ATTACHMENT A-7

Erosion Control Drawings
(*Item C.8 of NOI Form C*)

(This page intentionally left blank.)

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	9	41

WATER POLLUTION AND EROSION CONTROL NOTES

A. GENERAL:

1. 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.

2. 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 NPDES Form C and Attachments.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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:

1. 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.

2. 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.

3. 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:

1. Inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.5 inches or greater within a 24 hour period.

2. 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 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 day.

3. 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.

4. 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.

5. Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.

6. Complete and submit to the Engineer a maintenance inspection report within 24 hours after each inspection.

7. Include designated Concrete Washout Area(s) in the Water Pollution, Dust, and Erosion Control submittals.

8. Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.

9. 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.

10. 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.

11. 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. Complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities.

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

D6_NOTES_WATER POLLUTION.DWG 7/8/2014 8:46:53 AM

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE

This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATER POLLUTION AND EROSION CONTROL NOTES

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14

Scale: None Date: April 2014

SHEET No. N-06 OF 8 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	10	41

WATER POLLUTION AND EROSION CONTROL NOTES (CON'T.)

F. SITE SPECIFIC REQUIREMENTS:

Each BMP below is referenced to the corresponding section of the HDOT Construction Best Management Practices Field Manual dated January 2008 and appropriate Supplemental Sheets. The Manual may be obtained from the HDOT Statewide Stormwater Management Program Website at http://www.stormwaterhawaii.com/resources under Construction Best Management Practices Field Manual. Supplemental BMP sheets are located at http://stormwaterhawaii.com/contractors/contractors_BMPmanual.aspx 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.

EROSION CONTROL/BEST MANAGEMENT PRACTICES NOTES

1. The Contractor, at his own expense, shall keep the project areas and surrounding areas free from dust nuisance. The work shall be done in conformance with air pollution control standards contained in Hawaii Administrative Rules: Chapter 11-60, "Air Pollution Control".

2. Measures to control erosion and other pollutants shall be in place before any grading work is initiated. These measures shall be properly constructed and maintained throughout the construction period of each site.

3. Construction shall be sequenced to avoid disturbance at all project sites at one time and minimize exposure time of the cleared surface area.

4. The Contractor shall observe and comply with the State Department of Health regulations regarding storm water discharge.

5. All erosion control measures shall be checked and repaired as necessary, for example, weekly in dry periods and within twenty-four hours after any rainfall of 0.5 inches or greater within a 24-hour period. During prolonged rainfall, daily checking is necessary. During an event of above normal rainfall, the Contractor shall remove the sediment and drain inlet filter and reinstall them after the event has passed. The Contractor shall maintain records of all checks and repairs.

6. Inlet protection shall be implemented at all storm drain inlets and catch basins as indicated to prevent any sediment laden runoff from leaving the site. Inlet protection devices shall be removed during periods of above normal rainfall and replaced after the event has passed. For inlet protection details, see Sheet N-09.

7. The Contractor shall install fiber rolls as shown on plans.

8. Good housekeeping shall be utilized to ensure protection of roadways from mud, dirt, and debris.

9. The Contractor shall provide erosion control measures for their construction, staging, and storage areas and shall inspect and monitor his construction, staging, and storage areas to ensure that no non-storm water discharges are emitted. If such sources are identified the Contractor shall provide immediate mitigative measures.

10. No sediment laden runoff shall leave the site.

11. Water trucks shall be utilized to minimize the amount of airborne dust.

12. Contractor shall ensure the proper working order and conduct regular maintenance of all construction equipment. All construction equipment shall be serviced offsite and no oil or fuel shall be stored on the site.

13. The Contractor shall dispose of vegetation and equipment and hydraulic oils off-site.

14. At the end of the grading operation, existing catch basins and drain inlets surrounding the project site shall be inspected and any accumulated sediment and debris found shall be removed. Flushing into the catch basins or drain inlets is prohibited.

15. Grass shall be established on disturbed areas which are at final grade or will not be worked on for longer than 14 days. Alternatives to grass include 2" minimum straw mulch cover, erosion blankets with anchors, 6-mil plastic sheets, chemical soil stabilizer, sediment traps or ponds, or interceptor dikes/swales.

16. The Contractor shall designate a specific individual to be responsible for erosion and sediment controls on each project site.

17. Clearing and grubbing shall be held to the minimum necessary for grading and equipment operation.

18. Construction shall be staged and 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.

19. Temporary soil stabilization with appropriate vegetation shall be applied on areas that will remain unfinished for more than 30 calendar days.

20. Storm water flowing toward the construction area shall be diverted by using appropriate control measures, as practical.

21. 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 the Hawaii Administrative Rules, Section 11-54-04.

22. All grading work shall be done in conformance with Chapter 14, Articles 13, 14, 15 and 16, as related to grading, soil erosion and sediment control, of the Revised Ordinances of Honolulu, 1990, as amended and applicable provisions of Chapter 54, Water Quality Standards and Chapter 55, Water Pollution Control, Title II, Administrative Rules of the State Department of Health.

23. The Contractor shall schedule construction during the dry weather periods and shall be prepared in case of rainfall events. The Contractor shall provide for temporary bypass or detention of storm water flows or other measures to avoid flooding of properties upstream or adjacent to the site.

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE
This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATER POLLUTION AND EROSION CONTROL NOTES

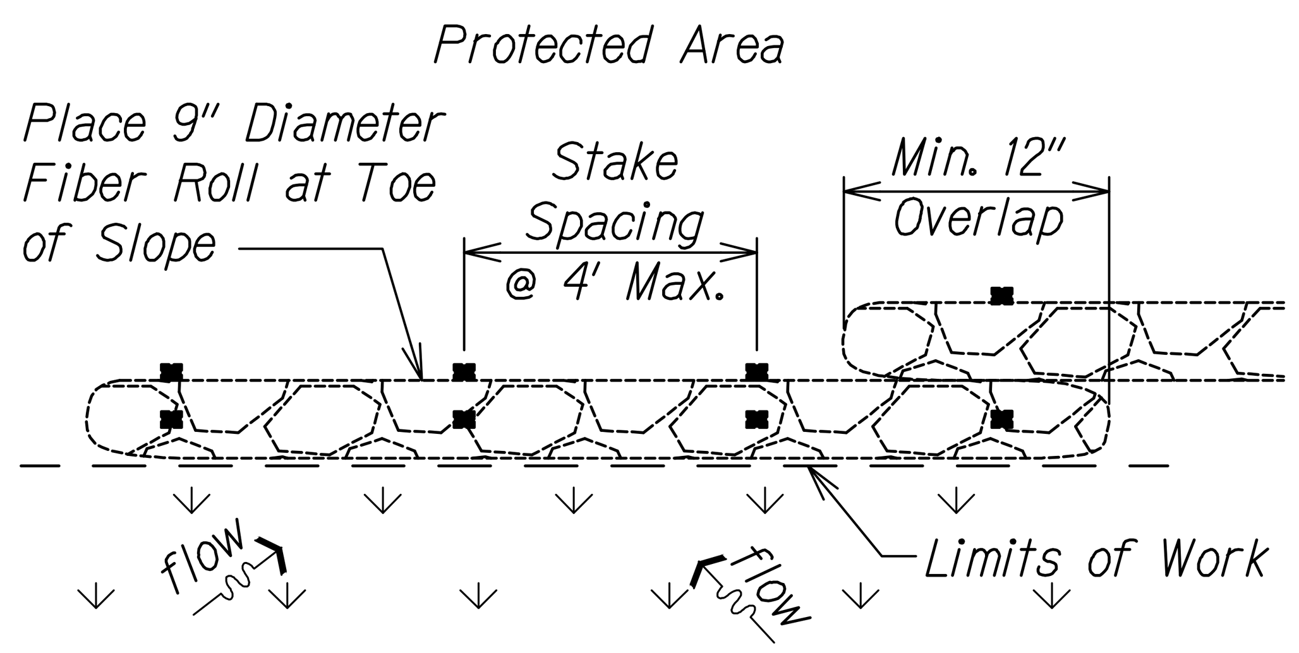
SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14

Scale: None Date: April 2014

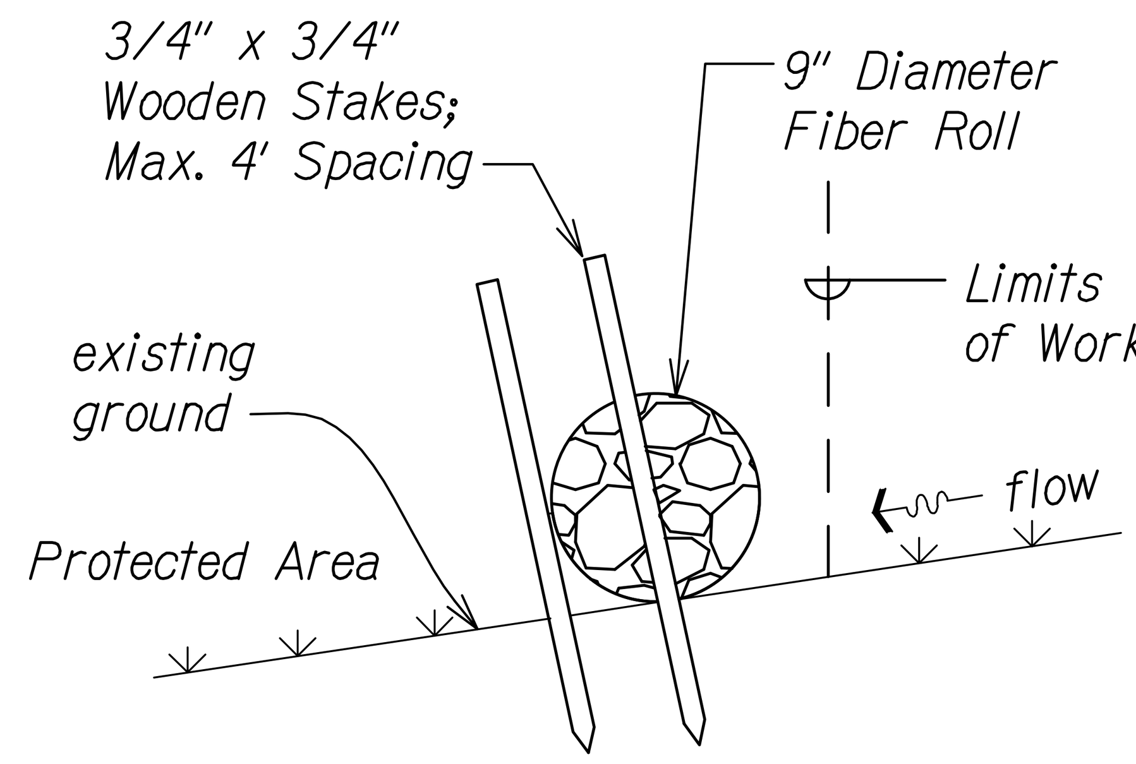
SHEET No. N-07 OF 8 SHEETS

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

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	11	41



PLAN



SECTION

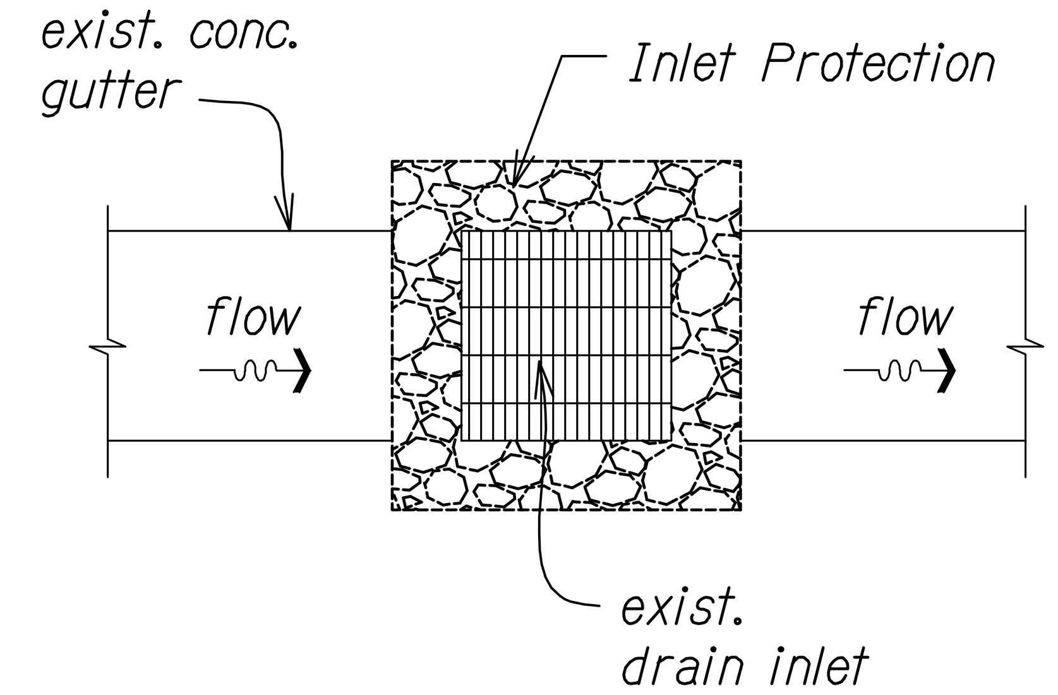
Note:

1. Fiber roll shall meet the requirements of the State Construction BMP Field Manual, SC-8 Compost Filter Berm.

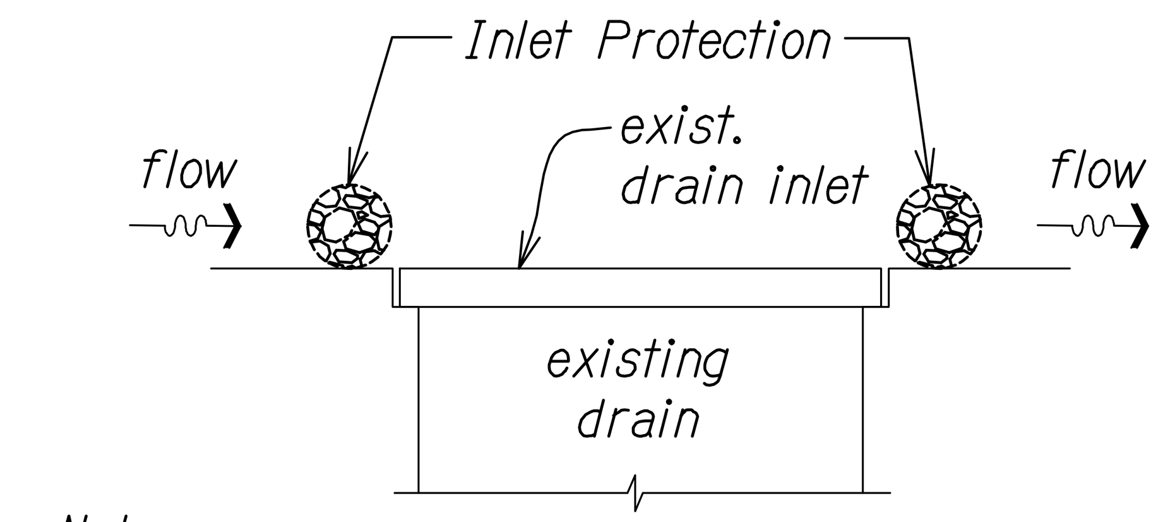
2. Contractor shall remove debris behind fiber roll when it has reached one-half the height of the fiber roll.

FIBER ROLL DETAIL

Not to Scale



PLAN

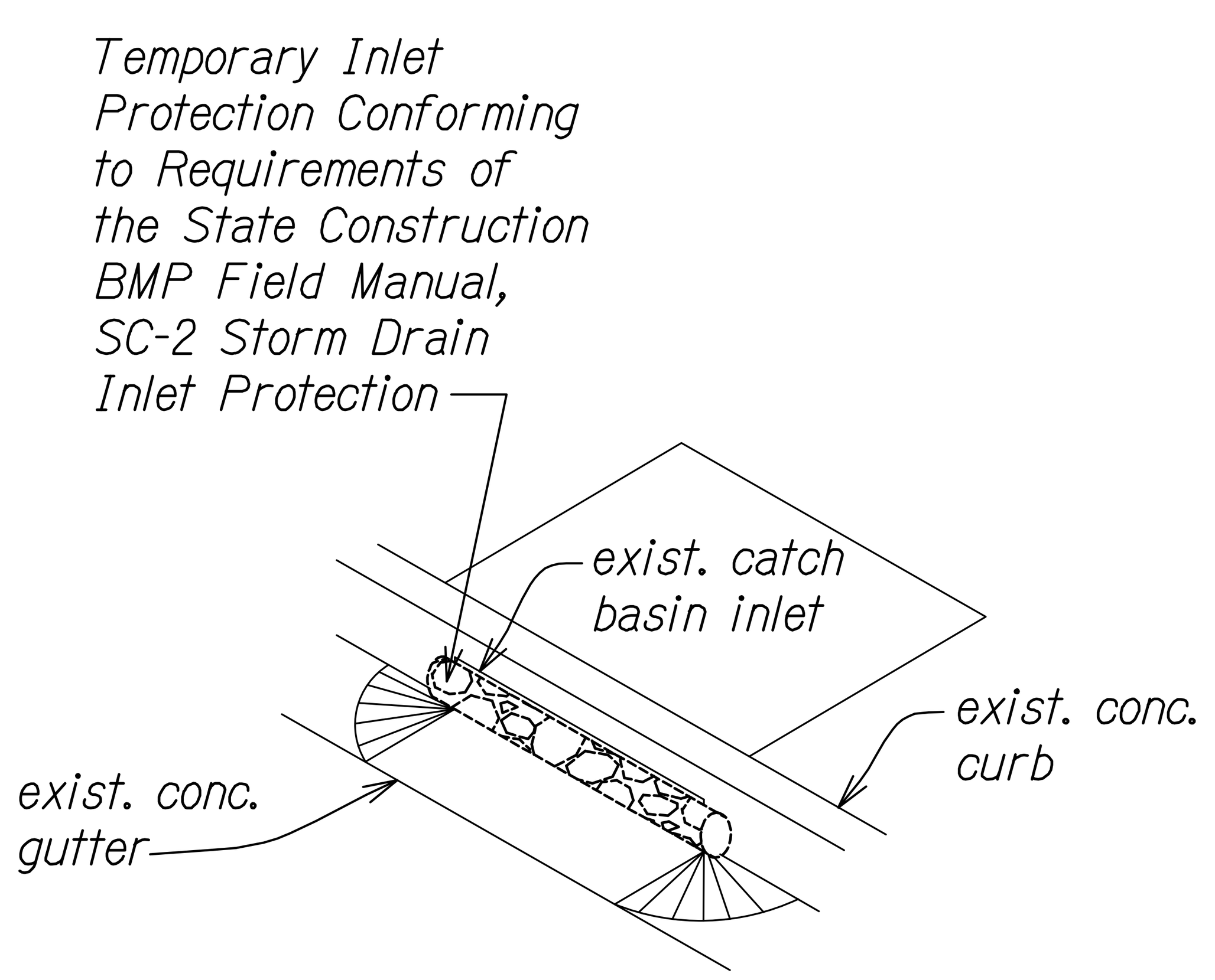


Note:
Temporary inlet protection shall meet the requirements of the State Construction BMP Field Manual, SC-2 Storm Drain Inlet Protection.

SECTION

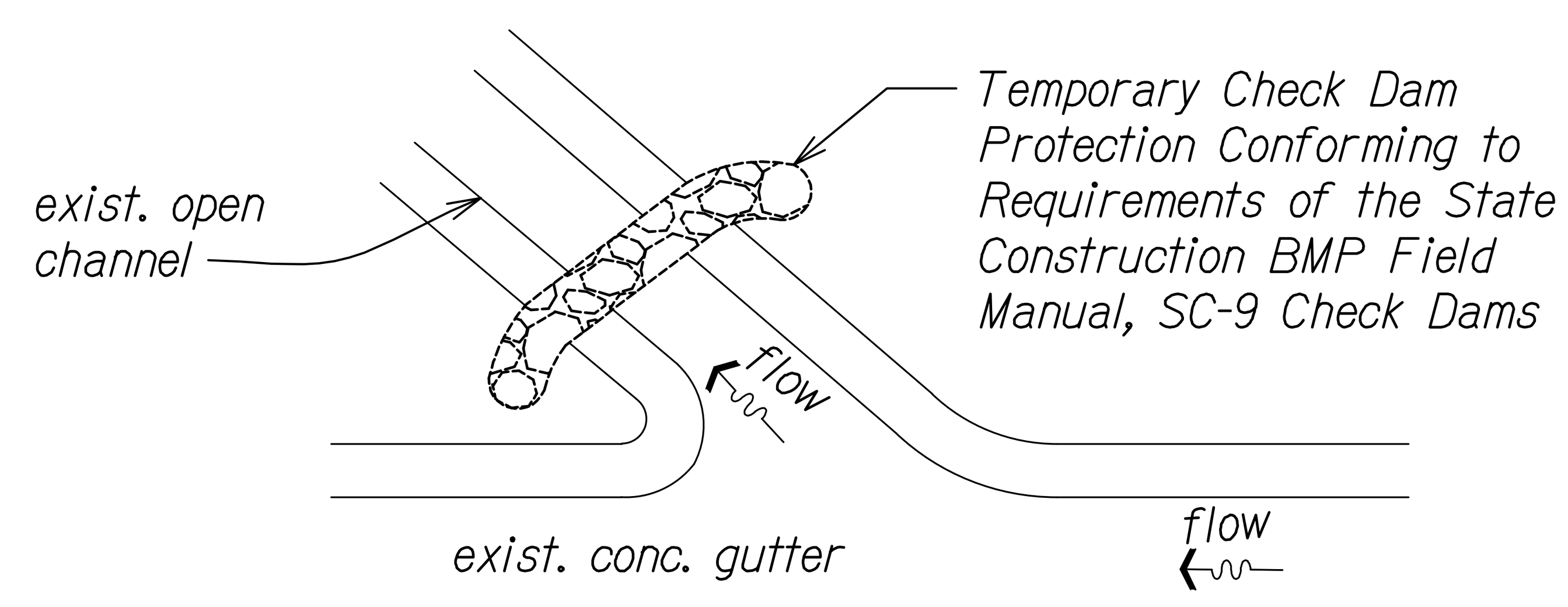
DRAIN INLET PROTECTION

Not to Scale



CATCH BASIN PROTECTION

Not to Scale



CHECK DAM DETAIL

Not to Scale

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

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE
This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

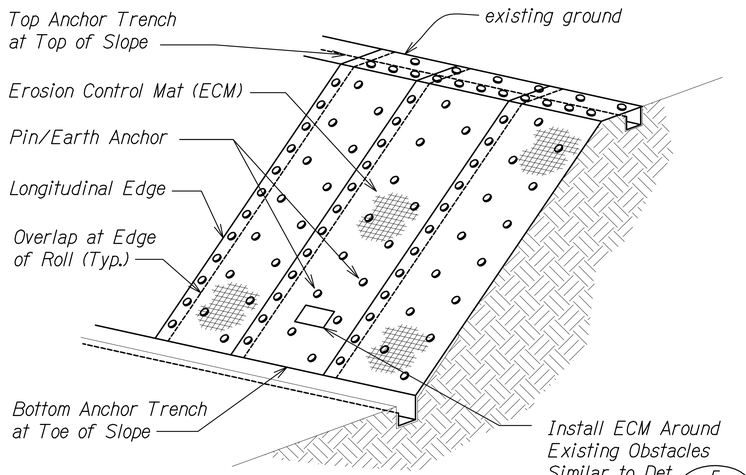
WATER POLLUTION AND EROSION CONTROL NOTES

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14

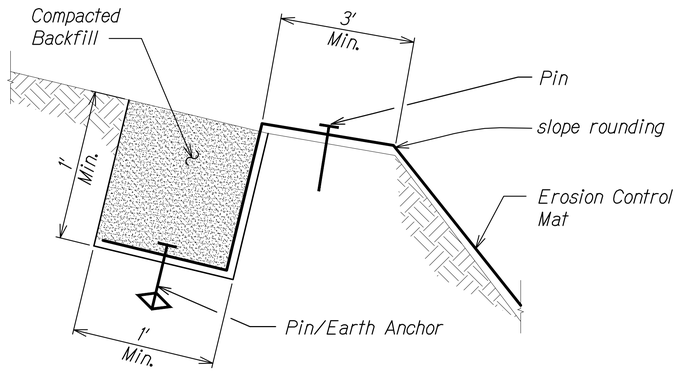
Scale: None Date: April 2014

SHEET No. N-08 OF 8 SHEETS

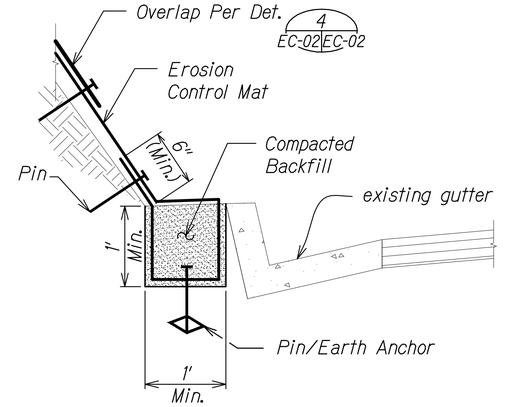
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	12	41



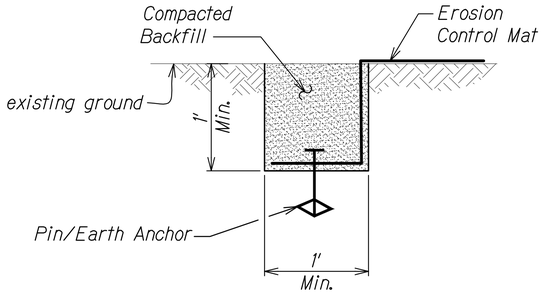
OVERVIEW OF EROSION CONTROL MATTING SYSTEM 1 EC-01|EC-01
Scale: Not to Scale



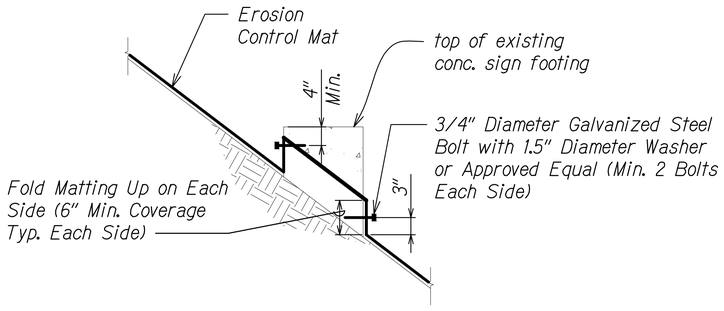
TOP ANCHOR TRENCH AT TOP OF SLOPE DETAIL 2 EC-01|EC-01
Scale: Not to Scale



BOTTOM ANCHOR TRENCH DETAIL 3 EC-01|EC-01
Scale: Not to Scale



LONGITUDINAL EDGE TRENCH DETAIL 4 EC-01|EC-01
Scale: Not to Scale



Notes:
1. Bolts shall be embedded a minimum of 3" into concrete.
2. Matting shall be placed and secured in direct contact with the finish grade.

TYPICAL SECTION AROUND EXISTING CONCRETE SIGN FOOTINGS 5 EC-01|EC-01
Scale: Not to Scale

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

EC-01 EROSION CONTROL MATTING DETAILS.DWG 4/5/2014 8:38:42 PM

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE

This work was prepared by me or under my supervision.

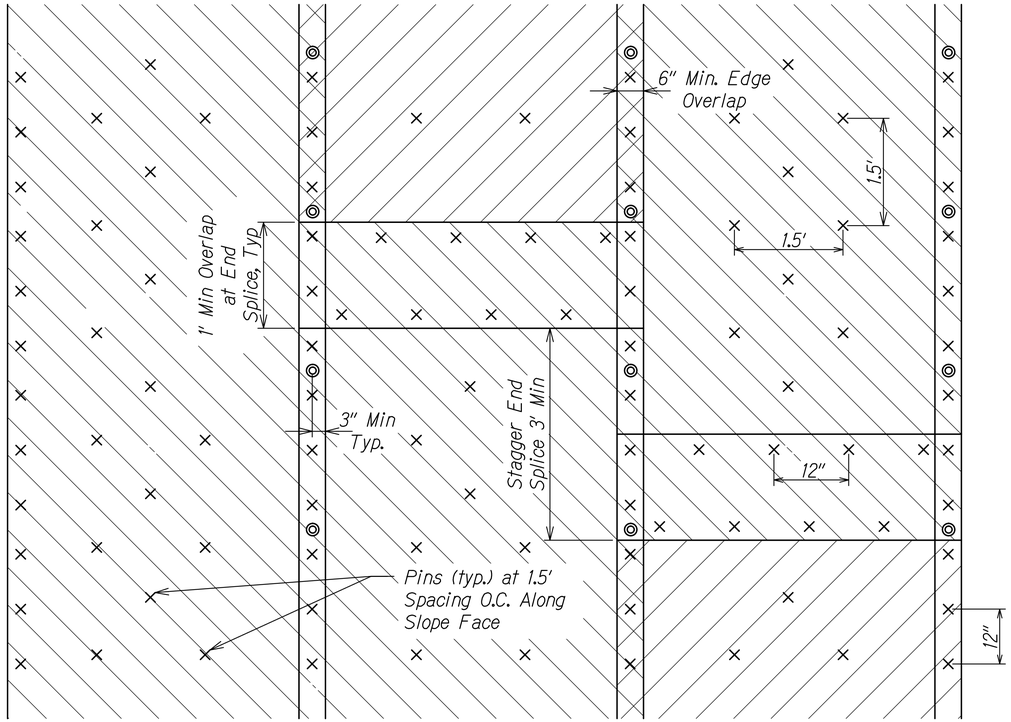
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS
EROSION CONTROL MATTING

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14
Scale: Not to Scale Date: April 2014

SHEET No. EC-01 OF 13 SHEETS

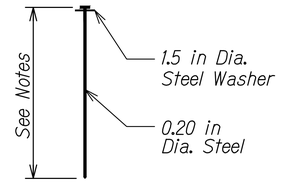
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	13	41



TYPICAL EROSION CONTROL MAT AND PIN LAYOUT (1 / EC-02 EC-02)
Scale: Not to Scale

Pin Spacing		
Fastener Type	Along Slope Face	Top, Bottom & Edge Trenches
Pin	1.5'	1'
Earth Anchor	-	4'

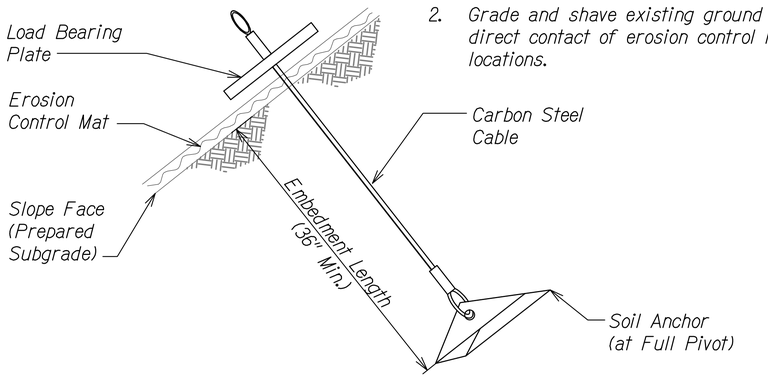
Notes:
1. Secure all erosion control mat edges with pins at the spacing indicated.
2. For slopes 3H:1V or flatter, no ECM required.
3. Earth anchors in trenches should extend a minimum depth of 3' from slope face.



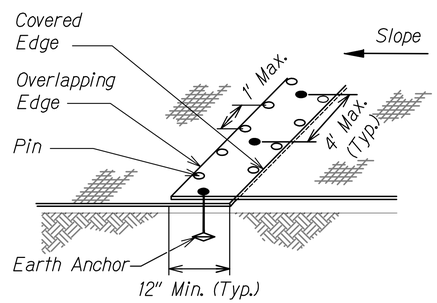
PIN DETAIL (2 / EC-02 EC-02)
Scale: Not to Scale

Notes:
1. For clayey soils, pins shall be a minimum of 12" in length.
2. For sandy soils, pins shall be a minimum of 18" in length.

Notes:
1. Place erosion control mat in direct contact with finish grade.
2. Grade and shave existing ground to allow direct contact of erosion control mat at all locations.



EARTH ANCHOR DETAIL (3 / EC-02 EC-02)
Scale: Not to Scale



OVERLAP END DETAIL (4 / EC-02 EC-02)
Scale: Not to Scale

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

EC-00 EROSION CONTROL MATTING DETAILS.DGN 4/5/2016 8:59:20 AM

JASON H. LAU LICENSED PROFESSIONAL ENGINEER NO. 9360-C HAWAII USA
4/30/16 EXP. DATE
This work was prepared by me or under my supervision.

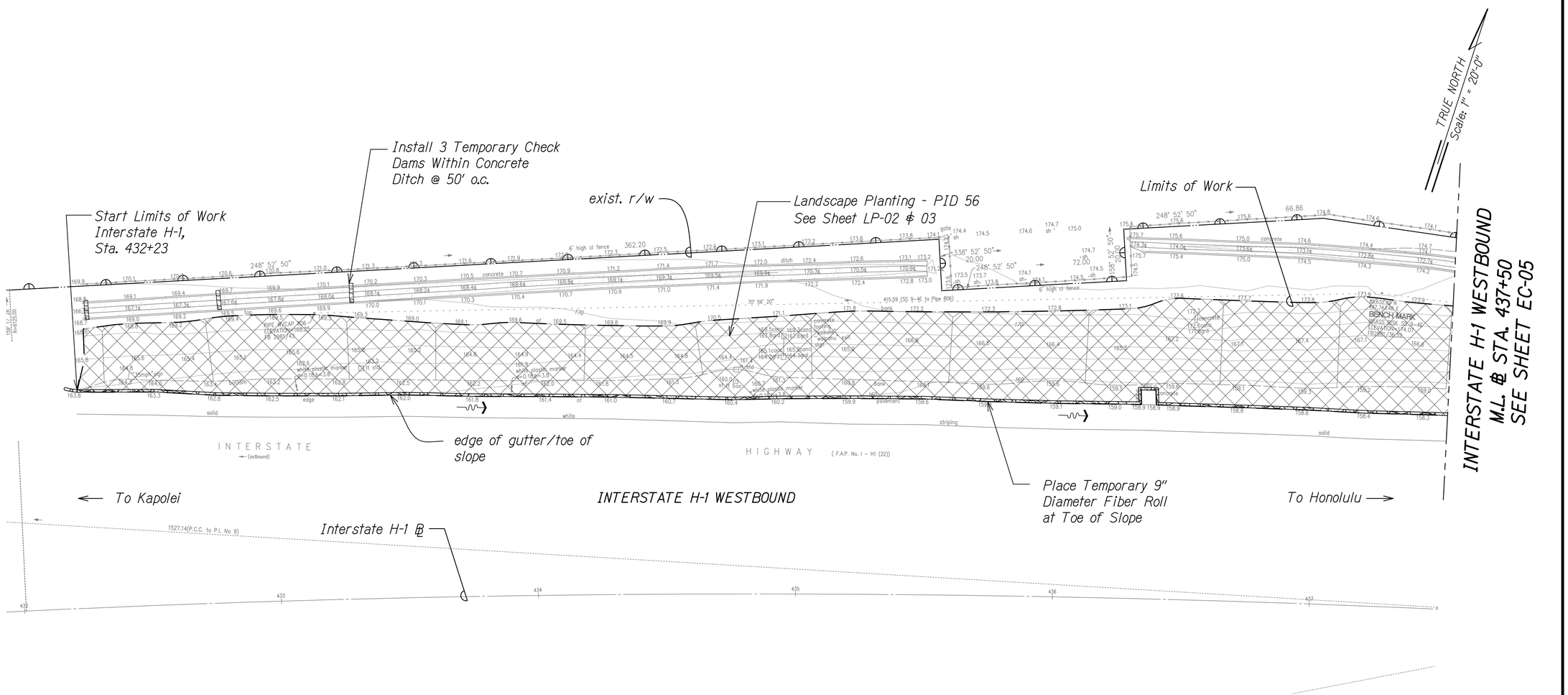
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS
EROSION CONTROL MATTING

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14
Scale: Not to Scale Date: April 2014

SHEET No. EC-02 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	15	41



EROSION CONTROL PLAN PID 56

Scale: 1" = 20'-0"

Notes:

1. Install erosion control matting on slopes greater than 3:1. See Sheet LP-02 & 03.
2. For erosion mat details, see Sheets EC-01 & 02.

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

EDP PID 56.DWG 4/9/2014 10:59:41 PM

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE
This work was prepared by me or under my supervision.

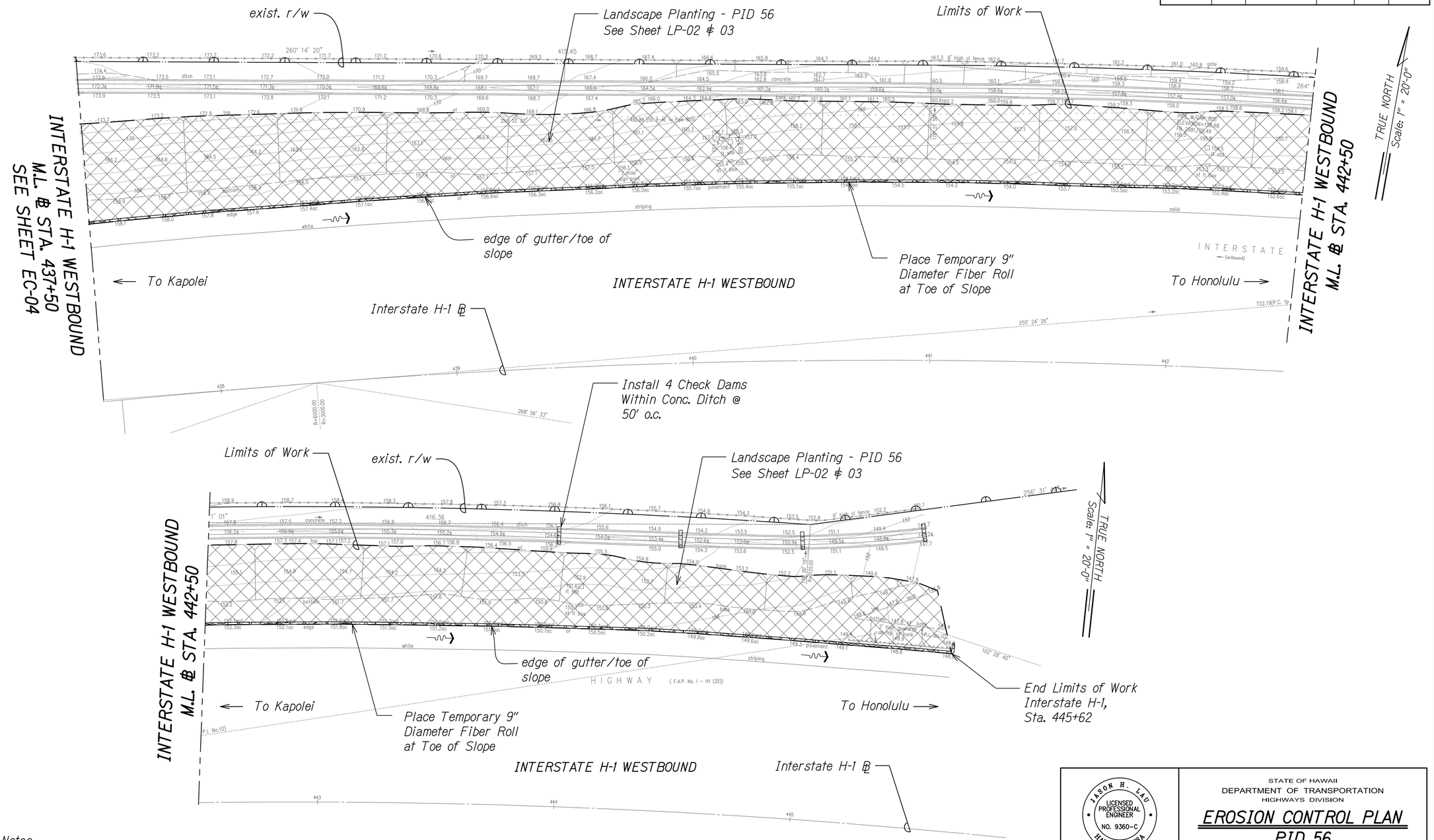
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN PID 56

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14
Scale: 1" = 20' Date: April 2014

SHEET No. EC-04 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	16	41



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

ECP PID 56.DWG 4/9/2014 9:59:41 PM

Notes:

1. *Install erosion control matting on slopes greater than 3:1. See Sheet LP-02 & 03.*
2. *For erosion mat details, see Sheets EC-01 & 02.*

EROSION CONTROL PLAN PID 56

Scale: 1" = 20'-0"

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE

This work was prepared by me or under my supervision.

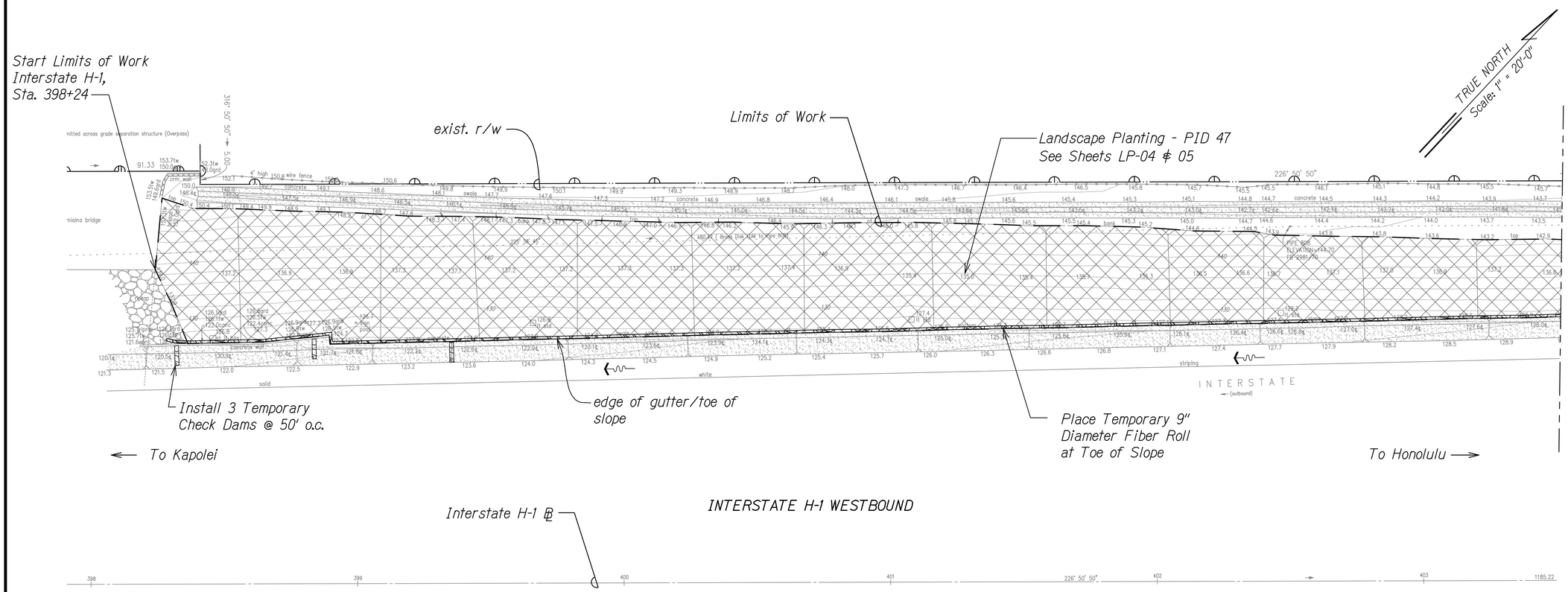
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN PID 56

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14
Scale: 1" = 20' Date: April 2014

SHEET No. EC-05 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	17	41



EROSION CONTROL PLAN PID 47

Scale: 1" = 20'-0"

Notes:

1. Install erosion control matting on slopes greater than 3:1. See Sheet LP-04 & 05.
2. For erosion mat details, see Sheets EC-01 & 02.

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

ECP-PID 47.DWG 4/29/2014 10:26:45 PM

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE

This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

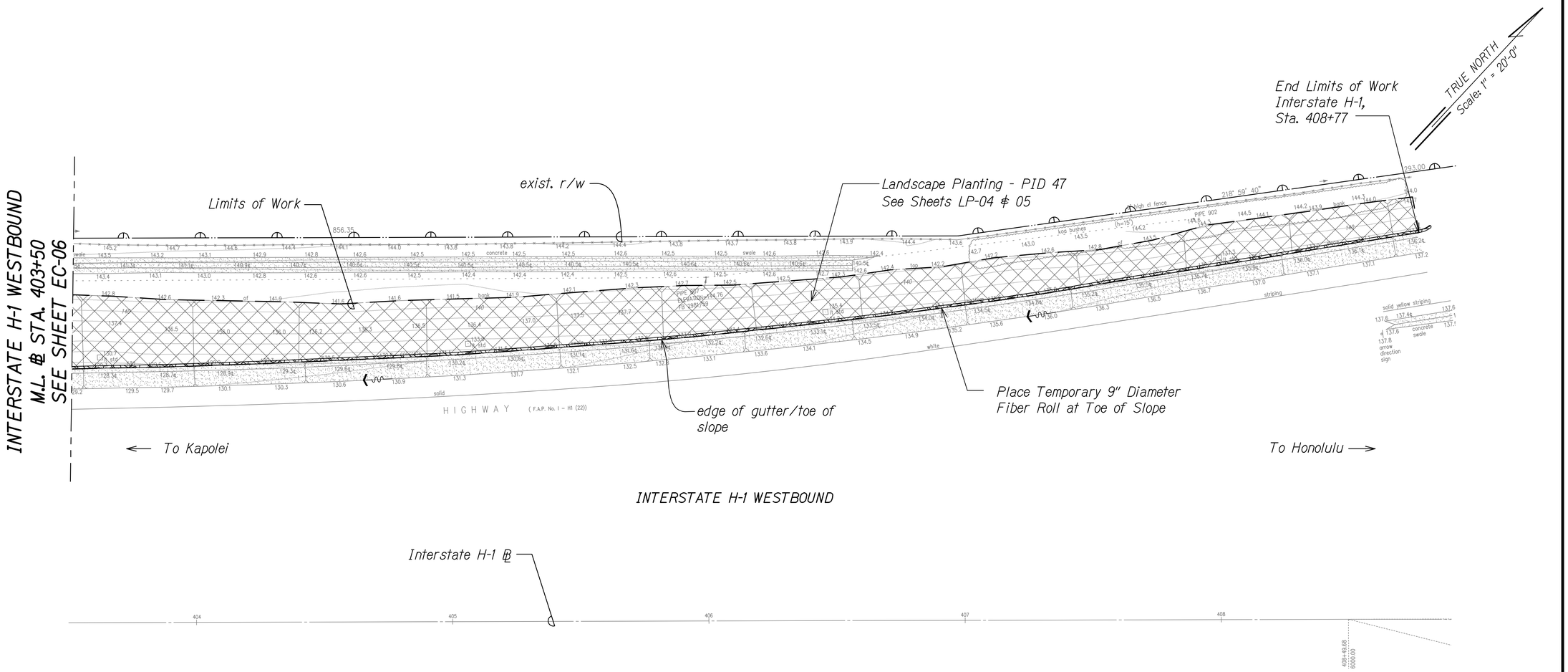
EROSION CONTROL PLAN
PID 47

SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14

Scale: 1" = 20' Date: April 2014

SHEET No. EC-06 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	18	41



EROSION CONTROL PLAN PID 47

Scale: 1" = 20'-0"

Notes:

1. Install erosion control matting on slopes greater than 3:1. See Sheet LP-04 ⊄ 05.
2. For erosion mat details, see Sheets EC-01 ⊄ 02.

ORIGINAL PLAN
NOTE BOOK
NO. ____
SURVEY PLOTTED BY ____ DATE
DRAWN BY ____ "
TRACED BY ____ "
DESIGNED BY ____ "
QUANTITIES BY ____ "
CHECKED BY ____ "

ECP PID #1.DWG 4/9/2014 10:56:45 PM

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE
This work was prepared by me or under my supervision.

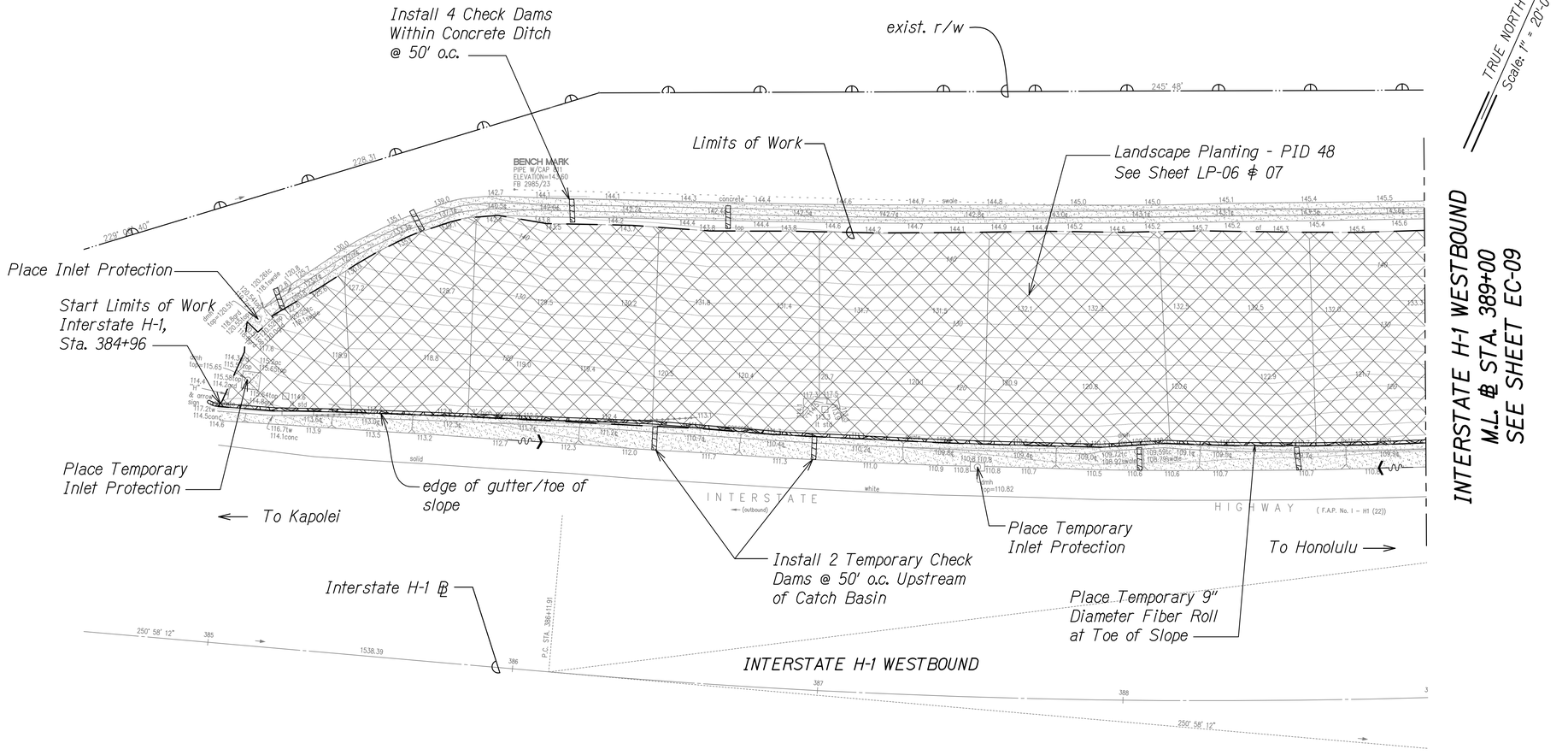
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN PID 47

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14
Scale: 1" = 20' Date: April 2014

SHEET No. EC-07 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	19	41



EROSION CONTROL PLAN PID 48

Scale: 1" = 20'-0"

Notes:

1. Install erosion control matting on slopes greater than 3:1. See Sheet LP-06 & 07.
2. For erosion mat details, see Sheets EC-01 & 02.

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

EOP_PID 48.DWG 4/9/2014 12:57 PM

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE

This work was prepared by me or under my supervision.

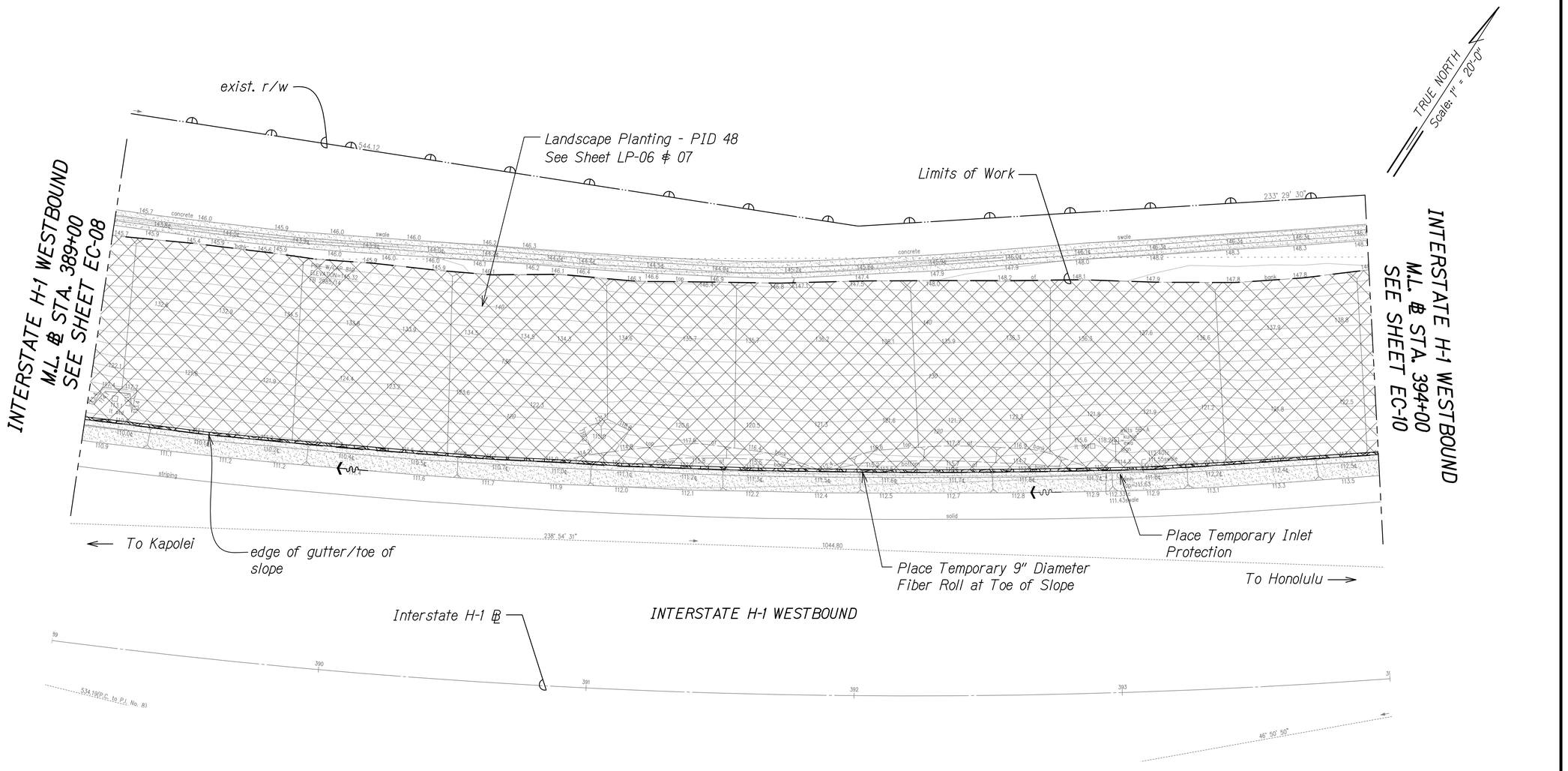
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN PID 48

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14
Scale: 1" = 20' Date: April 2014

SHEET No. EC-08 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	20	41



EROSION CONTROL PLAN PID 48

Scale: 1" = 20'-0"

Notes:

1. *Install erosion control matting on slopes greater than 3:1. See Sheet LP-06 & 07.*
2. *For erosion mat details, see Sheets EC-01 & 02.*

ORIGINAL PLAN | SURVEY PLOTTED BY | DATE
NOTE BOOK | DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY

EC9_PID 48.DWG 4/4/2014 12:57 PM

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE

This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

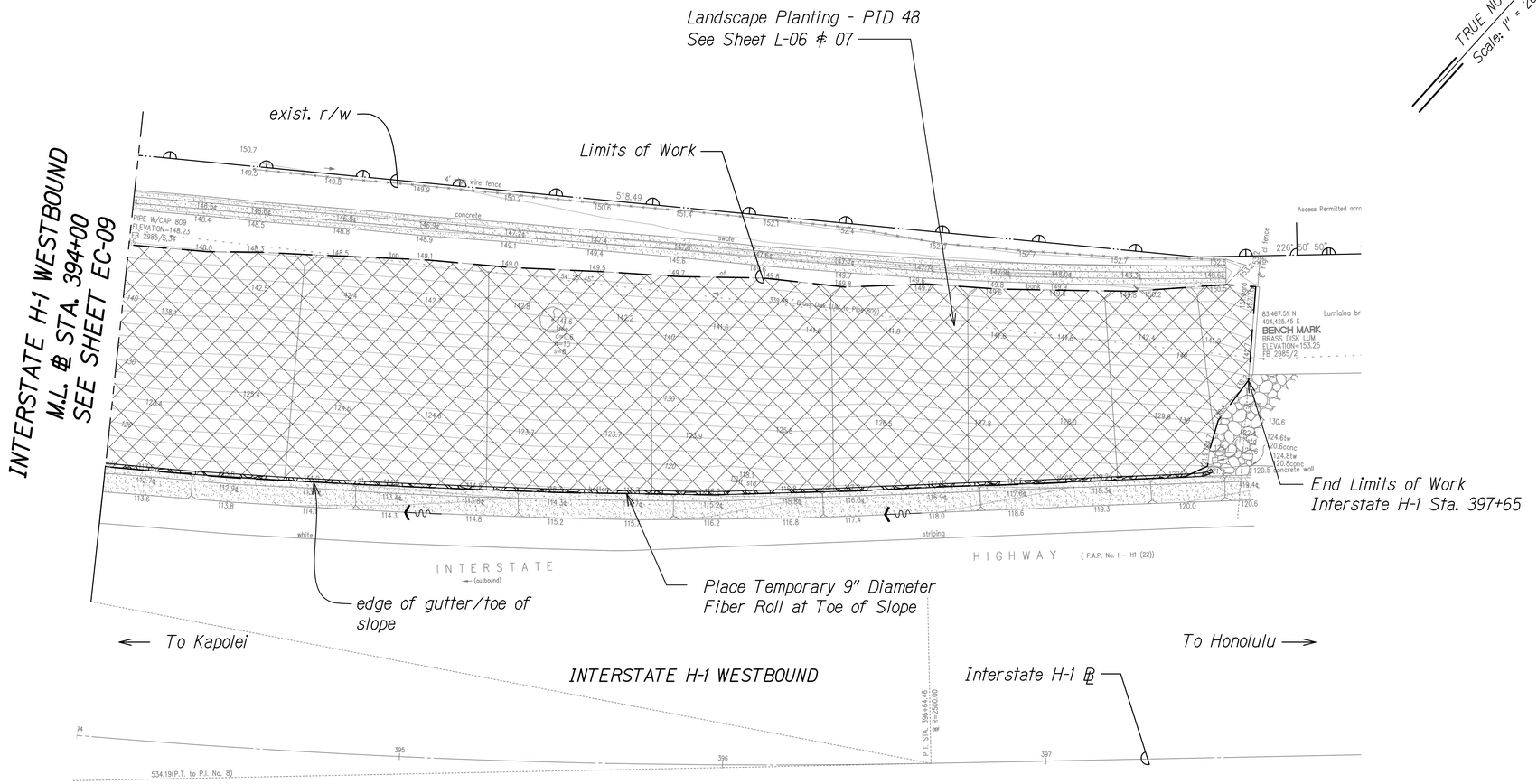
EROSION CONTROL PLAN PID 48

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14
Scale: 1" = 20' Date: April 2014

SHEET No. EC-09 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	21	41

TRUE NORTH
Scale: 1" = 20'-0"



EROSION CONTROL PLAN PID 48

Scale: 1" = 20'-0"

Notes:

1. Install erosion control matting on slopes greater than 3:1. See Sheet LP-06 & 07.
2. For erosion mat details, see Sheets EC-01 & 02.

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTE BOOK | N.

ECP_PID 48.DWG 4/9/2014 12:52:27 PM

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE
This work was prepared by me or under my supervision.

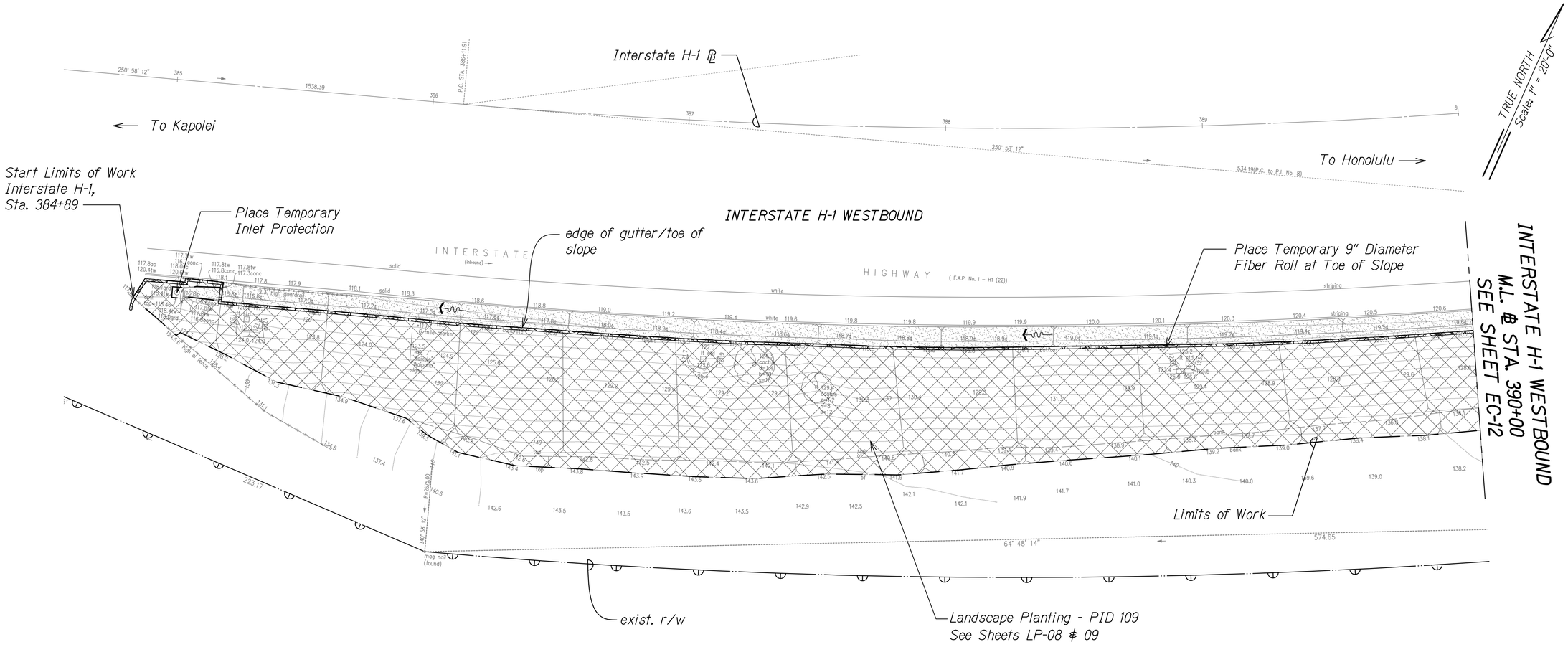
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN PID 48

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14
Scale: 1" = 20' Date: April 2014

SHEET No. EC-10 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	22	41



EROSION CONTROL PLAN PID 109

Scale: 1" = 20'-0"

Notes:

1. *Install erosion control matting on slopes greater than 3:1. See Sheet LP-08 & 09.*
2. *For erosion mat details, see Sheets EC-01 & 02.*

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

EOP_PID 109.DWG 4/9/2014 12:53:39 PM

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA

4/30/16
EXP. DATE

This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

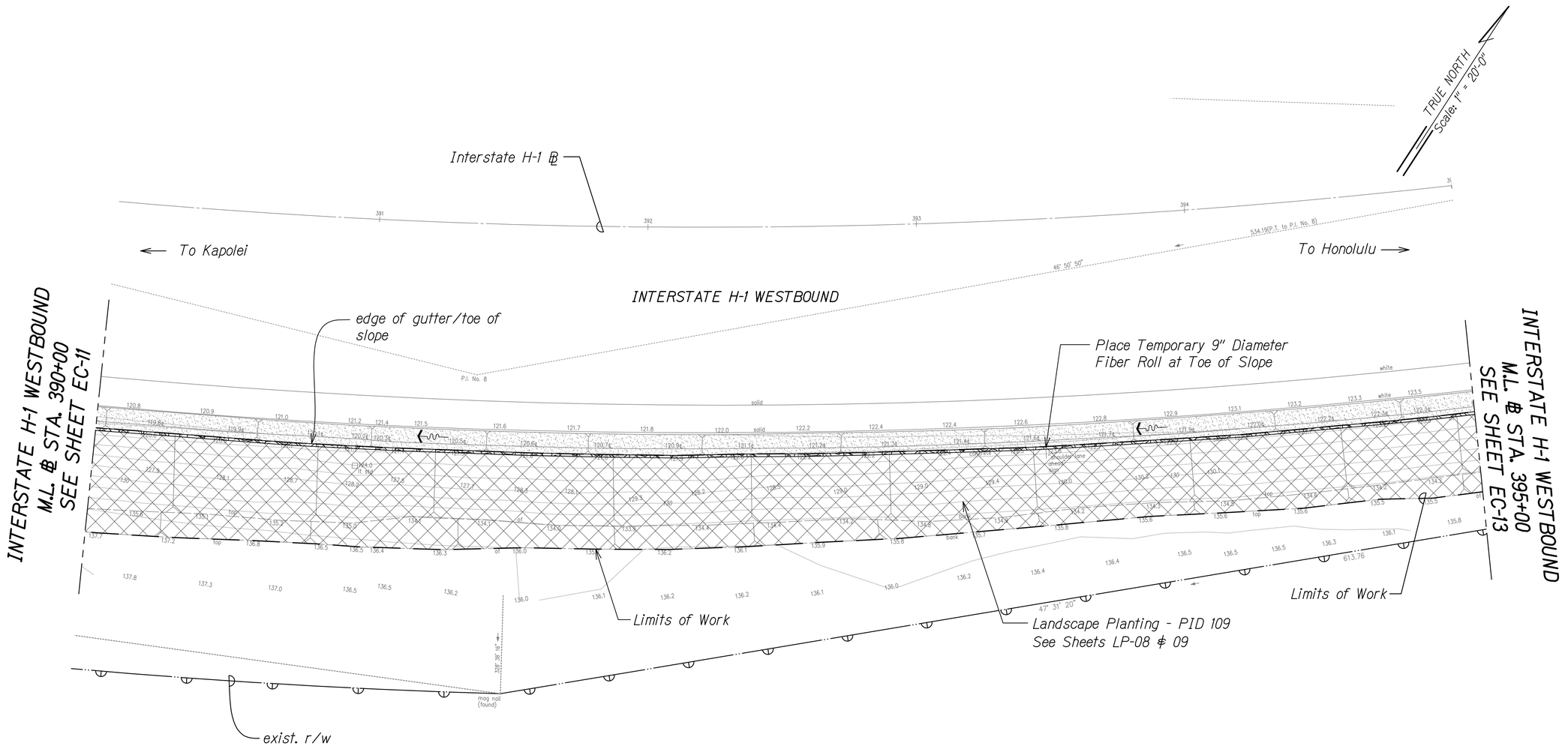
EROSION CONTROL PLAN
PID 109

SLOPE IMPROVEMENTS FOR EROSION CONTROL
AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14

Scale: 1" = 20' Date: April 2014

SHEET No. EC-11 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	23	41



EROSION CONTROL PLAN PID 109

Scale: 1" = 20'-0"

Notes:

1. Install erosion control matting on slopes greater than 3:1. See Sheet LP-08 & 09.
2. For erosion mat details, see Sheets EC-01 & 02.

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

EOP_PID 109.DWG 4/9/2014 12:53:31 PM

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE

This work was prepared by me or under my supervision.

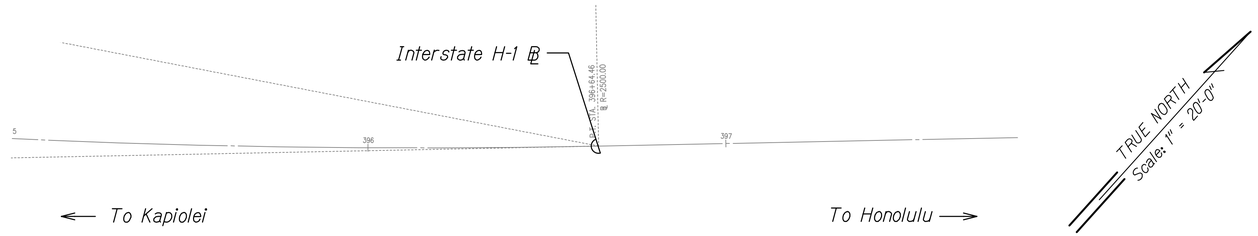
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

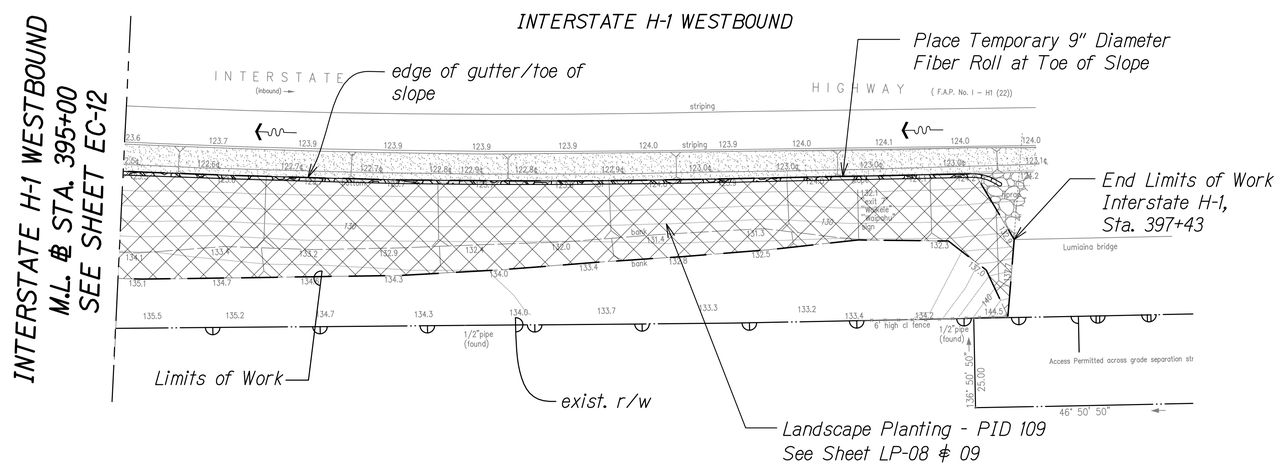
EROSION CONTROL PLAN
PID 109

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14
Scale: 1" = 20' Date: April 2014

SHEET No. EC-12 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HWY-O-05-14	2014	24	41





EROSION CONTROL PLAN PID 109

Scale: 1" = 20'-0"

Notes:

1. Install erosion control matting on slopes greater than 3:1. See Sheet LP-08 ⊄ 09.
2. For erosion mat details, see Sheets EC-01 ⊄ 02.

ORIGINAL PLAN
NOTE BOOK
NO. | DATE
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY

ECP_PID 109.DWG 4/9/2014 12:33:1 PM

JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/16
EXP. DATE

This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN PID 109

SLOPE IMPROVEMENTS FOR EROSION CONTROL AT VARIOUS SITES ON OAHU, PHASE 6
Project No. HWY-O-05-14
Scale: 1" = 20' Date: April 2014

SHEET No. EC-13 OF 13 SHEETS