

HHF PLANNERS
places for people

January 7, 2019

FILE COPY

JAN 23 2019

Mr. Scott Glenn, Director
Office of Environmental Quality Control
Department of Health, State of Hawai'i
235 S. Beretania Street, Room 702
Honolulu, Hawai'i 96813



Dear Mr. Glenn:

On behalf of my client, Dillingham Ranch Aina LLC, we hereby transmit the documents package for the final environmental impact statement for the Agricultural Subdivision at Dillingham Ranch situated at TMK 6-8-2: 6, 6-8-3: 5, 6, 15, 19, 30, 31, 33, 35, and 40 in the Waiialua District on the island of O'ahu for publication of a notice of availability in the next available edition of the Environmental Notice and for evaluation for acceptability under Section 11-200-23, Hawai'i Administrative Rules.

Also enclosed is a distribution list for the verification of OEQC under Section 11-200-20, Hawai'i Administrative Rules. Upon receiving verification from OEQC (along with the bulletin proof of the notice containing the pertinent details for commenters), we will make the final EIS and the bulletin proof available to those so indicated on the distribution list.

Finally, enclosed is a completed OEQC Publication Form, a hard copy of the Final EIS and three CDs containing the Final EIS, and an electronic copy of the publication form in MS Word. Simultaneous with this letter, we have submitted the Final EIS to the City and County of Honolulu Department of Planning and Permitting, and a summary of the action in a text file by electronic mail to the OEQC.

If there are any questions, please contact me at 457-3158 or sezer@hhf.com.
Sincerely,

HHF Planners

Scott Ezer, Principal

Cc: Joette Yago, Department of Planning and Permitting

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

19 JAN -7 P 1 50

RECEIVED

APPLICANT PUBLICATION FORM

Project Name:	Dillingham Ranch Agricultural Subdivision
Project Short Name:	(please use no more than five succinct words; count not to include document status, e.g., EA)
HRS §343-5 Trigger(s):	Wastewater Treatment Plant; use of State lands (Highway right-of-way)
Island(s):	O'ahu
Judicial District(s):	Waialua
TMK(s):	(1) 6-8-003: 005, 006, 015, 019, 030, 031, 033, 035, 040, and (1) 6-8-002: 006
Permit(s)/Approval(s):	Section 404 Permit; 401 Water Quality Certification; CZM Consistency Determination; Stream Channel Alteration Permit; NPDES Permit; Air Pollution Control Permit; Community Noise Permit HAR 11-20, Public Water System approval; HAR 11-62, Wastewater System approval; HRS 6E, Historic Preservation Compliance; Well Drilling and Pump Installation Permits; Work-to-Perform in the State Highway Right-of-Way; Grubbing, Grading, and Stockpiling Permits; Construction Plans approval; Final Subdivision approval; Building, Driveway, Electrical, and Plumbing Permits; Certificates of Occupancy, Utility Easements
Approving Agency:	City and County of Honolulu, Department of Planning and Permitting
<i>Contact Name, Email, Telephone, Address</i>	Contact: Joette Yago, jyago@honolulu.gov Phone: 808 768-8034 Address: 650 South King Street; Honolulu, HI 96813
Applicant:	Dillingham Ranch Aina, LLC
<i>Contact Name, Email, Telephone, Address</i>	Contact: Dave Eadie; E-mail: deadie@kennedywilson.com ; Phone: (714) 619-7877 Address: 3200 Bristol Street, Suite 640; Costa Mesa, CA 92626
Consultant:	HHF Planners
<i>Contact Name, Email, Telephone, Address</i>	Contact: Scott Ezer, E-mail: sezer@hhf.com ; Phone: (808) 457-3158 Address: 733 Bishop Street, Suite 2590; Honolulu, HI 96813

Status (select one) DEA-AFNSI**Submittal Requirements**

Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.

 FEA-FONSI

Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.

 FEA-EISPN

Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.

 Act 172-12 EISPN
("Direct to EIS")

Submit 1) the approving agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.

 DEIS

Submit 1) a transmittal letter to the OEQC and to the approving agency, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.

 FEIS

Submit 1) a transmittal letter to the OEQC and to the approving agency, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.

 FEIS Acceptance
Determination

The approving agency simultaneously transmits to both the OEQC and the applicant a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.

 FEIS Statutory
Acceptance

The approving agency simultaneously transmits to both the OEQC and the applicant a notice that it did not make a timely determination on the acceptance or nonacceptance of the applicant's FEIS

under Section 343-5(c), HRS, and therefore the applicant's FEIS is deemed accepted as a matter of law.

Supplemental EIS Determination The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.

Withdrawal Identify the specific document(s) to withdraw and explain in the project summary section.

Other Contact the OEQC if your action is not one of the above items.

Project Summary

Provide a description of the proposed action and purpose and need in 200 words or less.

The Proposed Project involves the subdivision of 2,721 acres of Dillingham Ranch land at Mokulē'ia. Agricultural uses on the Ranch have occurred since the 1880s, with present land uses including a mango orchard, palm tree plantation, cattle ranching, equestrian facilities, and special events at the Dillingham Lodge.

Under the Proposed Project, Lodge and palm tree operations will continue; the mango orchard will be increased (5 to 10 acres); five acres for hydroponic farming will be provided; cattle ranching will be expanded; equestrian facilities will be improved (exercise trials, barns, paddocks); and a maintenance complex for the Ranch will be built. Four employee housing units and 70 agricultural lots will also be provided. The farm lots will range from 3 to 428 acres, with each lot containing a 5,000 square foot developable footprint for a farm dwelling and accessory structures as allowed by agricultural district zoning. The remaining area on each lot will be used for crop cultivation and open space. As part of the Proposed Action, the private water system serving the Ranch and Mokulē'ia area will be upgraded; a private wastewater system and treatment plant will be constructed; internal roadways and drainage improvements will be built; and electrical and communication systems will be extended to service the Project. The Proposed Project is consistent with the State land use law, North Shore Sustainable Communities Plan, and City and County zoning.

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION

FINAL ENVIRONMENTAL IMPACT STATEMENT



Mokulē'ia, O'ahu, Hawai'i / December 2018
DILLINGHAM RANCH AINA, LLC



DILLINGHAM RANCH
HAWAI'I

Prepared by



HHF PLANNERS
places for people

December 2018

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION

FINAL ENVIRONMENTAL IMPACT STATEMENT

Mokulē'ia, O'ahu, Hawai'i

This final environmental impact statement and all ancillary documents were prepared under the signatory's direction or supervision, and the information submitted, to the best of the signatory's knowledge, fully addresses document content requirements as set forth in Chapter 343, Hawai'i Revised Statutes, and Section 11-200-17, Hawai'i Administrative Rules.



Dave Eadie
Dillingham Ranch Aina, LLC

12/11/18

Date

dwellings as they are constructed and occupied in the future. Data regarding nighttime military training operations is not available. However, given an average of only four military operations per day, nighttime flight operations by the military will not have a significant impact upon noise-sensitive receptors within the Project Site based on the noise contour lines for the Airfield.

4.3.3 Mitigation Measures

As a requirement applicable to all development projects, the Proposed Project will comply with all applicable regulations pertaining to noise, including Chapter 11-46, HAR (Community Noise Control). Should noise from construction activities exceed the 70 dBA threshold set by the DOH, a Community Noise Permit or variance will be required as stipulated by Chapter 11-46, HAR. Since the results of preliminary analysis indicate this should not occur, determination of exceedance would be predicated upon the receipt of a written complaint filed with the DOH and follow-up DOH investigation as set forth in Chapter 11-46, HAR.

Examples of measures for controlling noise-generating sources during the construction period include, but are not limited to the following:

- Limit activities that generate the most noise to less sensitive time periods (e.g., daytime hours).
- Use quieter methods/equipment when practicable (i.e., low noise generators, smaller excavators, etc.)
- Install quality mufflers on equipment.
- Use smallest size and/or lowest power as required.
- Install manual adjustable or ambient sensitive alarms. Do not use backup alarms at night.
- Insulate or enclose motors.
- Use electric equipment rather than pneumatic equipment, when practicable.
- Use rubber chucks in jackhammers.
- Sharpen and balance tools, repair silencing equipment, replace worn parts and open airways.
- Maximize the distance between the construction staging areas and nearby receptors to the greatest extent practicable.

Since noise sensitivity varies for all individuals, different people may perceive the same noise environment in different means.

The Applicant acknowledges that Dillingham Airfield is a long established use and that the noise associated with aircraft flight operations could potentially affect lots in the proposed subdivision. For disclosure purposes, the Applicant will include language about aircraft operations in all sales documents. Deeds for the agricultural lots will include language that “runs-with-the-land” to ensure that original farm dwelling lot buyers, as well as any subsequent purchasers, are aware of the proximity of Dillingham Airfield and potential noise impacts.

4.4 Archaeological and Historic Resources

4.4.1 Existing Conditions

This section discusses archaeological investigations that have occurred at Dillingham Ranch, including prior studies and investigations specific for this DEIS. Archaeological sites that have been previously designated historic properties, as well as preservation and monitoring plans for the long-term and interim protection of affected sites are discussed as well. Reconnaissance of a portion of the Project Area that had not previously been investigated was also undertaken to ensure that the entire Project

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
~~Draft~~ Final Environmental Impact Statement

Area was analyzed in relation to archaeological and historic resources for this DEIS. Finally, this section discusses historic architectural resources located on Dillingham Ranch property, including buildings considered eligible for listing in the National Register of Historic Places (NRHP).

Archaeological Resources. Cultural Surveys Hawai'i, Inc. (CSH) prepared a report summarizing all previous archaeological studies, historic properties, and State historic preservation reviews associated with the Dillingham Ranch property (see Appendix E). CSH also conducted supplemental archaeological investigations (Belluomini et al. 2017 see Appendix J) on a portion of the southeast section of the Project Area not previously surveyed. The findings and recommendations resulting from this work have been incorporated into Appendix E.

The CSH summary report includes archaeological inventory surveys (AIS) conducted by Drolet and Schilz (1992a and 1992b); Lauer and Reith (2014); and Tulchin and Hammatt (2007). These studies were prepared for previous plans for development of portions of Dillingham Ranch. These AIS studies collectively cover the entire Project Site when combined with the inventory survey conducted by Belluomini et al. (2017). A map delineating the boundaries of archaeological investigations on the Project Site and other areas close to the Dillingham Ranch is presented in Figure 12 of Appendix E.

Tulchin and Hammatt (2008a) prepared a Preservation Plan containing interim protection measures and long-term preservation measures for all historic properties identified and recommended for preservation by Drolet and Schilz (1992a and 1992b) and Tulchin and Hammatt (2007). Lauer and Rieth (2014) and Belluomini et al. (2017) also identified and recommended five (combined) historic properties for preservation.

Tulchin and Hammatt 2008b also prepared an Archaeological Monitoring Plan (AMP) for a previously proposed project. The Preservation Plan and AMP have been reviewed and accepted by the State Historic Preservation Division (SHPD). Therefore, the findings of the Preservation Plan are applicable to the Proposed Project.

The previous archaeological investigations identified and evaluated the significance of 16 historic properties within the Project Area. These sites represent traditional Hawaiian agricultural, ceremonial, and habitation complexes, and post-Contact ranching complexes. Refer to Appendix E for a complete description of the archaeological sites. Table 4-1 summarizes the site types, data sources, and characteristics of these historic properties.

Figure 13 in Appendix E shows the locations of archaeological sites within the Project Site and surrounding area.

Barrera (1986) conducted the first archaeological reconnaissance survey on Dillingham Ranch property. The survey identified two archaeological sites including a stone wall on the end of a ridge south of the Dillingham Ranch (State Inventory of Historic Places [SIHP] # 50-80-03-7653), and another stone wall southeast of the Kawaihāpai Reservoir, described to be a portion of a historic paddock (SIHP # 50-80-03-4785). Barrera did not provide a site location map; however, based on general location information and site descriptions, the two sites were later confirmed in subsequent archaeological studies. Both of these sites are located within the Project Site.

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
Draft Final Environmental Impact Statement

Table 4-1: Archaeological and Historic Sites within the Project Area			
SIHP No. 50-80-03-	Site Type	Data Source	Site Characteristics
4772-4776	<i>Settlement Cluster</i>	Mitchell (1987); Drolet and Schilz (1992a); Tulchin and Hammatt (2007)	Consists of six sites comprised of 19 individual features, including a 25 meter square enclosure with internal wall section; possibly <i>Poloaiae Heiau</i>
4777	Habitation-religious/ceremonial-agricultural complex; U-shaped wall (property boundary for Land Grant 457 Lot 2)	Mitchell (1987); Drolet and Schilz (1992a); Tulchin and Hammatt (2007); Belluomini et al. (2017)	Enclosures (3), terraces (3), walls (2), alignment, mound, and clearing
4782	Agricultural-habitation complex	Drolet and Schilz (1992a); Tulchin and Hammatt (2008)	Walled field complex with habitation features covering 8 hectares; large enclosures, terraces, and mound
4783	Historic agricultural complex	Drolet and Schilz (1992a)	Plantation-era irrigation ditch with associated rock wall and clearing mounds
4784	Agricultural ditch	Drolet and Schilz (1992a)	Possible remnant <i>'auwai</i>
4785	Ranch enclosure-paddock; property boundary for Land Grant 457, Lot 1	Barerra (1986); Mitchell (1987); Kennedy (1987); Drolet and Schilz (1992a)	Large paddock disturbed by subsequent development; property boundary wall
4786	Platform-terrace complex with religious/ceremonial function	Barerra (1986); Mitchell (1987); Kennedy (1987); Drolet and Schilz (1992a); Tulchin and Hammatt (2007)	In southwest corner of SIHP # - 4785; site includes undocumented and unrecorded terrace identified during CSH 2008 monitoring
6884	Walls (agriculture)	Tulchin & Hammatt (2007)	Three rock wall features
7653	Ranch enclosure-paddock complex	Lauer and Rieth (2014)	Rock wall section in eastern and central survey areas (Features 1–3)
7976	Wall	Belluomini et al. (2017)	Basalt rock wall consistent with cattle walls seen throughout Dillingham Ranch
7977	Terraces	Belluomini et al. (2017)	System of terraces located on the east and west side of Makaleha Stream
7978	Platform	Belluomini et al. (2017)	Rock-filled rectangular structure of stacked basalt stones
Source: Cultural Surveys Hawai'i, Inc. (2017)			

Kennedy (1987) conducted a reconnaissance survey which confirmed the stone wall southeast of the Kawaihāpai Reservoir (SIHP # 50-80-03-4785) previously identified by Barrera (1986). In the vicinity of the wall, Kennedy (1987) noted the presence of two platforms which were thought to be *heiau* structures (SIHP # 50-80-03-4772). The wall and platforms were later confirmed by subsequent

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
Draft Final Environmental Impact Statement

archaeological studies. Based on his investigations, Kennedy (1987) indicated that the archaeological potential of the Dillingham Ranch property was high and recommended intensive survey and documentation of sites, a program of subsurface testing, and historic background research be conducted prior to any development.

Mitchell (1987) conducted an additional archaeological reconnaissance survey that led to the documentation of six archaeological sites.

Site 1, formerly designated SIHP # 50-80-03-4439 but is now included in SIHP #50-80-03-7653, consists of a stone wall situated along a ridge south of Dillingham Ranch. Site 2 consists of a large wall structure of possible World War II military construction, located about 1,100 feet above mean sea level (amsl), mauka of areas that were previously proposed for development. This site has not been subsequently confirmed. Site 3 (SIHP #s 50-80-03-4785 and -4786) includes a large, rectangular wall structure and platform structures within an enclosure southeast of the Kawaihāpai Reservoir. Site 4 (SIHP 50-80-03-192) refers to McAllister's (1933) Site 192; the hidden waters springs that Mitchell indicates "were still producing water for the reservoir" (Mitchell 1987:3). Site 5 (SIHP # 50-80-03-4772 through -4777), based solely on informant information, includes a large wall and many rock structures located south of the Kawaihāpai Reservoir. Site 5 was later confirmed by subsequent archaeological studies. Site 6 (SIHP # 50-80-03-416), based solely on informant information, includes "a great deal of rock terracing" located near the base of the cliffs at the western end of Dillingham Ranch (Mitchell 1987:4). The informants were likely referring to the terracing located mauka of Dillingham Airfield, originally described by Handy (1940) and later designated by Rosendahl (1977).

Drolet and Schilz (1992a) conducted an AIS of an approximately 840-acre portion of Dillingham Ranch. The inventory survey consisted of a systematic pedestrian survey of the area and a program of subsurface backhoe testing within the coastal plain area of Dillingham Ranch. A total of 28 trenches were excavated throughout the testing area. No cultural material was recovered from the test excavations.

A total of 16 archaeological sites with 40 component features were identified through the pedestrian survey. Eleven of the 16 sites were located within three site complexes described by Drolet and Schilz (1992a) as "settlement clusters." These settlement clusters are generally located in the foothills above the coastal plain to the base of the coastal cliffs. The sites are situated along gently sloping upland terraces adjacent to natural stream drainages and consist of agricultural field systems with associated habitation structures constructed during the pre-Contact or early post-Contact period. The settlement clusters were likely much more extensive than what was documented, as significant land alteration by ranching and military activities was observed in the vicinity of the sites. Drolet and Schilz (1992a) suggested the principal villages were located along the coastal plain, though ranching and plantation agriculture had removed any evidence of this. No archaeological sites were identified within the coastal plain area of the Project Area.

Settlement Cluster 1, located southeast of the Kawaihāpai Reservoir, includes six historic properties (SIHP #s 50-80-03-4772 through -4777) comprised of 19 individual features. Settlement Cluster 1 measures approximately 470 meters (m) north/south by 150 meters (m) east/west, covering approximately 13 acres. Settlement Cluster 1 was previously referred to by Mitchell (1987) as Site 5.

The primary feature of Settlement Cluster 1 is SIHP # 50-80-03-4772, a large rectangular enclosure located near the southwest corner of the Kawaihāpai Reservoir property. This enclosure was interpreted as Poloiaie Heiau, documented by McAllister (1933) as Site 194. SIHP #s 50-80-03-4773

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
Draft Final Environmental Impact Statement

through -4776 consist of enclosures, platforms, terraces, walls, alignments, and mounds located mauka of the *heiau*. SIHP # 50-80-03-4777 is a long north-south (makai-mauka) oriented stone wall. The wall was interpreted to represent an ahupua'a boundary marker dividing the Mokulē'ia and Kawaihāpai Ahupua'a. However, recent archaeological investigations, have determined the wall is the property boundary related to Land Grant 457, lot 1, awarded to J.T. Gulick, similar to SIHP # 50-80-03-4785 identified by Drolet and Schilz (1992a) and described below. The two historic walls are also shown on historic maps of the area (see Figures 8 and 9 in Appendix E). The existence and location of the southern and western walls were confirmed during inventory survey fieldwork in October 2006 (Tulchin and Hammatt 2007). Drolet and Schilz (1992a) did not locate the southern and western walls of the paddock or note the location of the paddock on historic maps.

Settlement Cluster 2, located approximately 600 m southeast of Settlement Cluster 1, includes three historic properties (SIHP #s 50-80-03-4778 through -4780) and 17 or more individual features. Settlement Cluster 2 measures approximately 190 m north/south by 135 m east/west, covering approximately 4 acres. SIHP #s 50-80-03-4778 through -4780 consist of rectangular enclosures, terraces, and platforms. Damage to the sites due to military road construction has occurred.

Settlement Cluster 3, located approximately 500 m northeast of Settlement Cluster 2, includes one historic property (SIHP # 50-80-03-4782) comprised of six individual features. Settlement Cluster 3 measures approximately 300 m north/south by 290 m east/west, covering approximately 9 acres. SIHP # 50-80-03-4782 consists of a network of large rectangular enclosures bordered by field walls, mounds, terraces, and paved areas.

Four sites located outside the boundaries of the three designated settlement clusters were also located. SIHP # 50-80-03-4783 consists of a plantation-era irrigation ditch and associated stone wall and clearing mounds.

SIHP # 50-80-03-4784 is an earthen ditch, possibly an *'auwai*, a traditional Hawaiian ditch used to irrigate crops like taro.

SIHP # 50-80-03-4785 is a large stone walled enclosure interpreted to be a historic paddock and a property boundary for Land Grant 457, Lot 1. The wall, along with a second located approximately 450 m to the west, is indicated on historic maps of the area (see Figures 10 and 11 in Appendix E).

SIHP # 50-80-03-4786, located within the SIHP # 50-80-03-4785, is a large, well-constructed stone platform, interpreted to be a *heiau* structure. SIHP #s 50-80-03-4785 and -4786 were originally referred to by Barrera (1986), Kennedy (1987), and later designated Site 3 by Mitchell (1987). Kennedy (1987) and Mitchell (1987) indicated the presence of at least two platforms within the enclosure, which was confirmed during recent archaeological investigations, as well as the Preservation Plan for sites within that Project Area (Tulchin and Hammatt 2008). Drolet and Schilz (1992a) did not locate the second platform, nor did they note the existence of two platforms based on previous archaeological work. Subsequent to the AIS of the approximately 840-acre portion of the Dillingham Ranch property, Drolet and Schilz (1992b) surveyed an additional approximately 53 acres, documented in an addendum inventory survey report.

The additional lands consisted of an approximately 42-acre parcel located south of the Dillingham Lodge, mauka of the coastal cliffs, and an approximately 11-acre parcel located west of the western extent of the original survey area. One site, SIHP # 50-80-03-4439, was identified in the mauka parcel. SIHP # 50-80-03-4439 is an approximately 300-m long stone wall oriented in a north-south direction

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
Draft Final Environmental Impact Statement

along a ridge. This wall was previously identified by Barrera (1986) and later designated Site 1 by Mitchell (1987). Three additional sites were located in the western parcel. SIHP # 50-80-03-4440 consists of a remnant stone wall, disturbed by stream cuts. SIHP # 50-80-03-4441 consists of an approximately 200- m long stone wall and associated barbed wire fence, interpreted to be a historic cattle wall. SIHP # 50-80-03-4442 consists of a terrace, with damage due to erosion and stream cuts.

Buffum et al. (2004) conducted an AIS for a number of proposed military training areas at the Schofield Barracks Military Reservation, Kahuku Training Area, Wheeler Army Airfield, and military vehicle trails running from Schofield Barracks to the Dillingham Training Area, a portion of which crosses the Project Area (Buffum et al. 2004). Survey methods included a pedestrian survey that included transects set at 15 m intervals to ensure area coverage. No historic properties were identified within the Project Area.

Tulchin and Hammatt (2007) conducted an AIS on adjacent mauka lands within the Project Area that were not covered by Drolet and Schilz (1992a and 1992b). Six historic properties comprising 28 individual archaeological features were identified within the approximately 78-acre survey area.

SIHP # 50-80-03-6884 contains four historic, ranch-related stone wall features located within gully areas in the eastern, central, and western portions of the 78-acre survey area. SIHP # 50-80-03-6885 is an agricultural complex located within a gully area in the western portion of the survey area. The complex consists of three terraces and a retaining wall. SIHP #s 50-80-03-6886 and -6888 consist of agricultural complexes composed mostly of crudely constructed mounds and terraces situated along or immediately downslope of exposed cliff faces. Although no natural springs or seeps were identified in the area, the last two historic properties were located along a prominent hillside indicated by McAllister (1933) as the location of SIHP # 50-80-03-192 referred to as “hidden waters.” SIHP # 50-80-03-6887 is a modified overhang shelter, also located on the prominent hillside in the vicinity of McAllister’s Site 192. The overhang shelter was modified with the construction of a retaining wall and level terrace across the entrance of the overhang.

An eastern extension of the SIHP # 50-80-03-416 agricultural and habitation complex was identified in the northwestern corner of the survey area. Six features including walls, terraces, and a mound were located within the survey area, though numerous associated archaeological features were observed to continue to the northwest, as previously identified or documented in previous archaeological studies by Handy (1940), Rosendahl (1977), and Moblo (1991).

Historic properties identified by Tulchin and Hammatt (2007) represent two distinct periods of land use within Dillingham Ranch. SIHP #s 50-80-03-416, -6885, -6886, and -6888 are late pre-Contact to early post-Contact traditional Hawaiian agricultural complexes. The agricultural complexes were built to utilize limited water resources on the inland coastal terrace, particularly along stream drainages and at the base of exposed cliff faces near the *mauka* or southern boundary of the Project Area. The location, feature types, and pattern of relatively dense site clustering are similar to the “settlement clusters” identified by Drolet and Schilz (1992a) within adjacent stream drainages of the Project Area.

The four ranch-related rock walls (SIHP # 50-80-03-6884, Features A–D) are affiliated with the post-Contact ranching period. The ranching period has a long history in the Waialua District, with large ranches developing during the mid- to late 1800s.

Lauer and Rieth (2014) conducted an inventory survey on 85.3 acres of land along the southern or mauka portion of the Project Area. The AIS covered three separate locations of the Project Site. One historic property (SIHP # 50-80-03-7653) with four discontinuous rock wall sections (Features 1–4) was

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
Draft Final Environmental Impact Statement

identified and interpreted as 19th or early 20th century ranch walls that were enclosures and enclosures used for grazing cattle in the upper and steeper slopes of the Project Area. Two unmodified springs or seeps were also identified in the southwestern portion of the Project Area on the prominent hillside indicated by McAllister (1933) as the location of freshwater springs referred to as “hidden waters” (SIHP # 50-80-03-192).

Four shovel test probes were excavated at Feature 3 wall and an adjoining unmodified rock shelter. No cultural deposits were identified in the floor of the rock shelter or among the colluvial deposits retained upslope by the Feature 3 wall.

Because the site had been fully documented during the inventory survey, Lauer and Rieth (2014:47) recommended no further fieldwork for SIHP # 50-80-03-7653. However, to ensure that representative examples of this portion of Dillingham Ranch’s history is preserved, the preservation of this site was recommended.

Belluomini et al. (2017) conducted an AIS on 113.5 acres of land east of the DLNR Access Road, on a previously unsurveyed portion of the Project Area.

The inventory survey identified two historic properties (SIHP #s 50-80-03-7976 and -7977) that had not been previously identified and one previously identified historic property (SIHP # 50-80-03-7653, Feature 1). Two historic properties identified during CSH’s 2008 archaeological monitoring work (SIHP #s 50-80-03-7978 and -4777, Feature C) which are located in another portion of the Project Area, had not been fully documented at that time (2008). As part of their 2017 effort, Belluomini returned to these sites for full documentation.

SIHP # 50-80-03-7976 consists of a basalt rock wall construction measuring approximately 1 m wide and extending approximately 115 m in an east/west orientation terminating at the ridgeline in the northwest portion of the Project Area. SIHP # 50-80-03-7976 is consistent with cattle walls seen throughout Dillingham Ranch

SIHP # 50-80-03-7977 lies in the southwestern corner of the Project Area along Makaleha Stream. The site includes nine features and consists of a system of terraces on both the west and east side of the stream extending to the western extent of the Project Area.

SIHP # 50-80-03-7978 was originally located during CSH’s 2008 archaeological monitoring work but was left undocumented except for a photograph and GPS location of the feature. Subsequently, the platform was located, photographed, and documented by an archaeological pedestrian survey (*Belluomini et al. 2017*). The platform consisted of a rock-filled rectangular structure of stacked basalt stones of varying wall heights and aligned stones.

SIHP # 50-80-03-4777 consists of a property boundary wall associated with Land Grant 457 which was bestowed upon J.T. Gulick. Portions of this wall were identified in three different studies. Features A and B were initially identified by Drolet and Schilz (1992a). An additional extent of Feature A was identified by Tulchin and Hammatt (2008a). The newly identified Feature C is the continuation of the wall to the west and north from the portion identified by Tulchin and Hammatt (2008a).

SIHP # 50-80-03-7653 consists of five areas of rock wall segments (Features 1–4) located within the southern boundary of the Project Area and on its eastern edge. Only two of the wall sections, Features 1 and 2, are located within the Project Area (in its southeast corner).

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
~~Draft~~ Final Environmental Impact Statement

Preservation Plan. Tulchin and Hammatt (2008a) completed a Preservation Plan for archaeological sites on 840 acres of Dillingham Ranch property. The Preservation Plan addressed all historic properties within the area, including properties identified by Drolet and Schilz (1992a and 1992b) and Tulchin and Hammatt (2007).

In accordance with the Hawai'i Register of Historic Places significance evaluations and treatment recommendations for the previous inventory surveys, and following consultation among CSH, SHPD, and the land owner, the Preservation Plan proposed interim and long-term preservation measures for 11 traditional Hawaiian sites on Dillingham Ranch: SIHP #s 50-80-03-416, -4772 through -4780, -4782, -4786, and -6885 through -6888. Eight of these sites (-4772--4777, _4782, 4786) are located within the Project Area

Archaeological Monitoring Plan. *Tulchin and Hammatt (2008b)* completed an Archaeological Monitoring Plan (AMP) for the archaeological sites on Dillingham Ranch. The AMP covers activities related to initial infrastructure construction, including grubbing, grading, and excavation work. Any subsequent construction activities (by individual lot owners) on agricultural lots within the subdivision are not covered by the monitoring plan.

In 2008, CSH conducted limited archaeological monitoring for the creation of access pathways for geotechnical boring equipment. Some of the fieldwork occurred within the limits of the Project Area. However, since construction proposed for a previous development plan for the Project Area was subsequently discontinued, a formal report documenting the results of the monitoring has not yet been submitted to the SHPD. A formal Monitoring report incorporating the findings of the 2008 effort will be submitted to SHPD after future monitoring for construction of the Proposed Project is completed.

During the course of the monitoring, two additional components of previously identified sites were encountered. These features consist of a platform near a previously identified platform (SIHP # 50-80-03-4786), and a continuation of a cattle wall (SIHP # 50-80-03-4777).

Historic Resources. Mason Architects, Inc. (MAI) conducted an architectural Reconnaissance Level Survey (RLS) and Historic Resources Evaluation to identify historic architectural resources within the Project Site (see Appendix F). Their findings are summarized below.

Dillingham Ranch History. The history of Dillingham Ranch began in the 1880s when Benjamin Franklin (B.F.) Dillingham purchased the Subject Property from Gaspar Silva in 1897. At the time, the Property included a dozen artesian wells used for rice cultivation, and at least one house, the original Silva residence ("Dollhouse") which still stands today. The Property became known as Mokuĕ'ia Ranch, and by 1900 it was managed as a family estate by B.F. Dillingham's son, Walter.

On November 17, 1903, B.F. Dillingham's wife (Emma) invited several daughters of American missionaries to a meeting at the Dollhouse. This gathering gave rise to "The Daughters of Hawaii," whose mission was to "perpetuate the memory and spirit of Old Hawai'i and to preserve the nomenclature and correct pronunciation of the Hawaiian language." The formation of The Daughters of Hawaii effectively started the historic preservation movement in Hawai'i.

During the early 1990s, B.F. Dillingham gave \$10,000 and the Dollhouse and some nearby land to three of his children: Walter, Harold, and Marion [Erdman] who built a new family compound around 1913. This compound remains today as the Dillingham Lodge and includes the Main House and East, West, and Kitchen Wings.

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
~~Draft~~ Final Environmental Impact Statement

Walter Dillingham was a lifelong polo enthusiast. He began playing polo around 1901 and was an early member of the O'ahu Polo Club, becoming its president in 1903. Around 1915, Walter secured a lease for polo activities and facilities at Kapiolani Park.

In 1926, Mokolē'ia Ranch was incorporated as Mokolē'ia Ranch and Land Company (MRLC). Around that time, Walter began a breeding program at the Ranch. He obtained the services of a stallion he previously convinced the Army to send to Hawai'i in order to grow the sport by increasing the availability of polo ponies. By 1929, there were approximately 30 yearlings on the Ranch.

Around 1931, a stable complex about ¾ mile northwest of the new family compound was added to the family's estate. Named Crowbar Ranch, the complex consisted of a bunkhouse, tack room, feed rooms, servant's quarters, and stalls for 26 animals, all surrounded by paddocks. In 1936, the Crowbar Ranch was added to MRLC which then consisted of 3,220 acres.

During World War II, the Army requisitioned most of Crowbar Ranch, and built the adjacent Mokolē'ia Army Airfield (later renamed Dillingham Field) on former MRLC property.

After the war, Walter Dillingham continued a small breeding and training program at Crowbar Ranch, and in 1950, purchased about 200 head of cattle.

In 1958, MRLC became Dillingham Ranch, and by 1963, it was supporting 1,000 head of cattle. In 1963, when polo was discontinued at Kapiolani Park, Walter spearheaded the formation of the Hawai'i Polo Club which was located north of the Ranch on the makai side of Farrington Highway, where it remains today.

In 1979, about 3,000 acres of Dillingham Ranch land was sold to Northwestern Mutual Life Insurance Company. The company planned to subdivide the land for resort and residential development. However, these plans were never implemented.

RLS Findings. Permanent buildings that were estimated to have reached fifty years in age were included in the RLS. Survey forms were not completed for any temporary buildings, or buildings estimated to be built after 1975.

A total of 13 buildings were included in the RLS. Eight of the buildings were evaluated as individually eligible for the State and/or National Register of Historic Places while five were evaluated as not eligible. The names, ages, and NRHP eligibility for all 13 buildings are summarized in Table 4-2 while detailed information about these buildings is included in Appendix F.

The following landscape features were noted during the architectural RLS.

- Long and landscaped entry driveway to the Lodge.
- Double row of royal palms behind the Main House.
- Fruit tree orchards.
- Coconut grove.
- Open space areas including paddocks and other stable improvements.

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
Draft Final Environmental Impact Statement

Table 4-2: Historic Architectural Resources within the Project Site

Common or Present Name	Historic Name	Year Built (Estimated)	NRHP Eligibility
Dillingham Compound, Main House	Mokulē'ia Ranch, Main House, "Big House"	1913	ES
Dillingham Compound, East Bedroom Wing	Mokulē'ia Ranch, Bedroom Wing, "Big House"	1913	ES
Dillingham Compound, West Bedroom Wing	Mokulē'ia Ranch, Bedroom Wing, "Big House"	1913	ES
Dillingham Compound, Kitchen Wing	Mokulē'ia Ranch, Kitchen Wing, "Big House"	1913	ES
Dillingham Compound, "Dollhouse"	Gaspar Silva Ranch Residence	1897	ES
Crowbar Ranch, Office	Crowbar Ranch Bunkhouse	1936	ES
Crowbar Ranch, Ranch Manager's House	Not known	1973	NC
Crowbar Ranch, Manager's Stable	Not known	Not known	NC
Crowbar Ranch, Ranch Stable	Not known	Not known	NC
Crowbar Ranch, Potable Pump House	Drilled Well Number 288	1930s	ES
Crowbar Ranch, Ag Pump House (non-potable)	Drilled Well Number 291	1930s	ES
Crowbar Ranch, Maintenance Shop	Not known	Not known	NC
Crowbar Ranch, Feed Barn	Not known	2000s	NC
Legend: ES - Eligible/Significant NC – Not Eligible/Not Contributing Source: Mason Architects, Inc. (2017)			

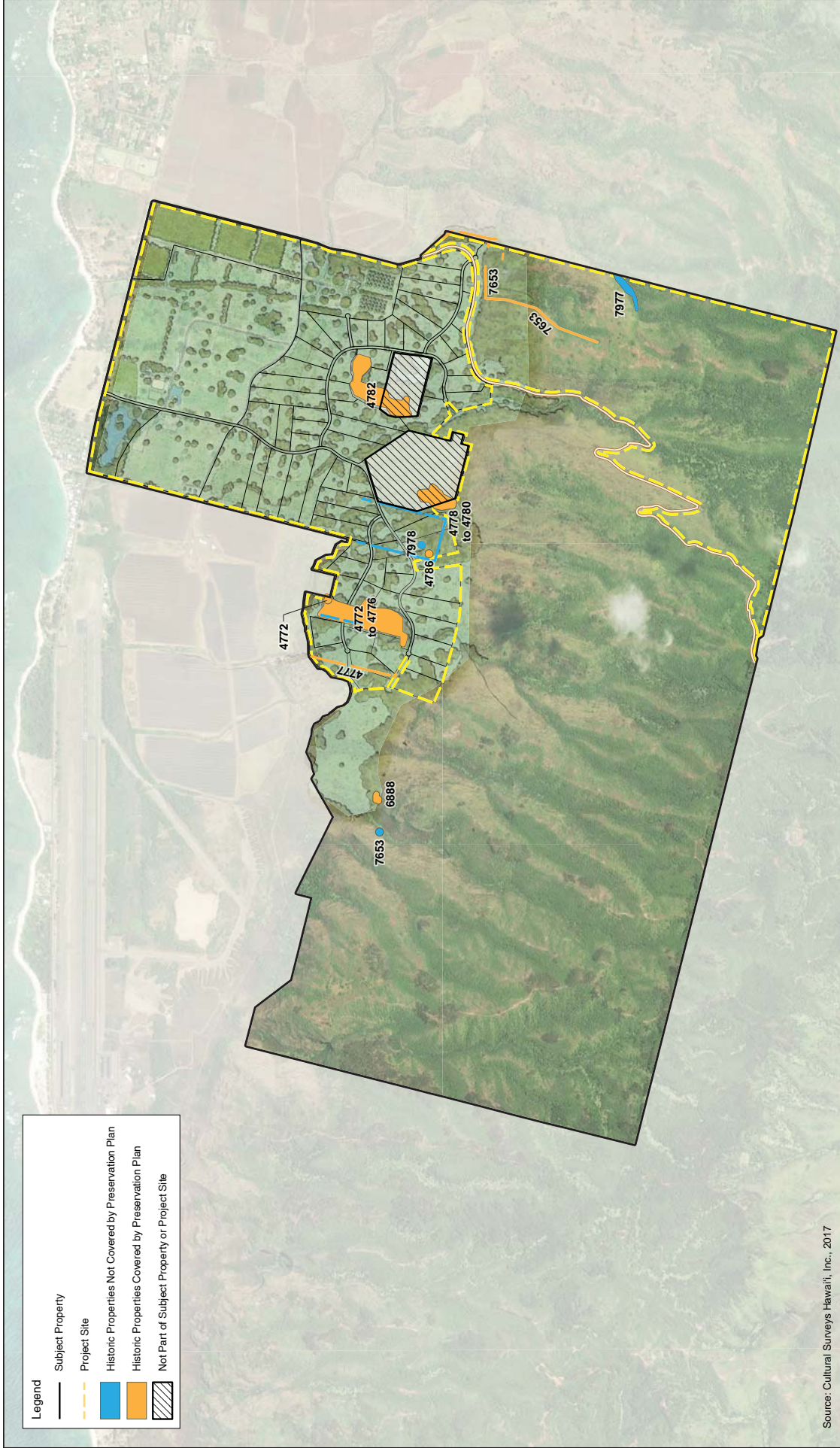
4.4.2 Potential Impacts

Archaeological Resources. Of the 16 historic properties identified within the Project Area, 12 historic properties were evaluated as being significant under one or more of the criteria established for assessing historic significance in the State of Hawai'i. See Figure 18 (Historic Sites Recommended for Preservation).

As defined by Chapter 6-E, HRS (*Historic Preservation Program*), an "historic property means any building, structure, object, district, area, or site, including heiau and underwater site, which is over fifty years old." The SHPD assigns a State Inventory of Historic Properties (SIHP) number to an historic property that has been recorded by an archaeological investigation.

In order to be considered significant, an historic property must possess integrity of location, design, setting, materials, workmanship, feeling, and/or association. It must also meet one or more significance criteria set forth in Section 13-13-284-6, HAR (Evaluation of Significance). To be considered eligible for listing on the HRHP or NRHP, a historic property should possess integrity as described above. In addition, a property being considered for the Hawai'i and/or National Register must meet the eligibility criteria set forth in Section 13-198-8, HAR (Criteria for Decisions; Considerations) and in Title 36 Code of Federal Regulations (CFR), Section 60.4 (Criteria for Evaluation), respectively.

THIS PAGE INTENTIONALLY LEFT BLANK



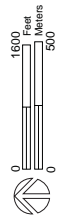
Legend

- Subject Property
- - - Project Site
- Historic Properties Not Covered by Preservation Plan
- Historic Properties Covered by Preservation Plan
- Not Part of Subject Property or Project Site

Source: Cultural Surveys Hawaii, Inc., 2017

DILLINGHAM RANCH AINA, LLC

Figure 18: Historic Sites Recommended for Preservation



THIS PAGE INTENTIONALLY LEFT BLANK

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
Draft Final Environmental Impact Statement

The significance criteria for Hawai'i historic properties and the eligibility criteria for the Hawai'i and National Registers are shown in Table 4-3.

Table 4-3: Significance and Eligibility Criteria for Historic Properties and Registers		
<i>Significance Criteria for Hawai'i Historic Properties</i>	<i>Eligibility Criteria</i>	
	<i>Hawai'i Register</i>	<i>National Register</i>
a. Be associated with events that have made an important contribution to the broad patterns of our history	A. Same as significance criteria	a. Same as Hawai'i significance criteria
b. Be associated with the lives of persons important in our past	B. Same as significance criteria	b. Same as Hawai'i significance criteria
c. Embody the distinctive characteristics of a type, period, or method of construction, represents the work of a master, or possesses high artistic value	C. Same as significance criteria but adds "or that represent a significant and distinguishable entity whose components may lack individual distinction"	c. Same as Hawai'i significance criteria
d. Embody the distinctive characteristics of a type, period, or method of construction, represents the work of a master, or possesses high artistic value or that represent a significant and distinguishable entity whose components may lack individual distinction	D. Same as significance criteria	d. Same as Hawai'i significance criteria
e. Have an important value to the Native Hawaiian people or to another ethnic group of the state due to associations with cultural practices once carried out, or still carried out, at the property, or due to associations with traditional beliefs, events or oral history accounts - these associations being important to the group's history and cultural identity	E. Same as significance criteria	Not applicable
Source: Mason Architects, Inc. (2017)		

Historic Resources. Six of the eight NRHP-eligible buildings are proposed for retention and will be unaffected by the Proposed Project. MAI finds there will be no adverse effect to these six historic structures.

The remaining two buildings – the Ag Pump House and Potable Pump House – are proposed for demolition. Both pump houses are eligible for the NRHP (under Criterion A) as important utilitarian structures that have provided a continuous supply of non-potable water for Dillingham Ranch's agricultural activities. The Potable Pump House is also distinctive (under Criterion C) as an intact example of transite, which is no longer built. Transite was developed by Johns-Manville in 1929 for use as corrugated asbestos-cement panels. The two pump houses, although considered historic properties, are not of the same importance as the buildings of the former Dillingham Compound and former Crowbar Ranch – the Ranch office, ranch stables, and manager's house and stable. Notwithstanding this, the demolition of the Ag pump house and potable pump house would result in an adverse effect to historic properties. Section 36 CFR 800.5(a)(2), states that "Adverse effects occur when an undertaking may directly or indirectly alter characteristics of a historic property that qualify it for inclusion in the Register." The physical destruction or damage of a historic property is an example of an adverse effect cited by 36 CFR 800.5(a)(2).

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
Draft Final Environmental Impact Statement

4.4.3 Mitigation Measures

Archaeological Resources. Table 4-4 summarizes the site type, age, significance evaluations, and mitigation for the 16 historic properties within the Project Area.

Table 4-4: Significance Evaluations and Mitigation for Historic Properties within the Project Area					
<i>SIHP No. 50-80-03-</i>	<i>Site Type</i>	<i>Age</i>	<i>Significance Evaluation</i>		<i>Mitigation</i>
			<i>Historic Properties</i>	<i>Hawai'i Register</i>	
4772	Heiau or house site	Pre-Contact	c, d, e	C, D,	Preservation
4773	Complex (habitation, agriculture)	Pre-Contact	c, d	C, D	Preservation
4774	Platform (habitation)	Pre-Contact	c, d	C, D	Preservation
4775	Enclosure (habitation)	Pre-Contact	c, d	C, D	Preservation
4776	Complex (habitation, agriculture, ceremonial)	Pre-Contact	c, d, e	C, D	Preservation
4777	U-shaped wall (Property boundary for Land Grant 457, Lot 2)	Post-Contact	d	D	Preservation
4782	Complex (habitation, agriculture)	Pre-Contact	d	D	Preservation
4783	Complex (agriculture)	Post-Contact	Not significant	Not significant	No further work
4784	Ditch (agriculture)	Post-Contact	Not significant	Not significant	No further work
4785	Enclosure (ranch paddock, agriculture, property boundary for Land Grant 457, Lot 1)	Post-Contact	d	D	Preservation
4786	Platform (ceremonial or habitation)	Pre-Contact	d, e	D	Preservation
6884	Walls (agriculture)	Post-Contact		D	No further work
7653	Walls (animal husbandry)	Post-Contact	d	D	Preservation
7976	Wall (animal husbandry)	Post-Contact	d	--	No further work
7977	Terraces (agriculture)	Pre- and early Post-Contact	d, e	D	Preservation
7978	Platform (habitational/ceremonial)	Pre- and early Post-Contact	d, e	D	Preservation

Source: Cultural Surveys Hawai'i, Inc. (2017)

Twelve (12) of the 16 archaeological sites within the Project Area were evaluated as significant and recommended for preservation (SIHP #s 50-80-03-4472 to -4777, -4782, -4785, -4786, -7653, -7977, and -7978). No further work was recommended for the remaining four sites (SIHP #s 50-80-03-4783, -4784, -6884, and -7976).

Preservation. During review of the previous archaeological reports, and following consultation between CSH, SHPD, and the landowner, it was agreed that the historic properties that were evaluated as significant (with the exception of SIHP #50-80-03-6884) will be preserved and included in a Preservation Plan (Tulchin and Hammatt 2008a) which provides interim protection and long-term preservation measures within the confines of the Project Area. In a letter dated September 29, 2008, the SHPD accepted the Preservation Plan prepared by Tulchin and Hammatt (2008a). See Appendix E.

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
Draft Final Environmental Impact Statement

Archaeological sites within the Project Area that are covered by the Preservation Plan (Tulchin and Hammatt 2008a) include: SIHP #s 50-80-03-4772 through -4777, -4782, and -4786. Several archaeological sites which were subsequently located within the Project Area and were not encompassed by the Plan have been recommended for preservation. These sites include: SIHP #50-80-03-7653 (Lauer and Rieth 2014) and SIHP #s 50-80-03-4785, -7977 and -7978 (Belluomini et al. 2017). The mitigation recommendations made by Lauer and Rieth (2014) were accepted by the SHPD on July 17, 2015 (see Appendix E). The recommendations set forth in Belluomini's AIS report were accepted by the SHPD on November 2, 2017. After acceptance of Belluomini's AIS report, and any further mitigation required by the SHPD, a Preservation Plan will be prepared for SIHP #s 50-80-03-4785, -7653, -7977, and -7978. Upon completion, the Plan will be submitted to the SHPD for review and acceptance. The mitigation recommendations for SIHP #s 50-80-03-4785, -7653, -7977, and -7978 shall be enacted upon SHPD's acceptance of the Preservation Plan.

To minimize potential impacts to historic properties recommended for preservation, the Proposed Project will be developed in accordance with the following interim protection measures and long-term preservation measures set forth in the SHPD-approved Preservation Plan (see Appendix E). A summary of the Preservation Plan will be included in the CC&Rs of the Lot Owner's Association for the Proposed Project.

Interim protection measures contained in the Plan, and to be implemented for the Proposed Project include, but are not limited to the following:

- (1) All archaeological sites and features to be preserved shall be marked with highly visible flagging tape.
- (2) The perimeter of all historic properties to be preserved shall be marked with orange web fencing.
- (3) No ground-altering activities or building material stockpiling will be allowed within the protected areas.
- (4) The boundaries of designated heavy machinery exclusion zones must be surveyed by a licensed land surveyor and plotted on all construction plans.
- (5) All construction workers and subcontractors shall be informed of the preservation areas and avoidance measures.
- (6) All construction work in the immediate vicinity of the protected areas shall be conducted under the supervision of an archaeologist.

The Preservation Plan also contains long-term preservation measures to be implemented for the Proposed Project including, but not limited to the following:

- (1) Establishing a minimum 15-meter (50 feet) radius around the perimeter of the preservation sites and features.
- (2) Demarcating long-term buffer zones with permanent fencing and/or boulders under an archaeologist's supervision.
- (3) Prohibiting any construction activity within the buffer zones.
- (4) Installing a lockable entry gate to allow access to protected areas if fencing is erected.
- (5) Clearing on and around individual features will be done by hand or with hand-held tools if removing vegetation from the preservation areas is necessary.
- (6) Using herbicides prior to manual clearing in order to minimize the volume of vegetation to be removed.
- (7) Burning shall not be allowed within or adjacent to preservation areas.

- (8) Prohibiting wheeled vehicles within the boundaries of the buffer zones.

The Applicant will be responsible for ensuring that the interim protection and long-term preservation measures covered by the Preservation Plan are implemented at the appropriate time (e.g., prior to, during, or after construction, etc.).

Monitoring. Tulchin and Hammatt (2008b) prepared an Archaeological Monitoring Plan (AMP) to ensure that historic properties recommended for preservation are not impacted by construction activities and that treatment of any inadvertent subsurface cultural deposits and/or human burials located during construction comply with procedures outlined in Chapter 6E-43, HRS (*Prehistoric and Historic Burial Sites*). Archaeological monitoring will also ensure proper documentation if any additional archaeological sites are encountered during construction of the subdivision since such sites could have gone undetected due to heavy vegetation cover and ground-disturbing activities could potentially encounter cultural deposits associated with pre-Contact and historic land use. Although the AMP does not cover construction activities on the agricultural lots, provisions for reporting inadvertent cultural finds or human remains during ground altering activities will be included in the CC&Rs of the subdivision lot owners association, which will administer their operations.

In a letter dated October 30, 2008, the SHPD accepted the monitoring plan prepared by Tulchin and Hammatt (2008b). See Appendix E. To ensure construction activities do not impact historic properties recommended for preservation, and that any inadvertent subsurface cultural deposits and/or human burials located during construction comply with Chapter 6E-43, HRS, the Proposed Project will be developed in accordance with the measures set forth in the SHPD-approved monitoring plan (see Appendix E).

The stipulations set forth in the AMP include, but are not limited to, the following:

- (1) An on-site archaeologist shall hold a pre-construction meeting with construction workers to familiarize them with the requirements of the archaeological monitoring program.
- (2) The archaeological monitor must be on-site during initial grubbing and grading activities within the Project Area, including the construction of subdivision utility corridors; roadway, water, and drainage systems; as well as during geotechnical testing and rockfall mediation work.
- (3) An archaeological monitor must also be on-site during any ground-disturbing activities within 30 meters (100 ft.) of the archaeological sites designated for preservation.
- (4) In the event of inadvertent discoveries, the SHPD shall be consulted in accordance with Chapter 13-280, HAR.
- (5) Should burial sites or human remains be encountered the SHPD shall be notified in accordance with Chapter 13-300, HAR and 6E-43, HRS.
- (6) Other construction activities will be monitored on an on-call basis, with weekly site visits to document the progress of construction activities and to coordinate future construction work with Project contractors.
- (7) Efforts must be made to document stratigraphic profiles of open trench excavations throughout the Project Area.

Refer to Appendix E for the full provisions of the Archaeological Monitoring Plan.

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
Draft Final Environmental Impact Statement

The Applicant will be responsible for ensuring that the provisions of the AMP are implemented at the appropriate time (e.g., prior to and during construction, etc.)

Historic Resources. MAI utilized historic preservation planning measures as an approach to retain the historic architectural fabric of Dillingham Ranch and some of its key historic open spaces, landscape features, transportation corridors, and view planes. Although some of these facets are not architectural, they are character-defining features that contribute to the historic interpretation of this agricultural property. The retention of open space around the historic buildings is especially important for maintaining historic integrity of setting, feeling, and association.

Preservation Zones. The preservation planning approach places clusters of historic resources into Preservation Zones, by intentionally focusing development in other areas. For example; the Proposed Project will be set back from public view along Farrington Highway. The two historic roadways (Crowbar Ranch Road, Lodge Road) will be preserved with development setbacks. This will ensure that existing mauka view planes will not be significantly affected. Throughout the Project Site, open space areas for equestrian activities, pastures, and paddocks will be retained and continue to support the historic ranching/equestrian use of the property.

The Proposed Project will retain six of the eight buildings that were evaluated as eligible for the NRHP, as well as adjacent key open spaces and landscape features. These six historic buildings make up two separate groupings that have been defined for preservation planning purposes as “Dillingham Ranch Compound Historic Preservation Management Zone #1” and “Crowbar Ranch Historic Management Zone #2.” The two zones are tied to different historical aspects of Dillingham Ranch, namely; the early development of the Property by the Dillingham family as a family retreat/compound (Zone 1), and; the Dillingham family’s later development of Crowbar Ranch (Zone 2).

In addition to historic buildings, the Preservation Zones include character-defining landscape and circulation features. The Preservation Zones are delineated to define no-build/preservation areas, to retain the integrity of the Ranch’s historic setting and feeling. Each zone is protected by a no-build/preservation buffer of 100 feet, and will be incorporated into the subdivision documents for the Proposed Project.

Zone #1 includes the open space and vegetation (including the existing mango orchard) around the Dillingham Lodge/Compound; a double row of Royal Palms behind the compound; the original, linear front drive (Lodge Road); and an undulating former railroad right-of-way (today’s Cane Haul Road) that cuts across the Property. Zone #2 includes the Crowbar Ranch Road (before it was extended to meet the Cane Haul Road) and the open space around the former Crowbar Ranch Bunkhouse.

The historic roadways within each zone will be protected with a 200-foot wide “no-build” easement which provides an approximately 90-foot setback (or no-build area) either side of Lodge Road and Cane Haul Road (Zone #1) and a portion of Crowbar Ranch Road (Zone #2).

There will be no adverse effect to the six historic buildings proposed for retention as a result of the Proposed Project’s pattern of development and the adoption of the two Preservation Zones.

Documentation. While the Ag Pump House and Potable Pump House were evaluated as historic and eligible for listing, they are not important in telling the story of the Dillingham Compound/Lodge or Dillingham’s Crowbar Ranch to the same degree as the other historic buildings. Nonetheless, their demolition will result in an adverse effect.

Documenting the details and characteristics of a historic building is a mitigation measure typically used to record a building prior to its demolition. Although the Proposed Project will result in the demolition of both pump houses, documenting these structures in accordance with State historic preservation standards will mitigate the loss of these historic properties to less than significant levels.

Preservation Plan. A Preservation Plan for the six NRHP-eligible buildings that will be retained and preserved will be prepared in accordance with Chapter 13-277, HAR (*Rules Governing Requirements for Archaeological Site Preservation and Development*) and submitted to the SHPD for review prior to final subdivision approval.

In a letter dated December 13, 2016 (see Appendix F), the SHPD accepted the proposed RLS documentation, with the following mitigation measures:

- The Project Area will have an effect on the feeling, association, and setting of the existing Ranch, affecting its historic integrity. The provisions of the historic preservation management zones will serve as mitigation for the Proposed Project.
- Completion of Intensive Level Surveys (ILS) for the two Pump Houses as mitigation for their proposed demolition. The ILS will be submitted for SHPD review and acceptance prior to their demolition.
- Creation of a Preservation Plan for the eligible architectural properties identified in the RLS according to Chapter 13-277, HAR (*Rules Governing Requirements for Archaeological Site Preservation and Development*). The Preservation Plan will be submitted for SHPD review and acceptance prior to issuance of any grading permits for the subdivision.

4.5 Cultural Resources

4.5.1 Existing Conditions

Act 50, signed by the Governor in 2000, amended the State's environmental law by requiring that environmental impact statements disclose the environmental effects of a proposed action on the economic welfare, social welfare, and cultural practices of the community and State.

Cultural Surveys Hawai'i, Inc. (CSH) conducted an assessment of cultural impacts for the Proposed Project. See Appendix G (Cultural Impact Assessment). A report documenting the findings of this Cultural Impact Assessment (CIA) was prepared in accordance with the *Guidelines for Assessing Cultural Impacts (1997)* set forth by the Environmental Council of the State of Hawai'i. The findings of the CIA are summarized below.

Background of the Moku. The *moku* (district) of Waialua contained a set of centrally located productive lands and peripheral areas that were ecologically marginal but had access to abundant ocean resources. Large swaths of *lo'i kalo* (taro fields) were located on the floodplains of four major streams that flowed from gorges within the Wai'anae Mountains, and two large *loko i'a* (fishponds), 'Uko'a and Lokoea, were located around Waialua Bay. Small fishing communities were also located at the extreme western and eastern edges of Waialua Moku, at Ka'ena and Kāpaeloa. Although located on the fringe, the small fishing communities had access to rich deep-sea fishing grounds (Sahlins 1992:20).

The *ahupua'a* of Mokolē'ia and Kawaihāpai receive an average of 35 inches of annual rainfall (Giambelluca et al. 2016). The overall lack of rainfall within the district may be ascribed to the topography of the area itself. While lacking in rainfall, the area retains traces of surface water. Mauka

DILLINGHAM RANCH AGRICULTURAL SUBDIVISION
Draft Final Environmental Impact Statement

portions of Mokulē'ia are cut by many ephemeral streams that run northward from the main crest of the Wai'anae Range down to the sea (Wirawan 1974:6). These streams were often modified via *'auwai* (channels) to feed fishponds and agricultural fields within the area.

Numerous *ko'a* (fishing shrines and fishing grounds), including Keauau Shrine, Kōlea Shrine, Kuakea Shrine, Pu'u o Hekili Shrine, and Mokupaoa were known to exist along the coastline and just offshore, and have been lost over the years. These *ko'a* not only represented places of worship, but were also physical fishing grounds known for their abundance of *i'a* (fish), lobster, and *limu* (seaweed).

Three *heiau* (temple) are said to have been associated with the Mokulē'ia and Kawaihāpai area: Kawaihoa Heiau, Nalowale Heiau, and Poloiaie Heiau. Within greater Waialua Moku, are the sacred sites of Ka'ena Point (*leina ka 'uhane* - leaping place of souls), Kūkaniloko (birthing stones), and Mauna Ka'ala. These sites are often connected in some way to *mo'olelo* (stories) associated with both Mokulē'ia and Kawaihāpai Ahupua'a.

Prior to Western Contact, the population for the whole of Waialua Moku (including the *ahupua'a* of Mokulē'ia and Kawaihāpai) had been estimated at 6,000 to 8,000 people (Sahlins 1992:20). The first missionary census of Waialua Moku in 1831-1832 recorded 2,640 people in Waialua, representing a decline of about 20-30 percent from the first decade of the 19th century. The population within Mokulē'ia and Kawaihāpai Ahupua'a also witnessed a decline. By 1848, the population for Waialua Moku was reduced to 1,616 persons. The steep population decline was attributed to a high death rate from newly introduced diseases such as smallpox, typhus, and venereal diseases.

Following the initiation of the Māhele and Kuleana Act in 1845, many of the Native Hawaiians living within Waialua Moku bought the lands they lived and worked on through the Waialua land agent and missionary John Emerson. A total of 27 land grants were purchased in the *ahupua'a* of Mokulē'ia and 16 in the *ahupua'a* of Kawaihāpai. Portions of 21 land grants within the Dillingham Ranch property were granted from 1850 to 1855. In 1850, a law passed that allowed foreigners to buy land fee-simple. Two descendants of missionaries, William Emerson and John T. Gulick, were the first foreigners to buy land in Mokulē'ia and Kawaihāpai.

By the early 1900s, sugarcane plantations and large ranches came to dominate the lands of western Waialua. In 1897, B.F. Dillingham purchased the Kawaihoa Ranch in Mokulē'ia, including over 2,000 head of cattle and over 100 horses and mules (Yardley 1981:193). Dillingham also leased additional property in Mokulē'ia, including the Gaspar Silva Ranch, the James Gay Estate, and other lands in the area that he could secure. Following the construction of the OR&L railroad in 1898, Dillingham began selling off or subleasing much of his lands in western Waialua. However, Dillingham retained as his personal ranch "a great strip of mountainside and beaches with flat land in between and a homestead in the middle" (Yardley 1981:206).

By the mid to late twentieth century lands within Mokulē'ia and Kawaihāpai were occupied by the Crowbar Ranch, Campbell Ranch, and Dillingham Ranch. These land holdings were later consolidated under the control of the Mokulē'ia Land Company.

Cultural Informants. As part of the cultural assessment process, the community members listed below were consulted. The summaries for all interviews are described in detail in Appendix G. The stories shared by the informants provide a rich description of life in the region going back many years, providing information on the history and culture that characterize Mokulē'ia. Refer to the CIA for a full discussion of these interviews.

1. Levi Rita: *paniolo* (cowboy) and livestock manager for Dillingham Ranch.
2. Thomas Shirai, Jr.: Office of Hawaiian Affairs-Native Hawaiian Historic Preservation Council; O'ahu Island Burial Council; and cultural and lineal Descendant for Waialua; Kawaihāpai 'Ohana
3. Mike Dailey: *kama'āina* (longtime resident) of Waialua; father introduced polo to Mokulē'ia.
4. Kawika Dowsett: *kama'āina* of Waialua; father was former Dillingham Ranch Manager.
5. Jan Becket: author, photographer, and retired teacher from Kamehameha Schools. Kona Moku Representative, Council of Hawaiian Civic Club's Committee on the Preservation of Historic Sites and Cultural Properties.

4.5.2 Potential Impacts

As discussed in Section 4.4, previous archaeological studies have indicated the presence of archaeological sites within the Project Area that have been evaluated as historic properties and represent traditional Hawaiian agricultural, ceremonial, and habitation complexes, and post-Contact ranching complexes. Earlier archaeological studies conducted in the vicinity of, and makai of the Project Area have identified six burials (SIHP #s 50-80-03-6708, -3747, -4451, -5766, -5467, and -5599). Based on these findings, there is a possibility that *iwi kūpuna* may be present within the Project Area and that land-disturbing activities during construction could uncover presently undetected burials or other cultural finds.

4.5.3 Mitigation Measures

With regard to preservation, previous consultation among CSH, SHPD, and the landowner resulted in agreement that preservation of the historic properties evaluated as significant (with the exception of SIHP # -6884) would be attained by the acceptance of a Preservation Plan (Tulchin and Hammatt 2008a) which provides interim and long-term protection measures within the confines of the Project Area.

Archaeological sites within the Project Area that are covered by the Preservation Plan (Tulchin and Hammatt 2008a) include: SIHP #s 50-80-03-4772 through -4777, -4782, and -4786. Several archaeological sites which were subsequently located within the Project Area and were not encompassed by the Plan have been recommended for preservation. These sites include: SIHP #50-80-03-7653 (Lauer and Rieth 2014) and SIHP #s 50-80-03-7977 and -7978 (Belluomini et al. 2017). The mitigation recommendations made by Lauer and Rieth (2014) were accepted by the SHPD on July 17, 2015 (see Appendix E). The recommendations set forth in Belluomini's AIS report are currently being reviewed by the SHPD. After acceptance of Belluomini's AIS report, and any further mitigation required by the SHPD, a Preservation Plan will be prepared for SIHP #s 50-80-03- 7653, -7977, and -7978. Upon completion, the Plan will be submitted to the SHPD for review prior to final subdivision approval. The mitigation recommendations for SIHP #s 50-80-03- 7653, -7977, and -7978 shall be enacted upon SHPD's acceptance of the Preservation Plan.

In order to minimize potential impacts to historic properties recommended for preservation, the Proposed Project will be developed in accordance with the interim protection measures and long-term preservation measures set forth in the SHPD-approved Preservation Plan. The Preservation Plan will be incorporated into the CC&Rs and referenced in the by-laws of the Association of Lot Owners which will govern their operations.

To ensure construction activities do not impact historic properties recommended for preservation, and that any inadvertent subsurface cultural deposits and/or human burials located during construction

comply with Chapter 13-280, HAR and Chapter 6E-43, HRS, the Proposed Project will be developed in accordance with the measures set forth in the SHPD-approved Archaeological Monitoring Plan (Tulchin and Hammatt 2008b), provisions of which are detailed in Appendix E.

During consultation for the CIA, Thomas Shirai, Jr. stated that *iwi kūpuna* and other cultural finds may be present within the Project Area. As a cultural and lineal descendant of Waialua, Mr. Shirai asked to be consulted and serve as the on-site cultural monitor should burials (or other cultural finds) be encountered during construction and ground-altering activities. The Applicant will acknowledge Mr. Shirai as the on-site cultural monitor should human remains or cultural artifacts be discovered during ground-disturbing activities.

Prior to the start of construction activities, all construction and Project-related personnel will be informed of the possibility of inadvertent cultural finds, including human remains. In the event that any potential historic properties are identified during construction activities, all activities will cease and the SHPD will be notified pursuant to Section 13-280-3, HAR (*Procedure for Inadvertent Discoveries*). In the event that *iwi kūpuna* are identified, all earth-moving activities in the area will stop, the area will be cordoned off, and the SHPD and Honolulu Police Department will be notified pursuant to HAR Section 13-300-40, HAR (*Inadvertent Discovery of Human Remains*). In addition, in the event of an inadvertent discovery of human remains, the completion of a burial treatment plan, in compliance with Chapter 13-300, HAR (*Rules of Practice and Procedure Relating to Burial Sites and Human Remains*) and Chapter 6E-43, HRS (*Prehistoric and Historic Burial Sites*) will be prepared. In accordance with another recommendation provided by Mr. Shirai, cultural sites and historic properties will be preserved, and that public access to the sites will remain restricted.

4.6 Visual Resources

4.6.1 Existing Conditions

Scenic resources within the Project Area are characterized by open space, beach and shoreline areas, and the Waiʻanae Mountain Range. Scenic views within the Project Area include views of the Pacific Ocean and shoreline, mauka views of the Mountain Range from Farrington Highway and Crozier Drive, and lateral views along the shoreline between Kaʻena Point and Makaleha Beach.

Panoramic views throughout the region are identified in the *North Shore Sustainable Communities Plan* (DPP, April 2011). Scenic resources in the area between Waialua and Kaʻena Point include the following:

- Views of the Waiʻanae and Koʻolau Mountains, the Pacific Ocean and shoreline, Waialua and Haleʻiwa towns as seen from Kamehameha Highway and Kaukonahua Road as one enters the North Shore.
- Mauka views of the Waiʻanae Mountains as seen from the area around Farrington Highway, Kaukonahua Road, Kamehameha Highway, and Weed Junction.
- Stationary seaward views from the shoreline from the area between Kaʻena Point and Makaleha Beach.
- Views of the Waiʻanae Mountain Range and agricultural fields as seen from Crozier Drive.

The portion of the Waiʻanae Mountain Range located on Dillingham Ranch property lies approximately 4.7 miles to the west of the intersection of Kaukonahua Road and Farrington Highway and is not discernable at this distance.