



SITE PLAN APPROVAL APPLICATION (SPA)

File No:

Acceptance Date:

30-Day Expiration Date:

Assigned Planner:

for DLNR Use

Pursuant to Hawai'i Administrative Rules (HAR) §§13-5-22 through 24, identified land uses beginning with letter (B) require a site plan approval by the department.

PROJECT NAME: Upgrading Halepōhaku Fuel Storage System

Conservation District Subzone: Resource Subzone

Identified Land Use: HAR §13-5-22 P-8: Structures and Land Uses, Existing (B-1) Demolition, removal, or minor alteration of existing structure, facilities, land, and equipment and HAR §13-5-22 P-9: Structures, Accessory (B-1) Construction or placement of structures accessory to existing facilities.

(See Hawai'i Administrative Rules (HAR) §13-5-22 through §13-5-25)

Project Address: Halepōhaku, Mauna Kea Access Road, Island of Hawai'i

Ahupua'a, District, Island: Kahohe, Hāmākua, Hawai'i

Tax Map Key(s): (3) 4-4-015:012

Proposed Commencement Date: Early 2027 (pending permit approval)

Proposed Completion Date: 12 months after commencement (Prior to 2028 regulatory deadline)

Estimated Project Cost: \$1.2 million

Total area of proposed use: 0.85 acres

ATTACHMENTS

- ☐ \$50 application fee (*ref §13-5-32 through 34*)
- ☒ Location map
- ☒ Site plan
- ☐ Construction, grading, site restoration, landscaping, or fire buffer plans, as applicable

Note: The application fee for State projects is waived pursuant to HAR §13-5-32.

REQUIRED SIGNATURES

Applicant

Name: University of Hawai'i at Hilo

Title; Agency: Center for Maunakea Stewardship

Mailing Address: 640 N A'ohōkū Pl, Hilo, HI 96720

Contact Person & Title: Gregory Chun, Executive Director, Center for Maunakea Stewardship

Phone: 808-933-0734

Email: cmshilo@hawaii.edu

Interest in Property: DLNR lands leased to University of Hawai'i under General Lease No. S-5529, with management delegated to the Center for Maunakea Stewardship

Signature: _____ Date: _____

Signed by an authorized officer if for a Corporation, Partnership, Agency or Organization

Landowner (if different than the applicant)

Name: University of Hawai'i at Hilo (Land owned by State of Hawai'i, management control administered under General Lease S-5529).

Title; Agency: Office of the Chancellor

Mailing Address: 200 W Kāwili St, Hilo, HI 96720

Phone: 808-932-7348

Email:

Signature: _____ Date: _____

For public lands, the government entity with management control shall sign as landowner.

Agent or Consultant

Consultant: Sustainable Resources Group Intn'l, Inc.

Contact Person & Title: Kristin Duin, Principal

Mailing Address: 111 Hekili Street, Suite A373, Kailua, HI 96734

Phone: 808-778-7384

Email: kduin@srgii.com

Signature: _____ Date: _____

For DLNR Managed Lands

Chairperson, Board of Land and Natural Resources

P.O. Box 621

Honolulu, Hawai'i 96809-0621

Signature: _____ Date: _____

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ACRONYMS

AMP	Archaeological Monitoring Plan
AST	Aboveground Storage Tank
BLNR	Board of Land and Natural Resources
BMP	Best Management Practices
CDUP	Conservation District Use Permit
CMP	Comprehensive Management Plan
CMS	Center for Maunakea Stewardship
CRMP	Cultural Resources Management Plan
DLNR	Department of Land and Natural Resources
DOH	Department of Health
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
HAR	Hawai'i Administrative Rules
HRS	Hawai'i Revised Statutes
ISMP	Invasive Species Management Plan
MKSOA	Maunakea Stewardship and Oversight Authority
MKSS	Maunakea Shared Services
SHPD	State Historic Preservation Division
SIHP	State Inventory of Historic Places
UH	University of Hawai'i
UH Hilo	University of Hawai'i at Hilo
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	Underground Storage Tank
VIS	Visitor Information Station

1 PROPOSED USE

Total size/area of proposed use (indicate in acres or sq. ft.): 0.85 acres

Please provide a detailed description of the proposed land use(s) in its entirety. Information should describe what the proposed use is; the need and purpose for the proposed use; the size of the proposed use (provide dimensions and quantities of materials); and how the work for the proposed use will be done (methodology). If there are multiple components to a project, please answer the above for each component. Also include information regarding secondary improvements including, but not limited to, grading and grubbing, placement of accessory equipment, installation of utilities, roads, driveways, fences, landscaping, etc.

Site Plans for the proposed use are included in Attachment 1 of this Site Plan Approval Application.

PROJECT AREA DESCRIPTION

The proposed use is located within the University of Hawai'i at Hilo (UH Hilo) Managed Lands on Maunakea ("Maunakea Lands") at Halepōhaku (Figure 1). The 19.3-acre Halepōhaku parcel (TMK (3) 4-4-015:012) is situated at an elevation of about 9,200 ft on the south slope of Maunakea on the island of Hawai'i. The parcel, located in the State Land Use Conservation District, is leased to UH Hilo through 2041 by the Board of Land and Natural Resources (BLNR) under General Lease No. S-5529. The facilities at the Onizuka Center for International Astronomy at Halepōhaku include the Visitor Information Station (VIS); the Astronomy Mid-Level Support Facilities, providing food and lodging operations for those working on Maunakea; and a Maintenance Facility Area.

PURPOSE AND NEED

The purpose and need of the proposed land use is to upgrade the current fuel storage system, three underground storage tanks (USTs) and associated infrastructure (fuel transfer pumps, dispensing pumps, buried fuel lines, and electrical lines), to comply with the 2028 regulatory deadline pursuant to Hawai'i Administrative Rules (HAR) §11-280.1-21 (*Upgrading of UST Systems*). Development agreements between the UH Hilo/Maunakea Shared Services (MKSS) and individual observatories require UH Hilo to provide services or utilities, including fuel, to observatory facilities. In addition, onsite diesel and gasoline are needed for MKSS staff to fulfill a variety of duties including ranger patrol for public safety and resource protection, road maintenance, and snow removal.

The current fuel storage system, consisting of three USTs and associated infrastructure (fuel transfer pumps, dispensing pumps, buried fuel lines, and electrical lines), was originally approved under Conservation District Use Permit (CDUP) 1430, "Subdivision and Construction of the Hale Pōhaku Mid-Level Facilities" at the BLNR meeting on April 23, 1982.

Regulations for USTs in Hawai'i are set forth in HAR §11-280.1, (*Underground Storage Tanks*).¹ Within the regulations, HAR §11-280.1-21 (*Upgrading of UST Systems*) instructs that UST systems must comply with either the performance standards listed in HAR §11-280.1-20 (b) to (d) (*Performance Standards for UST Systems*), or the closure requirements (HAR §11-280.1, Subchapter 7). The rule stipulates that "Not later than July 15, 2028, tanks with piping installed before August 9, 2013 must be provided with secondary containment that meets the requirements of [HAR] section 11-280.1-24". The Hawai'i Department of Health (DOH) states that no extensions will be granted for this deadline.

¹ <https://health.hawaii.gov/opppd/files/2025/03/Chapter-11-280.1-HAR-effective-March-21-2025.pdf>

Figure 1. Proposed Use Location

1 Rather than install secondary containment around the existing USTs, the Center for Maunakea Stewardship
2 (CMS) proposes to decommission the existing three single-wall fiberglass USTs and associated
3 infrastructure within the Maintenance Facility Area at Halepōhaku and replace them with two aboveground
4 storage tanks (ASTs). It is more economically and environmentally friendly to replace the USTs with ASTs
5 that provide multiple layers of containment in the event of a fuel release, than to replace them with new
6 regulatory compliant USTs, and/or build secondary containment around the existing structures.

7 **ELEMENTS OF THE PROPOSED ACTION**

8 The decommissioning involves removal of all three USTs, buried fuel lines, fuel transfer pumps, dispensing
9 pumps, and electrical lines. The USTs are located on either side of the road leading into the Maintenance
10 Facility Area, close to Mauna Kea Access Road (Figure 2). All fuel in the USTs, fuel pipes, and pumps will be
11 emptied prior to removal. Removal of the USTs will require excavating an approximately 385 sq ft area for
12 the diesel tank and an approximately 600 sq ft area for the two gasoline tanks combined. Removal of the
13 buried lines will require trenching (~240 ft x 2 ft) within an area comprised of asphalt concrete and trenching
14 (~22.5 ft x 2 ft) in an area of previously disturbed soil. Removal of the dispensing pumps concrete pad will
15 require excavation of an approximately 65 sq ft area (~13 ft x 5 ft). All elements required by HAR §11-280.1,
16 Subchapter 7 (*Out-of-Service UST Systems and Closure*), will be met.

17 Grading and excavation depths vary across the project site from several inches to several feet. Excavated
18 material will be temporarily stockpiled. Before excavation and removal of the USTs and pipelines, each
19 feature will be sampled to check for the presence of hydrocarbons. This will be done using a hydrocarbon
20 probe, or “sniffer,” which detects vapor levels through small diameter holes placed around the features. If
21 no hydrocarbons vapors are detected, no further sampling or mitigation will be required. If hydrocarbons are
22 detected, additional sampling will be conducted after the tanks and pipelines are removed. This will involve
23 collecting soil samples at each feature to confirm the presence and concentration of hydrocarbons. If
24 concentrations meet or exceed actionable thresholds, mitigation actions will be carried out in accordance
25 with an approved remediation protocol and HAR §11-280.1, Subchapter 6 (*Release Response Action*).

26 The proposed action will require fill to be placed in trenches and voids where USTs and associated
27 infrastructure have been removed. Voids will initially be filled with 2½” minus drain rock to within three feet
28 of the ground surface. A layer of geotextile fabric will be placed on top of the drain rock and then 1½” minus
29 base course rock placed on top to within one foot of ground surface. The remaining one foot will be filled
30 with cinder. Drain rock will come from USTs fill material excavated from the project site as well as a local
31 off-mountain source. Cinder topping will come from excavated material at the project site and MKSS
32 stockpiles of local cinder that are stored for road maintenance and other projects.

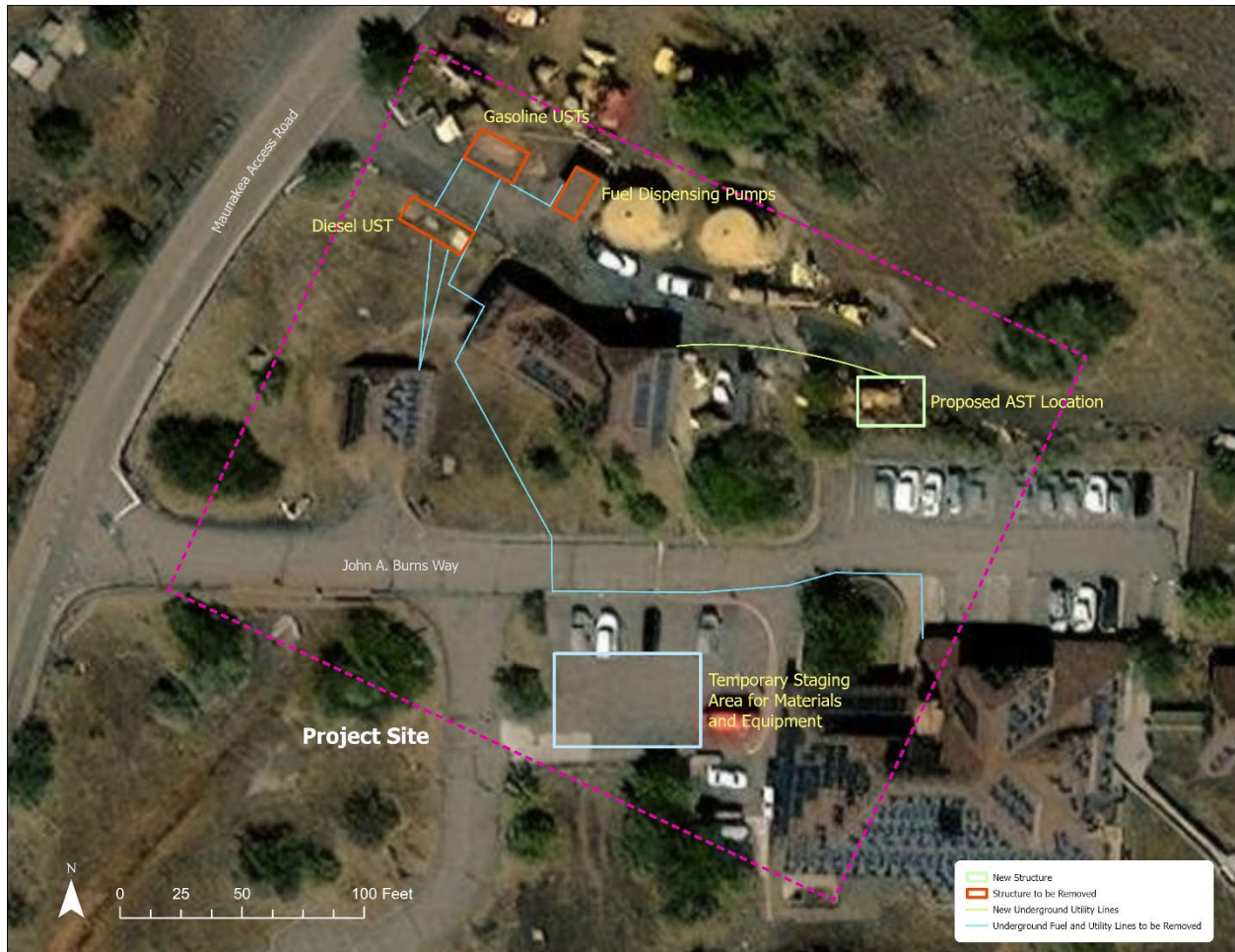
33 If the proposed action is completed, two Transtank Pro P122 (or similar) ASTs with a safe fill capacity of
34 3,068 gallons each, one for diesel and one for gasoline, will be installed to accommodate fuel needs for the
35 Maunakea Lands. Although this decreases the overall fuel storage capacity by 66% from 18,000 gallons to
36 ~6,000 gallons, MKSS has determined that this capacity is adequate based on current fuel consumption
37 and minimum fuel delivery requirements. The larger diesel tank was originally installed because diesel was
38 needed to fuel the generators that powered Halepōhaku before the site was connected to utility lines.

39 These ASTs are double walled, providing secondary containment in the event of any leaks. They have an
40 access manway that allows for inspection and maintenance of the inner tank. The ASTs measure 9.8 ft x 8
41 ft x 9.5 ft and have fully integrated dispensing pumps. To help protect the surrounding environment from
42 spills, the tanks have an overfill detection sensor with automatic shut off, leak detection sensors, a clearly

² <https://western-global.com/us/products/transtank-pro/>; Brim fill capacity: 3,223 gallons, Safe fill capacity: 3,068 gallons.

marked emergency electrical shut off button, and will sit on a single concrete slab with approximate dimensions of 14 ft x 23 ft (~322 sq ft) and a 6-inch-high spill containment berm. The proposed location for the new ASTs is on previously disturbed ground that is free of vegetation and is already graded and compacted (Figure 2). The proposed location is not visible from the Mauna Kea Access Road and is served by nearby electrical infrastructure.

Figure 2. Proposed Action: Project Site



SEQUENCE OF THE PROPOSED ACTION

The preferred (optimal) sequence of events for the proposed action is as follows to ensure an uninterrupted fuel supply at the Halepōhaku mid-level facilities.

1. Installation of project best management practices (BMPs);
2. Install and commission the ASTs;
3. Empty the USTs and drain associated lines;
4. Excavate and remove the USTs, buried fuel lines, fuel transfer pumps, dispensing pumps, and electrical lines;
5. Backfill excavated locations; and
6. Conduct restoration activities.

2 PROPOSED EXEMPTION

An exemption from needing an environmental assessment (EA) refers to specific situations or projects that are not required to undergo the standard EA process due to their minimal potential impact on the environment.

An Environmental Assessment (EA) was prepared for the proposed action. A Finding of No Significant Impact (FONSI) was issued by UH Hilo. The *Upgrading Halepōhaku Fuel Storage System Draft Environmental Assessment – Anticipated Finding of No Significant Impact* was published for agency and public review on December 8, 2025, with the comment period closing on January 7, 2026. There were no comments received from the public. Two agencies commented, the Hawai'i DOH Clean Air Branch sent a reminder with a link to reference their *Standard Comments for Land Use Review*. The Office of Hawaiian Affairs commented on the Archaeological Monitoring Plan (AMP), which is included as an appendix to the EA. The Final EA-FONSI was published in *The Environmental Notice* on April 8, 2026 and may be viewed at <https://planning.hawaii.gov/erp/environmental-notice/>.

3 EXISTING CONDITIONS

Please describe the existing conditions on the parcel (geology, ecology, cultural and recreational resources, historic resources, structures, landscaping, etc.) Provide information regarding existing buildings and structures as well as infrastructure and utilities as applicable.

TOPOGRAPHY, GEOLOGY, SOILS AND GEOLOGIC HAZARDS

The ground surface in the Maintenance Facility Area of Halepōhaku is covered with alluvial wash materials consisting of small cinder gravels, lava rock particles, and ash layers that are several centimeters thick in some locations. The soil is characterized by the Natural Resources Conservation Service as the Pohakulehu-Lanapohaku complex and is comprised of two soil series. The Pohakulehu series consists of deep or very deep, well drained soils that formed in volcanic ash and 'a'a lava. The Lanapohaku series consists of very deep, somewhat excessively drained soils that formed in volcanic ash and 'a'a lava. Soil erosion is moderate. The Halepōhaku parcel, situated on Maunakea's southern flank, spans elevations ranging from approximately 9,100 to 9,400 ft. Although three cinder cones or pu'u are located near Halepōhaku, none are within the Halepōhaku parcel or the project area.

The entire island of Hawai'i is subject to geological hazards, especially lava flows and earthquakes. Located within Zone 7 of the U.S. Geological Survey (USGS) lava flow hazard map (Wright et al. 1992), Halepōhaku faces a low probability of lava flow coverage, aside from potential localized upwelling. Maunakea is considered dormant, not extinct, and there is currently no evidence supporting a near-future eruption. Maunakea falls within the USGS classified Seismic Hazard Zone D, meaning that in the event of an earthquake the area could experience very strong shaking.³ The potential effects of very strong shaking are slight damage to earthquake-resistant structures; considerable damage to structures built to approved codes with no earth-quake resistant design features; and significant damage in poorly built structures.

WATER RESOURCES

There are no perennial surface waterbodies and no history of flooding in the Halepōhaku area. Total annual mean rainfall at Halepōhaku is 29.25 inches.⁴ Surface water runoff from undisturbed areas within the project occurs when the rainfall rate exceeds the infiltration rate. The frequency of runoff events off these

³ <https://hvo.wr.usgs.gov/earthquakes/hazards/>

⁴ Western Regional Climate Center, 1949-2025, <https://wrcc.dri.edu/my/stations>, HALEPOHAKU 111 (511065)

surfaces is unknown. Runoff is generated more frequently off developed and altered land surfaces within the project site due to their impervious surfaces and compaction of soils, which reduces infiltration into the soil. Runoff from both undisturbed and developed surfaces is carried across the landscape in natural and manmade channels. Manmade storm water features such as swales and culverts have been constructed and located to capture runoff and move water away from the existing Halepōhaku buildings and parking areas. The project site does not discharge into a Municipal Storm Sewer System.

There is an earthen swale/ditch that begins at approximately 9,350 ft elevation and runs parallel to the east side of Mauna Kea Access Road. It is routed into a culvert that goes under the northernmost roadway entrance/exit to the project site that houses the fuel tanks and water storage tanks that service the project area. A portion of surface water runoff from the project site flows overland and is captured in this ditch, which continues to flow downslope passing under John A. Burns Way and the entrance/exit to the northernmost VIS Parking Area via culverts. South of the culverts, the swale angles southeast, directing flow away from Mauna Kea Access Road toward an open, undeveloped area south of the VIS Parking Areas.

Halepōhaku is located within the Onomea aquifer system of the East Mauna Kea aquifer sector. The highest known elevation of the regional aquifer on Maunakea is approximately 4,500 ft above sea level. This is for areas in the Maunaloa-Maunakea saddle region and there is no direct data for immediately under the project site, which may differ in depth to the regional aquifer. Localized perched or dike-impounded groundwater features may or may not be present in the project area. Groundwater levels are assumed to be at significant depths below the ground surface. There are no wells within the vicinity of the project area.

FLORA

Halepōhaku lies within the subalpine ecosystem on Maunakea. The vegetation is a mixture of māmane (*Sophora chrysophylla*) woodland and xerophytic scrub. Char (1999) describes māmane woodlands at Halepōhaku as clumps of māmane trees, 16 to 18 ft tall, interspersed with open areas of bare soil or rocky outcroppings. Xerophytic scrub is comprised of low growing, drought tolerant shrubs. Understory plants tend to be denser under and around the clumps of māmane, with groundcover plants being primarily mixed bunch grasses. At Halepōhaku, the most abundant plant cover is non-native grasses, with needlegrass (*Nassella cernua*) and ripgut brome (*Bromus diandrus*) being the dominant species (Gerrish 2011). The most abundant native plant species include two grasses, Hawai'i bentgrass (*Agrostis sandwicensis*) and pili uka (*Trisetum glomeratum*), and māmane trees. Native shrubs include pūkiawe (*Styphelia tameiameia*), pāwale (*Rumex giganteus*), and 'aweoweo (*Chenopodium oahuense*). Table 1 lists the native plant species that occur at Halepōhaku or in immediately adjacent areas.

There are no federally or state-listed threatened or endangered plant species within the project site. The Maunakea silversword (*Argyroxiphium sandwicense* ssp. *sandwicense*) is federally and state-listed as endangered. Although this species has been out-planted within a Hawai'i Department of Land and Natural Resources (DLNR)-maintained enclosure adjacent to Halepōhaku, it does not occur within the project site. Māmane trees are not federally listed as threatened or endangered, but they are a preferred food source for three honeycreeper bird species that can potentially occur at Halepōhaku, including the endangered palila (*Loxioides bailleui*). Māmane trees are found throughout the area, including within the project site.

Non-native and invasive plant species are more common and diverse at Halepōhaku than they are at higher elevations. Efforts to control invasive weed species from being transported to and around Maunakea, and specifically from lower elevations to higher elevations, include mechanical removal of existing invasives, requiring vehicles driving up to or past Halepōhaku be free of mud that can harbor invasive plant species, and inspections of equipment and materials for propagules of invasive plants prior to them entering the Maunakea Lands. Removal of existing invasives around the project area, including the project site, includes weed whacking non-native species to prevent seed production, and pulling non-native broadleaf species

from around parking areas, structures, and buildings. Non-native and invasive plant species are removed through volunteer weed pulling events and by rangers as part of their routine responsibilities. Species names of the removed plants are recorded in an Invasive Species Report and transported to the Hilo Transfer Station Greenwaste for disposal.

Table 1. Native Plant Species Found in the Halepōhaku Area

Scientific Name	Hawaiian Name	Common Name	Origin
Trees and Shrubs			
<i>Argyroxiphium sandwicense ssp. sandwicense</i>	‘āhinahina	Maunakea silversword	Endemic
<i>Cosprosmia montana</i>	pilo	-	Endemic
<i>Chenopodium oahuense</i>	‘āweoweo	goosefoot	Endemic
<i>Dubatia aroborea</i>	na‘ena‘e	Maunakea dubautia	Endemic
<i>Dubautia ciliolata ciliolata</i>	na‘ena‘e	lava dubautia	Endemic
<i>Geranium cuneatum hololeucum</i>	hinahina	silver geranium	Endemic
<i>Leptecophylla tameiameia</i>	pūkiawe	-	Native
<i>Osteomeles anthyllidifolia</i>	‘ūlei	Hawaiian rose	Native
<i>Rumex giganteus</i>	pāwale	lava dock	Endemic
<i>Sophora chrysophylla</i>	māmane	-	Endemic
<i>Asplenium trichomanes</i>	olali‘i	maidenhair spleenwort	Native
Herbaceous Species			
<i>Agrostis avenacea</i>	he‘upueo	Pacific bentgrass	Native
<i>Agrostis sandwicensis</i>	-	Hawai‘i bentgrass	Endemic
<i>Argemone glauca</i>	pua kala	Hawaiian prickly poppy	Endemic
<i>Bidens menziesii</i>	ko‘oko‘olau	Menzie’s bur-marigold	Endemic
<i>Carex macloviana</i>	-	St. Malo’s sedge	Native
<i>Carex wahuensis</i>	-	O‘ahu sedge	Endemic
<i>Deschampsia nubigena</i>	-	alpine hairgrass	Endemic
<i>Pseudognaphalium sandwicense</i>	‘ena‘ena	-	Endemic
<i>Stenogyne microphylla</i>	-	littleleaf stenogyne	Endemic
<i>Stenogyne rugosa</i>	mā‘ohi‘ohi	native mint, little leaf stenogyne	Endemic
<i>Trisetum glomeratum</i>	pili uka	mountain pili	Endemic

CMS supports the established nursery and greenhouse at Halepōhaku to facilitate habitat restoration efforts. All the plants are grown from seeds collected locally within the ecotype. Out-planting of native plants is ongoing as part of habitat enhancement activities. Since 2019, the natural resources crew and volunteers have out-planted over 1,600 native plants both within the Halepōhaku parcel and the DLNR-maintained enclosure adjacent to Halepōhaku. Species planted include māmane, ‘aweoweo, pāwale, pua kala, pilo, ‘ūlei, and ko‘oko‘olau.

FAUNA

Māmane woodlands on Maunakea, including those at Halepōhaku, are home to a variety of native invertebrates (insects, spiders), the native Hawaiian hoary bat, ‘ōpe‘ape‘a (*Lasiurus cinereus semotus*), and a few species of native birds, including the endangered palila (Scott et al. 1986).

Mammals: Ten mammal species occur or potentially occur at Halepōhaku. The Hawaiian hoary bat, the only indigenous land mammal in Hawai‘i, inhabits māmane woodlands on Maunakea but has not been recorded at Halepōhaku. It is federally and state-listed as endangered. Hawaiian hoary bats roost in woody vegetation (i.e. trees and shrubs) and leave young unattended when the adults are foraging. Table 2 lists the mammal species that occur at Halepōhaku or in immediately adjacent areas.

Table 2. Mammal Species of Halepōhaku

Scientific Name	Common Name	Origin	Occurrence
<i>Capra hircus</i>	feral goat	Non-native	Known
<i>Felis catus</i>	feral cat	Non-native	Known Intermittent
<i>Herpestes auropunctatus</i>	mongoose	Non-native	Known Intermittent
<i>Lasiurus cinereus semotus</i>	‘ōpe‘ape‘a (Hawaiian hoary bat)	Endemic	Potential
<i>Mus domesticus</i>	house mouse	Non-native	Known
<i>Mus musculus</i>	mouse	Non-native	Known
<i>Ovis aries (also called Ovis ovis)</i>	feral sheep	Non-native	Known
<i>Ovis musimon</i>	mouflon sheep	Non-native	Known
<i>Rattus rattus</i>	black rat	Non-native	Known
<i>Sus scrofa</i>	pig	Non-native	Known Intermittent

Birds: Eight native bird species occur or could potentially occur at Halepōhaku, three of which are federally listed as endangered or threatened (Table 3). The Hawaiian honeycreepers—palila, Hawai‘i ‘amakihi (*Chlorodrepanis virens virens*), ‘apapane (*Himatione sanguinea*), and ‘i‘iwi (*Vestiaria coccinea*), have been observed at Halepōhaku. Although two additional native bird species, the Hawaiian owl, pueo (*Asio flammeus sandwichensis*) and the Hawaiian hawk, ‘io (*Buteo solitaries*), are not common visitors to Halepōhaku, they have been recently detected in the area. Hawaiian geese, nēnē (*Branta sandvicensis*) have not been recorded at Halepōhaku; however they occur at lower elevations on Maunakea and could potentially visit the project site.

The Hawai‘i ‘amakihi, the most commonly observed native bird species at Halepōhaku, forages on a variety of food sources, while the other three honeycreeper species—palila, ‘apapane, and ‘i‘iwi—are more specialized. Palila forage on māmane seeds and insects that inhabit the trees. ‘Apapane and ‘i‘iwi feed on nectar from māmane and naio (*Myoporum sandwicense*) flowers and may traverse the upper slopes of Maunakea searching for flowering māmane. Hawai‘i ‘elepaio (*Chasiempis sandwichensis*), a flycatcher species, feeds on insects and are mainly found in koa-‘ōhi‘a (*Acacia koa-Metrosideros polymorpha*) forests. Palila, Hawai‘i ‘amakihi, and Hawai‘i ‘elepaio all nest in māmane trees.

Surveys to determine population abundance and range of palila have been conducted annually on Maunakea since 1998.⁵ The surveys are focused within the ‘core area’ of higher palila use and population density on the southwestern slope. Supplemental transects adjacent to the core area are surveyed to investigate possible range expansion. One of the supplemental transects, #109, of a higher elevation than the current core range, is near Halepōhaku and provides insight on the use of the project area by palila. Surveys are conducted in January when māmane seedpods are most abundant at higher elevations, to coincide with when palila would be using the higher areas of their elevational range. Palila were consistently detected along transect #109 up until 1990, but since then have only been recorded on a few occasions,

⁵ Data is collected at different times by different entities including DLNR Division of Forestry and Wildlife, U.S. Fish and Wildlife Service (USFWS), USGS Pacific Island Ecosystems Research Center, and the American Bird Conservancy.

specifically in 1997 and 2006. While there have been a few incidental sightings at Halepōhaku, most recently in 2016 and 2017, biologists currently consider the species' use of this area to be infrequent and tied to times when māmane pod availability is high and birds move freely around a larger range, or low within their core area and birds are expanding their foraging area to search for food.

Although Halepōhaku contains habitat types utilized by the Hawaiian owl and the Hawaiian hawk, these species typically occur at lower elevations. During the winter of 2025-2026, however, both species were recorded at Halepōhaku on several occasions, likely while foraging. Given the high elevation of the project area, these wide-ranging species are unlikely to breed at the site.

Table 3. Native Bird Species of Halepōhaku

Scientific Name	Common Name	Origin	Occurrence	Legal Status
<i>Asio flammeus sandwichensis</i>	pueo (Hawaiian owl)	Endemic	Known intermittent	Federal Species of Concern
<i>Branta sandvicensis</i>	nēnē (Hawaiian goose)	Endemic	Potential	Federal / State Threatened
<i>Buteo solitaires</i>	‘io (Hawaiian hawk)	Endemic	Known intermittent	None
<i>Chasiempis sandwichensis</i>	Hawai‘i ‘elepaio	Endemic	Potential	Federal Species of Concern
<i>Chlorodrepanis virens</i>	Hawai‘i ‘amakihi	Endemic	Known	Federal Species of Concern
<i>Himatione sanguinea</i>	‘apapane	Endemic	Known intermittent	Federal Species of Concern
<i>Loxioides bailleui</i>	palila	Endemic	Known intermittent	Federal / State Endangered
<i>Vestiaria coccinea</i>	‘i‘iwi (scarlet honeycreeper)	Endemic	Known intermittent	Federal Threatened

There are three species of seabirds, Hawaiian petrels, ‘ua‘u (*Pterodroma sandwichensis*); band-rumped storm petrels, ‘akē‘akē (*Hydrobates castro*); and Newell’s shearwater, ‘a‘o (*Puffinus newelli*) that have been recorded utilizing the high elevation areas of Maunakea for nesting. Hawaiian petrels occur in subalpine and alpine habitats on Maunakea. Prior to 2018, Hawaiian petrels had not been detected on Maunakea since 1954. In 2018 scientists investigating whether Hawaiian petrels still nested on Maunakea detected the species' calls using specialized bio-acoustic equipment. Since then, their presence has been confirmed both visually and acoustically (Planning Solutions, Inc. and Ho‘okuleana, LLC 2022a). While Hawaiian petrels have not been observed near Halepōhaku in recent years, and recent detections are located outside the Maunakea Lands, it is possible that they fly over the project area. Band-rumped storm petrels and Newell’s shearwaters may fly over the project area on their way to nesting sites at higher elevations but have never been recorded within the Halepōhaku parcel.

Eight non-native bird species have been recorded at Halepōhaku: chukar (*Alectoris chukar*), California quail (*Callipepla californica*), Erckel’s Francolin (*Francolinus erckelii*), white eye (*Zosterops japonica*), red-billed leiothrix (*Leiothrix lutea*), house finch (*Carpodacus mexicanus*), and house sparrow (*Passer domesticus*). It is likely that some of the other eleven non-native bird species found in the nearby māmane and māmane-naio woodlands also visit the Halepōhaku area seasonally. These species are not protected by federal or state laws.

Invertebrates: Although it is widely accepted that there are probably hundreds if not thousands of species of invertebrates that have yet to be identified in Hawai‘i, a few studies provide localized information on this group. For example, more than 200 species of invertebrates have been collected within the māmane forests on Maunakea (NASA 2005). Although available research cannot determine the total number of invertebrate species in the project area (including the project site), surveys to describe invertebrate biodiversity at Halepōhaku have been conducted regularly. These surveys, which include monitoring non-native invasive invertebrates, began in 2012.

Invertebrate surveys in the Halepōhaku area recorded 99 species on or around three native host plants [‘āweoweo (*Chenopodium oahuense*), hinahina (*Geranium cuneatum*) and māmane] (Stever 2016).⁶ Of these, approximately 30% are native species, with the majority of those being endemic. Others are either non-native or their origin is unknown. While none of these species is listed as threatened or endangered at the federal or state level, several are considered *species of concern*.⁷ Invertebrate species of concern that have been found at Halepōhaku include four flightless species with limited dispersal ability (three *Nesosydne* sp. and the flightless brown lacewing (*Micromus usingeri*)); three yellow-faced bees (*Hylaeus difficilis*, *Hylaeus flavipes*, and *Hylaeus volcanicus*); and two newly discovered or rediscovered species (the black-veined agrotis noctuid moth (*Agrotis melanoneura*), previously thought to be extinct, and a *Phaeogramma* sp. not previously recorded).

Quarterly surveys for non-native invertebrates consist of perimeter searches around buildings, parking lots, and all areas used for construction staging, utilizing both baiting stations and hand searches. The buildings and parking lots within the project site are currently included in these surveys. Of particular concern is the early detection of aggressive invasive species that could become established and adversely affect native insect populations in the high elevations on Maunakea, including Halepōhaku. One such species is the invasive Argentine ant (*Linepithema humile*), which preys upon and displaces native insects. This species is already well established and difficult to control in the subalpine areas on Haleakalā (a similar environment on Maui) and is present elsewhere on the Island of Hawai‘i. Although Argentine ants have not been confirmed within the Maunakea Lands, multiple colonies and nests have been detected along the Mauna Kea Access Road at approximately 8,200 ft in elevation. Surveys conducted along the road above this elevation did not detect colonies or nests, and only two individual ants were found in bait traps. However, if Argentine ants were to establish at Halepōhaku, they could have significant impacts on native invertebrate populations.

HABITAT

Habitat in the project area transitions from māmane woodland to scrub. A long history of feral ungulate browsing around Halepōhaku and in the adjacent Mauna Kea Forest Reserve has resulted in habitat degradation, characterized by declining native plant populations—particularly māmane trees—and the spread of invasive weeds. Although culling of feral ungulates has contributed to some habitat recovery, the lasting effects of past browsing are still evident in the condition of the māmane trees and the continued dominance of non-native plant species.

The entire Halepōhaku parcel lies within federally designated palila critical habitat. Palila are the last surviving finch-billed honeycreeper species found in the main Hawaiian Islands; all other species of finch-billed honeycreepers have been extirpated. Palila are found exclusively on the island of Hawai‘i, with more than 95% of their population restricted to the southwest slope of Maunakea. They inhabit dry māmane and

⁶ These species are the dominant native plants in Maunakea’s subalpine region that are known to support high levels of invertebrate richness.

⁷ Species of concern is an informal term not defined in the Endangered Species Act. The term commonly refers to species that federal and state agencies consider to be at-risk of declining and appear to need conservation efforts.

māmane-naio forest at elevations ranging from 6,500 to 9,250 ft, with the highest densities occurring around 7,550 ft (DLNR 2015). Palila have evolved a specialized diet and feed primarily on māmane seeds, flowers, and associated invertebrates. In 1977, U.S. Fish and Wildlife Service (USFWS) designated just under 60,200 acres between 5,500 ft and 10,000 ft elevations encircling Maunakea as critical habitat for the endangered palila. While the elevation of the project site is at the high end of the current core range of this bird, during times of drought there is a greater tendency for birds to move around looking for food. Annual palila surveys at Halepōhaku indicate it is only an occasional visitor (Brinck et al 2022). The area near the Halepōhaku facilities is not considered preferred nesting habitat for palila or other native forest birds due to relatively constant human activity.

Habitat within the project site is considered degraded, though a few mature māmane trees may provide refuge and food for certain species. The project site is located within the Maintenance Facility Area at Halepōhaku, an area containing existing infrastructure, including roads, buildings, and paved parking areas, where human activity and noise from vehicles and equipment are common. Wildlife generally prefers less disturbed habitat away from people and is not expected in the project site.

Focused efforts to enhance habitat in the Halepōhaku parcel have been on-going in recent years. These efforts include removing non-native plant species, out-planting native plant species, maintaining out-planted natives (e.g. watering and weeding), and monitoring for and removing invasive invertebrates. Additionally, trapping feral cats and non-native rodents supports habitat restoration efforts and native bird and invertebrate populations.

SCENIC RESOURCES

Scenic resources at Halepōhaku include on-ground resources, scenic vistas (including pu'u), and stargazing. The Halepōhaku area is highly scenic, with foreground views of māmane-naio forest and background views of Maunakea and Mauna Loa volcanoes. Halepōhaku's facilities were built with a deliberate focus on minimizing visual impact, effectively concealing them from view from other locations on the island.

AIR QUALITY

Maunakea is renowned worldwide for the exceptional air clarity at its high elevations. Persistent winds and its position above the tradewind inversion layer help sustain this air quality by dispersing volcano-induced vog and human-generated pollutants. At Halepōhaku, sources of air pollution include vehicle exhaust and airborne dust. Dust can be stirred up by vehicles traveling on unpaved surfaces, road grading, construction activities, or wind.

CULTURAL RESOURCES

Most cultural practices within the Maunakea Lands occur at higher elevations within the Astronomy Precinct. While none are known to take place with the Halepōhaku parcel itself, areas near the parcel are sometimes used by cultural practitioners.

There is a contemporary ahu located within the DLNR-managed silversword enclosure in the Maunakea Forest Reserve to the east/northeast of the VIS that is used by cultural practitioners (Figure 3). Even though the contemporary ahu is located on DLNR-managed land, it is regularly maintained by CMS as part of their commitment to supporting cultural practices within and around the Maunakea Lands. Two shrines (State Inventory of Historic Places (SIHP) #50-10-23-10313 and SIHP #50-10-23-10315) are located just south of the Halepōhaku parcel within the Mauna Kea Forest Reserve near the Kahinahina dirt jeep road (Figure 4). The shrines are classified as part of the Pu'u Kalepeamoa Complex (SIHP #50-10-23-16244).

1 Ko'oko'olau and māmane occur in the Halepōhaku parcel and may be collected by cultural practitioners as
2 ethnobotanical resources, particularly ko'oko'olau for la'au lapa'au practices. However, there are no
3 ko'oko'olau near the project site and plant collection by cultural practitioners rarely, if ever, occurs in the
4 immediate vicinity of the Halepōhaku facilities. Subsistence hunting and gathering are not practiced within
5 the Halepōhaku parcel. Most cultural activities within the Maunakea Lands take place during daylight hours,
6 with a few occurring at night or in the early morning.

7 The *Comprehensive Management Plan (CMP) 2022 Supplement: Management Actions Update* (Planning
8 Solutions, Inc. and Ho'okuleana, LLC 2022a) requires that access to culturally significant sites on Maunakea
9 be maintained for cultural practitioners. It states that "Native Hawaiian traditional and customary practices
10 shall not be restricted, except where safety, resource management, cultural appropriateness, and legal
11 compliance considerations may require reasonable restrictions." Cultural practices are permitted if they do
12 not cause damage to historic properties or result in physical impacts, such as the accumulation of offerings
13 or debris. Public access to the majority of the Halepōhaku parcel is unrestricted, except the Astronomy Mid-
14 Level Support Facilities, which is restricted to authorized personnel only.

15 In November 2023, all state public lands on Maunakea from the 6,500-foot elevation to and including the
16 summit were approved for listing on the Hawai'i Register of Historic Places. This area, named the Mauna a
17 Wākea Traditional Cultural Property and District, is identified as SIHP #50-10-23-31382. In March 2025,
18 the National Park Service listed the Mauna a Wākea Traditional Cultural Property and District on the
19 National Register of Historic Places.

20 **ARCHAEOLOGICAL AND HISTORIC RESOURCES**

21 Archaeological and historic resources within the Maunakea Lands include historic properties, areas and
22 items of cultural significance, and burials and possible burials. Most of these resources are within or
23 associated with the summit area. This section details those within or close to the Halepōhaku parcel.

24 Initial archaeological investigations in the project area were conducted in 1979 in preparation for
25 development at Halepōhaku. No archaeological sites were identified during that reconnaissance. Since
26 then, additional archaeological surveys have been carried out for various development projects, including a
27 1990 reconnaissance survey that covered the entire Halepōhaku parcel and the more recent *Archaeological*
28 *Inventory Survey of the Mauna Kea Access Road Management Corridor* (McCoy et al. 2010). While the
29 Maunakea Lands are known to contain over 200 historic properties, only four historic properties have been
30 recorded at Halepōhaku, none of which are within the project site (McCoy et al. 2009, McCoy et al. 2010).
31 Previous historic preservation studies and historic preservation efforts within or near the Mid-Level
32 Facilities at Halepōhaku are provided in the AMP prepared for the proposed action.

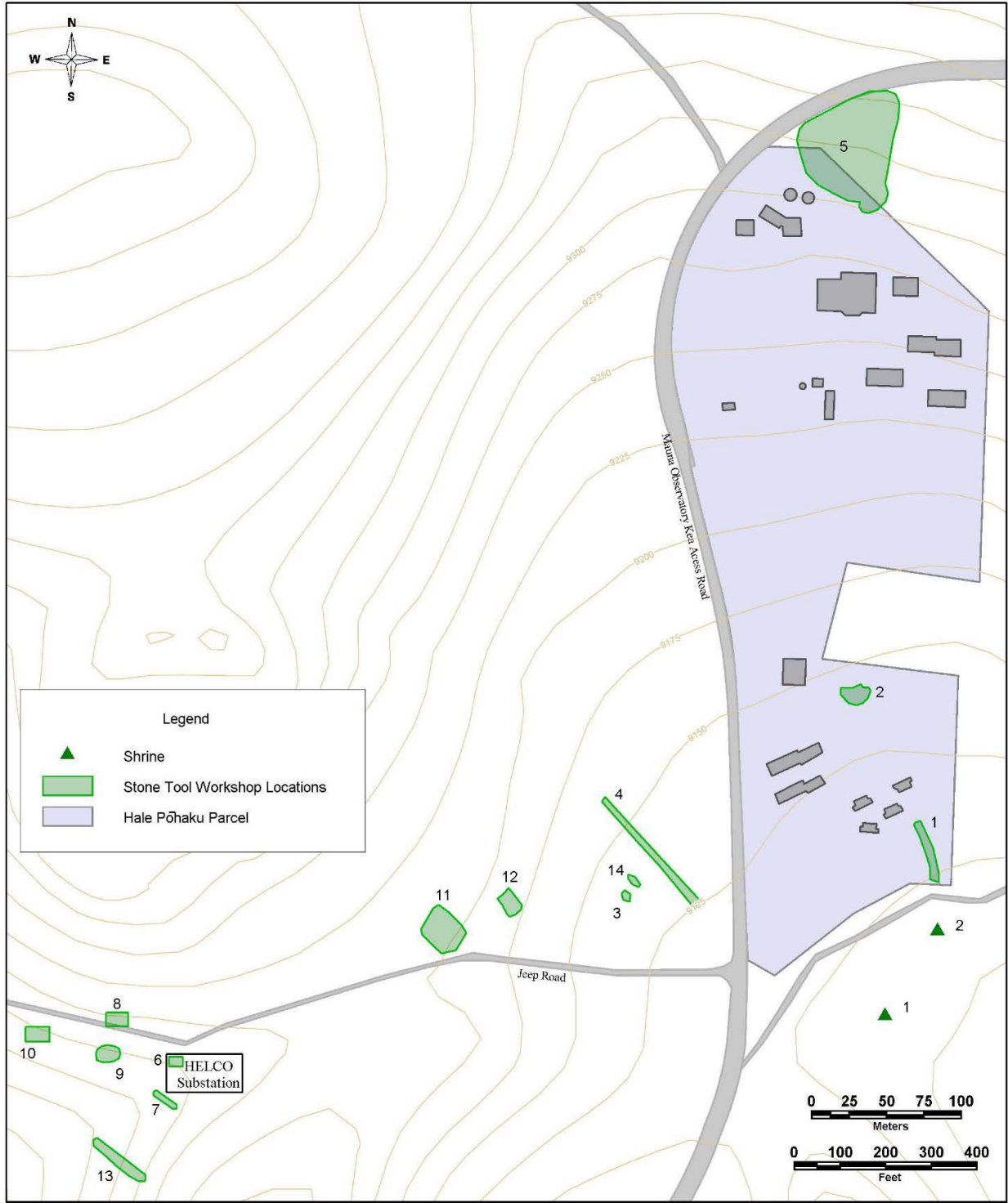
33 Historic properties recorded at Halepōhaku include several lithic scatters and two shrines, collectively
34 known as the Pu'u Kalepeamoa Complex (SIHP #50-10-23-16244), and the Halepōhaku Rest Camp and
35 Comfort Station, which consists of three historic stone buildings.

36 The Pu'u Kalepeamoa Complex was recorded between 1984 and 1986 and includes features located within
37 both the Halepōhaku parcel and the adjacent Mauna Kea Forest Reserve (Figure 4). The Pu'u Kalepeamoa
38 Complex is comprised of several tool quarry/workshop sites. The complex is believed to have been
39 multifunctional, consisting of several temporary camp sites where adzes and octopus lure sinkers were
40 manufactured. Most of the sites that make up the complex are located outside of the Halepōhaku parcel.

Figure 3. Cultural and Historic Features in the Halepōhaku Area



Figure 4. Cultural and Historic Features in the Halepōhaku Area: Pu‘u Kalepeamoia Complex
From *Maunakea Cultural Resources Management Plan* (McCoy et al. 2009)



1 The stone buildings at Halepōhaku are three uncut stone and mortar structures with constructed roofs that
2 date between 1936 and 1950. Although Hawai'i DLNR State Historic Preservation Division (SHPD)
3 classifies these stone buildings as historic properties, they have not been listed on the National Park
4 Service's National Registry of Historic Places. They are located on the northern portion of the Halepōhaku
5 parcel (Figure 3).

6 Since 2012, annual assessments of historic sites within the Maunakea Lands have been conducted. To
7 date, no significant changes have been documented to historic sites within the Halepōhaku parcel, and no
8 previously undocumented historic sites have been discovered during the assessments.

9 To date no burials have been discovered at Halepōhaku, nor are any referenced in recorded ancestral oral
10 histories. All known and reported burials within the Maunakea Lands are located at higher elevations,
11 typically near cinder cones. The *Burial Treatment Plan for the UH Management Areas on Maunakea*, finalized
12 and approved by SHPD in 2014, states that the Halepōhaku parcel does not contain any burials (Collins and
13 McCoy 2014). This is supported by extensive archaeological surveys of the parcel and a lack of burial
14 markers or surface indicators of burials. Additionally, there are no known burials at the three pu'u closest to
15 the project site.

16 The Constitution of the State of Hawai'i requires that projects with the potential to impact historic properties
17 be reviewed by SHPD to guide the implementation of measures to avoid, minimize, or mitigate those
18 impacts. In accordance with Hawai'i Revised Statutes (HRS) Chapter 6E-8, *Historic Preservation*, a review
19 of historic properties in the project area and the potential effects of the proposed action was conducted in
20 September 2025. In addition, the CMP requires an SHPD-approved AMP for projects involving ground
21 disturbance. A Chapter 6E-8 Preservation Review consultation letter was submitted to SHPD on July 17,
22 2025. The submittal included a cover letter, project maps, construction plans, photos, and satellite imagery
23 of the project area (HICRIS Submission No. 2025PR00823). An AMP was subsequently submitted to SHPD
24 for review on November 26, 2025 (HICRIS Submission No. 2025PR00823.003). On December 1, 2025
25 SHPD informed CMS that the AMP was accepted and the project initiation process could proceed. The Final
26 AMP was submitted to SHPD on March 10, 2026.

27 **EXISTING INFRASTRUCTURE AND UTILITIES**

28 **Vehicular and Pedestrian Traffic.** There are two ingress/egress points off the Mauna Kea Access Road and
29 three paved parking areas in the northern portion of the Halepōhaku parcel where the Maintenance Facility
30 Area and Astronomy Mid-Level Support Facilities are located (Figure 2). The main ingress/egress for the
31 northern portion of the Halepōhaku parcel connects the Mauna Kea Access Road to a short road named
32 John A. Burns Way that is used mainly to access the Astronomy Mid-Level Support Facilities. North of the
33 entrance to John Burns Way, there is another access road off the Mauna Kea Access Road. While MKSS
34 fleet vehicles often park in this area, there are no paved, designated parking spaces at this location.
35 Pedestrian traffic in the area is minimal and limited to MKSS employees, astronomy personnel using the
36 Mid-Level Support Facilities, and contractors working at the Maintenance Facility Area.

37 The southern portion of the Halepōhaku parcel, where the VIS is located, contains two ingress/egress points
38 off Mauna Kea Access Road and three parking areas. Visitor traffic does not pass through the project site or
39 the Maintenance Facility Area, as visitor activity is contained to the southern part of the parcel. The project
40 site is approximately 825 ft away from the VIS and visitor parking.

41 **Potable Water and Wastewater.** There are no wells near Halepōhaku. MKSS maintains two 40,000-gallon
42 storage tanks filled with water trucked in from Hilo. This water is used at Halepōhaku and is available for
43 purchase by the construction contractor. The individual wastewater system at Halepōhaku was designed
44 and installed in compliance with DOH permit requirements for onsite wastewater treatment and disposal.
45 Domestic wastewater is discharged into the system, and the treated effluent is released into disposal fields.

Sludge and solids that accumulate in the septic tanks are regularly pumped out and transported off the mountain for proper disposal.

Solid Waste. Solid waste at Halepōhaku is continuously generated by the VIS activities, food and lodging services for astronomy personnel, and operations at the Maintenance Facility Area. Typical waste includes food scraps, personal trash, cardboard, paper, and plastic packaging, as well as discarded equipment, construction debris, and other non-hazardous refuse associated with daily operations and maintenance. Elevated levels of solid waste are commonly associated with special events or construction projects.

The *Debris Removal, Monitoring and Prevention Plan* guides procedures for solid waste disposal from the Maunakea Lands to maintain “a clean and orderly condition for resource protection” (Planning Solutions, Inc. and Ho’okuleana, LLC 2022a). All permanent and temporary trash containers at Halepōhaku are required to be covered and secured to prevent access by invasive fauna and to reduce the likelihood of windblown debris. MKSS collects waste from Halepōhaku facilities daily and transports it to an off-site sanitary landfill for disposal. The plan states that solid waste generated by construction projects must be removed from the site at regular intervals and disposed of off-site.

Petroleum Products. Halepōhaku currently has three fuel USTs: one 12,000-gallon tank for diesel, and two gasoline tanks with capacities of 2,000 and 4,000 gallons. The stored fuel supports MKSS operations including road maintenance, snow removal, and natural resource management (e.g. weed whacking), as well as fueling ranger patrol and observatory vehicles. While vehicles could refuel in Hilo or Waimea if necessary, some form of on-site fuel storage at Halepōhaku or the summit remains essential for operating large and small equipment.

The existing tanks, located in front of the maintenance utilities shop, are equipped with a leak detection system that continuously monitors for unwanted releases. No unwanted releases of fuel have been detected since the installation of the leak detection system in 1998. Additionally, there is no evidence of unwanted releases occurring during the period between the tanks’ installation and the implementation of the monitoring system. MKSS routinely monitors fuel levels in the tanks. The existing fuel pumps were installed on top of asphalt, to facilitate easier clean-up in the event of an unwanted release.

Utilities. The project site contains both above ground and below ground utilities. Utilities associated with the USTs include buried fuel lines and utility conduit lines.

4 EVALUATION CRITERIA

The Department or Board will evaluate the merits of a proposed land use based upon the following eight criteria (*ref §13-5-30(c)*)

1. The purpose of the Conservation District is to conserve, protect, and preserve the important natural and cultural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare. How is the proposed land use consistent with the purpose of the Conservation District? (*ref §13-5-1*)

The proposed land use is consistent with the purposes of the Conservation District as it would promote public health, safety, and welfare by improving the fuel delivery system at Halepōhaku with minimal effects on natural resources and negligible effects on cultural resources. Installation of the improved fuel delivery system reduces the amount of fuel being stored at Halepōhaku by 66% from 18,000 gallons to ~6,000 gallons and moves all associated infrastructure above ground. The proposed improvements to the fuel storage system would facilitate clean-up and reduce the likelihood of fuel being discharged into the environment in the event of an unintended release.

Impacts to natural resources are expected to be minimal and include the removal of one māmane tree, pruning of a second māmane tree, and the removal of non-native grasses and herbaceous species. Removal and pruning of the māmane trees are necessary to maintain a recommended 10-foot vegetation free radius around all flammable structures, including the ASTs. To mitigate the loss of vegetation and support ongoing habitat enhancement activities at Halepōhaku, CMS will develop a site restoration plan. This plan will outline strategies for revegetating areas disturbed by soil excavation and vegetation clearing associated with the proposed land use. Natural Resources staff will also identify any native grasses or herbaceous plants that may be affected and evaluate their potential for salvage prior to disturbance, with temporary storage in the Halepōhaku greenhouse for future out-planting.

Since native plants require significant time to propagate and mature for out-planting, several species are currently being cultivated in the Halepōhaku greenhouse. The species selection and plant quantities were determined based on native plant frequency per square meter at Halepōhaku in general, the size of the project site, and the number of plants needed to achieve a minimum of 33% survival rate over the long term. While some species may exceed this rate, a 33% survival target aligns with the natural distribution of native plants in the area. Even with this conservative estimate, the resulting native plant presence within the project site would represent a substantial improvement over current conditions.

Additionally, BMPs including sediment waddles, silt fences, biosocks, and gravel bag filters, will be installed prior to construction to prevent erosion and control runoff from leaving the containment area, thereby reducing the potential impacts to surrounding resources. Project BMPs are detailed in Attachment 2. An independent construction monitor with the authority to ensure compliance with all applicable protocols and requirements will be on-site throughout construction activities.

In accordance with the SHPD-approved AMP, a qualified archaeologist will be present on-site throughout all ground-disturbing activities. Before work begins, the archaeologist will conduct a pre-construction briefing for the construction crew. This briefing will outline the types of archaeological materials that could potentially be encountered, including human burials, and the procedures to follow if a discovery is made. It will also review the AMP's provisions, including the archaeologist's authority to stop work immediately if archaeological resources are found. As detailed in the EA, the likelihood of encountering archaeological resources, historical resources or human burials within the project site is low given the amount of previous disturbance that has occurred within the project site. By following all applicable legislation and requirements of the AMP, no significant adverse impacts to historical resources or human burials are anticipated.

Appendix A of the EA lists all project requirements, BMPs, and mitigation measures for ensuring the conservation, protection, and preservation of important natural and cultural resources at this location (Attachment 2). Impacts will be generally mitigated by adhering to county, state, and federal laws; conditions of any DLNR approvals in the form of a site plan approval, and an AMP; permit conditions; stipulations of the Maunakea CMP; construction BMPs; and Kahu Kū Mauna, the CMS Environment Committee, and Maunakea Stewardship and Oversight Authority (MKSOA) recommendations.

2. How is the proposed use consistent with the objectives of the subzone of the land on which the land use will occur? (ref §13-5-11 through §13-5-15)

The objective of the Resource Subzone of the Conservation District (HAR §13-5-13), is to ensure, with proper management, the sustainable use of the natural resources of the area. The Office of Conservation and Coastal Lands determined that the proposed project is consistent with the identified land uses in the Resource Subzone (Attachment 3). Specifically, HAR §13-5-22 (P-8) *Structures and Land Uses, Existing (B-1)* demolition, removal, or minor alteration of existing structures, facilities, land, and equipment; and §13-5-22 (P-9) *Structures, Accessory (B-1)* construction or placement of structures accessory to existing

1 facilities is permitted upon approval of a site plan application by DLNR. Plans for the proposed project were
2 developed in accordance with county, state, and federal laws; stipulations of the Maunakea CMP; and Kahu
3 Kū Mauna, the CMS Environment Committee, and MKSOA recommendations to ensure that the proposed
4 use continues to allow for the sustainable use of the natural resources of the area.

5 **3. Describe how the proposed land use complies with the provisions and guidelines contained in**
6 **chapter 205A, HRS, entitled “Coastal Zone Management” (see 205A objectives on p. 7).**

7 The proposed land use complies with the objectives, policies and guidelines listed in HRS 205A including
8 the most applicable items regarding recreational resources, historic resources, and scenic and open space
9 resources.

10 **Recreational Resources:** The proposed project will be implemented solely within the Maintenance
11 Facility Area at Halepōhaku, which is not utilized by visitors for recreation, nor does it provide access to
12 recreational opportunities.

13 **Historic Resources:** Many of the provisions to protect cultural and historic resources are outlined in
14 existing plans (i.e. CMP (Planning Solutions, Inc. and Ho'okuleana, LLC 2022a), *Cultural Resources*
15 *Management Plan for the University of Hawaii Management Areas on Mauna Kea* (CRMP) (McCoy et al.
16 2009), and *Long-term Historic Property Monitoring Plan for the Three University of Hawai'i Management*
17 *Areas on Mauna Kea* (Gosser et al. 2014)).

18 There are no previously recorded historic properties within the project site. The closest known historic
19 property is a lithic scatter (SIHP #50-10-23-10314), part of the Pu'u Kalepeamoia Complex, located
20 approximately 165 ft west of the project site. Implementation of the proposed action is not anticipated to
21 result in any adverse impacts to SIHP #50-10-23-10314, due to the nature of the project and the distance
22 from the project footprint. To ensure the construction crew can readily identify the boundaries of the closest
23 known historic property, lithic scatter SIHP (#50-10-23-10314), that site will be clearly demarcated by
24 flagging along its western, southwestern, and southern boundaries. No project activities will take place near
25 the Halepōhaku Rest Camp and Comfort Station. Pursuant to HRS Chapter 6E-8 Historic Preservation,
26 SHPD concurs with the determination of “No historic properties affected” provided that archaeological
27 monitoring is conducted during the project in accordance with the CMP (Attachment 4). The proposed
28 project will not significantly alter the Mauna a Wākea Traditional Cultural Property and District (SIHP #50-
29 10-23-31382). As required by the CMP, all persons involved with construction activities shall attend a
30 mandatory training about the cultural and historical resources on Maunakea (Attachment 2). As required by
31 the CMP and the SHPD-approved AMP, an independent qualified archaeologist will be retained by the
32 contractor to monitor all ground disturbing activities for historic features such as artifact concentrations of
33 shell or charcoal (Attachment 4).

34 **Scenic and Open Space Resources:** The project will not affect the scenic vistas at Halepōhaku. Open
35 space that would be occupied by the ASTs was already allocated as designated parking for MKSS vehicles,
36 occupies a minimal footprint, is near existing buildings and other infrastructure, and will not affect the
37 amount of open space available for recreational use. Thus, implementation of the proposed project would
38 not represent a decrease in the quality of scenic vistas or open space. Information on preservation of natural
39 beauty and open space characteristics is also detailed in Section 4, Item 6.

1 **4. Describe how the proposed land use will not cause substantial adverse impact to existing natural**
2 **resources within the surrounding area, community or region.**

3 Attachment 2 describes the BMPs and associated requirements that will be implemented to
4 minimize adverse impacts to existing natural resources in the surrounding area, community, or region.

5 **Topography, Geology, Soils, and Geologic Hazards:** The proposed project involves excavation, grubbing,
6 and grading, and will require removal of vegetation, primarily non-native species. This may increase the
7 potential for erosion caused by rainfall-runoff and wind. To mitigate potential impacts, the construction
8 contractor will prepare an erosion and runoff control plan outlining the installation of BMPs. These may
9 include sediment waddles, silt fences, biosocks, and gravel bag filters, all designed to prevent erosion and
10 control runoff from leaving the containment area. All grubbing and grading work shall comply with Chapter
11 10 of the Hawai'i County Code, which establishes *Erosion and Sedimentation Control Standards and*
12 *Guidelines*. These standards are intended to reduce erosion and sedimentation, prevent property damage,
13 and protect public health and welfare. All BMPs installed to control erosion shall be checked and repaired
14 as needed, typically on a weekly basis during dry periods and within 24 hours after any rainfall of 0.5 inches
15 or more within a 24-hour period. During periods of extended rain, daily inspections will be conducted. The
16 contractor will be responsible for maintaining records of all inspections and repairs.

17 The proposed project involves the removal of one diesel and two gasoline USTs and associated fuel lines.
18 Removal is regulated by the DOH UST Program pursuant to HAR §11-280.1. The USTs and all associated
19 piping will be pumped empty prior to excavation and removal. In-situ sampling will be conducted at each
20 tank location and along the buried pipelines. A Licensed Engineer will prepare a sampling plan detailing the
21 protocols for pre and post UST removal testing. No unwanted releases of fuel have been detected since
22 installation of the existing USTs, and the presence of hydrocarbons in the surrounding soil is not anticipated.

23 In the event petroleum products are or have been released into the environment, the required Release
24 Response Actions detailed in HAR §11-280.1, Subchapter 6 shall be followed. Immediate required actions
25 include reporting the release to the DOH Hazard Evaluation and Emergency Response Office and the DOH
26 UST Program, taking action to prevent any further release, identifying and mitigating any safety hazards
27 (such as fire, explosion, and vapor hazards) posed by the release, and taking actions to minimize the spread
28 of contamination. HAR §11-280.1 outlines the next steps, including site assessment, abatement measures,
29 petroleum removal, investigations for soil (and when necessary, groundwater) contamination, clean-up
30 criteria, and notification and reporting regarding the release.

31 The two proposed ASTs are designed to reduce the risk of unwanted fuel releases during regular operations
32 and in the event of an earthquake. Key safety features include double-walled construction for secondary
33 containment, integrated leak detection sensors, and an emergency shut off valve for each tank. The ASTs
34 will be installed on a 6-inch-thick concrete pad with a 6-inch raised curb on all sides, which provides
35 another layer of containment. The steel tanks will be securely anchored to the concrete pad, which will be
36 reinforced with rebar and anchored into the ground. All design elements and safety features of the ASTs will
37 meet County of Hawai'i Fire Department, Fire Prevention Branch requirements.

38 The proposed project will require fill to be placed in trenches and voids where USTs and associated
39 infrastructure have been removed. The amount and types of backfill include 2½" minus drain rock, and 1½"
40 minus base course rock, with the top one foot being native cinder. MKSS has an on-site stockpile of local
41 cinder for road maintenance and other projects on the Maunakea Lands. Cinder from this stockpile, along
42 with any cinder excavated as part of the proposed project, will be used as backfill in the top portion of the
43 trenches and voids. These sources are expected to meet the cinder requirements for the project. If
44 additional material is needed, it would be sourced from locations on Maunakea at a similar elevation to

1 Halepōhaku. Upon project completion, areas where vegetation was removed, and other bare areas, will be
2 planted with native plants from the Halepōhaku greenhouse to stabilize soils and mitigate erosion.

3 The proposed project involves the use of motorized equipment. To prevent potential soil contamination from
4 fuel or fluid leaks, project BMPs require the use of a drain pan beneath stationary equipment to capture any
5 unwanted releases.

6 **Water Resources:** An independent construction monitor will be engaged for the proposed project to ensure
7 compliance with all regulatory requirements and applicable BMPs. This includes adherence to water quality
8 and pollution control standards under HAR §11-54 (Water Quality Standards); HAR §11-55 (Water Pollution
9 Control); and Chapter 10 of the Hawai'i County Code (Erosion and Sedimentation Control), as well as any
10 additional permit conditions. BMPs will be implemented to prevent increased runoff from the project site
11 during construction and to meet state and county requirements. These measures include diverting
12 stormwater away from construction areas using appropriate controls and containing any construction-
13 related discharge with sediment waddles, biosocks, and gravel bag filters. A lined basin will be used for
14 equipment washing to capture and contain any sediment or pollutants in wastewater. All erosion control
15 BMPs will be inspected and maintained as needed, typically on a weekly basis during dry conditions, within
16 24 hours following rainfall of 0.5 inches or more in a 24-hour period, and daily during extended rain events.
17 The contractor will maintain records of all inspections and any required repairs.

18 The proposed project includes the installation of native plants in areas where vegetation was removed
19 during project implementation, as well as in other bare areas as part of ongoing habitat enhancement efforts
20 at Halepōhaku. Increased plant cover will help reduce the rate of stormwater runoff by capturing water and
21 allowing more time for it to filter into the soil.

22 The proposed project would add approximately 1,200 sq ft of paved surface within the Maintenance Facility
23 Area, primarily in a location where infiltration is already poor due to compacted soil from vehicle parking. As
24 a result, the net increase in stormwater runoff from the project site is expected to be negligible. No other
25 project activities are anticipated to affect the existing surface water runoff regime.

26 **Flora:** In accordance with recommendations from the Hawai'i Wildfire Management Organization, a ten-foot
27 vegetation free buffer will be maintained around all flammable structures. To comply with this guidance,
28 one māmane tree located within five to ten feet of the proposed ASTs would be removed. Vegetation
29 regrowth within this buffer will be cleared regularly. Another large māmane tree located just outside the ten-
30 foot buffer would remain, though pruning may be required every two years to maintain the fire-safe distance;
31 pruning will be limited to branches extending into the buffer. No māmane trees are located within areas
32 designated for trenching and excavation.

33 Some vegetation removal, primarily non-native grasses and herbaceous species, will also be necessary to
34 implement the project. To mitigate impacts on native plants, including the removed māmane tree, and to
35 support ongoing habitat enhancement activities at Halepōhaku, CMS will develop a site restoration plan.
36 This plan will outline strategies for revegetating areas disturbed by soil excavation and vegetation clearing.
37 Natural Resources staff will identify any native grasses or herbaceous plants that may be affected, evaluate
38 whether they can be salvaged prior to disturbance, and temporarily store them in the Halepōhaku
39 greenhouse for future out-planting.

40 Since native plants require considerable time to propagate and mature, several species are currently being
41 cultivated in the Halepōhaku greenhouse. Species selection and plant quantities were determined based
42 on native plant density per square meter at Halepōhaku, the size of the project site, and the number of plants
43 needed to achieve a minimum of 33% survival rate (Table 4). While some species may exceed this target, a
44 33% survival rate aligns with the natural distribution of native plants in the area. Even with this conservative

estimate, the restored native plant presence within the project site would represent a substantial improvement over current conditions.

Table 4. Native Plant Out-Planting and Minimum Survival Targets

Scientific Name	Hawaiian Name	Common Name	Number of Plants to be Out-Planted	Minimum Acceptable Survival
Trees and Shrubs				
<i>Chenopodium oahuense</i>	‘āweoweo	goosefoot	9	3
<i>Dubautia ciliolata ciliolata</i>	na‘ena‘e	lava dubautia	3	1
<i>Geranium cuneatum hololeucum</i>	Hinahina	silver geranium	3	1
<i>Leptecophylla tameiameiaie</i>	pūkiawe	-	3	1
<i>Sophora chrysophylla</i>	Māmane	-	36	1
Ferns				
<i>Asplenium trichomanes</i>	olali‘i	maidenhair spleenwort	3	1
Herbaceous Species				
<i>Agrostis avenacea</i>	he‘upueo	Pacific bentgrass	3	1
<i>Agrostis sandwicensis</i>	-	Hawai‘i bentgrass	3	1
<i>Argemone glauca</i>	pua kala	Hawaiian prickly poppy	3	1
<i>Carex macloviana</i>	-	St. Malo's sedge	3	1
<i>Carex wahuensis</i>	-	O‘ahu sedge	3	1
<i>Deschampsia nubigena</i>	-	alpine hairgrass	6	2
<i>Pseudognaphalium sandwicenseum</i>	‘ena‘ena	-	3	1
<i>Stenogyne microphylla</i>	-	littleleaf stenogyne	12	4
<i>Stenogyne rugosa</i>	mā‘ohi‘ohi	native mint, little leaf stenogyne	6	2
<i>Trisetum glomeratum</i>	pili uka	mountain pili	6	2

Fauna (Mammals, Birds, and Invertebrates): To avoid adverse impacts to Hawaiian hoary bats, all Avoidance and Minimization Measures provided by USFWS will be followed. Woody plants taller than 15 ft will not be removed, disturbed, or trimmed during the bat birthing and pup-rearing season (June 1 through September 15). Outside of this season, any woody plants or trees scheduled for removal or pruning will be inspected immediately prior to disturbance for the presence of bats. If a bat is detected, work will not proceed until the animal has left on its own. To reduce entanglement risks, no barbed wire fencing will be installed as part of the proposed project. Although one māmane tree will be removed and another pruned, the presence of numerous māmane trees in the project area ensures that this would not result in significant adverse impacts to Hawaiian hoary bats.

To avoid adverse impacts to federally protected bird species, USFWS Avoidance and Minimization Measures will also be implemented. Construction will avoid nighttime lighting to reduce the risk of seabird fledgling fallout.⁸ If a nēnē is observed within 100 ft of ongoing work, activities will be temporarily suspended until the bird leaves voluntarily. Feeding of nēnē is prohibited.

The removal of one māmane tree and the pruning of another is not expected to significantly affect food availability or habitat for the three honeycreeper bird species that may be occur at Halepōhaku, as māmane trees are widely distributed throughout this elevational zone on Maunakea. These birds are also more likely to be use trees father from the built environment. Prior to any tree removal or pruning, all trees will be checked for the presence of native birds or active nests. If a bird or active nest is found, work will not proceed until the bird leaves voluntarily or chicks have fledged.

To prevent the introduction of invasive invertebrates, procedures in the *Maunakea Invasive Species Management Plan* (ISMP) will be followed (Vanderwoude et al. 2015). This includes cleaning vehicles, equipment, and personal belongings, inspecting imported fill material, and conducting monitoring—monthly during construction and quarterly thereafter—to detect any invasive invertebrates early. Monitoring will cover both staging areas for materials and equipment and locations where new fill is placed.

No adverse impacts to native invertebrates are anticipated as the project site is an active work area and activities are similar to those routinely conducted in the area. The primary concern is introduction of non-native species via fill, equipment, or materials. Required measures outlined in the CMP, ISMP, and BMPs—including inspections, prevention protocols, and ongoing monitoring—will minimize this risk. If invasive invertebrates are detected, ISMP protocols will be implemented immediately, followed by monitoring to ensure effective eradication.

Habitat: The proposed land use will occur on previously disturbed ground. Habitat within the project site is generally degraded, though a few mature māmane trees may provide refuge and food for certain species.

The introduction and spread of non-native and invasive species is a major concern across all Maunakea Lands, particularly for projects involving earthmoving or the import of materials and equipment from outside the area. To address this risk, CMS implements an Invasive Species and Control Program guided by the ISMP, which includes regular monitoring and inspection of incoming equipment and materials.

The proposed project will also include habitat enhancement through out-planting of native species and ongoing monitoring of invasive species. Native plants are propagated and cultivated in the Halepōhaku greenhouse, minimizing the risk of introducing pests or disease to the site. In accordance with the CMP, these enhancement efforts will be monitored monthly for at least three years to evaluate their effectiveness. Together, habitat enhancement and invasive species control are expected to improve existing habitat conditions within the project site, representing a beneficial effect rather than a significant adverse impact.

Air Quality: The proposed project is not expected to have a measurable effect on regional air quality. Localized effects would be minimal and limited to the construction period.

During construction, there would be a short-term increase in exhaust emissions from heavy machinery, gas-powered tools, and additional worker commutes. However, these emissions would be minor relative to the broader area, and prevailing trade winds would aid in dispersing pollutants. Upon completion of construction, emissions from these sources would cease. Over the long term, the project would result in a slight increase in exhaust emissions due to an increase in gasoline deliveries to the site—from approximately five to ten times per year—which is not significant relative to overall vehicular traffic at Halepōhaku.

⁸ 'Fallout' is the grounding of fledgling seabirds due to disorientation associated with being attracted to light.

Dust generation could occur during excavation for UST removal and associated infrastructure, as well as backfilling and grading. Low levels of dust may also result from heavy equipment operating on unpaved surfaces. All work will comply with DOH air pollution control regulations (HAR §11-60.1, Fugitive Dust), and the contractor would be responsible for minimizing dust impacts within the project site and surrounding areas. Control measures, such as spraying water on exposed surfaces, will be implemented as needed. If the existing MKSS water supply is insufficient, the contractor may bring an additional water truck to the site. Dust-generating activities, including trenching, backfilling, and grading, will be suspended during high winds that prevent compliance with regulations.

With these mitigation measures in place, temporary changes in air quality associated with the project do not constitute a significant adverse impact.

Petroleum Products: Upon project completion, Halepōhaku will have two 3,000-gallon ASTs, one for diesel and one for gasoline. This reduces the total fuel storage capacity from 18,000 gallons to ~6,000 gallons (a 66% reduction); however MKSS has determined that this capacity is sufficient based on current fuel consumption and minimum delivery requirements. The larger diesel tank was originally installed to fuel generators that powered Halepōhaku prior to connection to utility lines. Diesel demand has since decreased significantly as these generators are no longer in service. The ASTs will be installed and filled before removing the USTs and associated infrastructure to ensure continuous fuel availability.

Project BMPs will prevent petroleum products from contaminating surrounding resources during construction. Fuel or hydraulic fluid will only be stored within the ASTs or the USTs prior to removal. Equipment fueling and maintenance will occur in the vehicle storage area, protected by a gravel bag containment berm. Drip pans will be placed under idle vehicles to capture any leaks. In the event of a release, the contractor will immediately contain the spill using sandbags, remove contaminated soil and sandbags for proper disposal, and employ a hazardous materials vacuum truck if fuel has ponded.

Currently, fuel is distributed via supply lines from USTs to dispensing pumps and the common building boiler room. The new ASTs will be self-contained with integrated dispensing pumps, eliminating separate distribution lines and reducing the footprint where potential releases could occur. The ASTs will be installed on a 6-inch-thick concrete pad with a 6-inch-high spill containment berm. Safety features include overfill detection with automatic shut off, leak detection sensors, and a clearly marked emergency electrical shut off button. These measures ensure that petroleum products are effectively contained and that the risk of environmental contamination is minimized.

5. Describe how the proposed land use, including buildings, structures and facilities, is compatible with the locality and surrounding areas, appropriate to the physical conditions and capabilities of the specific parcel or parcels.

The project site is located within the Maintenance Facility Area at Halepōhaku, an area with existing infrastructure, including roads, buildings, and paved parking areas, where human activity and vehicle noise are common. The project does not increase development on the Halepōhaku parcel but rather modifies the existing infrastructure. The current fuel storage system, consisting of USTs and associated infrastructure, will be replaced with ASTs and the supporting infrastructure needed to operate them. This replacement will reduce the overall footprint of the fuel storage system at Halepōhaku.

The proposed land use will result in minor improvements to the existing infrastructure, ensure compliance with the Hawai'i DOH 2028 regulatory deadline, and maintain fuel access to support MKSS operations including road maintenance, snow removal, natural resource management (e.g. weed whacking), and fueling for ranger patrol and observatory vehicles.

6. Describe how the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon.

Scenic vistas and open space characteristics in the vicinity of the proposed project would be preserved by limiting improvements to areas in the vicinity of existing infrastructure and siting new infrastructure to minimize visibility from Mauna Kea Access Road. The project does not include any new lighting. Temporary construction equipment and materials may cause short-term visual impacts; however these effects would be brief. BMPs implemented during construction to control erosion and run-off are expected to prevent any net change to the surrounding natural beauty. Habitat enhancement efforts, including the out-planting of native species, will begin immediately after construction and are expected to improve scenic quality by increasing native vegetation cover. Overall, the proposed project would not affect scenic resources due to the concealed placement of the ASTs and the temporary nature of construction related activities. Planned habitat restoration efforts will further enhance the visual quality of the project area.

7. If applicable, describe how subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.

Not applicable. There would not be any subdivision of land. The proposed land use would not increase the intensity of uses on the parcel.

8. Describe how the proposed land use will not be materially detrimental to the public health, safety and welfare.

The proposed land use would not be materially detrimental to public health, safety, or welfare due to its limited scope and small scale. The project would be of similar character and intensity as existing uses. Adherence to BMPs during construction will minimize increases in air pollution from machinery exhaust and airborne dust, with all work complying with HAR §11-60.1-33, *Fugitive Dust*. Construction activities are expected to be completed within one year, and long-term machinery use will be limited to periodic maintenance.

Project BMPs will also prevent petroleum products from contaminating surrounding resources. Fuel and hydraulic fluid will only be stored in the ASTs or USTs prior to removal. Equipment fueling and field maintenance will occur in the vehicle storage area, which is protected by a gravel bag containment berm. Drip pans will be placed under idle vehicles to capture any leaks. In the event of a release, the contractor will immediately contain the spill with sandbags, remove and properly dispose of any contaminated soil and materials, and, if fuel has pooled, deploy a hazardous materials vacuum truck.

The upgraded fuel storage system incorporates multiple safety features to prevent environmental contamination. These include overfill detection sensors with automatic shut off, leak detection sensors, a clearly marked emergency electrical shut off button, and installation on a single concrete slab with a 6-inch-high spill containment berm.

5 CULTURAL IMPACTS

Articles IX and XII of the State Constitution, other state laws, and the courts of the State, require government agencies to promote and preserve cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups.

Please provide the identity and scope of cultural, historical, and natural resources in which traditional and customary native Hawaiian rights are exercised in the area.

The CRMP (McCoy et al. 2009), a sub-plan of the CMP, was approved by BLNR on March 25, 2010. It was developed, in part, to enhance understanding of Maunakea's rich cultural heritage and guide the preservation and management of its cultural resources. The CRMP describes both traditional and customary, as well as contemporary, cultural practices associated with Maunakea, most of which occur at higher elevations of the mountain. In November 2023, all state public lands on Maunakea from 6,500 ft to the summit were listed on the Hawai'i Register of Historic Places as the Mauna a Wākea Traditional Cultural Property and District (SIHP #50-10-23-31382).

Information on the identity and scope of cultural, historical, and natural resources where traditional and customary Native Hawaiian rights are exercised is provided in the Existing Conditions section of this Site Plan Approval Application. These include visitation to a contemporary ahu located in the DLNR-managed silversword enclosure, visitation to shrines located in the Mauna Kea Forest Reserve, and collection of ethnobotanical resources. Historic properties recorded within or near the Halepōhaku parcel are not known to be frequented by Native Hawaiian practitioners; however, access is permitted provided historic properties are not damaged.

Identify the extent to which those resources, including traditional and customary Native Hawaiian rights, will be affected or impaired by the proposed action.

Resources traditionally used by Native Hawaiians are not expected to be affected or impaired by the proposed action, primarily due to the project's limited footprint. The project would not restrict access to areas used for gathering cultural resources or subsistence hunting and gathering, and culturally or historically significant sites would remain accessible. The only potential effect may be temporary disruption of quiet conditions associated with the exercise of traditional and customary practices. During construction, intermittent and short-term noise would occur, primarily within the Maintenance Facility Area.

What feasible action, if any, could be taken by the Board of Land and Natural Resources in regards to your application to reasonably protect Native Hawai'i rights?

The CMP, including the CRMP (McCoy et al. 2009) and *Public Access Plan* (Sustainable Resources Group Intn'l, Inc., Island Planning, and Island Transitions, LLC 2010), provides guidance for maintaining and accommodating access for cultural practitioners to culturally significant sites on Maunakea. These plans, approved by the BLNR and implemented by CMS, require all construction personnel to complete mandatory training on Maunakea's cultural and historical resources.

In accordance with the CMP and the SHPD-approved AMP, an independent, qualified archaeologist retained by the construction contractor will monitor all ground disturbing activities for historic features, such as shell or charcoal concentrations. If potential or suspected historical features are encountered, work will be immediately suspended, and CMS will notify SHPD. As with other projects on Maunakea Lands, quiet periods can be requested during construction to accommodate cultural practices. Concerned individuals can make inquiries at the VIS, speak with the construction monitor, or contact CMS directly.

6 CHAPTER 205A – COASTAL ZONE MANAGEMENT

Land uses are required to comply with the provisions and guidelines contained in Chapter 205A, Hawai'i Revised Statutes (HRS), entitled "Coastal Zone Management," as described below:

- **Recreational resources:** Provide coastal recreational opportunities accessible to the public.
- **Historic resources:** Protect, preserve, and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management 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, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.
- **Economic uses:** 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, subsidence, and pollution.
- **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.
- **Beach protection:** Protect beaches for public use and recreation.
- **Marine resources:** Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

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7 *Flow Hazard Zones, Island of Hawaii: U.S. Geological Survey Miscellaneous Field Studies Map MF-2193,*
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8 CERTIFICATION

I hereby certify that I have read this completed application and that, to the best of my knowledge, the information in this application and all attachments and exhibits is complete and correct. I understand that the failure to provide any requested information or misstatements submitted in support of the application shall be grounds for either refusing to accept this application, for denying the permit, or for suspending or revoking a permit issued on the basis of such misrepresentations, or for seeking of such further relief as may seem proper to the Land Board.

I hereby authorize representatives of the Department of Land and Natural Resources to conduct site inspections on my property. Unless arranged otherwise, these site inspections shall take place between the hours of 8:00 a.m. and 4:30 p.m.

Signature of authorized agent(s) or if no agent, signature of applicant

AUTHORIZATION OF AGENT

I hereby authorize Kristin Duin of Sustainable Resources Group Intn'l, Inc. to act as my representative and to bind me in all matters concerning this application.

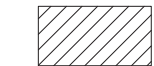
Signature of applicant(s)

1 **ATTACHMENT 1: PROJECT SITE PLANS**

2



- ### LEGEND



TO BE REMOVED OR DEMOLISHED

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

John A. Fong
SIGNATURE

architect

consultar

UNIVERSITY OF HAWAII
STATE OF HAWAII

project: **HALE POHAKU FUEL STORAGE - 2028
COMPLIANCE UPGRADE - REMOVAL**

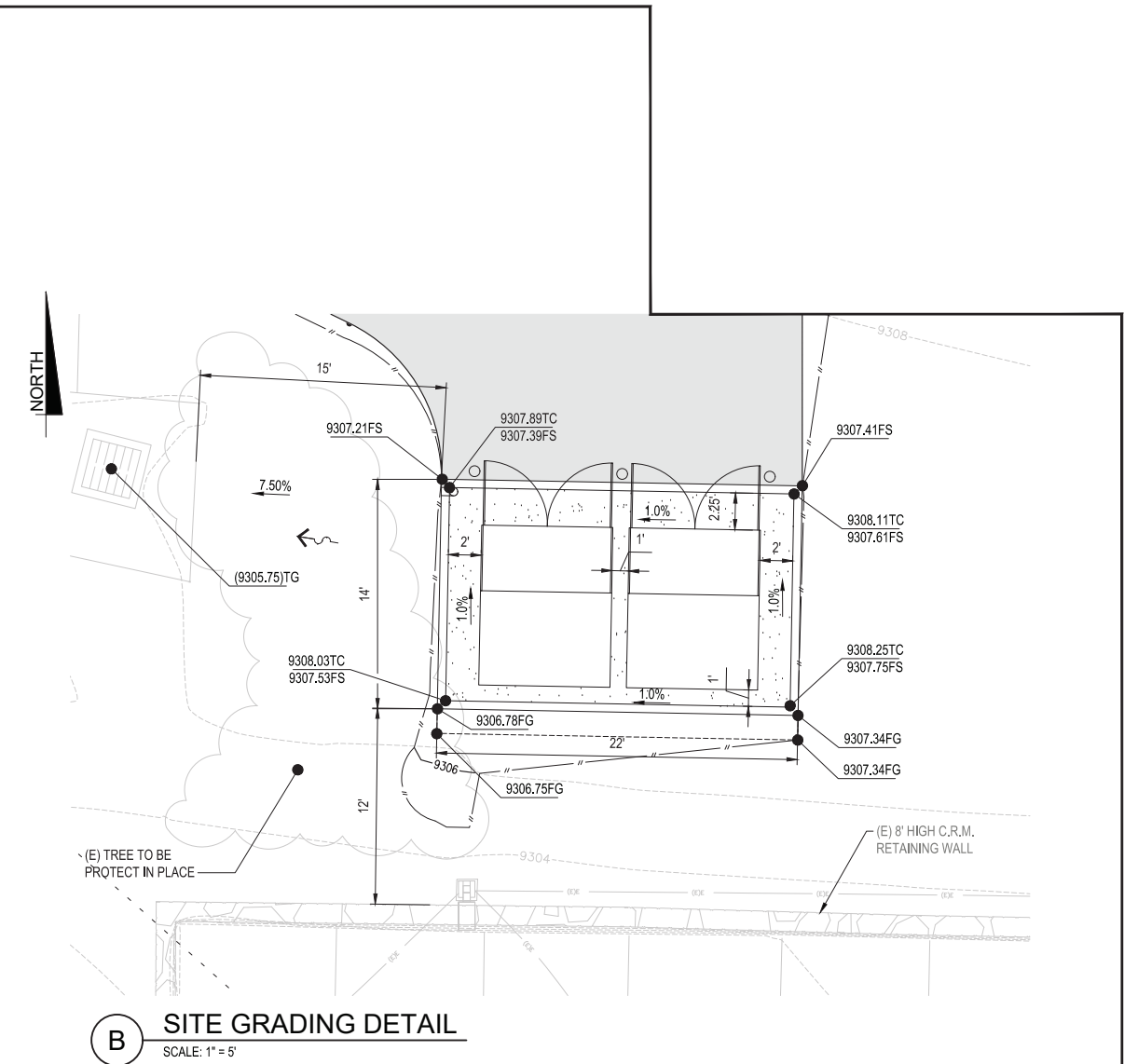
UNIVERSITY OF HAWAII,
INSTITUTE FOR ASTRONOMY

drawing title:

EXISTING/DEMOLITION PLAN

phase:		EPI project no. 12027-23-01	sheet no. C-101
designed by: RDC	checked by: CR	UH project no. 0010391-01-A	
drawn by: RDC	approved by: YWF	date 05/22/2024	
drawing scale:		AS NOTED	

DATE PRINTED: Wednesday, May 22, 2024



ATTACHMENT 2: PROJECT REQUIREMENTS, BMPs, AND MITIGATION MEASURES

Project Requirements

The proposed action has the potential to impact to resources within the Halepōhaku parcel. Impacts are generally mitigated by adhering to county, state, and federal laws; conditions of any DLNR approvals in the form of site plan approvals or CDUPs, and an AMP; permit conditions; stipulations of the Maunakea CMP; construction BMPs; and Kahu Kū Mauna, the CMS Environment Committee, and MKSOA recommendations. This attachment includes details on requirements and BMPs and other requirements mitigate impacts to those resources.

Required Under the Maunakea Comprehensive Management Plan. As the BLNR-approved management plan for the Maunakea Lands, the CMP contains management actions to protect the natural and cultural resources of Maunakea. The CMP states “The desired outcome with respect to construction is to minimize adverse impacts to resources during all phases of construction through use of innovative best management practices.” Contractors, through their construction contracts with the applicant, must comply with all applicable requirements of the CMP.

Construction Drawings and Contractor Notes. The construction drawings and contractor notes state that “All construction activity will incorporate the listed BMPs without modification.” The contractor notes that BMPs will be implemented from the first day of construction and will not be removed until work items are complete and vegetation cover is reestablished. The first day of construction refers to the first day supplies and machinery are mobilized to the project site.

Maunakea Invasive Species Management Plan. All construction requires compliance with the MKMB-approved Maunakea ISMP (Vanderwoude et al. 2015). The ISMP details measures to be taken to avoid the introduction and spread of invasive species such as cleaning and inspection procedures for machinery and materials; maintenance of the construction staging area; monitoring and control for invasive species; and trash removal.

Hawai‘i Administrative Rules and Project Permits. State laws and permit requirements are in place to ensure projects do not conflict with the goals, objectives, policies, and priorities of the state. All construction requires compliance with applicable HAR and permit requirements.

USFWS Avoidance and Minimization Measures. USFWS supplies a list of measures to be followed to avoid and minimize potential project impacts on endangered and threatened species.

Project BMPs and Requirements

Guidance	Instruction	Description
GENERAL		
2022 CMP	CMP P-1 (Permitting and Enforcement)	Comply with all applicable federal, state, and local laws, regulations, and permit conditions related to activities in the UH Management Areas.
2022 CMP	CMP EO-2 (Require User Orientation and a Certificate of Completion)	All visitors must complete a Maunakea User Orientation that covers Maunakea's natural and cultural resources, and mountain safety. This includes but is not limited to visitors, employees, astronomy staff, contractors, and commercial and recreational users. Any person behaving in a manner inconsistent with the principles established in the Maunakea User Orientation will be required to leave the project site.
2022 CMP	CMP C-1 (Require Independent Construction Monitor)	Require an independent construction monitor who has oversight and authority to insure that all aspects of ground based work comply with protocols and permit requirements.
2022 CMP	CMP C-2 (Best Management Plan for Construction Practices)	Each project must have a "Best Management Practices (BMP) Plan for Construction Practices" that covers a range of topics and incorporates sustainable practices.
2022 CMP	CMP NR-1 (Limit Threats Through Management of Activities and Uses)	UH shall implement measures to minimize or prevent habitat alteration and disturbance. For the Proposed Action this includes maintaining infrastructure in a manner that is compliant with rules and regulations and limits the potential for adverse impacts to resources.
Construction Drawings	BMP (required)	The contractor will coordinate all work with a construction monitor hired by MKSS to conduct site assessment activities required by the DOH UST Section for system closures. Unless otherwise directed by the construction monitor, the contractor will only conduct work on this project when the construction monitor is present at the project site.
Construction Drawings	BMP (required)	The contractor will carry out the work in a way that allows the construction monitor to perform the required site assessment activities. This includes but is not limited to providing access to excavated material and providing access to all excavations. No material associated with this project may leave the project site until authorized by the construction monitor.
CONTROL OF EROSION, SEDIMENTATION, AND DUST		
Grading Permit	Permit Requirements	All grading operations shall be performed in conformance with the applicable provisions of HAR §11-54, Water Quality Standards and HAR §11-55, Water Pollution Control, and Hawai'i County Code Chapter 10, Erosion and Sedimentation Control Standards and Guidelines.
Grading Permit	Permit Requirements	Fugitive dust control during grubbing and grading activities shall meet requirements of HAR §11-60.1, Air Pollution Control.

Guidance	Instruction	Description
Grading Permit	Permit Requirements	Solid waste disposal during grubbing and grading activities shall meet requirements of HAR §11-58.1, Solid Waste Management Control.
HAR §11-55 Appendix C	HAR Requirements	A specific person shall be responsible for erosion and sediment controls at the project site.
HAR §11-55 Appendix C	HAR Requirements	Clearing and grubbing shall be held to the minimum necessary for grading and equipment operation.
HAR §11-55 Appendix C	HAR Requirements	Construction shall be sequenced to minimize the exposure time of the cleared surface area.
HAR §11-55 Appendix C	HAR Requirements	Construction shall be staged or phased for large projects. Areas of one phase shall be stabilized before another phase is initiated. Stabilization shall be accomplished by temporarily or permanently protecting the disturbed soil surface from rainfall impacts and runoff.
HAR §11-55 Appendix C	HAR Requirements	Erosion and sediment control measures shall be in place and functional before earth moving operations begin. These measures shall be properly constructed and maintained throughout the construction period.
HAR §11-55 Appendix C	HAR Requirements	All BMPs installed to reduce erosion shall be checked and repaired as necessary, for example, weekly in dry periods and within 24 hours after any rainfall of 0.5 inches or greater within a 24-hour period. During prolonged rainfall, daily checking is necessary. The contractor shall maintain records of checks and repairs.
HAR §11-55 Appendix C	HAR Requirements	Pre-construction vegetative ground cover shall not be destroyed, removed, or disturbed more than twenty calendar days prior to land disturbance.
HAR §11-55 Appendix C	HAR Requirements	Temporary soil stabilization with appropriate vegetation shall be applied on areas that will remain unfinished for more than thirty calendar days.
HAR §11-55 Appendix C	HAR Requirements	Permanent soil stabilization with perennial vegetation or pavement shall be applied as soon as practical after final grading. Irrigation and maintenance of the perennial vegetation shall be provided until the vegetation takes root.
HAR §11-55 Appendix C	HAR Requirements	Erosion control measures shall be designed according to the size of disturbed or drainage areas to detain runoff and trap sediment.
HAR §11-60.1-33. Fugitive Dust	HAR Requirements	The contractor shall keep the project and surrounding areas free from dust nuisances.
Construction Drawings	BMP (required)	The contractor shall remove all silt and debris deposited in drainage facilities, roadways, and other areas resulting from project work.
Construction Drawings	BMP (required)	The contractor shall sod or plant all slopes and exposed areas immediately after the grading work has been completed.
Construction Drawings	BMP (required)	Pre-construction vegetative ground cover shall not be destroyed, removed, or disturbed more than twenty calendar days prior to land disturbance.
Construction Drawings	BMP (required)	Removed vegetation will be disposed of at the East Hawaii Sanitary Station.
Construction Drawings	BMP (required)	During construction, preventative measures shall be used to control foreseeable dust, erosion, or sedimentation problems which may arise as the job progresses.

Guidance	Instruction	Description
Construction Drawings	BMP (required)	The contractor shall conduct grading operations so that excavation, embankment and imported material shall be dampened with water during grading operations at all times.
Construction Drawings	BMP (required)	Water truck and/or temporary sprinklers shall be available on the jobsite at all times to ensure bare earth does not create dust problems. However, dust control watering shall not be excessive so that runoff will not be generated from watering.
Construction Drawings	BMP (required)	Stormwater flowing towards the construction areas shall be diverted using the appropriate control measures as practical.
Construction Drawings	BMP (required)	Erosion control measures shall be designed to detain and trap sediment.
POLLUTANTS		
HAR §11-54-04	HAR Requirements	Water must be discharged in a manner that the discharge shall not cause or contribute to a violation of the basic water quality criteria.
Construction Drawings	BMP (required)	The construction site manager will conduct a site inspection daily for any potential pollution sources.
Construction Drawings	BMP (required)	All equipment stored onsite shall be in good working order with no fuel, oil, transmission fluid, or hydraulic leaks. Equipment shall be inspected daily. Any equipment found to be faulty shall be repaired immediately with necessary BMP precautions taken to prevent and contain storm water contamination. Equipment which cannot be repaired within the same working day, shall be removed from the site to an appropriate repair facility.
Construction Drawings	BMP (required)	When motorized equipment is stationary, a drain-pan must be in place for catching any fuel or fluid leaks.
Construction Drawings	BMP (required)	No fuel or hydraulic fluid shall be stored onsite. Fueling or field maintenance of equipment shall be performed in vehicle storage area that is protected with a gravel bag containment berm. Drip pans will be placed under vehicles when onsite while not in use so that in the event of a spill or leak from the equipment the spill would be contained. The contractor will be required to stop the flow of all fluid. If necessary, the spill will be contained by placing sandbags around the spill area and any contaminated soil and sandbags shall be placed in containers and removed and disposed of properly. In the case of ponding fuel, a hazardous materials vacuum truck will remove the fuel.
Construction Drawings	BMP (required)	A basin with an impermeable liner shall be installed and used for washing all equipment.

Guidance	Instruction	Description
INVASIVE SPECIES		
2022 CMP & ISMP	CMP C-9 (Inspection of Construction Materials to Prevent Introduction of Invasive Species) & required of all projects that require a Conservation District Use Permit.	The <i>Maunakea ISMP</i> (Vanderwoude et al. 2015) requires that all equipment and materials brought on-site for construction arrive free from any invasive flora or fauna. Equipment shall be thoroughly cleaned prior to arriving at the site. All construction equipment, materials, and crates and containers carrying materials and equipment brought on-site shall be inspected for invasive species by a DLNR-approved biologist prior to those materials entering UH Managed Lands on Maunakea. Inspections shall not occur on UH Managed Lands on Maunakea, at state or county parks, along public roadsides, or on DHHL lands. The contractor will be provided with the MKMB approved Standard Operating Procedure 02: Inspection of Vehicles, Construction Materials, Scientific Equipment and Supplies, which outlines prevention strategies.
2022 CMP & ISMP	CMP NR-16 (Conduct Regular Long-Term Monitoring)	Continue long-term invasive species monitoring involving monitoring/early detection, prevention, rapid response, and control efforts.
Construction Drawings	BMP (required)	All perishable items including food, food wrappers, and containers, etc. shall be removed from the site at the end of each day.
PROTECTED SPECIES		
USFWS	USFWS Avoidance and Minimization Measures	Hawaiian hoary bats, 'ōpe'ape'a (<i>Lasiurus semotus</i>) Do not disturb, remove, or trim woody plants greater than 15 ft tall during the bat birthing and pup rearing season (June 1 through September 15).
USFWS	USFWS Avoidance and Minimization Measures	Do not use barbed wire for fencing.
USFWS	USFWS Avoidance and Minimization Measures	Use of lighting from sunset to sunrise is prohibited.
USFWS	USFWS Avoidance and Minimization Measures	Hawaiian goose, nēnē (<i>Branta sandvicensis</i>) If a nēnē appears within 100 ft (30.5 m) of ongoing work, all activity shall be temporarily suspended until the bird leaves the area of its own accord. Feeding of nēnē is prohibited.

Guidance	Instruction	Description
HABITAT		
Construction Drawings	BMP (required)	Ensure that construction debris, personal trash (e.g. food wrappers) loose tools or equipment are not left unattended and are properly stored at the end of each day.
2022 CMP	CMP NR-9 (Increase Native Plant Diversity Through an Outplanting Program)	UH has a greenhouse within the Halepōhaku parcel and will continue to maintain and utilize it to propagate native plants for outplanting to the UH Managed Lands on Maunakea. All plants in the greenhouse will be grown from seeds collected locally within the ecotype and approved by DLNR through CMS's seed collecting permit which will be renewed annually. CMS will continue to outplant subalpine species within Halepōhaku and potentially expand the program to the road corridor and neighboring Forest Reserve if needs are met within the UH Managed Lands on Maunakea.
2022 CMP	CMP NR-10 (Incorporate Mitigation Plans Into Project Planning and Conduct Mitigation Following New Development)	Mitigation and BMP plans are required for projects as appropriate. ⁹
2022 CMP	CMP NR-12 (Plan and Conduct Habitat Restoration Activities, as Needed)	The greenhouse at Halepōhaku will continue to be used to support restoration activities. Restoration effectiveness should be monitored for at least three (3) years following completion to assess success.
FIRE		
Construction Drawings	BMP (required)	All running vehicles and machinery shall remain on paved or gravel surfaces whenever possible.
Construction Drawings	BMP (required)	Unattended machinery and vehicles may not be left running/idling.
Construction Drawings	BMP (required)	A water hose connected to a reliable water source shall be available on site and accessible during all work hours. Fire extinguishers shall be kept in the vicinity of active construction areas.
VEHICULAR AND PEDESTRIAN TRAFFIC		
Construction Drawings	BMP (required)	If needed, the contractor shall provide and install traffic control devices to divert traffic.
Construction Drawings	BMP (required)	All signage pertaining to construction activity such as "Men Working" shall be covered or laid down during non-work hours. However, all signs necessary for the safety of the public shall be maintained.
Construction Drawings	BMP (required)	No construction equipment shall be parked within the road right-of-way in a manner that obstructs normal movement and sight of motorists, except during actual working hours.
Construction Drawings	BMP (required)	Contractor shall properly barricade and provide steel plates on all open trenches during all phases of construction.

⁹ The removal of USTs is not considered a 'new development,' but a decommissioning and removal of existing infrastructure. The installation of the ASTs may be considered a new development.

Guidance	Instruction	Description
POTABLE WATER AND WASTEWATER		
Construction Drawings	BMP (required)	Discharge during construction will be controlled by sediment waddles, silt fences, biosocks, and gravel bag filters.
HAR §11-55 Appendix C	HAR Requirements	The permittee shall maintain records of the duration and estimated volume of storm water discharge(s).
HAR §11-55 Appendix C	HAR Requirements	Storm water flowing toward the construction area shall be diverted by using appropriate control measures, as practical.
HAR §11-55 Appendix C	HAR Requirements	Water must be discharged in a manner that the discharge shall not cause or contribute to a violation of the basic water quality criteria as specified in HAR §11-55.
SOLID WASTE		
Construction Drawings	BMP (required)	All trash containers are required to be covered and secured.
Construction Drawings	BMP (required)	Project solid waste/debris that did not previously hold petroleum must be removed from the site at regular intervals.
Construction Drawings	BMP (required)	The contractor shall remove all debris deposited in drainages, roadways and other areas resulting from this work.
ARCHAEOLOGICAL AND HISTORIC RESOURCES		
2022 CMP	CMP C-6 (Require an Archaeological Monitoring Plan)	Archaeological monitoring has been conducted in accordance with SHPD guidance for all projects involving ground disturbance that have been initiated since the 2009 CMP was adopted. The project proponent will, in consultation with SHPD, establish whether archaeological monitoring is required during the project. If it is required, the project proponent will prepare an AMP and obtain SHPD approval of the plan prior to the start of any ground-disturbing work. Should any resources be encountered, the project proponent will strictly follow the provisions of the AMP.
Final Archaeological Monitoring Plan in Support of the Upgrading Halepōhaku Fuel Storage System Project	Archaeological Monitoring Methods	The boundaries of the lithic scatter (SIHP #50-10-23-10314) will be demarcated by flagging along the western, southwestern, and southern boundaries of the site.

SITE SPECIFIC CONSTRUCTION BMP CONTROL MEASURES

CONSTRUCTION ACTIVITIES

SITE IMPROVEMENT FOR THE REPAVING OF AC DRIVEWAY. INFRASTRUCTURE TO SUPPORT THE PROPOSED IMPROVEMENTS INCLUDES AC PAVING.

ALL CONSTRUCTION ACTIVITY WILL INCORPORATE THESE BMPs WITHOUT MODIFICATION. CONSTRUCTION SITE MANAGER WILL CONDUCT A SITE INSPECTION DAILY FOR ANY POTENTIAL POLLUTION SOURCES. ALL EQUIPMENT STORED ONSITE SHALL BE IN GOOD WORKING ORDER WITH NO FUEL, OIL, TRANSMISSION FLUID, OR HYDRAULIC LEAKS. ANY EQUIPMENT FOUND TO BE FAULTY SHALL BE REPAIRED IMMEDIATELY WITH NECESSARY BMP PRECAUTIONS TAKEN TO PREVENT AND CONTAIN STORM WATER CONTAMINATION. EQUIPMENT WHICH CANNOT BE REPAIRED WITHIN THE SAME WORKING DAY, SHALL BE REMOVED FROM THE SITE TO AN APPROPRIATE REPAIR FACILITY.

CONSTRUCTION EQUIPMENT INCLUDES; EXCAVATOR, LOADER, DUMP TRUCKS, DRUM ROLLER/COMPACTOR, ETC.

QUALITY OF DISCHARGE

THE EXISTING SOIL IS ORANGISH BROWN SILTY SAND, MEDIAL FINE SANDY LOAM. THE SITE HAS AN EXISTING IMPROVEMENTS THAT HAS HIGH VEGETAL COVER. NO STORM WATER MANAGEMENT FACILITIES EXIST ON THE SITE. DISCHARGE DURING CONSTRUCTION WILL BE CONTROLLED BY, SEDIMENT WADDLES, SILT FENCE, BIOSOCKS, AND GRAVEL BAG FILTERS. ALL DISTURBED AREAS THAT ARE NOT SCHEDULED TO BE PAVED, LANDSCAPED, OR GRAVEL WILL HAVE HYDROMULCH OR GRASS SEED APPLIED TO STABILIZE THE SOIL.

CONTROL FOR LAND DISTURBANCES

THE GENERAL CONTRACTOR SHALL COMPLY WITH THE SPECIAL CONDITIONS FOR LAND DISTURBANCES (FROM HAR, CHAPTER 11--55, APPENDIX C). REFER TO THE "NOTES ON CONTROLS FOR LAND DISTURBANCES" ON THIS SHEET.

EROSION AND SEDIMENT CONTROL REQUIREMENTS

THE CONTRACTOR SHALL HAVE THE COUNTY APPROVED GRADING PERMIT AVAILABLE FOR INSPECTION 30 DAYS BEFORE THE START OF CONSTRUCTION ACTIVITIES.

POTENTIAL POLLUTANTS

REMOVED VEGETATION AND OTHER DEBRIS WILL BE DISPOSED OF AT THE EAST HAWAII SANITARY LANDFILL. DEBRIS WILL BE TEMPORARILY STORED IN THE STOCKPILE AND STORAGE AREA AS SHOWN ON THE PLANS. THE STOCKPILE AND EQUIPMENT/VEHICLE STORAGE AREA IS PROTECTED BY STACKED GRAVEL BAG FILTERS.

NO FUEL, OIL, OR HYDRAULIC FLUID SHALL BE STORED ONSITE. FUELING OR FIELD MAINTENANCE OF EQUIPMENT SHALL BE PERFORMED WITHIN VEHICLE STORAGE AREA. THE VEHICLE STORAGE AREA IS PROTECTED WITH A GRAVEL BAG CONTAINMENT BERM. DRIP PANS WILL BE PLACED UNDER VEHICLES ONSITE WHILE NOT IN USE. IN THE EVENT OF A SPILL OR LEAK FROM EQUIPMENT, THE FLOW OF FUEL WILL BE STOPPED AND ALL SOURCES OF IGNITION WILL BE REMOVED. THE SPILL WILL BE CONTAINED BY PLACING SAND BAGS AROUND THE SPILL AREA. THE CONTAMINATED EARTH WILL BE PLACED IN CONTAINERS. IN THE CASE OF PONDING FUEL, A HAZARDOUS MATERIALS VACUUM TRUCK WILL REMOVE THE FUEL.

DISTURBED AREAS WILL BE PROTECTED WITH BIOSOCKS, SEDIMENT WADDLES, SILT FENCE, AND GRAVEL BAG FILTERS. ALL DISTURBED AREAS THAT ARE NOT SCHEDULED TO BE PAVED, LANDSCAPED, OR COVERED BY A STRUCTURE OR GRAVEL WILL HAVE HYDROMULCH OR GRASS SEED APPLIED TO STABILIZE THE SOIL.

PRODUCT SPECIFICATIONS FOR BMPs

FILTER FABRIC SHALL BE: 8.0 OZ./SQ. YD. GEOTEXTILE

GRAVEL FILTER SHALL BE: 3/4" FOR GRAVEL FILTER BAGS

CONSTRUCTION SCHEDULE

CONTRACTOR SELECTION DATE: TBD
CONSTRUCTION WILL BEGIN: TBD
CONSTRUCTION WILL END: TBD

BMPs WILL BE IMPLEMENTED FROM THE FIRST DAY OF CONSTRUCTION AND WILL BE REMOVED WHEN ALL CIVIL WORK ITEMS ARE COMPLETE AND VEGETATION COVER IS REESTABLISHED.

ALL MAJOR CONSTRUCTION ACTIVITIES WILL PROCEED IN A LOGICAL SEQUENCE. MAJOR CONSTRUCTION ACTIVITIES WILL BE CONCURRENT WHEN APPROPRIATE.

CONSTRUCTION TIMETABLE

EARTHWORKS 4 WEEKS
AC PAV'T 2 WEEKS

THE FOLLOWING BMPs WILL BE IMPLEMENTED THE FIRST DAY OF CONSTRUCTION
SILT FENCE OR BIOSOCK
STABILIZED CONSTRUCTION ENTRANCE
VEHICLE/EQUIPMENT STORAGE AREA
GRAVEL BAG FILTERS OR BIOSOCK
THE FOLLOWING BMP WILL BE IMPLEMENTED AS SLOPES ARE GRADED
THROUGHOUT CONSTRUCTION
SEDIMENT WADDLES OR BIOSOCK
HYDRO-SEEDING

NOTES ON CONTROLS FOR LAND DISTURBANCES

HAR CHAPTER 11--55 APPENDIX C REQUIREMENTS

THE FOLLOWING SPECIAL CONDITIONS APPLY TO ALL LAND DISTURBANCE WORK CONDUCTED UNDER THIS GENERAL PERMIT:

(A) CONSTRUCTION MANAGEMENT TECHNIQUES

(1) CLEARING AND GRUBBING SHALL BE HELD TO THE MINIMUM NECESSARY FOR GRADING AND EQUIPMENT OPERATION.

(2) CONSTRUCTION SHALL BE SEQUENCED TO MINIMIZE THE EXPOSURE TIME OF THE CLEARED SURFACE AREA.

(3) CONSTRUCTION SHALL BE STAGED OR PHASED FOR LARGE PROJECTS. AREAS OF ONE PHASE SHALL BE STABILIZED BEFORE ANOTHER PHASE IS INITIATED. STABILIZATION SHALL BE ACCOMPLISHED BY TEMPORARILY OR PERMANENTLY PROTECTING THE DISTURBED SOIL SURFACE FROM RAINFALL IMPACTS AND RUNOFF.

(4) EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL BEFORE EARTH MOVING OPERATIONS BEGIN. THESE MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.

(5) ALL CONTROL MEASURES SHALL BE CHECKED AND REPAIRED AS NECESSARY, FOR EXAMPLE, WEEKLY IN DRY PERIODS AND WITHIN 24 HOURS AFTER ANY RAINFALL OF 0.5 INCHES OR GREATER WITHIN A 24-HOUR PERIOD. DURING PROLONGED RAINFALL, DAILY CHECKING IS NECESSARY. THE PERMITTEE SHALL MAINTAIN RECORDS OF CHECKS AND REPAIRS.

(6) THE PERMITTEE SHALL MAINTAIN RECORDS OF THE DURATION AND ESTIMATED VOLUME OF STORM WATER DISCHARGE(S).

(7) A SPECIFIC INDIVIDUAL SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON EACH PROJECT SITE.

(B) VEGETATION CONTROLS

(1) PRE-CONSTRUCTION VEGETATIVE GROUND COVER SHALL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN TWENTY CALENDAR DAYS PRIOR TO LAND DISTURBANCE.

(2) TEMPORARY SOIL STABILIZATION WITH APPROPRIATE VEGETATION SHALL BE APPLIED ON AREAS THAT WILL REMAIN UNFINISHED FOR MORE THAN THIRTY CALENDAR DAYS.

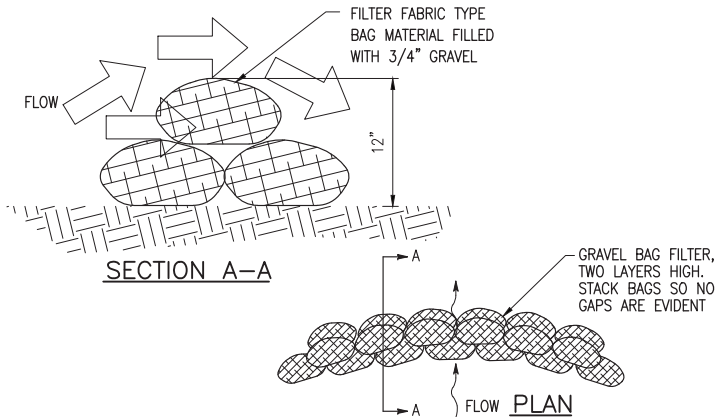
(3) PERMANENT SOIL STABILIZATION WITH PERENNIAL VEGETATION OR PAVEMENT SHALL BE APPLIED AS SOON AS PRACTICAL AFTER FINAL GRADING. IRRIGATION AND MAINTENANCE OF THE PERENNIAL VEGETATION SHALL BE PROVIDED FOR UNTIL THE VEGETATION TAKES ROOT.

(C) STRUCTURAL CONTROLS

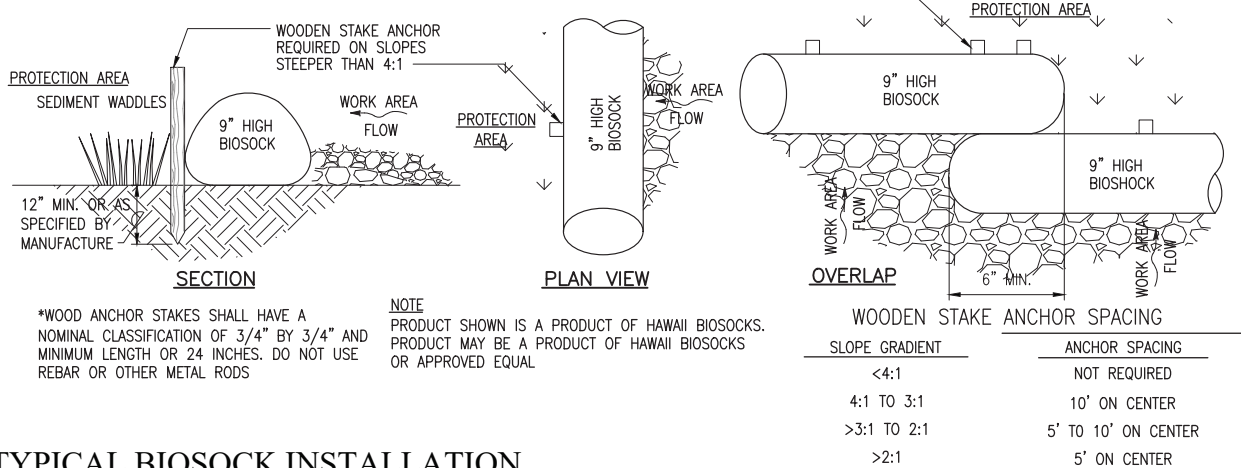
(1) STORM WATER FLOWING TOWARD THE CONSTRUCTION AREA SHALL BE DIVERTED BY USING APPROPRIATE CONTROL MEASURES, AS PRACTICAL.

(2) EROSION CONTROL MEASURES SHALL BE DESIGNED ACCORDING TO THE SIZE OF DISTURBED OR DRAINAGE AREAS TO DETAIN RUNOFF AND TRAP SEDIMENT.

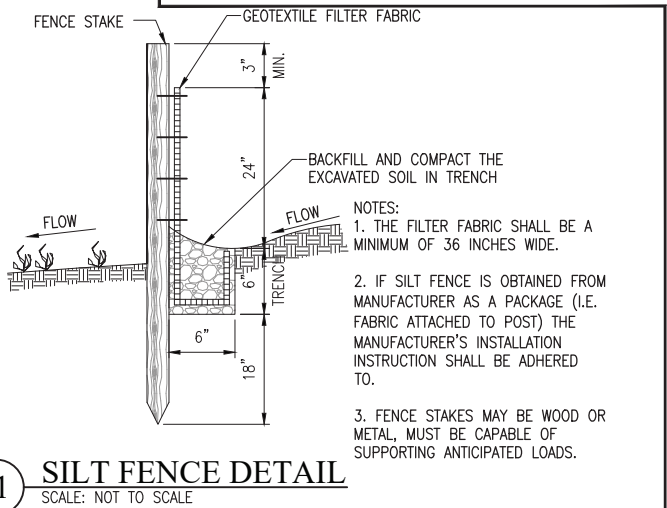
(3) WATER MUST BE DISCHARGED IN A MANNER THAT THE DISCHARGE SHALL NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE BASIC WATER QUALITY CRITERIA AS SPECIFIED IN SECTION 11--54--04.



3 GRAVEL BAG FILTER
SCALE: NOT TO SCALE



2 TYPICAL BIOSOCK INSTALLATION
SCALE: NOT TO SCALE



1 SILT FENCE DETAIL
SCALE: NOT TO SCALE

revision number	description	THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.	architect	UNIVERSITY OF HAWAII STATE OF HAWAII	
	100% DESIGN		consultant	project: HALE POHAKU FUEL STORAGE - 2028 COMPLIANCE UPGRADE - REMOVAL	
				drawing title: SITE SPECIFIC CONSTRUCTION BMP NOTES AND DETAILS	
				phase: designed by: RDC checked by: CR approved by: YWF drawing scale: AS NOTED	
				EPI project no: 12027-23-01 UH project no: 0010391-01-A date: 05/22/2024	
				sheet no: C-103	

ATTACHMENT 3: OFFICE OF CONSERVATION AND COASTAL LANDS CONSULTATION

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAII'
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA
Office of Conservation and Coastal Lands
P.O. BOX 621
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COMMISSION ON WATER RESOURCE
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CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES
ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

REF:OCCL:MK

COR HA 25-179

May 20, 2025

Michelle Roberts, Natural Resources Specialist
Sustainable Resources Group Intn'l, Inc
111 Hekili Street, Suite A373
Kailua, HI 96734

SUBJECT: Correspondence HA 25-179 Pre-consult for Environmental Assessment for
Upgrading Halepōhaku Fuel Storage System, Located at Halepōhaku Maunakea,
Ka'ōhe, Hamakua, Island of Hawai'i
Tax Map Key (TMK): (2) 1-2-001:026

Dear Michelle Roberts:

The Office of Conservation and Coastal Lands (OCCL) is in receipt of your letter regarding the subject matter. According to the information you have provided, the Center for Maunakea Stewardship (CMS), represented by Sustainable Resources Group Intn'l Inc., is seeking comments on the preparation of an Environmental Assessment for a project to decommission three single-wall fiberglass underground fuel storage tanks within the maintenance facility area at Halepōhaku on Maunakea, and replace them with two aboveground storage tanks. The underground storage tanks would be removed in accordance with the 2028 regulatory deadline pursuant to Hawai'i Administrative Rules (HAR) Chapter 11-280.1-21, "Upgrading Underground Storage Tank Systems". The proposed project is located within the Resource Subzone of the State Land Use Conservation District.

The maintenance facility area and underground storage tanks were approved by the Board of Land and Natural Resources on April 23, 1982 under Conservation District Use Permit (CDUP) HA-1430 for the Halepōhaku visitor center.

The decommissioning involves the removal of all three underground storage tanks, buried fuel lines, fuel transfer pumps, dispensing pumps, and electrical lines. The removal of buried lines requires trenching (two feet (ft) wide) of approximately 240 linear feet (lf) of asphalt concrete, and approximately 225 lf of previously disturbed soil. Lines will be disconnected and capped at building terminations. Removal of the dispensing pumps concrete pad requires disturbance an area of 13' x 5'. Removal of the underground storage tanks requires digging out approximately 385 ft² for the diesel tank and 600 ft² for the two gasoline tanks combined. Voids created by equipment removal will be backfilled, utilizing on-site excavated material, drain rock from on-site and off-site sources, and cinder from on-site or pre-existing Maunakea stockpiles.

After the underground storage tanks and pipelines are removed, the soil and cinder lining will be checked for hydrocarbons. This involves visual inspection for discoloration and air monitoring using a hydrocarbon probe. If any signs of hydrocarbons are found, soil samples will be sent for laboratory analysis. Confirmed hydrocarbon contamination will result in the removal of contaminated fill, following an approved remediation protocol.

Two, double walled, aboveground storage tanks with a safe fill capacity of 3,068 gallons will be installed for fuel storage. The tanks measure 118" x 96" x 114" and will sit on a single concrete slab with approximate dimensions of 14' x 23' (322 ft²) and an 8-inch containment berm. The tanks provide secondary containment in the event of any leaks and have an access manway that allows for inspection and maintenance of the inner tank. The proposed location for the new aboveground storage tanks is on previously disturbed ground that is free of vegetation and is already graded and compacted. The proposed location has existing electrical nearby and is not visible from the Maunakea Access Road.

After reviewing the application, the OCCL has determined that the proposed project is consistent with the following identified land uses in Hawai'i Administrative Rules (HAR): §13-5-22 P-8 STRUCTURES AND LAND USES, EXISTING (B-1) *Demolition, removal, or minor alteration of existing structures, facilities, land, and equipment. Any historic property shall be evaluated by the department for historical significance;* and §13-5-22 P-9 STRUCTURES, ACCESSORY (B-1) *Construction or placement of structures accessory to existing facilities.* This requires the filing of a Site Plan Approval Application (SPA). Applications can be found at <https://dlnr.hawaii.gov/occl/application-process/>.

Please consult with the Department of Health for their review of the proposed decommissioning plan, prior to the SPA submittal.

Should you have any further questions, please contact Mari Kurosawa of our Office at (808) 587-0381 or at mari.i.kurosawa@hawaii.gov.

Sincerely,

S Michael Cain

S. Michael Cain, Administrator
Office of Conservation and Coastal Lands

CC: *Hawai'i District Land Office*
County of Hawai'i- Department of Planning

1 **ATTACHMENT 4: SHPD CORRESPONDENCE**

- 2 HRS Chapter 6E-8: SHPD Concurrence Letter
- 3 SHPD Approval Letter: Archaeological Monitoring Plan

JOSH GREEN, M.D.
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STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAII
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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

September 26, 2025

Gregory Chun, Executive Director
Center for Maunakea Stewardship
University of Hawai'i at Hilo
200 W. Kawili St.
Hilo, HI 96720
E-mail: cmshilo@hawaii.edu

IN REPLY REFER TO:
Project No. 2025PR00823
Doc. No. 2509JG12
Archaeology

Dear Gregory Chun:

SUBJECT: **Hawaii Revised Statutes (HRS) Chapter 6E-8 Historic Preservation Review – Request for Concurrence with an Effect Determination**
University of Hawai'i at Hilo – Upgrading Halepōhaku Fuel Storage System Project
Ka'ōhe Mauka Ahupua'a, Hāmākua District, Island of Hawai'i
TMK: (3) 4-4-015:012

This letter provides the State Historic Preservation Division's (SHPD) review of the subject University of Hawai'i at Hilo Center for Maunakea Stewardship (CMS) proposed project received on July 17, 2025. The submittal included a cover letter, maps of the project area, construction plans, and photos and satellite images of the project area.

The proposed project area comprises a 0.85-acre portion of the subject project parcel. The CMS proposes decommissioning three single-wall fiberglass underground fuel storage tanks (UST) and associated infrastructure within the Maintenance Facility Area at Halepōhaku on Maunakea and replacing them with two aboveground storage tanks (AST). Removal of the USTs will require excavating an ~385-sq.-ft. area for the diesel tank and a ~600-sq.-ft. area for the two gasoline tanks combined. Removal of the buried lines will require trenching (~240 ft. by 2 ft.) within an area comprised of asphalt concrete and trenching (~22.5 ft. by 2 ft.) in an area of previously disturbed soil. Removal of the dispensing pumps concrete pad will require excavation of a ~65-sq.-ft. area. The proposed ASTs will be installed on a single concrete slab that will measure ~322 sq. ft.

The HICRIS submittal materials indicate that the project area was previously impacted by the development of the existing facility and that a historic property (Site # 50-10-23-10314 [lithic scatter]) is located 50 m. north/northeast of the project area. A review of SHPD records indicates that the project area was included as part of a previous reconnaissance survey (Robbins and Hammatt 1991) and that it is also within Site # 50-10-23-31382 [Mauna Kea Traditional Cultural Property and District]. Site # 50-10-23-31382 has been assessed as significant under criteria a, b, c, d, and e and recommended for preservation. Additionally, contemporary aerial imagery confirms that the project area has been previously impacted by the development of the existing facilities.

Based on the information provided above, and the limited scope of the proposed ground-disturbing activities, **the SHPD concurs** with a project determination of "No historic properties affected" for the subject project, pursuant to HAR §13-275-7(a)(1) with the understanding that archaeological monitoring will occur during the subject project per the Maunakea Comprehensive Management Plan. The proposed project will not impact any character-defining features contributing to the significance and eligibility of Site 50-10-23-31382 to be listed in the Hawaii Register of Historic

Places. Additionally, per HAR §13-275-7(e), when the SHPD agrees that the action will not affect any significant historic properties, this is the SHPD's written concurrence and the HRS §6E-8 historic preservation review ends.

The SHPD looks forward to receiving for review and acceptance an archaeological monitoring plan meeting the requirements of HAR §13-279-4 prior to project initiation per the requirement as presented in the Maunakea Comprehensive Management Plan. Please submit the requested archaeological monitoring plan and associated filing review fees to HICRIS Project No. 2025PR00823 in response to our HICRIS request.

SHPD will notify the CMS when the AMP is reviewed and accepted and project initiation may proceed.

The CMS is the office of record for this project. Please maintain a copy of this letter with your environmental review record for this project.

Please contact Joshua Gastilo at (808) 933-7653 or at Joshua.gastilo@hawaii.gov for any questions regarding this letter.

Aloha,



Jessica L. Puff
Administrator, State Historic Preservation
Deputy State Historic Preservation Officer

cc: Kristin Duin, kduin@srgii.com
Michelle Roberts, mroberts@srgii.com
Rodrigo Romo, rromo@hawaii.edu

JOSH GREEN, M.D.
GOVERNOR | KE KIA'ĀINA

SYLVIA LUKE
LIEUTENANT GOVERNOR | KA HOPE KIA'ĀINA



STATE OF HAWAII | KA MOKU'ĀINA 'O HAWAII'
DEPARTMENT OF LAND AND NATURAL RESOURCES
KA 'OIHANA KUMUWAIWAI 'ĀINA

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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

December 1, 2025

Gregory Chun, Executive Director
Center for Maunakea Stewardship
University of Hawai'i at Hilo
200 W. Kawili St.
Hilo, HI 96720
c/o cmshilo@hawaii.edu

IN REPLY REFER TO:
Project No. 2025PR00823
Doc. No. 2512JG01
Archaeology

Dear Gregory Chun:

SUBJECT: **Hawaii Revised Statutes (HRS) Chapter 6E-8 Historic Preservation Review – University of Hawai'i at Hilo, Center for Maunakea Stewardship Upgrading Halepōhaku Fuel Storage System Project Archaeological Monitoring Plan Ka'ōhe Mauka Ahupua'a, Hāmākua District, Island of Hawai'i TMK: (3) 4-4-015:012**

This letter provides the State Historic Preservation Division's (SHPD) review of the subject archaeological monitoring plan (AMP) titled, *Draft Archaeological Monitoring Plan in Support of the Upgrading Halepōhaku Fuel Storage System Project Within a University of Hawai'i Management Area on Maunakea, Ka'ōhe Ahupua'a, Hāmākua District, Hawai'i Island, State of Hawaii, TMK (3) 4-4-015:012, HICRIS Project 2025PR00823* (Gosser, August 2025) prepared in support of the project and received by SHPD on November 26, 2025 (HICRIS Submission No. 2025PR00823.003). SHPD previously reviewed the project and concurred with a project effect determination of "No historic properties affected" (Doc. No. 2509JG12); however, the proponent indicated that archaeological monitoring would be conducted per the Maunakea Comprehensive Management Plan. The initial submittal received on July 17, 2025 included a letter dated July 16, 2025 from the University of Hawai'i at Hilo, Center for Maunakea Stewardship (CMS), maps of the project area, construction plans, satellite images of the project area, and photos of the project area (HICRIS Submission No. 2025PR00823.001).

The proposed project area comprises a 0.85-acre portion of the subject project parcel. The CMS proposes decommissioning three single-wall fiberglass underground fuel storage tanks (UST) and associated infrastructure within the Maintenance Facility Area at Halepōhaku on Maunakea and replacing them with two aboveground storage tanks (AST). Removal of the USTs will require excavating an ~385-sq.-ft. area for the diesel tank and 600 sq. ft. for the two gasoline tanks combined. Removal of the buried lines will require a trenching of ~240 ft. of asphalt concrete and ~225 ft. of previously disturbed soil. Removal of the dispensing pumps concrete pad will require excavation of a 65-sq.-ft. area. The proposed ASTs will be installed on a single concrete slab that will measure ~322 sq. ft.

The Gosser (August 2025) AMP meets the minimum requirements of HAR §13-279-4. **It is accepted. Please include the following in the Final:**

- General comment. Revise the document so that "SIHP" is defined prior to using the acronym. Revise document to indicate that the project area is a 0.85-acre portion of the project parcel.
- Page 4, Figure 3. Revise image to include a close-up inset of the current project area.

- Pages 6 through 8, Previous Archaeological Investigations. Insert a map that displays where the discussed previous studies and previously identified sites are located relative to the current project area. Alternative to a map, you can indicate the distance and heading of the previous studies and historic properties relative to the project area in-text.
- Page 9, Archaeological Monitoring Methods. Revise this section to indicate that a map of the profile locations will be provided as part of the archaeological monitoring report.
- Pages 9 and 10, Treatment of Historic Properties. Revise this section to indicate that all collected artifacts and materials (except for radiocarbon samples) will be kept on Hawaii island.
- Page 11, Report Preparation. Revise this section to indicate that a brief archaeological monitoring letter report of findings as specified in HAR §13-282-3(f)(1) will be submitted to SHPD within 30 days of completion of archaeological monitoring fieldwork.

Please send one hard copy of the document, clearly marked FINAL, along with a copy of this letter and a text-searchable PDF version of the Final AMP to the Kapolei SHPD office, attention SHPD Library and another copy of the AMP and letter to the Hilo SHPD Office, attention Joshua Gastilo. Also submit a text-searchable PDF copy of the Final AMP to SHPD to HICRIS Project No. 2025PR00823 in response to our request, and a text-searchable PDF copy of the Final AMP to SHPD.Archaeology.Library@hawaii.gov.

SHPD hereby notifies the University of Hawai'i at Hilo that the AMP has been accepted and the project initiation process may continue.

SHPD requests written notification via email and HICRIS at the start of archaeological monitoring. Within 30 days of completion of archaeological monitoring fieldwork, SHPD looks forward to receiving a brief archaeological monitoring letter report of findings as specified in HAR §13-282-3(f)(1). Within 60 days of the completion of archaeological monitoring field work, SHPD looks forward to receipt of an archaeological monitoring report meeting the requirements of HAR §13-279-5 for review and acceptance.

Please submit the AMR and associated review fee and any other project documents and correspondence to HICRIS Project No. 2025PR00823 in response to our request.

Please contact Joshua Gastilo at Joshua.gastilo@hawaii.gov for any questions regarding this letter.

Aloha,



Jessica L. Puff, PhD
Administrator, State Historic Preservation
Deputy State Historic Preservation Officer

cc: Kristin Duin, kduin@srgii.com
Michelle Roberts, mroberts@srgii.com
Rodrigo Romo, rromo@hawaii.edu
Dennis Gosser, info@pcsihawaii.com

2024	MAR	Internal Advisory Committees (EC, KKM, MKMB, MKSOA) Briefed on Project
	APR	
	MAY	
	JUN	
	JUL	
	AUG	
	SEP	Internal Advisory Committees grant formal approval to proceed with EA & B CDUP
	OCT	
	NOV	
	DEC	
2025	JAN	
	FEB	Kick Off Mtg with SRGII
	MAR	
	APR	Consultation with State & Fed Agencies Initiated.
	MAY	OCCL indicates that Site Plan Approval and not CDUP is reqd
	JUN	
	JUL	Consultation letters sent to comm members asking about Native Hawaiian traditional & customary rights or practices
	AUG	
	SEP	
	OCT	SHPD sent letter of concurrence regarding HRS 6E-8 concluding that "no historic properties affected" with the understanding that archaeological monitoring will occur during project
	NOV	Internal Advisory Committees provide comments on draft EA and vote to move forward with EA
	DEC	Draft EA published in The Environmental Notice, start 30-day public review period.
2026	JAN	Public comment period for EA ends. No public comments received, 2 agency comments received and addressed in final EA.
	FEB	
	MAR	AMP Approved by SHPD Site Plan Approval sent to CMS for distribution to internal review committees
	APR	Final EA and FONSI published in The Environmental Notice
	MAY	30-day comment period ends for final EA/FONSI. No comments received. <u>EA PROCESS IS COMPLETE</u>
	JUN	
	JUL	Site Plan Approval Application to be submitted to OCCL for review. Application is reviewed & approved or denied within 30 days. *
	AUG	
	SEP	
	OCT	Draft IFB for project, publish, select contractor for project.
	NOV	
	DEC	
2027	Jan-Dec	Jan: issue notice to proceed to contractor. Project to install AST tanks and remove USTs in progress
2028	Jan-Jun	Continuation & completion of project
	Jul	07/15/2028 DOH deadline to complete removal of USTs
** CONSTRUCTION MUST COMMENCE WITHIN ONE YEAR OF ISSUANCE OF SITE PLAN APPROVAL PERMIT. CONSTRUCTION MUST BE COMPLETED WITHIN 3 YEARS OF ISSUANCE OF THE SITE PLAN APPROVAL PERMIT.		