Selected Socioeconomic Characteristics

CHARACTERISTIC	ISLAND OF HAWAIʻI	HONOKAʻA
Total Population	148,677	2,233
Percent Caucasian	31.5	25.0
Percent Asian	26.7	42.9
Percent Hawaiian	9.7	3.9
Percent Two or More Races	28.4	27.0
Median Age (Years)	38.6	40.2
Percent Under 18 Years	26.1	25.2
Percent 65 Years and Over	13.5	21.6
Percent Households with Children	21.3	37.2
Average Household Size	2.75	2.88
Percent Housing Vacant	15.5	8.9
Median Household Income	$39,805	$41,964
Percent Below Poverty Level	15.7	9.6

Source: U.S. Bureau of the Census. May 2001. *Profiles of General Demographic Characteristics, 2000 Census of Population and Housing, Hawaiʻi.* (U.S. Census Bureau Web Page).

Population projections conducted as part of the Hawaiʻi County General Plan and published in the 2009 Hawaiʻi County Data Book forecast a generally low growth rate of about 20 percent over 20 years for Hāmākua (Table 2). Even this low level of growth may not have occurred, partly because of the extended economic downturn. Relatively little new growth is expected near Kukuihaele, but construction of the well is required to service existing customers.

Table 2: Population Projections

Area	2000	2005	2010	2015	2020
Hawai‘i County	148,677	159,907	176,938	195,965	217,718
Hāmākua	6,108	6,196	6,561	6,933	7,328

Source: Hawai‘i County. County of Hawai`i General Plan 2005(http://www.co.hawaii.hi.us/la/gp/toc.html

Impacts

The proposed project would benefit public health and welfare in the Honoka‘a and Ahualoa area through improvement in water supply, a basic and required public service for a community. The issue of secondary impacts through growth induction is discussed in Section 3.4.

3.2.2 Cultural Resources

Existing Environment

The project site is located along the Old Mamalahoa Highway in the Hāmākua *moku* (district) and directly involves the community of Ahualoa and the town of Honoka‘a. According to background research for an archaeological survey for the replacement of the Costa and Sawmill water tanks (Hawai‘i County Department of Water Supply 2002), the portion of the Ahualoa Homesteads containing the project site appears to have been carved out of the upper reaches of at least four *ahupua‘a*: Lauka, Kuliaha‘i, Koloaha, and Ahualoa. These are all relatively narrow and short land units that are cut off on the *mauka* sides by the larger *ahupua‘a* of Nienie, which in turn is cut off on its *mauka* side by the *ahupua‘a* of Pa‘auhau. Cordy (1994) documented land use patterns evident in Mahele records. It is likely that during precontact times the general area supported a forest canopy, perhaps interrupted in areas by long in linear dryland taro fields. The forest zone in Hāmākua was traditionally a location for collecting *wauke* and *mamaki* bark for fish nets and cloth, for bird catching to obtain feathers, and for harvesting koa canoe logs. Natural features such as caves as well as temporary open-air shelters were used as short-term habitations during resource extraction expeditions. Access to the upper forest areas would have been along repeatedly used trails, which may have left traces on the landscape.

The earliest historical knowledge of Hāmākua comes from legends written by Samuel Kamakau (1961) of a 16th-century chief ‘Umi-a-Liloa (son of Liloa), who at that time ruled the entire island of Hawai‘i. Descendants of Umi and his sister-wife were referred to as “Kona” chiefs, controlling Ka‘ū, Kona, and Kohala, while descendants of Umi and his Maui wife were “Hilo” chiefs, controlling Hāmākua, Hilo, and Puna (Kelly 1981:1). According to Kamakau (1961), they fought over control of the island, desiring access to resources such as feathers, *māmaki* tapa, and canoes on the windward side, and *wauke* tapa and warm lands and waters in leeward areas (Kelly 1981:3).

By the time of the Mahele in the 19th century use of such areas undoubtedly diminished. Very few *kuleana* (awards for homes or farms for commoners) were awarded in the above-named *ahupua‘a*, and all were well *makai* of the Hawai‘i Belt Road.

While little is known about the specific pre-contact history of the Honokaʻa area, its agricultural history since 1850 is well-documented. In 1876, Hawaiian laborers planted the first sugar cane crop at the 500-acre Honokaʻa Sugar Plantation (HSPA Archives, 1989). The plantation was expanded with the creation of the Honokaʻa Sugar Company in 1878. The following year, its founder, F.A. Schaefer, established another sugar company, Pacific Sugar Mill, which operated on its own until 1913, when it sold its mill and began sending its cane to be ground at the Honokaʻa mill. In 1928, the two were merged under the name of the Honokaʻa Sugar Company, which eventually grew to more than 9,000 acres, half of which was fee simple lands. Initially, cane was hauled to the railroad or mill by mule- and horse-drawn wagons. Begun in 1904 and completed in 1910, two ditches were dug by the Hawaiian Irrigation Co. to bring water from the Kohala Mountains. Honokaʻa Sugar Company took over the irrigation company in 1915 and used the water to flume the harvested cane to the company's 6½-mile rail system. An inclined tramway was used to transport bags of sugar to the plantation's warehouse. Beginning in 1919, the company began using a cable extending down the cliff to load the sugar directly onto inter-island steamers for the trip to Honolulu.

The plantation's work force was initially Hawaiian but was soon expanded with the immigration of Chinese, Portuguese, Japanese, Puerto Rican, Korean, and Filipino workers, many of whom lived in the several hundred houses owned by the plantation. The plantation also provided outdoor cookhouses, bathhouses and laundries that had running water, along with fuel and medical care. Most of the labor eventually was performed by contract workers, who were not provided housing.

The plantation extended from the coast three miles upslope, to the 1,955-foot elevation. The plantation had roughly 10 miles of ocean frontage along a high cliff. The region consists of gulches and steep slopes, which presented a variety of challenges for the growing and harvesting of cane. In 1916, Honokaʻa Sugar Company started the world's first commercial macadamia nut producer with the planting of trees in areas unsuitable for sugar cane. That same year it started its Honokaa Ranch division with 600 head of cattle on 2,600 acres located above the cane fields. In 1978, the company merged with Laupahoehoe Sugar Company. The new plantation was purchased by Francis Morgan in the early 1980s and renamed the Hāmākua Sugar Company. It ceased operations in 1993.

Ahualoa, which is located several miles southeast of Honokaʻa, is a rural area originally settled by Portuguese and Japanese workers supporting the sugar plantation (Anderson 2009). Ahualoa also has a history of ranching, and was the site of a slaughterhouse that operated for a century before closing in 2008. Ahualoa was also the location for early plantings of coffee, which is still being grown there today.

An effort was made as part of the EA to obtain information about any potential traditional cultural properties and associated practices that might be present or have taken place on or near the project site. As discussed in the next section, no archaeological remains reflecting cultural history or supporting cultural values appear to be present. Furthermore, no caves, springs, *puʻu*, native forest groves, gathering resources or other natural features are present on or near the project site. The vegetation is primarily landscaping or weeds and does not contain the quality and quantity or resources that would be important for native gathering. Contact was made with members of the former Hawaiian Civic Club of Hāmākua, which was located in Honokaʻa before being disbanded

several years ago. Club member Melvin Ah Ching, who served as the club's historian, said he was not aware of any cultural sites along the route of the transmission waterline, which he said passes through former pasture land. Ah Ching, a retired County fireman who moved to Honoka'a in 1952, said he was also not aware of any cultural practices on the project site. The Office of Hawaiian Affairs was contacted as part of early consultation and did not identify any properties or practices. In summary, it would appear that no known valued natural, cultural or historical resources, including archaeological sites, ceremonial sites, or areas with traditional cultural practices, are present along or directly adjacent to the affected roadside.

Impacts and Mitigation Measures

Although there are no indications so far from literature review or consultation with State Historic Preservation Division, the Office of Hawaiian Affairs, or any other source that there are any valued natural, cultural or historical resources, and thus no impact to such resources would occur, these agencies and community groups are being supplied a copy of the Draft EA in order to help finalize this finding.

3.2.3 Archaeology and Historic Properties

Existing Environment, Impacts and Mitigation Measures

The Project would occur within the disturbed right-of-way of existing roadways and DWS facilities and no archaeological sites appear to be present. The State Historic Preservation Division (SHPD) was consulted by letter concerning archaeological and architectural sites (see Appendix 2).

In a letter of April 20, 2010, SHPD concluded that the project would not have an effect on significant historic properties in the form of archaeological sites, as long as archaeological monitoring was conducted during ground-disturbing activities (see Appendix 2). DWS will require archaeological monitoring as a contractor conditions.

SHPD was also consulted to assist in determining whether the bridges along the Old Mamalahoa Highway were historic properties and, if so, whether the Project would have any effect on them. In a letter of May 24, 2010 (see Appendix 2), SHPD concluded that certain of the bridges along the transmission pipeline route were eligible for the Hawai'i Historic Register, because they exemplify rural roadway development in Hawai'i in the 1920s and 1930s and have maintained integrity in terms of workmanship, design, materials, location, feeling and association from those periods until today. Given the assurance that engineering studies having determined that the additional weight of the waterline to be supported by each bridge will not affect the structural integrity of the bridges, SHPD concluded that the project would not affect historic properties.

If, during archaeological monitoring, any historic resources, including artifacts, human skeletal remains, lava tubes, and lava blisters/bubbles, are encountered, work in the immediate area of the discovery will be halted and SHPD contacted as outlined in Hawai'i Administrative Rules 13§13-275-12.

3.3 Infrastructure

3.3.1 Utilities

Existing Facilities and Services

Electrical power to the island of Hawai‘i is supplied by Hawai‘i Electric Light Company (HELCO), a privately owned utility company regulated by the State Public Utilities Commission, via their island-wide distribution network. The water source is part of the network operated and maintained by the County of Hawai‘i Department of Water Supply. Telephone service is available from Hawaiian Telcom. No municipal wastewater system is present in the project area.

Impacts and Mitigation Measures

The proposed action will install an additional County transmission waterline. No electrical or telephone hookups will be required, and the Project would not have any substantial impact on existing electrical facilities. Appropriate coordination with HELCO and Hawaiian Telcom will be conducted during design and construction. Several existing sewer laterals along Pakalana Street will be concrete-jacketed wherever they cross the transmission waterline. Appropriate coordination with the County of Hawai‘i Wastewater Division will be conducted during design and construction. No other utilities will be affected in any way.

3.3.2 Roadways

Existing Facilities

The Old Mamalahoa Highway, a two-lane County road, provides access to Ahualoa Well and for most of the route of the transmission waterline (see Figure 1b). Various other County roadways are involved, and the Project also crosses the Hawai‘i Belt Road (State Highway 19).

Impacts and Mitigation Measures

The Project would require construction vehicles to access the transmission waterline route and DWS facilities site during a period of up to 18 months for excavating, hauling materials, removing waste, installation of the new transmission waterline and associated facilities, and trench restoration work. Implementation of the Project would affect local traffic through a series of short-term single-lane closures during excavation and installation of the new 12-inch waterline throughout the construction period. Construction plans would insure provision of access to all properties during this period. Appropriate permits and approvals from the Hawai‘i County Department of Public Works and the Hawai‘i State Department of Transportation, Highways Division, would be obtained.

Operationally, as the Ahualoa Well and several reservoirs along the transmission waterline already exist, no increase in traffic related to occasional DWS visits is expected at those sites. DWS staff

will be required to make occasional visits to the future reservoir site in Honokaʻa town, but those should have a negligible impact due to its location in an urban setting.

3.4 Secondary and Cumulative Impacts

3.4.1 Growth-Inducing and Other Secondary Impacts

Growth-Inducing Impacts

The provision of roads, utilities and other infrastructure may not only serve but also induce growth, whether planned or unplanned. This can produce a wide variety of secondary impacts, such as increased traffic and demand for public services that may exceed the cost of tax revenues gained by development.

As discussed in Section 1.1, the limitations on source, storage and transmission in the DWS service areas of Honokaʻa, Ahualoa and Paauilo have generally not restricted existing residential properties from acquiring new meters. However, it has constrained the ability to provide water for some commercial properties and for new developments such as shopping centers or housing subdivisions. With the combination of the new Ahualoa Well and Reservoir and the proposed transmission waterline, the Project is expected to provide additional water services for future residential and commercial development. The actual number of potential new services cannot be determined until after DWS has completed a thorough analysis of the system and evaluated its performance after installation. Although some of this extra capacity will be retained by DWS in order to have system redundancy, as discussed in Section 1.2, the remainder will be absorbed through a number of services at an unknown rate over time. The following types of users will be involved:

1. Lots, mostly undeveloped, that lie along or near distribution lines and have the ability to acquire a service meter but have not chosen to exercise this right. Each year in Hāmākua, as vacant lots are built on, a few of these lots acquire meters, a process that is expected to continue. About 70 residential lots within Honokaʻa currently do not have meters (some may share a meter with an adjacent property). This process is expected to absorb perhaps a dozen of the new available services per year over the next ten years.
2. Developed or undeveloped lots that were subdivided with variances that allowed them to substitute catchment for a standard water system. Currently, the County of Hawaiʻi GIS system shows just over 100 approved variances within Honokaʻa, Ahualoa and Paauilo areas. However, most such variances were granted because of a lack of adequate pressure or because the distribution lines at or near the lot were of inadequate size, a condition that will not necessarily be improved by this new transmission waterline. Where the extension of a water main is necessary, DWS's Rules and Regulations require subdividers to provide a new 6-inch water line or to upgrade an existing line to six inches back to the nearest 6-inch line. Therefore, only a small number of these lots with variances are expected to take advantage of the expanded water service.

3. Existing commercial lots in Honokaʻa. DWS has received inquiries regarding water availability for various commercial properties located off Mamane Street that were restricted from further development because water availability has been limited to one 5/8-inch meter with a maximum daily usage of 600 gallons. There are approximately 15 commercial lots that do not have service and there may be up to 10 more lots that have service, but would likely request to upsize their meters when more water becomes available. Fire flow has been an issue, since the existing water main in the center of Honokaʻa town is inadequate to provide the 2,000 gpm fire flow that DWS Water System Standards require. The project will increase fire flow capacity by "looping" the system, and these lots may now be able to be developed in conformance with their zoning.
4. Lots with zoning appropriate for subdivision. Subdivision can be undertaken by a landowner and requires ministerial approval from the County Planning Department, with input from the Department of Public Works (on roads and drainage) and the Department of Water Supply that may be applied as conditions by the Planning Director. The Subdivision Code has required a public water system since 1967 and the General Plan has contained a standard that water systems meet the requirements of the Department of Water Supply and the Subdivision Code.

It is probably the latter group that represents the largest potential to absorb extra capacity over time. A review of the County of Hawaiʻi GIS system indicates there are many hundreds of properties in Hāmākua with a size at least twice as large as their minimum zoning, indicating the potential to subdivide. Outside the towns of Honokaʻa and Paauilo, there are many such large properties with zoning of A-5a (Agricultural, 5 acre minimum lot size) or A-40a (Figure 4a).

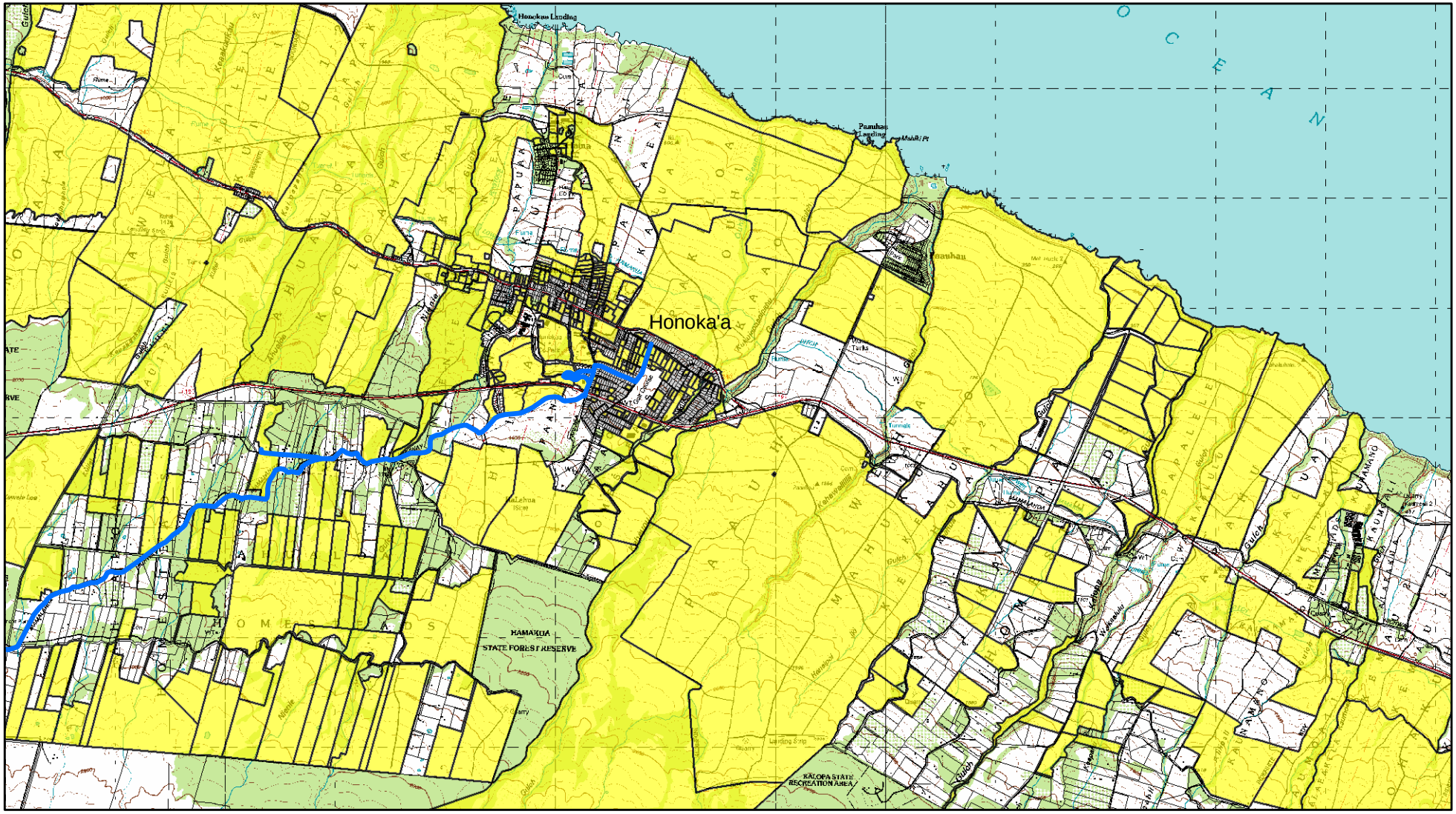
Although additional water may encourage further subdivision in large, agriculturally zoned properties, the lack of municipal water service has not been the principal obstacle to subdivision. Subdivision can also be allowed without municipal water supply, through a water variance, which allows the lots to rely on catchment water if sufficient rainfall exists, as in Hāmākua. About 200 new lots, mostly zoned A-5a (Agricultural, 5-acre minimum lot size), have been allowed water variances in and around Honokaʻa, Paauilo and Ahualoa over the last 25 years. Although most properties with the ideal conditions for subdivision using water variances have already been subdivided, there will continue to be some new lots created this way.

Water supply is a necessary – but not sufficient – condition for development. In other words, there are many other factors that must be in place for subdivision to be practical. Assuming appropriate zoning, there are still the factors of roadway and drainage improvements, which depend on property attributes such as slope, hydrology, and location relative to roads and highways. These may be critical factors affecting the potential price and sometimes even the feasibility of a subdivision. Also important is the market price and rate of absorption of subdivided lots, which vary through time. These factors, and not the availability of potable water supply, are the principal reason that there are thousands of acres of property in Hāmākua that could potentially be subdivided but have not been.

The areas where the provision of water is more critical for subdivision are for projects that create larger numbers of urban lots where catchment water is less efficient and marketable. As depicted in

Properties with Potential to Subdivide, Ahualoa to Honoka'a Area

Figure 4a



Proposed 12" Water Transmission Line

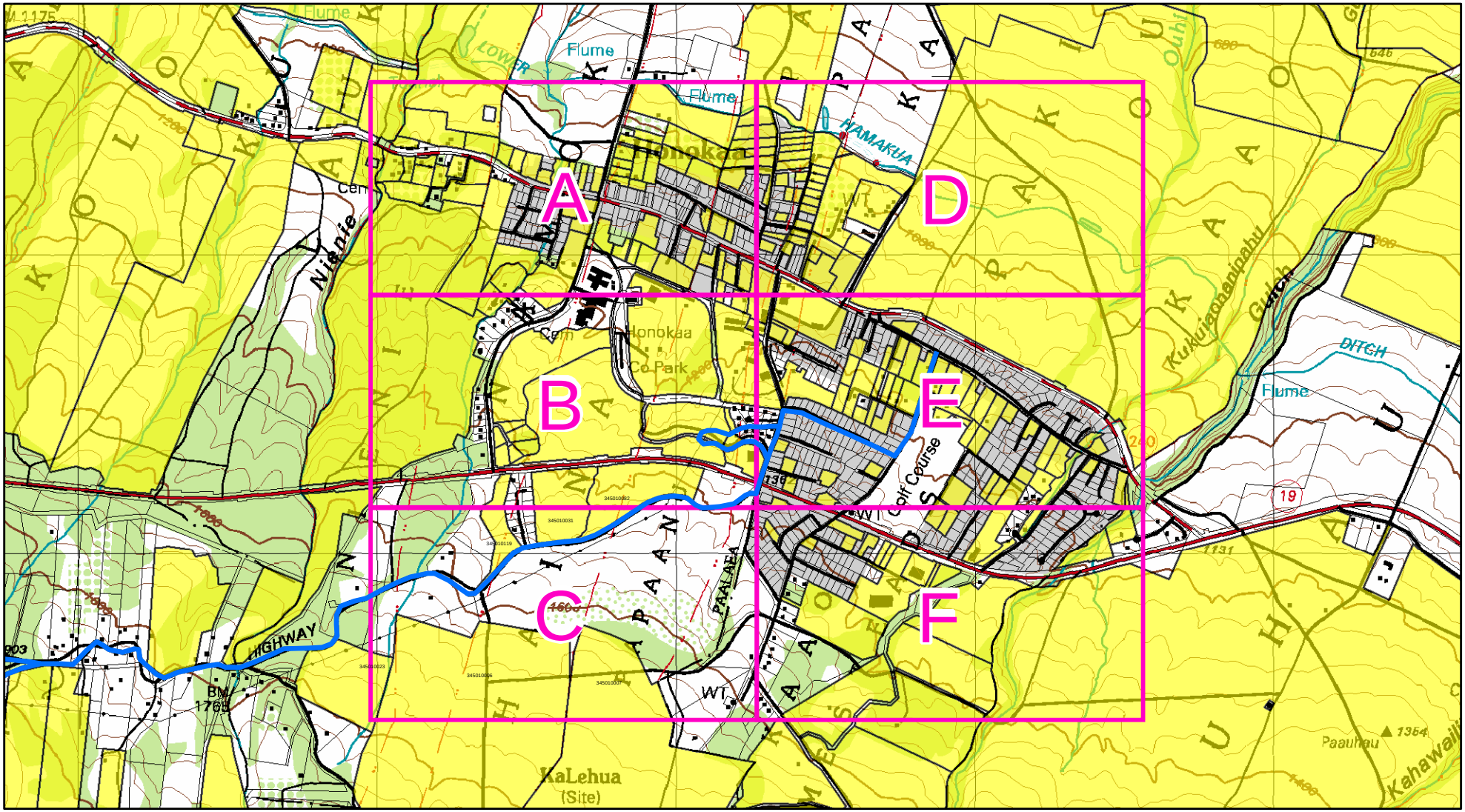
Parcels within the study area that are at least twice as large as the minimum land area per building site allowed (varies with zoning).

0 1 2 3 4 5 Miles

N

Potential to Subdivide, Honoka'a Urban Area Key

Figure 4b



Proposed 12" Water Transmission Line

Parcels within the study area that are at least twice as large as the minimum land area per building site allowed (varies with zoning).

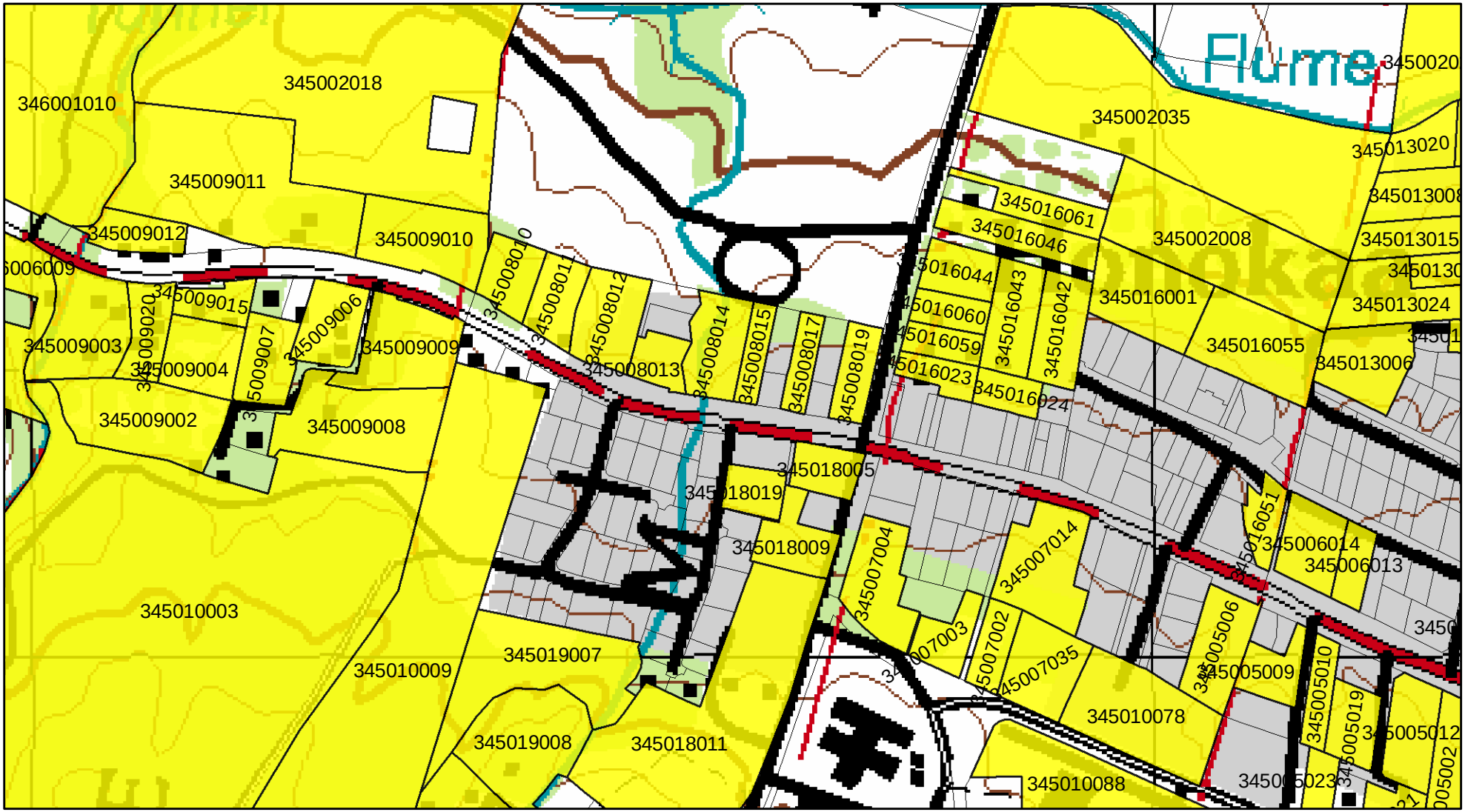
0 1,000 2,000 4,000 6,000 Feet

0 0.25 0.5 0.75 1 Miles

N

Potential to Subdivide, Honoka'a Urban Area, Map A

Figure 4c



Proposed 12" Water Transmission Line
(Not in view)

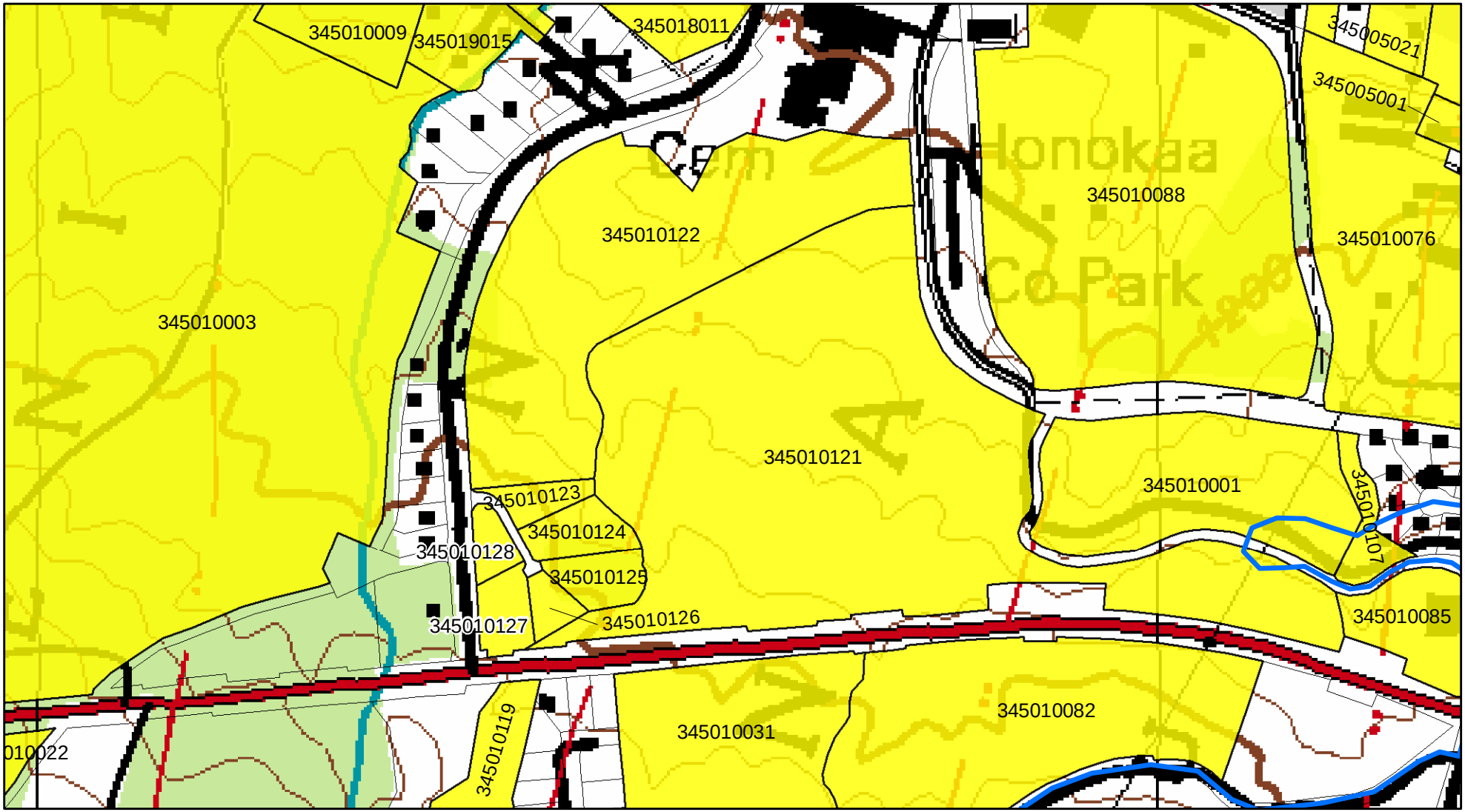
Parcels within the study area that are at least twice as large as the minimum land area per building site allowed (varies with zoning).

0 1,000 2,000 3,000 Feet

N

Potential to Subdivide, Honoka'a Urban Area, Map B

Figure 4d



Proposed 12" Water Transmission Line

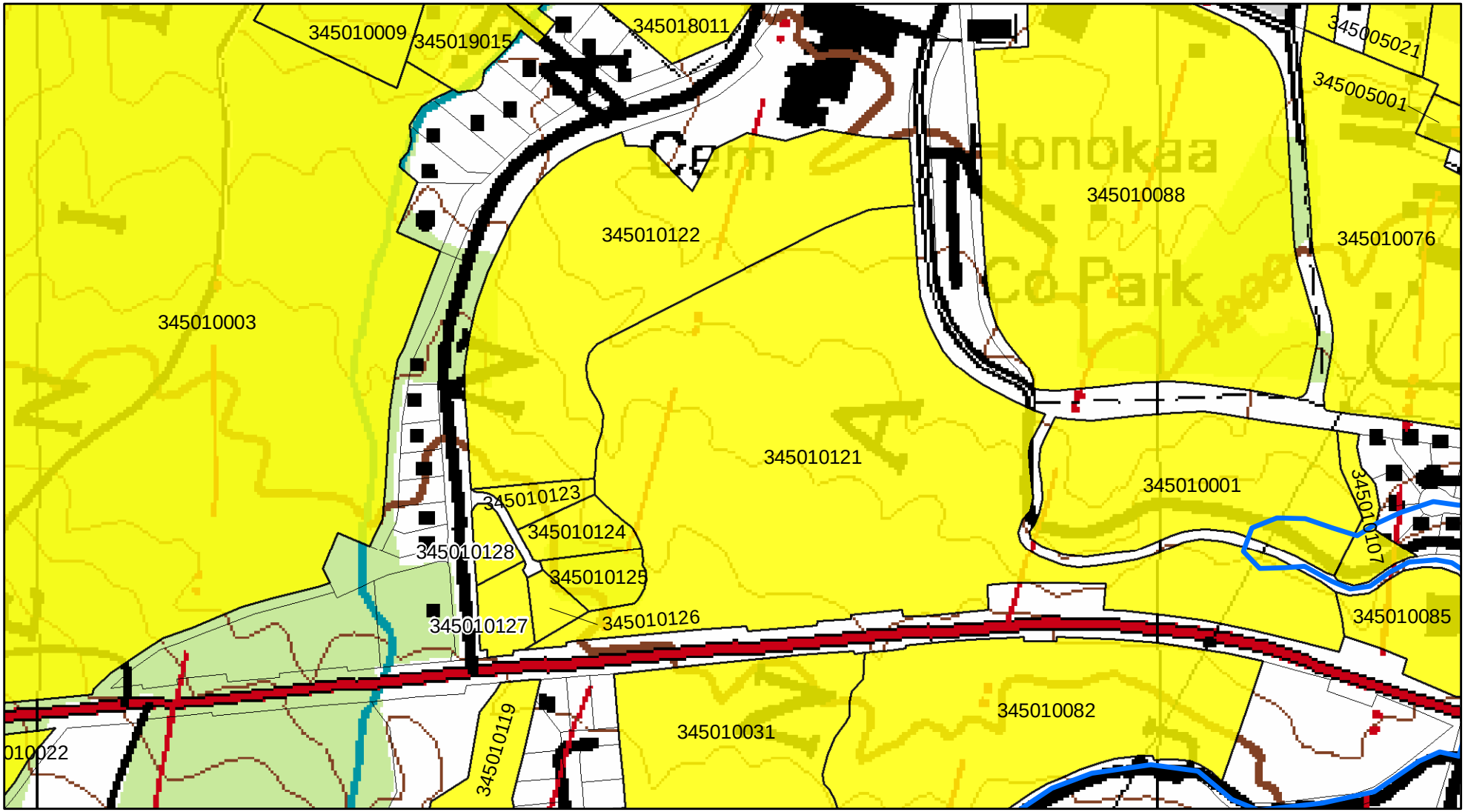
Parcels within the study area that are at least twice as large as the minimum land area per building site allowed (varies with zoning).

0 1,000 2,000 3,000 Feet

N

Potential to Subdivide, Honoka'a Urban Area, Map B

Figure 4d



Proposed 12" Water Transmission Line

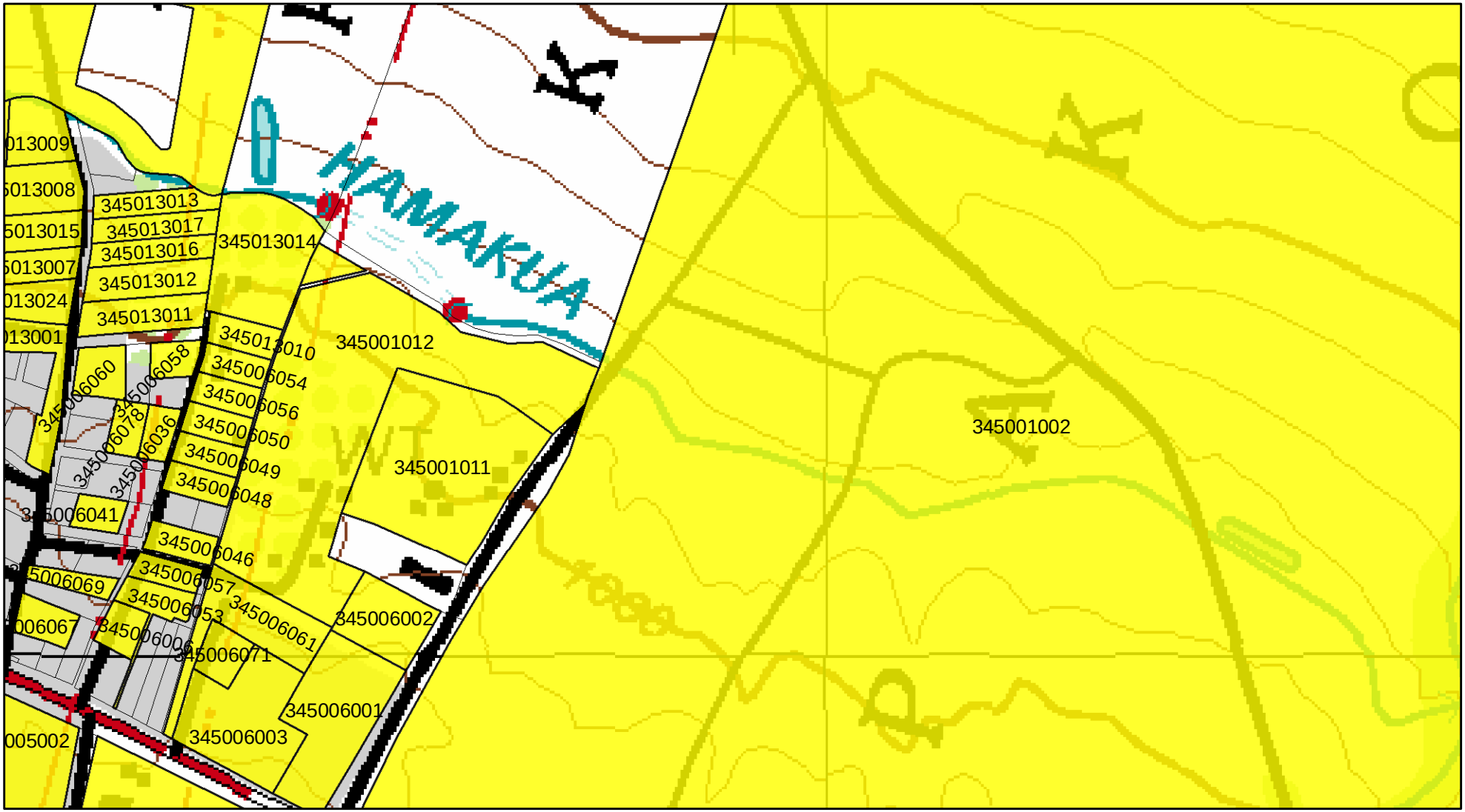
Parcels within the study area that are at least twice as large as the minimum land area per building site allowed (varies with zoning).

0 1,000 2,000 3,000 Feet

N

Potential to Subdivide, Honoka'a Urban Area, Map D

Figure 4f



Proposed 12" Water Transmission Line
(Not in View)

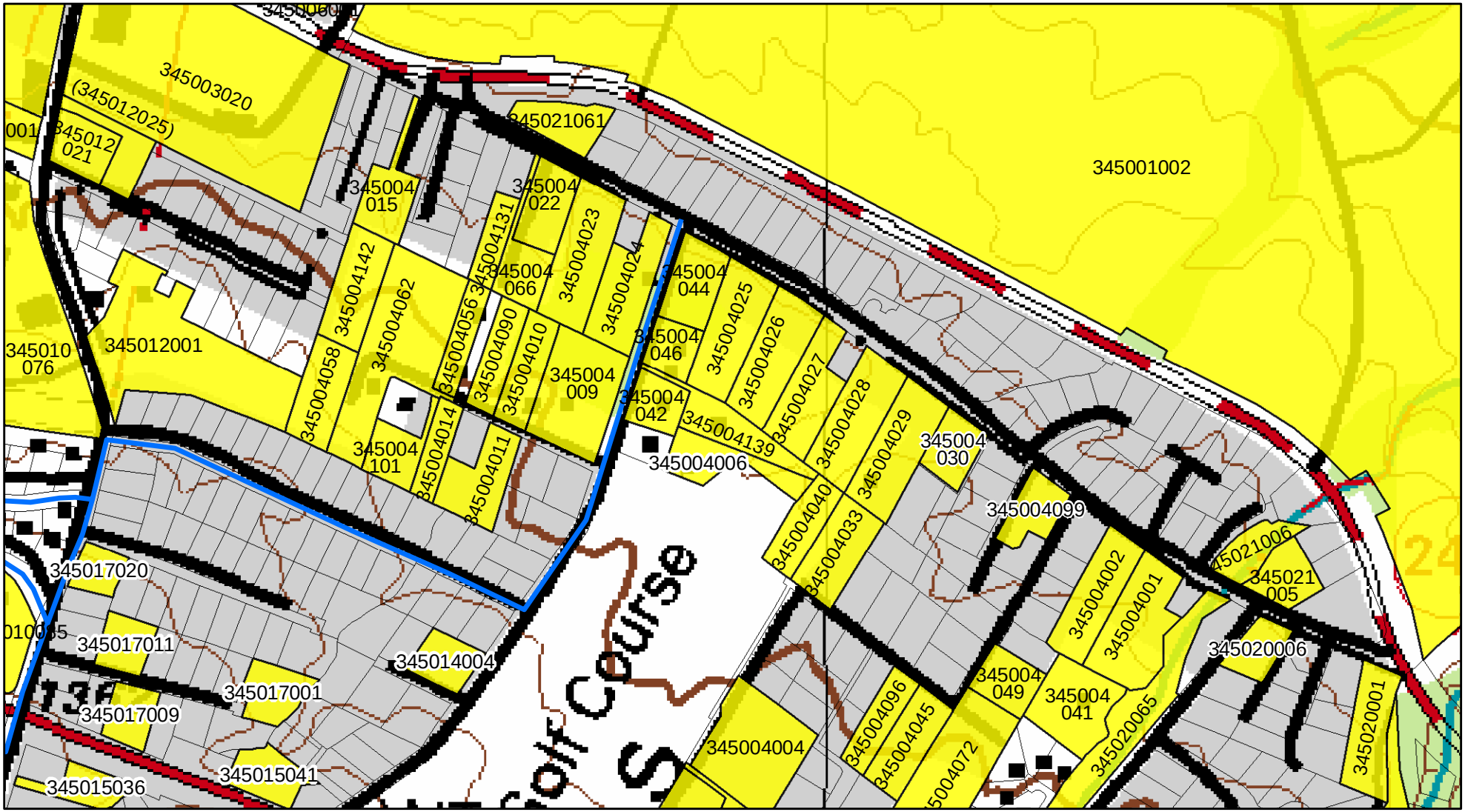
Parcels within the study area that are at least twice as large as the minimum land area per building site allowed (varies with zoning).

0 1,000 2,000 3,000 Feet

N

Potential to Subdivide, Honoka'a Urban Area, Map E

Figure 4g



Proposed 12" Water Transmission Line

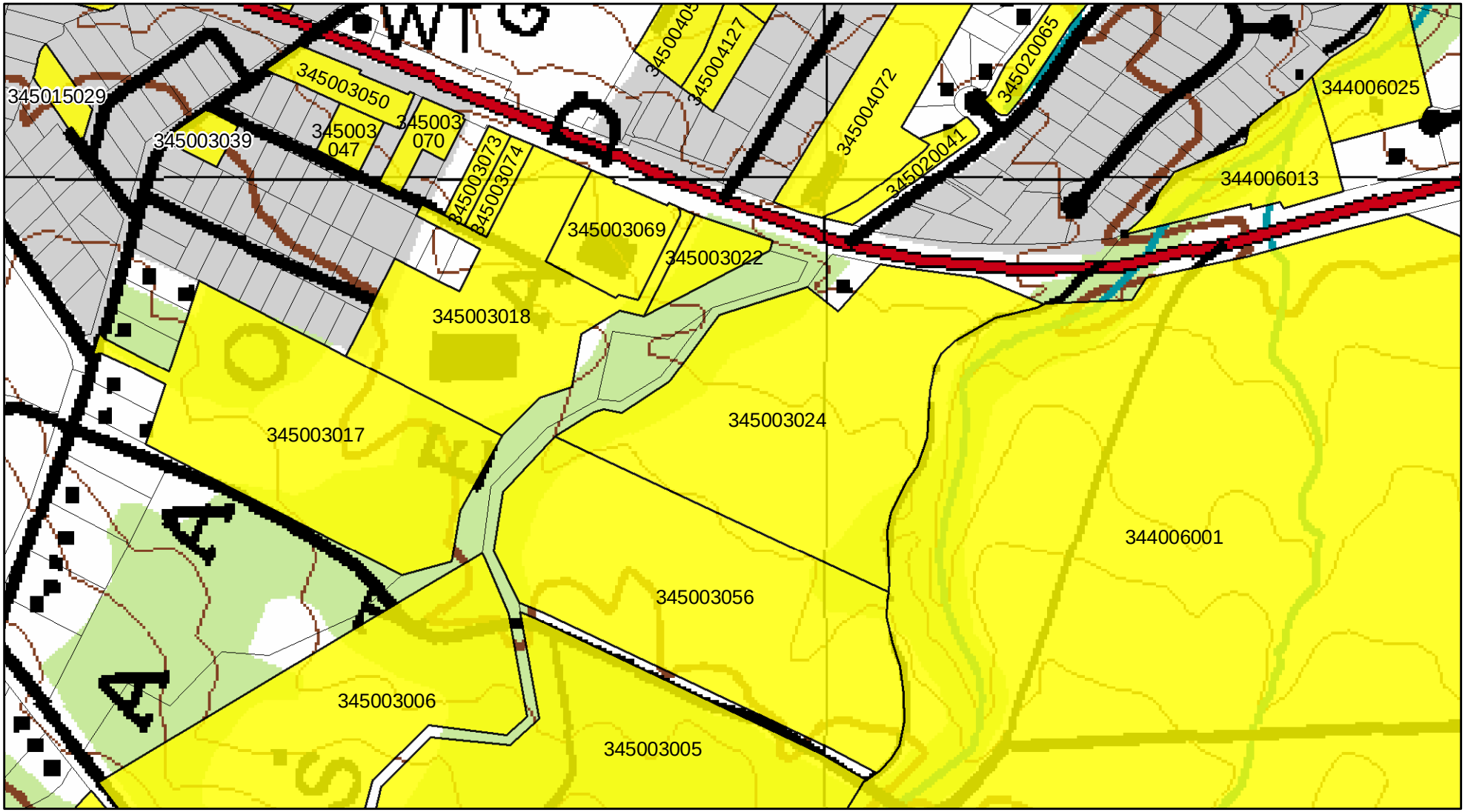
Parcels within the study area that are at least twice as large as the minimum land area per building site allowed (varies with zoning).

0 1,000 2,000 3,000 Feet

N

Potential to Subdivide, Honoka'a Urban Area, Map F

Figure 4h



Proposed 12" Water Transmission Line
(Not in View)

Parcels within the study area that are at least twice as large as the minimum land area per building site allowed (varies with zoning).

0 1,000 2,000 3,000 Feet

N

Figures 4b-h, in within about a half-mile of the center of Honokaʻa town alone, there are actually hundreds of properties with agricultural or urban zoning, with the theoretical capacity to provide thousands of new lots. Some are just dividable into two, or at most three, but there are many with more potential. For some properties with other subdivision requirements that are ideal – located on or near major roadways with reasonable drainage costs – municipal water service may be a key missing factor that allows them to be subdivided and successfully marketed.

However, the market for such urban lots in Honokaʻa is also somewhat limited, particularly relative to the high costs of subdivision. Although Hāmākua land is desirable in many ways, the lack of a dependable regional economic base and other factors have led to a fairly slow pace of growth in most areas and even a net population loss in a number of locations.

Because of the complex factors involved, it is not possible to precisely predict a) how many lots will be created through subdivision in any given region; b) where these lots will be, or c) what the pace of subdivision will be. Although the exact location and rate of new lots cannot be forecasted, a very important factor in the analysis of induced growth is the extent to which community plans call for additional growth, and whether the scale of potential growth is within the scope of the community vision. The best existing guide for this the Hawaiʻi County General Plan, and in particular the Land Use Pattern Allocation Guide (LUPAG) map. The LUPAG map is a graphic representation of the Plan and helps establish the basic urban and non-urban form for areas.

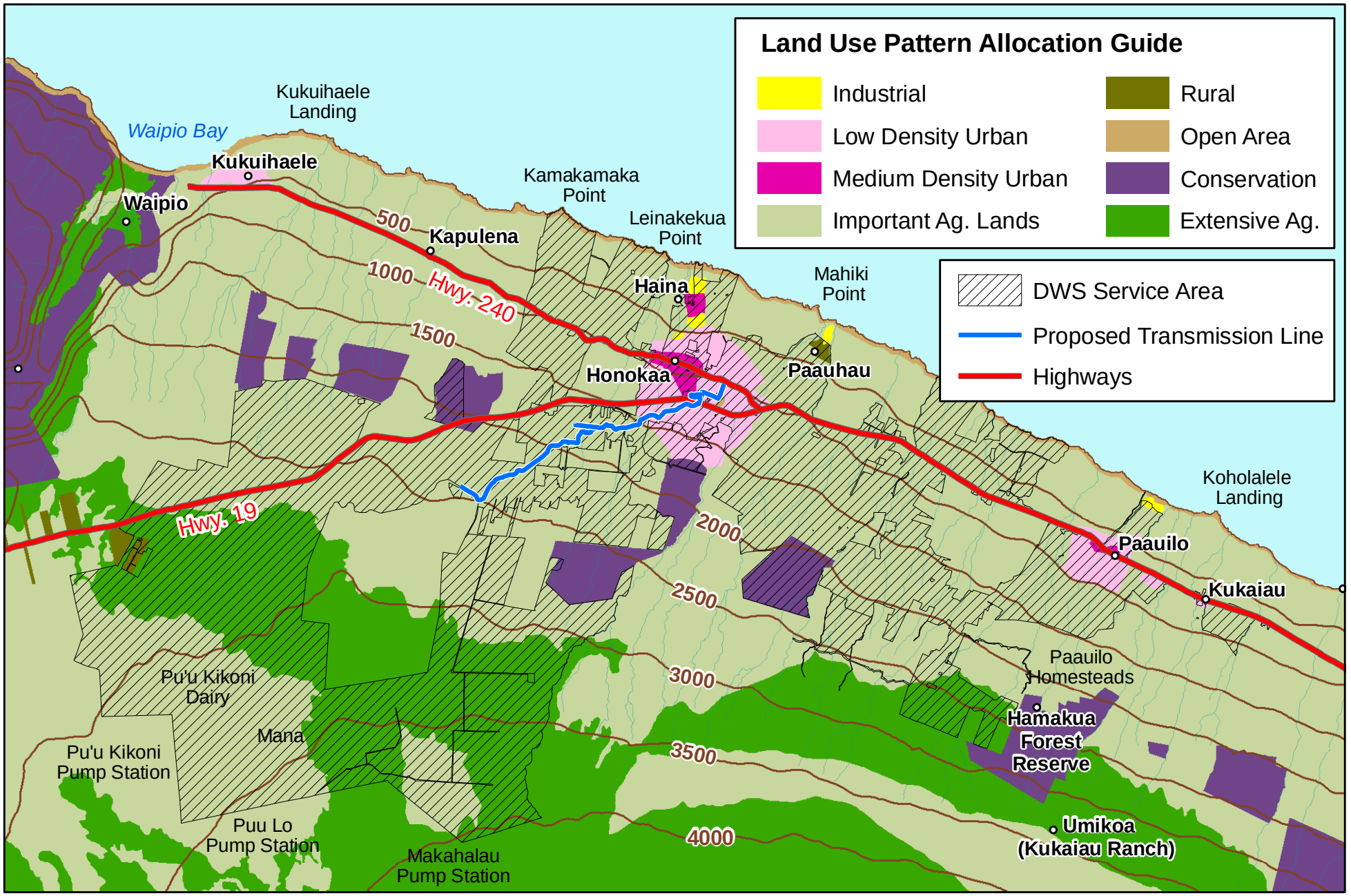
As shown in Figure 5, in which the DWS service area in this portion of Hāmākua has been superimposed on the LUPAG, the great majority of the service area is classified as Important Agricultural Lands and Extensive Agriculture. Subdivisions for agricultural but not urban purposes might be consistent, if the lot size is sufficient to allow for agriculture. Only the core of Honokaʻa, and to a much smaller extent Paauilo, have Medium Density or Low Density Urban designations. The use of water for existing or subdivided lots for residential or commercial purposes would be consistent with the current (adopted 2005) LUPAG.

A more specific and up-to-date guide for the general location and character of preferred development will be the Hāmākua Community Development Plan (CDP), which encompasses the judicial districts of Hāmākua and North Hilo, as well as Rural South Hilo, which extends from Pauka'a northwards. Community Development Plans are intended to translate broad General Plan Goals, Policies, and Standards into implementation actions as they apply to specific geographical regions around the County. CDPs are also intended to serve as a forum for community input into land-use, delivery of government services and any other matters relating to the planning area. Hāmākua is currently undergoing the early, community readiness phase of the process.

Given the context – a large number of existing properties that even without additional water services could be developed with homes or subdivisions but have not done so, as well as other and often more difficult to overcome requirements for subdivision including roads, drainage improvements, and markets for lots – the proposed transmission waterline is unlikely to trigger any large or rapid growth spurt in Hāmākua. Secondary effects of rapid, unplanned growth, such as

DWS Service Areas for Honoka'a - Ahualoa - Paauilo and LUPAG

Figure 5



Source: (LUPAG) Hawaii County Planning Dept. (2007).

Service Area Data: Approximated from hardcopy maps, Dept. Water Supply, (2009).

0 1 2 3 4 5 6 7 8 Miles

Contour Interval = 500 Feet.

overcrowded schools or traffic congestion, do not appear likely. However, the provision of more secure and reliable water service and perhaps substantial additional water services represents an opportunity for development that serves community vision. The Hāmākua CDP will be the occasion to specify areas where growth will be encouraged along with mechanisms to encourage the type of growth desired and discourage inappropriate types or locations of growth.

Other Secondary Impacts

Aside from the potential for indirect growth induction, as discussed above, the proposed project will not involve any secondary impacts. Although the Project would provide some short-term construction jobs, these would almost certainly be filled by local residents and would not induce in-migration.

3.4.2 Cumulative Impacts

Cumulative impacts result when implementation of several projects that individually have limited impacts combine to produce more severe impacts or conflicts in mitigation measures. The adverse effects of the Project – very minor and temporary disturbance to air quality, noise, visual quality during construction – are very limited in severity, nature and geographic scale. At the current time, according to files at the Planning Department, there do not appear to be any roadway, utility or development projects being undertaken in the Honokaʻa-Ahualoa area that would combine in such a way as to produce adverse cumulative effects when combined with the effects of the proposed project.

3.5 Required Permits and Approvals

The following permits and approvals would be required:

- Hawaiʻi County Planning Department Plan Approval
- Hawaiʻi County Public Works Department Grading Permit and Permit to Construct Within Right of Way
- Hawaiʻi State Department of Health, National Pollutant Discharge Elimination System Permit (NPDES)
- Hawaiʻi State Department of Transportation, Permit to Work Within State Right-of-Way

3.6 Consistency With Government Plans and Policies

3.6.1 Hawaiʻi State Plan

Adopted in 1978 and last revised in 1991 (Hawaiʻi Revised Statutes, Chapter 226, as amended), the Plan establishes a set of themes, goals, objectives and policies that are meant to guide the State's long-run growth and development activities. The three themes that express the basic purpose of the

Hawai‘i State Plan are individual and family self-sufficiency, social and economic mobility and community or social well-being. The Project would promote these goals by modernizing and improving water service for the Hāmākua District.

3.6.2 Hawai‘i County General Plan

The *General Plan* for the County of Hawai‘i is a policy document expressing the broad goals and policies for the long-range development of the Island of Hawai‘i. The plan was adopted by ordinance in 1989 and revised in 2005 (Hawai‘i County Department of Planning). The *General Plan* itself is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai‘i. Most relevant to the proposed project are the following Goal and Policies, and Courses of Action:

J. Public Facilities (1) Water Policies:

- Water system improvements shall promote the County’s desired land use pattern.
- Improve and replace inadequate systems.

Courses of Action: Hāmākua: Public Facilities: Water

- Replace old, sub-standard, or deteriorating lines and storage facilities.

Discussion: The proposed project satisfies relevant goals, objectives, and courses of action related to water systems in the Hāmākua District.

The *Hawai‘i County General Plan Land Use Pattern Allocation Guide (LUPAG)*. As discussed above, the LUPAG map component of the *General Plan* is a graphic representation of the Plan’s goals, policies, and standards as well as of the physical relationship between land uses. It establishes the basic urban and non-urban form for areas. It also identifies planned public and cultural facilities, public utilities and safety features, and transportation corridors. In the LUPAG, the majority of the project site is classified as Important Agriculture Lands, with the portion approaching Honoka‘a designated Low Density Urban. The land near the end of the transmission waterline in Honoka‘a, the land is classified Medium Density Urban. These designations are appropriate for the proposed placement of water infrastructure. The issue of induced growth is discussed in Section 3.4.1, above.

3.7 Federal "Cross-Cutter" Authorities

The following sub-sections address the proposed project's relationship to other federal "crosscutting" environmental, economic, social, and miscellaneous federal authorities as required by the State of Hawai'i's Drinking Water State Revolving Fund (DWSRF) program.

3.7.1 Archeological and Historic Preservation Act (16 U.S.C. § 469a-1) and National Historic Preservation Act (16 U.S.C. § 470)

As discussed in Section 3.2.2, the general area has been cultivated, grazed or used for residences for over a hundred years and has thus experienced intensive grubbing and grading. Based on the information supplied as part of early consultation for this EA, the State Historic Preservation Division (SHPD) has determined in letters of April 20 and May 24, 2010 that no historic properties are present and that, with mitigation, the Project will have no effect on historic properties (see Appendix 2). Consequently, the proposed action is in compliance with these regulations.

3.7.2 Clean Air Act As Amended (42 USC 7401, et seq.)

As discussed in Section 3.1.4, air quality at the project site is good. The site is within an air quality attainment area as defined by the State of Hawai'i Department of Health in its U.S. Environmental Protection Agency (EPA)-approved Air Quality program. Grading and excavation will include plans to minimize fugitive dust through watering and planting as soon as feasible. Diesel-powered construction equipment will be used for construction. Emissions from the diesel engines will slightly degrade air quality for the short period of time they are in operation. However, all applicable emission and ambient air quality standards will continue to be met. Normal operation of the transmission waterline will not produce on-site air emissions, will not alter air flow in the vicinity, and will have no other measurable effect on the area's micro-climate. Consequently, the proposed project complies with the provision of the Clean Air Act.

3.7.3 Coastal Barriers Resource Act, 16 U.S.C. 3501

The Coastal Barrier Resources Act designated various undeveloped coastal barrier islands, depicted by specific maps, for inclusion in the Coastal Barrier Resources System. No coastal barriers are present in the State of Hawai'i, and project is consistent with the Coastal Barriers Resource Act.

3.7.4 Coastal Zone Management Act, 16 U.S.C.1456(c)(1)

The Hawai'i Coastal Zone Management (CZM) Program was established in 1977 through the adoption of the Coastal Zone Management Act, incorporated in Chapter 205A HRS. Projects with federal involvement significantly affecting areas under jurisdiction of the State CZM Agency must undergo review for consistency with the State's approved coastal program. The entire State of Hawai'i is included in the coastal zone for such purposes. The CZM objectives are outlined as follows.

- Recreational Resources. Provide coastal recreational opportunities accessible to the public.
- Historic Resources. Protect, preserve, and, where desirable, restore those natural, man-made historic, and pre-historic resources in the CZM area that are significant in Hawaiian and American history and culture.
- Scenic and Open Space Resources. Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.
- Coastal Ecosystems. Protect valuable coastal ecosystems from disruption and minimize adverse impacts on all coastal ecosystems.
- Economic Use. Provide public or private facilities and improvements important to the State's economy in suitable locations.
- Coastal Hazards. Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, and subsidence.
- Managing Development. Improve the development review process, communication, and public participation in the management of coastal resources and hazards.
- Public Participation. Stimulate public awareness, education, and participation in coastal management, and maintain a public advisory body to identify coastal management problems and provide policy advice and assistance to the CZM program.
- Beach Protection. Protect beaches for public use and recreation; locate new structures inland from the shoreline setback to conserve open space and minimize loss of improvements due to erosion.
- Marine Resources: Implement the state's ocean resources management plan.

The project site is a minimum of 1.70 miles from the shoreline. Streams connect various locations along the transmission waterline route to the sea, but adherence to Best Management Practices during construction will avoid or minimize any sedimentation. The DWS has evaluated the project and believes that it does not impact coastal zone resources and is consistent with the objectives of the program. The Hawai‘i CZM Program is not authorized to provide federal consistency reviews for Safe Drinking Water Act State Revolving Funds projects. However, in accordance with consultation with the State Coastal Zone Management Program, this EA has been submitted by DWS to the Hawai‘i Coastal Zone Management Program for general review.

3.7.5 Endangered Species Act, 16 U.S.C. 1536(a)(2) and (4)

The Endangered Species Act (16 U.S.C. §§ 1531-1544, December 28, 1973, as amended 1976-1982, 1984 and 1988) provides broad protection for species of plants and animals that are listed as threatened or endangered in the U.S. or elsewhere. The Act mandates that federal agencies seek to conserve endangered and threatened species and use their authorities in furtherance of the Act's purposes. Provisions are made for listing species, as well as for recovery plans and the designation of critical habitat for listed species. The Act outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species, and contains exceptions and exemptions.

Existing biota along the transmission waterline route is discussed in Section 3.1.3 of this EA. There are no known rare or endangered plant species on or immediately around the project site. It is recognized that listed terrestrial vertebrates may be present in this part of Hāmākua and may overfly, roost, nest, or utilize resources here, including the endangered Hawaiian Hawk (*Buteo solitarius*), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), the endangered Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened Newell's Shearwater (*Puffinus auricularis newelli*). No temporary or permanent lighting or erect structures such as poles are planned, and therefore no impacts to listed seabirds are expected. There are tall trees of various species (notably eucalyptus) present along Old Mamalahoa Highway, some of which may be conducive to providing nesting sites for Hawaiian Hawks. It is not currently anticipated that any trees would need to be removed. Furthermore, the area in question is in active use as a rural highway with farms and homes on both sides, and it appears unlikely that the pipeline construction project, which involves a narrow and relatively shallow trench, would provide levels of disturbance to hawks significantly greater than the extensive tree-trimming, pasture and lawn mowing, truck movement, cattle operations, and structure construction that occur on a daily basis along the route.

It is conceivable that the pipeline construction will require the removal of a small amount of shrubby vegetation or small trees that currently encroach into the highway shoulder. There is thus at least some chance that some Hawaiian hoary bats may utilize the roadside vegetation for roosts. In order to avoid impacts to the bat, the County of Hawai‘i and its contractors will specifically refrain from activities that disturb or remove the vegetation during critical pupping months for the Hawaiian hoary bat, from May 15 to August 15 of each year.

The U.S. Fish and Wildlife Service (USFWS) was consulted by letter on May 24, 2010 (see Appendix 5). The letter included proposed mitigation measures, including that the contract conditions require the contractor to refrain from activities that disturb or remove the vegetation during critical pupping months for the Hawaiian hoary bat, from May 15 to August 15 of each year. To date, USFWS has not responded. This agency has been supplied a copy of the Draft EA as another opportunity to evaluate the findings of the biological report and provide advice on avoiding impacts to listed species.

3.7.6 Environmental Justice, Executive Order 12898

The Environmental Justice Executive Order was issued in 1994 for the purpose of protecting low income and minority residents of the United States from disproportionate exposure to environmental and health hazards. As discussed in Section 3.2.1, Honoka‘a exhibits a median household income that is slightly higher than the countywide average. Minorities make up approximately 75 percent of the population, which is slightly higher than the average 68.5 percent of the County as a whole. The purpose of the proposed reservoir improvements is to provide residents of the area with additional water transmission that conforms to State and federal standards. The Project will not have adverse secondary environmental, economic, or social impacts, as discussed in Sections 3.2.1 and 3.4.1. Moreover, the State and federal regulations regarding safe drinking water are applicable to all water systems in Hawai‘i, irrespective of the economic or demographic characteristics of their residents. Thus, the Project complies with this Executive Order.

3.7.7 Farmland Policy Protection Act, 7 U.S.C. 4202(8)

The Farmland Protection Policy Act (FPPA) (Public Law 97-98, Sec. 1539-1549) requires identification of proposed actions that would affect any lands classified as prime and unique farmlands. Agencies must consider alternative actions that could reduce adverse effects and ensure that their programs, to the extent practicable, are compatible with State, local government and private programs and policies to protect farmland. The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) has national leadership for administering the FPPA.

"Farmland", as used in the FPPA and applied to the State of Hawai‘i, includes Agricultural Lands of Importance in the State of Hawai‘i (ALISH), a system in which the State Department of Agriculture classifies lands into three categories: 1) Prime Agricultural Land, (2) Unique Agricultural Land, and (3) Other Important Agricultural Land. As illustrated in Figure 6, the transmission waterline route traverses areas classified on the ALISH maps and Prime and Unique, and other areas that are not classified because they are urban or do not contain important farmland. However, the improvements occur in existing roadways, shoulders, and County water supply facilities and thus do not involve conversion or indirect adverse impacts upon important farmland. The Project will not impact continued agricultural use of surrounding properties, and is intended to serve residents of Hāmākua, many of whom are engaged in agriculture. Therefore, although the Project involves a general area with important farmland and may use funding assistance from a federal agency, the proposed action does not appear to be subject to the FPPA. The DWS has determined that the project appears to be in compliance with the FPPA and has distributed the Draft EA to the U.S. NRCS for comment.

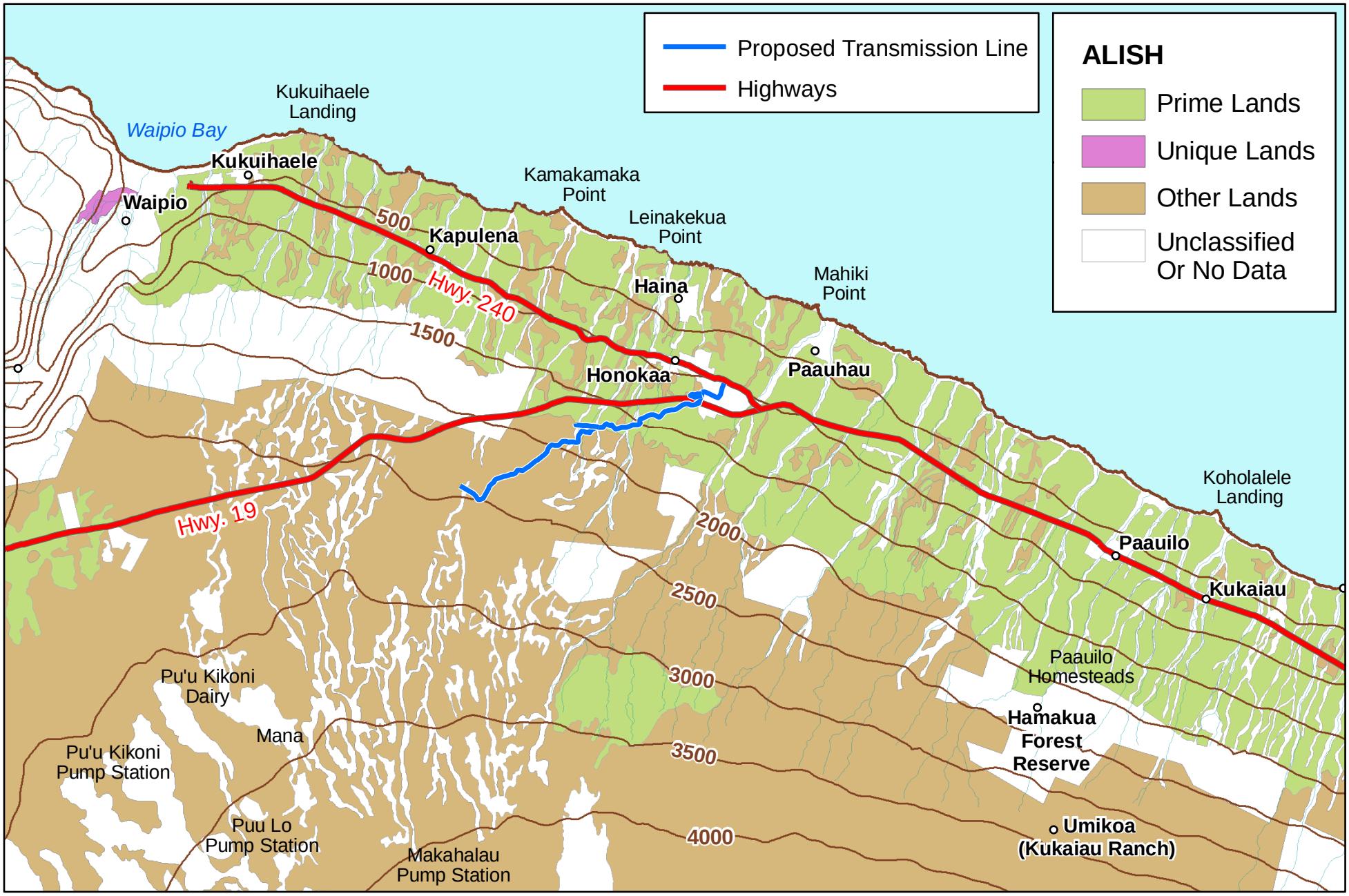
3.7.8 Floodplain Management Act, 42 U.S.C., 4321, and Executive Order 11988, Floodplain Management (24 May 1977)

The Floodplain Management Act deals with critical action inside designated floodplains, and Executive Order 11988 requires federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy of the floodplain, and to avoid direct and indirect support of floodplain development where there is a practicable alternative. In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains."

As discussed above in Section 3.1.2, the Flood Insurance Rate Maps (FIRM) show that nearly all of the project site is located within Zone X, areas not known to be within the 500-year floodplain (only a portion of the project site, as shown in Figure 3, has been flood mapped). A portion of the route along Kamani Street and Pikake Street in Honoka‘a town lies within Zone AE. This is defined as the area subject to inundation from a flood having a 1 percent chance of occurring in any given year. This flood is referred to as the "100-year" flood or "base flood," and it may occur more or less often than once every 100 years. Because of the limited nature of disturbance at any particular

Agricultural Lands of Importance to State of Hawaii (ALISH)

Figure 6



Source: (ALISH) State Dept. of Agriculture, (1977).

0 1 2 3 4 5 6 7 8 Miles

Contour Interval = 500 Feet.

portion of the project site, the risks for flooding or impacts to water quality are negligible along most of the route. Trenching of a water line within a floodplain will not have adverse effects upon the floodplain. At bridged or culverted stream crossings, special precautions will be taken during construction and as part of design to avoid temporary and permanent impacts.

The project site does not adversely affect a designated floodplain and it is consistent with EO 11988 and the Floodplain Management Act.

3.7.9 Protection of Wetlands, Executive Order No. 11990 & Exec. Order No. 12608, and Clean Water Act, as Amended (33 USC 1251 et seq.)

It has been determined through fieldwork and confirmed through consultation with the U.S. Army Corps of Engineers that no wetlands or other waters of the U.S. are present in the area to be affected by the Project (see letter of April 21, 2010 in Appendix 3). Therefore, implementation of the Project would not involve the discharge of dredged or fill materials into waters of the United States. The Project would thus be in compliance with the Clean Water Act, Section 404(b)(1) Guidelines. None of the proposed construction materials would be expected to contain any contaminants.

As discussed in Section 3.1.2, because the Project will involve disturbing more than one acre of soil, a National Pollutant Discharge Elimination System (NPDES) permit pursuant to Section 402 of the Clean Water Act must be obtained by the contractor before the Project commences. This permit requires the completion of a Storm Water Pollution Prevention Plan (SWPPP). In order to properly manage storm water runoff, the SWPPP will describe the emplacement of a number of best management practices (BMPs) for the Project.

3.7.10 Safe Drinking Water Act, 42 U.S.C., 300H-3(E)

The Safe Drinking Water Act (SDWA) is the principal federal law that ensures the quality of Americans' drinking water. Under the SDWA, EPA sets standards for drinking water quality and oversees the states, localities, and water suppliers who implement those standards. The Safe Drinking Water Act requires that all public water systems meet stringent water quality standards. These standards cover a long list of potential chemical, radiological and biological contaminants. The standards distinguish between surface water and groundwater sources, with the testing and monitoring requirements for surface water being far greater than those for groundwater sources.

The water transmission improvements will assist DWS in maintaining the compliance of the DWS Water System with the standards mandated pursuant to the SDWA. Testing of the water will be undertaken by the County of Hawai‘i before the transmission waterline is connected to the system to ensure that the water is consistent with all State of Hawai‘i and federal standards for potable water.

The Safe Drinking Water Act is also the authority for regulatory protection of principal or sole source aquifers. Specifically, once a sole source aquifer is designated, commitments for federal assistance must ensure that projects will not contaminate the aquifer through a recharge zone so as to create a significant hazard to public health.

As identified by the U.S. Environmental Protection Agency, Region IX groundwater Office (http://www.epa.gov/safewater/sourcewater/pubs/qrg_ssamap_reg9.pdf) (checked August 2010), there are only two Sole Source Aquifers in Hawai‘i. They are the Southern O‘ahu Basal Aquifer on the Island of O‘ahu and the Moloka‘i Aquifer on the island of Moloka‘i. There are no sole source aquifers on the Island of Hawai‘i where the proposed project is located. The Project will therefore not affect sole source aquifers.

3.7.11 Wild and Scenic Rivers Act, 15 U.S.C. 1271-1287

The Act makes it the national policy that certain rivers of the U.S which, along with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition. There are no designated Wild and Scenic Rivers in the State of Hawai‘i at this time. Consequently, the proposed project is consistent with the provisions of the Wild and Scenic Rivers Act.

3.7.12 Demonstration Cities and Metropolitan Development Act of 1966, Pub.L. 89-754, as Amended (42 USC § 3331)

To demonstrate compliance with this Act, the Hawai‘i State Department of Health requires DWSRF assistance recipients to describe the proposed project’s effect on local development plans. Section 3.6 of this EA addresses this requirement by discussing the proposed actions consistency with the Hawai‘i State Plan and the County of Hawai‘i General Plan.

3.7.13 Administration of the Clean Air Act and the Water Pollution Control Act with Respect to Federal Contracts or Loans (Executive Order 11738)

Executive Order 11738, entitled “Administration of the Clean Air Act and the Water Pollution Control Act with respect to federal Contracts or Loans”, prohibits the provision of federal assistance to facilities that are not in compliance with either the Clean Water Act or the Clean Air Act unless the purpose of the assistance is to remedy the cause of the violation. As discussed in Sections 4.2.1.2 and 3.2.2, the Project will comply with applicable provisions of the Clean Air Act and Clean Water Act. Consequently, it is consistent with the intent of this Executive Order.

3.7.14 Procurement Prohibitions (Exec. Order 11738, Section 306 of Clean Air Act)

This Executive Order requires recipients of federal assistance to certify that they will not procure goods, services or materials from suppliers who are on the EPA’s list of Clean Air Act violators. DWS will comply with this requirement in selecting contractors, construction materials, and other services for the Project.

3.7.15 Procurement Prohibitions (Section 508 of the Clean Water Act)

This Executive Order requires recipients of federal assistance to certify that they will not procure goods, services or materials from suppliers who are on the EPA's list of Clean Water Act violators. DWS will comply with this requirement in selecting contractors, construction materials, and other services for the Project.

3.7.16 Social Policy Authorities

For any Drinking Water State Revolving Fund Loan, the applicant, in this case the County of Hawai'i, is also required to certify that it has complied, or will comply with, the following federal social policy authorities. This information is required to be contained in an Environmental Assessment, if one is applicable for the project.

- **Age Discrimination Act of 1975 (42 USC § 6102).** This Act stipulates that no person in the United States shall, on the basis of age, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. DWS will comply with this requirement in hiring contractors and other staff for the Project.
- **Civil Rights Act of 1964, Title VI (42 USC §2000(d)).** This Act stipulates that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. DWS will comply with this requirement in hiring contractors and other staff for the Project.
- **Equal Employment Opportunity (Executive Order 11246, as amended).** This Executive Order requires all recipients of federal contracts to include certain non-discrimination and "affirmative action" provisions in all contracts. The provisions commit the contractor or subcontractor to maintain a policy of non-discrimination in the treatment of employees, to make this policy known to employees, and to recruit, hire and train employees without regard to race, color, sex, religion and national origin. DWS will include these provisions in all contracts for the Project.
- **Minority Business Enterprise Development, Executive Order 12432**. This executive order sets forth in more detail the responsibilities of federal agencies for the monitoring, maintaining of data and reporting of the use of minority enterprises. DWS will comply with all such requirements for all contracts for the Project.
- **National Program for Minority Business Enterprise, Executive Order 11625**. This Executive Order directs federal agencies to promote and encourage the use of minority business enterprises in projects utilizing federal funds. DWS will comply with all such requirements for all contracts for the Project.

- **National Women's Business Enterprise Policy and National Program for Women's Business Enterprise, Executive Order 12138**. This Executive Order directs each department or agency empowered to extend federal financial assistance to any program or activity to issue regulations requiring the recipient of such assistance to take appropriate affirmative action in support of women's business enterprises and to prohibit actions or policies which discriminate against women's business enterprises on the grounds of sex. DWS will comply with all the Executive Order for the Project.
- **Rehabilitation Act of 1973, 29 USC 794**. This Act mandates that no otherwise qualified handicapped individual in the United States shall, solely by reason of his handicap, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. DWS will comply with the Act for all contracts for the Project.
- **Small Business Administration Reauthorization and Amendment Act of 1998, Pub. L. 100-590, Section 129**. This Amendment directs federal agencies to promote and encourage the use of small business enterprises in projects utilizing federal funds. DWS will comply with the Act for all contracts for the Project.
- **Department of Veterans Affairs and Housing and Urban Development, and Agencies Appropriations Act, 1993, Pub. L. 102-389**. This Act requires the Administrator of the Environmental Protection Agency, to the fullest extent possible, ensure that at least 8 per cent of federal funding for prime and subcontracts awarded in support of authorized programs, including grants, loans and contracts for wastewater treatment and for leaking under ground storage tanks, be made available to businesses or other organizations owned or controlled by socially and economically disadvantaged individuals (within the meaning of Section 8(a)(5) and (6) of the Small Business Act (15 USC 637(a)(5) and (6)), including historically black colleges and universities. For purposes of this section, economically and socially disadvantaged individuals shall be deemed to include women..." DWS will comply with the Act for the Project.
- **Disadvantaged Business Enterprise Rule, 2008, 40 CFR Part 33**. This Rule sets forth in detail the responsibilities of entities receiving an identified loan under a financial assistance agreement capitalizing a revolving loan fund, for the monitoring, maintaining of data and reporting of the use of disadvantaged business enterprises (DBEs). The Applicant is required to comply with 40 CFR Part 33, entitled "Participation by Disadvantaged Business Enterprises in Procurement Under Environmental Protection Agency (EPA) Financial Assistance Agreements" and ensure that all contracts funded by a DWSRF loan include a term or condition requiring compliance with 40 CFR Part 33. The Applicant is required not to discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Applicant shall carry out applicable requirements of 40 CFR Part 33 in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the Applicant to carry out these requirements is a material breach of this contract, which may result in the termination of the contract or other legally available remedies. DWS will comply with the Rule for all contracts for the Project.

PART 4: DETERMINATION

The Hawai‘i County Department of Water Supply has preliminarily determined that the proposed Project will not significantly alter the environment, as impacts will be minimal, and the agency intends to issue a Finding of No Significant Impact (FONSI). This determination will be reviewed based on comments to the Draft EA, and the Final EA will present the final determination.

PART 5: FINDINGS AND REASONS

Chapter 11-200-12, Hawai‘i Administrative Rules, outlines those factors agencies must consider when determining whether an Action has significant effects:

1. *The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.* No valuable natural or cultural resources would be committed or lost. The surrounding area is largely residential, and would directly benefit from the project.
2. *The proposed project will not curtail the range of beneficial uses of the environment.* The proposed project expands and in no way curtails beneficial uses of the environment.
3. *The proposed project will not conflict with the State's long-term environmental policies*. The State’s long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The Project is minor, environmentally beneficial, and fulfills aspects of these policies calling for an improved social environment. It is thus consistent with all elements of the State’s long-term environmental policies.
4. *The proposed project will not substantially affect the economic or social welfare of the community or State.* The Project would not have any adverse effect on the economic or social welfare of the County or State, and would improve the water system infrastructure of the Hāmākua area.
5. *The proposed project does not substantially affect public health in any detrimental way.* The facility would promote public health and safety by improving water transmission for the Hāmākua area, and would thereby enhance the quality of water service.
6. *The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities*. With the combination of the proposed transmission waterline with the new Ahualoa Well and Ahualoa Well 1.0 MG Reservoir, the Project will likely provide for additional water services within the project area. The actual number cannot be determined until after the system is properly analyzed, installed and its performance evaluated. Growth will occur gradually and will be shared among existing serviceable properties that have not acquired a meter, properties with water variances that may now have the opportunity to acquire a meter, and newly subdivided properties. Given the context – a large number of existing properties that even without additional water services could be developed with homes or subdivisions but have not done so, as well as other and often more difficult to overcome requirements for subdivision including roads, drainage improvements, and markets for lots – the proposed transmission waterline is

unlikely to trigger any large or rapid growth spurt in Hāmākua. Secondary effects of rapid, unplanned growth, such as overcrowded schools or traffic congestion, do not appear likely. However, the provision of more secure and reliable water service and perhaps substantial additional water services represents an opportunity for development that serves community vision, which is being defined in the ongoing Hāmākua Community Development Plan.

7. *The proposed project will not involve a substantial degradation of environmental quality*. The project is minor and environmentally benign, and would thus not contribute to environmental degradation.
8. *The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.* The project site supports overwhelmingly alien vegetation. Impacts to rare, threatened or endangered species of flora would not occur. Impacts to wide ranging endangered fauna are being avoided through project design and scheduling.
9. *The proposed project is not one which is individually limited but cumulatively may have considerable effect upon the environment or involves a commitment for larger actions.* The project is not related to other activities in the region in such a way as to produce adverse cumulative effects or involve a commitment for larger actions.
10. *The proposed project will not detrimentally affect air or water quality or ambient noise levels.* No adverse effects on these resources would occur. Mitigation of construction-phase impacts would preserve water quality. Ambient noise impacts due to construction will be temporary and restricted to daytime hours.
11. *The project does not affect nor would it likely to be damaged as a result of being located in environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.* Although the project is located in an area with volcanic and seismic risk, the entire Island of Hawai‘i shares this risk, and the project is not imprudent to construct, and employs design and construction standards appropriate to the seismic zone.
12. *The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.* No scenic vistas and viewplanes would be adversely affected by the project.
13. *The project will not require substantial energy consumption.* The construction and operation of the facility would require minimal consumption of energy. No adverse effects would be expected.

For the reasons above, the proposed action will not have any significant effect in the context of Chapter 343, Hawai‘i Revised Statues and section 11-200-12 of the State Administrative Rules.

REFERENCES

Anderson, K. 19 April 2009. "Ahualoa Then & Now: Rural community looks to the future while embracing its past." *West Hawaii Today*. Kailua-Kona, HI.

Cordy, R. 1994. *A Regional Synthesis of Hāmākua District, Island of Hawai'i.* Historic Preservation Division, Department of Land and Natural Resources, State of Hawai'i.

Gagne, W., and L. Cuddihy. 1990. "Vegetation," pp. 45-114 in W.L. Wagner, D.R. Herbst, and S.H. Sohmer, eds., *Manual of the Flowering Plants of Hawai'i.* 2 vols. Honolulu: University of Hawai'i Press.

Handy, E.S.C., and E. Handy (with M.K. Pukui). 1972. *Native Planters in Old Hawai'i. B.P. Bishop Museum Bulletin 233*. Honolulu: Bishop Museum Press.

Hawai'i County Department of Water Supply (DWS). 2002. *Replacement of Costa and Sawmill Water Tanks.* Prep. by Geometrician Associates for DWS. Hilo.

Hawai'i County Planning Department. 2005. *The General Plan, County of Hawai'i*. Hilo.

Hawaiian Sugar Planters' Association Plantation Archives (HSPA), University of Hawai'i at Manoa Library Hawaiian Collection. 1989. *Register of the Honoka'a Sugar Company.*

Heliker, C. 1990. *Volcanic and Seismic Hazards on the Island of Hawai'i.* Washington: U.S. GPO.

Kamakau, S. 1961. *Ruling Chiefs of Hawai'i*. Honolulu: The Kamehameha Schools Press.

Kelly, M. 1981. "Archaeological and Historical Studies for the Alenaio Stream Flood Damage Reduction Study, Hilo Hawai'i. Report 1. Background History." Department of Anthropology, B.P. Bishop Museum, Honolulu. Prepared for U.S. Army Engineer District, Pacific Ocean.

U.S. Dept. of Commerce, Bureau of the Census. 2001. http://factfinder.census.gov/

U.S. Soil Conservation Service. 1973. *Soil Survey of Island of Hawai'i, State of Hawai'i.* Washington: U.S.D.A. Soil Conservation Service.

University of Hawai'i at Hilo, Dept. of Geography. 1998. *Atlas of Hawai'i.* 3rd ed. Honolulu: University of Hawai'i Press.

U.S. Fish and Wildlife Service (USFWS). 2010. *USFWS Threatened and Endangered Species System (TESS).* Washington: GPO. http://ecos.fws.gov/tess public/StartTESS.do

Wolfe, E.W., and J. Morris. 1996. *Geologic Map of the Island of Hawai'i.* USGS Misc. Investigations Series Map i-2524-A. Washington, D.C.: U.S. Geological Survey.

ENVIRONMENTAL ASSESSMENT

AHUALOA TO HONOKA‘A TRANSMISSION WATERLINE

DWS JOB NO. 2008-945

APPENDIX 1
Comments in Response to Early Consultation

William P. Kenoi
Mayor

Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

County of Hawaii

POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-8865

July 29, 2009

Mr. Ron Terry
Principal
Geometrician Associates
P. O. Box 396
Hilo, HI 96721

Dear Mr. Terry:

Subject: Environmental Assessment for Ahualoa to Honokaa Water Transmission Improvements, Hamakua, Hawai'i, by Department of Water Supply to Construct New 12-inch Transmission Waterline from Existing Ahualoa Well Site to Ohia Street in Honokaa Town

Staff, upon reviewing the provided documents and visiting the proposed site, does not anticipate any significant impact to traffic and/or public safety concerns.

During the construction period, traffic direction may be needed and further comment may be provided upon presentation of a more detailed construction area and traffic plan.

Thank you for allowing us the opportunity to comment.

If you have any questions, please contact Captain Randy Apele, Commander of the Hamakua District, at 775-7533.

Sincerely,

DEREK D. PACHECO
ASSISTANT POLICE CHIEF
AREA I OPERATIONS BUREAU

RA:lli

William P. Kenoi
Mayor

Lono A. Tyson
Director

Ivan M. Torigoe
Deputy Director

County of Hawai'i
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
25 Aupuni Street • Hilo, Hawai`i 96720
(808) 961-8083 · Fax (808) 961-8086
http://co.hawaii.hi.us/directory/dir_envmng.htm

July 30, 2009

Mr. Ron Terry
Principal
GEOMETRICIAN ASSOCIATES, LLC
P. O. Box 396
Hilo, HI 96721

RE: Early Consultation for Supplemental Environmental Assessment for Āhualoa to Honoka'a Water Transmission Improvements, Hāmākua, Island of Hawai`i

Dear Mr. Terry,

We have no comments to offer on this Project.

Thank you for allowing us to review and comment on this project.

Sincerely,

Lono A. Tyson
DIRECTOR

11952A

PHONE (808) 594-1888 FAX (808) 594-1865

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD09/4514

August 10, 2009

Ron Terry
Geometrician Associates
PO Box 396 Hilo, Hawai'i 96721

RE: Request for early consultation, water transmission project, Hāmākua, Hawai'i.

Aloha e Ron Terry,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-mentioned letter dated July 15, 2009. OHA has reviewed the project and offers the following comments.

From the limited amount of materials nest to us with the invitation to comment OHA expresses preliminary concerns over cultural resources that may be disturbed by this proposed project. We ask if micro tunneling is a viable alternative in this instance. Further, OHA asks that, in accordance with Section 6E-46.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if the project moves forward, and if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division shall be contacted.

Thank you for the opportunity to comment. If you have further questions, please contact Grant Arnold by phone at (808) 594-0263 or e-mail him at granta@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Administrator

C: OHA Hilo CRC

LINDA LINGLE
GOVERNOR

BRENNON T. MORIOKA
DIRECTOR

Deputy Directors
MICHAEL D. FORMBY
FRANCIS PAUL KEENO
BRIAN H. SEKIGUCHI
JIRO A. SUMADA

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
HAWAII DISTRICT
50 MAKAALA STREET
HILO, HAWAII 96720
TELEPHONE: (808) 933-8866 • FAX: (808) 933-8869

IN REPLY REFER TO:

HWY-H 09-2.0888

December 10, 2009

Mr. Ron Terry
Principal
Geometrician Associates
P.O. Box 396
Hilo, Hawai'i 96721

Dear Mr. Terry:

SUBJECT: Early Consultation on Environmental Assessment for Ahualoa to Honokaa Water Transmission Improvements
Hawaii County Department of Water Supply
Project No. F-019-1(1) Unit 2
Route 19, Hawaii Belt Road
Kalua, Hamakua, Island of Hawai'i, Hawai'i

The subject improvements are proposed to cross the state highway route 19 Hawaii Belt Road. According to our records this section of highway has a posted speed limit of 45 mph which is considered a high speed highway. Please include a discussion on this issue in the environmental assessment dealing with traffic impacts and method of construction.

Please send copies of the Environmental Assessment to our Department for review and comment.

Our Department will then further distribute the copies to the appropriate divisions and branches at which time we will review and provide comments. After all comments are received and coordinated, a response from the Director will be sent to the County Department approving agency.

Please note that at this time we will not be able to provide comments without pre-empting the departmental response. Thank you for your advance notification of this assessment.

If you have any questions please call Mr. Clinton Yamada at 933-1951.

Very truly yours,

STANLEY M. TAMURA
Hawai'i District Engineer

ENVIRONMENTAL ASSESSMENT

AHUALOA TO HONOKA‘A TRANSMISSION WATERLINE

DWS JOB NO. 2008-945

APPENDIX 2
State Historic Preservation Division Correspondence

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

March 10, 2010

Nancy McMahon, Deputy SHPO
Kākuhihewa Building, Room 555
601 Kamokila Blvd
Kapolei, HI 96707

Dear Ms. McMahon:

Subject: Early Consultation for Environmental Assessment and Section 404 Clean Water Act Consultation for Ahualoa – Honokaa Transmission Waterline, Hamakua, Island of Hawai'i

I am in the process of preparing a Draft Environmental Assessment (DEA) for a proposed County of Hawai'i activity, in compliance with Chapter 343, HRS, and Title 11, Chapter 200, HAR. The County of Hawai'i, Department of Water Supply (DWS), proposes to construct a new 12-inch transmission waterline from its existing Ahualoa Well site, along Old Mamalahoa Highway, Kapuna Road, Pakalana Street, Lehua Street, Kamani Street, Pikake Street, with final connection to an existing waterline within Ohia Street in Honokaa Town. Attached is Map Figure 1 showing the approximate location of the proposed transmission waterline (minor changes may be made as a result of engineering design and EA studies). The project will also include construction of three pressure reducing/sustaining valve stations, modifications to the inlet control valve stations at four existing tank sites, and installation of stub-outs to a future tank site. The transmission line will need to make a number of culvert and bridge crossings along the proposed route.

The improvements would allow DWS transmission lines to deliver more water from the Ahualoa Well to make the system more reliable and provide better service to existing customers, as well as increase fire-fighting capacity. The project will relocate the existing fire hydrants to the new 12-inch line and install new fire hydrants in various locations.

I have worked with the Department of Water Supply and the civil engineering consulting firm Okahara and Associates to inspect the entire approximately five-mile long project route during 2009 and 2010 as part of design and environmental analysis. The project is restricted to the DWS facilities or roadway or immediately adjacent areas, which have been extensively disturbed as part of roadway, utility, drainage, and driveway improvements. Our surveys of the area have generally found no features in the area that would be affected which we would clearly consider

potential historic properties, such as walls, terraces, platforms, or significant wooden structures. However, the route does cross over 27 wet gulches (streams), dry gulches, and road drainage culverts. There are modern bridges over Inoino Gulch (dating from 2001) and Ahualoa Gulch (1982). Several of the other gulches have bridges and cement guard rail structures that are older, dating from the 1920s and 1930s.

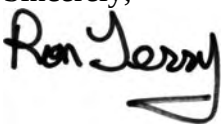
The waterline crossings will occur on the sides of bridges by hanging pipes with straps or using supporting struts from the bridge. Because there are existing waterlines along the route, most of these older bridges already contain a pipe hung from their sides (or in some cases, below the deck). We have attached a photo of a typical existing pipe crossing on one of the bridges (Photo Figure 1). Areas of very minor drainage where runoff now crosses the stream in culverts will be handled by burying the pipe *above the culvert* either in the roadway or on the adjacent shoulder.

The table below contains information on the five crossings that we believe involve any structures other than minor drainage culverts that date from before 1960. The table also references photos contained on the attached CD.

Cross. No.	Name, if any; Date, if known	Lat/Long	Photo Numbers
5	Bridge No. 235; 1923	20.05474/155.50674	P 23 to P 30
10	Bridge No. 233; 1923	20.06194/155.49313	P 37 to P 42
15	Bridge No. 232; 1923	20.06502/155.48109	P 44 to P 48
18	None; no date (guard rails)	20.06767/155.47313	P 49 to P 52
19	Bridge No. 231c; 1932	20.06914/155.47021	P 53 to P 57

We seek your concurrence that the project would not affect historic properties, or, if you are unable to make that determination based on the information provided, your recommendation on additional information or reports needed to assess the effect on historic properties. We would be happy to provide any other additional information and/or accompany your personnel on an inspection of the route. Please contact me at 969-7090 if you have any questions or require clarification. Also, kindly indicate whether you wish to receive an EA when it is completed.

Sincerely,



Ron Terry, Principal
Geometrician Associates

Cc: Finn McCall, DWS, and Bruce Meyers, Okahara and Associates

Photo Figure 1

NORTH

HOSPITAL TANK
(MODIFY CONTROL VALVES ONLY)

NEW TANK

NEW PRV

DESILVA TANK

COSTA TANK

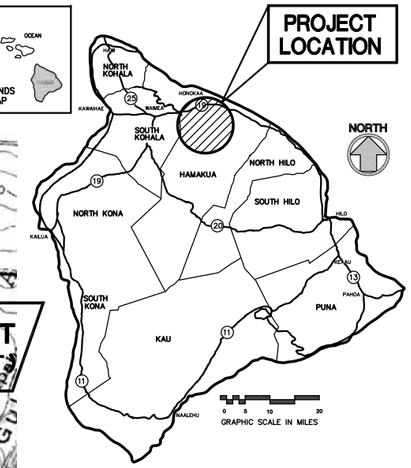
NEW PRV

NEW PRV

SAWMILL TANK

BEGIN PROJECT
(TIE-IN AT
AHUALOA WELL)

END PROJECT
(TIE-IN AT OHIA ST.)



ISLAND MAP
NOT TO SCALE

LEGEND

INDICATES NEW 12" TRANSMISSION WATERLINE

(5) INDICATES CROSSING NUMBER

APPROXIMATE SCALE: 1"=2000'

TITLE	**OVERALL PROJECT SITE PLAN - SHPD CONSULTATION LETTER** COUNTY OF HAWAII, DEPT. OF WATER SUPPLY	FIGURE **1**
PROJECT	AHUALOA TO HONOKA'A TRANSMISSION WATERLINE, PROJECT NO. 208-945 AHUALOA/HONOKA'A, HAWAII	DATE 3/8/2010

O:\Opro\Joel\209-013 Ahualoa Waterline\Cadd\EA Graphics\SHPD\FIG.dwg\ Scale: 1:1

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

April 20, 2010

Ron Terry, Principal
Geometrician Associates
PO Box 396
Hilo, Hawaii 96721

LOG NO: 2010.0688
DOC NO: 1004MD22
Archaeology

Dear Mr. Terry:

SUBJECT: **Chapter 6E-8 Historic Preservation Review –**
Request for Early Consultation for an Environmental Assessment and Section 404 Clean Water Act Consultation for the Ahualoa-Honokaʻa Transmission Waterline
Multiple Ahupuaʻa, Hāmākua District, Island of Hawaiʻi

Thank you for the opportunity to comment on the aforementioned project, which we received on March 31, 2010. This project will involve installation of a new 12-inch transmission waterline between the existing Ahualoa Well site into Honokaa town.

The location of the new construction lies partially within the town of Honokaʻa, which is an historic district (SIHP 50-10-08-7178). It will also include historic bridge crossings and the involvement of 27 wet gulches, dry gulches, and road drainage culverts. Therefore we believe that this project is expected to have an effect on historic properties. Because of this we recommend mitigation in the form of archaeological monitoring (**effect, with agreed-upon mitigation**).

Monitoring should be conducted by a qualified archaeologist(s) pursuant to an archaeological monitoring plan which is to be submitted to SHPD for review and approval pursuant to HAR §13-279. We recommend that our Architecture Branch staff be consulted regarding work involving the historic bridges. Upon completion of the project a monitoring report is to be prepared and submitted to us for review and acceptance pursuant to HAR §13-279.

If you have questions about this letter please contact Morgan Davis at (808) 896-0514 or via email to: morgan.e.davis@hawaii.gov.

Aloha,

Nancy A. McMahon

Nancy McMahon, Deputy SHPO/State Archaeologist
and Historic Preservation Manager
State Historic Preservation Division

Cc: SHPD Architecture Branch

LINDA LINGLE
GOVERNOR OF HAWAII

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

DATE: May 24, 2010

LOG: 2010.2000
DOC: 1005RS51

TO: Ron Terry
Geometrician Associates, Ltd.
P. O. Box 96721
Hilo, Hawaii 96721

SUBJECT: **Chapter 6E-8 Historic Preservation Review / Water Line Ahualoa to Honokaa**
Permit # (None)
Owner: County of Hawaii
Location: Old Mamalahoa Highway, Kapuna Road, Pakalana Street, Lehua Street, Kamani Street, Pikake Street, and Ohia Street
Tax Map Key: (3) 4

This letter is in response to your email communication dated April 27, 2010, and received by our office the same day, re a water project by the County of Hawaii between the existing Ahualoa Well and Honokaa town. The new transmission line is designed to increase capacity to Honokaa. The project entails attaching a new 12 inch line to the sides of five bridges:

- Bridge No. 235, dated 1923
- Bridge No. 233, dated 1923
- Bridge No. 232, dated 1923
- Unnamed Bridge, no date but from same period
- Bridge No 231c, dated 1932

The water line would be below the bridge railings and thus not visible when crossing.

The bridges are eligible for the Hawaii Register of Historic Places under Criteria C, Architecture, because they exemplify rural roadway development in Hawaii the 1920s and 1930s. They have maintained integrity in terms of worksmanship, design, materials, location, feeling, and association from that period until today.

We have been assured by your office that engineering studies have determined that the additional weight of the water lines on each bridge will not impinge the structural integrity of the structures, and that the waterline support attachments to each bridge will be constructed in such a way to prevent any destructive exposure of rebar. We appreciate your office providing ours with photographs of the bridges and a map of the project.

Based upon this information, it is our determination that **the project will not affect historic properties**. The project may proceed.

Any questions should be sent to Ross W. Stephenson, SHPD Historian, at (808) 692-8028 or ross.w.stephenson@hawaii.gov.

Mahalo for the opportunity to comment.

Pua Aiu, Administrator, Hawaii Historic Preservation Division, DLNR

5/24/10
Date

In the event that historic resources, including human skeletal remains, lava tubes, and lava blisters/bubbles are identified during construction activities, all work should cease in the immediate vicinity of the find, the find should be protected from additional disturbance, and the State Historic Preservation Division should be contacted immediately at (808) 692-8015.

ENVIRONMENTAL ASSESSMENT

AHUALOA TO HONOKA‘A TRANSMISSION WATERLINE

DWS JOB NO. 2008-945

APPENDIX 3
U.S. Army Corps of Engineers Correspondence

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

March 10, 2010

George P. Young, P.E.
Chief, Regulatory Branch
U.S. Army Engineer District,
Ft. Shafter, HI 96858-5440

Dear Mr. Young:

Subject: Early Consultation for Environmental Assessment and Section 404 Clean Water Act Consultation for Ahualoa – Honokaa Transmission Waterline, Hamakua, Island of Hawai'i

I am in the process of preparing a Draft Environmental Assessment (DEA) for a proposed County of Hawai'i activity, in compliance with Chapter 343, HRS, and Title 11, Chapter 200, HAR. The County of Hawai'i, Department of Water Supply (DWS), proposes to construct a new 12-inch transmission waterline from its existing Ahualoa Well site, along Old Mamalahoa Highway, Kapuna Road, Pakalana Street, Lehua Street, Kamani Street, Pikake Street, with final connection to an existing waterline within Ohia Street in Honokaa Town. Attached is a map showing the approximate location of the proposed transmission waterline (minor changes may be made as a result of engineering design and EA studies).

The improvements would allow DWS transmission lines to deliver more water from the Ahualoa Well to make the system more reliable and provide better service to existing customers, as well as increase fire-fighting capacity. The project will relocate the existing fire hydrants to the new 12-inch line and install new fire hydrants in various locations. The project will also include construction of three pressure reducing/sustaining valve stations, modifications to the inlet control valve stations at four existing tank sites, and installation of stub-outs to a future tank site.

Part of our Environmental Assessment involves identifying permits necessary for the project. I have worked with the Department of Water Supply and the civil engineering consulting firm Okahara and Associates to inspect the entire approximately five-mile long project route during 2009 and 2010 as part of design and environmental analysis. Our surveys of the area have found no wetlands or ponds, but the route does cross over 27 wet gulches (streams), dry gulches, and road drainage culverts. These include the USGS blue-line main branches and various tributaries of Inoino Gulch, Ahualoa Gulch, Kuilei Gulch, and Nienie Gulch. We have mapped and documented the location and nature of the crossings in the attached document.

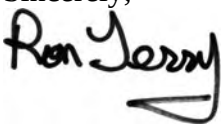
The waterline crossings of all blue-line streams as well as many other smaller, unmapped drainages will occur on the sides of bridges. We have attached a photo of a typical existing pipe crossing on one of the bridges (Photo Figure 1). Areas of very minor drainage where runoff now crosses the stream in culverts will be handled by burying the pipe *above the culvert* either in the roadway or on the adjacent shoulder. We have attached several photos indicating typical situations (Photo Figures 2 and 3). A National Pollutant Discharge Elimination System permit will be obtained for the project, which will implement Best Management Practices to avoid or minimize impacts to any surface waters.

In only one instance will the pipeline be buried beneath a crossing that will disturb the drainage channel, at Crossing 27. This minor unmapped topographic gully between two homes does not appear to have any of the characteristics of a water of the U.S., as it flows rarely and only in the case of a heavy rain, and lacks a channel or an ordinary high water mark. It is located at Lat. 20.07227/ Long. 155.46069. We have attached a photo of this crossing (Photo Figure 4).

At crossings 12 and 13C (Photo Figures 5 and 6, respectively), the culvert will be dug up and replaced in order to allow the pipeline to pass within the road prism under the culvert. Our inspection indicates that these are very minor culverts that permit road-generated runoff to pass across rather than over the road, as opposed to natural swales or ephemeral streams. They would thus not appear to meet the definition of waters of the U.S. Crossing 12 is located at Lat. 20.06317/ Long. 155.49220, and Crossing 13c at Lat. 20.06562/ Long. 155.48495.

We seek your concurrence that the project would not involve fill in waters of the U.S. We would be happy to provide any other additional information (we have several hundred photos and the latitude and longitude of all crossings) and/or accompany your personnel on an inspection of the route. Please contact me at 969-7090 if you have any questions or require clarification. Also, kindly indicate whether you wish to receive an EA when it is completed.

Sincerely,



Ron Terry, Principal
Geometrician Associates

Cc: Finn McCall, DWS, and Bruce Meyers, Okahara and Associates

Photo Figure 1

Photo Figure 2

Photo Figure 3

Photo Figure 4

Photo Figure 5

Photo Figure 6

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, HONOLULU DISTRICT
FORT SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF:

April 21, 2010

Regulatory Branch

POH-2010-00061

Ron Terry
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii 96721

Dear Mr. Terry:

We have received your letter dated March 10, 2010 on behalf of the County of Hawaii, Department of Water Supply regarding the Honokaa Transmission Waterline project at Hamakua, Island of Hawaii. Specifically, you request concurrence with your findings that Crossing Nos. 12, 13, and 27 will not impact a water of the United States (U.S.). We have reviewed your submittal pursuant to Section 10 of the Rivers and Harbors Act of 1899 (Section 10) and Section 404 of the Clean Water Act (Section 404). We have determined that the three crossings are not jurisdictional; therefore, a Department of Army (DA) permit is not required for any proposed or future work.

Section 10 requires that a DA permit be obtained for certain structures or work in or affecting navigable waters of the United States (U.S.), prior to conducting the work (33 U.S.C. 403). Because the sites are not a navigable water, a Section 10 DA permit is not required. Section 404 requires that a DA permit be obtained for the discharge of dredged and/or fill material into waters of the U.S., including wetlands and navigable waters of the U.S, prior to conducting the work (33 U.S.C. 1344).

We have reviewed the submitted information, as well as all available in-office reference materials. We have determined that Crossing Nos. 12 and 13 are not considered a water of the U.S. As such, work that would occur within these areas does not require DA authorization under Section 404 of the Clean Water Act. While we do consider the unnamed swale at Crossing No. 27 to be a non-relatively permanent water of the U.S., we do not believe there to be a significant nexus to the chemical, physical, or biological integrity of the Pacific Ocean, a traditional navigable water. Therefore, work that would occur at this location does not require DA authorization under Section 404.

This letter contains an approved JD for Crossing No. 27 and is valid for a period of 5 years from the date of this letter unless new information warrants revisions of the determination. A copy of this jurisdictional determination can be found on our website at http://www.poh.usace.army.mil/. If you object to this determination, you may request an Administrative Appeal under Corps regulations at 33 Code of Federal Regulations (CFR) Part 331. We have enclosed an *Administrative Appeal Process Flowchart* and the *Notification of*

Administrative Appeal Options and Process and Request for Appeal (NAP/RFA) form. If you wish to appeal this determination you must submit a completed RFA form, as detailed in the attached NAP/RFA form, to the Corps' Pacific Ocean Division office at the following address:

Thom Lichte, Appeals Review Officer
U.S. Army Corps of Engineers
Pacific Ocean Division, ATTN: CEPOD-PDC
Building 525
Fort Shafter, HI 96858-5440

Thank you for giving us the opportunity to review this proposal and for your cooperation with our regulatory program. Please be advised you can provide comments on your experience with the Honolulu District Regulatory Branch by accessing our web-based customer survey form at http://per2.nwp.usace.army.mil/survey.html.

Should you have any questions, please contact Mr. Robert Deroche of my staff at (808) 438-2039 by facsimile at (808) 438-4060, or by Email at robert.d.deroche2@usace.army.mil. Please refer to File No. POH-2010-00061 in all future communications with this office regarding this or other projects at this location.

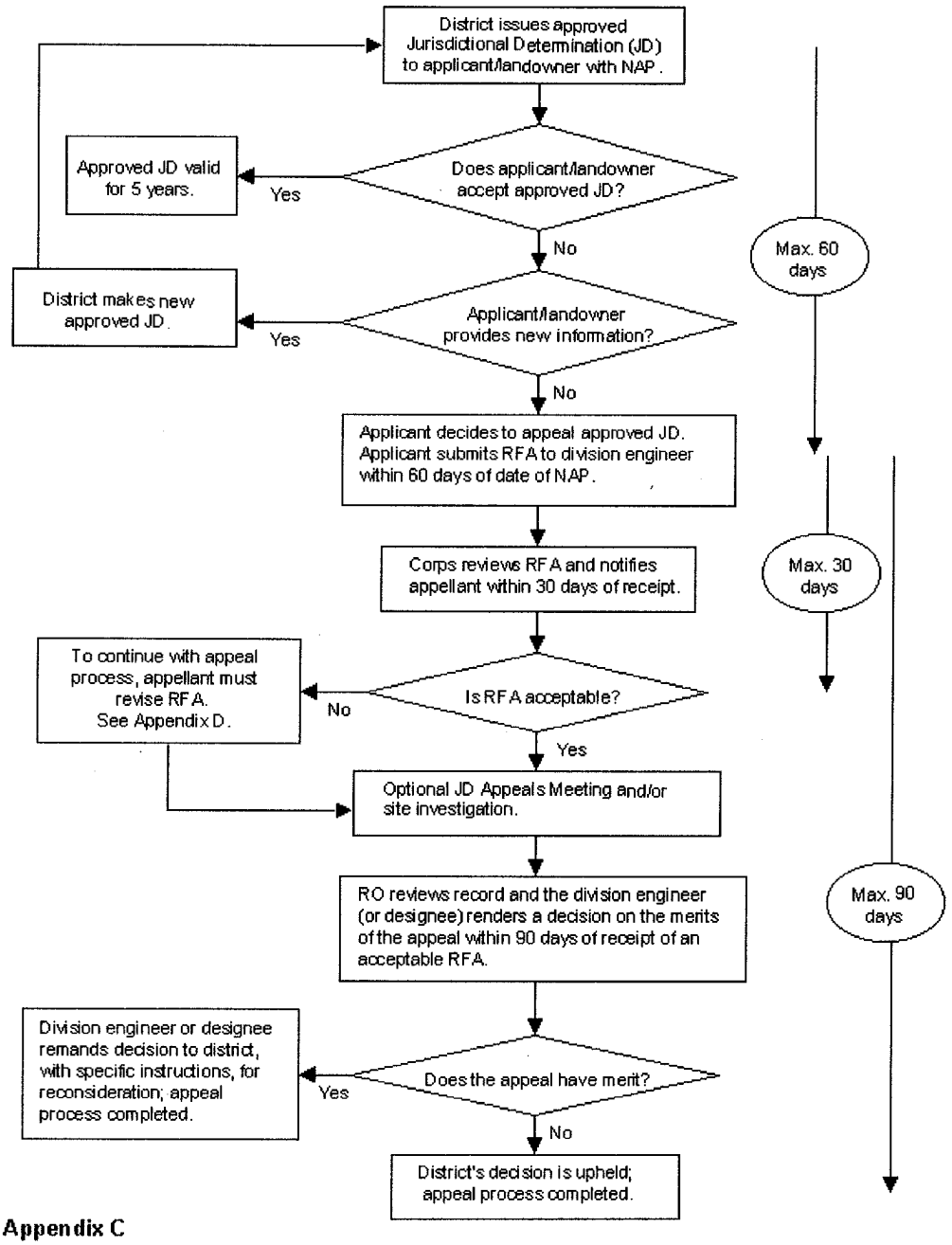
Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

Enclosures

Final JD Form
Flowchart
RFA Document

Administrative Appeal Process for Approved Jurisdictional Determinations



Appendix C

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL		
Applicant: County of Hawaii, Department of Water Supply	File Number: POH-2010-00061	Date: April 21, 2010
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
XX	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:	If you only have questions regarding the appeal process you may also contact:
Robert D. Deroche U.S. Army Corps of Engineers Honolulu District, Attn: CEPOH-EC-R Building 230 Fort Shafter, HI 96858-5440 Tel. (808) 438-2039	Mr. Thom Lichte, Appeal Review Officer Pacific Ocean Division ATTN: CEPOD-PDC Building 525 Fort Shafter, HI 96858-5440 Tel. (808) 438-0397

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

	Date:	Telephone number:
_____ Signature of appellant or agent.		

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): April 20, 2010

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: CEPOH-EC-R Honokaa Transmission Waterline POH-2010-00061

C. PROJECT LOCATION AND BACKGROUND INFORMATION: Crossing No. 27 at Kamani Street
State: Hawaii County/parish/borough: Hawaii City: Honokaa
Center coordinates of site (lat/long in degree decimal format): Lat. 20.07227 ° **N**, Long. 155.46069° **W**.
Universal Transverse Mercator: 5
Name of nearest waterbody:
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Pacific Ocean
Name of watershed or Hydrologic Unit Code (HUC): 20010000
☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):
☒ Office (Desk) Determination. Date: April 20, 2010
☐ Field Determination. Date(s):

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** *"navigable waters of the U.S."* within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]
☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** *"waters of the U.S."* within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. **Waters of the U.S.**
   a. **Indicate presence of waters of U.S. in review area (check all that apply):** [1]
      ☐ TNWs, including territorial seas
      ☐ Wetlands adjacent to TNWs
      ☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
      ☒ Non-RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
      ☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
      ☐ Impoundments of jurisdictional waters
      ☐ Isolated (interstate or intrastate) waters, including isolated wetlands

   b. **Identify (estimate) size of waters of the U.S. in the review area:**
      Non-wetland waters: 50 linear feet: 10 width (ft) and/or acres.
      Wetlands: acres.

   c. **Limits (boundaries) of jurisdiction** based on: **Pick List**
      Elevation of established OHWM (if known): .

2. **Non-regulated waters/wetlands (check if applicable):**[3]
   ☐ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
   Explain: .

---

[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: .

   Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) General Area Conditions:
   Watershed size: 8.3 **square miles**
   Drainage area: 8.3 **Pick List**
   Average annual rainfall: 75.0 inches
   Average annual snowfall: inches

   (ii) Physical Characteristics:
   (a) Relationship with TNW:
   ☒ Tributary flows directly into TNW.
   ☐ Tributary flows through **Pick List** tributaries before entering TNW.

   Project waters are **1-2** river miles from TNW.
   Project waters are **1-2** river miles from RPW.
   Project waters are **1-2** aerial (straight) miles from TNW.
   Project waters are **1-2** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

   Identify flow route to TNW[5]: Unnamed stream all the way to the Ocean.
   Tributary stream order, if known: .

---

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

(b) General Tributary Characteristics (check all that apply):

Tributary is: ☒ Natural
☐ Artificial (man-made). Explain: .
☒ Manipulated (man-altered). Explain: Pictures from site show a concrete-grouted rubble wall making up one side of the stream.

Tributary properties with respect to top of bank (estimate):
Average width: 2 feet
Average depth: 0.5 feet
Average side slopes: **4:1 (or greater).**

Primary tributary substrate composition (check all that apply):

☒ Silts	☐ Sands	☐ Concrete
☐ Cobbles	☐ Gravel	☐ Muck
☐ Bedrock	☐ Vegetation. Type/% cover:	
☐ Other. Explain: .		

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: stable.
Presence of run/riffle/pool complexes. Explain: None.
Tributary geometry: **Meandering**
Tributary gradient (approximate average slope): 6 %

(c) Flow:

Tributary provides for: **Intermittent but not seasonal flow**
Estimate average number of flow events in review area/year: **2-5**
Describe flow regime: .
Other information on duration and volume: contractor states it flows only in the case of a heavy rain event.

Surface flow is: **Overland sheetflow**. Characteristics: .

Subsurface flow: **Unknown**. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):

☐ clear, natural line impressed on the bank	☐ the presence of litter and debris
☐ changes in the character of soil	☐ destruction of terrestrial vegetation
☐ shelving	☐ the presence of wrack line
☐ vegetation matted down, bent, or absent	☐ sediment sorting
☐ leaf litter disturbed or washed away	☐ scour
☐ sediment deposition	☐ multiple observed or predicted flow events
☐ water staining	☐ abrupt change in plant community
☐ other (list):	

☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

☐ High Tide Line indicated by:	☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects	☐ survey to available datum;
☐ fine shell or debris deposits (foreshore)	☐ physical markings;
☐ physical markings/characteristics	☐ vegetation lines/changes in vegetation types.
☐ tidal gauges	
☐ other (list):	

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: Unknown chemical characteristics, however, stream originates in forested area and then travels through residential subdivision of Honokaa before existing to pastureland and to the ocean.
Identify specific pollutants, if known: .

---

[6]A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7]Ibid.

(iv) Biological Characteristics. Channel supports (check all that apply):

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) Physical Characteristics:

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: **Pick List**. Explain: .

Surface flow is: **Pick List**

Characteristics: .

Subsurface flow: **Pick List**. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are **Pick List** river miles from TNW.

Project waters are **Pick List** aerial (straight) miles from TNW.

Flow is from: **Pick List.**

Estimate approximate location of wetland as within the **Pick List** floodplain.

(ii) Chemical Characteristics:

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) Biological Characteristics. Wetland supports (check all that apply):

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: **Pick List**

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: There is no evidence of repeated or significant flow events, although the consultant indicates that this "gully" between the homes only flows rarely in the event of a heavy rain. There is no evidence of OHWM and the stream bed provides no habitat. It is full of tree litter indicating a long time since any rain event. NWI map, USGS topographic quad, NRCS soils maps do not indicate the presence of any hydric soils, permanent or temporary waterways. The waterway does not provide for any significant nexus with the Pacific Ocean.

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   - ☐ TNWs: linear feet width (ft), Or, acres.
   - ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   - ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .

☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.

---

[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☐ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☐ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☒ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain:**See III.C.2. above.**
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
☐ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☐ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☐ Corps navigable waters' study: .
☒ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: .
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: .
☒ National wetlands inventory map(s). Cite name: .
☐ State/Local wetland inventory map(s): .
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Google 2010.
or ☒ Other (Name & Date): Ground photographs provided by the consultant2.
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

ENVIRONMENTAL ASSESSMENT

AHUALOA TO HONOKA‘A TRANSMISSION WATERLINE

DWS JOB NO. 2008-945

APPENDIX 4
List of Plant Species Along Transmission Waterline Route

Appendix 4 List Of Plant Species Along Ahualoa Transmission Waterline Route

Scientific Name	Family	Common Name	Life Form	Status *
Adiantum sp.	Pteridaceae	Maidenhair fern	Fern	A
Ageratum conyzoides	Asteraceae	Maile honohono	Herb	A
Aleurites moluccana	Euphorbiaceae	Kukui	Tree	A
Allamanda sp.	Apocynaceae	Allamanda	Herb	A
Alocasia macrorrhizos	Araceae	‘Ape	Herb	A
Andropogon virginicus	Poaceae	Broomsedge	Grass	A
Arundina graminifolia	Orchidaceae	Bamboo orchid	Herb	A
Blechnum appendiculatum	Blechnaceae	Blechnum	Fern	A
Brachiaria mutica	Poaceae	California grass	Grass	A
Buddleja asiatica	Buddlejaceae	Dog tail	Shrub	A
Carica papaya	Caricaceae	Papaya	Tree	A
Casuarina equisetifolia	Casuarinaceae	Ironwood	Tree	A
Cecropia obtusifolia	Cecropiaceae	Guarumo	Tree	A
Cestrum nocturnum	Solanaceae	Night blooming cestrum	Shrub	A
Chamaecrista nictitans	Fabaceae	Partridge pea	Herb	A
Chamaesyce hirta	Euphorbiaceae	Garden spurge	Herb	A
Chamaesyce hypericifolia	Euphorbiaceae	Graceful spurge	Herb	A
Christella sp.	Thelypteridaceae	Christella	Fern	A
Cibotium glaucum	Dicksoniaceae	Hapu‘u	fern	E
Cinnamomum burmannii	Lauraceae	Padang cassia	Tree	A
Clidemia hirta	Melastomataceae	Coster’s curse	Shrub	A
Coffea arabica	Rubiaceae	Arabian coffee	Shrub	A
Coix lachryma-jobi	Poaceae	Job’s tears	Grass	A
Colocasia esculenta	Araceae	Taro	Herb	A
Commelina diffusa	Commelinaceae	Honohono	Herb	A
Conyza bonariensis	Asteraceae	Hairy horseweed	Herb	A
Cordyline fruticosa	Agavaceae	Ki	Shrub	A
Crassocephalum crepidoides	Asteraceae	Crassocephalum	Herb	A
Crotalaria sp.	Fabaceae	Rattlepod	Herb	A
Cuphea carthaginensis	Lythraceae	Tarweed	Shrub	A
Cupressus sp.	Cupressaceae	Cypress	Tree	A
Cynodon dactylon	Poaceae	Bermuda grass	Grass	A
Cyperus halpan	Cyperaceae	Nut grass	Sedge	A
Cyperus polystachyos	Cyperaceae	Pycreus	Sedge	I
Desmodium incanum	Fabaceae	Desmodium	Herb	A
Dicranopteris linearis	Gleicheniaceae	Uluhe	Fern	I
Digitaria sp.	Poaceae	Crabgrass	Herb	A
Dracaena marginata	Agavaceae	Money tree	Tree	A
Eleusine indica	Poaceae	Wire grass	Grass	A
Emilia fosbergii	Asteraceae	Pualele	Herb	A
Emilia sonchifolia	Asteraceae	Pualele	Herb	A
Eriobotrya japonica	Rosaceae	Loquat	Tree	A
Eucalyptus grandis	Myrtaceae	Red gum	Tree	A
Eucalyptus robusta	Myrtaceae	Swamp mahogany	Tree	A

Appendix 4, continued

Scientific Name	Family	Common Name	Life Form	Status *
Fraxinus uhdei	Oleaceae	Tropical ash	Tree	A
Furcraea foetida	Agavaceae	Mauritius hemp	Shrub	A
Grevillea robusta	Proteaceae	Silk oak	Tree	A
Hedychium coronarium	Zingiberaceae	White ginger	Herb	A
Hedychium flavescens	Zingiberaceae	Yellow ginger	Herb	A
Hedychium gardnerianum	Zingiberaceae	Kahili ginger	Herb	A
Hypochoeris radicata	Asteraceae	Hairy cat's ear	Herb	A
Ipomoea cairica	Convolvulaceae	Ivy-leaved morning glory	Vine	A
Ipomoea indica	Convolvulaceae	Koali	Vine	I
Kalanchoe pinnata	Crassulaceae	Air plant	Shrub	A
Lantana camara	Verbenaceae	Lantana	Shrub	A
Leucaena leucocephala	Fabaceae	Haole koa	Tree	A
Malva parviflora	Malvaceae	Cheeseweed	Herb	A
Malvaviscus penduliflorus	Malvaceae	Turk's cap	Tree	A
Mangifera indica	Anacardiaceae	Mango	Tree	A
Melaleuca quinquenervia	Myrtaceae	Paperbark tree	Tree	A
Melastoma candidum	Melastomataceae	Asian melastome	Shrub	A
Melinus minutiflora	Poaceae	Molasses grass	Grass	A
Metrosideros polymorpha	Myrtaceae	Ohia	Tree	E
Mimosa pudica	Fabaceae	Sensitive plant	Herb	A
Monstera deliciosa	Araceae	Swiss cheese plant	Shrub	A
Nephrolepis exaltata	Nephrolepidaceae	Sword fern	Fern	I
Nephrolepis multiflora	Nephrolepidaceae	Sword fern	Fern	A
Oxalis corniculata	Oxalidaceae	Yellow wood sorrel	Herb	A
Panicum maximum	Poaceae	Panicum	Herb	A
Panicum repens	Poaceae	Wainaku Grass	Herb	A
Paspalum conjugatum	Poaceae	Hilo grass	Grass	A
Paspalum urvillei	Poaceae	Vasey grass	Grass	A
Persea americana	Lauraceae	Avocado	Tree	A
Philodendron sp.	Araceae	Philodendron	Vine	A
Phlebodium aureum	Polypodiaceae	Phlebodium	Herb	A
Phymatosorus grossus	Polypodiaceae	Maile-scented fern	Herb	A
Physalis peruviana	Solanaceae	Poha	Shrub	A
Plantago lanceolata	Plantaginaceae	Narrow-leaved plantain	Herb	A
Pluchea carolinensis	Asteraceae	Sourbush	Shrub	A
Plumeria sp.	Apocynaceae	Plumeria	Tree	A
Psidium cattleianum	Myrtaceae	Strawberry guava	Tree	A
Psidium guajava	Myrtaceae	Guava	Tree	A
Saccharum officinarum	Poaceae	Sugar cane	Grass	A
Sacciolepis indica	Poaceae	Glenwood grass	Grass	A
Sambucus mexicana	Adoxaceae	Elderberry	Shrub	A

Appendix 4, continued

Scientific Name	**Family**	**Common Name**	**Life Form**	**Status ***
Schefflera actinophylla	Araliaceae	Octopus tree	Tree	A
Schinus terebinthifolius	Anacardiaceae	Christmas berry	Tree	A
Schizachyrium condensatum	Poaceae	Tufted beardgrass	Grass	A
Setaria gracilis	Poaceae	Yellow foxtail	Herb	A
Setaria palmifolia	Poaceae	Palm grass	Grass	A
Sida rhombifolia	Malvaceae	Cuba jute	Herb	A
Sonchus oleraceus	Asteraceae	Sow thistle	Herb	A
Spathodea campanulata	Bignoniaceae	African tulip tree	Tree	A
Sphenomeris chinensis	Lindsaeaceae	Pala‘a	Fern	I
Sporobolus sp.	Poaceae	Dropseed	Grass	A
Stachytarpheta jamaicensis	Verbenaceae	Jamaica vervain	Shrub	A
Syzygium cumini	Myrtaceae	Java plum	Tree	A
Syzygium jambos	Myrtaceae	Rose apple	Tree	A
Tibouchina urvilleana	Melastomataceae	Glory bush	Shrub	A
Trema orientalis	Ulmaceae	Gunpowder tree	Tree	A
Wedelia trilobata	Asteraceae	Wedelia	Herb	A
Youngia japonica	Asteraceae	Hawksbeard	Herb	A

* A = alien, E = endemic, I = indigenous, End = Federal and State listed Endangered Species

ENVIRONMENTAL ASSESSMENT

AHUALOA TO HONOKA‘A TRANSMISSION WATERLINE

DWS JOB NO. 2008-945

APPENDIX 5
U.S. Fish and Wildlife Service Correspondence

geometrician
ASSOCIATES, LLC
integrating geographic science and planning

phone: (808) 969-7090 fax: (866) 316-6988 PO Box 396 Hilo Hawaii 96721
rterry@hawaii.rr.com

May 24, 2010

Loyal Mehrhoff, Ph.D., Supervisor
Pacific Island Ecoregion
U.S. Fish and Wildlife Service
300 Ala Moana Boulevard
Honolulu HI 96813

Dear Mr. Mehrhoff:

Subject: Environmental Assessment and USFWS Technical Assistance for Ahualoa – Honokaʻa Transmission Waterline, Hamakua, Island of Hawaiʻi

I am in the process of preparing a Draft Environmental Assessment for a proposed County of Hawaiʻi activity, in compliance with Chapter 343, HRS, and Title 11, Chapter 200, HAR. DWS is also seeking U.S. Safe Drinking Water Act State Revolving Funds for the improvements, which require addressing federal "cross-cutter" authorities.

The County of Hawaiʻi, Department of Water Supply (DWS), proposes to construct a new 12-inch transmission waterline from its existing Ahualoa Well site, along Old Mamalahoa Highway, Kapuna Road, Pakalana Street, Lehua Street, Kamani Street, Pikake Street, with final connection to an existing waterline within Ohia Street in Honokaʻa Town. The line would descend in elevation from about 2,250 feet to 1,160 feet above mean sea level. Attached is an Overall Site Plan showing the location of the proposed transmission waterline and various photos that show the vegetation along the route.

The improvements would allow DWS transmission lines to deliver more water from the Ahualoa Well to make the system more reliable and provide better service to existing customers, as well as increase fire-fighting capacity. The project will relocate the existing fire hydrants to the new 12-inch line and install new fire hydrants in various locations. The project will also include construction of three pressure reducing/sustaining valve stations, modifications to the inlet control valve stations at four existing tank sites, and installation of stub-outs to a future tank site.

Biologist Patrick J. Hart, Ph.D., and I have inspected the entire pipeline route and the other properties in question. The vegetation in the area to be affected, which consists of paved road right of way, the shoulders of the roads, areas inside fenced DWS facilities, and one weedy area between two urban lots in Honokaʻa, has entirely non-natural, managed vegetation. The vegetation is dominated by the typical non-native roadside trees, shrubs and ferns of lowland Hāmākua, including *Eucalyptus grandis, Eucalpytus robustus*, paperbark tree (*Melaleuca quinquenervia*), rose apple (*Syzygium jambos*), ironwood (*Casuarina equisetifolia*), Kalihi ginger (*Hedychium gardnerianum*), guinea grass (*Panicum maximum*), and elephant grass (*Pennisetum purpureum*), as well as some more unusual non-native trees, mountain ash (*Fraxinus uhdei*) and Padang cassia (*Cinnamomum burmannii*). At higher elevations, native species including ʻōhiʻa (*Metrosideros polymorpha*), hapuʻu (*Cibotium glaucum*), and uluhe fern (*Dicranopteris linearis*) appear. In lower areas, guava (*Psidium guajava*), ironwood, and guinea grass tend to dominate. At the very lowest elevations of Old Mamalahoa Highway, sugar cane (*Saccharum officinarum*), a relic of cultivation, is still present. Makai of Highway 19 the vegetation consists of the grasses and sedges within the managed road verge and landscaped edges of yards. The attached plant species list includes all plant species observed within five meters of the right-of-way edge, except for certain obviously cultivated non-native species within yards and farms.

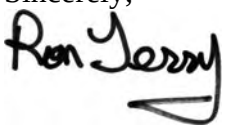
No streams, ponds, wetlands, native forest groves or other important habitat areas would be affected. Note that the pipeline will cross all streams by being attached to existing bridges and culverts, as other pipelines currently do.

It is recognized that listed terrestrial vertebrates may be present in this part of Hāmākua and may overfly, roost, nest, or utilize resources here, including the endangered Hawaiian Hawk (*Buteo solitarius*), the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), the endangered Hawaiian Petrel (*Pterodroma sandwichensis*), and the threatened Newell's Shearwater (*Puffinus auricularis newelli*). No temporary or permanent lighting or erect structures such as poles are planned, and therefore we do not anticipate any impacts to listed seabirds. There are tall trees of various species (notably eucalyptus) present along Old Mamalahoa Highway, some of which may be conducive to providing nesting sites for Hawaiian Hawks. It is not currently anticipated that any trees would need to be removed. Furthermore, the area in question is in active use as a rural highway with farms and homes on both sides, and it appears unlikely that the pipeline construction project, which involves a narrow and relatively shallow trench, would provide levels of disturbance to hawks significantly greater than the extensive tree-trimming, pasture and lawn mowing, truck movement, cattle operations, and structure construction that occur on a daily basis along the route.

It is conceivable that the pipeline construction will require the removal of a small amount of shrubby vegetation or small trees that currently encroach into the highway shoulder. We recognize that there is at least some chance that some of Hawaiian hoary bats may utilize the roadside vegetation for roosts. If necessary, the project proponents are willing to commit to measures in order to avoid impacts to the bat, and will specifically refrain from activities that disturb or remove the vegetation during critical pupping months for the Hawaiian hoary bat, if recommended by your agency, which we understand to be May 15 to August 15 of each year.

We would appreciate your comments on the information we have provided and input regarding any special environmental conditions or impacts related to the project, including a list of any threatened or endangered species or critical habitat that might be present and any further recommendations on mitigating for impacts. Please contact me at 969-7090 if you have any questions or require clarification. Kindly indicate whether you wish to receive an EA when it is completed.

Sincerely,



Ron Terry, Principal
Geometrician Associates

List Of Plant Species Along Ahualoa to Honokaʻa Pipeline Route

Scientific Name	Family	Common Name	Life Form	Status*
Adiantum sp.	Pteridaceae	Maidenhair fern	Fern	A
Ageratum conyzoides	Asteraceae	Maile honohono	Herb	A
Aleurites moluccana	Euphorbiaceae	Kukui	Tree	A
Allamanda sp.	Apocynaceae	Allamanda	Herb	A
Alocasia macrorrhizos	Araceae	ʻApe	Herb	A
Andropogon virginicus	Poaceae	Broomsedge	Grass	A
Arundina graminifolia	Orchidaceae	Bamboo orchid	Herb	A
Blechnum appendiculatum	Blechnaceae	Blechnum	Fern	A
Brachiaria mutica	Poaceae	California grass	Grass	A
Buddleja asiatica	Buddlejaceae	Dog tail	Shrub	A
Carica papaya	Caricaceae	Papaya	Tree	A
Casuarina equisetifolia	Casuarinaceae	Ironwood	Tree	A
Cecropia obtusifolia	Cecropiaceae	Guarumo	Tree	A
Cestrum nocturnum	Solanaceae	Night blooming cestrum	Shrub	A
Chamaecrista nictitans	Fabaceae	Partridge pea	Herb	A
Chamaesyce hirta	Euphorbiaceae	Garden spurge	Herb	A
Chamaesyce hypericifolia	Euphorbiaceae	Graceful spurge	Herb	A
Christella sp.	Thelypteridaceae	Christella	Fern	A
Cibotium glaucum	Dicksoniaceae	Hapuʻu	fern	E
Cinnamomum burmannii	Lauraceae	Padang cassia	Tree	A
Clidemia hirta	Melastomataceae	Coster's curse	Shrub	A
Coffea arabica	Rubiaceae	Arabian coffee	Shrub	A
Coix lachryma-jobi	Poaceae	Job's tears	Grass	A
Colocasia esculenta	Araceae	Taro	Herb	A
Commelina diffusa	Commelinaceae	Honohono	Herb	A
Conyza bonariensis	Asteraceae	Hairy horseweed	Herb	A
Cordyline fruticosa	Agavaceae	Ki	Shrub	A
Crassocephalum crepidoides	Asteraceae	Crassocephalum	Herb	A
Crotalaria sp.	Fabaceae	Rattlepod	Herb	A
Cuphea carthaginensis	Lythraceae	Tarweed	Shrub	A
Cupressus sp.	Cupressaceae	Cypress	Tree	A
Cynodon dactylon	Poaceae	Bermuda grass	Grass	A
Cyperus halpan	Cyperaceae	Nut grass	Sedge	A
Cyperus polystachyos	Cyperaceae	Pycreus	Sedge	I
Desmodium incanum	Fabaceae	Desmodium	Herb	A
Dicranopteris linearis	Gleicheniaceae	Uluhe	Fern	I
Digitaria sp.	Poaceae	Crabgrass	Herb	A
Dracaena marginata	Agavaceae	Money tree	Tree	A
Eleusine indica	Poaceae	Wire grass	Grass	A
Emilia fosbergii	Asteraceae	Pualele	Herb	A
Emilia sonchifolia	Asteraceae	Pualele	Herb	A
Eriobotrya japonica	Rosaceae	Loquat	Tree	A
Eucalyptus grandis	Myrtaceae	Red gum	Tree	A
Eucalyptus robusta	Myrtaceae	Swamp mahogany	Tree	A

List Of Plant Species Along Ahualoa to Honoka'a Pipeline Route, continued				
Scientific Name	**Family**	**Common Name**	**Life Form**	**Status ***
Fraxinus uhdei	Oleaceae	Tropical ash	Tree	A
Furcraea foetida	Agavaceae	Mauritius hemp	Shrub	A
Grevillea robusta	Proteaceae	Silk oak	Tree	A
Hedychium coronarium	Zingiberaceae	White ginger	Herb	A
Hedychium flavescens	Zingiberaceae	Yellow ginger	Herb	A
Hedychium gardnerianum	Zingiberaceae	Kahili ginger	Herb	A
Hypochoeris radicata	Asteraceae	Hairy cat's ear	Herb	A
Ipomoea cairica	Convolvulaceae	Ivy-leaved morning glory	Vine	A
Ipomoea indica	Convolvulaceae	Koali	Vine	I
Kalanchoe pinnata	Crassulaceae	Air plant	Shrub	A
Lantana camara	Verbenaceae	Lantana	Shrub	A
Leucaena leucocephala	Fabaceae	Haole koa	Tree	A
Malva parviflora	Malvaceae	Cheeseweed	Herb	A
Malvaviscus penduliflorus	Malvaceae	Turk's cap	Tree	A
Mangifera indica	Anacardiaceae	Mango	Tree	A
Melaleuca quinquenervia	Myrtaceae	Paperbark tree	Tree	A
Melastoma candidum	Melastomataceae	Asian melastome	Shrub	A
Melinus minutiflora	Poaceae	Molasses grass	Grass	A
Metrosideros polymorpha	Myrtaceae	Ohia	Tree	E
Mimosa pudica	Fabaceae	Sensitive plant	Herb	A
Monstera deliciosa	Araceae	Swiss cheese plant	Shrub	A
Nephrolepis exaltata	Nephrolepidaceae	Sword fern	Fern	I
Nephrolepis multiflora	Nephrolepidaceae	Sword fern	Fern	A
Oxalis corniculata	Oxalidaceae	Yellow wood sorrel	Herb	A
Panicum maximum	Poaceae	Panicum	Herb	A
Panicum repens	Poaceae	Wainaku Grass	Herb	A
Paspalum conjugatum	Poaceae	Hilo grass	Grass	A
Paspalum urvillei	Poaceae	Vasey grass	Grass	A
Persea americana	Lauraceae	Avocado	Tree	A
Philodendron sp.	Araceae	Philodendron	Vine	A
Phlebodium aureum	Polypodiaceae	Phlebodium	Herb	A
Phymatosorus grossus	Polypodiaceae	Maile-scented fern	Herb	A
Physalis peruviana	Solanaceae	Poha	Shrub	A
Plantago lanceolata	Plantaginaceae	Narrow-leaved plantain	Herb	A
Pluchea carolinensis	Asteraceae	Sourbush	Shrub	A
Plumeria sp.	Apocynaceae	Plumeria	Tree	A
Psidium cattleianum	Myrtaceae	Strawberry guava	Tree	A
Psidium guajava	Myrtaceae	Guava	Tree	A
Saccharum officinarum	Poaceae	Sugar cane	Grass	A
Sacciolepis indica	Poaceae	Glenwood grass	Grass	A
Sambucus mexicana	Adoxaceae	Elderberry	Shrub	A

List Of Plant Species Along Ahualoa to Honoka‘a Pipeline Route, continued

Scientific Name	**Family**	**Common Name**	**Life Form**	**Status ***
Schefflera actinophylla	Araliaceae	Octopus tree	Tree	A
Schinus terebinthifolius	Anacardiaceae	Christmas berry	Tree	A
Schizachyrium condensatum	Poaceae	Tufted beardgrass	Grass	A
Setaria gracilis	Poaceae	Yellow foxtail	Herb	A
Setaria palmifolia	Poaceae	Palm grass	Grass	A
Sida rhombifolia	Malvaceae	Cuba jute	Herb	A
Sonchus oleraceus	Asteraceae	Sow thistle	Herb	A
Spathodea campanulata	Bignoniaceae	African tulip tree	Tree	A
Sphenomeris chinensis	Lindsaeaceae	Pala‘a	Fern	I
Sporobolus sp.	Poaceae	Dropseed	Grass	A
Stachytarpheta jamaicensis	Verbenaceae	Jamaica vervain	Shrub	A
Syzygium cumini	Myrtaceae	Java plum	Tree	A
Syzygium jambos	Myrtaceae	Rose apple	Tree	A
Tibouchina urvilleana	Melastomataceae	Glory bush	Shrub	A
Trema orientalis	Ulmaceae	Gunpowder tree	Tree	A
Wedelia trilobata	Asteraceae	Wedelia	Herb	A
Youngia japonica	Asteraceae	Hawksbeard	Herb	A

* A = alien, E = endemic, I = indigenous, End = Federal and State listed Endangered Species

Photo 1a. Near the lower end, eucalyptus monostands, ironwood, and guinea grass dominate ▲

▼ Photo 1b. There are many homes with landscaped yards on Old Mamalahoa Hwy.

Photo 2a. The pipeline will cross streams attached to bridges, as currently ▲

▼ Photo 2b. Strawberry guava is common on roadside

Photo 3a. The most common vegetation is eucalyptus lining both sides ▲

▼ Photo 3b. At the highest elevation, ʻōhiʻa is mixed with eucalyptus

NORTH

HOSPITAL TANK
(MODIFY CONTROL VALVES ONLY)

NEW TANK

NEW PRV

COSTA TANK

DESILVA TANK

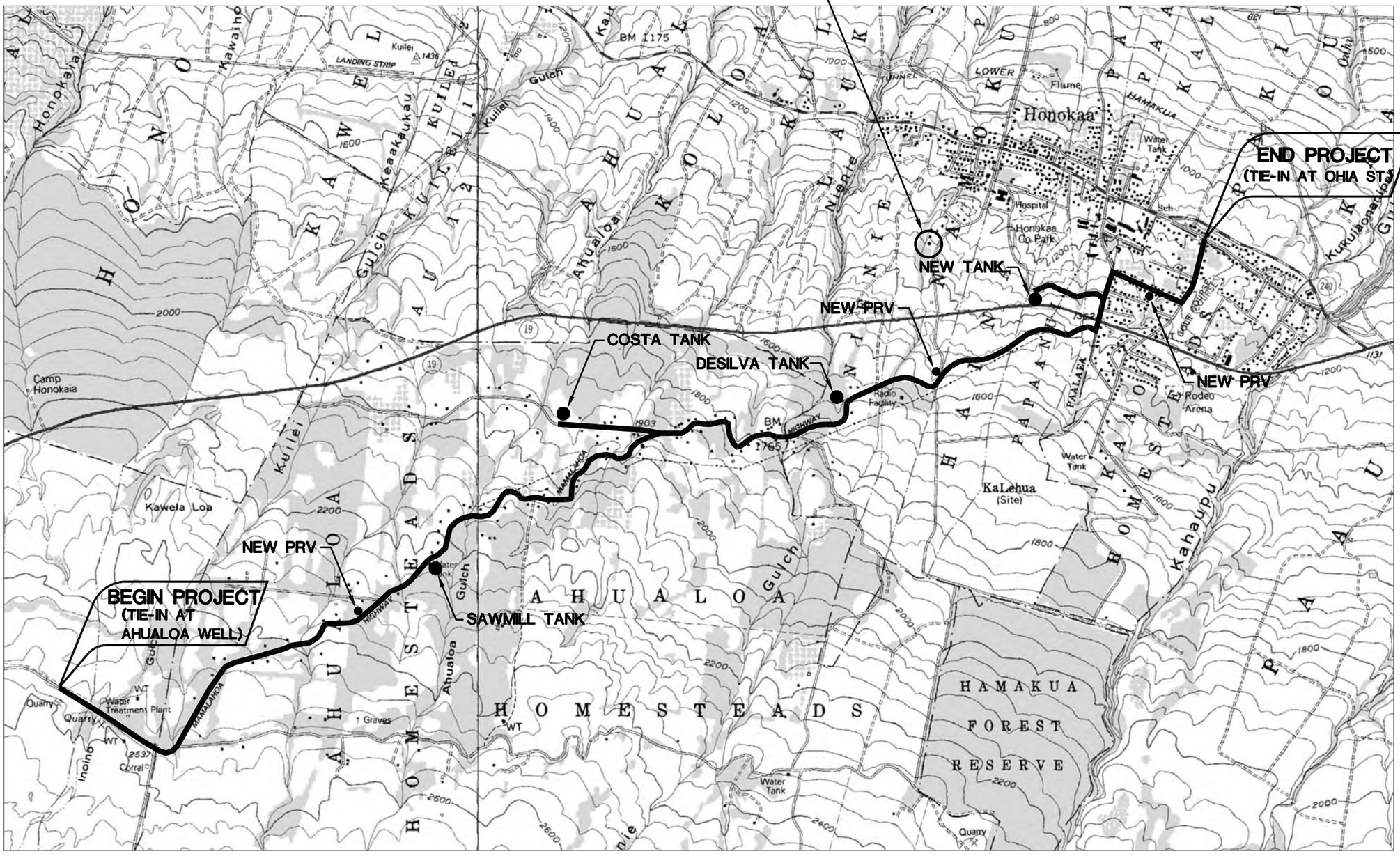
NEW PRV

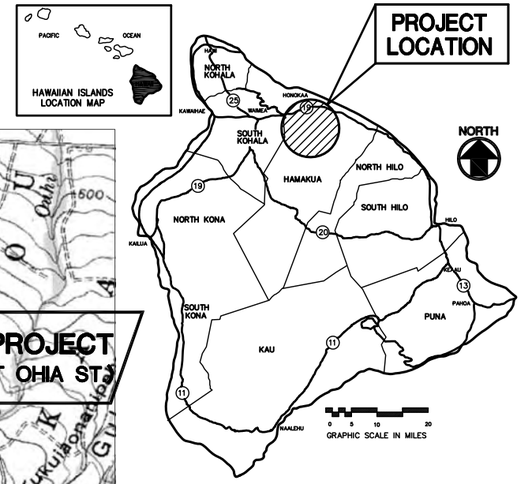
END PROJECT
(TIE-IN AT OHIA ST.)

NEW PRV

BEGIN PROJECT
(TIE-IN AT
AHUALOA WELL)

SAWMILL TANK





ISLAND MAP
NOT TO SCALE

LEGEND

INDICATES NEW 12" TRANSMISSION WATERLINE

APPROXIMATE SCALE: 1"=2000'

TITLE	**OVERALL PROJECT SITE PLAN** COUNTY OF HAWAII, DEPT. OF WATER SUPPLY	FIGURE 1
PROJECT	AHUALOA TO HONOKA'A TRANSMISSION WATERLINE, PROJECT NO. 208-945 AHUALOA/HONOKA'A, HAWAII	DATE 11/18/2009

208-784/FIG.dwg/SCALE: 1:1