

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	5	146

LEGEND	
	Baseline
	Building
	Box
	Boring Log Location (Approximate)
	Centerline
	Chain Link Fence
	Clean Out
	Conduit (New) Concealed Below Grade
	Contour with Elevation
	Column
	Concrete Pavement
	Drain Inlet
	Drain Line with Size
	Electrical Overhead Utility Line (Existing)
	Fire Hydrant
	Guy Wire and Anchor
	Hedge
	Manhole
	Monument
	Non-Potable Water Line with Size
	Property Line
	Sewer Line with Size
	Sewer Manhole
	Sign
	Slope
	Slope Expressed as Horizontal Distance Over Vertical Distance
	Spot Elevation
	Traverse Survey Station

	Tree
	Water Meter Box
	Water Line (Existing) with Size
	Water Line (Final) with Size
	Wood Fence
	Wood Utility Pole

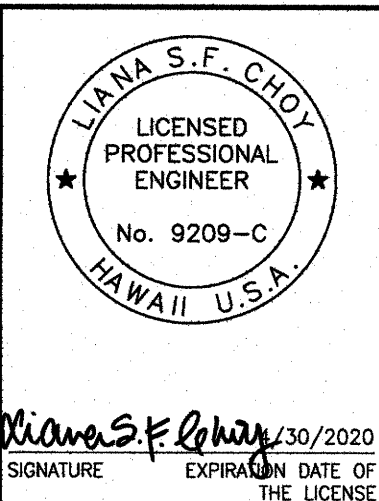
ABBREVIATIONS	
Ac	Acres
A.C.	Asphalt Concrete
ACB	Asphaltic Concrete Base
ADT	Average Daily Traffic
ARV	Air Relief Valve
BC	Bottom Curb
BVC	Begin Vertical Curve
Bot	Bottom
Bm	Beam
BW	Bottom Wall
C	Chord
C.I.P.	Cast in Place
C.L.	Chain Link
CMU	Concrete Masonry Unit
Col.	Column
Conc.	Concrete
COTG	Clean Out to Grade
Conn	Connect
Constr	Construction
Cont	Continuation
CRM	Concrete Rubble Masonry
D	Diameter or Drain
D	Directional Distribution
Det	Detail
Diam	Diameter
D.I.	Drain Inlet
DWY	Driveway
Ea	Each
Elec	Electric or Electrical
Elev	Elevation
E/	Existing
(E)	Existing
Exist	Existing
EP	Edge of Pavement
ES	Edge of Shoulder
EVC	End Vertical Curve
EW	Each Way
FF	Finish Floor
F.H.	Fire Hydrant
FL	Fire Line
GND.	Ground
GRP	Grouted Rubble Paving
G.P.	Guard Post/Guy Pole/Gate Post
GV	Gate Valve
H	Height
HMA	Hot Mix Asphalt
Horiz	Horizontal

Inv.	Invert
Jt.	Joint
Hwy	Highway
Lt	Left
Max.	Maximum
Mech	Mechanical
Min.	Minimum
NP	Non-Potable Water
o.c.	On Center
O/H	Overhead
o/s	offset
Pavt	Pavement
PC	Point of Curvature
PCC	Portland Cement Concrete
PI	Point of Intersection
PT	Point of Tangency
RPBP	Reduced Pressure Backflow Preventer
R/W	Right of Way
R	Radius
Rt	Right
S	Sewer or Spread (Tree)
SF	Square Feet
Shld	Shoulder
Sht	Sheet
Sq.	Square
St	Street
Sta	Station
Std	Standard
SL	Sewer Line
T	Tangent
TC	Top Curb
T.M.K.	Tax Map Key
TP	Top of Pipe
TS	Top of Stem
TV	Top of Valve
TW	Top of Wall or Travel Way
Typ	Typical
U.P.	Utility Pole
VB	Valve Box
VC	Vertical Curve
Vert	Vertical
VPI	Vertical Point of Intersection
W	Water
W/	With
WL	Water Line
WM	Water Meter
WV	Water Valve

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SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LEGEND, ABBREVIATIONS, & INDEX TO CIVIL DRAWINGS

MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUEY HIGHWAY
Project No. 200A-01-10

Scale: None Date: April, 2018

SHEET No. C-1 OF 26 SHEETS

C-1

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	7	146

WATER POLLUTION & EROSION CONTROL

A. General:

- See Special Provision Section 209 – Water Pollution and Erosion Control. Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the Engineer; construction requirements; method of measurement; and basis of payment. In addition, Appendix A lists potential pollutant sources and corresponding BMPs used to mitigate the pollutants.
- Follow the guidelines in the current HDOT Construction Best Management Practices Field Manual in developing, installing and maintaining the Best Management Practices (BMP) for the project. For any conflicting requirements between the Manual and applicable bid documents, the applicable bid documents will govern. Should a requirement not be clearly described within the applicable bid documents, the Contractor shall notify the Engineer immediately for interpretation. For the purposes of clarification under Note A.2, “applicable bid documents” include the construction plans, standard specifications, Special Provisions, Permits, and the Storm Water Pollution Prevention Plan (SWPPP) when applicable.
- Follow the guidelines in the Honolulu’s City & County “Rules Relating to Soil Erosion Standards and Guidelines” along with applicable Soil Erosion Guidelines for projects on Maui, Molokai, Kauai, and Hawaii.
- The Engineer may assess liquidated damages of up to \$27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209 and special provisions, for every day of non-compliance. There is no maximum limit on the amount assessed per day.
- The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.
- If necessary, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. Do not install in a location where rain water may splash into rain gage. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.
- Submit Site-Specific BMP Plan to the Engineer along with a completed Site-Specific BMP Review Checklist within 30 calendar days of contract execution. The Site-Specific BMP Review Checklist may be obtained from <http://www.stormwaterhawaii.com>.

B. Waste Disposal:

- Waste Materials**
Collect and store all waste materials in a securely lidded metal dumpster or roll off container with cover to keep rain out or loss of waste during windy conditions. The dumpster shall meet all local and State solid waste management regulations. Deposit all trash and construction debris from the site in the dumpster. Empty the dumpster weekly or when the container is two-thirds full, whichever is sooner. Do not bury construction waste materials onsite. The Contractor’s supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Post notices stating these practices in the office trailer, on a weatherproof bulletin board, or other accessible location acceptable to the Engineer. The Contractor shall be responsible for seeing that these procedures are followed. Submit the Solid Waste Disclosure Form for Construction Sites to the Engineer within 30 calendar days of contract execution. Provide a copy of all the disposal receipts from the facility permitted by the

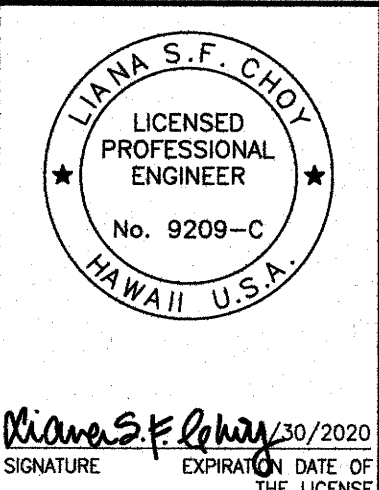
Department of Health to receive solid waste to the Engineer monthly. This should also include documentation from any intermediary facility where solid waste is handled or processed.

- Hazardous Waste**
Dispose all hazardous waste materials in the manner specified by local or State regulations and by the manufacturer. The Contractor’s site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.
 - Sanitary Waste**
Collect all sanitary waste from the portable units a minimum of once per week, or as required. Position sanitary facilities where they are secure and will not be tipped over or knocked down.
- C. Erosion And Sediment Control Inspection And Maintenance Practices:
- For projects with an NPDES Permit for Construction Activities, inspect at the following intervals. For construction areas discharging to nutrient or sediment impaired waters, inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.25 inches or greater within a 24 hour period. For construction areas discharging to waters not impaired for nutrient or sediments, inspect all control measures weekly. Inspections are only required during the project’s normal working hours. The discharge point water classification may be found in the SWPPP.
 - For projects without an NPDES Permit for Construction Activities, inspect all control measures weekly.
 - Maintain all erosion and sediment control measures in good working order. If repair is necessary, initiate repair immediately and complete by the close of the next work day if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance. When installation of a new erosion or sediment control or a significant repair is needed, install the new or modified control or complete the repair no later than 7 calendar days from the time of discovery. “Immediately” means the Contractor shall take all reasonable measures to minimize or prevent discharge of pollutants until a permanent solution is installed and made operational. If a problem is identified at a time in the day in which it is too late to initiate repair, initiation of repair shall begin on the following work day.
 - Remove built-up sediment from silt fence when it has reached one-third the height of the fence. Remove sediment from other perimeter sediment control devices when it has reached one-half the height of the device.
 - Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.
 - Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.
 - Complete and submit to the Engineer a maintenance inspection report within 24 hours after each inspection.
 - Provide a stabilized construction entrance at all points of exit onto paved roads to reduce vehicle tracking of sediments. Include stabilized construction entrance in the Water Pollution, Dust, and Erosion Control submittals. Minimum length should be 50 feet. Minimum width should be 30 feet. Minimum depth should be 12 inches or as recommended by the soils engineer and underlain with geo-textile fabric. If minimum dimensions cannot be met, provide other stabilization techniques that remove sediment prior to exit. Clean the paved street adjacent to the site entrance daily or as

required to remove any excess mud, cold-planned materials, dirt or rock tracked from the site. Do not hose down the street without containing or vacuuming wash water. Cover dump trucks hauling material from the construction site with a tarpaulin. Remove sediment tracked onto the street, sidewalk, or other paved area by the end of the day in which the track-out occurs.

- Include designated Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.
- Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.
- Personnel selected for the inspection and maintenance responsibilities shall receive training from the Contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.
- Contain, remove, and dispose slurry generated from saw cutting of pavement in accordance with approved BMP practices. Do not allow discharge into the drainage system or State waters.
- For projects with an NPDES Permit for Construction Activities, immediately initiate stabilizing exposed soil areas upon completion of earth-disturbing activities for areas where earth-disturbing activities have permanently or temporarily ceased. Earth-disturbing activities have permanently ceased when clearing and excavation within any area of the construction site that will not include permanent structures has been completed. Earth-disturbing activities have temporarily ceased when clearing, grading, and excavation within any area of the site that will not include permanent structures will not resume (i.e., the land will be idle) for a period of 14 or more calendar days, but such activities will resume in the future. For construction areas discharging into waters not impaired for nutrients sediments, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities. For construction areas discharging into nutrient or sediment impaired waters, complete initial stabilization within 7 calendar days after the temporary or permanent cessation of earth-disturbing activities. Classification of water at the discharge point may be found in the SWPPP.
- For projects without an NPDES Permit for Construction Activities, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities.

DATE	_____
SURVEY PLOTTED BY	_____
ORIGINAL PLAN	_____
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C-3

SIGNATURE: *Lianna S.F. Choy*
EXPIRATION DATE OF LICENSE: 4/30/2020
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
WATER POLLUTION & EROSION CONTROL NOTES-1	
MAUNA KEA MAINTENANCE BASEYARD	
DANIEL K. INOUEY HIGHWAY	
Project No. 200A-01-10	
Scale: None	Date: April, 2018

WATER POLLUTION & EROSION CONTROL (Continued)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	8	146

D. Good Housekeeping Best Management Practices:

1. Materials Pollution Prevention Plan
- a. Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory.

Concrete
Detergents
Paints (enamel and latex)
Metal Studs
Tar
Fertilizers
Petroleum Based Products
Cleaning Solvents
Wood
Masonry Block
Herbicides and Pesticides
Curing Compounds
Adhesives

- b. Use Material Management Practices to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. Make an effort to store only enough product as is required to do the job.
- c. Store all materials stored onsite in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.
- d. Keep products in their original containers with the original manufacturer's label.
- e. Do not mix substances with one another unless recommended by the manufacturer.
- f. Whenever possible, use a product up completely before disposing of the container.
- g. Follow manufacturer's recommendations for proper use and disposal.
- h. Conduct a daily inspection to ensure proper use and disposal of materials onsite.

2. Hazardous Material Pollution Prevention Plan

- a. Keep products in original containers unless they are not resealable.
- b. Retain original labels and Safety Data Sheets (SDS) formerly Material Safety Data Sheets (MSDS).
- c. Dispose of surplus products according to manufacturers' instructions and local and State regulations.

3. Onsite and Offsite Product Specific Plan

The following product specific practices shall be followed onsite:

- a. Petroleum Based Products:
Monitor all onsite vehicles for leaks and perform regular preventive maintenance to reduce the chance of leakage. Store petroleum products in tightly sealed containers which are clearly labeled. Apply asphalt substances used onsite according to the manufacturer's recommendation.
- b. Fertilizers:
Apply fertilizers used only in the minimum amounts recommended by the manufacturer and federal, state, and local requirements. Avoid applying just before a heavy rain event. Apply at the appropriate time of year for the location, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth. Once

applied, work fertilizer into the soil to limit exposure to storm water. Do not apply to storm conveyance channels with flowing water. Storage shall be in a covered shed or in an area where fertilizer will not come into contact with precipitation or stormwater. Transfer the contents of any partially used bags of fertilizer to a sealable plastic bin to avoid spills.

- c. Paints:
Seal and store all containers when not required for use. Do not discharge excess paint to the drainage system, sanitary sewer system, or State waters. Dispose properly according to manufacturers' instructions and State and local regulations.
- d. Concrete Trucks:
Washout or discharge concrete truck drum wash water only at a designated site as far as practicable from storm drain inlets or State waters. Do not discharge water in the drainage system or State waters. Disposal by percolation is prohibited. Clean disposal site as required or as requested by the Engineer.

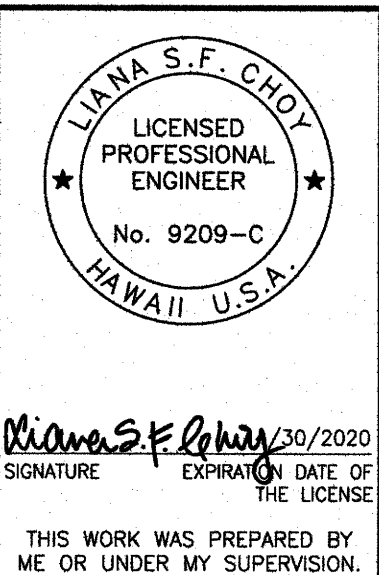
4. Spill Control Plan

- a. Post a spill prevention plan to include measures to prevent and clean up each spill.
- b. The Contractor shall be the spill prevention and cleanup coordinator. Designate at least three site personnel who shall receive spill prevention and cleanup training. These individuals shall each become responsible for a particular phase of prevention and cleanup. Post the names of responsible spill personnel in the material storage area on a weatherproof bulletin board or other accessible location acceptable to the Engineer and in the office trailer onsite.
- c. Clearly post manufacturers' recommended methods for spill cleanup. Make site personnel aware of the procedures and the location of the information and cleanup supplies.
- d. Keep ample materials and equipment necessary for spill cleanup in the material storage area onsite.
- e. Clean up all spills immediately after discovery.
- f. Keep the spill area well ventilated. Personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
- g. Report spills of toxic hazardous material to the appropriate State or local government agency, regardless of the size. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 CFR Part 110, 40 CFR Part 117, or 40 CFR Part 302 occurs during a 24-hour period, the Contractor shall notify the Engineer as soon as the Contractor has knowledge of the discharge. The Engineer will notify the National Response Center (NRC) at (800) 424-8802, the Clean Water Branch during regular business hours at 586-4309, and the Hawaii State Hospital Operator at 247-2191 and the Clean Water Branch (DOH-CWB) via email at cleanwaterbranch@doh.hawaii.gov during non-business hours immediately. The Contractor shall also provide to the Engineer, within 7 calendar days of knowledge of the release, a description of the release, the circumstances leading to the release, and the date of the release. The Engineer will provide this information to the DOH-CWB. The Engineer will provide information to the NRC if requested.

E. PERMIT REQUIREMENTS:

1. A National Pollutant Discharge Elimination System (NPDES) Permit for Construction Activities of one acre or more of disturbed area is required for this project. If the Contractor requires extra land disturbance, including staging and storage areas, that is not covered by the NPDES Permit obtained by the State, the Contractor shall be responsible for obtaining the required NPDES Construction Activities Permit to cover this additional disturbed area. See Hawaii Administrative Rules Chapter 11-55, Appendix C for definition of land disturbance. The Contractor's attention is directed to the applicable NPDES Permit documents on the bid package compact disc.
2. The Contractor shall comply with all applicable County, State, and Federal Permit conditions. Permits may include but are not limited to the following:
- a. NPDES Permit for Construction Activities
- b. NPDES Permit for Hydrotesting Waters
3. The Contractor shall prepare his bid accordingly to allow adherence to all conditions of these permits, bmps and other requirements. Copies of the permits are included in the request for proposal CD.

DATE	_____
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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
WATER POLLUTION & EROSION CONTROL NOTES-2	
MAUNA KEA MAINTENANCE BASEYARD DANIEL K. INOUEY HIGHWAY Project No. 200A-01-10	
Scale: None	Date: April, 2018
SHEET No. C-4 OF 26 SHEETS	

C-4

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	9	146

WATER POLLUTION & EROSION CONTROL (Continued)

F. Site-Specific BMP Requirements

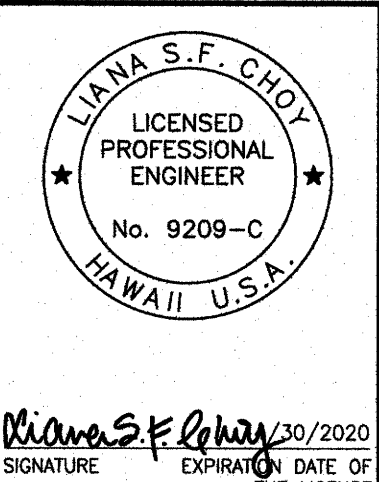
Each BMP below is referenced to the corresponding section of the current HDOT Construction Best Management Practices Field Manual and appropriate Supplemental Sheets. The Manual may be obtained from the HDOT Statewide Stormwater Management Program Website at <http://www.stormwaterhawaii.com/resources/contractors-and-consultants/> under Construction Best Management Practices Field Manual. Supplemental BMP sheets are located at <http://stormwaterhawaii.com/resources/contractors-and-consultants/storm-water-pollution-prevention-plan-swppp/> under Concrete Curing and Irrigation Water.

The requirements for Water Pollution, Dust, and Erosion Control submittals are included in Section 209 of the Hawaii Standard Specifications for Road and Bridge Construction dated 2005 and applicable Special Provisions. A list of pollutant sources and corresponding BMP used to mitigate the pollutants are included in Section 209 of the Special Provisions under Appendix A.

Follow the requirements below:

1. Protect all Drainage Inlets receiving runoff from disturbed areas (SC-2).
2. Contain on-site runoff using Perimeter Sediment Controls
 - a. SC-1 Silt Fence
 - b. SC-5 Vegetated Filter Strips and Buffers
 - c. SC-8 Compost Filter Berm
 - d. SC-13 Sandbag Barrier
 - e. SC-14 Brush or Rock Filter
3. Control offsite runoff from entering construction area
 - a. EC-8 Run-On Diversion
 - b. SC-6 Earth Dike
 - c. SC-7 Temporary Drains and Swales
4. Incorporate applicable Site Management BMP
 - a. SM-1 Employee Training
 - b. SM-2 Material Delivery and Storage
 - c. SM-3 Material Use
 - d. SM-4 Protection of Stockpiles
 - e. SM-6 Solid Waste Management
 - f. SM-7 Sanitary/Septic Waste Management
 - g. SM-9 Hazardous Waste Management
 - h. SM-10 Spill Prevention and Control
 - i. SM-11 Vehicle and Equipment Cleaning
 - j. SM-12 Vehicle and Equipment Maintenance
 - k. SM-13 Vehicle and Equipment Refueling
 - l. SM-14 Scheduling
 - m. SM-15 Location of Potential Sources of Sediment
 - n. SM-16 Preservation of Existing Vegetation
 - o. SM-18 Dust Control
5. Contain pollutants within the Construction Staging/Storage Area BMP with applicable Perimeter Sediment Controls and Site Management BMP. Include a Stabilized Construction Entrance/Exit (EC-2) for all areas which exit onto a paved street. Restrict vehicle access to these points.
6. Manage Concrete Waste including installing a Concrete Washout Area (SM-5) and properly disposing of Concrete Curing Water (California Stormwater BMP Handbook NS-12 Concrete Curing).
7. Remove saw cut slurry and hydrodemolition water from the site by vacuuming. Provide storm drain protection and/or perimeter sediment controls during saw cutting and hydrodemolition work.

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	CHECKED BY	



Signature: *Liana S.F. Choy*
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATER POLLUTION & EROSION CONTROL NOTES-3

MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10

Scale: None Date: April, 2018

C-5

BEST MANAGEMENT PRACTICES – NOTES

- Best Management Practices (BMP) presented on the BMP Plan are for suggestion only. The purpose of BMPs is to prevent the discharge of pollutants, resulting from sediment laden storm water runoff, into receiving water. Soil particles resulting from land disturbing activities, shall be prevented from entering any water of Hawaii. For this reason, the Contractor shall develop a Site-Specific Best Management Practices Plan for the project and obtain its approval by both DOH and the HDOT or his representative prior to the commencement of construction activities. Erosion and Sediment Control shall be in compliance with all provisions described in Section 209 – Water Pollution and Erosion Control, and the “Construction Best Management Practices Field Manual”, dated January 2008.
- If the Contractor has a staging/stockpile area located outside of the project limits, he shall be responsible to obtain and pay for any required land use and/or environmental permits prior to the use of these areas.
- The Contractor shall coordinate and schedule any work activities within the shoreline or marine environment with the HDOT Engineer to allow adequate time for surveying of the work area and possible relocation of coral colonies or micro-invertebrates found that will be impacted by the work.
- The Contractor shall install silt fences, diversion berms, sand bags, drain inlet protection/catch basin filters, stabilized construction ingress/egress features, and other methods as required as soon as practicable prior to commencement of construction work for sediment runoff control. The Contractor shall maintain these erosion control measures as required to ensure their effectiveness.
- Storm drain inlet protection must be used throughout the jobsite and areas outside the jobsite where construction activity may track sediment onto paved areas. Storm drain inlet protection must be placed at storm drains, drop inlets, curb inlets or wherever runoff may occur. As the project progresses, inlet protection may have to be added as determined by HDOT or his representative.
- The Contractor shall adjust distances as necessary to ensure effectiveness of gravel bag barriers and silt fence.
- The Contractor shall provide silt fence and stabilized construction entrance for each ingress/egress point unless authorized otherwise by the HDOT or his representative. Should the Contractor require ingress or egress other than that shown in detail on the plan sheet, the Contractor shall be responsible to obtain all necessary approvals.
- Measures to control erosion and other pollutants shall be in place before any earthwork or demolition is initiated.
- Slope and exposed area shall be watered, mulched, sodded or planted as soon as backfill and final grading has been established in order to control dust, erosion and sedimentation. Planting shall not be delayed until all backfilling and final grading has been completed. Backfilling shall be continuous and any area within which work has been interrupted or delayed shall be stabilized. Unless indicated otherwise on the plans or in the specifications, payment for planting or grassing required under this item (other than that specified for landscaping) shall not be paid for directly but shall be considered incidental to and included in the price bid for excavation and embankment or other relevant bid item.
- At the end of earthwork operations, existing inlets and manholes surrounding the project site shall be inspected and any accumulated sediment and debris found in the structures shall be removed. Flushing into the inlets and manholes is not permitted.

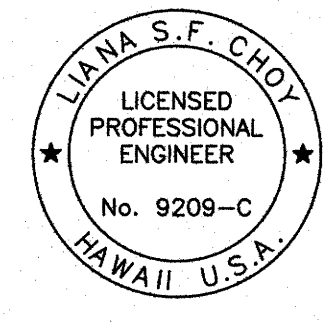
- Temporary BMPs shall not be removed until all permanent erosion controls are in place and established.
- Any backfilled or exposed areas which will be left idle for fourteen (14) calendar days or more shall be mulched or stabilized.
- Washing down of construction equipment and vehicles and wash out of concrete truck drums on site is prohibited. Wash water from wash downs shall not be discharged into drainage systems nor water courses.
- The Contractor shall provide required information to the HDOT or his representative and DOH for discharges of storm water associated with construction activity within thirty (30) days of contract execution in accordance with Section 209.
- The Contractor shall use the appropriate BMPs, as required or shown on the erosion control plan sheet and described in the Construction Best Management Practices Field Manual for runoff control, to the approval of the HDOT or his representative and DOH.
- The Contractor shall be responsible for any precaution for the health and safety of his/her employees at the project where contaminated water or other hazardous materials are present at the project site.
- Within the erosion and sediment control plan the Contractor shall establish an approved monitoring plan to verify this requirement. The site-specific BMP plan should be referred to frequently during project work and revised when site conditions or information changes. Site housecleaning to prevent indiscriminate storage of construction materials or waste is a requirement tasked or charged to the Contractor.
- Mechanized equipment and construction materials shall be clean, uncontaminated, and free of deleterious substances, including toxic chemicals and clay-coated material.
- Contractor shall be responsible for coordination of removal and disposal activities of hazardous waste in accordance with all federal, state and local regulations.
- Weekly sweeps shall be conducted at all construction entrances and exits. However, if sediment build up is heavy, daily sweeps shall be conducted. Residual asphalt or concrete produced during the job shall be immediately swept, contained and managed.
- Concrete washouts shall be generated in the staging areas of the jobsite. Washout areas shall be lined with geotextile fabric or plastic sheeting or contained in approved washout bins.
- Saw cutting waste shall be vacuumed with a shop vacuum.
- Water trucks shall be circulated throughout the jobsite.
- Fueling trucks shall be used to refuel vehicles and heavy equipment at the project location. Fueling trucks shall also store and dispense other required lubricants and fuels. In an event the fueling truck remains at the project site, the truck shall be positioned in a safe environment clear from vehicular and operational traffic.
- If necessary, absorbent pads and drip pans shall be placed under the equipment.
- Litter shall be picked up and disposed of on a daily basis.
- Portable toilets shall be placed throughout the jobsite.

GRADING NOTES:

- All grading work shall conform to Chapter 10 of the Hawaii County Code. Contractor shall obtain a Grading Permit, no work shall commence until the Department of Public Works (D.P.W.) approves a Grading Permit.
- The Contractor shall remove all silt and debris deposited in drainage facilities, roadways and other areas resulting from his work. The costs incurred for any necessary remedial action by the D.P.W. shall be payable by the Contractor.
- The Contractor, at his own expense, shall keep the project and surrounding areas free from dust nuisances. The work shall be in conformance with the Air Pollution Control Rules of the State Department of Health, Har 11-60.1, Fugitive Dust.
- All grading operations shall be performed in conformance with the applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 55, Water Pollution Control and Chapter 54, Water Quality Standards, and to the Erosion and Sedimentation Control Standards and Guidelines of the Department of Public Works, County of Hawaii.
- The Contractor shall sod or plant all slopes and exposed areas immediately after the grading work has been completed.
- Fills on slopes steeper than 5:1 shall be keyed.
- The Contractor shall inform the D.P.W. of the location of the disposal and/or borrow site(s) required for this project when an application for a grading permit is made. The disposal and/or borrow site(s) must also fulfill the requirements of the Grading Ordinance.
- No grading work shall be done on Saturdays, Sundays and Holidays anytime without prior approval from the Department of Public Works. Grading work on normal working days shall be between the hours of 7:00 a.m. to 3:30 p.m.
- Fills shall be compacted to 90 percent (90%) of maximum density per ASTM 0-1557 test.
- The Contractor shall remove all vegetation before placing fills on natural ground surface.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	10	146

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

 Mauna S.F. Choi EXPIRATION DATE OF THE LICENSE: 3/30/2020 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION BEST MANAGEMENT PRACTICES & GRADING NOTES MAUNA KEA MAINTENANCE BASEYARD DANIEL K. INOUEY HIGHWAY Project No. 200A-01-10 Scale: None Date: April, 2018 SHEET No. C-6 OF 26 SHEETS
	C-6

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	11	146

WATER NOTES:

1. All work shall be done according to the Water System Standards, State of Hawaii, dated 2002, as amended.

2. All existing waterlines, waterline appurtenances and other utility locations shown on the plans are obtained from the latest reliable sources. The Contractor shall be responsible to verify the exact location of all utilities in the field and shall bear all costs for damages done during the contract period.

3. The Contractor shall inform the D.W.S. Engineer 72 hours prior to the beginning of any waterline work and two weeks prior to any connection, chlorination, shut-off or relocation work.

4. All connections to the existing County Water System shall be done by the D.W.S. The Contractor shall perform all excavation, backfill, road repair, traffic control, and provide equipment and materials necessary to complete the connection.

5. The Contractor shall pay for all work, equipment and material furnished by the D.W.S.

6. Where water shutoff of more than 3-hours becomes necessary, the Contractor, at his own expense, shall provide a temporary bypass line, size of which shall be determined by the D.W.S. Engineer. The D.W.S. Engineer also reserves the right to require bypass lines, regardless of the water shut-off period, if deemed necessary.

7. Construction projects requiring temporary water service shall be metered and paid for by contractor.

8. Outside of State Road right-of-ways: minimum cover on water system pipelines 4-inch through 8-inch to be 2.0 feet. minimum cover on 12-inch pipelines to be 2.5 feet. minimum cover on pipelines greater than 12-inch to be 3.0 feet. minimum cover on pipelines not to exceed 5 feet unless approved by the manager of D.W.S. Within State road right-of-ways: min. cover on all sizes of waterlines to be 3.0 feet.

9. All newly installed waterlines shall have a 4 mil thick, 6-inch wide, non metallic blue warning tape over centerline of pipe labeled "caution - waterline buried below" placed 12 inches below finished grade along the entire length of the trench.

10. Minimum vertical clearance between waterlines and other utilities shall be 12-inches provided the other utility is concrete jacketed, and 18-inches if no concrete jackets are used. In all applicable instances, the waterlines shall be at a grade higher than other utilities. Utilize perpendicular crossings where practicable. For waterlines, center full pipe lengths at utility crossings whenever possible.

11. Minimum horizontal clearance between waterlines and other utilities shall be 8-feet (clear space - not centerline to centerline) for road right-of-ways of 50 feet or less, and 10-feet for road right-of-ways of more than 50 feet.

12. When waterline is within 6-feet of a pressurized sewer line or within 18-inches of a gravity sewer line, the sewer main shall be reinforced concrete jacketed. Whenever a water main crosses under a sewer main, the sewer main shall have reinforced concrete jacket on both sides of crossing to a distance 5 feet from the waterline (measured perpendicular to waterline). Standard concrete jacket details for sewer lines, as specified by the department of public works standards shall be followed. Plastic pipes shall not be jacketed. Ductile iron or concrete cylinder pipe shall be used for the portion to be jacketed.

13. All water system pipelines, 4-inches or larger in diameter, shall be ductile iron, push on joints, class 52, and all pipelines smaller than 4-inches in diameter shall be soft copper, Type "K", unless otherwise specified.

14. All fittings (minimum class 250) and gate valves (resilient type, class 200) shall be ductile iron, with mechanical joints unless otherwise specified. Butterfly valves (MJ) shall be class 250 with fusion epoxy coated interior unless otherwise specified. Slope of pipe invert at valve locations shall not exceed 6% - adjust pipe as appropriate per standards.

15. Pipe joint restraints for mechanical joint (MJ) fittings and MJ valves shall be "Megalugs" series as manufactured by EBAA Iron, Inc., or an approved equal (wedge type), where ever called for on the plans and specifications.

16. Fire hydrant assemblies shall utilize EBAA "Megalugs" (or approved equal) at all MJ connections.

17. 4'x4'x4" reinforced concrete slab for fire hydrant shall be reinforced with 6x6x 10/10 welded wire fabric. Slab to slope away from hydrant at 2% in all directions.

18. The waterline shall be tested at a minimum of 225 psi or one-and-one-half times the static pressure at the low point (whichever is greater), under D.W.S. supervision. The testing shall be done just prior to paving, whenever applicable.

19. The contractor shall be responsible for the chlorination of the water system per the most current standards of governing agencies and shall bear all cost(s). The person(s) engaged to do the chlorination work must have the appropriate valid license to perform the work in the State of Hawaii.

20. Existing valves, fire hydrant units, valve boxes, frames and covers designated "remove and salvage" shall be cleaned of all dirt, scabs, and concrete and delivered to the respective D.W.S. baseyard. This work shall be considered incidental to the various bid items, unless specified otherwise.

21. Existing waterlines, valves, fittings and appurtenances not designated "remove and salvage" shall be abandoned in place. All exposed valve boxes, valves, pipes and appurtenances shall be removed and disposed of properly at no cost to the D.W.S.

22. Removal of existing fire hydrant units as follows: For mechanical joint fittings - plug tee at the main; For lead joint fittings - cut tee from main and install pipe nipple using two transition couplings.

23. Meter boxes for 5/8-inch meters placed outside of pavement to be Type "B" per Std Details M1 & M2. Meter boxes for 1-inch meters or for 5/8-inch meters located within pavement to be Type "X" per Std Detail M3.

24. Relocation of existing meters shall be done under D.W.S. supervision. Relocations of customer service lines to relocated meters shall be copper (Type "K") and done by the Contractor. All work and materials shall be provided by the Contractor and considered incidental to the relocation work. Existing meter boxes damaged by the Contractor shall be replaced at the Contractor's cost. When applicable, a dielectric union shall be used to connect the copper pipe to the customer's galvanized iron (G.I.) pipe.

25. Solder (1/8-inch dia.) and flux used shall not contain more than 0.2% lead.

26. When compaction tests are required, the Contractor shall be responsible to provide the D.W.S. with proctor results of materials to be used for that portion of the work requiring compaction. These results shall be certified and shall be furnished to D.W.S. one week prior to commencement of work. Cost for compaction tests shall be incidental to pipeline installation.

27. The Contractor shall be responsible to maintain and certify the record drawings (as-built drawings) as to accuracy and as-built condition, and a licensed Engineer shall certify the drawings. The Contractor shall then submit the record drawings and as-built tracings to the D.W.S.

28. Lots requiring a Department of Water Supply approved backflow prevention assembly shall have one. Backflow device installation may not be required for final subdivision approval but must be installed, where required, before water service is allowed. It must be installed on private property in accordance with D.W.S. Standard Detail No. V9 and departmental staff must approve the installation before water service can be started.

29. When necessary per D.W.S. Stds. or cross connection control requirements, install D.W.S. approved reduced pressure principle type backflow prevention assembly, above ground and immediately after meter on customer's property, per D.W.S. Standard V-9. No taps or connections are allowed between the meter and the approved backflow preventer. If the distance between the meter and the backflow preventer is greater than 5 feet, then the line between them shall be concrete jacketed. Concrete jacket encasement shall be a minimum of 3 inches all around pipe. Inspection by D.W.S. cross-connection personnel required at time of concrete placement. Assembly testing requirements are 1x per year. The owner shall make their own provisions for those times when the backflow prevention assembly is being tested.

30. Pressures at all locations within the water system improvements shall not be less than 40 psi static or greater than 125 psi static. Pressures at all locations within the water system shall not fall below 20 psi residual during maximum day flow plus fire flow from any fire hydrants within the water system improvements shown.

31. For County Water Systems: The D.W.S. will not assume ownership or grant any water service until the water system is dedicated to the D.W.S. along with all necessary easements and documents.

32. For private water systems: The Department of Water Supply (D.W.S.) is providing its review and inspection for the subject water system improvements only. This review is based on the information and certification provided to D.W.S. by the Developer, Licensed Architect or Engineer, and the owner of the water company/utility and successors or assigns, and is for general conformance to the current water system standards and D.W.S. rules and regulations.

33. Water system approved on conformance to water system standards only. Plan approval and signature by the Manager, Department of Water Supply only indicates that the water system improvements shown on the plans generally conform to water system standards for the County of Hawaii. They are not guarantees of water availability or of a water commitment for the subject project which are handled separately from plan review.

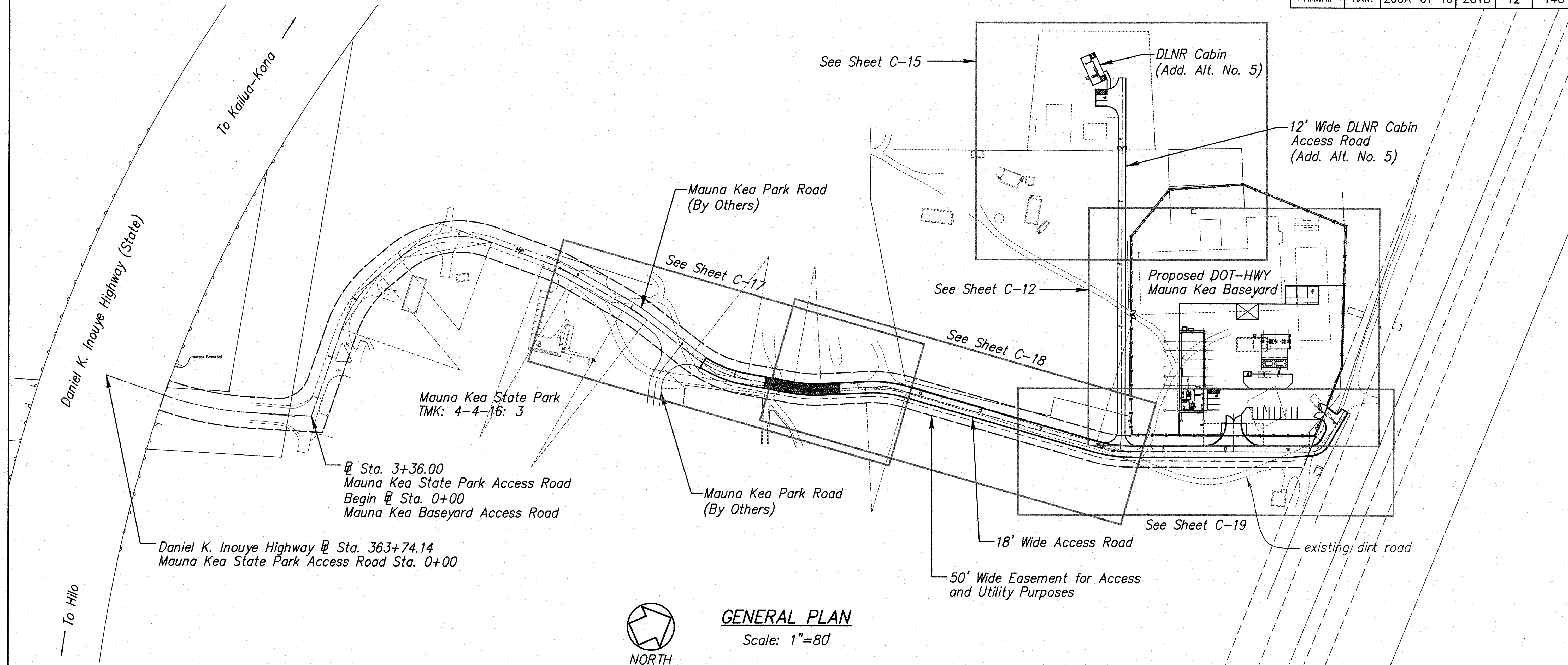
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CHECKED BY	_____
NOTED BY	_____
ORIGINAL PLAN	_____
NO.	_____

C-7

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
WATER NOTES	
MAUNA KEA MAINTENANCE	
BASEYARD	
DANIEL K. INOUE HIGHWAY	
Project No. 200A-01-10	
Scale: None	Date: April, 2018
SHEET No. C-7 OF 26 SHEETS	

11

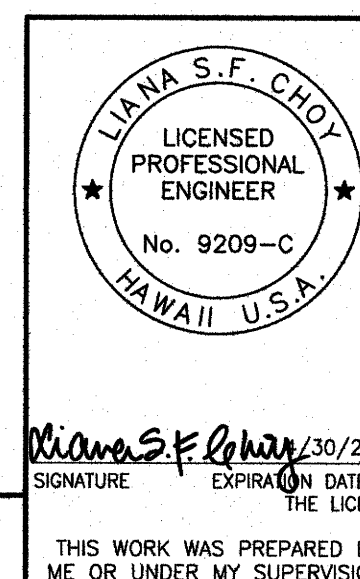
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	12	146



GENERAL PLAN
 Scale: 1"=80'

0 40' 80' 160' 240'
 Scale: 1"=80'

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
NOTED BY	
CHECKED BY	
NO.	



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

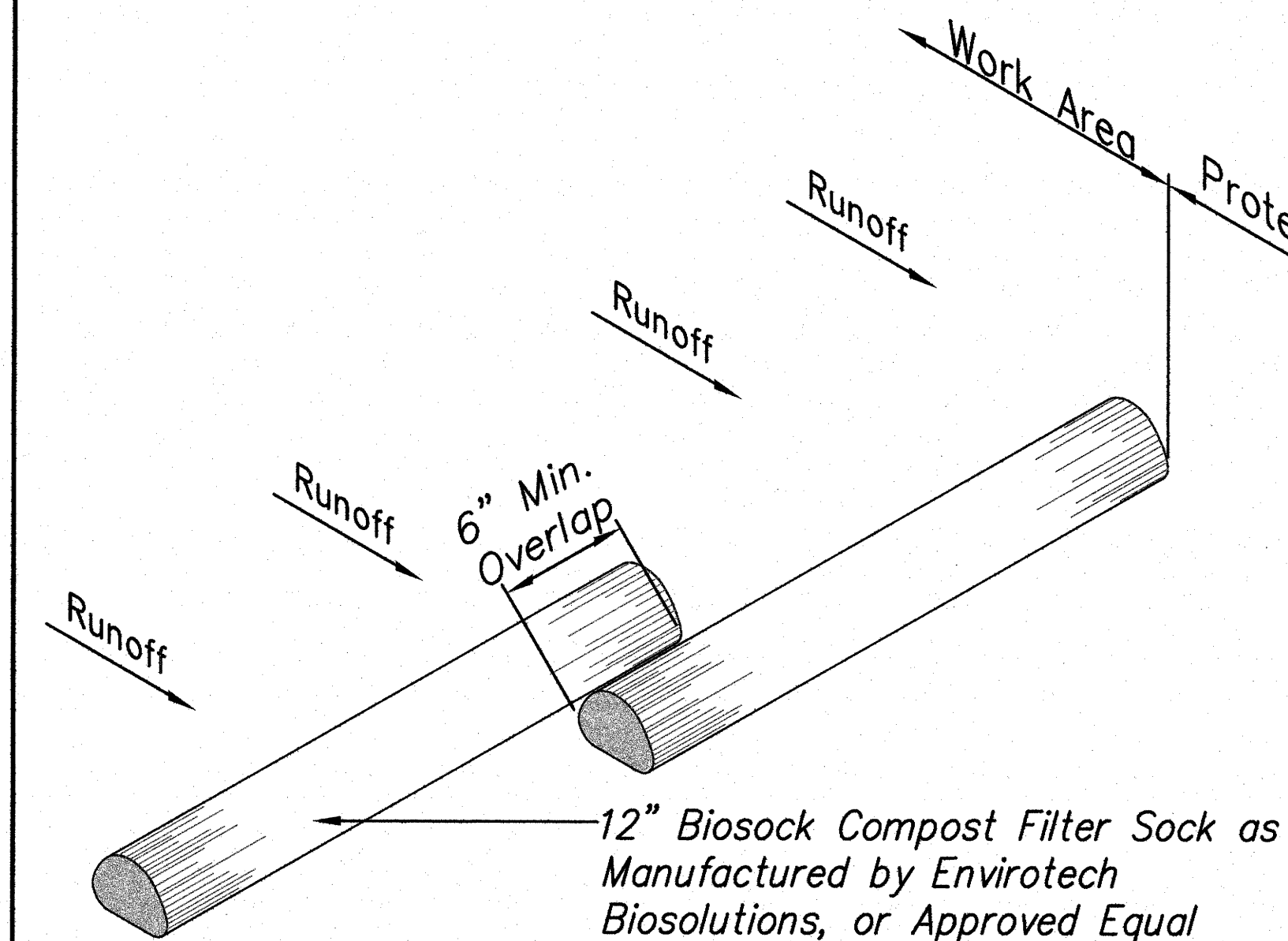
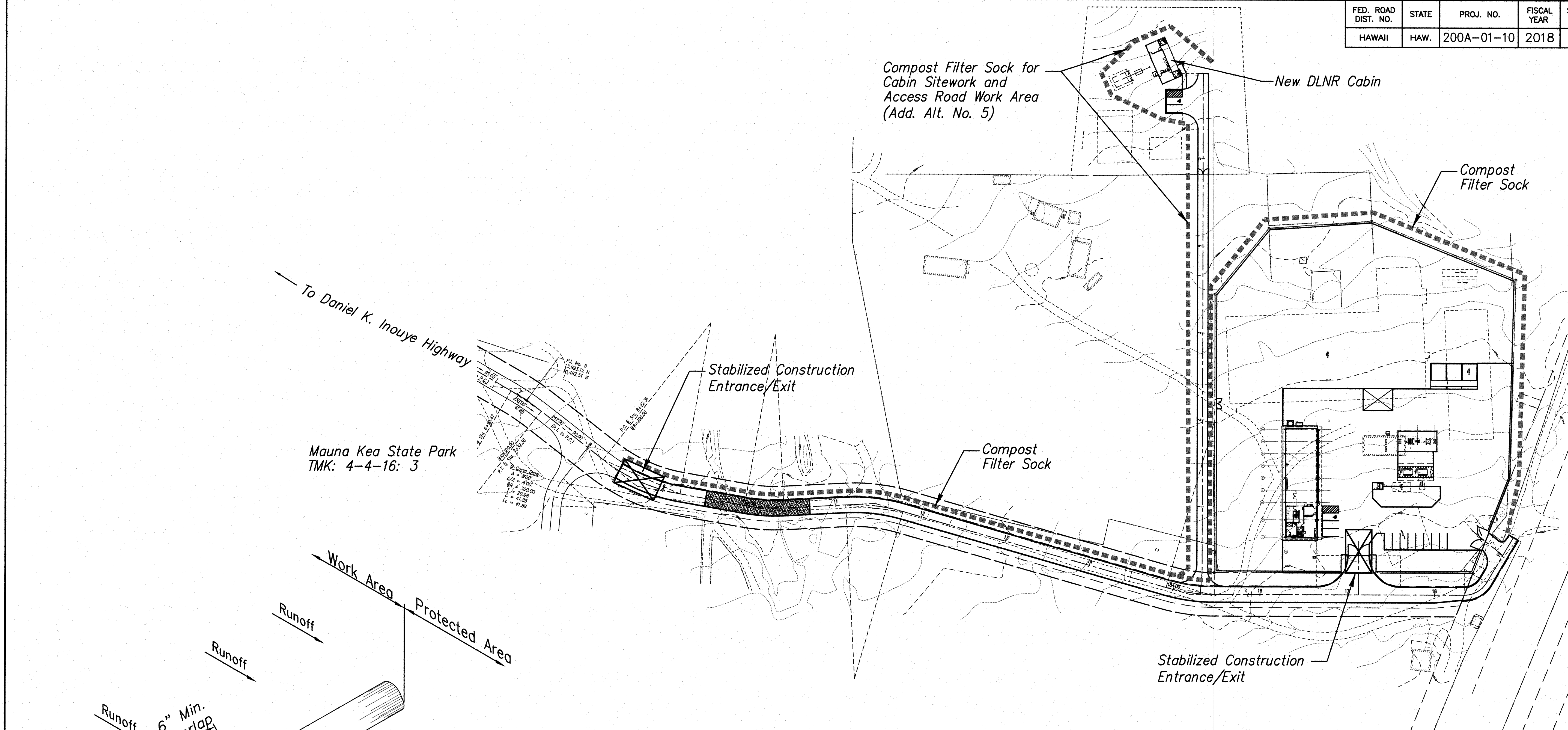
GENERAL PLAN

MAUNA KEA MAINTENANCE
 BASEYARD
 DANIEL K. INOUE HIGHWAY
 Project No. 200A-01-10

Scale: As Shown Date: April, 2018

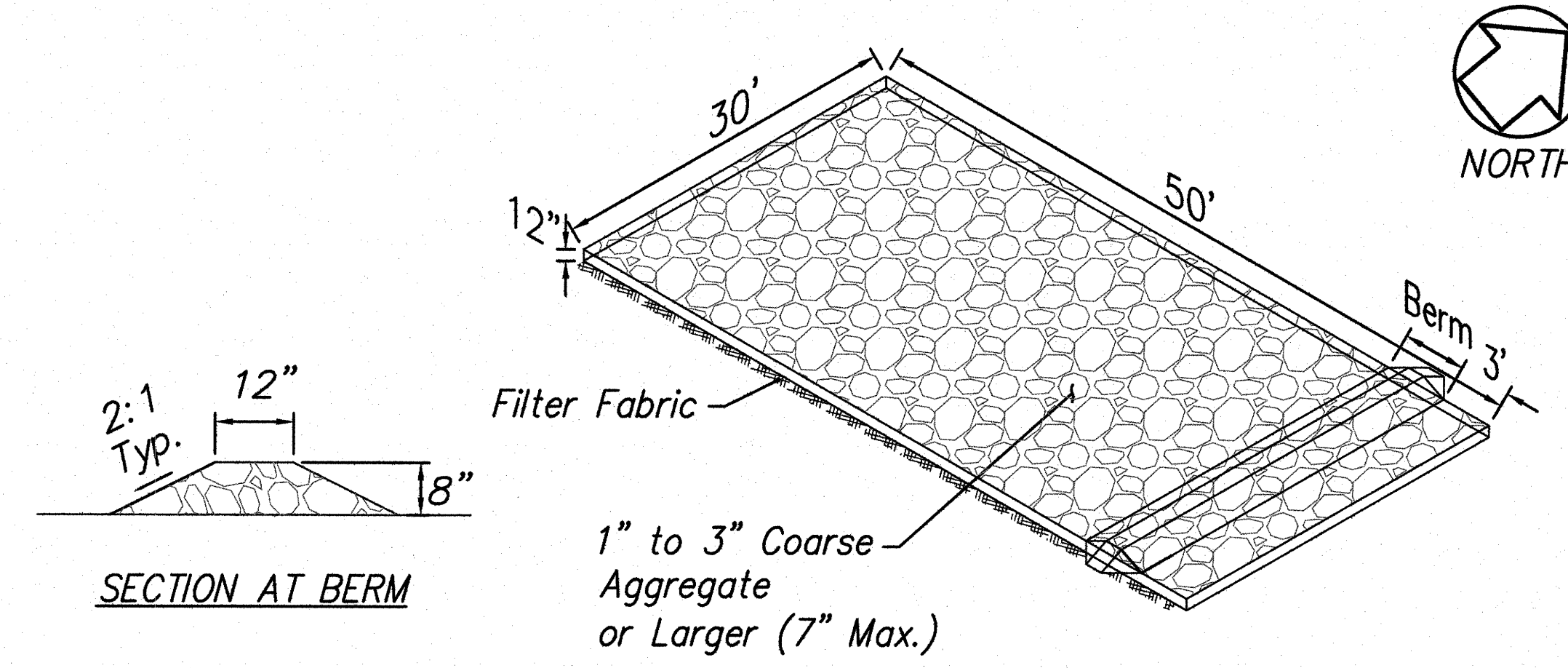
C-8

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	13	146



- Notes:**
1. Compost shall not contain Biosolids and shall be consistent with EPA Guidelines.
 2. Compost Filter Sock to be installed per Manufacturer's Recommendations.
 3. Staking of Compost Filter Sock is not required.

COMPOST FILTER SOCK DETAIL
NOT TO SCALE



STABILIZED CONSTRUCTION ENTRANCE/EXIT
NOT TO SCALE

EROSION CONTROL PLAN
Scale: 1"=60'
0 30' 60' 120' 180'
Scale: 1"=60'

NORTH

LINA S.F. CHOI
LICENSED PROFESSIONAL ENGINEER
No. 9209-C
HAWAII, U.S.A.

Lina S.F. Choi
SIGNATURE
EXPIRATION DATE OF THE LICENSE: 3/30/2020

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN AND DETAILS

MAUNA KEA MAINTENANCE BASEYARD

DANIEL K. INOUE HIGHWAY

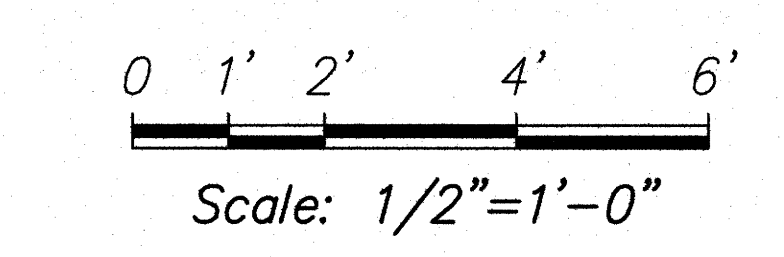
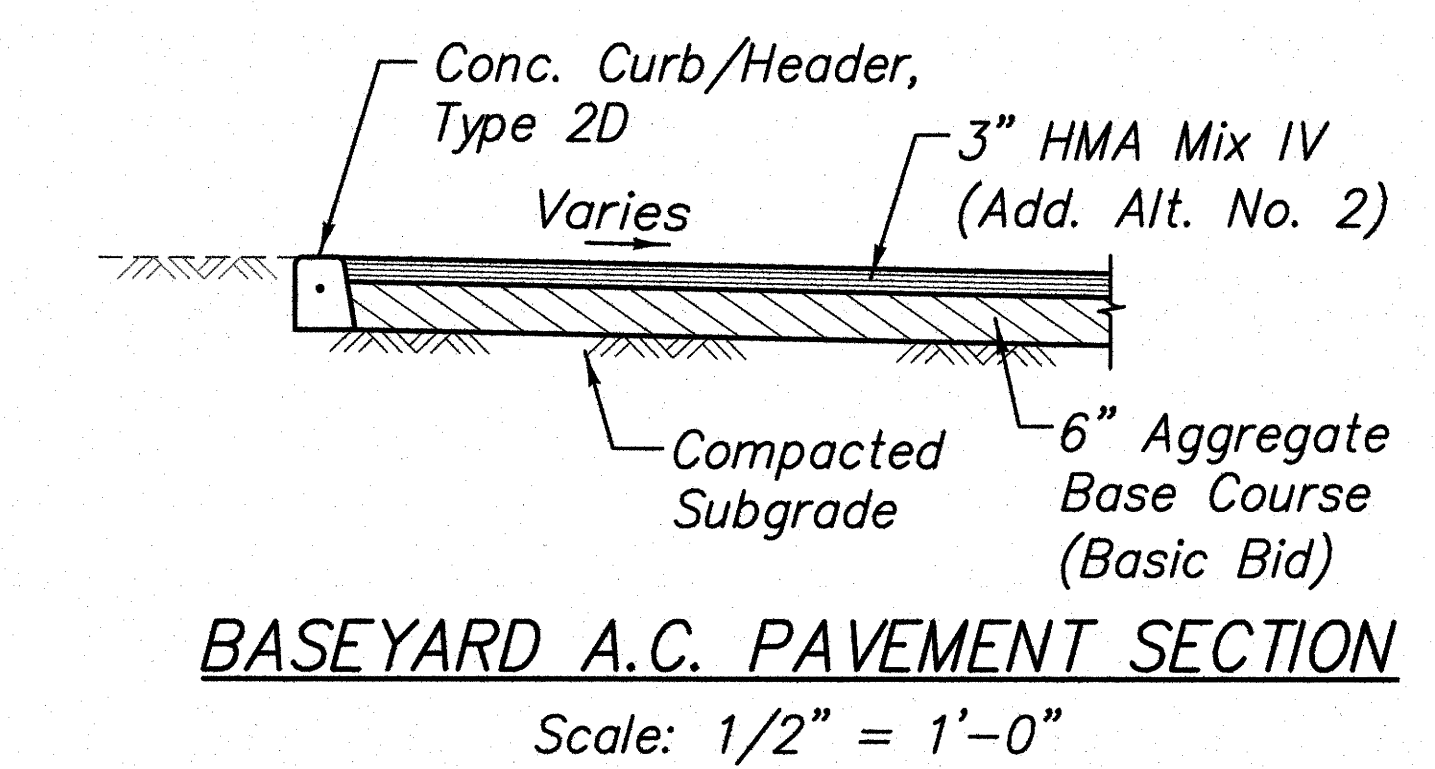
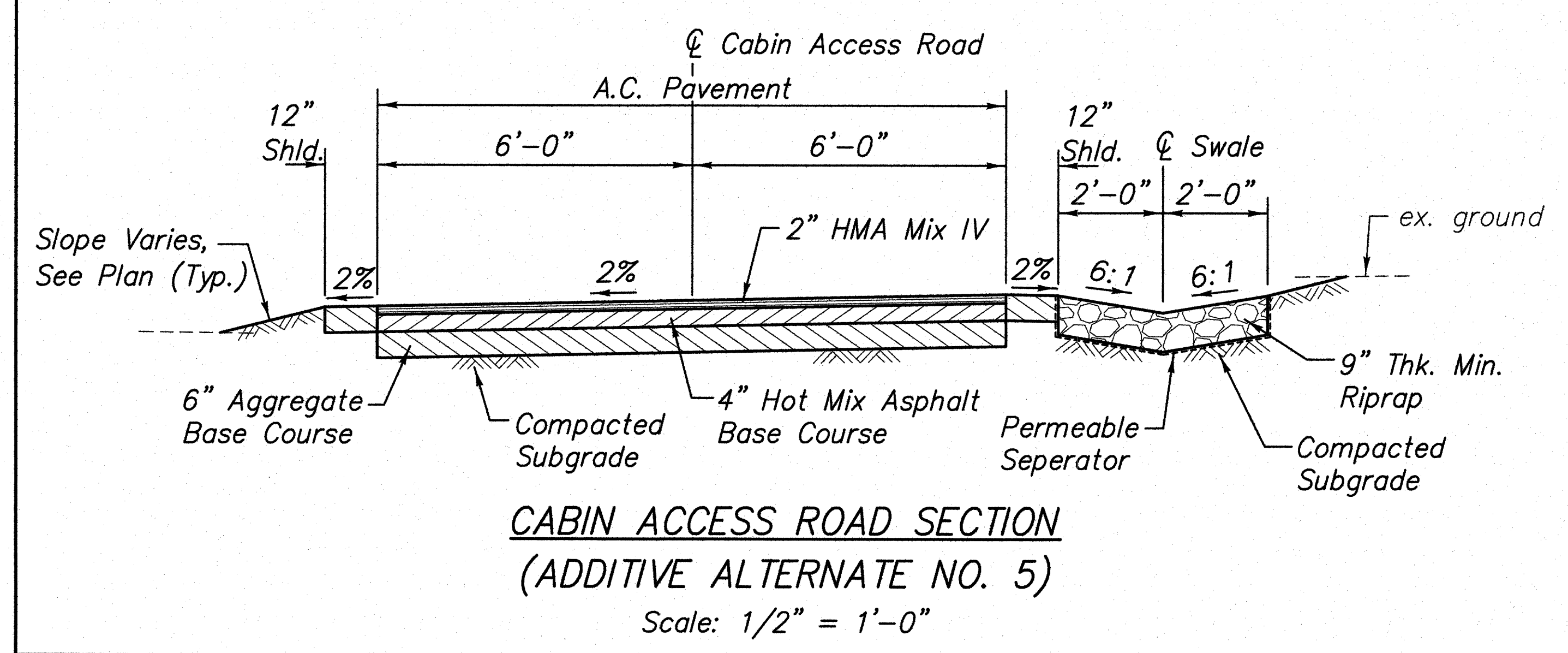
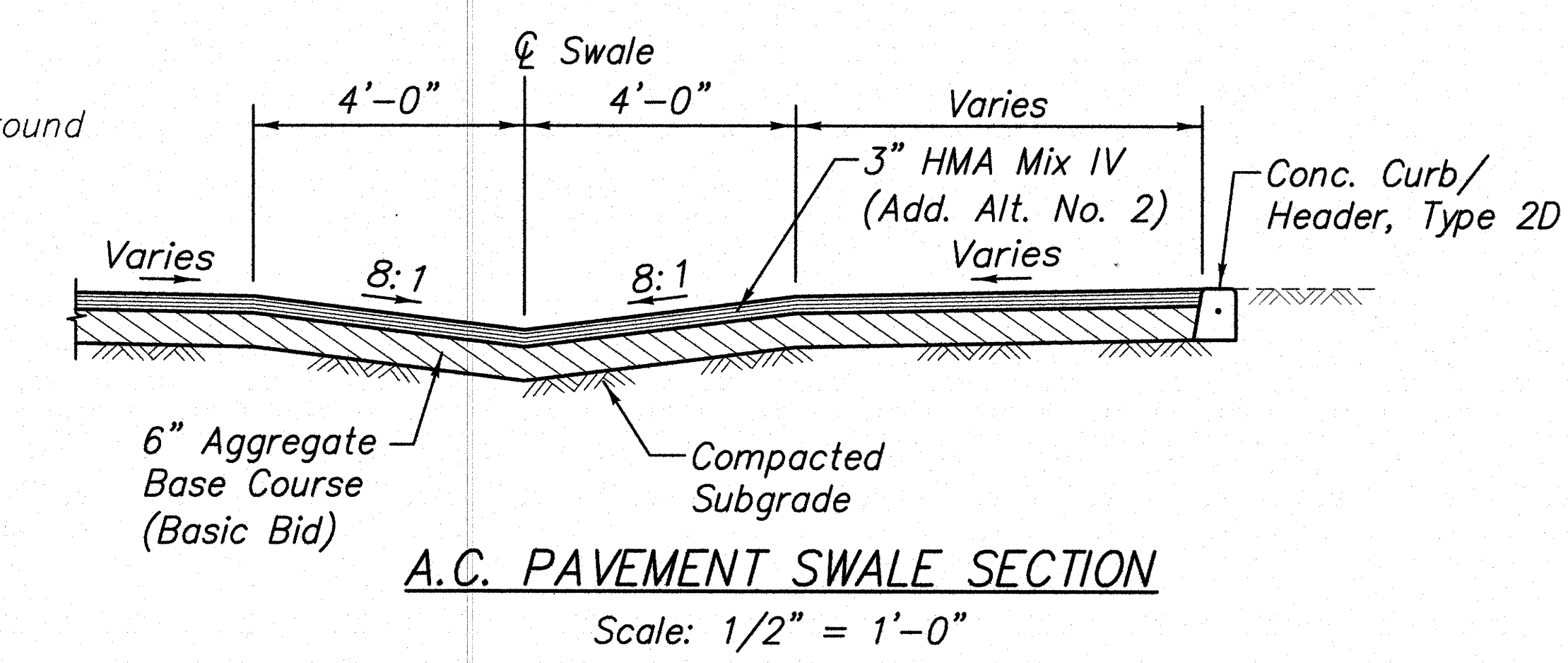
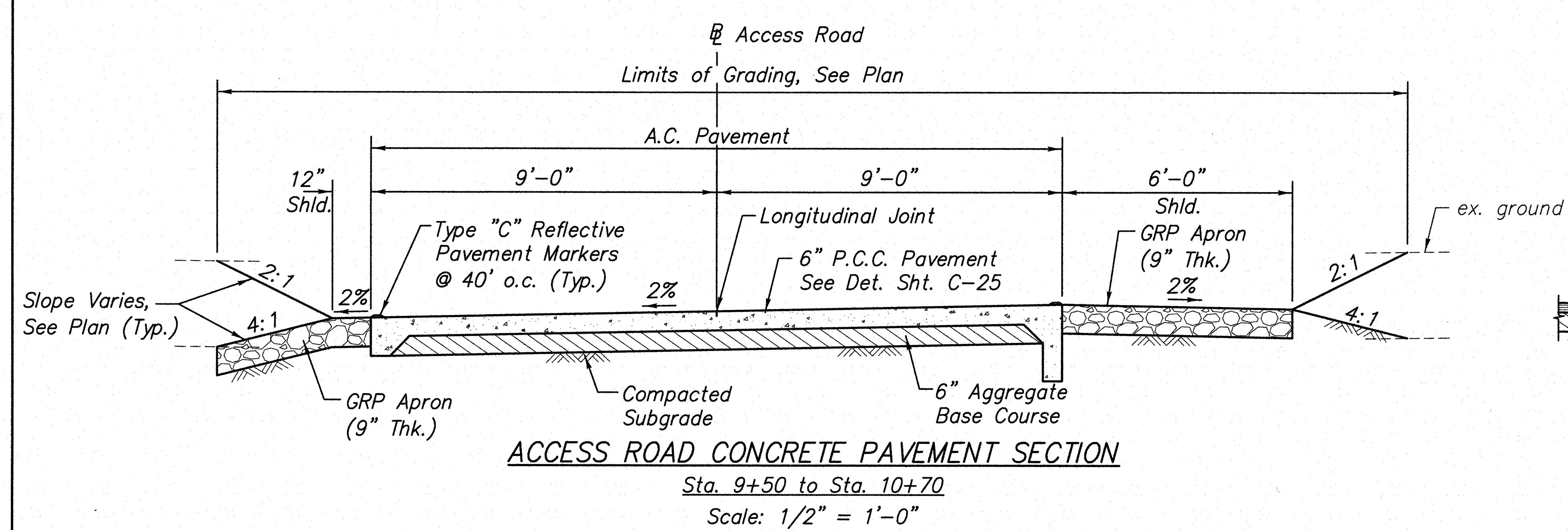
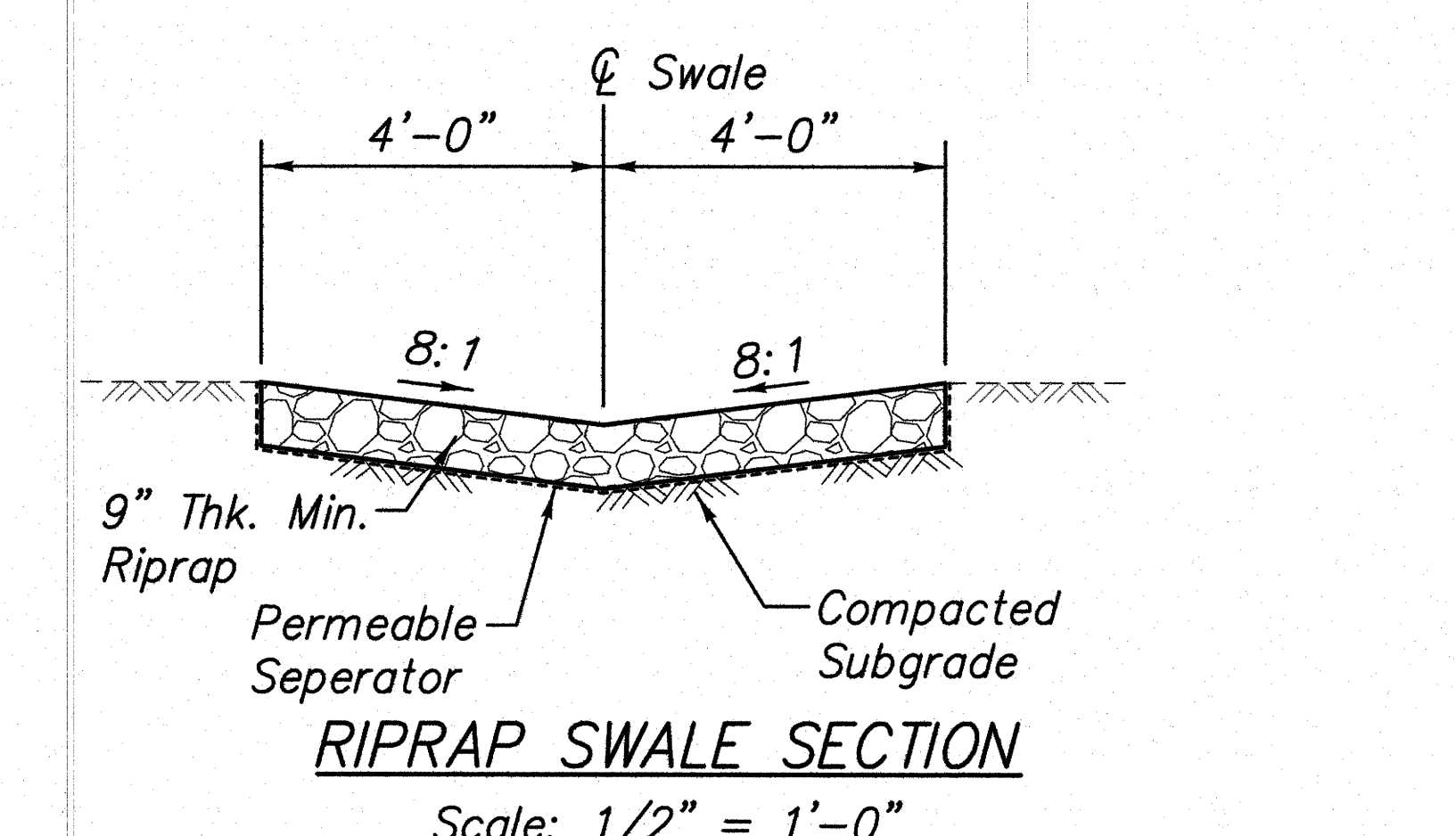
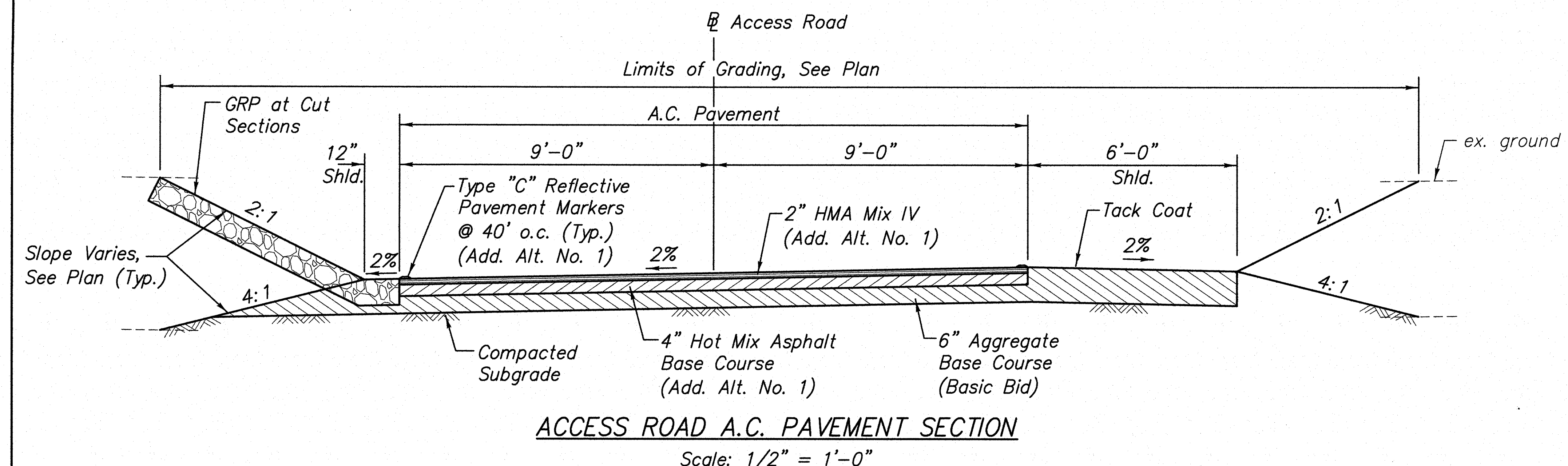
Project No. 200A-01-10

Scale: As Shown Date: April, 2018

SHEET No. **C-9** OF 26 SHEETS

SURVEY PLOTTED BY	DATE
DESIGNED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	14	146



LIANA S.F. CHOY
LICENSED PROFESSIONAL ENGINEER
No. 9209-C
HAWAII, U.S.A.

Signature: *Liana S.F. Choy*
Date: 3/30/2020

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL SECTIONS

MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10

Scale: As Shown Date: April, 2018

SHEET No. C-10 OF 26 SHEETS

ORIGINAL PLAN
DATE: _____
DRAWN BY: _____
TRACED BY: _____
DESIGNED BY: _____
CHECKED BY: _____
No. _____

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	15	146

Notes:

1. *Extent of removal is approximate. additional removal required for the construction shall be incidental to the project and will not be considered for additional compensation.*
2. *The Contractor shall preserve and protect all existing items not designated to be demolished.*
3. *All foundations, concrete slabs, and utilities shall be removed and disposed of for the building, sheds, and pens shown to be removed unless otherwise noted.*
4. *Tree removal work shall include felling and removal of trees, and removal of stumps and roots.*
5. *See Landscape Plan for relocation of the existing Mamane Trees.*

Cesspool Demolition Notes:

1. Contractor shall not backfill cesspool until specific written Underground Injection Control (UIC) instructions are issued. Backfill and Abandonment without instruction and authorization from the UIC program is subject to penalty and corrective action under HRS 340E.
2. Prior to backfilling, the cesspool shall be pumped out and cleaned, and contents disposed of properly. The top three (3) feet, including the concrete cover shall be removed.
3. Contractor shall backfill the cesspool as instructed by the UIC instructions.

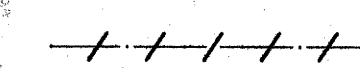
LEGEND



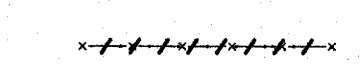
Remove existing tree



Remove existing structure

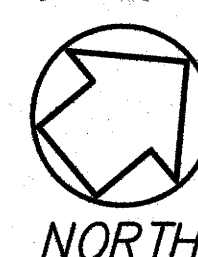
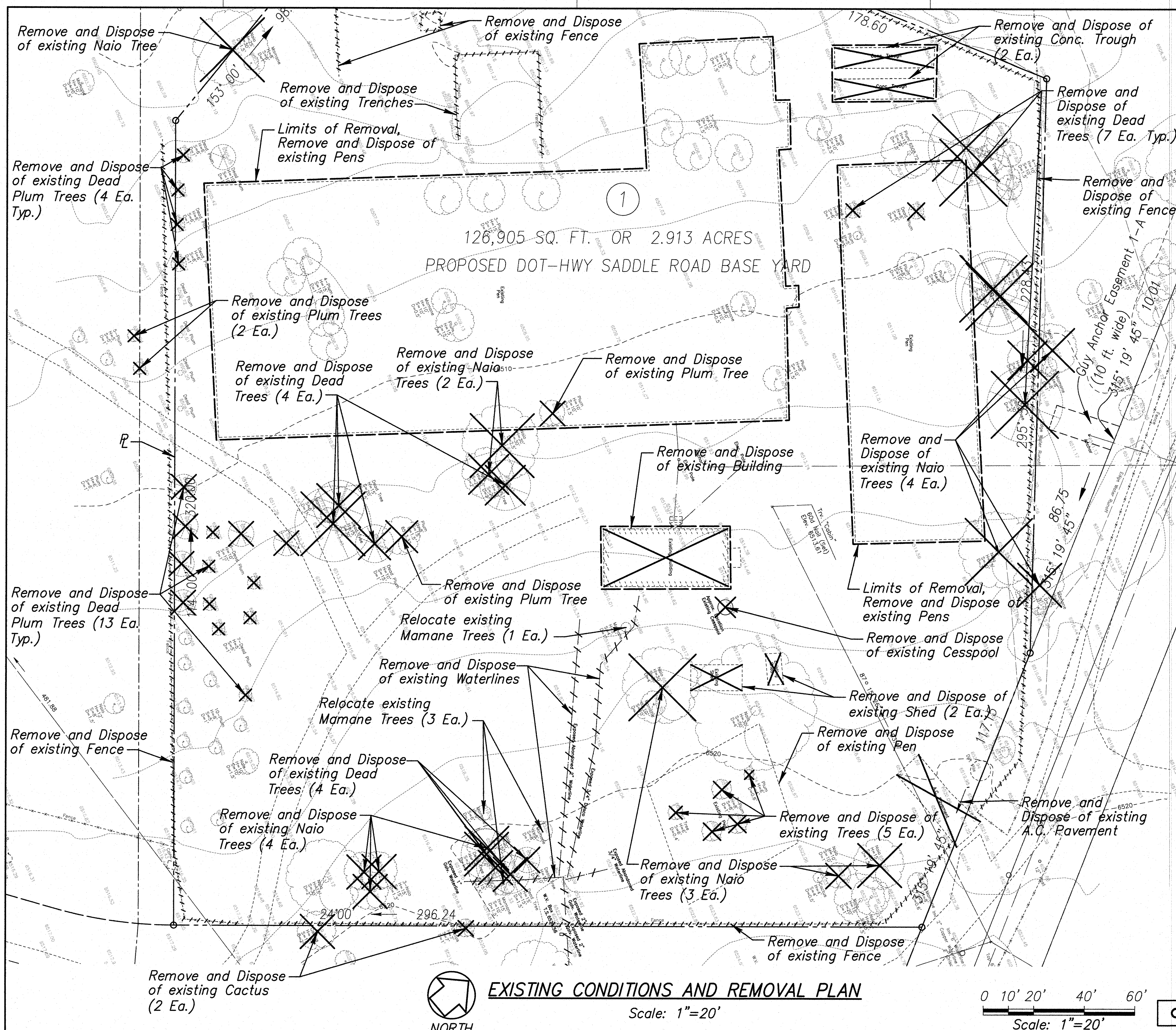


- Remove existing utility line



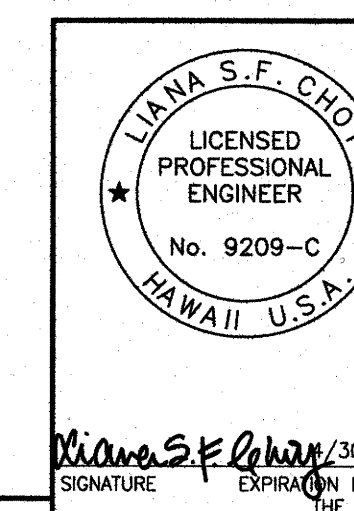
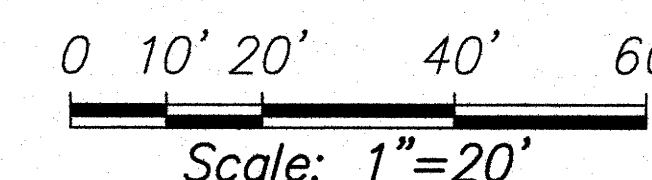
Remove existing fence

ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK	DRAWN BY _____ " _____
	TRACED BY _____ " _____
	DESIGNED BY _____ " _____
	QUANTITIES BY _____ " _____
to _____	CHECKED BY _____ " _____



EXISTING CONDITIONS AND REMOVAL PLAN

Scale: 1"=20'



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

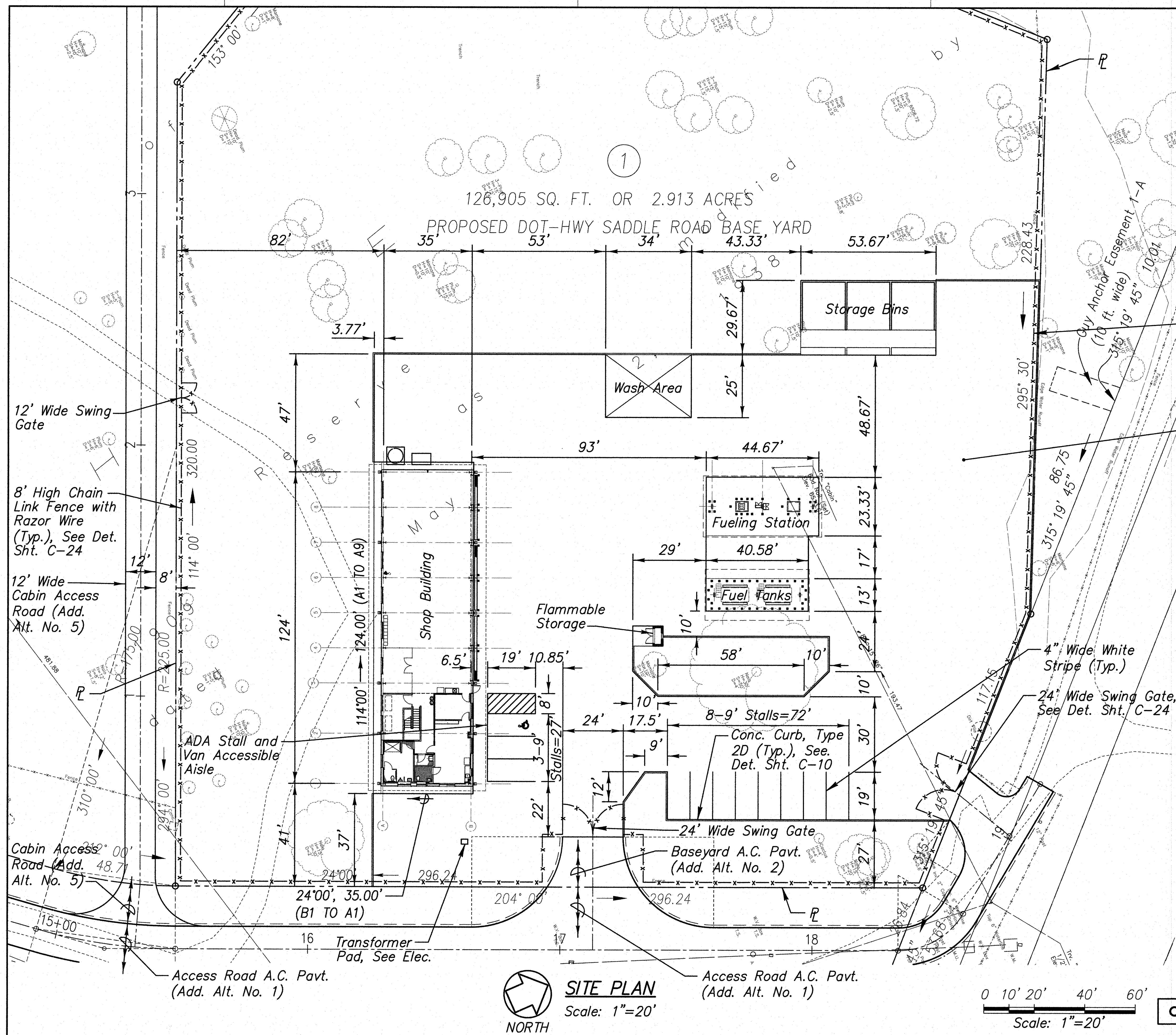
EXISTING CONDITIONS AND REMOVAL PLAN

MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10

Scale: 1"=20' Date: April, 2018

SHEET No. C-11 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	16	146



8' High Chain Link Fence with Razor Wire (Typ.), See Det. Sht. C-24

A.C. Pavement 3" HMA Mix IV (Add. Alt. No. 2) 6" Aggregate Base Course (Basic Bid)

4" Wide White Stripe (Typ.)

24' Wide Swing Gate, See Det. Sht. C-24

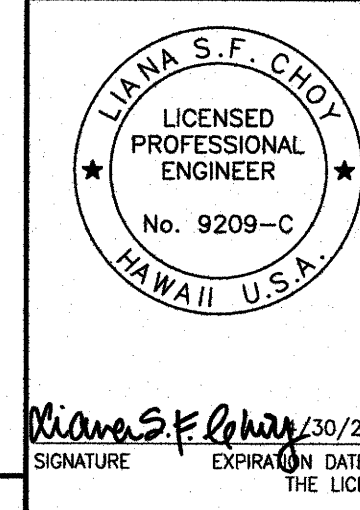
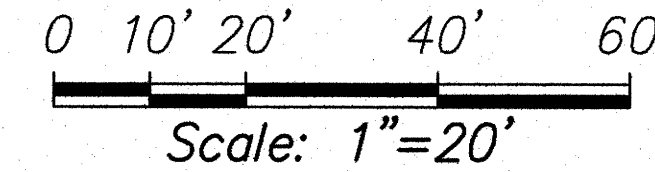
Conc. Curb, Type 2D (Typ.), See Det. Sht. C-10

Baseyard A.C. Pavt. (Add. Alt. No. 2)

Access Road A.C. Pavt. (Add. Alt. No. 1)

Access Road A.C. Pavt. (Add. Alt. No. 1)

SITE PLAN
Scale: 1"=20'



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SITE PLAN

MAUNA KEA MAINTENANCE
BASEYARD

DANIEL K. INOUEY HIGHWAY
Project No. 200A-01-10

Scale: As Shown Date: April, 2018

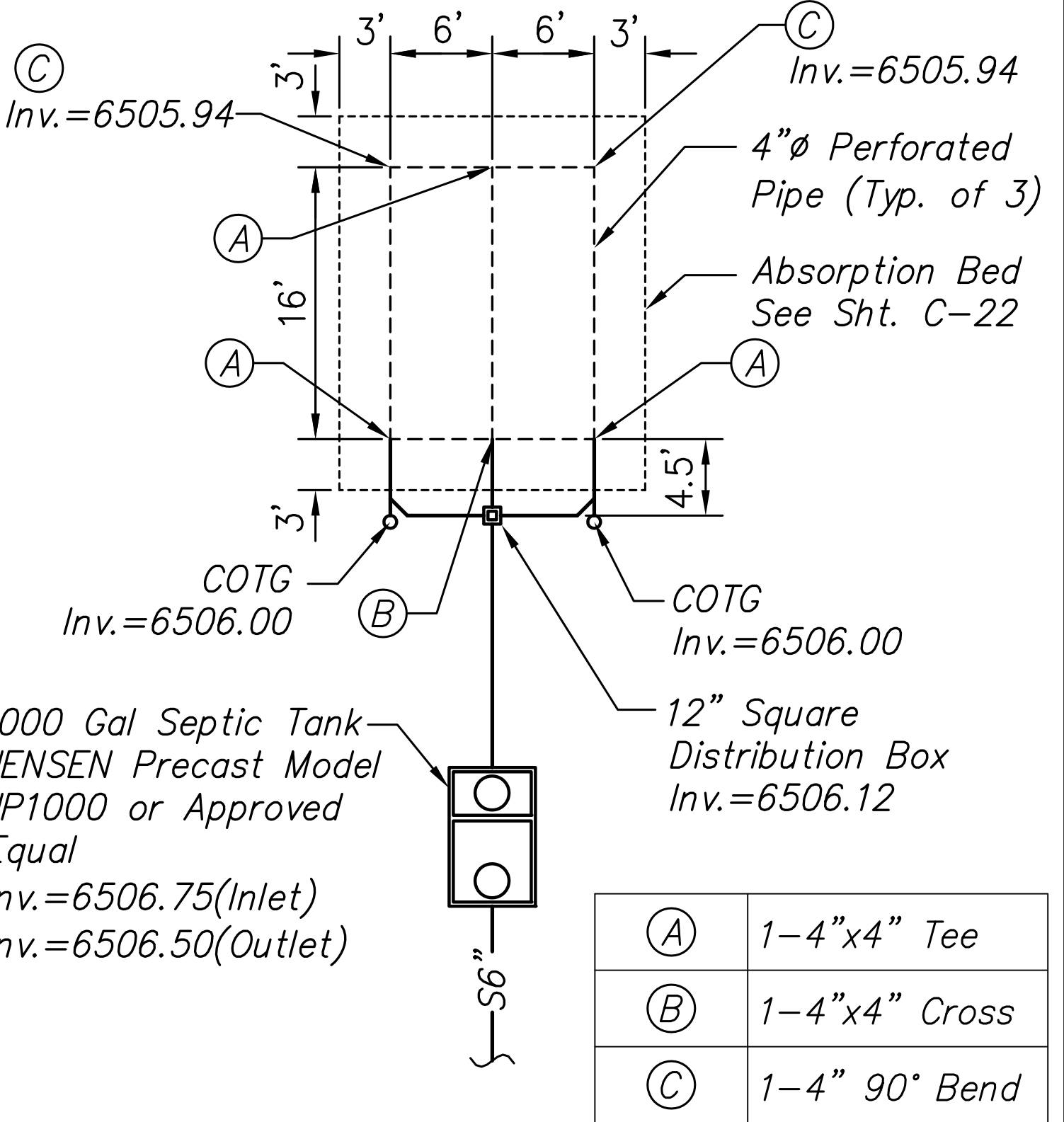
SHEET No. C-12 OF 26 SHEETS

ORIGINAL PLAN
DATE
DRAWN BY
TRACED BY
NOTED BY
CHECKED BY
No.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	ADD.17	146

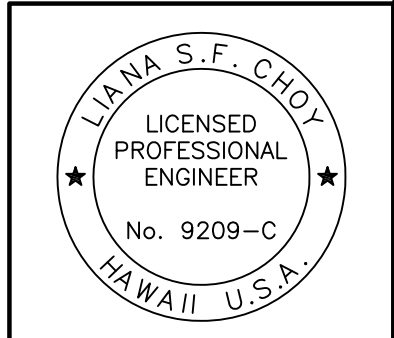
Notes:

- Contractor shall provide all necessary fittings and appurtenances required for utility installation and connection.



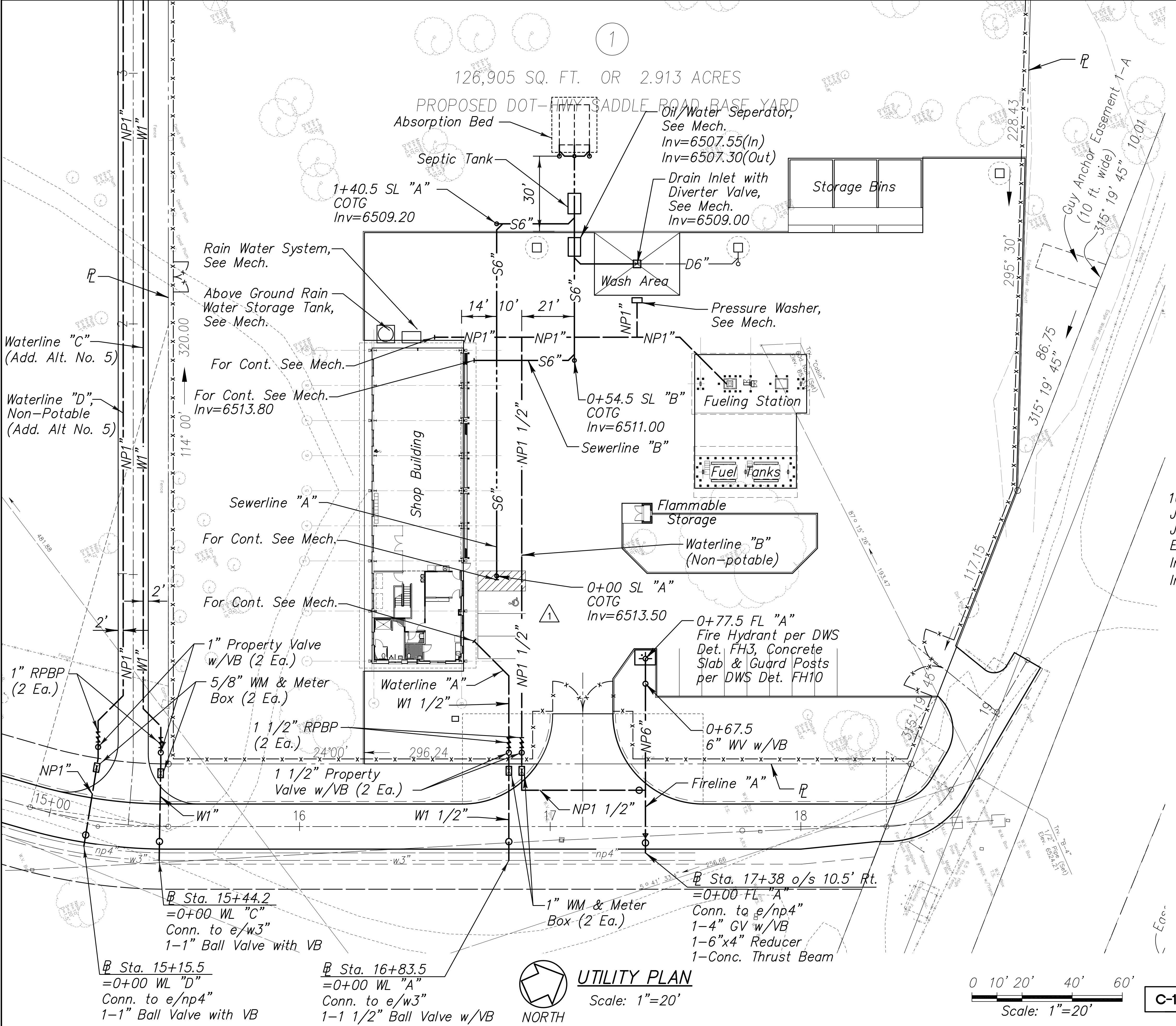
SHOP BUILDING
WASTEWATER DISPOSAL LAYOUT
Scale: 1/8"=1'-0"

06-07-18	1 REVISED NP WATER & SEWER
DATE	REVISION

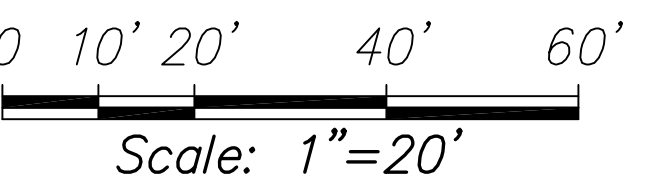


SIGNATURE
EXPIRATION DATE OF THE LICENSE
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
UTILITY PLAN
MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10
Scale: As Shown Date: April, 2018
SHEET No. C-13 OF 26 SHEETS



UTILITY PLAN
Scale: 1"=20'



DATE	_____
ORIGINAL PLAN	_____
DESIGNED BY	_____
TRACED BY	_____
QUANTITIES BY	_____
CHECKED BY	_____
No.	_____

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	18	146

Notes:

- Contractor shall grade unimproved land to fill-in existing gullies and depressions from removed structures. General existing flow pattern shall be maintained.
- Fill gullies with boulders and surplus excavated materials and compact.
- Grade entire unimproved areas following the natural slope of the land.

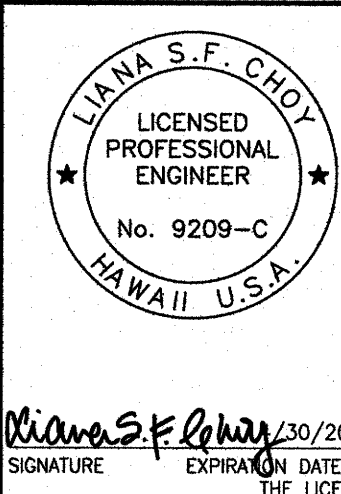
CDI C-1
Drain Inlet w/8' Sump
(See Sht. C-23)
Top=6509.5

Limits of
Grading (Typ.)

LEGEND:

- Existing Elevation
Finished Grade
Existing Contour
New Contour
Limits of Grading
New Swale

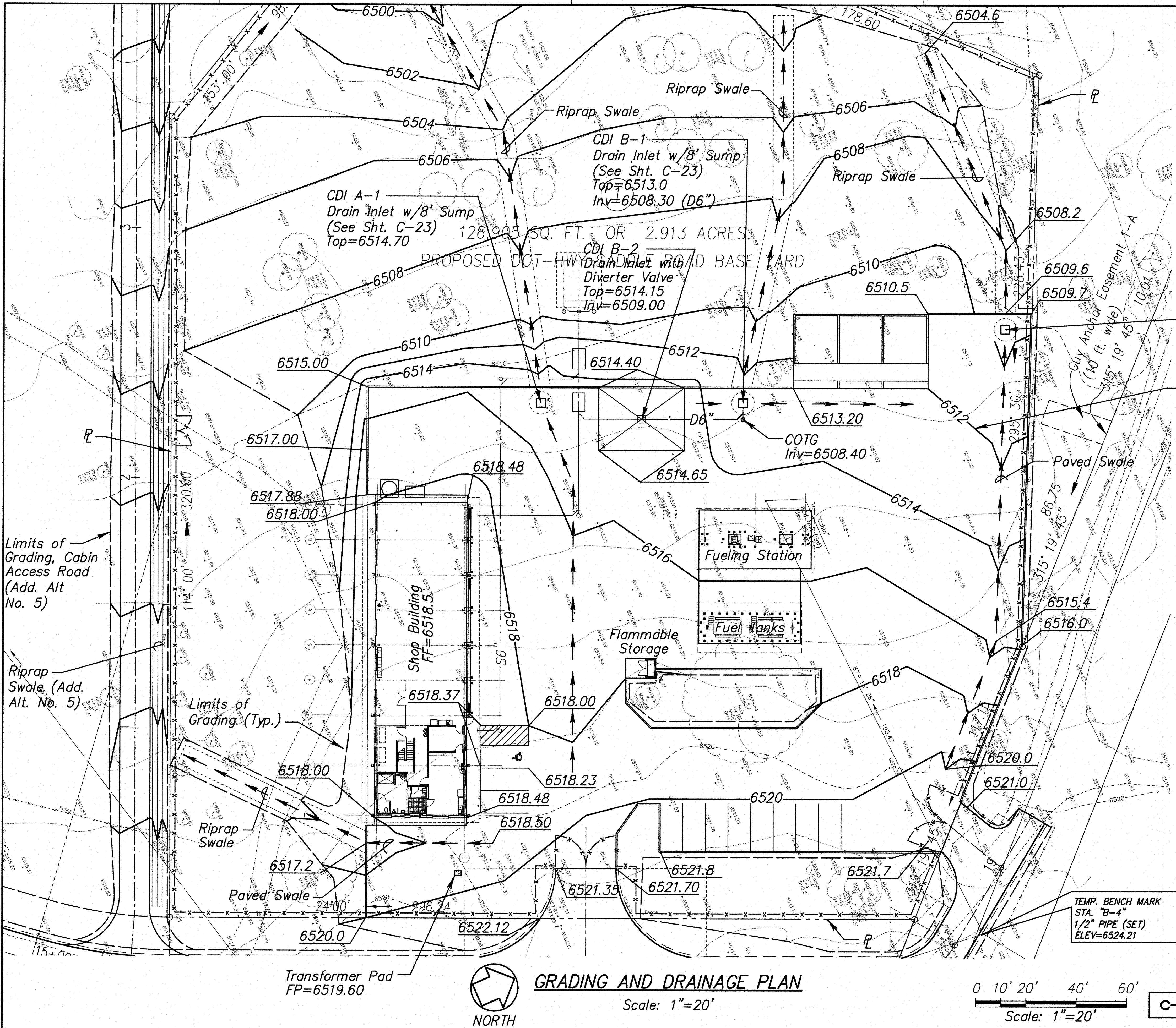
TEMP. BENCH MARK
STA. "B-4"
1/2" PIPE (SET)
ELEV=6524.21



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
GRADING AND DRAINAGE PLAN
MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10

Scale: 1"=20' Date: April, 2018

SHEET No. C-14 OF 26 SHEETS

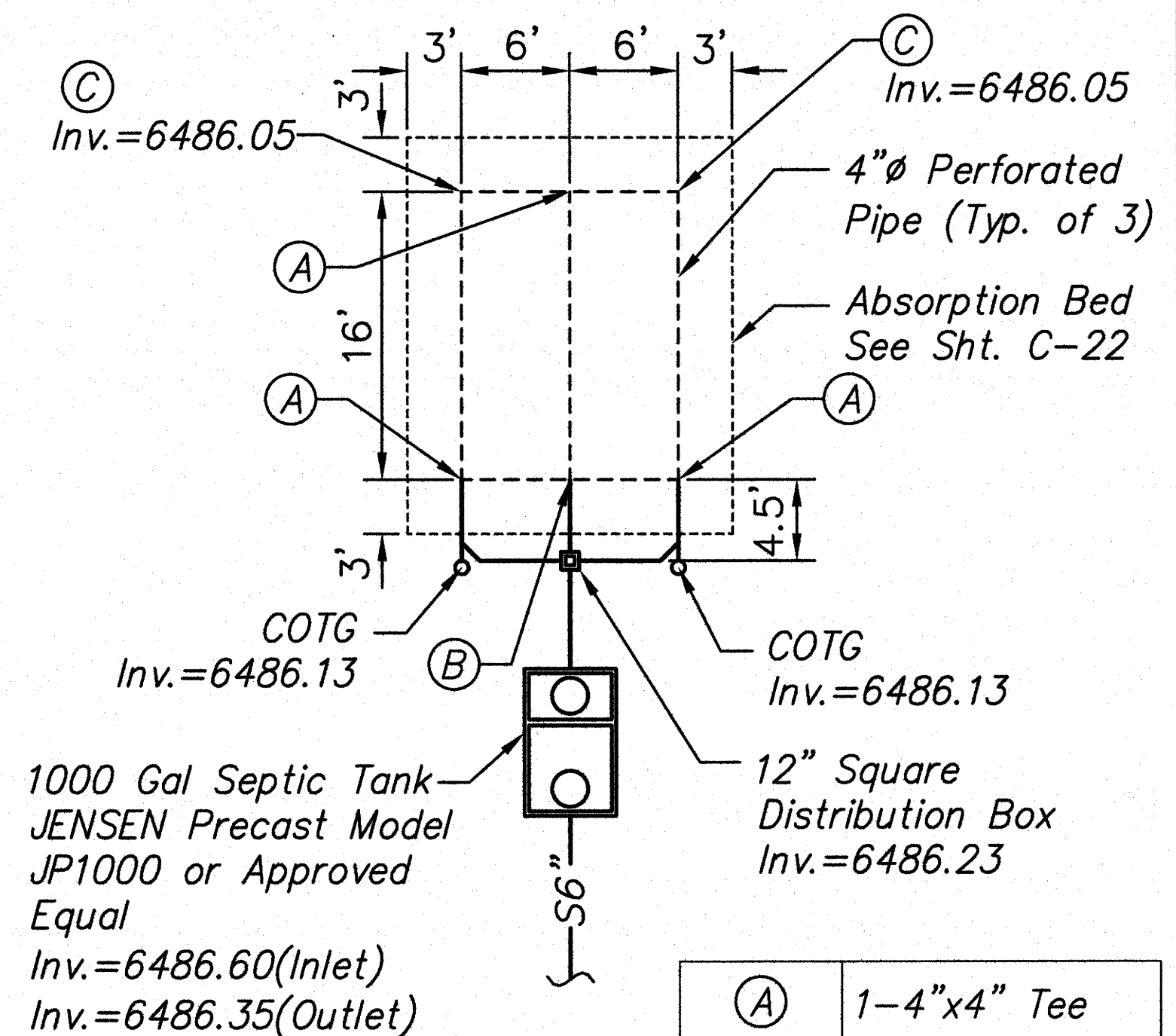


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DRAWN BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	19	146

Notes:

1. Contractor shall provide all necessary fittings and appurtenances required for utility installation and connection.
2. Unless indicated otherwise, work shown on this sheet shall be part of Additive Alternate No. 5.

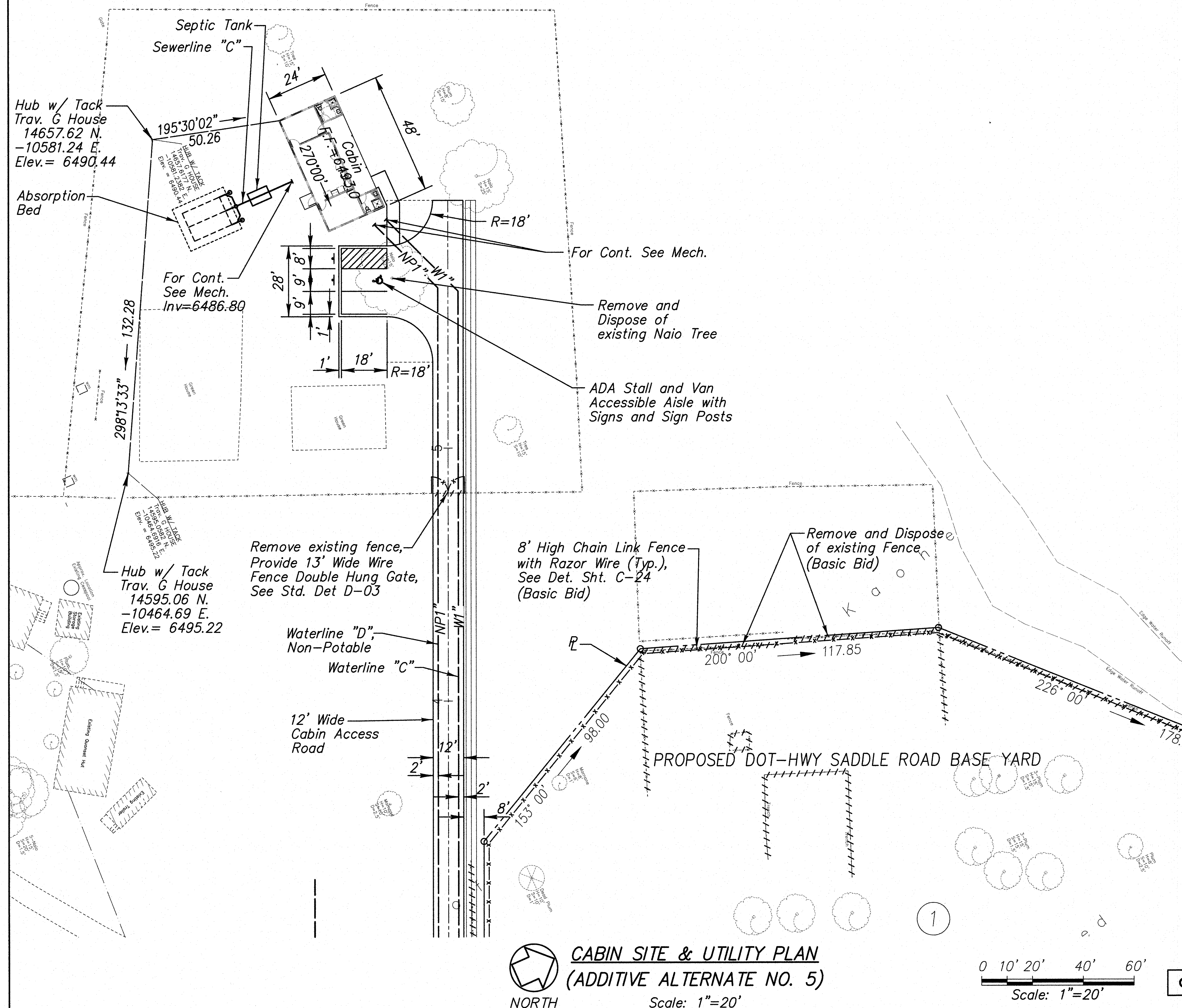


(A)	1-4"x4" Tee
(B)	1-4"x4" Cross
(C)	1-4" 90° Bend

CABIN

WASTEWATER DISPOSAL LAYOUT

Scale: $1/8" = 1'-0"$



ORIGINAL PLAN	SURVEY PLOTTED BY _____ DATE _____
NOTE BOOK	DRAWN BY _____
	TRACED BY _____
	DESIGNED BY _____
	QUANTITIES BY _____
No. _____	CHECKED BY _____

	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <u>CABIN SITE & UTILITY PLAN</u> <u>MAUNA KEA MAINTENANCE</u> <u>BASEYARD</u> <u>DANIEL K. INOUEY HIGHWAY</u> <u>Project No. 200A-01-10</u>
<i>Liava S.F. Choy</i> 30/2020 SIGNATURE EXPIRATION DATE OF THE LICENSE	THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	20	146

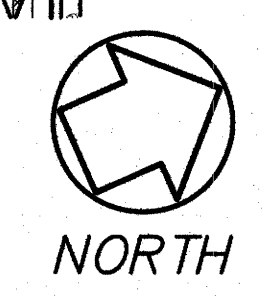
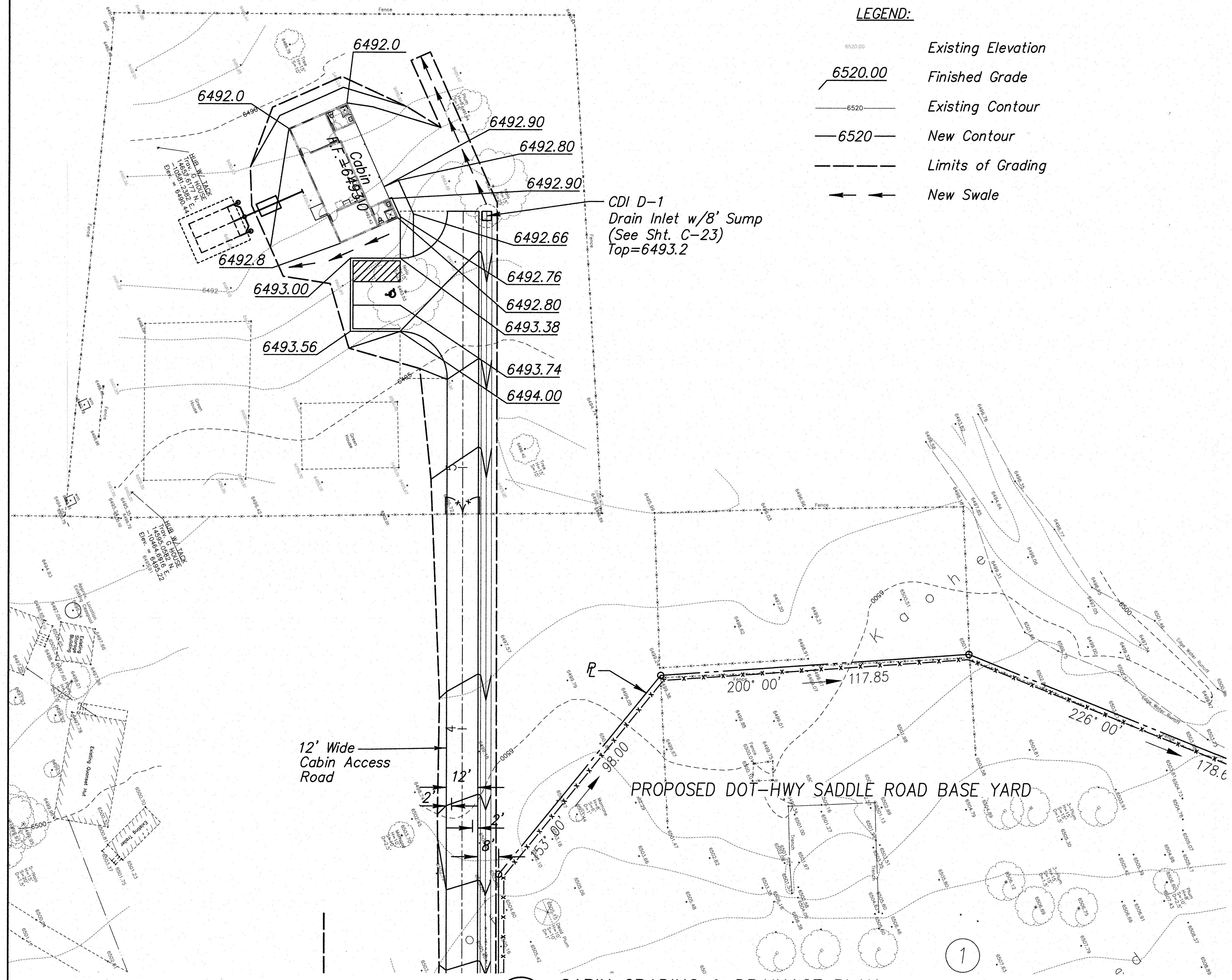
LEGEND:

- Existing Elevation
- Finished Grade
- Existing Contour
- New Contour
- Limits of Grading
- New Swale

Notes:

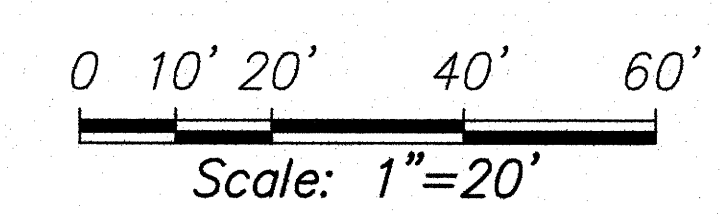
- Unless indicated otherwise, work shown on this sheet shall be part of Additive Alternate No. 5.

DATE	_____
SURVEY PLOTTED BY	_____
ORIGINAL PLAN	_____
TRACED BY	_____
DESIGNED BY	_____
CHECKED BY	_____
No.	_____



CABIN GRADING & DRAINAGE PLAN
(ADDITIVE ALTERNATE NO. 5)

Scale: 1"=20'



LIANA S.F. CHOY
LICENSED PROFESSIONAL ENGINEER
No. 9209-C
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

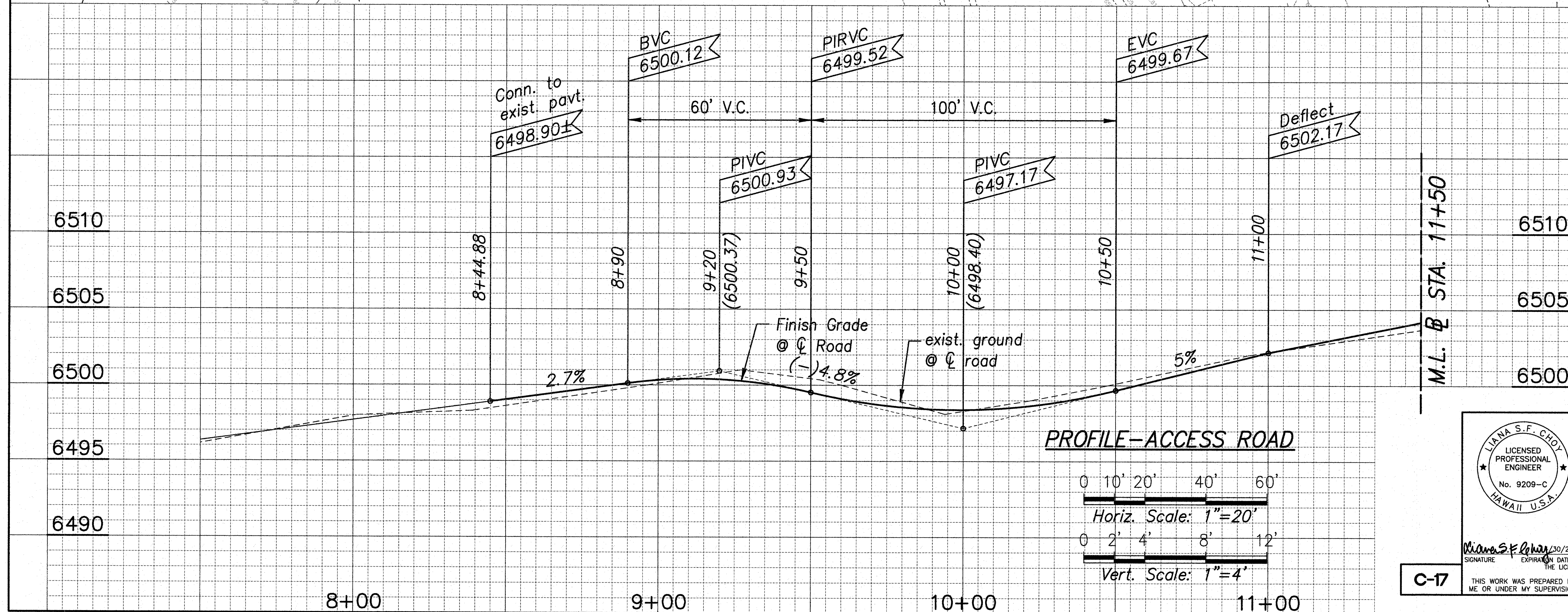
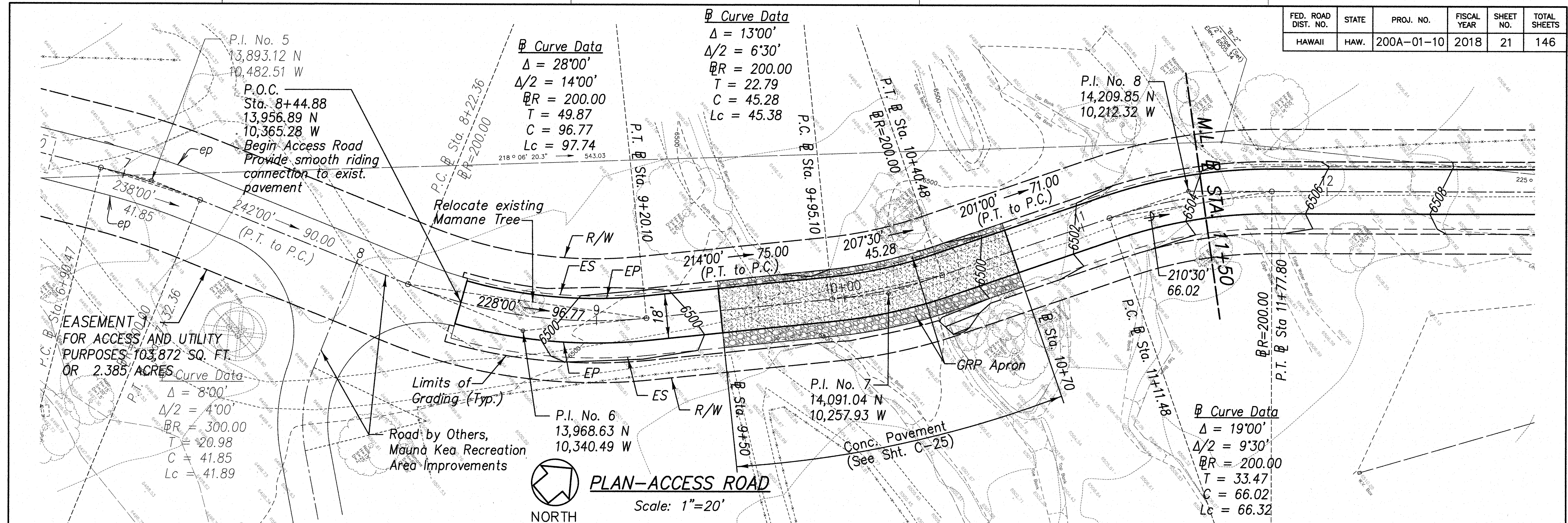
CABIN GRADING & DRAINAGE PLAN

MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10

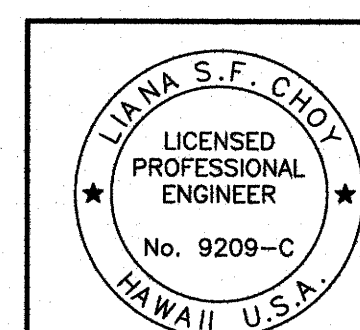
Scale: 1"=20' Date: April, 2018

SHEET No. C-16 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	21	146



ORIGINAL PLAN
 DATE
 SURVEY PLOTTED BY
 DRAWN BY
 TRACED BY
 DESIGNED BY
 CHECKED BY
 No.

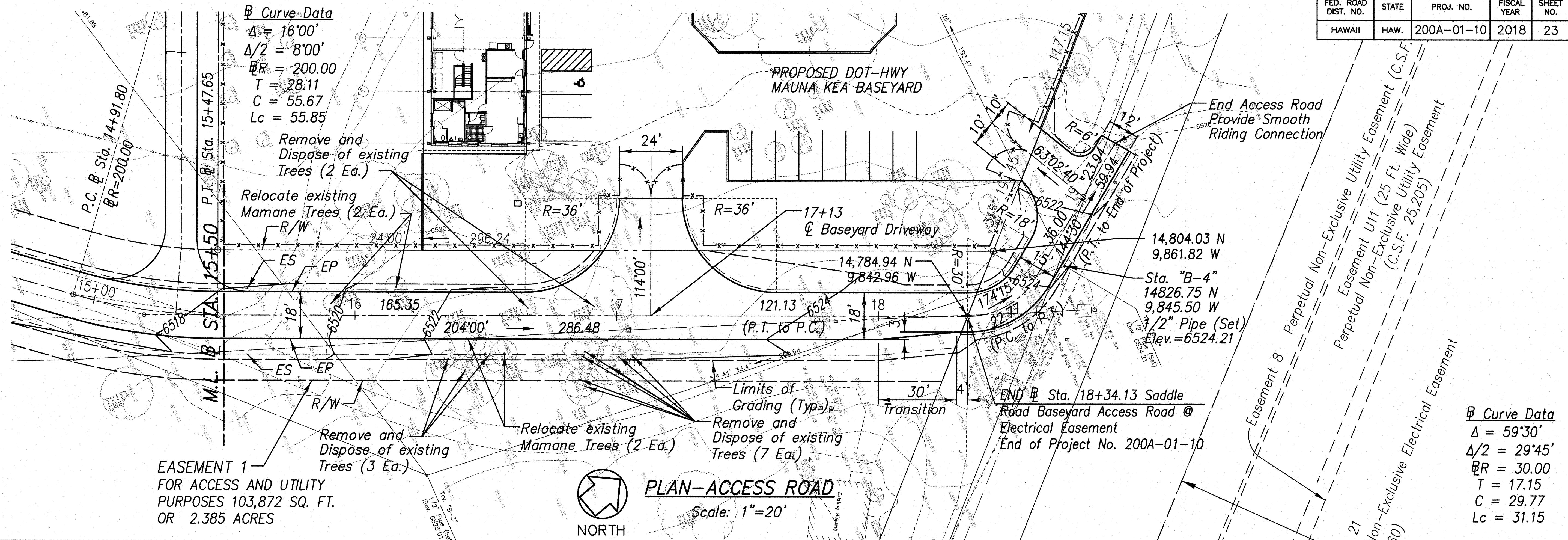


Liama S.F. Choy
 SIGNATURE
 EXPIRATION DATE OF THE LICENSE

C-17

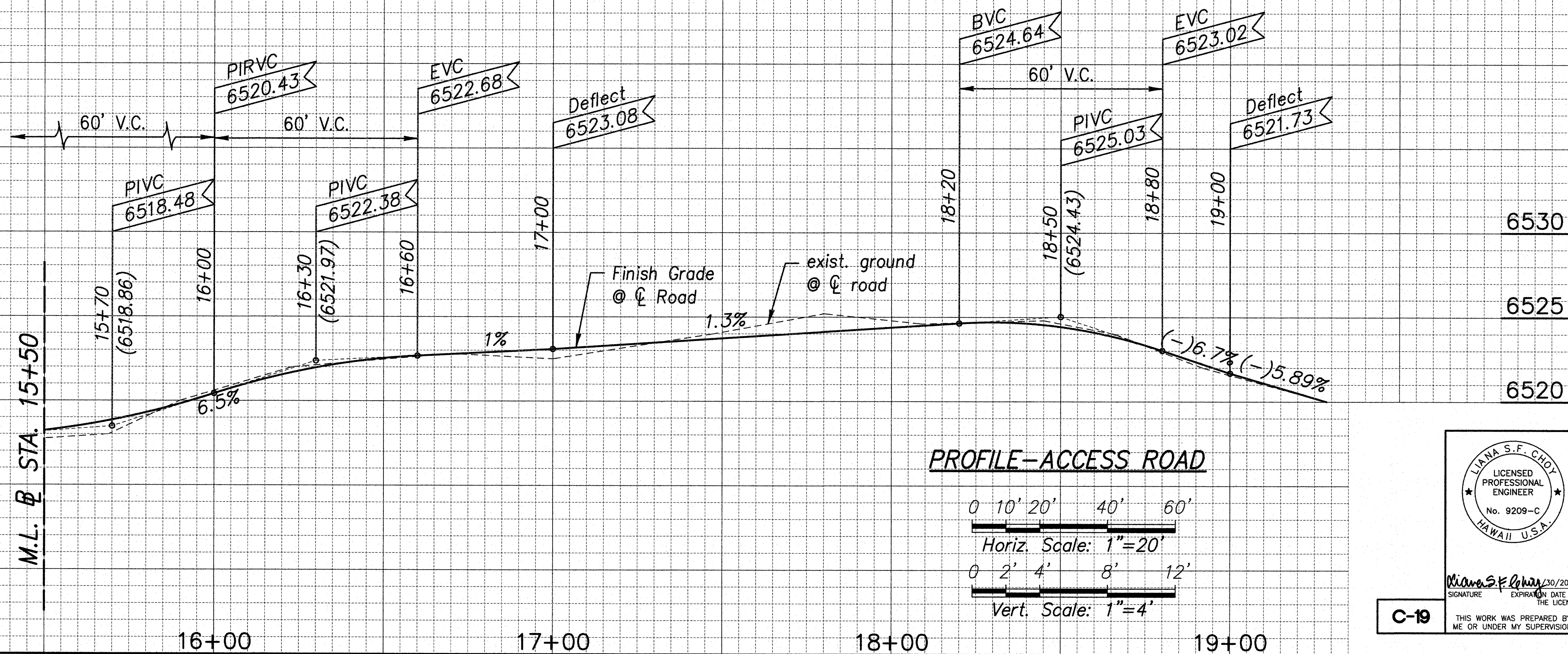
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
PLAN & PROFILE ACCESS ROAD-1
 MAUNA KEA MAINTENANCE
 BASEYARD
 DANIEL K. INOUE HIGHWAY
 Project No. 200A-01-10
 Scale: As Shown Date: April, 2018
 SHEET No. C-17 OF 26 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	23	146



Curve Data
 $\Delta = 59^{\circ}30'$
 $\Delta/2 = 29^{\circ}45'$
 $R = 30.00$
 $T = 17.15$
 $C = 29.77$
 $L_c = 31.15$

Easement 8
 Perpetual Non-Exclusive Utility Easement (C.S.F.)
 Easement U11 (25 Ft. Wide)
 Perpetual Non-Exclusive Utility Easement (C.S.F. 25,205)
 Non-Exclusive Electrical Easement (50)



ORIGINAL PLAN
 DATE
 DRAWN BY
 TRACED BY
 NOTE BOOK
 QUANTITIES BY
 CHECKED BY
 No.

LINA S.F. CHOY
 LICENSED PROFESSIONAL ENGINEER
 No. 9209-C
 HAWAII U.S.A.

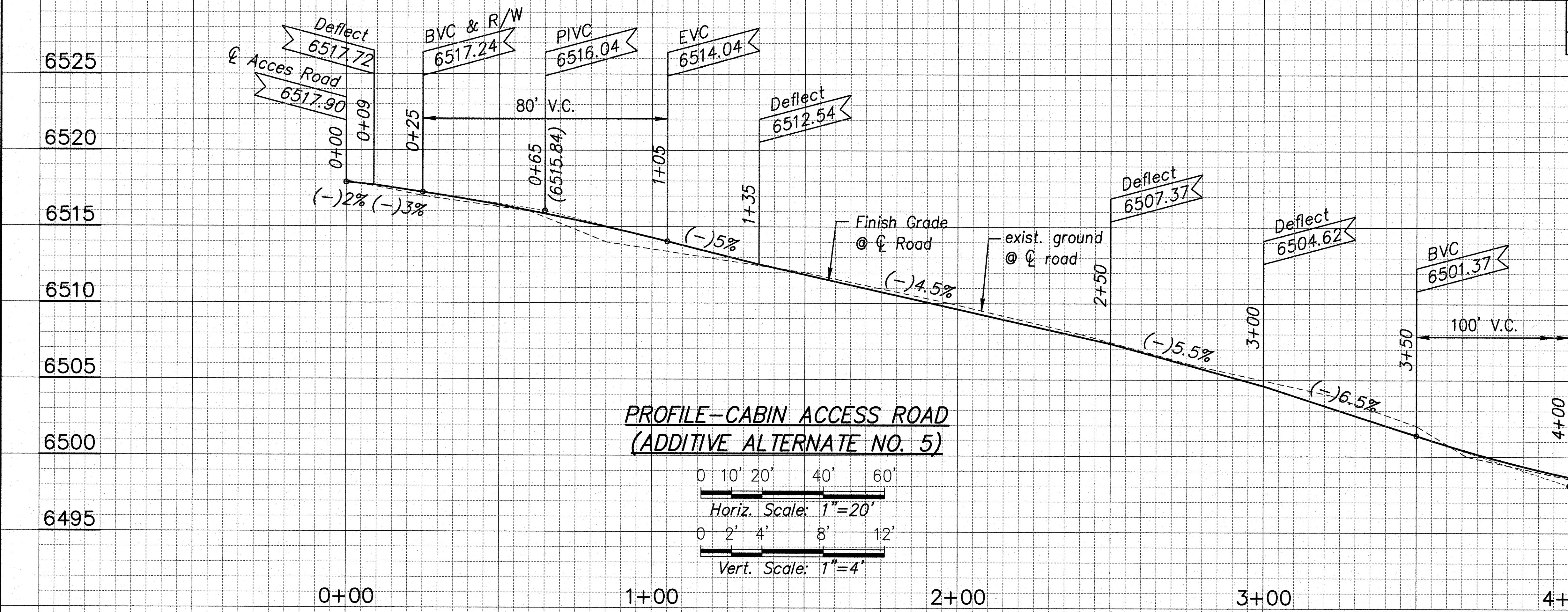
Signature: Lina S.F. Choy
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

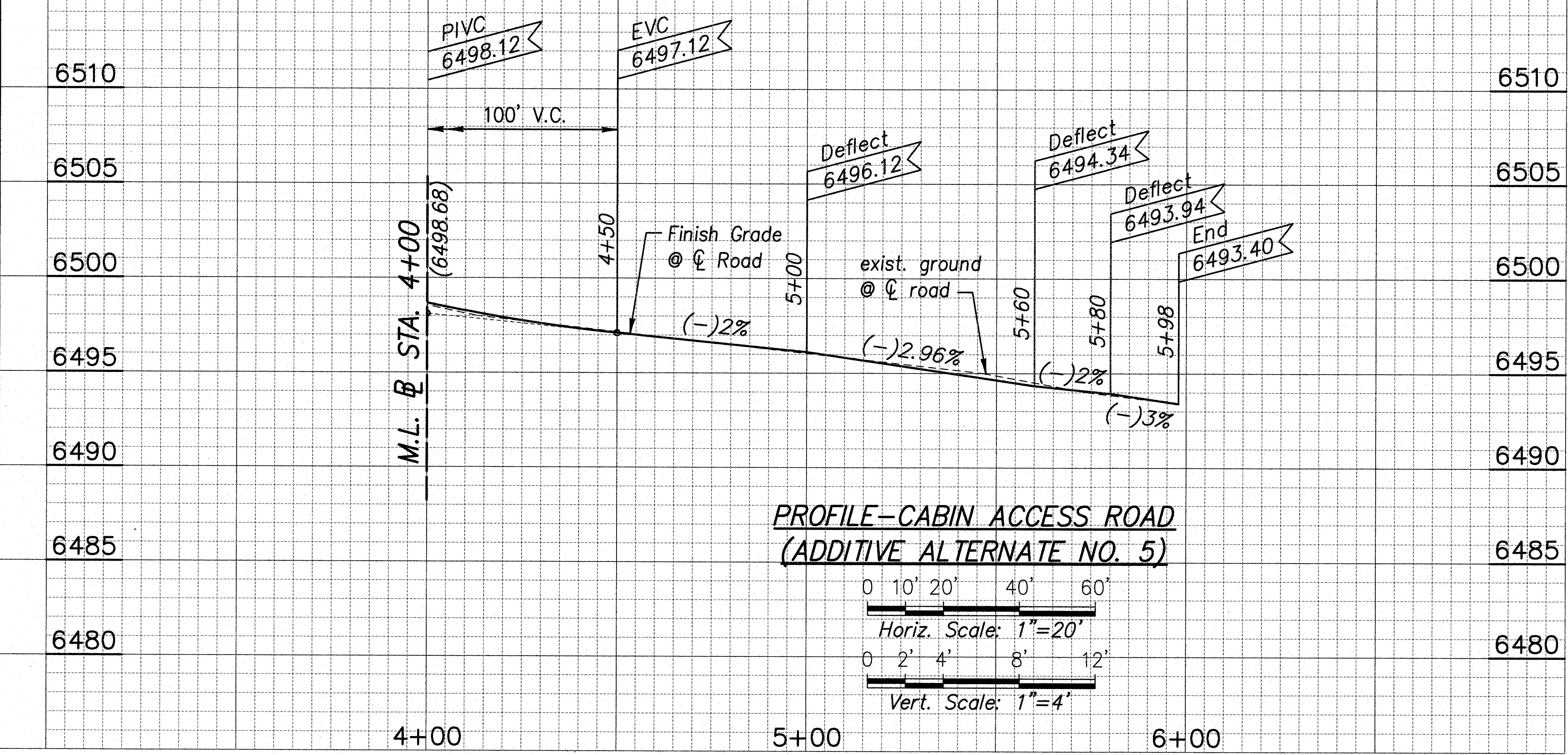
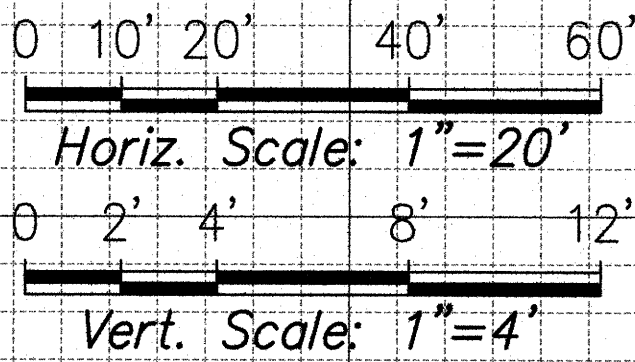
PLAN & PROFILE ACCESS ROAD-3
 MAUNA KEA MAINTENANCE
 BASEYARD
 DANIEL K. INOUE HIGHWAY
 Project No. 200A-01-10

Scale: As Shown **Date:** April, 2018
 SHEET No. C-19 OF 26 SHEETS

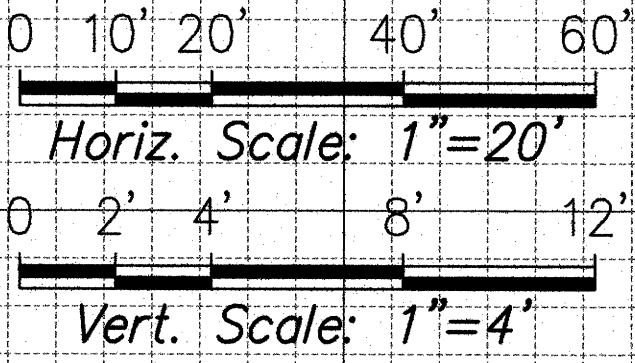
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	24	146



PROFILE-CABIN ACCESS ROAD
(ADDITIVE ALTERNATE NO. 5)



PROFILE-CABIN ACCESS ROAD
(ADDITIVE ALTERNATE NO. 5)



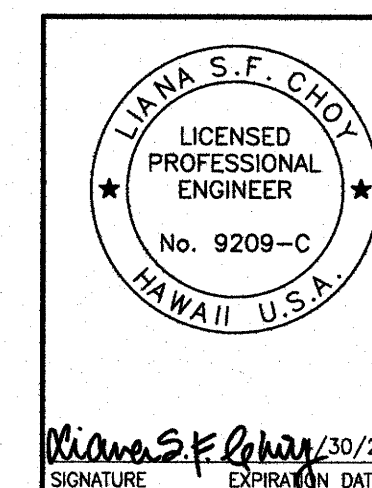
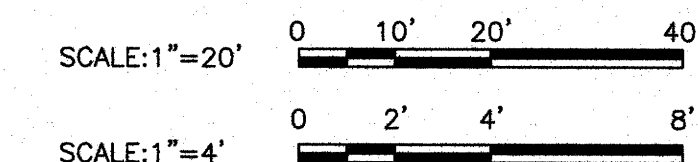
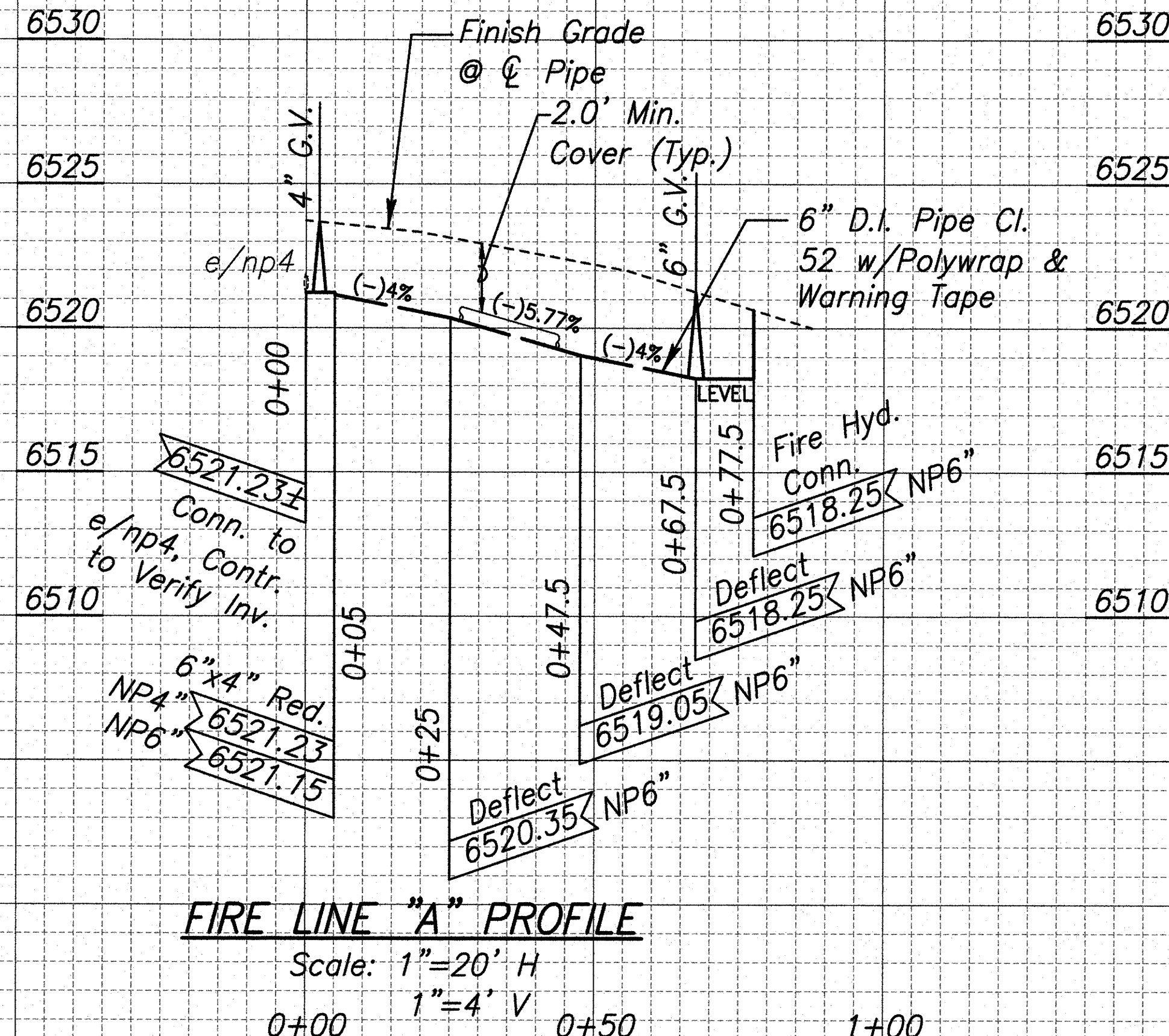
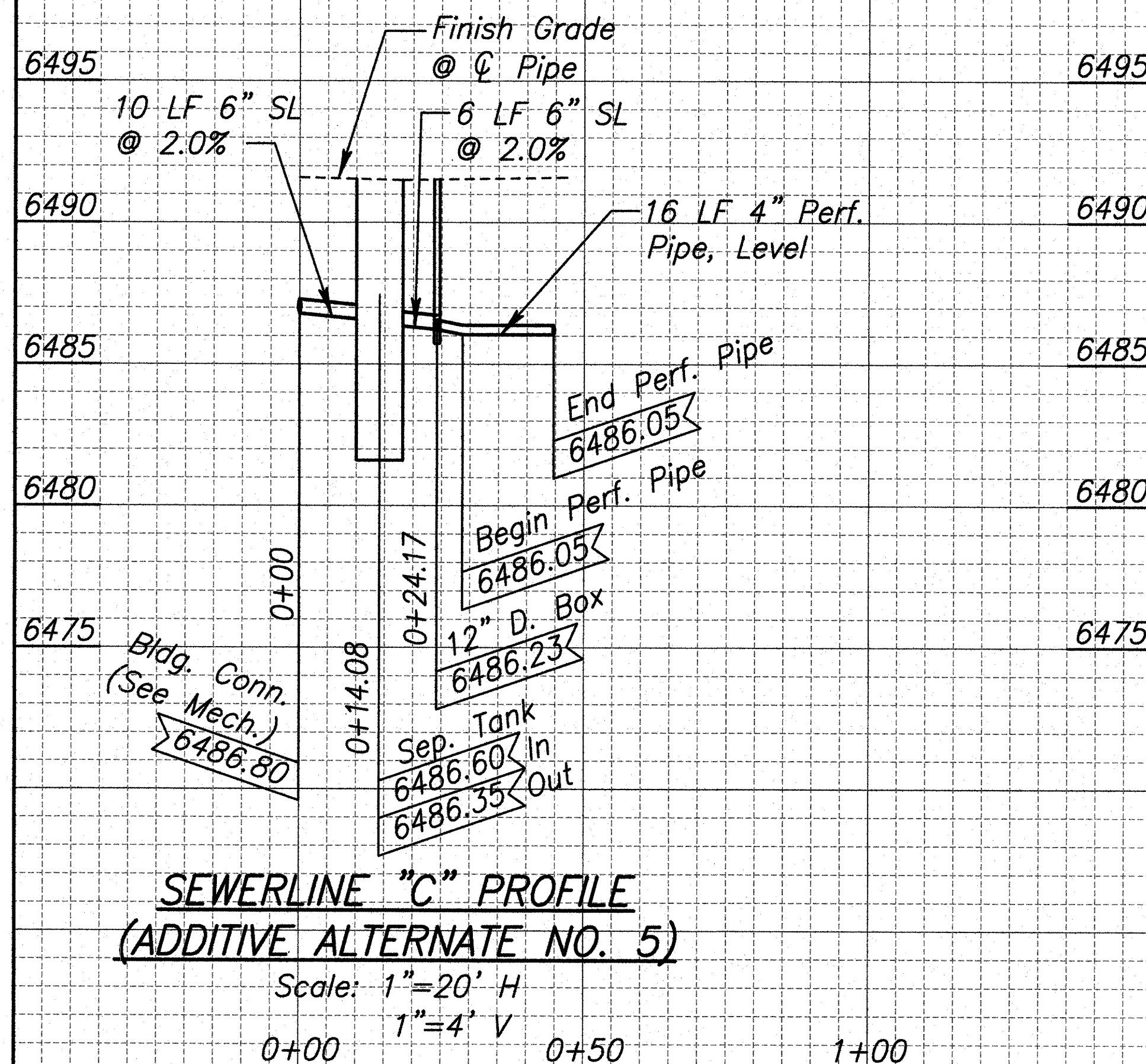
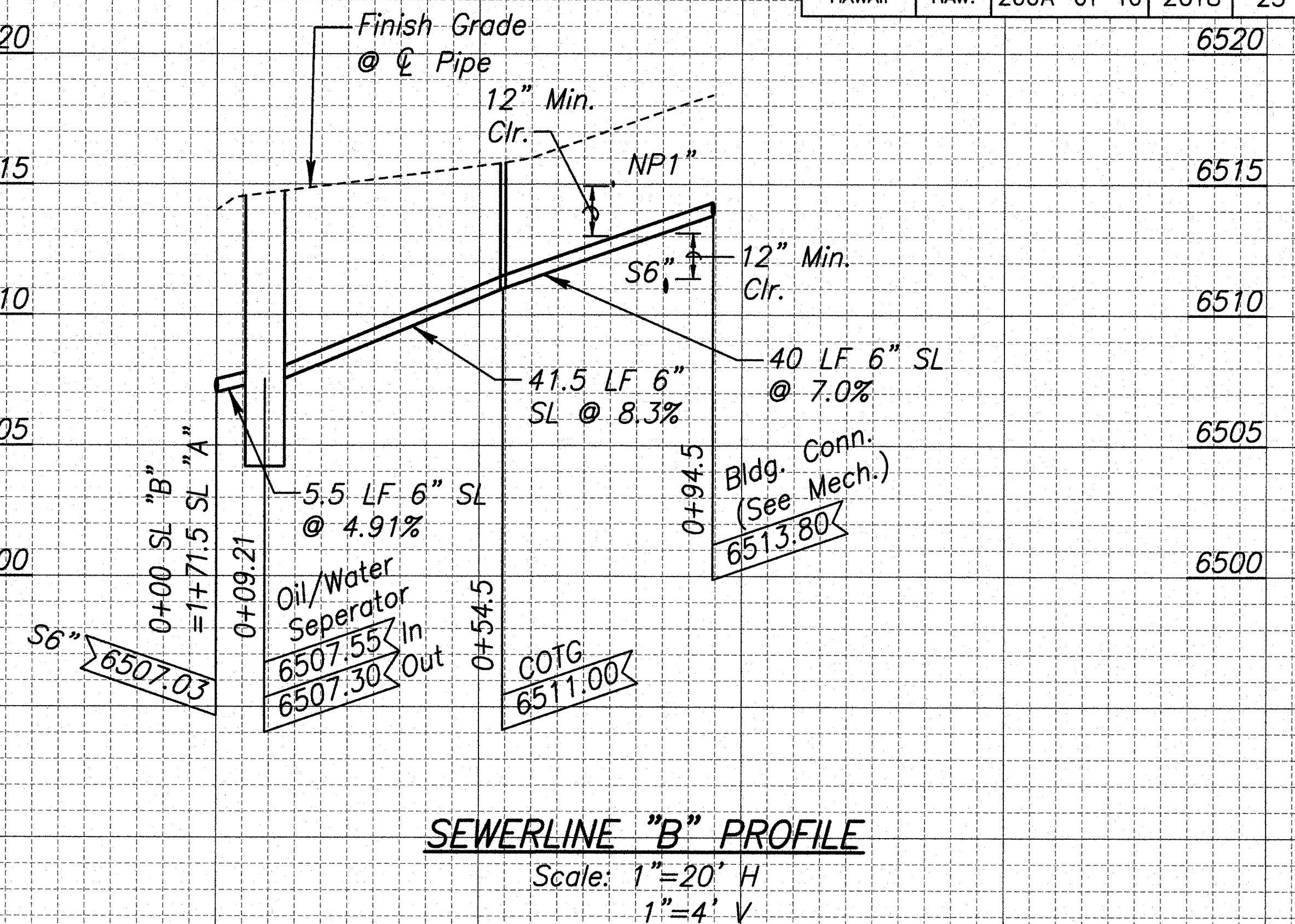
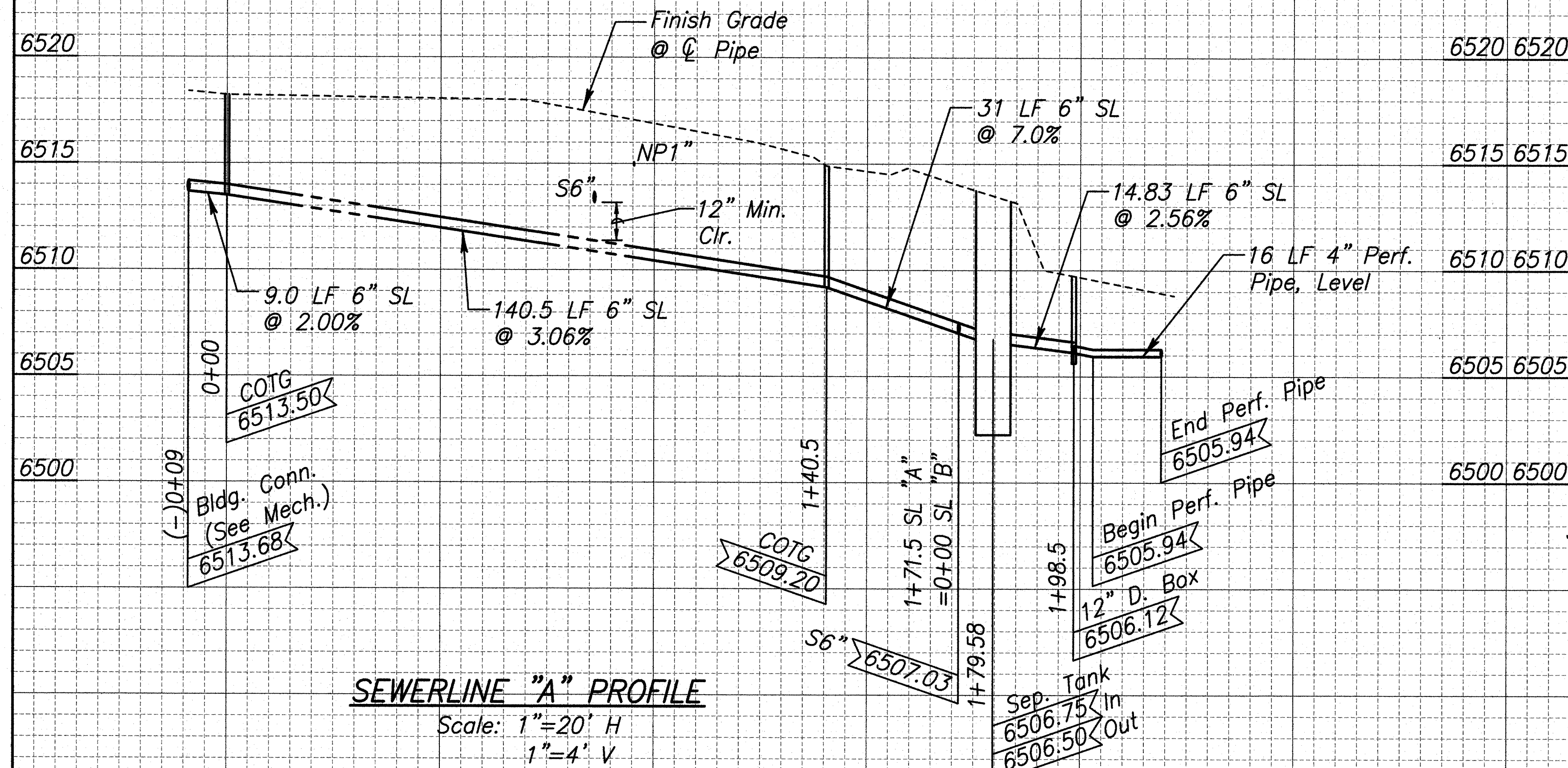
ORIGINAL PLAN
DATE
DRAWN BY
TRACED BY
DESIGNED BY
CHECKED BY
No.

LIANA S.F. CHOY
LICENSED PROFESSIONAL ENGINEER
No. 9209-C
HAWAII, U.S.A.
Signature: *Liana S.F. Choy*
Date: 4/30/2020

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
PROFILE - CABIN ACCESS ROAD
MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10
Scale: As Shown Date: April, 2018

C-20

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	25	146



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

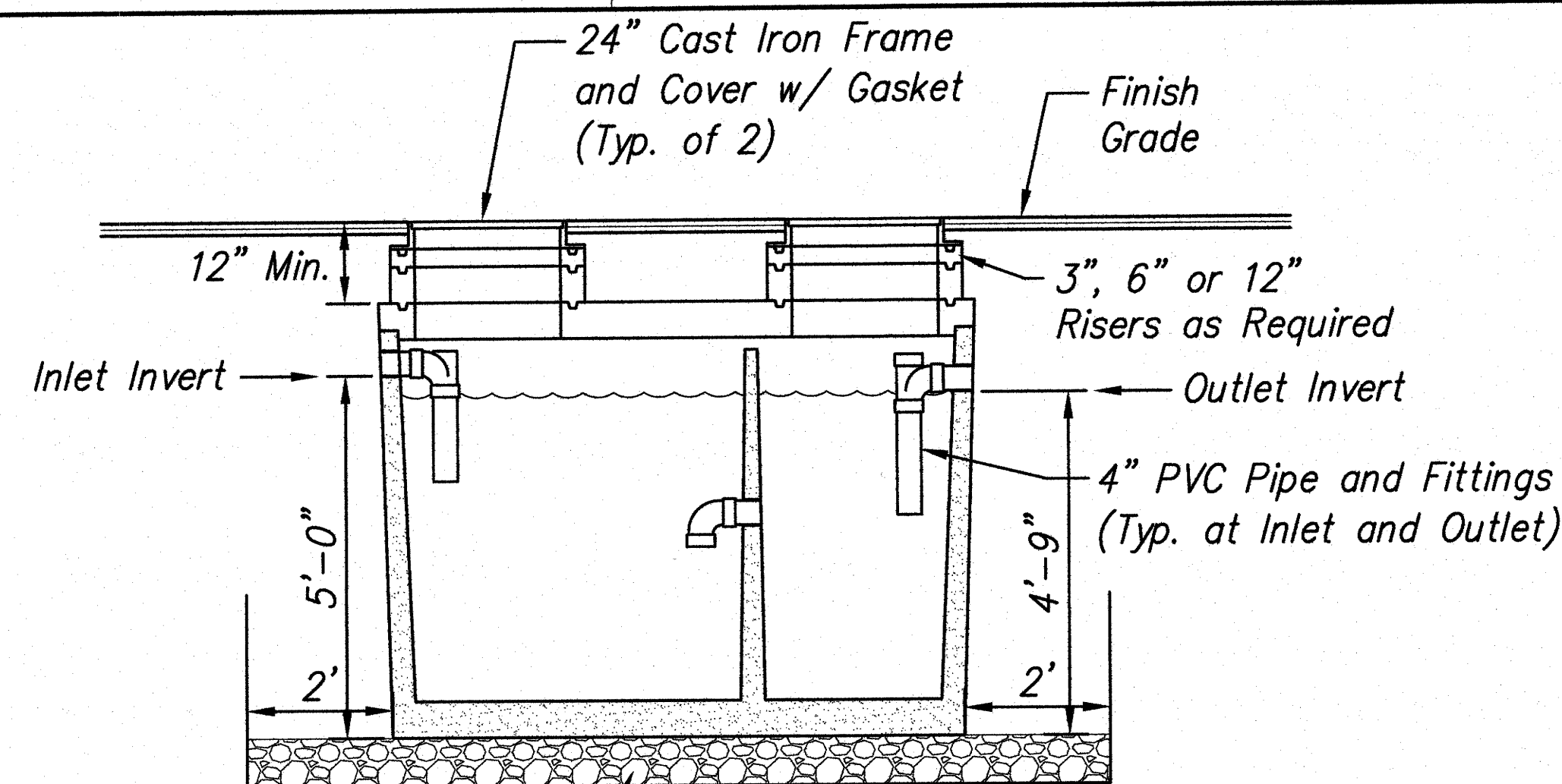
UTILITY PROFILES-1

MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10

Scale: As Shown Date: April, 2018

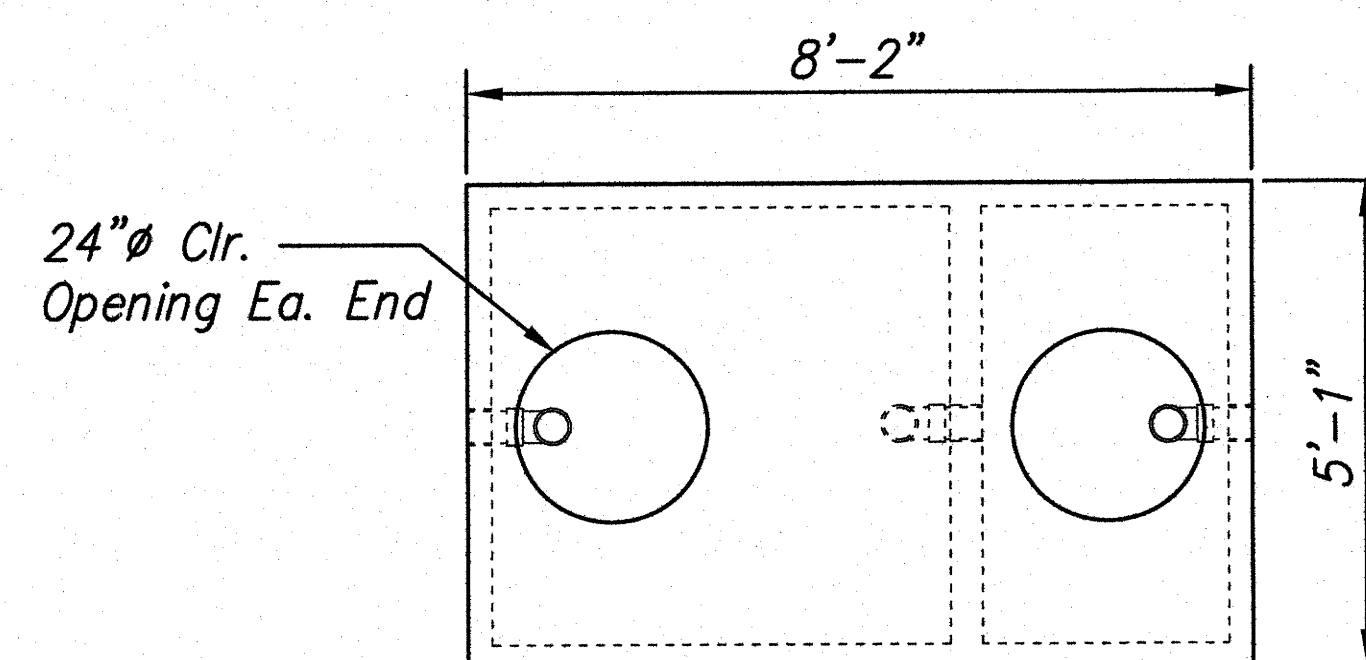
C-21

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	26	146



8" Thk. #3 Rock or Coral Fill Level and Even in all Directions. Compacted to 90% Max. Dry Density

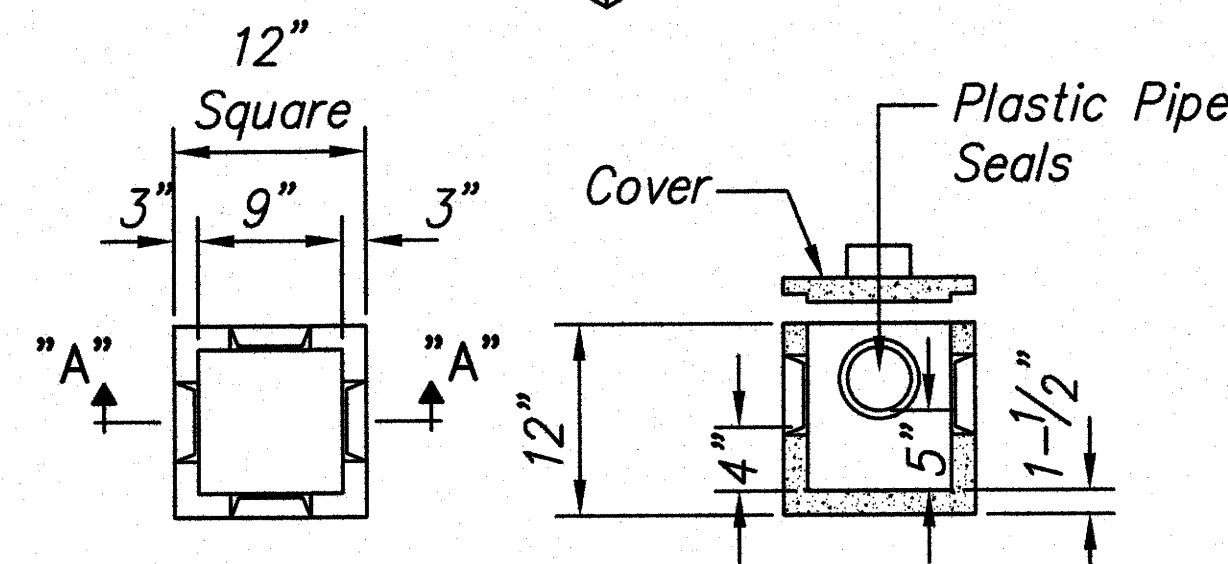
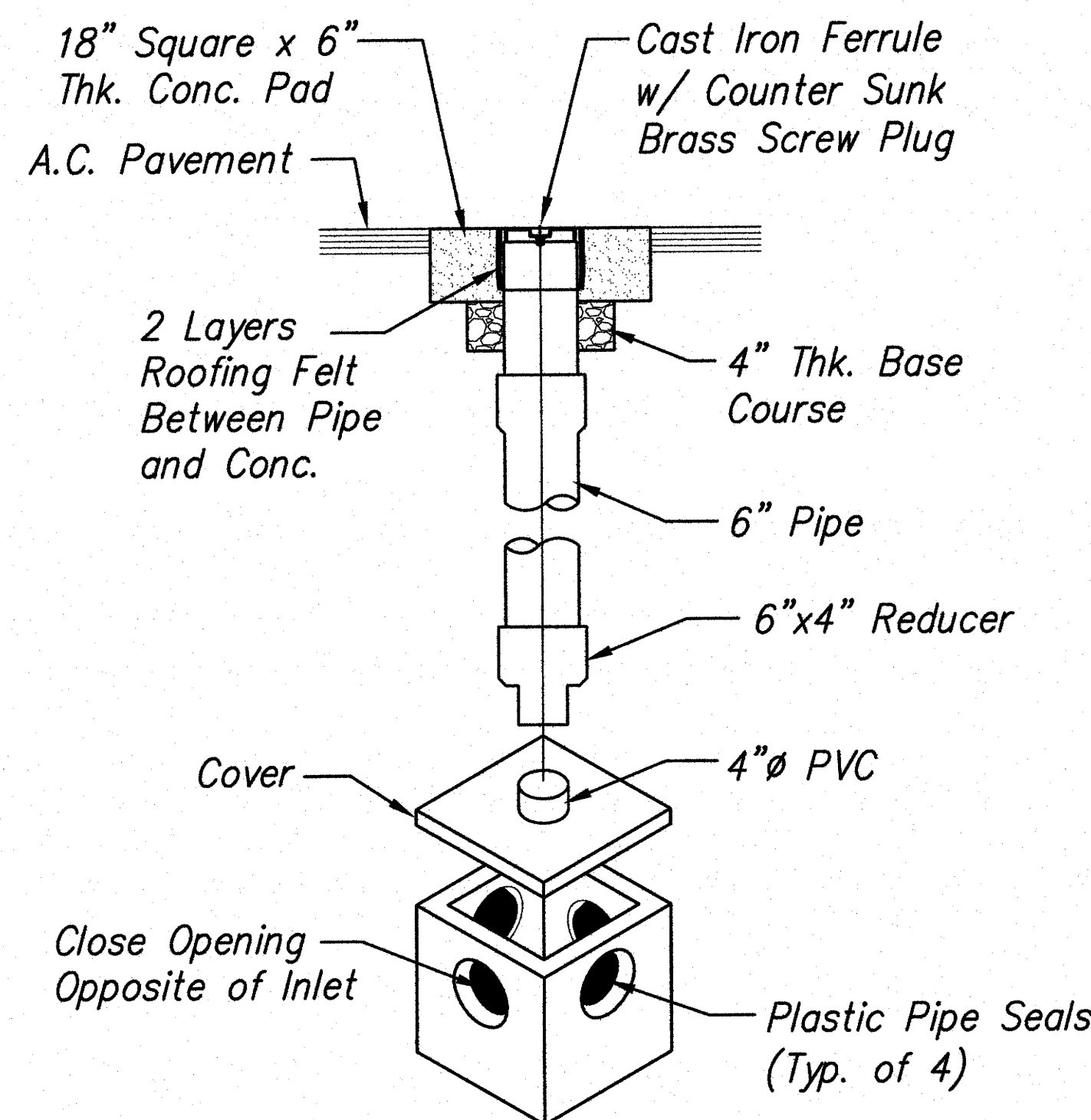
SECTION



PLAN

1000 GALLON SEPTIC TANK

Scale: 1/2" = 1'-0"

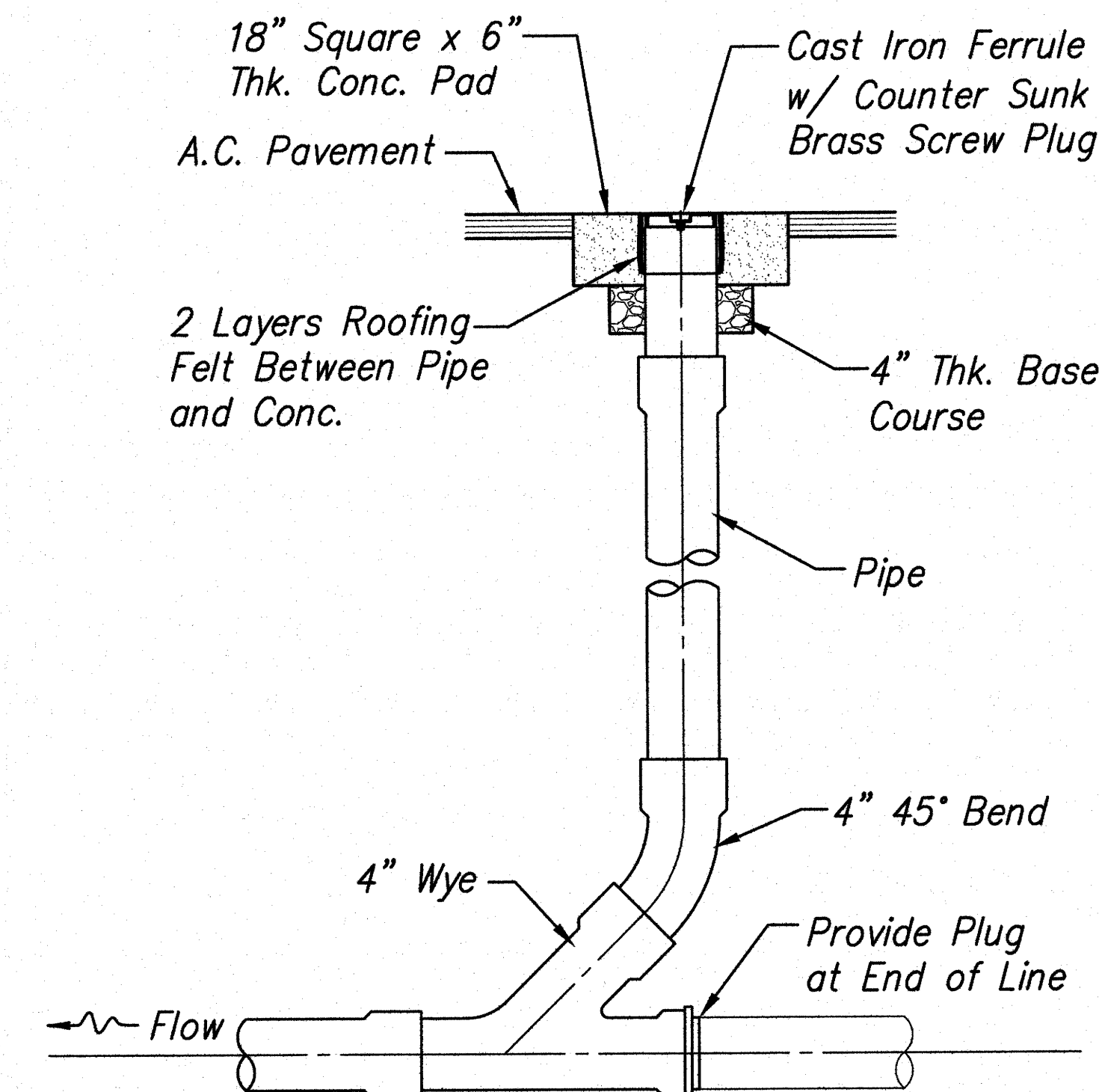


PLAN

SECTION A-A

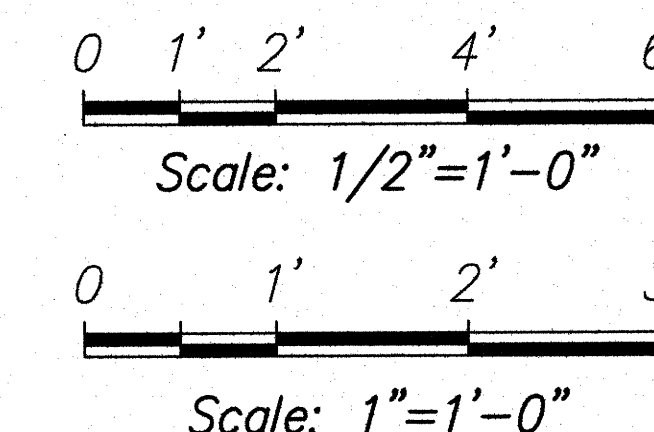
DISTRIBUTION BOX DETAIL

Scale: 1" = 1'-0"



SEWER CLEANOUT TO GRADE (COTG)

NOT TO SCALE



LIANA S.F. CHOY
LICENSED PROFESSIONAL ENGINEER
No. 9209-C
HAWAII, U.S.A.

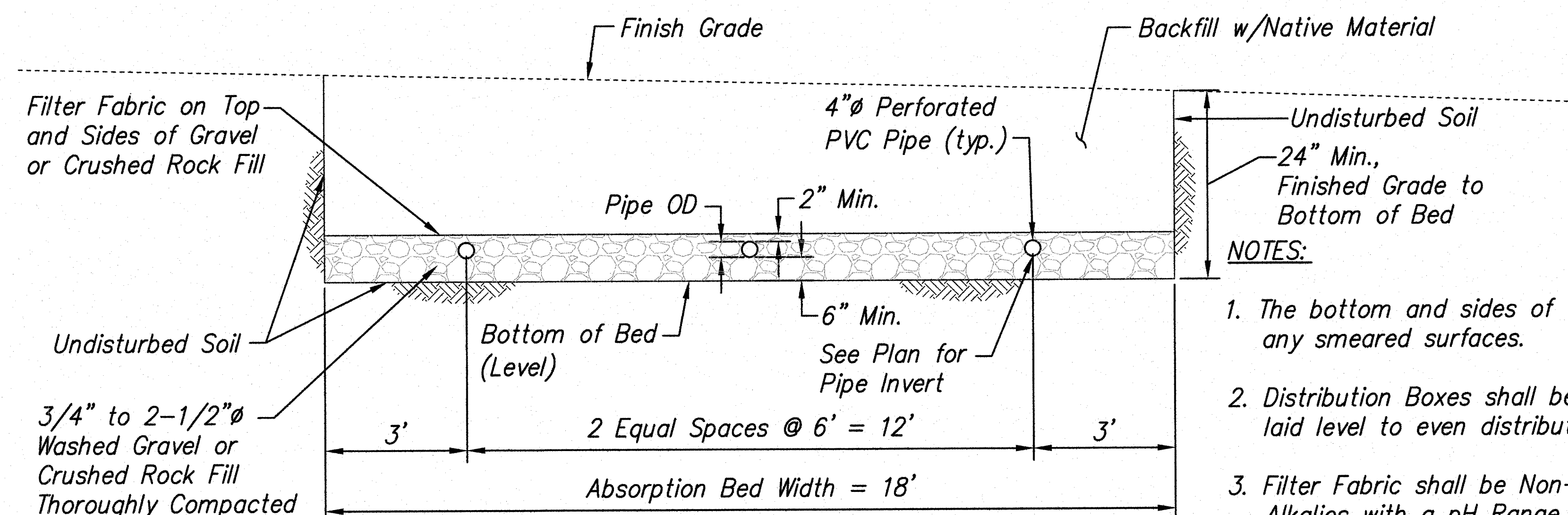
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DETAILS-1
MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10

C-22

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Scale: As Shown Date: April, 2018

SHEET No. C-22 OF 26 SHEETS



ABSORPTION BED SECTION

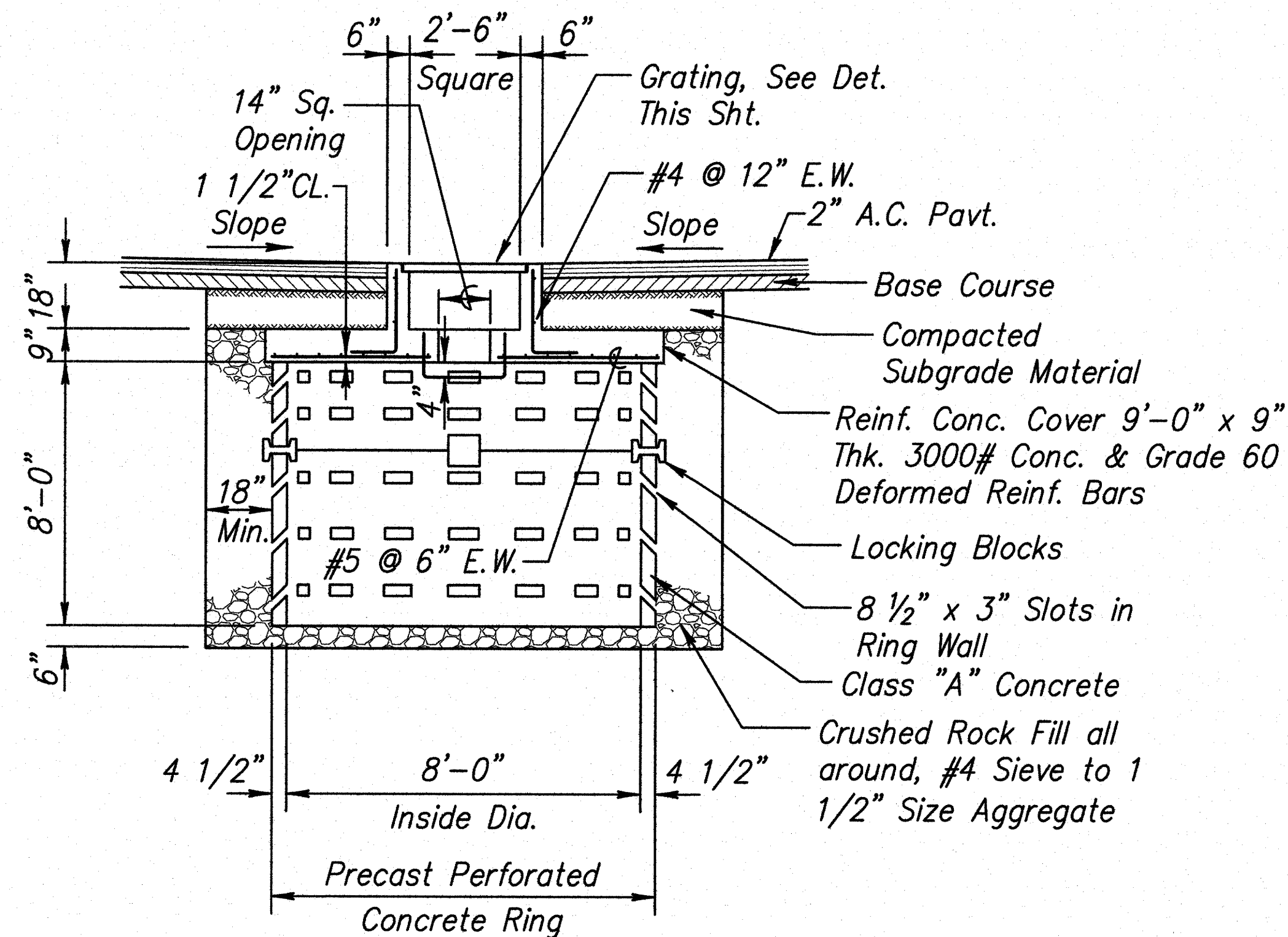
Scale: 1/2" = 1'-0"

NOTES:

1. The bottom and sides of the Absorption Bed shall be raked to scarify any smeared surfaces.
2. Distribution Boxes shall be laid on 6-Inch Aggregate Base Course and laid level to even distribution of flow to each Distribution Line.
3. Filter Fabric shall be Non-Biodegradable and Resistant to Acids and Alkalies with a pH Range of 4 to 10, and Resistant to Common Solvents.
4. Contractor shall leave uncovered for inspection by the Engineer the various parts of the Absorption Bed to visually see the Distribution Boxes, Gravel, Pipe and Geotextile Fabrics. It shall be inspected by the Engineer for approval prior to backfilling. The Engineer shall be notified for inspection two (2) weeks prior to backfilling.

SURVEY PLOTTED BY	DATE
DESIGNED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	27	146

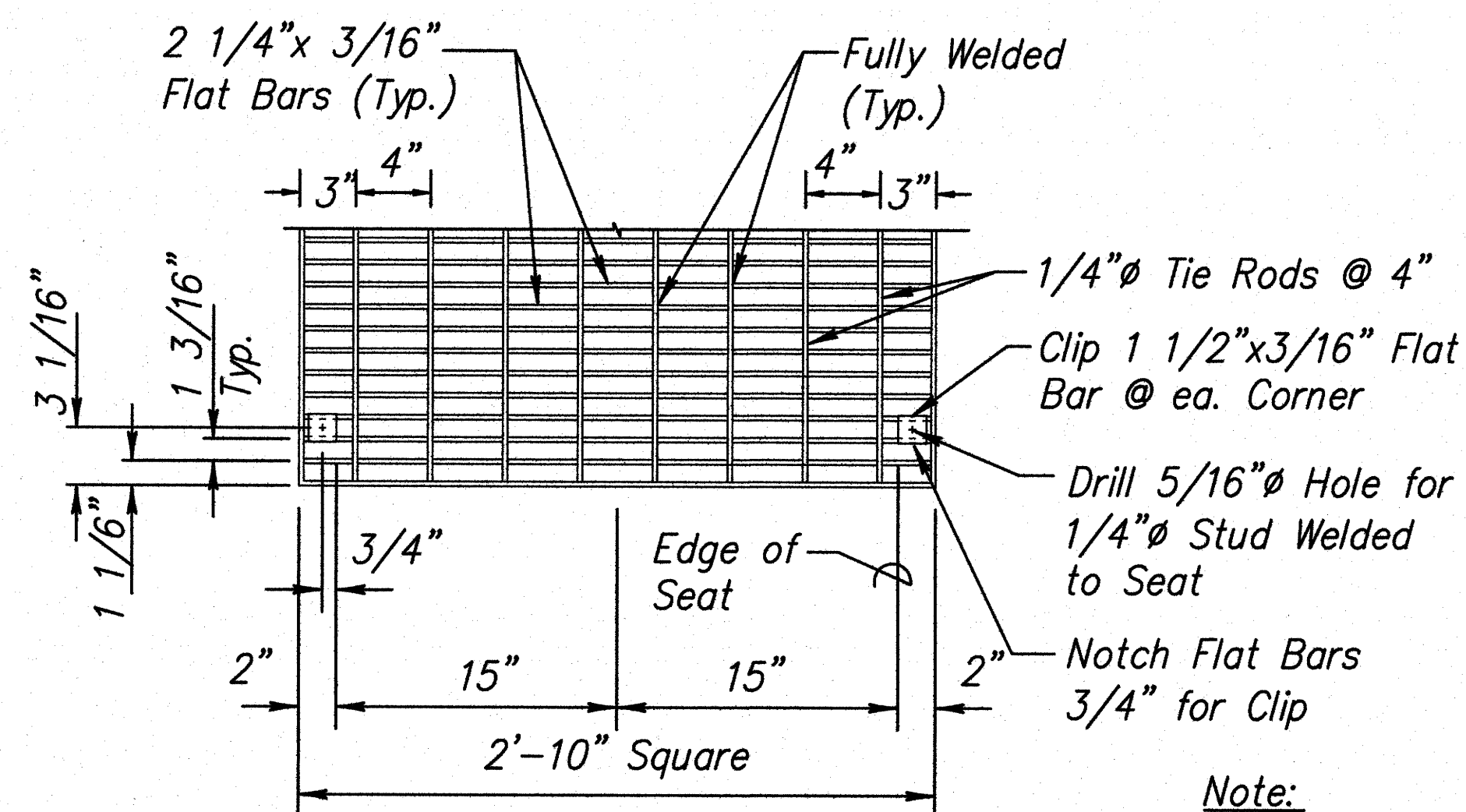


Notes:

The Contractor at his own option, purchase the Precast Concrete Ring detailed here from "Bill's Crane Service" or construct an equivalent Reinforced Concrete Ring, subject to approved Shop Drawings. Contractor shall not infringe on Patent Rights held by "Bill's Crane Service".

8 FOOT SUMP DETAIL

Not to Scale

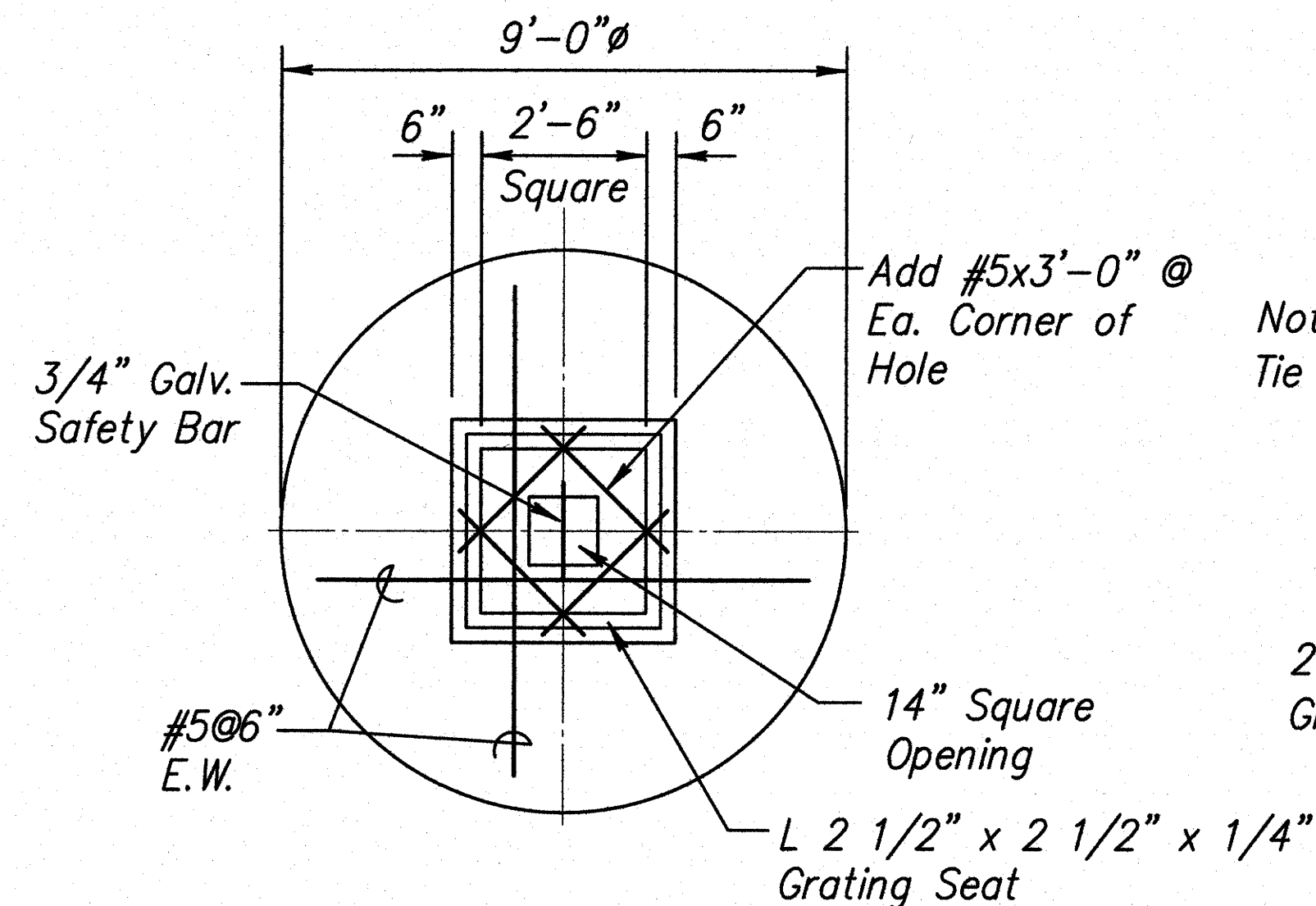


GRATING DETAIL

Scale: 1 1/2"=1'-0"

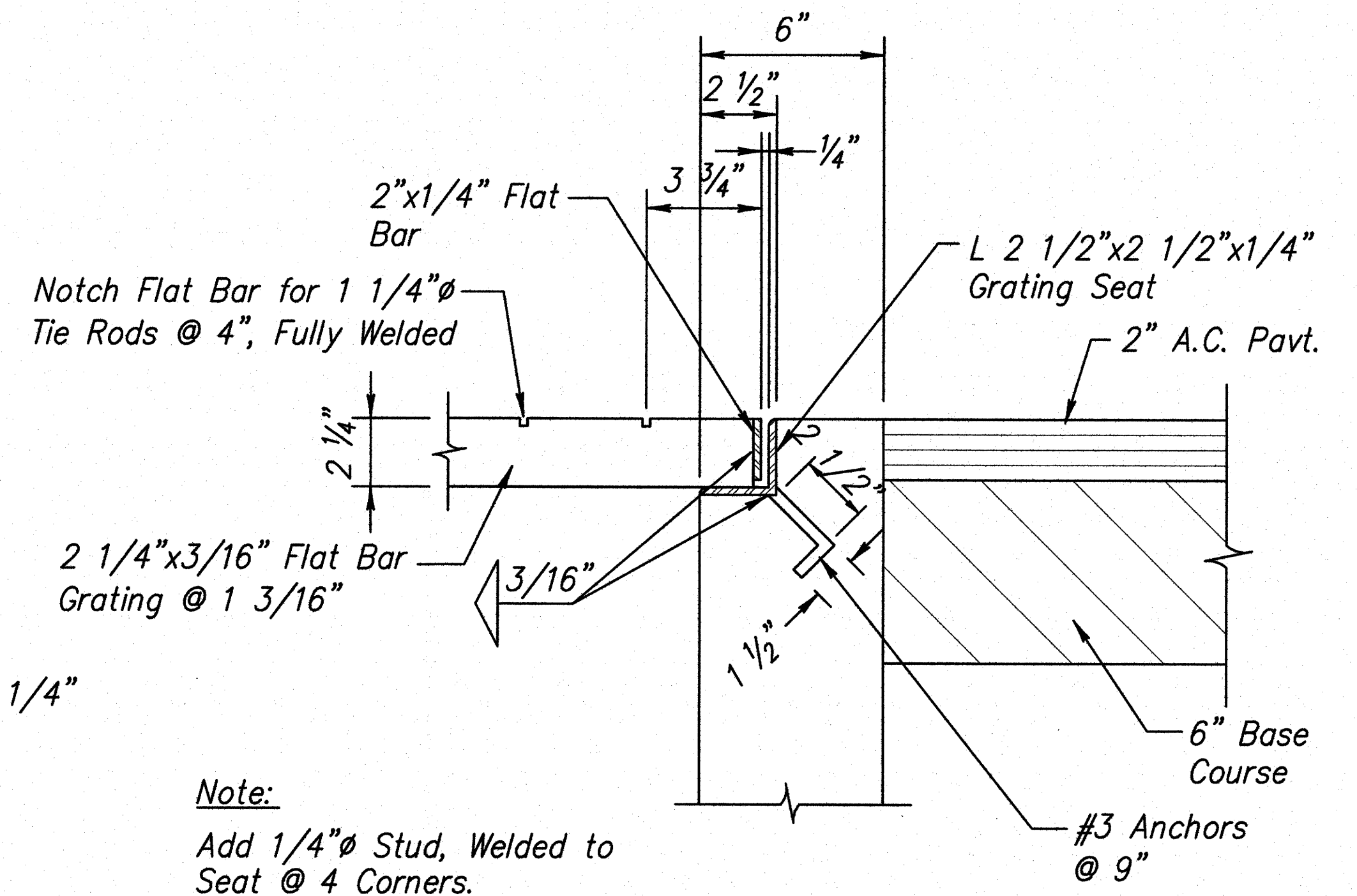
Note:

Hot-Dip Galvanize Grating, Grating Seat, Clips and Accessories after Fabrication.



COVER PLAN

Scale: 3/8"=1'-0"

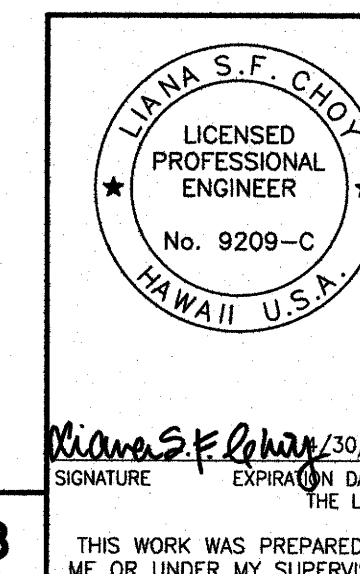
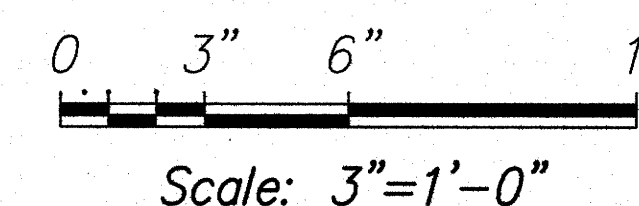
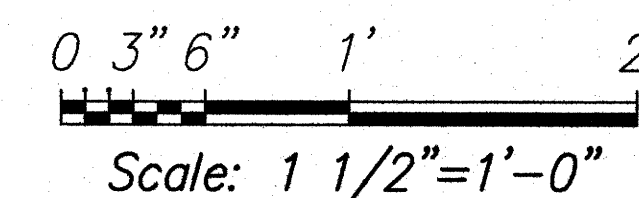
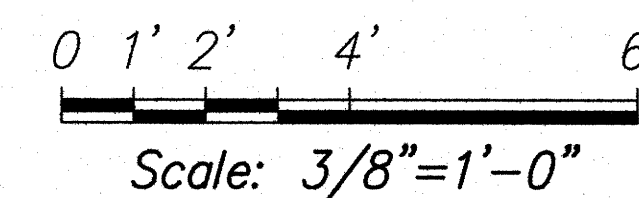


Note:

Add 1/4" Stud, Welded to Seat @ 4 Corners.

GRATING SEAT DETAIL

Scale: 3"=1'-0"



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DETAILS-2
MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10
Scale: As Shown Date: April, 2018
SHEET No. C-23 OF 26 SHEETS

C-23

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LIANNA S.F. CHOY

LICENSED PROFESSIONAL ENGINEER

No. 9209-C

HAWAII U.S.A.

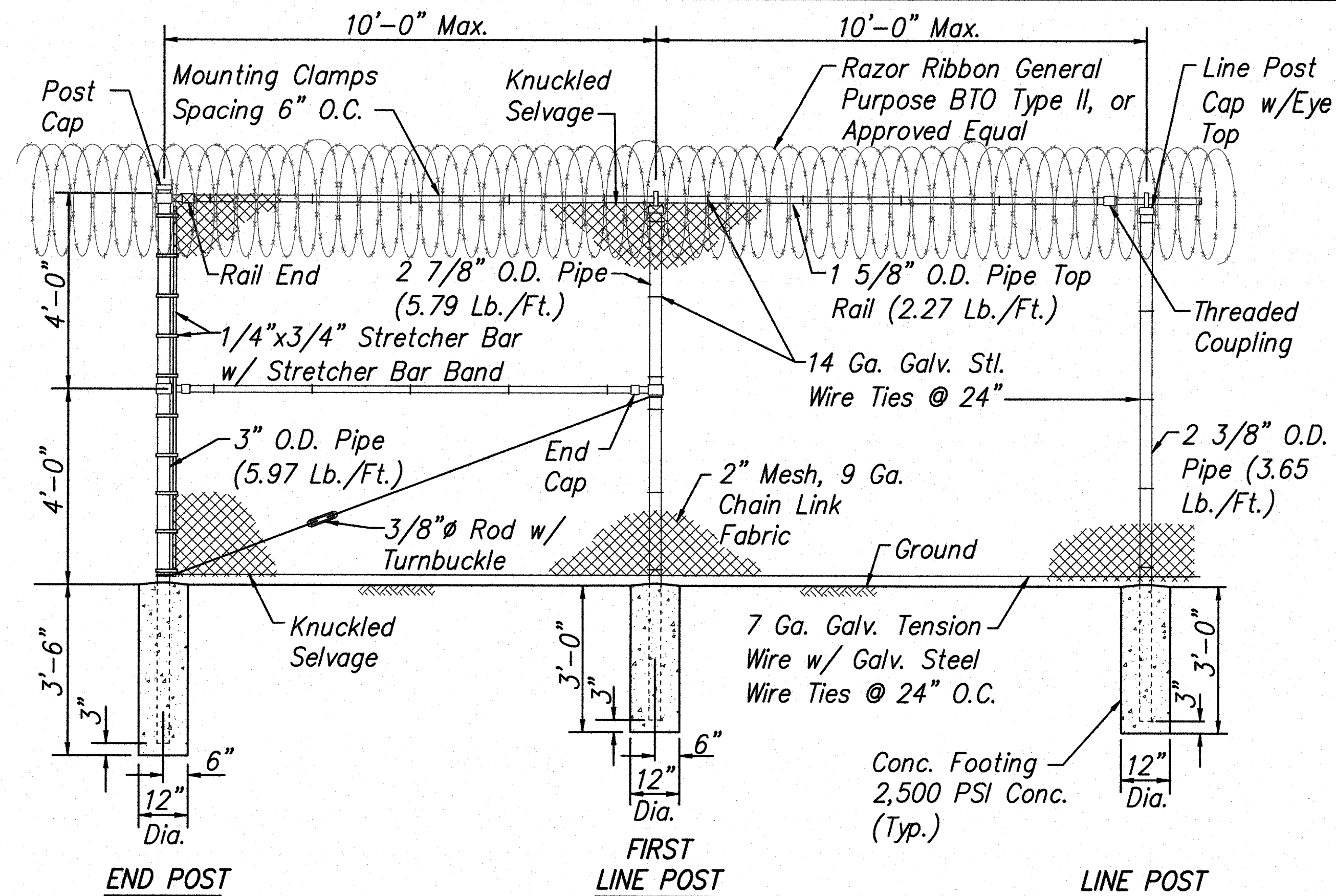
Signature

3/30/2020

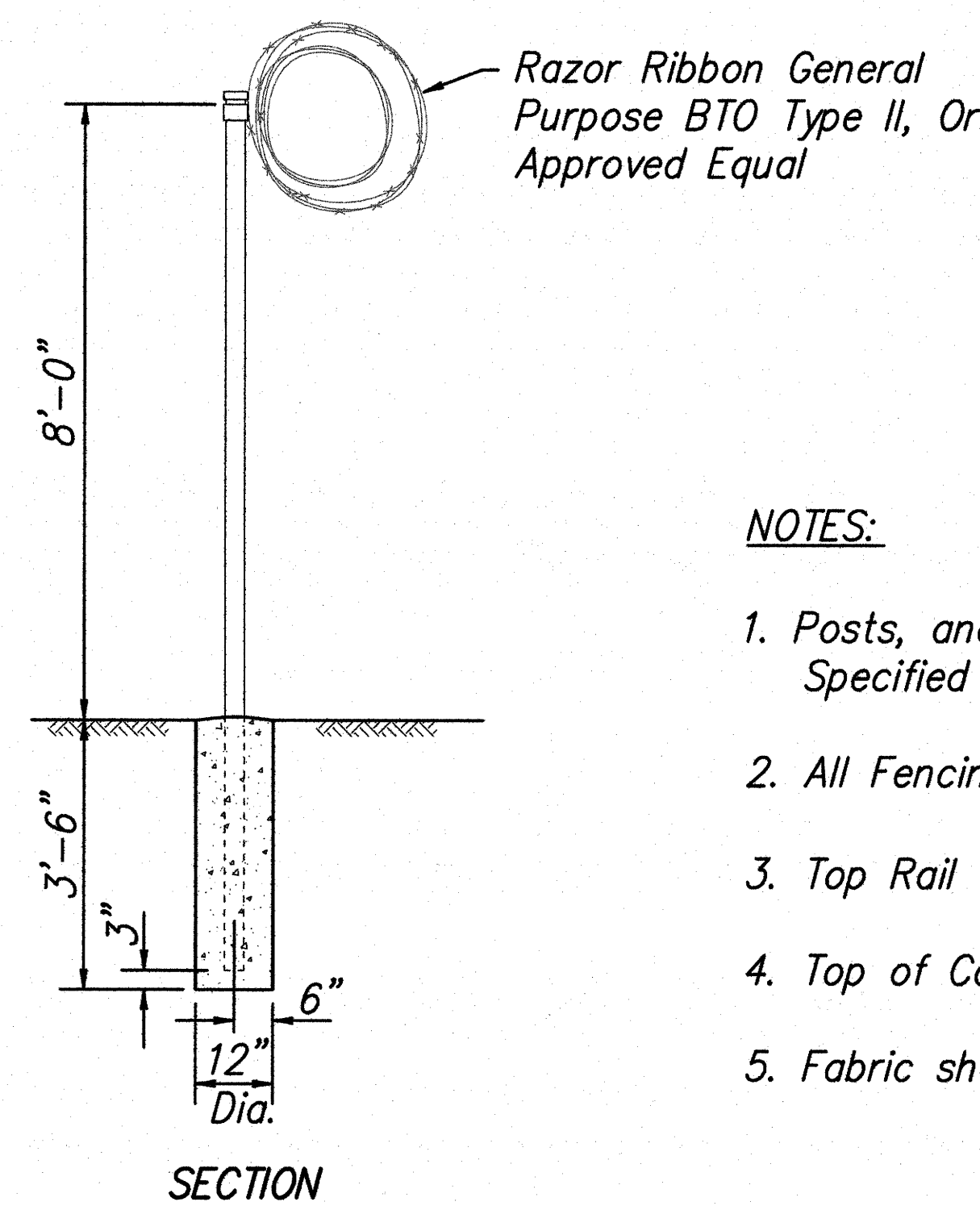
EXPIRATION DATE OF LICENSE

DATE	_____
SURVEY PLOTTED BY	_____
ORIGINAL PLAN	_____
TRACED BY	_____
NOTE BOOK	_____
DESIGNED BY	_____
CHECKED BY	_____
No.	_____

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	28	146

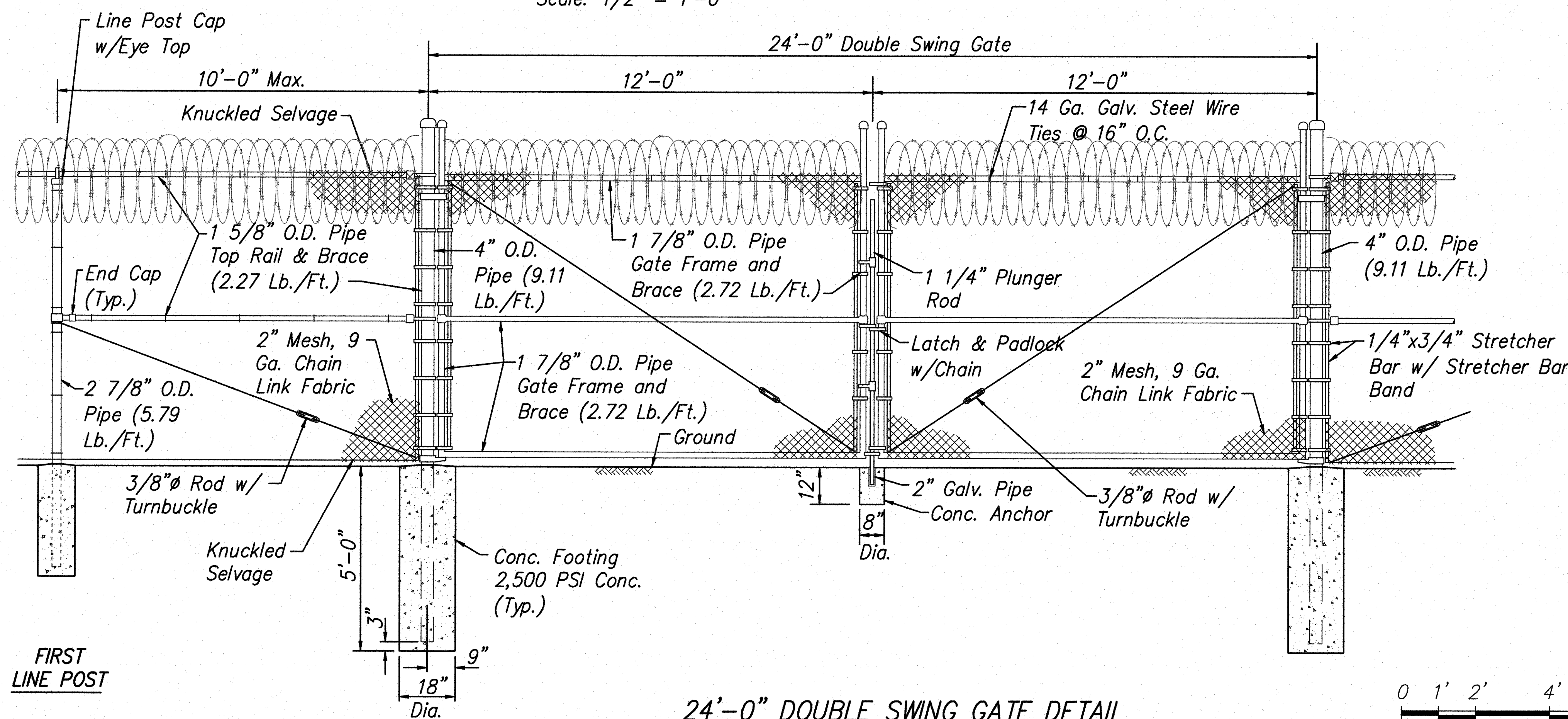


8' HIGH CHAIN LINK FENCE DETAIL
Scale: 1/2" = 1'-0"



NOTES:

1. Posts, and Braces shall be Schedule 40 (Standard Weight) Pipe Sizes Specified are Outside Diameter.
2. All Fencing Material shall be Galvanized Steel.
3. Top Rail Couplings shall be located within 6" of Line Posts.
4. Top of Concrete Footing shall be crowned to Shed Water.
5. Fabric shall be Rockfall Protection Mesh.

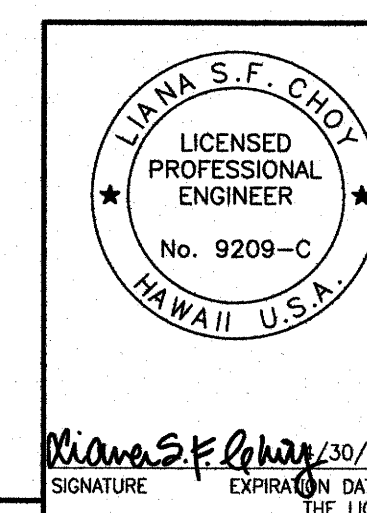


24'-0" DOUBLE SWING GATE DETAIL
Scale: 1/2" = 1'-0"

NOTES:

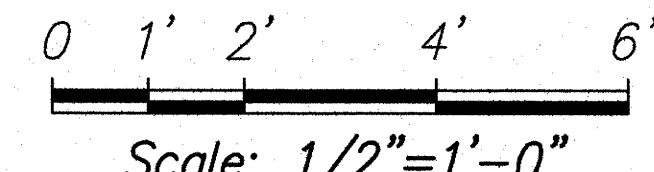
1. All Fencing Material including Gate Hardware shall be Galvanized Steel.
2. Posts, Braces and Gate Frames shall be Schedule 40 (Standard Weight) Pipe, Sizes specified are Outside Diameter.
3. Corner Fittings for Gate Frames may be used in lieu of welding.
4. Gate shall have Knuckled Selvage top and bottom.
5. Top of Concrete Footing shall be crowned to shed water.

SURVEY PLOTTED BY	DATE
DESIGNED BY	
CHECKED BY	
NOTED BY	
NO.	

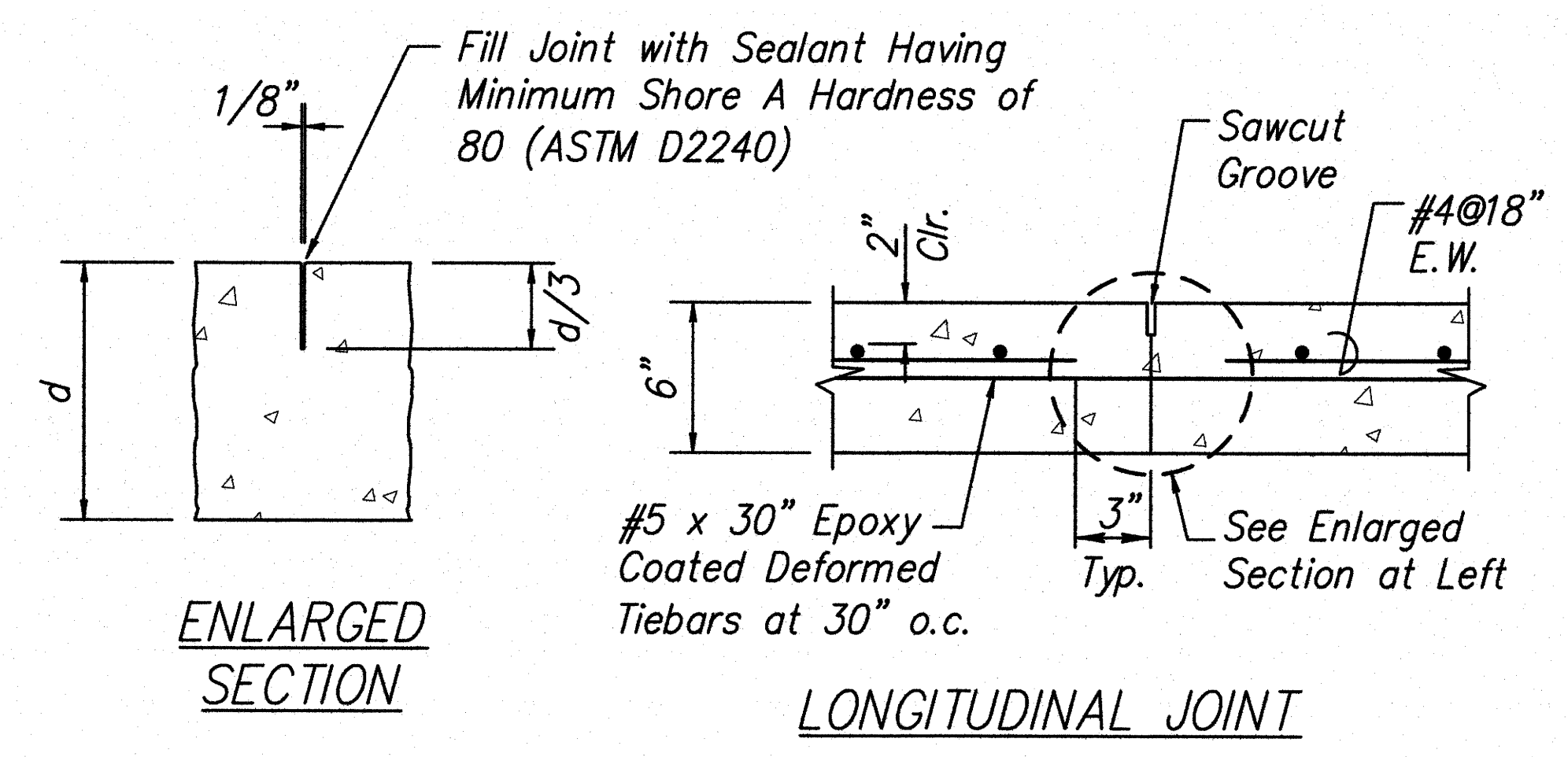
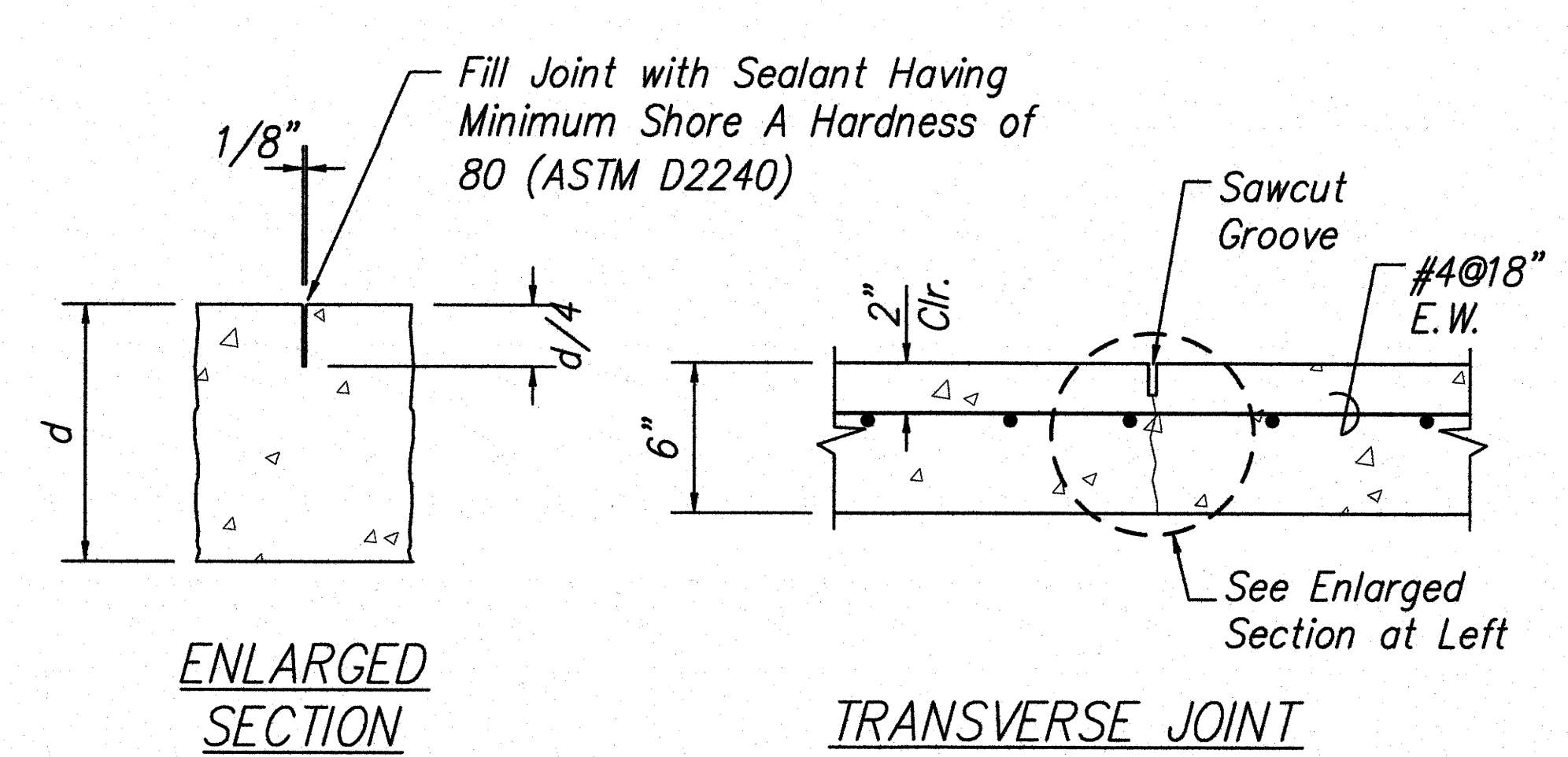


STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DETAILS-3
MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10
Scale: As Shown Date: April, 2018
SHEET No. C-24 OF 26 SHEETS

C-24



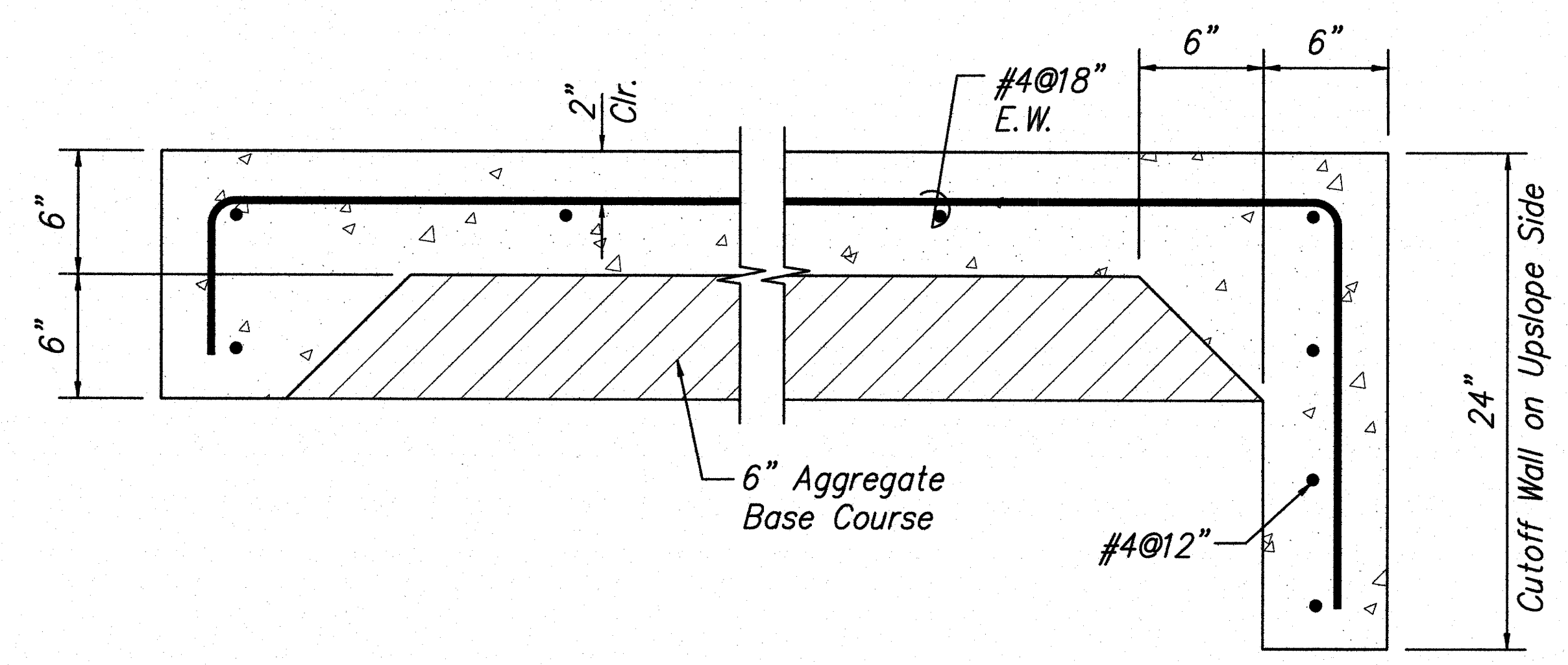
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	29	146



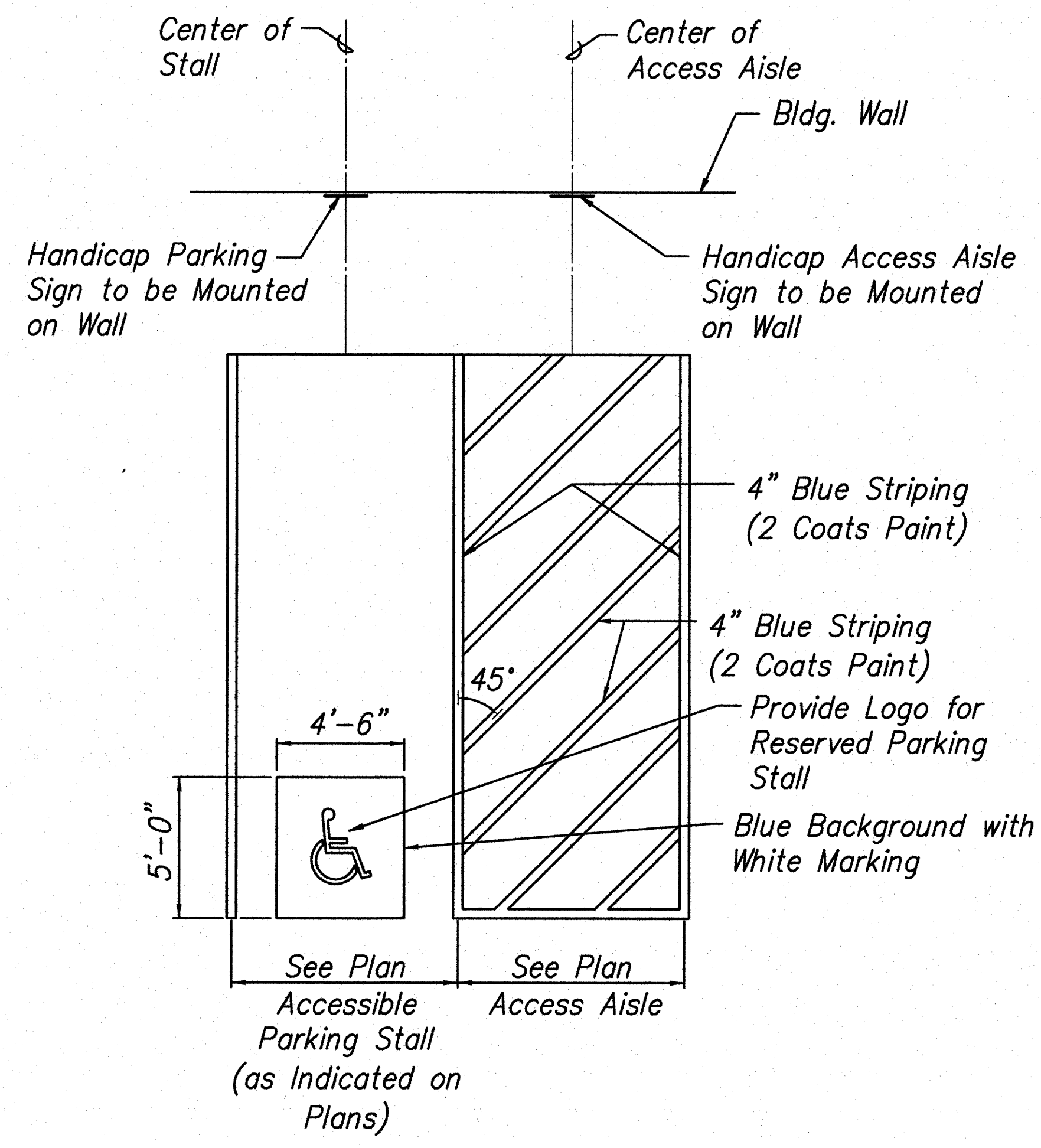
NOTES:

1. Provide Transverse Control Joints @ 10' Maximum O.C.
2. Provide Longitudinal Control Joint at the Center Line.
3. Tiebars are to be located minimum distance of 18" from a Transverse Joint.

CONTROL JOINT DETAIL
Scale: 2"=1'-0"



Scale: 2"=1'-0"



Scale: 1/4"=1'-0"

R7-8 12"x18"

RESERVED PARKING

PLACARD OR SPECIAL LICENSE PLATE REQUIRED MAXIMUM FINE \$500

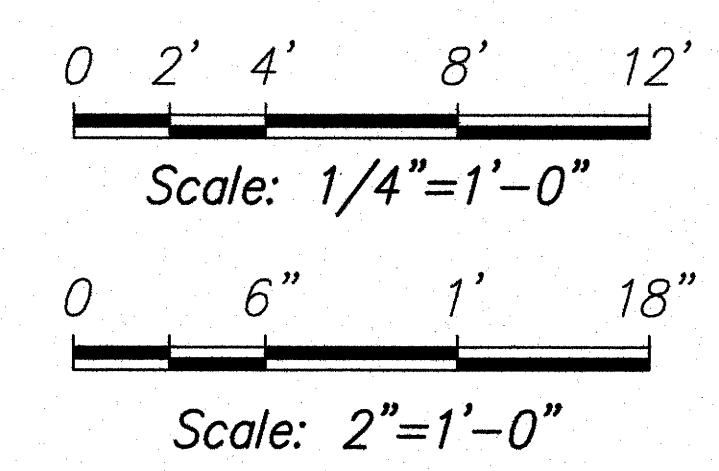
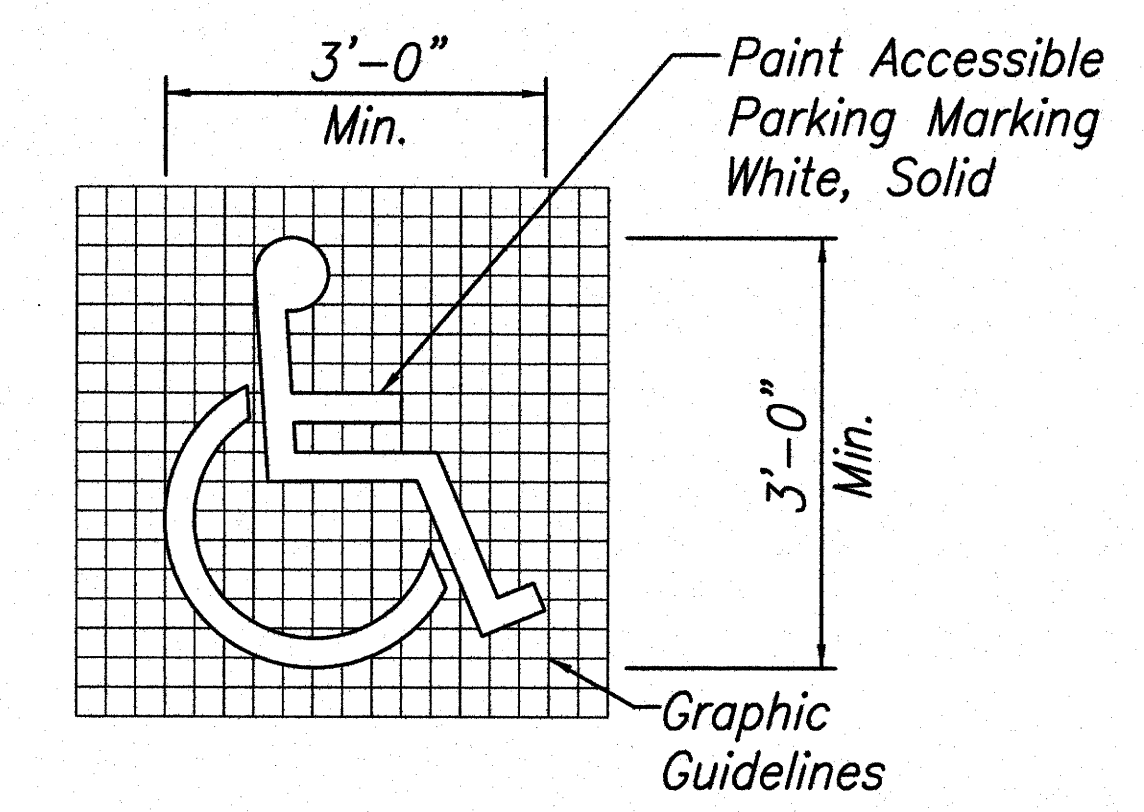
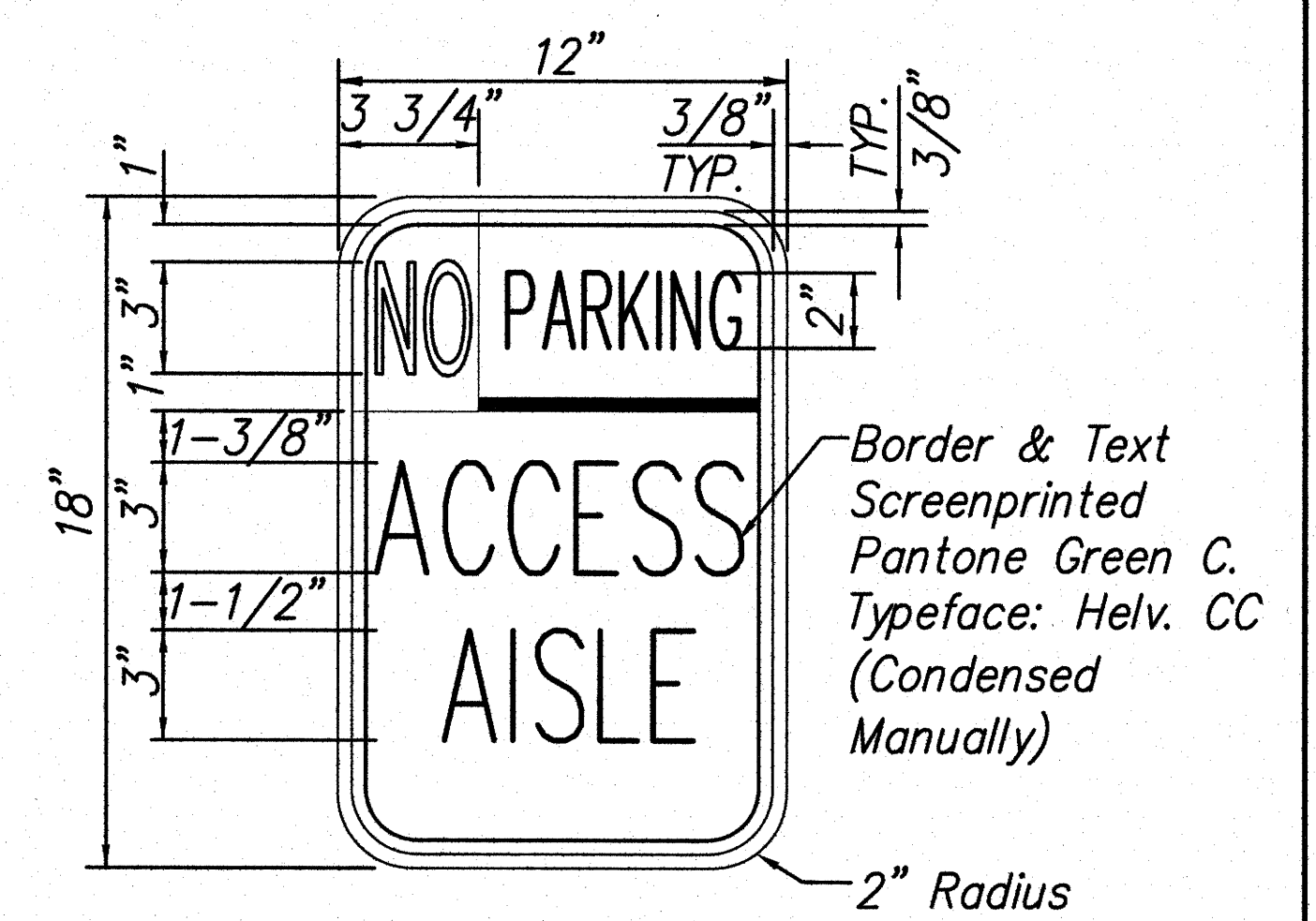
R7-201 12"x6"

VAN ACCESSIBLE

R7-201a 12"x6"

VAN ACCESSIBLE PARKING SIGN

Not to Scale



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DETAILS-4

MAUNA KEA MAINTENANCE
BASEYARD
DANIEL K. INOUE HIGHWAY
Project No. 200A-01-10

Scale: As Shown Date: April, 2018

SHEET No. C-25 OF 26 SHEETS

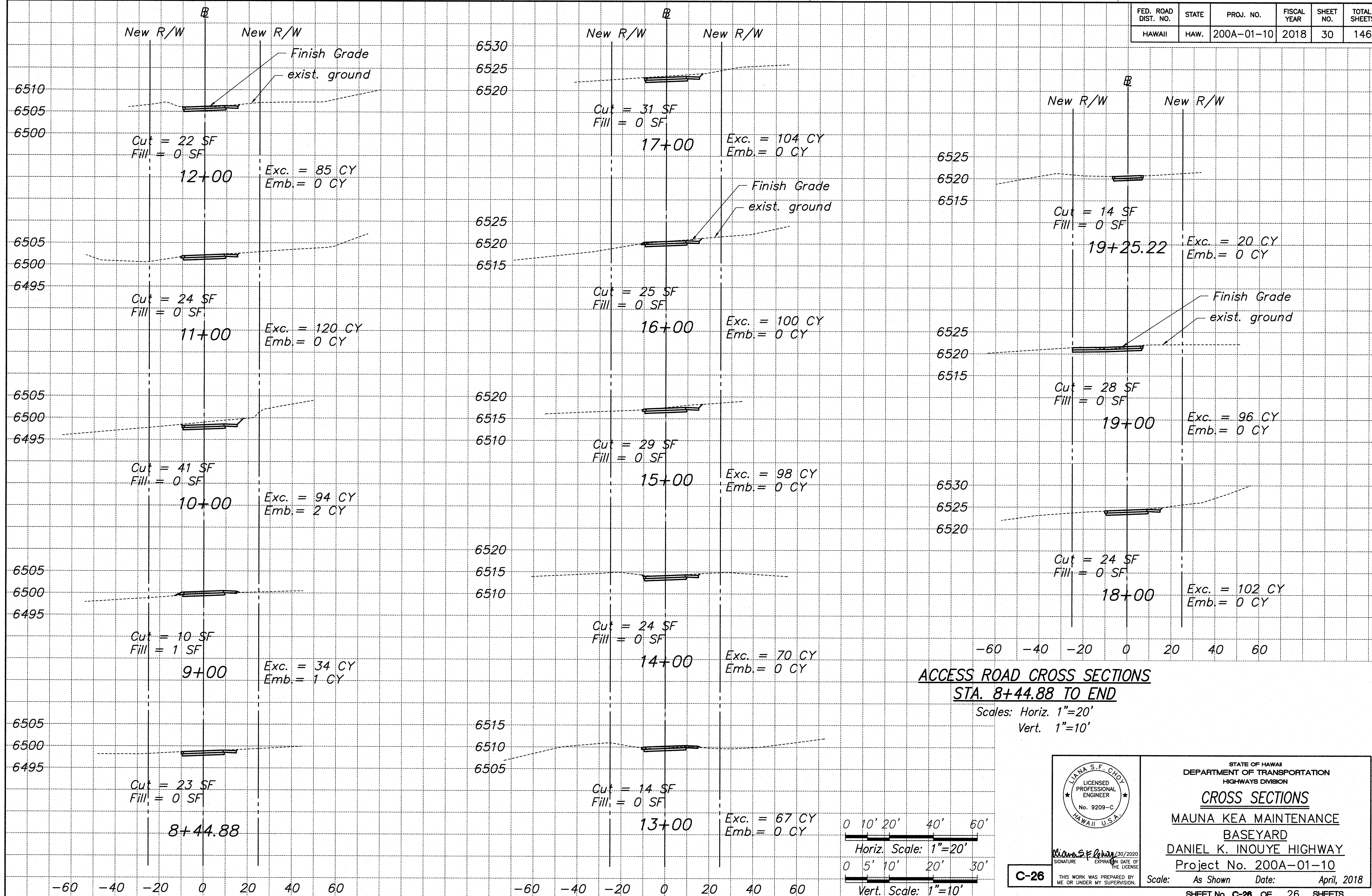
LIANA S.F. CHOY
LICENSED PROFESSIONAL ENGINEER
No. 9209-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

C-25

SURVEY PLOTTED BY	DATE
DRAWN BY	
TRACED BY	
NOTED BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	200A-01-10	2018	30	146



DATE: _____
 SURVEY PLOTTED BY: _____
 DRAWN BY: _____
 TRACED BY: _____
 DESIGNED BY: _____
 CHECKED BY: _____
 NO. _____

LIANA S.F. CHOY
 LICENSED PROFESSIONAL ENGINEER
 No. 9209-C
 HAWAII, U.S.A.
 Signature: _____
 EXPIRATION DATE OF LICENSE: 30/2020

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
CROSS SECTIONS
 MAUNA KEA MAINTENANCE
 BASEYARD
 DANIEL K. INOUE HIGHWAY
 Project No. 200A-01-10
 Scale: As Shown Date: April, 2018
 SHEET No. C-26 OF 26 SHEETS