MKSOA Board Meeting
July 11, 2024
UST Removal Project @ Hale Pohaku

Rodrigo Romo MKSS General Manager

UST Removal Project to Comply with DOH Regulations

Deadline July 15, 2028

PLAN ACCORDINGLY!

2028 REGULATORY DEADLINE

Pursuant to Hawaii Administrative Rules 11-280.1-21. **Upgrading UST Systems.**

"UST systems..: Not later than July 15, 2028, tanks and piping installed before August 9, 2013 must be provided with secondary containment that meets the requirements of section 11-280.1-24."

292 TANKS FROM 112 FACILITIES ARE SINGLE WALL TANKS THAT WILL NEED TO BE UPGRADED

IMPORTANT CONSIDERATIONS!

1) Hire a contractor. There are limited companies that are able to complete this in Hawaii and you will be competing with the other 112 facilities that need to upgrade.
2) Schedule so that all work will be completed by July 15, 2028, including shipping of new tanks to Hawaii and getting your Modification Permit approved prior to work. Given the 10 year lead time, no extension will be granted.
3) Submit Modification Permit at least 60 days in advance of any work. You will not be able to proceed with the upgrade until the Modification Permit has been approved.
4) Anticipate possible site assessments and possible release response activities depending on the upgrade method selected and whether the fuel is present when old tanks are removed. This may include over excavation, confirmation sampling and active remediation.
5) **START EARLY!** Tanks not upgraded by the deadline will be required to permanently close pursuant to: HAR 11-280.1-40(c).

Hawaii Department of Health, Solid & Hazardous Waste Branch, Underground Storage Tank Program (808) 586-4226 http://health.hawaii.gov/shwb/underground-storage-tanks/

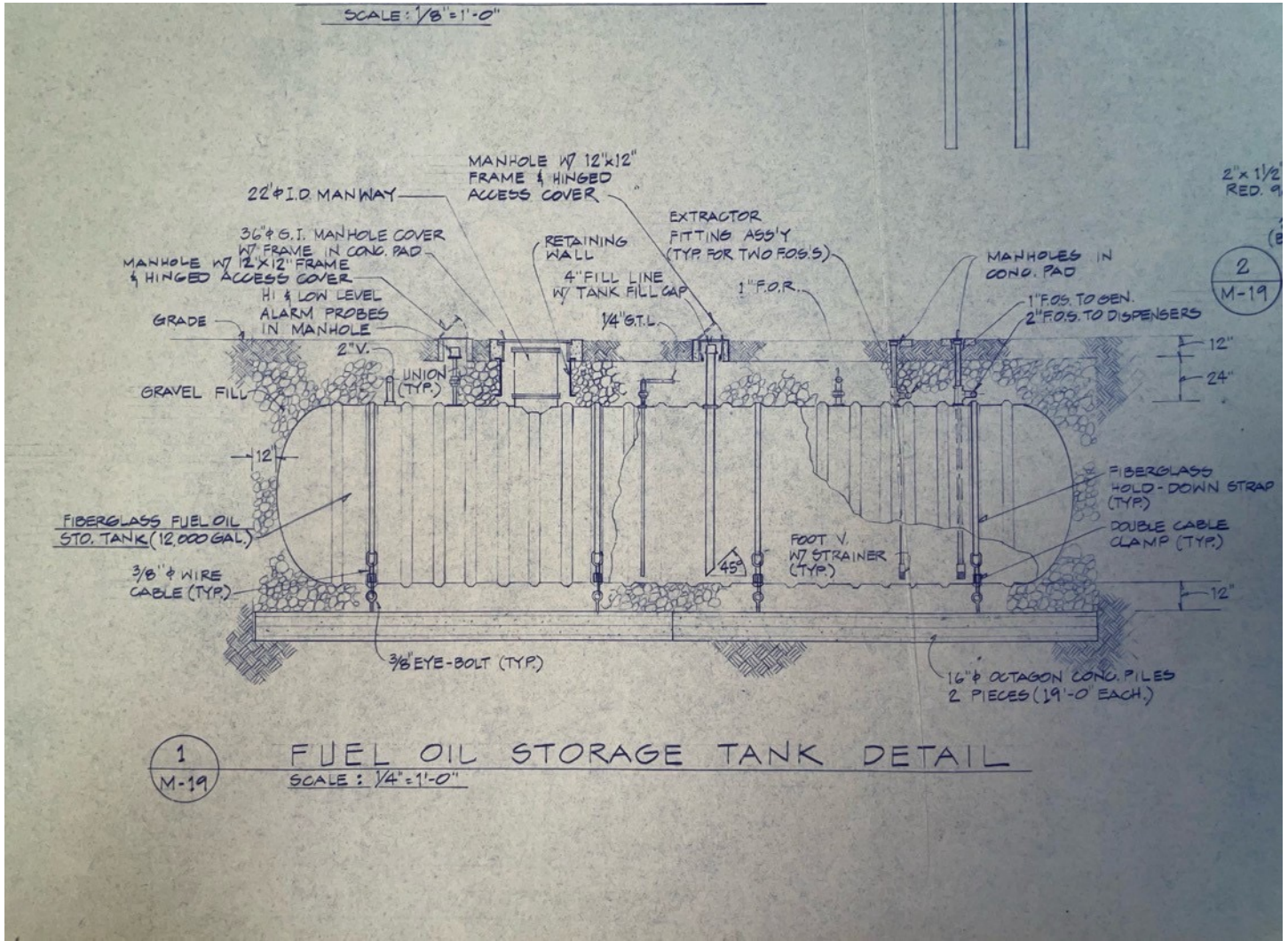
Section Supervisor: Roxanne Kwan, Environmental Health Specialists: Roy Ilaga, Richard Takaba and Thu Perry.

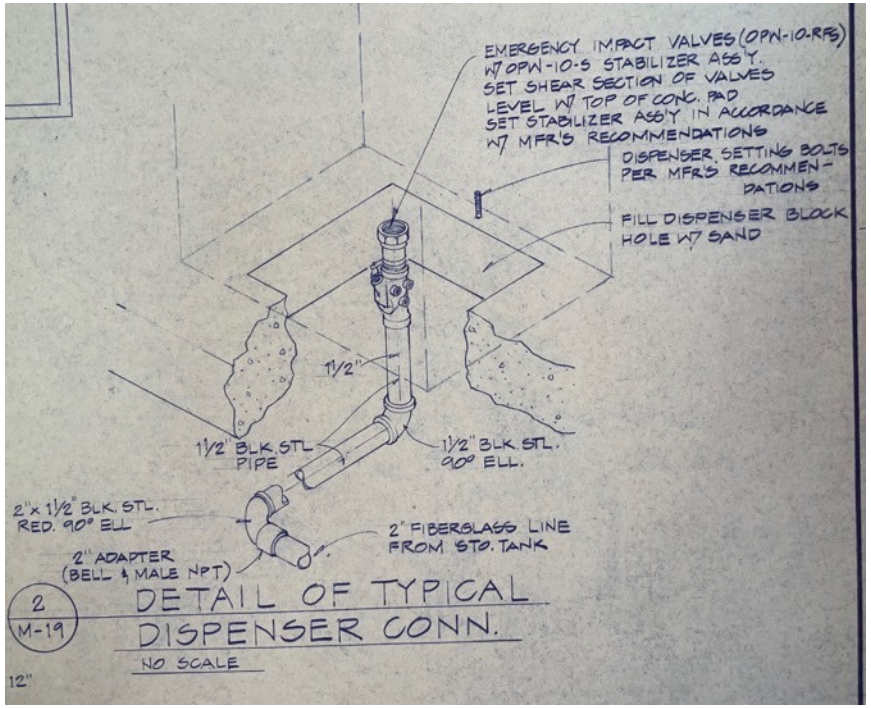

Gasoline USTs
Fuel Dispensing Pumps
Diesel UST

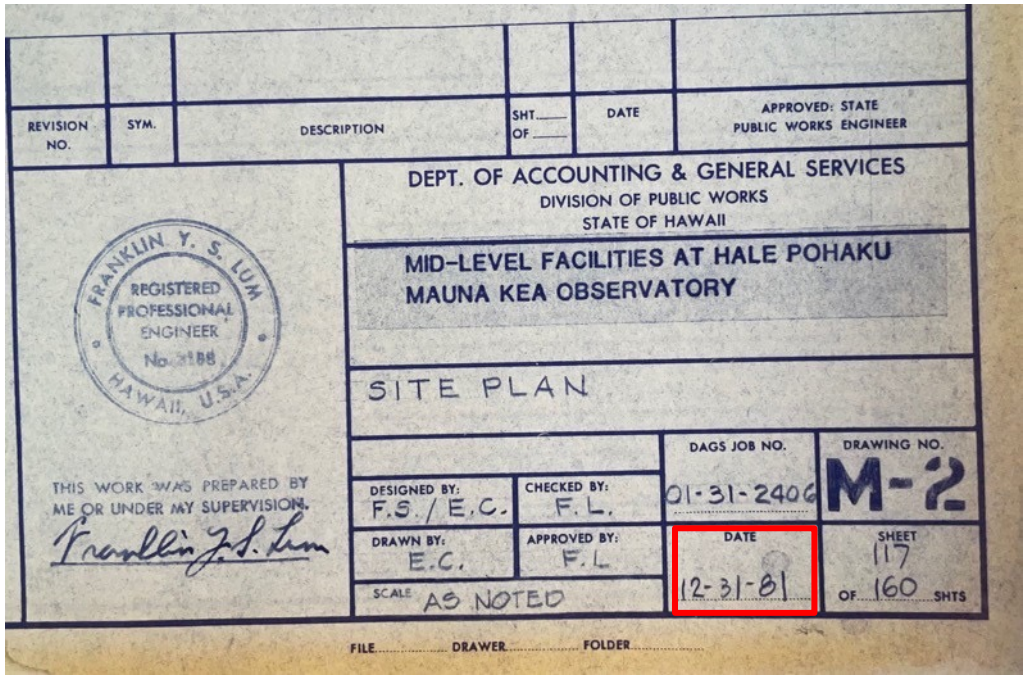
Existing UST & Dispensing Station

CURRENT INFRASTRUCTURE

- Installed under CDUP 1430 during construction of HP facilities 1982-1983
- Veeder-Root TLS-350 Leak Detection System installed in 1998 (annual testing & certification). No leaks since its installation .





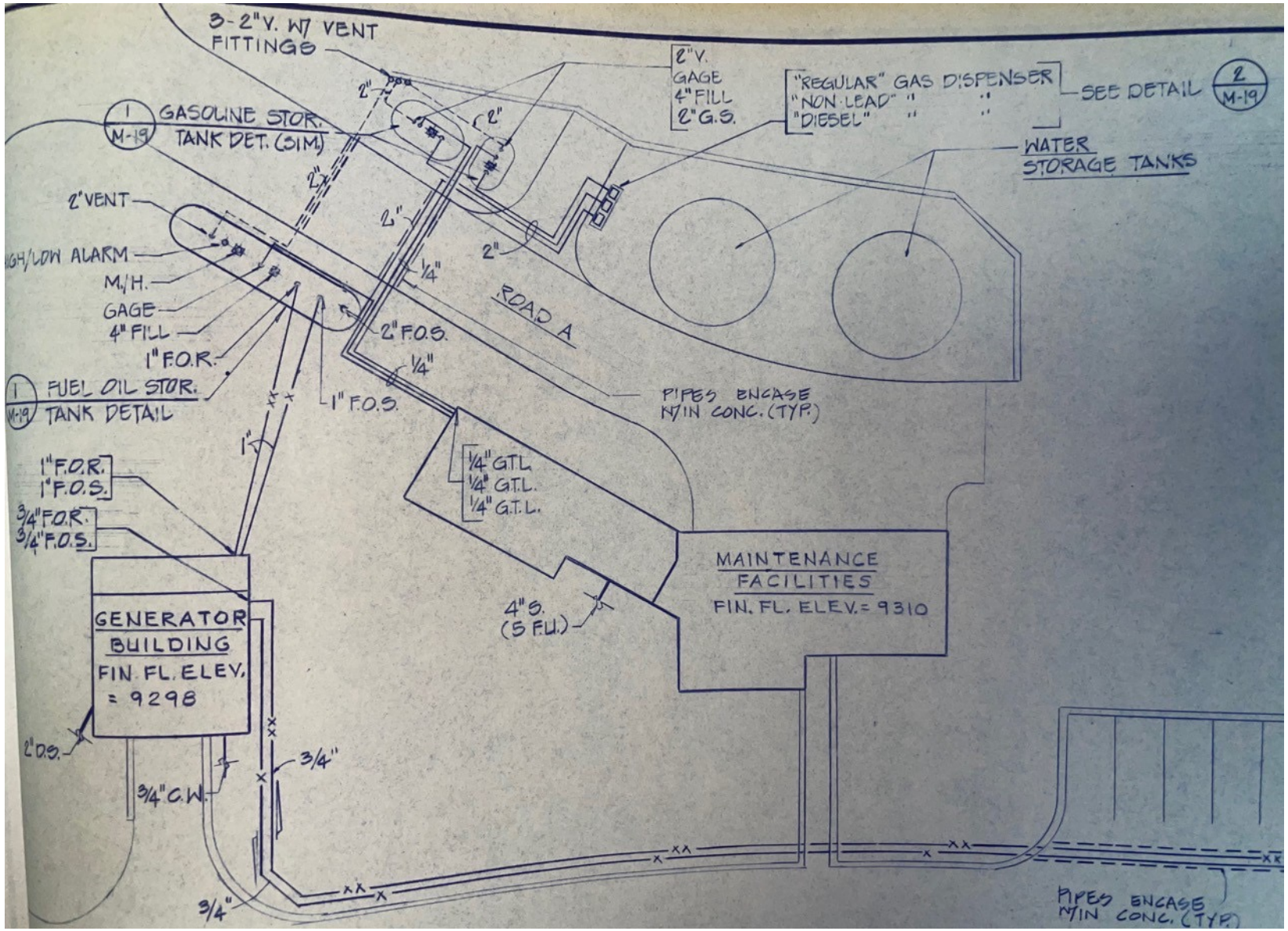


Current infrastructure consists of:

- 12,000 gal single wall, fiberglass diesel tank
- 4,000 gal single wall, fiberglass gasoline tank
- 2,000 gal single wall, fiberglass gasoline tank
- 3 dispensing pumps
- Underground fuel lines connecting tanks to pumps and diesel tank to boiler room in HP
- Electrical lines

Current Use
Diesel (250-500 gal/month)
Heavy Equipment (Road/Snow)
Back up boiler

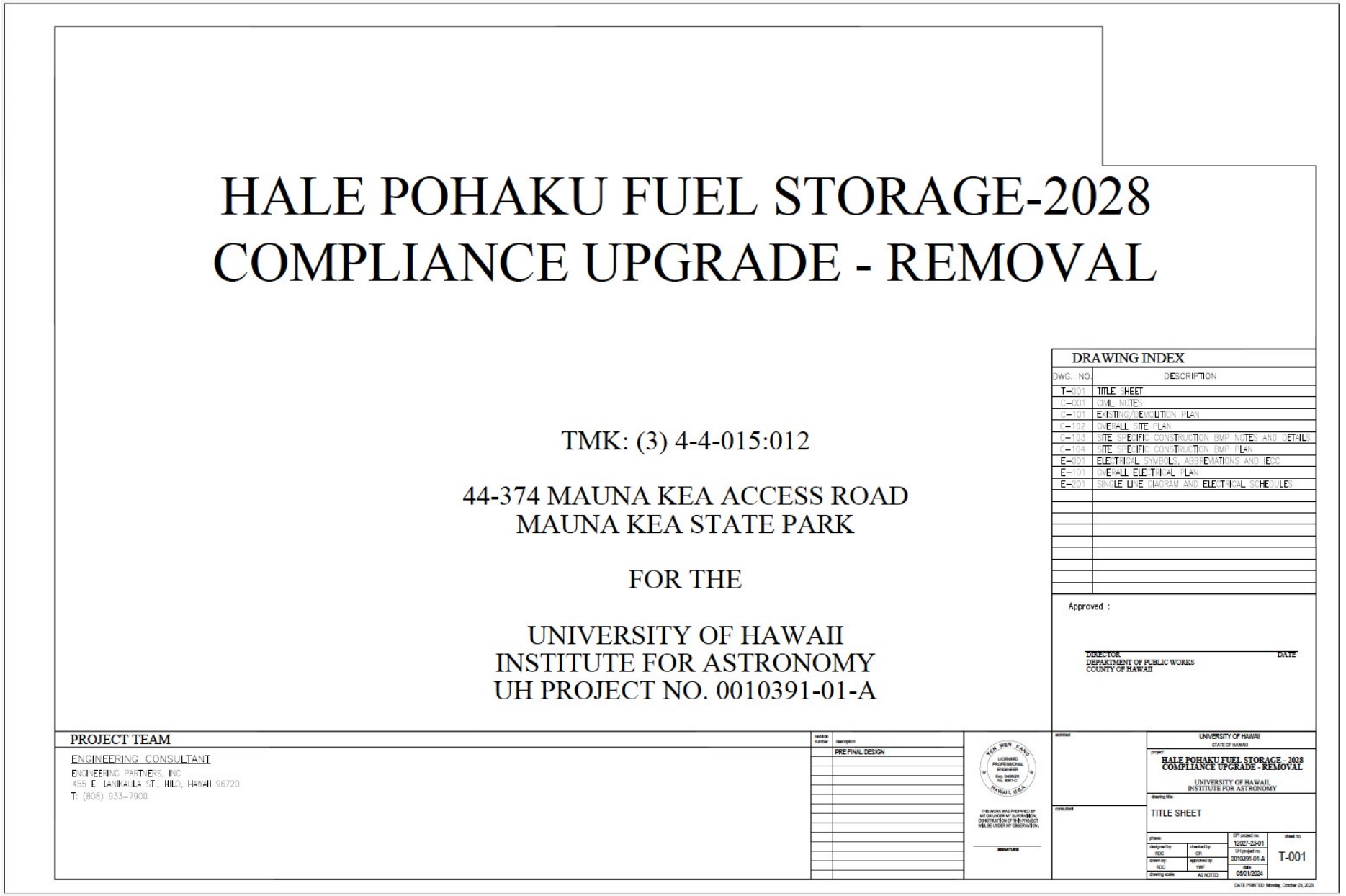
Gas (2,000 – 2,500 gal /month)
CMS Fleets, MKO Fleets, other CMS/MKSS vehicles



UST Project Design and Cost Estimate by Engineering Partners

Scope of Work

- Remove all 3 tanks
- Soil test for leaks
- Remove all buried fuel lines
- Test soil for leaks
- Remove Dispensing Pumps
- Remove Electrical Lines
- Remove fuel transfer pumps.
- Provide remediation if needed.
- Estimated Cost $800k



HALE POHAKU FUEL STORAGE-2028
COMPLIANCE UPGRADE - REMOVAL

TMK: (3) 4-4-015:012

44-374 MAUNA KEA ACCESS ROAD
MAUNA KEA STATE PARK

FOR THE

UNIVERSITY OF HAWAII
INSTITUTE FOR ASTRONOMY
UH PROJECT NO. 0010391-01-A

DRAWING INDEX

DWG. NO.	DESCRIPTION
T–001	TITLE SHEET
C–001	CIVIL NOTES
C–101	EXISTING/DEMOLITION PLAN
C–102	OVERALL SITE PLAN
C–103	SITE SPECIFIC CONSTRUCTION BMP NOTES AND DETAILS
C–104	SITE SPECIFIC CONSTRUCTION BMP PLAN
E–001	ELECTRICAL SYMBOLS, ABBREVIATIONS AND I.E.C.
E–101	OVERALL ELECTRICAL PLAN
E–201	SINGLE LINE DIAGRAM AND ELECTRICAL SCHEDULES

Approved :

DIRECTOR DATE
DEPARTMENT OF PUBLIC WORKS
COUNTY OF HAWAII

PROJECT TEAM

ENGINEERING CONSULTANT
ENGINEERING PARTNERS, INC
455 E. LANIKAULA ST., HILO, HAWAII 96720
T: (808) 933–7900

revision number	description
	PRE FINAL DESIGN

YEE WEN FANG
LICENSED PROFESSIONAL ENGINEER
HAWAII, U.S.A.

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

SIGNATURE

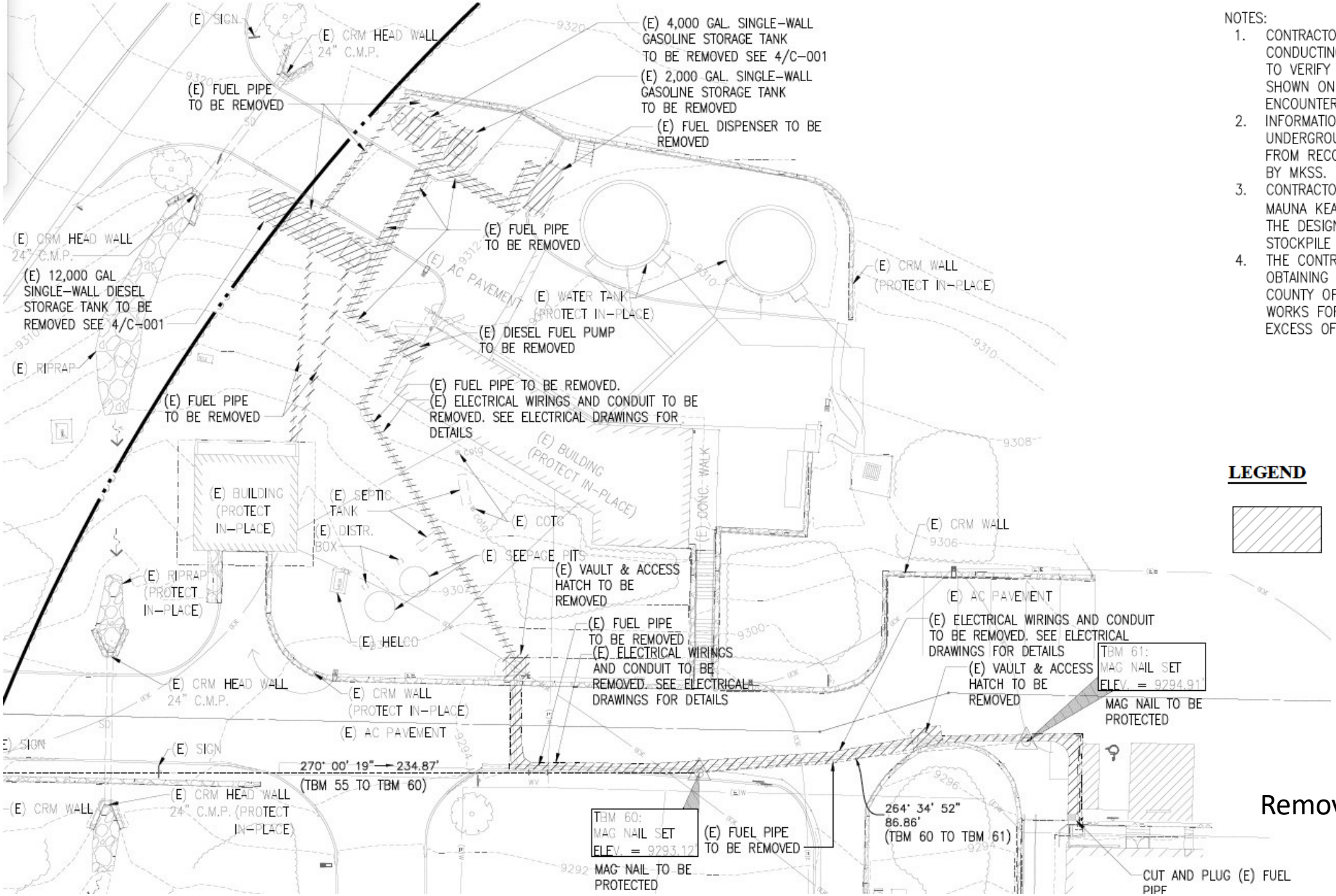
UNIVERSITY OF HAWAII
STATE OF HAWAII

project: HALE POHAKU FUEL STORAGE - 2028 COMPLIANCE UPGRADE - REMOVAL
UNIVERSITY OF HAWAII
INSTITUTE FOR ASTRONOMY

drawing title: TITLE SHEET

designed by: RDC	checked by: CR	EPI project no: 12027-23-01	sheet no: T-001
drawn by: RDC	approved by: YWF	UH project no: 0010391-01-A	
drawing scale: AS NOTED		date: 05/01/2024	

DATE PRINTED: Monday, October 23, 2023



NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE IN CONDUCTING UNDERGROUND UTILITY TONING TO VERIFY UNDERGROUND UTILITIES NOT SHOWN ON PLAN THAT MAY BE ENCOUNTERED DURING CONSTRUCTION.
2. INFORMATION ON TANK SIZES AND UNDERGROUND UTILITY PIPE LOCATIONS ARE FROM RECORD DRAWINGS ON FILE PROVIDED BY MKSS.
3. CONTRACTOR SHALL COORDINATE WITH THE MAUNA KEA SUPPORT SERVICES (MKSS) ON THE DESIGNATED LOCATION TO TEMPORARILY STOCKPILE EXCAVATED MATERIAL.
4. THE CONTRACTOR SHALL BE RESPONSIBLE IN OBTAINING STOCKPILING PERMIT FROM THE COUNTY OF HAWAII, DEPARTMENT OF PUBLIC WORKS FOR ANY STOCKPILED MATERIALS IN EXCESS OF 500 CUBIC YARDS.

LEGEND

TO BE REMOVED OR DEMOLISHED

Removal & Demolition Plan

Tank Removal

UNDERGROUND STORAGE TANK CLOSURE NOTES

1. Contractor to conduct utility clearance at planned excavation areas. Contractor responsible to protect all aboveground and below ground utilities within the work area and is responsible for repair of any damaged aboveground or below ground utilities on the project property.

2. Contractor to coordinate work with and Environmental Professional (EP) hired by MKSS to conduct site assessment activities required by the HDOH SHWB UST Section for the closure of UST system. Unless otherwise directed by the EP, Contractor will only conduct work on this project when EP is present on the project site.

3. Contractor will conduct work in a manner that allows the EP 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 property until authorized by the EP.

4. Unless otherwise directed by the EP, Contractor should be prepared to remove all bedding material from all project excavations to reach intact native material where site assessment activities will be conducted by the EP.

5. Contractor is responsible to disconnect and cap product lines at building terminations. Contractor will coordinate with MKSS maintenance personnel on the desired termination method and location. Concrete demolition and patching will not be required for product line termination at buildings.

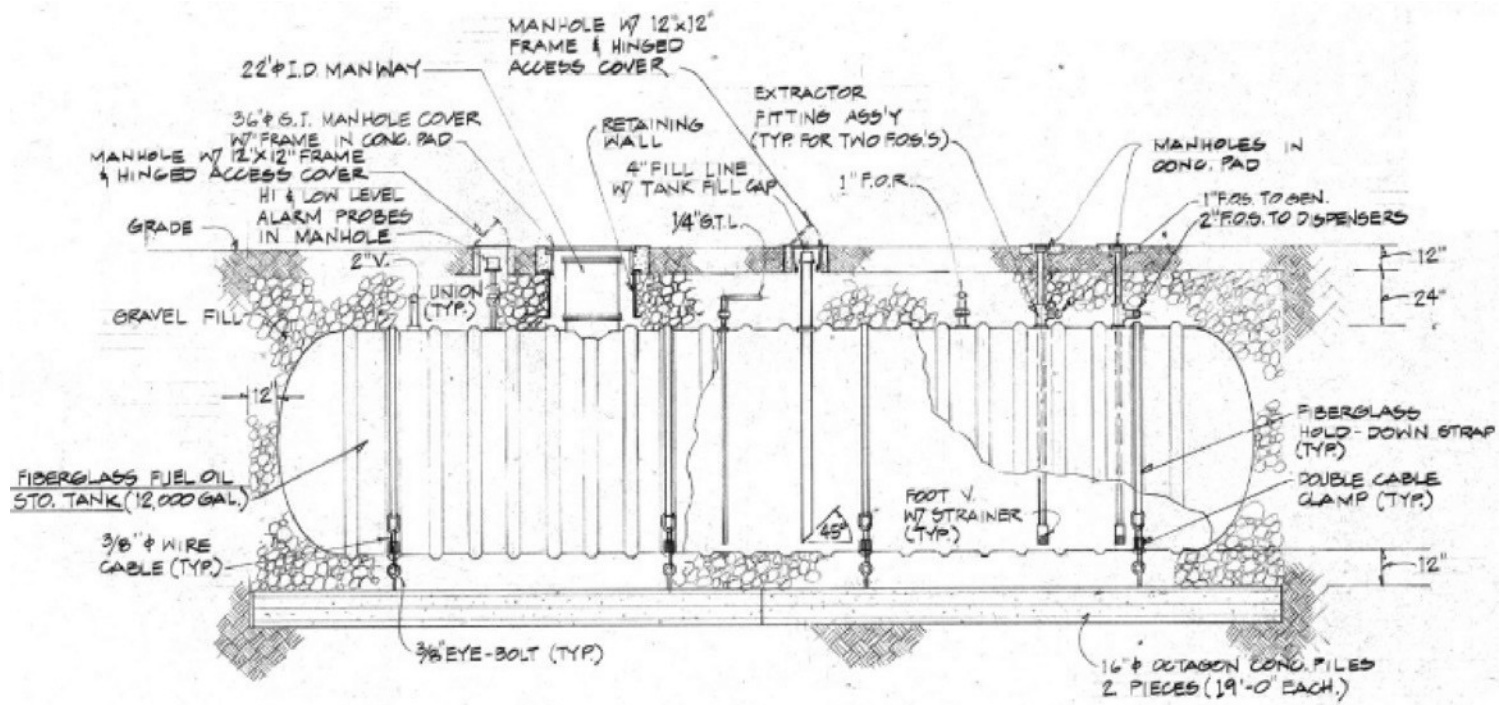
BACKFILLING AFTER TANKS REMOVAL NOTES

1. 2–1/2" minus drain rock to within 3–feet of ground surface. Place material in lifts not to exceed 18". Place geotextile fabric on top 2–1/2" minus drain rock.

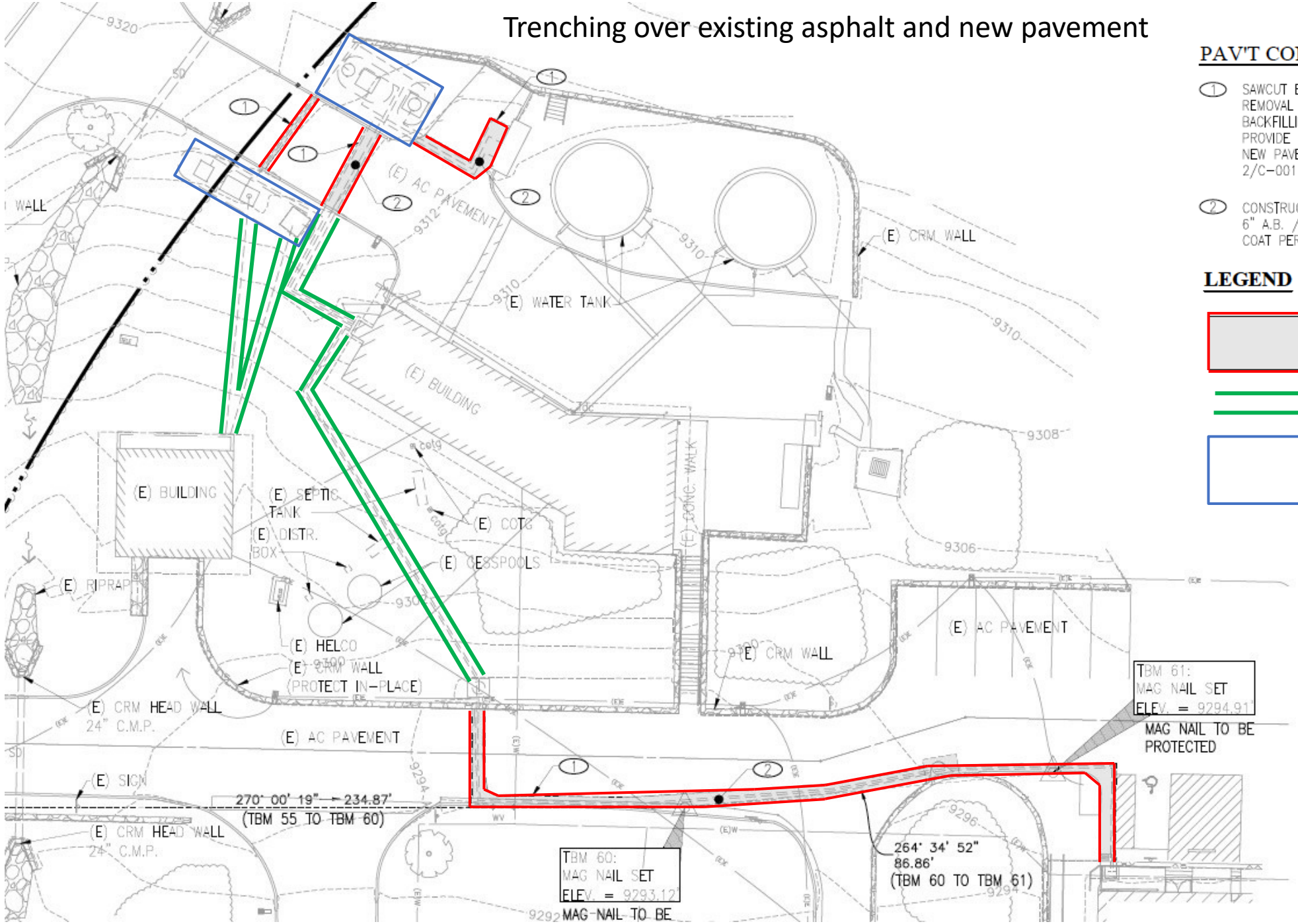
2. 1–1/2" minus base course to within 1–feet of ground surface. Backfill in minimum 2 lifts of 12" maximum and compacted to 90% maximum density.

3. Backfill remaining 1–foot with cinder.

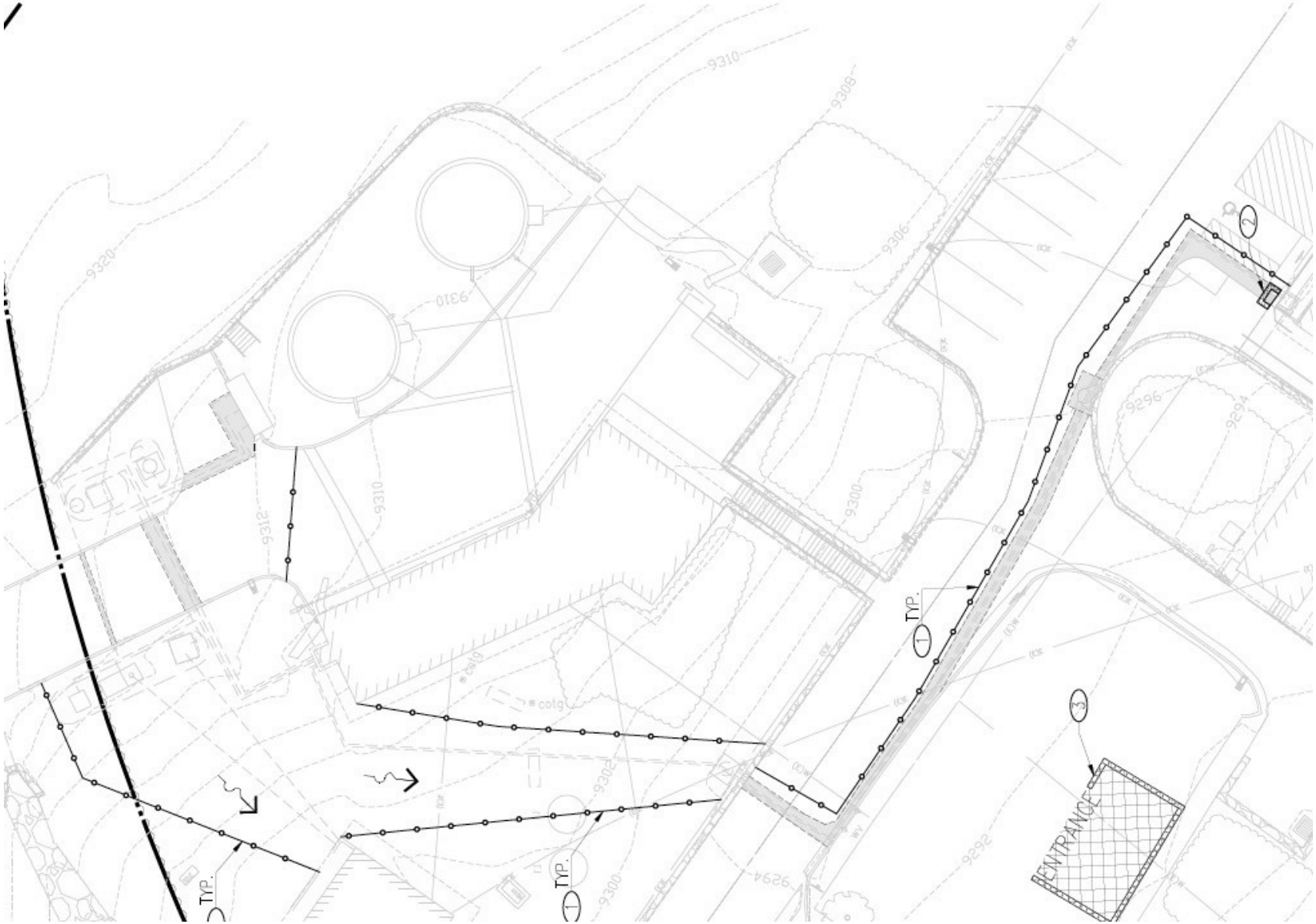
4. Equipments to be brought in and used during construction shall be thoroughly cleaned to avoid the introduction on invasive species. All imported materials to be brought in by the contractor shall comply with the requirements of the Mauna Kea Invasive Species Management Plan. Obtain copy of the management plan from the Mauna Kea Support Services.



Trenching over existing asphalt and new pavement



BMP Plan



BMP CONSTRUCTION NOTES

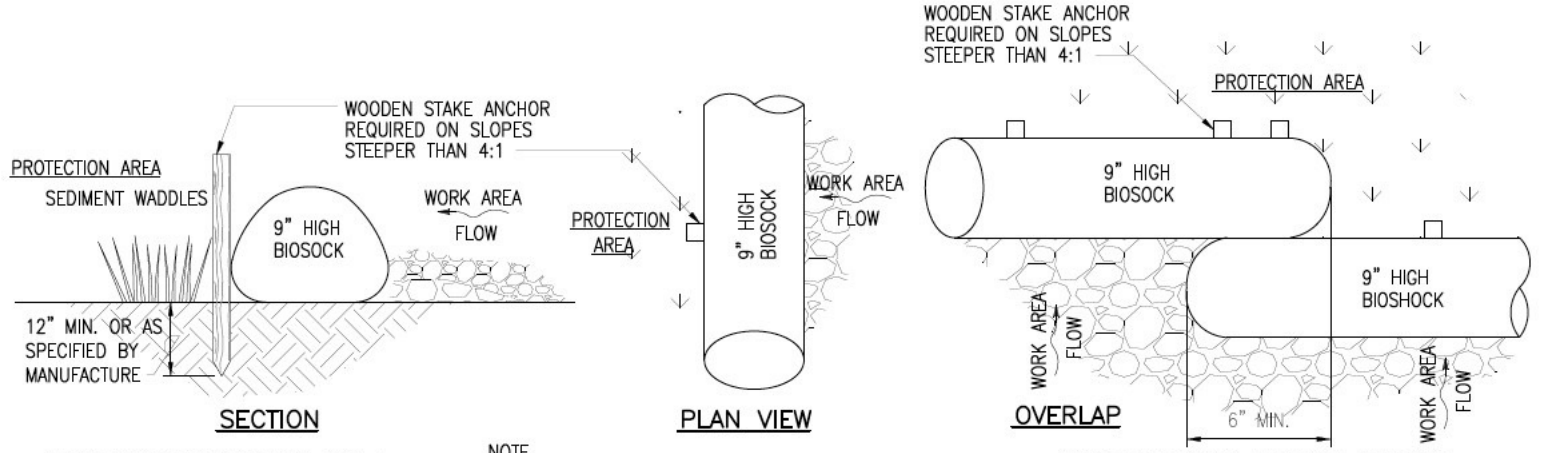
(ORDER OF PRECEDENCE FOR INSTALLATION)

1. CONSTRUCT SILT FENCE OR BIOSOCK PER DET. (1/C-103) (2/C-103)
2. BIOSOCK AROUND DRAINAGE SUMP PER DETAIL (2/C-103)
3. CONSTRUCT GRAVEL BAG FILTERS AROUND STOCK PILE/ DEBRIS/VEHICLE/EQUIPMENT STORAGE AREA. COORDINATE FINAL LOCATION WITH DIRECTOR (3/C-105)

LEGEND

- PAVED AREAS
- SILT FENCE/BIOSOCK
- RUNOFF FLOW DIRECTION
- PROTECTED STOCKPILE, DEBRIS, AND VEHICLE/EQUIPMENT STORAGE AREA

Site Specific BMP Control Measures



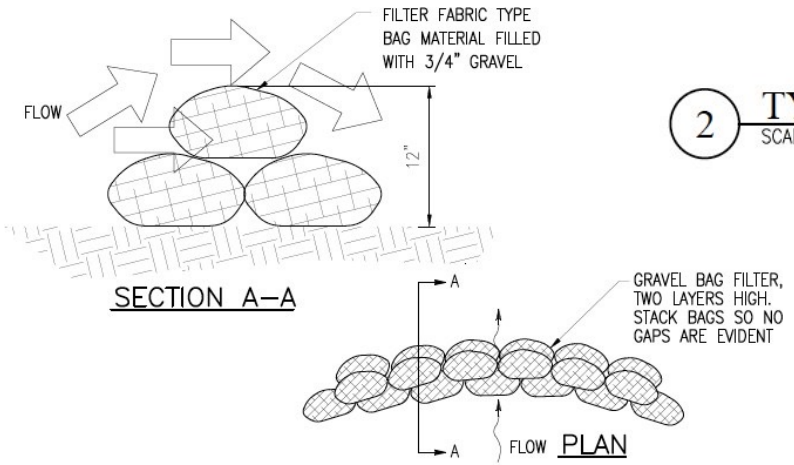
*WOOD ANCHOR STAKES SHALL HAVE A NOMINAL CLASSIFICATION OF 3/4" BY 3/4" AND MINIMUM LENGTH OR 24 INCHES. DO NOT USE REBAR OR OTHER METAL RODS

NOTE
PRODUCT SHOWN IS A PRODUCT OF HAWAII BIOSOCKS. PRODUCT MAY BE A PRODUCT OF HAWAII BIOSOCKS OR APPROVED EQUAL

WOODEN STAKE ANCHOR SPACING

SLOPE GRADIENT	ANCHOR SPACING
<4:1	NOT REQUIRED
4:1 TO 3:1	10' ON CENTER
>3:1 TO 2:1	5' TO 10' ON CENTER
>2:1	5' ON CENTER

2 TYPICAL BIOSOCK INSTALLATION
SCALE: NOT TO SCALE



3 GRAVEL BAG FILTER
SCALE: NOT TO SCALE

2

Post UST Removal Fuel Storage & Dispensing Plan

Fuel will still be required at the mid level facilities after the UST's have been removed.

Diesel

is the most critical of the two fuels stored and it is used to fuel the heavy equipment used in road maintenance and snow removal as well as one of the boilers that provide heating to Hale Pohaku (there is one propane boiler and one diesel boiler). Once the UST's are removed, the plan is to replace the diesel boiler with a propane boiler.

Current Diesel use is between 200 and 500 gal per month.

Diesel consumption increases during months with heavy snow storms or during propane shortages.

Minimum delivery load for diesel is 2,500 gal.

Gasoline

Used by CMS, MKSS and MKO vehicle fleets. Gasoline is less critical than Diesel, however, it provides fueling capability for fleets that remain on the mountain like ranger vehicles, snow removal vehicles, and some observatory mountain fleets.

Current gasoline consumption is approximately 2,500 gal per month.

Minimum delivery load for gasoline is 2,500 gal.

Proposed Solution

Assumptions
- Avg Diesel use/mo: 200 gal
- Avg Gas use /mo: 2,500 gal
- Min Delivery volume 2,500 gal

The Transtank Pro P12 is a static, economic, double-walled fuel tank. These bulk fuel tanks are for fleet refueling or the sale of fuel, and can be fitted to become complete fuel dispensing and management systems.

SECURABLE
Strong, durable and secure structure with added protection from bumps, scratches and dings.

STACKABLE
Tanks can be stacked, reducing storage space requirements (while empty).

DOUBLE-WALLED
Built-in, weather proof secondary containment, eliminates the need for berms or basins.

UNDER TANK VISIBILITY
Containers can be easily inspected without the hassle of lifting the tank.

MAINTAINABLE
Access manyway, allows access to inner tank for easy routine maintenance and inspection.

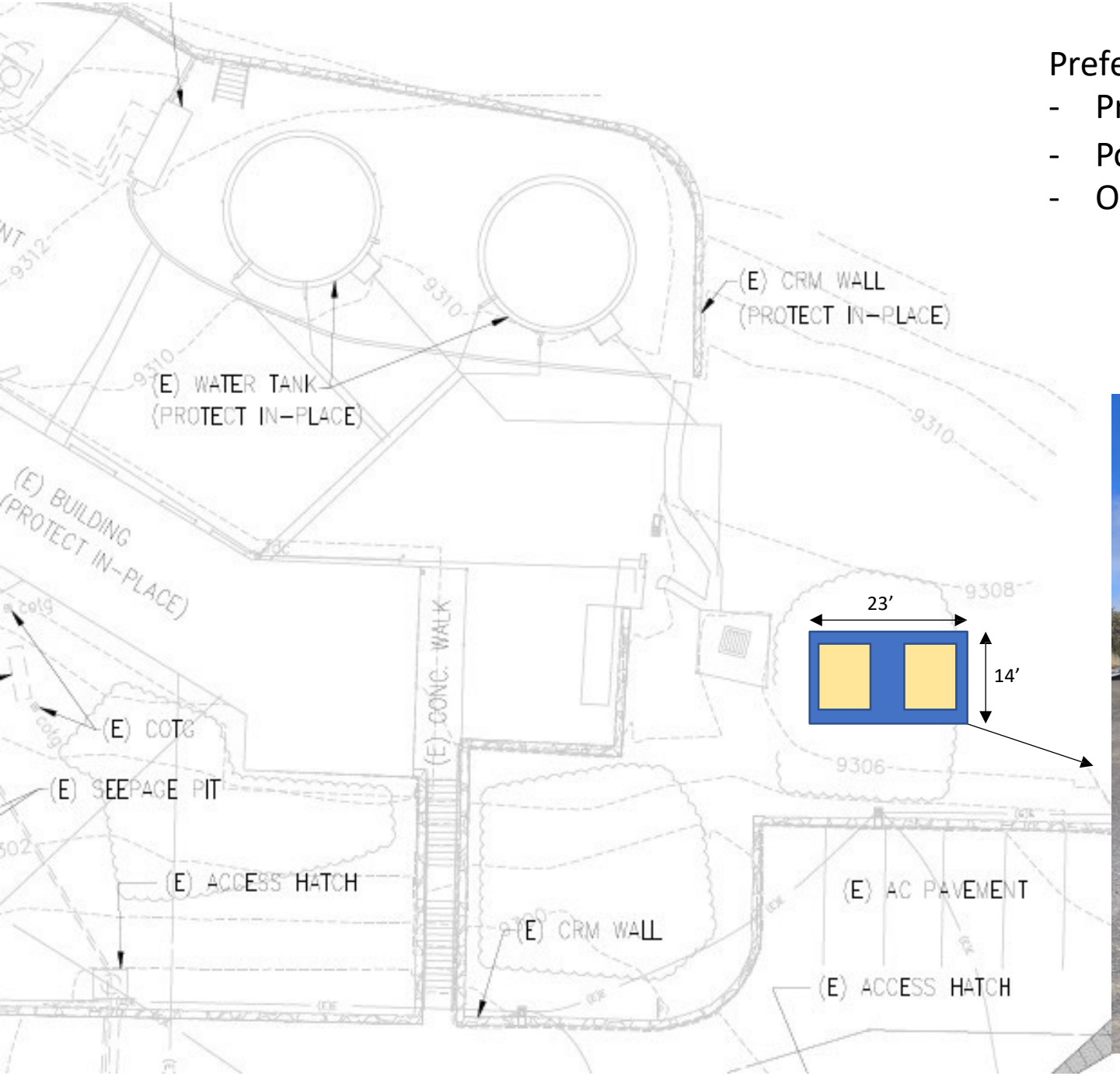
Proposed Design
Diesel & Gas
- 3,000 Diesel tank
- 3,000 Gas tank
- Diesel refill once or twice per year
- Gas refill once per month

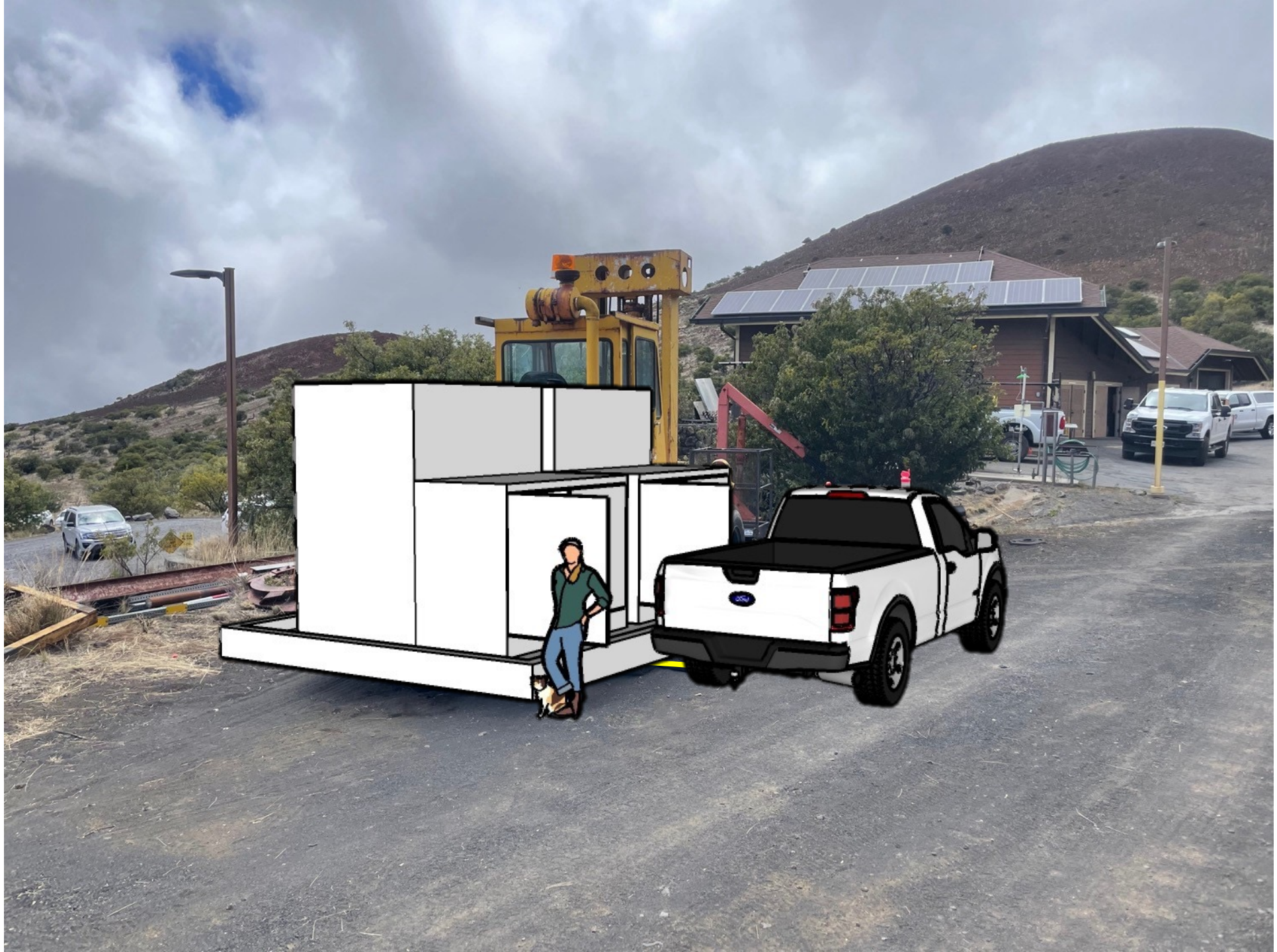
- Tank sizes selected based on minimum volume of fuel that can be delivered per load.
- Potential Location: Area east of the Utilities Base Yard just past the end of the paved driveway.


Preferred Proposed Location for AST Tanks
23'
14'

Preferred location for both AST's pending:

- Pre disturbed ground on existing gravel road.
- Power available near by
- Out of sight from summit access road.






Original Locations Considered
3
2
1
Cons:
High visibility from road
High Probability of complaints or objections