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STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

HONOLULU, HAWAII

PLANS FOR

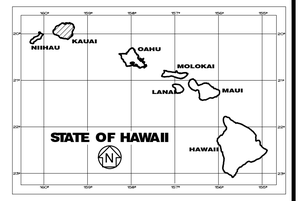
KUHIO HIGHWAY
EMERGENCY SLOPE STABILIZATION
FOR HANALEI HILLS AND WAIKOKO
F. A. P. NO. ER-24(003)

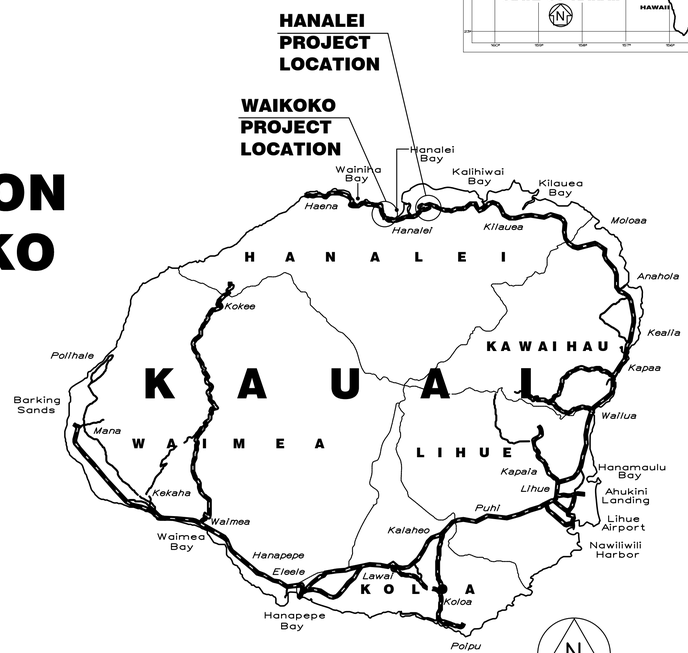
DISTRICT OF HANALEI

ISLAND OF KAUAI

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	1	100

56 560

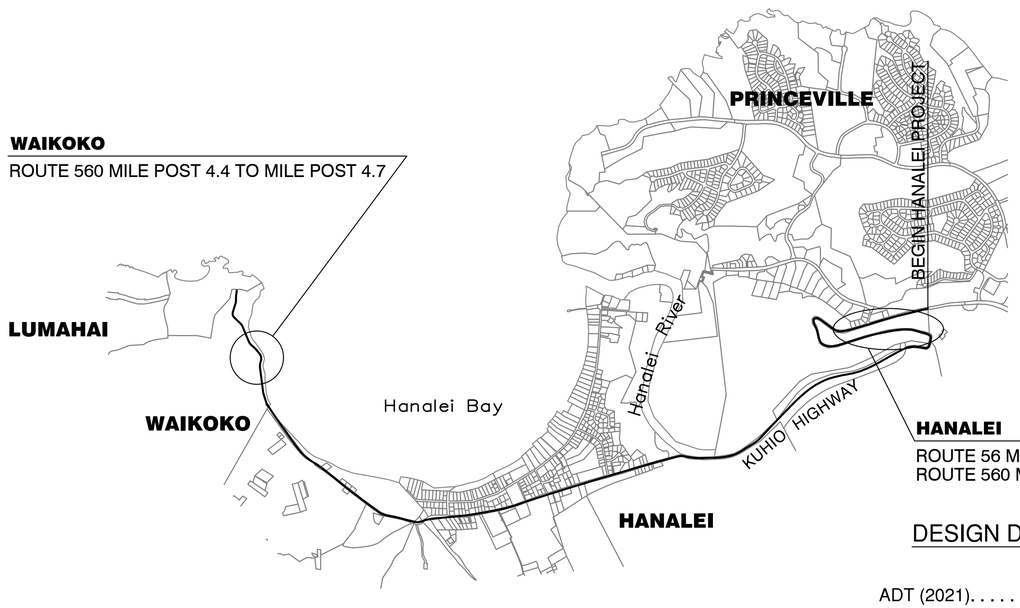




HANALEI: ROUTE 56 MILE POST 27.3 TO MILE POST 28.11

ROUTE 560 MILE POST 0.0 TO MILE POST 1.5

WAIKOKO: ROUTE 560 MILE POST 4.4 TO MILE POST 4.7



LAYOUT PLAN

HANALEI GROSS LENGTH OF PROJECT.....2.31 MILES
NET LENGTH OF PROJECT.....2.31 MILES
WAIKOKO GROSS LENGTH OF PROJECT.....0.3 MILES
NET LENGTH OF PROJECT.....0.3 MILES

N

SCALE: NTS

DESIGN DESIGNATION

	HANALEI	WAIKOKO
ADT (2021)	12,500	5,300
ADT (2041)	18,000	7,600
DHV (2041)	1,620	760
D	55/45	55/45
T	4.0%	4.0%
T24	3.5%	4.0%
V	35/25	25

DEPARTMENT OF TRANSPORTATION
STATE OF HAWAII

APPROVED:

Oct 7, 2022

for DIR. OF TRANSPORTATION — DATE

KSF, INC. — DESIGNED BY

HWY-K — MANAGED BY

808-241-3015 — PHONE

MAR. 2022 — DATE

STANDARD PLANS SUMMARY

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	2	100

STANDARD PLAN NO.		TITLE	DATE
B-01	●	NOTES & MISCELLANEOUS DETAILS	05/31/07
B-03	·	BACKFILL DETAILS AT EARTH RETAINING STRUCTURES	05/31/07
B-12	·	PRESTRESSED CONCRETE PILES & COMPRESSION SPLICE	05/31/07
		CAN DETAILS	
B-12A	·	PRESTRESSED CONCRETE PILES, PILE & COMPRESSION	05/31/07
		SPLICE CAN DETAILS & NOTES	
B-12B	·	PILE INTERACTION DIAGRAM	05/31/07
B-13	·	PRESTRESSED CONCRETE PILE BUILD-UP DETAILS	05/31/07

D-01	·	CATTLE GATE	05/31/07
D-02	●	CHAIN LINK FENCE WITH TOPRAIL	05/31/07
D-03	·	CHAIN LINK FENCE WITHOUT TOPRAIL	05/31/07
D-04	·	WIRE FENCE WITH METAL POSTS	05/31/07
D-05	·	TYPICAL DETAILS OF CURBS AND/OR GUTTERS	05/31/07
D-06	·	TYPICAL DETAIL OF REINFORCED CONCRETE DROP DRIVEWAY	05/31/07
D-07	·	CENTERLINE AND REFERENCE SURVEY MONUMENTS	05/31/07
D-08	·	STREET SURVEY MONUMENT	05/31/07
D-15	·	CONCRETE SIDEWALK	05/31/07
D-16	·	P.C.C. BUS PAD	05/31/07
D-17	·	P.C.C. BUS PAD	05/31/07
D-18	·	P.C.C. PAVEMENT LAYOUT	05/31/07
D-19	·	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-20	·	P.C.C. PAVEMENT W/ PERMEABLE BASE JOINT DETAILS	05/31/07
D-21	●	P.C.C. LONGITUDINAL JOINT DETAILS	05/31/07
D-22	·	P.C.C. CONNECTION TO CURBS AND GUTTERS	05/31/07
D-23	·	JOINTS	05/31/07

L-01	·	TREE PLANTING	08/16/06
L-02	·	TREE PLANTING	08/16/06
L-03	·	TREE TRANSPLANTING	08/16/06
L-04	·	PALM PLANTING	08/16/06
L-05	·	SHRUB PLANTING	08/16/06
L-06	·	LANDSCAPE DETAILS	08/16/06
L-07	·	LANDSCAPE DETAILS	08/16/06
L-08	·	LANDSCAPE DETAILS	08/16/06
L-09	·	LANDSCAPE DETAILS	08/16/06
L-10	·	LANDSCAPE DETAILS	08/16/06
L-11	·	PLANTING NOTES	08/16/06
L-12	·	IRRIGATION DETAILS	08/16/06
L-13	·	IRRIGATION DETAILS	08/16/06
L-14	·	IRRIGATION DETAILS	08/16/06
L-15	·	IRRIGATION DETAILS	08/16/06
L-16	·	IRRIGATION DETAILS	08/16/06
L-17	·	IRRIGATION DETAILS	08/16/06
L-18	·	IRRIGATION DETAILS	08/16/06
L-19	·	IRRIGATION DETAILS	08/16/06
L-20	·	IRRIGATION DETAILS	08/16/06
L-21	·	IRRIGATION DETAILS	08/16/06
L-22	·	IRRIGATION DETAILS	08/16/06
L-23	·	IRRIGATION DETAILS	08/16/06
L-24	·	IRRIGATION NOTES	08/16/06

STANDARD PLAN NO.		TITLE	DATE
H-01A	·	TYPE A CATCH BASIN	05/31/07
H-01B	·	TYPE B CATCH BASIN	05/31/07
H-01C	·	TYPE C CATCH BASIN	05/31/07
H-01D	·	TYPE D CATCH BASIN	05/31/07
H-01E	·	CATCH BASIN SECTIONS	05/31/07
H-02A	·	TYPE A1 CATCH BASIN	05/31/07
H-02B	·	TYPE B2 CATCH BASIN	05/31/07
H-02C	·	TYPE C1 CATCH BASIN	05/31/07
H-02D	·	TYPE D1 CATCH BASIN	05/31/07
H-02E	·	CATCH BASIN SECTION	05/31/07
H-03	●	TYPE A,B, AND C STORM DRAIN MANHOLE	05/31/07
H-04	·	TYPE D STORM DRAIN MANHOLE	05/31/07
H-05	●	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07
H-06	●	TYPICAL REINFORCING DETAILS FOR DRAINAGE STRUCTURES	05/31/07
H-07	●	CATCH BASIN AND MANHOLE CASTINGS	05/31/07
H-08	·	TYPE 1A-9 AND 1A-9P GRATED DROP INLET	05/31/07
H-09	·	TYPE 2A-9 AND 2A-9P GRATED DROP INLET	05/31/07
H-10	·	TYPE A-9 OR A-9P STEEL FRAMES	05/31/07
H-11	·	TYPE A-9 AND A-9P STEEL GRATES	05/31/07
H-12	·	TYPE 61614P AND 1211214P GRATED DROP INLET	05/31/07
H-13	●	TYPE 61616P AND 1211216P GRATED DROP INLET	05/31/07
H-14	●	TYPE 61214P GRATED DROP INLET	05/31/07
H-15	·	TYPE 1211214, 1211214P, 1211216, 1211216P STEEL	05/31/07
		FRAME AND GRATES	
H-16	●	TYPE 61614, 61614P, 61616, 61616P STEEL FRAME	05/31/07
		AND GRATES	
H-17	●	TYPE 61214 STEEL FRAMES AND GRATES	05/31/07
H-18	●	TYPE 61214P STEEL GRATES	05/31/07
H-19	·	TYPE 61614B STEEL FRAME AND GRATES	05/31/07
H-20	·	CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-21	·	CONCRETE AND CEMENT RUBBLE MASONRY STRUCTURES	05/31/07
H-22	·	INLET/OUTLET STRUCTURE	05/31/07
H-23	·	INLET/OUTLET STRUCTURE	05/31/07
H-24	·	FLARED END SECTION FOR CULVERTS	05/31/07
H-25	·	FLARED END SECTION FOR CULVERTS	05/31/07
H-26	·	CONCRETE SPILLWAY INLET	05/31/07
H-27	·	CAP COUPLING DETAILS STANDARD JOINT	05/31/07
H-28	·	REINFORCED CONCRETE COLLAR & JACKET	05/31/07
H-29	·	UNDERDRAIN CLEANOUT STEEL FRAME AND COVER	05/31/07
H-30	·	UNDERDRAIN CONNECTION TO DRAINAGE STRUCTURE	05/31/07

TE-01	●	SIGN HEIGHT AND LOCATION	07/11/08
TE-1A	●	SIGN INSTALLATION	07/11/08
TE-02A	·	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02B	·	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-02C	·	GALVANIZED FLANGED CHANNEL SIGN POST MOUNTING	05/31/07
TE-03A	·	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-03B	·	GALVANIZED SQUARE TUBE SIGN POST MOUNTING	05/31/07
TE-04	●	REGULATORY SIGNS	07/11/08
TE-05	●	WARNING SIGNS	07/11/08
TE-06	·	MISCELLANEOUS SIGNS	07/11/08
TE-07	●	CONSTRUCTION SIGNS	07/11/08
TE-08	·	MISCELLANEOUS INTERSECTION SIGNS	07/11/08

STANDARD PLAN NO.		TITLE	DATE
TE-09	·	BIKE ROUTE SIGN & SUPPLEMENTARY PLATES	07/11/08
TE-10	·	INTERSTATE ROUTE MARKER	07/11/08
TE-11	·	STATE ROUTE MARKER AND AUXILIARY MARKERS	07/11/08
TE-12	·	STATE ROUTE MARKER AND BORDER DETAIL FOR	07/11/08
	·	GUIDE SIGNS	
TE-12A	·	ROUTE SIGN ASSEMBLIES	07/11/08
TE-13	·	STREET NAME SIGN ON MAST ARM	07/11/08
TE-14	●	MISCELLANEOUS REFLECTOR MARKERS	07/11/08
TE-15	●	OBJECT MARKERS	07/11/08
TE-16	●	MILE POSTS	07/11/08
TE-17A	·	CANTILEVER OVERHEAD SIGN ELEVATION & DETAILS	05/31/07
TE-17B	·	CENTILEVER SIGN FRAME DETAIL AND SECTION	05/31/07
TE-17C	·	CANTILEVER SIGN FRAME DETAIL	05/31/07
TE-17D	·	CENTILEVER SIGN FRAME SECTION	05/31/07
TE-17E	·	CENTILEVER SIGN FRAME DETAILS	05/31/07
TE-18A	·	TWO POST OVERHEAD SIGN FRAME ELEVATIONS	05/31/07
TE-18B	·	TWO POST SIGN FRAMING PLAN SECTION	05/31/07
TE-18C	·	TWO POST SIGN FRAMING SECTIONS AND DETAILS	05/31/07
TE-18D	·	TWO POST SIGN FRAME DETAILS	05/31/07
TE-18E	·	TWO POST SIGN FRAME DETAILS	05/31/07
TE-19A	·	OVERHEAD SIGN FRAMING SCHEDULE	05/31/07
TE-19B	·	SIGN POST DRILLED SHAFT FOUNDATION	05/31/07
TE-19C	·	SPREAD FOOTING	05/31/07
TE-19D	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.1	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.2	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.3	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.4	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19D.5	·	SIGN FRAME FOUNDATION SCHEDULE	05/31/07
TE-19E	·	ANCHORAGE DETAILS	05/31/07
TE-19F	·	ANCHORAGE DETAILS	05/31/07
TE-19G	·	MISCELLANEOUS SIGN FRAME DETAILS	05/31/07
TE-19H	·	LUMINAIRE WALKWAY SUPPORT	05/31/07
TE-19J	·	FIXED MESSAGE LUMINAIRE SUPPORT	05/31/07
TE-19K	·	MISCELLANEOUS SIGN DETAILS	05/31/07
TE-19L	·	MISCELLANEOUS SIGN DETAILS	05/31/07
TE-19M	·	MISCELLANEOUS SIGN FRAME DETAILS	05/31/07
TE-20	·	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20A	·	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20B	·	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-20C	·	SUPPORTS FOR GROUND MOUNTED GUIDE SIGN	05/31/07
TE-21A	·	SIGN BREAKAWAY MOUNTS	05/31/07
TE-21B	·	SIGN BREAKAWAY MOUNTS	05/31/07
TE-22	·	LAMINATED ALUMINUM SIGN PANELS (OVERHEAD)	05/31/07
TE-23	·	LAMINATED ALUMINUM SIGN PANELS (GROUND MOUNTED)	07/11/08
TE-24	·	SOLID ALUMINUM EXTRUDED SIGN PANEL AND	05/31/07
		ACCESSORY DETAILS	
TE-25	·	GUIDE SIGNS LUMINAIRE MOUNTINGS	05/31/07
TE-26	●	RAISED PAVEMENT MARKERS AND STRIPING	07/11/08
TE-27	●	RAISED PAVEMENT MARKERS AND STRIPING	07/11/08
TE-28	●	ENTRANCE AND EXIT PAVEMENT MARKINGS	07/11/08
TE-28A	●	MISCELLANEOUS PAVEMENT MARKINGS	07/11/08
TE-29	●	PAVEMENT ARROWS AND SYMBOLS	07/11/08
TE-30	·	PAVEMENT ALPHABETS, NUMBERS & SYMBOLS	07/11/08

STANDARD PLAN NO.		TITLE	DATE
TE-31	·	PAVEMENT ALPHABETS, NUMBERS & SYMBOLS	07/11/08
TE-32	·	TYPE I & II TRAFFIC SIGNAL SYSTEM MISC. DETAILS	05/31/07
TE-33	·	TYPE II TRAFFIC SIGNAL SYSTEM	08/16/06
TE-33A.1	·	TYPE II TRAFFIC SIGNAL STANDARD	05/31/07
TE-33A.2	·	TYPE II TRAFFIC SIGNAL STANDARD	05/31/07
TE-34	·	LOOP DETECTOR DETAILS	07/11/08
TE-35	·	LOOP DETECTORS & DUCT DETAILS	07/11/08
TE-36	·	TRAFFIC SIGNAL DETAILS	07/11/08
TE-37	·	PULLBOX & COVER DETAILS	07/11/08
TE-37A	·	TYPE "A" TRAFFIC PULLBOX	05/31/07
TE-37B	·	TYPE "A" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37C	·	TYPE "B" TRAFFIC PULLBOX	05/31/07
TE-37D	·	TYPE "B" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37E	·	TYPE "B" TRAFFIC PULLBOX FOUNDATION	05/31/07
TE-37F	·	TYPE "C" TRAFFIC PULLBOX	05/31/07
TE-37G	·	TYPE "C" TRAFFIC PULLBOX REINFORCING	05/31/07
TE-37H	·	TYPE "C" TRAFFIC PULLBOX FOUNDATION	05/31/07
TE-37J	·	TRAFFIC PULLBOX COVER AND DETAILS	05/31/07
TE-38	·	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-38A.1	·	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-38A.2	·	TYPE III TRAFFIC SIGNAL STANDARD	05/31/07
TE-39	·	METAL GUARDRAIL CONNECTION TO CONCRETE BARRIER	07/11/08
TE-40	·	CONCRETE BARRIER TRANSITION	05/31/07
TE-40A	·	CONCRETE BARRIER TRANSITION SECTIONS	05/31/07
TE-41	·	GUARDRAIL TYPE 4 (RIGID BARRIER)	05/31/07
TE-42	●	PORTABLE CONCRETE BARRIER	05/31/07
TE-43	●	PORTABLE CONCRETE BARRIER	05/31/07
TE-44	·	GUARDRAIL TYPE 4 MISCELLANEOUS DETAILS	07/11/08
TE-45	●	BARRICADES	07/11/08
TE-46	·	DELINEATION & PAVEMENT MARKINGS AT NARROW BRIDGES	07/11/08
TE-47	·	HIGHWAY LIGHT STANDARD	05/31/07

NOTE:
STANDARD PLANS APPLICABLE TO THIS PROJECT ARE INDICATED BY A " ● " NEXT TO THE STANDARD PLAN NO.
(FOR EXAMPLE: D-07 ●)

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD PLANS SUMMARY

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: None Date: Sept. 2022

SHEET No. N-1 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	3	100

GENERAL NOTES:

1. The scope of work for this project includes roadway excavation and slope trimming, installation of guardrail and guardrail end treatments, gutters, grouted rubble paving, soil nails, erosion control matting, chain link fence, draped and anchored wire mesh and drainage systems; cold planing; resurfacing with asphalt concrete pavement; signing and striping; installation, maintenance and removal of erosion control measures; landscaping; and traffic control.

2. Subsection 105.16(A) - Subcontract Requirements requires the Contractor to perform work amounting to not less than 30 percent of the total contract cost less deductible items.

3. The Contractor's attention is directed to the following Sections of the Standard Specifications and the Special Provisions: Subsection 104.09 - Maintenance of Traffic; Subsection 105.09 - Coordination Between the Contractors; Subsection 107.06 - Contractor Duty Regarding Public Convenience; Subsection 107.12 - Protection of Persons and Property; and Section 645 - Work Zone Traffic Control.

4. The existence and location of underground utilities, manholes, monuments and structures as shown on the plans are from the latest available data but the accuracy is not guaranteed. The encountering of other obstacles during the course of work is possible. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.

5. All existing utilities, whether or not shown on the plans, shall be protected at all times by the Contractor during construction unless specified on the plans to be abandoned. All existing utility/light poles, overhead utilities and guy poles/wires shall remain in place and operational. The Contractor shall be held liable for any damages incurred to the existing utilities as a result of his operations. All damaged portions shall be replaced in accordance with the standards and specifications of the affected utility company at no cost to the County. No delays or extensions of contract time will be allowed as a result of these required repairs.

6. The Contractor shall indemnify and be solely responsible for the protection of adjacent properties, utilities, and existing structures from damages due to construction. Repairing any damage shall be at the Contractor's own expense, to the satisfaction of the Engineer.

7. The existing drainage system shall be kept functional at all times during construction. Furnish materials, equipment, labor, tools and incidentals necessary to maintain flow. This work shall be considered incidental to the various contract items.

8. No material or equipment shall be stockpiled or otherwise stored within State right-of-way except at locations shown on the plans or designated in writing and approved by the Engineer.

9. When trench excavation is adjacent to existing structures or facilities, the Contractor is responsible for properly sheeting and bracing the excavation and stabilizing the existing ground to render it safe and secure from possible slides, cave-ins, and settlement. Provide beams, struts, or underpinning as necessary. This work shall be considered incidental to various contract items.

GENERAL NOTES, CON'T:

10. All graded areas and all grassed areas damaged by construction activities shall be planted in accordance with Specifications Section 641 - Hydro-Mulch Seeding. This work shall be considered incidental to the various contract items.

11. Work required to complete the project but not itemized specifically in the proposal shall be considered incidental to the various contract items and shall not be paid for separately.

12. The Contractor shall conduct his operations so as to offer the least possible obstructions and inconvenience to the public and he shall have under construction no greater length or amount of work that he can execute properly with due regard to the rights of the public.

13. Guardrail Paint:

    a) Contractor shall shop coat all members. Field coating shall consist of touch up only.

    b) Color for top coat shall be gray color. Intermediate coat shall have a contrasting light color. Finish for top coat shall not be gloss or high gloss.

    c) See special coating options in the schedule below.

ABBREVIATIONS:

℄	BASELINE
BMP	BEST MANAGEMENT PRACTICES
BOT.	BOTTOM
CLR	CLEARANCE
CONC	CONCRETE
D	DRAIN LINE
DI	DRAIN INLET
DIA.	DIAMETER
E/ELEC	ELECTRICAL
ES	EDGE OF SHOULDER
EP	EDGE OF PAVEMENT
ELEV	ELEVATION
EMB	EMBANKMENT
EXC	EXCAVATION
EXIST.	EXISTING
FH	FIRE HYDRANT
GW	GUY WIRE
HMA	HOT MIX ASPHALT
INV.	INVERT
LF	LINEAR FEET
Lt.	LEFT
MB	METER BOX
MIN.	MINIMUM
N	NORTH
NTS	NOT TO SCALE
O/H.	OVERHEAD ELECTRICAL
o/s	OFFSET
PCCP	PORTLAND CEMENT CONCRETE PAVEMENT
PVMT	PAVEMENT
R	RADIUS
RD	ROAD
RT.	RIGHT
R/W	RIGHT-OF-WAY
S.E.	SUPERELEVATION
SF	SQUARE FEET
SHT	SHEET
ST	STREET
STA.	STATION
STD	STANDARD
T	TANGENT
TYP.	TYPICAL
U/G	UNDER GROUND
UP	UTILITY POLE
VAR	VARIES
W	WATER
WMH/WM	WATER MANHOLE
WV	WATER VALVE

SPECIAL COATING SCHEDULE FOR ZINC COATED METAL BEAMS AND POSTS

	Option #1	Option #2	Option #3	Option #4
Preparation	Carboline Thinner #2 or Surface Cleaner #3 per SSPC-SP1, Apply Rustbound Penetrating Sealer	Solvent Clean per SSPC-SP1, Apply Valspar VyGuard Sealer 513-V-110	Solvent Clean per SSPC-SP1 and as Recommended by the Manufacturer	Solvent Clean per SSPC-SP1, Apply Galvaprep Zinc Treatment
1st Coat:	Carboline 890 Epoxy DFT 5 mil (min.) WFT 7 mil (min.)	Valspar VyGuard V75 Epoxy DFT 5 mil (min.) WFT 7 mil (min.)	Sherman Williams Tile Clad High Solids B62 Series DFT 4 mil (min.) WFT 7 mil (min.)	Ameron Amercoat 385 Epoxy DFT 5 mil (min.) WFT 8 mil (min.)
Re-Coating Time:	8 Hrs. (min.) 2 Days (max.)	36 Hrs. (min.) 14 Days (max.)	8 Hrs. (min.) 10 Days (max.)	8 Hrs. (min.) 2 Days (max.)
Top Coat:	Carboline 133HB Alyphatic Polyurethane DFT 5 mil (min.) WFT 7 mil (min.)	Valspar VyGuard V41 Series DFT 4 mil (min.) WFT 7 mil (min.)	Sherman Williams Corothane II B65 W200 Series / B60V2 DFT 4 mil (min.) WFT 7 mil (min.)	Ameron Amercoat 450 SA Polyurethane DFT 4 mil WFT 7 mil

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE ____ EXPIRATION DATE OF THE LICENSE 04/30/24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES AND ABBREVIATIONS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: None Date: Sept. 2022

SHEET No. N-2 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	4	100

NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY:

1. The Contractor shall obtain a permit to perform work upon State Highways from the State Highways' District Engineer, at 1720 Haleukana Street, Lihue, Hawaii, prior to commencement of work within the State's Highway Right-of-Way.

2. Construction and restoration of all existing highway facilities within the State's Right-of-Way, including the legal relations and responsibility to the public, shall be in accordance with the current Standard Specifications for Road, Bridge and Public Works Construction, and the Specifications for Installation of Miscellaneous Improvements within State highways, of the State Highways Division.

3. Work shall be performed only between the hours shown in Special Provisions 645, unless otherwise permitted by the District Engineer.

4. The Contractor shall provide, install and maintain all necessary signs, lights, flares, barricades, markers, cones, and other protective facilities, and shall take all necessary precautions for the protection, convenience, and safety of public traffic. All such protective facilities and precautions to be taken shall conform with the "Administrative Rules of Hawaii Governing the Use of Traffic Control Devices at Work Sites on or Adjacent to Public Streets and Highways," adopted by the Director of Transportation, and the current U.S. Federal Highways Administration "Manual on Uniform Traffic Control Devices, Part VI - Standards and Guides for Traffic Controls for Street and Highway Construction, Maintenance, Utility and Incident Management Operations."

5. Lane closures shall conform to the traffic control plans incorporated in these construction plans and must be approved by the Division prior to the issuance of the permit.

6. No material and/or equipment shall be stockpiled or otherwise stored within the State's Highway Right-of-Way except at locations designated in writing and approved by the District Engineer.

7. The Contractor shall exercise care to minimize damages to existing highway improvements. All damages shall be repaired by the Contractor, at his expense, to the satisfaction of the District Engineer.

8. Approval of permit construction plans shall be valid for a period of one (1) year from the date of notification of approval to the applicant. In the event construction does not commence within this one-year period, the applicant will be required to resubmit the construction plans for the Division's review and reapproval.

9. All regulatory, guide, and construction signs and barricades shall have a high-intensity reflective background.

10. The Contractor shall inform the State Highways' Permit Office (241-3000) at least two (2) days prior to closing any lanes.

NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY, CON'T:

11. Driveways shall be kept open unless the owners of the properties using these Rights-of-Way are otherwise provided for satisfactory.

12. Where pedestrian walkways exist, they shall be maintained in a safe and passable condition, or other facilities for pedestrians shall be provided. Passages between walkways at intersections shall likewise be approved. All walkways shall conform to ADA requirements.

13. The Contractor shall reference, to the satisfaction of the District Engineer, all existing traffic signs, posts and pavement markings prior to the commencement of construction. The contractor shall replace or repair all traffic signs, posts, and pavement markings disturbed by his activities, at his expense, unless directed otherwise by the District Engineer or his representative.

14. The Contractor shall exercise care when performing work in, on or adjacent to the State's Highway Right-of-Way. Damages to existing facilities shall be immediately reported to the respective utility companies, and/or County or State agencies. The repair work shall be done at the Contractor's expense.

15. The Contractor shall implement Best Management Practice (BMP) measures for all work within the State Highway.

16. The Contractor shall notify the State Highways' Maintenance Engineer (241-3000), three (3) working days prior to commencing work.

17. The permit to perform work upon State Highways may be revoked because of default in any of the following, but not limited to conditions:
    a. Work performed before or after permitted hours
    b. Failure to maintain roadway surfaces in a smooth and safe condition
    c. Failure to clean up construction debris generated from project work
    d. Failure to provide proper traffic control
    e. Failure to replace damaged pavement markings and signs

18. The Contractor shall notify the State Highways Permit Office (241-3000) at least two days prior to performing any trench restoration work. This work shall include any backfilling and compacting of trench material; any placing and compacting of base course material; and paving operations. Any trench restoration work performed by the Contractor that is not witnessed by a State representative will be required to be removed and restored with a State representative present. All restoration work will be done at the Contractor's expense.

19. The Contractor will make every effort to minimize the use and the duration of use of steel plates. All steel plates shall have a non-skid surface. The State may require the backfilling and patching of trenches due to the excessive usage of steel plates.

20. After completion of the project, the Owner and/or Contractor, shall submit one complete set of "as-built" plans to the Highways Division.

PUBLIC HEALTH, SAFETY, AND CONVENIENCE NOTES:

1. The Contractor shall observe and comply with all Federal, State, and Local laws required for the protection of public health and safety and environmental quality.

2. The Contractor, at his own expense, shall keep the project and its surrounding areas free from dust nuisance. The work shall be in conformance with the air pollution standards and regulations of the State Department of Health. The County may require supplementary measures as necessary.

3. The Contractor's attention is directed to Chapter 448, Public Health Regulations, Department of Health, State of Hawaii, "Community Noise Control for Oahu" in which maximum allowable noise levels have been set. If the construction activities for this project will exceed the allowable noise levels, the Contractor will be required to obtain a permit from the Director of the Department of Health. The Contractor shall obtain a copy of Chapter 448 and become familiar with the noise level restrictions and the procedures for obtaining a Permit for construction activities.

4. The Contractor is to comply with the directions of the State of Hawaii Occupation Safety and Health Law (DOSH).

HISTORICAL PRESERVATION NOTES:

1. Should historic remains such as artifacts, burials, concentrations of shell or charcoal be encountered during construction activities, work shall cease immediately in the immediate vicinity of the find, and the find shall be protected from further damage. The Contractor shall cordon off the area and immediately notify the Planning Department at (808) 241-4050 and the State Historic Preservation Division at (808) 692-8015, which will assess the significance of the find and recommend the appropriate mitigation measures, if necessary. In addition, if human burial are found, the Contractor shall immediately notify the County of Kauai Police Department.

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: None Date: Sept. 2022

SHEET No. N-3 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	5	100

NOTES FOR PROTECTED SPECIES:

1. HAWAIIAN SEABIRDS
   - ° Hawaiian petrel or ʻuaʻu (Pterodroma sandwichensis)
   - ° Newell's shearwater or ʻaʻo (Puffinus auricularis newelli)
   - ° Hawaiʻi distinct population segment (DPS) of band-rumped storm petrel or ʻakēʻakē (Oceanodroma castro)

   Construction activity shall be restricted to daylight hours during the seabird peak fallout period (September 15-December 15) to avoid the use of nighttime lighting that could attract seabirds. The limited temporary night time work outside of the peak seabird fallout period shall be shielded to prevent upward radiation and directed away from any nearby beach habitats.

   All outdoor lights shall be shielded to prevent upward radiation. A selection of acceptable seabird-friendly lights can be found online at the Kauaʻi Seabird Habitat Conservation website (2013).

2. HAWAIIAN HOARY BAT OR ʻŌPEʻAPEʻA (LASIURUS CINEREUS SEMOTUS)
   Any fences that are erected as part of the project shall have barbless wire to prevent entanglements of the Hawaiian hoary bat on barbed wire.

   No trees taller than 15 feet (4.6 m) shall be trimmed or removed as a result of this project between June 1 and September 15, when juvenile bats that are not yet capable of flying may be roosting in the trees.

3. HAWAIIAN GOOSE OR NĒNĒ (BRANTA SANDVICENSIS)
   Do not approach, feed, or disturb the Hawaiian goose.

   A qualified biologist shall survey the area for nesting nēnē before construction (in coordination with the waterbird surveys), and after any subsequent delay in work of 3 or more days (during which birds may attempt nesting). The results of the pre-construction survey would be submitted to the Engineer.

   If Hawaiian goose are loafing, foraging, or otherwise present within the project area during the breeding season, which extends from September through April, have a trained biologist survey the area near the project prior to work each day. Survey biologists should be familiar with the nesting behavior of the Hawaiian goose, nest identification, and identification of young.

   - ° Surveys should be repeated if there is a delay in work of three days or more (during which the birds may attempt to nest).
   - ° If nests or vulnerable young are observed within 150 feet of the project work, immediately cease all work and contact the Service for further guidance.

   If during the biologist's survey, the Hawaiian geese are loafing, foraging, or otherwise present within the project area, the USFWS will be contacted for further guidance to consider implementing reduced speed limits when the work is near the active roadway, and inform project personnel and contractors about the presence of this threatened species on-site. Speed limits will be reduced during work in active construction areas.

   All regular on-site staff shall be trained to identify nēnē and shall know the appropriate steps to take if nēnē are present on-site. Training would not be necessary if a biological monitor is present for the duration of the construction.

4. HAWAIIAN WATERBIRDS
   - ° Hawaiian stilt or aeʻo (Himantopus mexicanus knudseni)
   - ° Hawaiian coot or ʻalae keʻo keʻo (Fulica americana alai)
   - ° Hawaiian gallinule or ʻalae ʻula (Gallinula galeata sandvicensis)
   - ° Hawaiian duck or koloa (Anas wyvilliana)

   In areas where vegetated streambanks would be disturbed, waterbird nest searches shall be conducted by a qualified biologist before any work is conducted and after any subsequent delay in work of 3 or more days (during which birds may attempt nesting). The results of the pre-construction survey shall be submitted to the Engineer.

   If a waterbird nest with eggs or chicks/ducklings is discovered in the construction limits, work within 100 ft of nests or active broods would cease until the young have fledged and left the area.

   Waterbird nests, chicks, or broods found before or during construction shall be reported to the USFWS within 48 hours of discovery for further guidance.

   All regular on-site construction staff would be trained to identify waterbirds and take appropriate conservation measures when the waterbirds are present, including within equipment staging areas.

5. SEA TURTLES
   - ° Hawksbill sea turtle or ʻea (Eretmochelys imbricata)
   - ° Central North Pacific distinct population segment of the green sea turtle or honu (Chelonia mydas)

   All regular on-site staff shall be trained to identify sea turtles and trained on appropriate steps to take if these species are present on-site.

   Construction activities shall not take place if a sea turtle is within 150 feet (46 m) of the construction area. Construction can only begin after the animal voluntarily leaves the area. If a sea turtle is noticed after work has already begun, that work may continue only if, in the best judgment of the biological monitor, that there is no way for the activity to adversely affect the animal(s).

   Any construction-related debris that may pose an entanglement threat to sea turtles shall be removed from the construction area at the end of each day and at the conclusion of the construction project.

   Workers shall not attempt to feed, touch, ride, or otherwise intentionally interact with any listed species.

   To avoid and minimize project impacts to sea turtles from lighting, the project will minimize the use of lighting on or near beaches and shield project related lights, so the light is not visible from any beach. If lights cannot be fully shielded or if headlights must be used, the light source will be fully enclosed with light filtering tape or filters.

   In-water work at night shall be avoided, unless emergency maintenance and repair of erosion and sediment controls are necessary to meet permit conditions.

6. NEWCOMB'S TREE SNAIL (ERINNA NEWCOMBI)
   In the event that ʻŌhiʻa is found in the project area where clearing will occur, a trained biologist will survey the area for tree snails using USFWS methodology described in "Interim Guidelines for Conducting Tree Snail Surveys in the Mariana Islands" (methods also apply throughout the Hawaiian Archipelago for other listed tree snail species).

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	CHECKED BY	

RANDALL M. URASAKI
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No. 7269-C
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: None Date: Sept. 2022

SHEET No. N-4 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	6	100

NOTES FOR PROTECTED SPECIES (CON'T):

7. WATER QUALITY BMPS, AS APPLICABLE

Payment for Water Quality BMPs shall be included in Pay Items 209.0100 Installation, Maintenance, Monitoring, and Removal of BMP - Hanalei Hills and 209.0101 Installation, Maintenance, Monitoring, and Removal of BMP - Waikoko.

Turbidity and siltation from project-related work shall be minimized and contained through the appropriate use of erosion control practices, effective silt containment devices, and the curtailment of work during adverse weather and tidal/flow conditions.

Erosion and sediment control measures shall be in place before initiating earth-moving activities. Functionality shall be maintained throughout the construction period. For earth-moving activities initiated to address imminent health and safety concerns, erosion and sediment control measures shall be in place as soon as practicable.

When it is not possible to avoid times of the year when high rainfall is expected, enhancing the capacity of existing controls, adding additional control measures, or installing contngency measures shall be implemented.

Inspection shall be documented, and records for all inspections and repairs shall be maintained on-site. When a device proves inadequate, it shall be immediately redesigned or replaced until it is effective.

Control measures (i.e., silt fences, sand bag barriers, sediment traps, geotextile mats, and other measures intended for soil/sediment trapping) shall be inspected and repaired as needed within 24 hours after a rainfall event of 0.25 inch or greater over a 24-hour period. During periods of prolonged rainfall, a daily inspection shall occur, unless extended heavy rainfall makes access impossible or hazardous.

Construction shall be sequenced to minimize the exposure time of the cleared surface area.

The Contractor shall be required to prepare a spill prevention, control and countermeasure (SPCC) plan before beginning work or as soon as practicable. The SPCC shall describe preventative measures including the location of refueling and storage facilities and the handling of hazardous material. The SPCC shall describe actions to be taken in case of a spill. Hazardous materials shall be properly stored and managed in accordance with local, State, and Federal regulations.

Appropriate materials to contain and clean potential spills shall be stored at the work site and be readily available. Spill kits shall be available on-site at locations where hazardous materials are used. Spill kits shall be inspected regularly and supplies replaced as needed. Staff shall be trained on spill prevention and cleanup.

Absorbent pads shall be stored on-site to facilitate the cleanup of petroleum spills. At fueling sites, containment booms and skimmers shall be stored, in addition to absorbent pads.

Return flow or run-off from material stored at inland dewatering or storage sites shall be prevented.

All project-related materials and equipment placed in the water shall be free of pollutants.

The project manager or heavy equipment operators shall perform daily pre-work equipment inspections for cleanliness and leaks. All heavy equipment operations shall be postponed or halted should a leak be detected, and they shall not proceed until the leak is repaired and the equipment is cleaned.

Fueling of land-based vehicles and equipment shall take place at least 50 feet (15.24 m) away from the water, preferably over an impervious surface. Fueling of vessels shall be done at approved fueling facilities.

Portable toilets for sanitary waste management shall be serviced regularly.

A plan shall be developed to prevent debris and other wastes from entering or remaining in the marine environment during the project.

No contamination (trash or debris disposal, invasive species introductions, attraction of non-native pests, etc.) of adjacent habitats (reef flats, channels, open ocean, stream channels, wetlands, beaches, forests, etc.) shall result from project-related activities.

Any soil exposed near water as part of the project shall be protected from erosion (with plastic sheeting, filter fabric etc.) after exposure and stabilized as soon as practicable (with native or non-invasive vegetation matting, hydroseeding, etc.).

All debris removed from the marine/aquatic environment shall be disposed of at an approved site. Solid waste and construction and demolition debris would be properly managed.

Clearing and grubbing would be held to the minimum necessary for grading, access, and equipment operation.

Revegetation success shall be monitored by Contractor to ensure sufficient vegetation cover has established. Relevant erosion and sediment control BMPs shall not be removed until sufficient vegetative cover is re-established or hillside stabilization measures (i.e., soil nails) are deemed sufficiently in place. If vegetation fails to establish, corrective actions shall be taken where necessary.

Do not stockpile or store project-related materials or equipment near the water (i.e., intertidal zones, reef flats, stream channels, etc.)

Soil stockpiles shall be located away at least 50 feet from concentrated runoff and water features, covered with plastic or other waterproof material when practicable, and surrounded by silt fences or other erosion control BMPs.

Concrete wash-outs shall be located 50 feet from storm drain inlets, open drainage areas, and waterbodies, and shall be maintained as needed.

8. BMPS TO PREVENT THE INTRODUCTION AND SPREAD OF INVASIVE SPECIES

See Special Provision Section 621 - Invasive Species Management for additional requirements.

The area beyond the construction limits shall not be disturbed. Trees, shrubs or vegetated areas temporarily damaged by construction operations shall be re-vegetated.

Temporarily disturbed areas shall be revegetated with non-invasive plant species appropriate for the project area.

Invasive species controls shall be maintained to ensure that all materials transported from off-site are free of such species.

To avoid the unintentional introduction or transport of new terrestrial invasive species, all construction equipment and vehicles arriving from outside Kaua'i shall be washed and inspected before entering the project area. In addition, construction materials arriving from outside Kaua'i shall be washed and/or visually inspected (as appropriate) for excessive debris, plant materials, and invasive or harmful non-native species (plants, amphibians, reptiles, and insects). When possible, raw materials (gravel, rock, and soil) shall be purchased from a local supplier on Kaua'i to avoid introducing non-native species not present on the island. Inspection and cleaning activities shall be conducted at a designated location.

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SIGNATURE — EXPIRATION DATE OF THE LICENSE: 04/30/24

STATE OF HAWAII
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GENERAL NOTES

KUHIO HIGHWAY
Emergency Slope Stabilization
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Scale: None — Date: Sept. 2022

SHEET No. N-5 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	7	100

UTILITY NOTES FOR KIUC

1. All work on utility facilities shall be done in strict accordance with the Specifications and Requirements of Kaui Island Utility Cooperative (KIUC) for the facilities within their jurisdiction.

2. The Contractor shall closely coordinate all work with KIUC.

3. These notes are not intended to be used in place of the Service Installation Manual, please refer to Service Installation Manual for all service issues.

4. Contractor shall contact Kauai Island Utility Cooperative's (KIUC) Baseyard Supervisor, Ken Yamamoto, at 246-4343 prior to start of work on KIUC facilities and for scheduling site inspections.

5. Contractor shall contact KIUC's Baseyard Supervisor, Ken Yamamoto at 246-4343 for Design Approvals, Standard Detail drawings and any items not addressed in these notes or drawings.

6. All Contractors entering KIUC facilities must be approved by KIUC and must have proper licensing and insurance coverage. Contact KIUC Baseyard Supervisor, Ken Yamamoto at 246-4343 for details.

7. All trenches and pullboxes must be inspected by KIUC prior to backfilling and concrete-encasing operations. For detailed trenching and backfilling requirements refer to KIUC's Service Installation Manual.

8. The Contractor shall provide a Poly-line 200 lb. test line or equivalent as a pulling wire in all 1", 2", 3" and 4" conduits. In 5" and 6" conduits, the Contractor shall install Neptco WP1800 Muletape as a pulling line.

9. All conduits, pullboxes, handholes, and manholes shall be cleaned and free from objectionable materials. Conduit ends shall be adequately covered until the Conductor is installed by the Electric Company. (Cover's shall be Carlon Plug with Pull Tab Series P258 equivalent or better)

10. For all conduit other than services, refer to Conduit Schedule on drawings.

11. For all services where the conductor is 1/0 or less, the distance from KIUC's handhole and customer's meter is less than 125 feet, and not crossing any driveways or roads the conduit shall be 2 inch Schedule 40 PVC. For services greater than 125 feet, contact KIUC Planner for field verification and underground service requirements. Any deviations will require KIUC written approval.

12. Primary and secondary conduits for new line extensions shall be schedule 40 PVC. (Carlon P&C Duct Type DB equivalent or better) Under driveways and roadways, the conduits shall be encased in a minimum of 3 inch concrete jacket extending 12" outside the edge of pavement.

13. Schedule 80 PVC conduit may be substituted for the concrete encased Schedule 40 PVC for service conduit only crossing under unpaved Private driveways and roadways from KIUC pole/handhole to Customer's meter. If concrete driveway will be built over service conduit immediately after conduit is installed, then Schedule 40 PVC may be used provided that it meets with Rule No. 21.

14. All primary and secondary conduits which are crossing State or County roadways shall be Schedule 40 PVC encased in a minimum 3 inch concrete jacket, which shall extend a minimum of 12 inches outside of the edge of pavement.

15. Electrical supply ducts, when installed near communication cables, shall be separated from communication duct systems and buried communication cables or conductors by not less than 3 inches of concrete or 12 inches of earth when paralleling or crossing.

16. Chairs shall be installed and spaced at a maximum of 5 feet separation when concrete encasing conduits.

17. All conduits shall enter boxes at 90 degree angle, perpendicular and flush to the wall with bell ends to prevent cable damage.

18. 90 degree conduit bends shall be factory made with a minimum radius of 3 feet in trench runs.

19. Conduit bends exceeding 90 degrees will not be accepted.

20. A 36 inch minimum horizontal clearance shall be maintained when running KIUC conduits parallel to water and sewer lines. If clearance is less than 36 inches, KIUC conduit shall be concrete encased.

21. No foreign pullboxes, handholes, manholes, concrete slabs/boxes, structures, etc. are to be installed over KIUC facilities with the exception of HTCO, CATV or waterline conduit crossings. Such crossing must be approved by KIUC's Service Assurance Department and KIUC conduit to be concrete encased. Concrete encasement must be minimum of 3 inch encasement and extend a minimum of 1 foot beyond crossing conduit or pipe.

22. Yellow marker tape to be placed 1 foot above electrical conduits in the trench during backfilling. (E-Z Code WBT 6 inch wide 4 mill Polyethylene Protect-A-Line Warning Tape NA-0708 "Electric Line" in yellow, equivalent or better)

23. Unless otherwise noted, the top of all conduits shall be at a depth of 24 inches.

24. All handholes, pullboxes, and manholes shall be Walker Industries Type or approved equal. Contact KIUC prior to ordering underground boxes for vendor approval. Customer to submit Manufacturer's Shop Drawings if substituting from Walker Industries Type.

25. Typically, the top of all electrical utility boxes shall be 1 inch above finish grade, single phase transformer pads shall be 2 inches above finish grade, and three phase transformer pads shall be 4 inches above finish grade unless otherwise noted. (special conditions may apply to sidewalks, roadways, etc. see specific location notation)

26. At no time shall cement mortar, wood or any other material be used between pre-cast sections of KIUC pullboxes, handholes, or manholes. The permanent installation of wooden wedges to level or raise the pre-cast sections shall not be permitted.

27. A minimum of 6 inches of #3 Crushed Rock Backfill shall be placed loosely beneath the bottom section of handholes and pullboxes. Crushed rock or other foreign materials are not to be placed inside handholes and pullboxes.

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UTILITY NOTES

KUHIO HIGHWAY
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Scale: None Date: Sept. 2022

SHEET No. N-6 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	8	100

UTILITY NOTES FOR HAWAIIAN TELCOM

1. All work on utility facilities shall be in strict accordance with specifications and requirements of Hawaiian Telcom for the facilities within their jurisdiction.

2. The Contractor shall closely coordinate all work with Hawaiian Telcom. The Contractor shall notify Hawaiian Telcom's Jimmy Sone at 808-241-5052 or Duke Sardinha at 808-371-2962, or their designated Representative, at least four weeks in advance of any work involving the Hawaiian Telcom facilities.

3. Unless otherwise indicated, all conduits, sweeps, couplings, adapters and bell ends shall be Schedule 40 PVC if direct buried. If concrete encased, conduits may be GT42 2" or 4" PVC meeting GTE Specification GTS-8342. Two inch bends are available with a 24" or 36" radius. Four inch bends are available with a 36" or 48" radius. Refer to HTCO Standard Drawing 34028 for installation.

4. All conduits shall be cleaned and be free from objectionable materials with its ends adequately covered until Hawaiian Telcom installs its cable facilities.

5. Contractor shall maintain 6" minimum separation between water pipe and direct buried utility ducts at intersection of water pipe and direct buried utility ducts. When utility ducts are concrete encased at intersections of water pipe and utility ducts, a 3" minimum separation between water pipe and concrete encasement shall be maintained. Stones, Rocks, etc. shall not be used with backfill material, only select materials shall be used as a backfill material.

6. A 4" wide warning tape orange in color with a black imprinted message "Warning - Stop Digging - Call Hawaiian Telcom, Communications Cable Buried Below, Failure to Comply Could Result in Legal Action" shall be placed 12" below the surface over the duct or concrete jacket for the entire length of duct installations. See HTCO Standard Drawing 34028. Recommended tape is manufactured by Thor Enterprises, Inc. Sun Prairie, WI 53590 (1-800-827-8467) Part Numbers DTOGTE-41 (1000') and DTOGTE-46 (6000'). Equivalent tapes are acceptable.

7. After the ducts are installed a mandrel not less than 12" long and having a diameter of 1/4" less than the inside diameter of the duct, shall be pulled through each duct after which a brush with stiff bristles shall be pulled through to make certain that no particles of earth, sand or gravel have been left in the line. Main duct runs except riser ducts and cross-connect pedestal ducts should be constructed with long smooth riding sweeps. Offsets and elevation changes shall be constructed with not less than 20 foot radius Telcom Inspector. Approved duct runs with less than 20 foot radius shall utilize a flexible mandrel followed by a stiff bristle brush. A flexible mandrel having a diameter of 1/4" less than the inside diameter will be utilized on 2" duct runs after which a brush with stiff bristles shall be pulled through.

8. Install Neptco WP1800P Muletape in all new ducts after testing. The Neptco Muletape is available in 3,000', 6,500' and 10,000' reels. The Neptco Muletape is prelubricated and printed with sequential footage marking. Using the Neptco Muletape, The Contractor shall measure at least one duct of a common duct run. The distance shall be marked on the record prints and submitted to the Hawaiian Telcom Inspector for record keeping.

9. All conduits shall enter boxes at a 90 degree angle and be flush to the wall with flared or junior end bells to prevent cable damage.

10. The Contractor shall furnish and install a No. 4 bare copper ground wire (direct buried) from all transformer pad ground rods to the nearest Hawaiian Telcom pullbox, as specified in HTCO Standard Drawing 34045. Install one 5/8" x 8' ground rod in all other Hawaiian Telcom 435T, 435TB6 and 4' x 6' Type 1 boxes, except in the Type 436T meter boxes (12" x 20"). Ground rods are to extend 4" above the finished pullbox/handhole floor (grade) and be located 4" from the pullbox corner.

UTILITY NOTES FOR SPECTRUM

1. The Contractor shall take necessary precaution not to damage existing cables. Any work involving existing cables shall be done in the presence of Spectrum's Inspector or his representative.

2. Any work required to relocate CATV facilities shall be done by Spectrum and the Contractor shall be responsible for all coordination requirements and associated costs.

3. Any damage to Spectrum's facilities shall be reported to Spectrum's Repair Dispatch Department at 625-8437 or 625-8666.

4. All Construction must be inspected and approved by Spectrum prior to the installation of any of its facilities and the energizing of its system.

5. Contractor and/or Customer shall provide Spectrum with sufficient installation time in their occupancy time table.

UTILITY NOTES FOR SANDWICH ISLES COMMUNICATIONS

1. The Contractor shall take necessary precaution not to damage existing cables. Any work involving existing cables shall be done in the presence of SIC's Inspector or his representative.

2. The Contractor shall notify SIC's project manager, Lily Duran at 808-284-3683 or 808-540-5772, or their designated representative, at least four weeks in advance of any work involving the SIC facilities.

ORIGINAL PLAN
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RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: None Date: Sept. 2022

SHEET No. N-7 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	9	100

WATER POLLUTION AND EROSION CONTROL NOTES:

A. GENERAL:

1. See Special Provisions 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 Storm Water Pollution Prevention Plan (SWPPP) when applicable.

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. 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.

7. Submit Site-Specific BMP Plan to the Engineer along with a completed Site-Specific BMP Review Checklist within 21 calendar days of date of award. 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 21 calendar days of date of award. 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. 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.

2. For projects without an NPDES Permit for Construction Activities, inspect all control measures weekly.

3. 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.

4. 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.

5. 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.

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

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

8. 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-planed 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.

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

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

11. 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.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATER POLLUTION & EROSION CONTROL NOTES

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: None Date: Sept. 2022

SHEET No. EC-1 OF 4 SHEETS

WATER POLLUTION AND EROSION CONTROL NOTES (Cont.):

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	10	100

12. 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.

13. 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.

14. 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.

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

   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.

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SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WATER POLLUTION & EROSION CONTROL NOTES

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: None Date: Sept. 2022

SHEET No. EC-2 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	11	100

WATER POLLUTION AND EROSION CONTROL NOTES (Cont.):

E. PERMIT REQUIREMENTS:

1. The Project is exempt from the NPDES permit due to the Governor's Emergency Proclamation. However, the Engineer will execute the project as if the NPDES is applicable. See Hawaii Administrative Rules Chapter 11-55, Appendix C for the definition of land disturbance. The Contractor shall be responsible for complying with the requirements of HAR 11-55 including, but not limited to:

   a. Deadlines for initiating and completing initial stabilization
   b. Increased inspection frequency and installation of rain gage if applicable
   c. Deadlines to initiate and complete repairs to BMPs
   d. Reporting requirements and corrective action reports

2. Comply with all applicable State and Federal Permit conditions.

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://www.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-1).

2. Contain on-site runoff using Perimeter Sediment Controls
   a. SC-7 Silt Fence or Filter Fabric Fence
   b. SC-2 Vegetated Filter Strips and Buffers
   c. SC-6 Compost Filter Berm/Sock
   d. SC-8 Sandbag Barrier
   e. SC-9 Brush or Rock Filter

3. Control offsite runoff from entering construction area
   a. EC-3 Run-On Diversion
   b. EC-6 Earth Dike, Swales, and Ditches

4. Incorporate applicable Site Management BMP
   a. SM-1 Employee Training
   b. SM-2 Material Storage and Handling
   c. SM-3 Stockpile Management
   d. SM-6 Solid Waste Management
   e. SM-7 Sanitary Waste Management
   f. SM-9 Hazardous Materials and Waste Management
   g. SM-10 Spill Prevention and Control
   h. SM-11 Vehicle and Equipment Cleaning
   i. SM-12 Vehicle and Equipment Maintenance
   j. SM-13 Vehicle and Equipment Refueling
   k. SM-14 Scheduling
   l. SM-15 Location of Potential Sources of Sediment
   m. SM-16 Staging Area
   n. SM-17 Preservation of Existing Vegetation
   o. SM-19 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 (SC-11) 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-4) 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.

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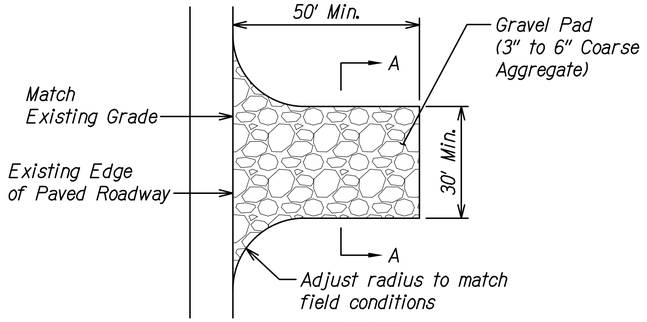
WATER POLLUTION & EROSION CONTROL NOTES

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

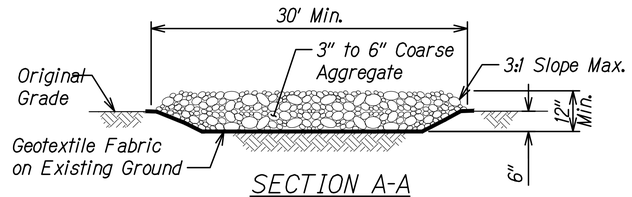
Scale: None Date: Sept. 2022

SHEET No. EC-3 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	12	100



PLAN



SECTION A-A

TEMPORARY CONSTRUCTION STABILIZATION

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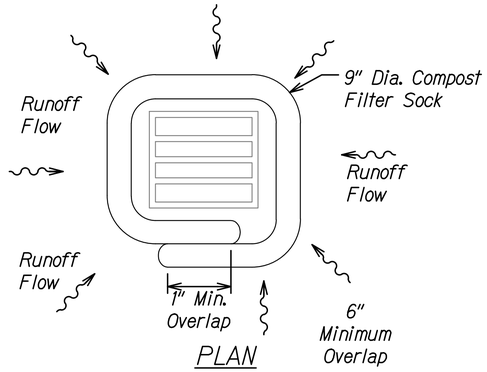


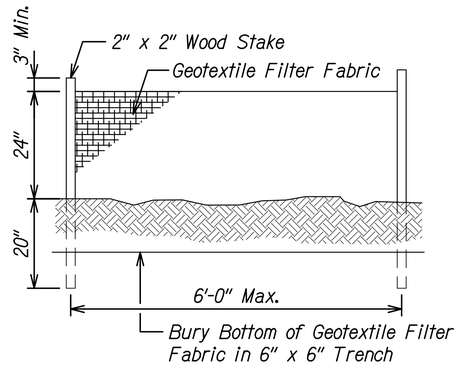
PLAN

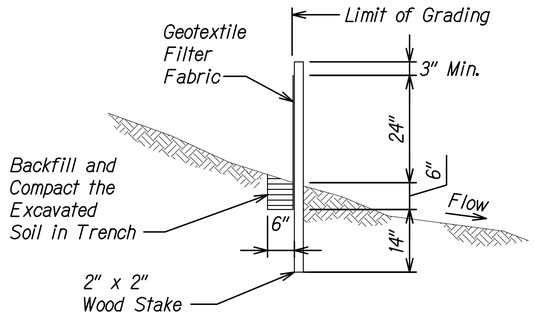
COMPOST FILTER SOCK DRAIN INLET PROTECTION DETAIL

Not to Scale

COMPOST FILTER SOCK NOTES:

1. Remove accumulated sediment when depth reaches 1/3 the barrier height.
2. Sock material and compost shall be removed at the completion of construction (or a phase of construction) and shall be disposed or properly.
3. No staking is required for slopes < 4:1.
4. Compost shall not contain biosolids and should be consistent with United States Environmental Protection Agency guidelines.



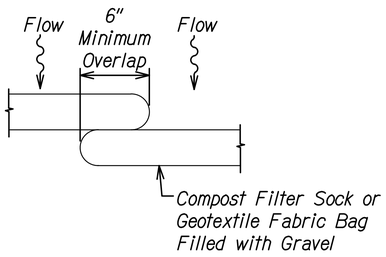


SILT FENCE DETAIL

Not to Scale

SILT FENCE NOTES:

1. The filter fabric shall be a minimum of 36 inches wide.
2. If silt fence is obtained from manufacturer as a package (i.e. fabric attached to post) the manufacturer's installation instructions shall be adhered to.



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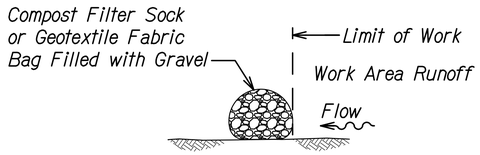

SECTION

NOTE:

Sediment Filter can be either Compost Filter Sock and/or Geotextile Fabric Bag filled with Gravel.

SEDIMENT FILTER DETAIL

Not to Scale

STAGING AREA NOTES:

1. Place and tack down geotextile fabric over sheet plastic at staging area.
2. Place Compost Filter Sock or silt fence along low end of staging area perimeter to filter staging area runoff.
3. Place drip pans under all vehicles and equipment.
4. Provide spill kits at all staging areas.
5. Secure and provide secondary containment for portable toilets.
6. Contractor to install temporary construction stabilization entrances for staging areas. See details on this Sheet.

STORAGE AREA NOTES:

1. Place Compost Filter Sock along storage area perimeter to filter runoff.
2. Contractor to install temporary construction stabilization entrances for storage areas. See details on this Sheet.

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WATER POLLUTION & EROSION CONTROL DETAILS

KUHIO HIGHWAY
Emergency Slope Stabilization
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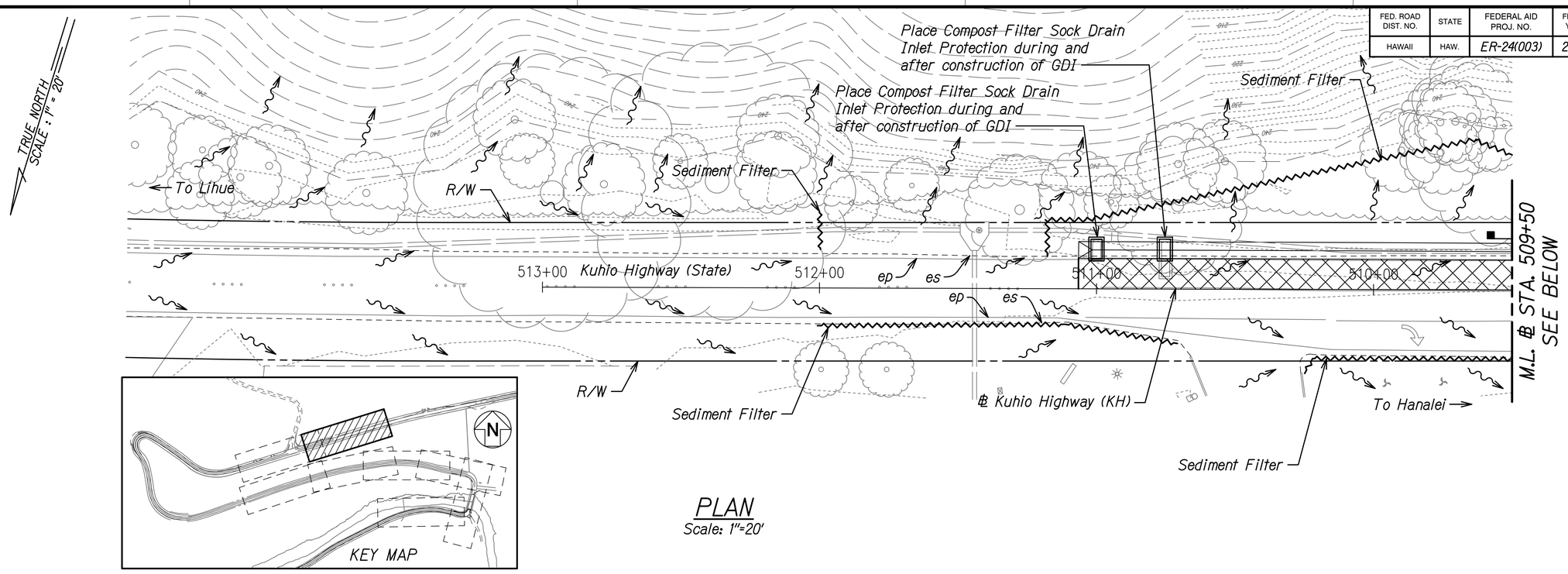
F.A.P. Project No. ER-24(003)

Scale: None Date: Sept. 2022

SHEET No. EC-4 OF 4 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	13	100



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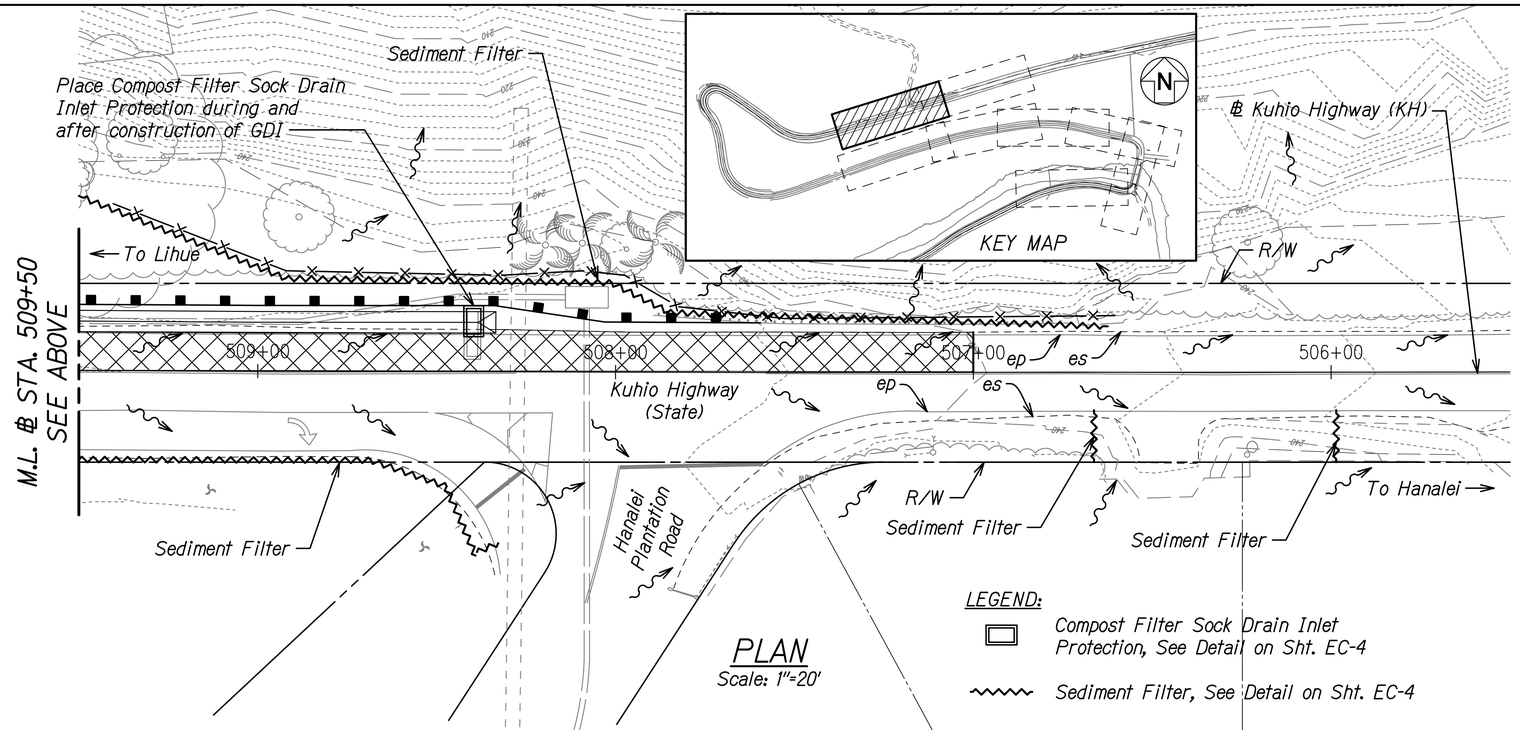

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NOTE:

Sediment and Erosion Control BMP measures shown in the Contract Documents are minimum BMP requirements and do not constitute an acceptable and/or complete Sediment and Erosion Control Plan. The Contractor shall incorporate additional BMPs based on their means and methods considering site conditions and construction sequence in accordance with the Contract Documents including applicable permit document requirements. Cost shall be included in Pay Item 209.0100, Installation, Maintenance, Monitoring, and Removal of BMP - Hanalei Hills.

LEGEND:

Compost Filter Sock Drain Inlet Protection, See Detail on Sht. EC-4

Sediment Filter, See Detail on Sht. EC-4

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STATE OF HAWAII
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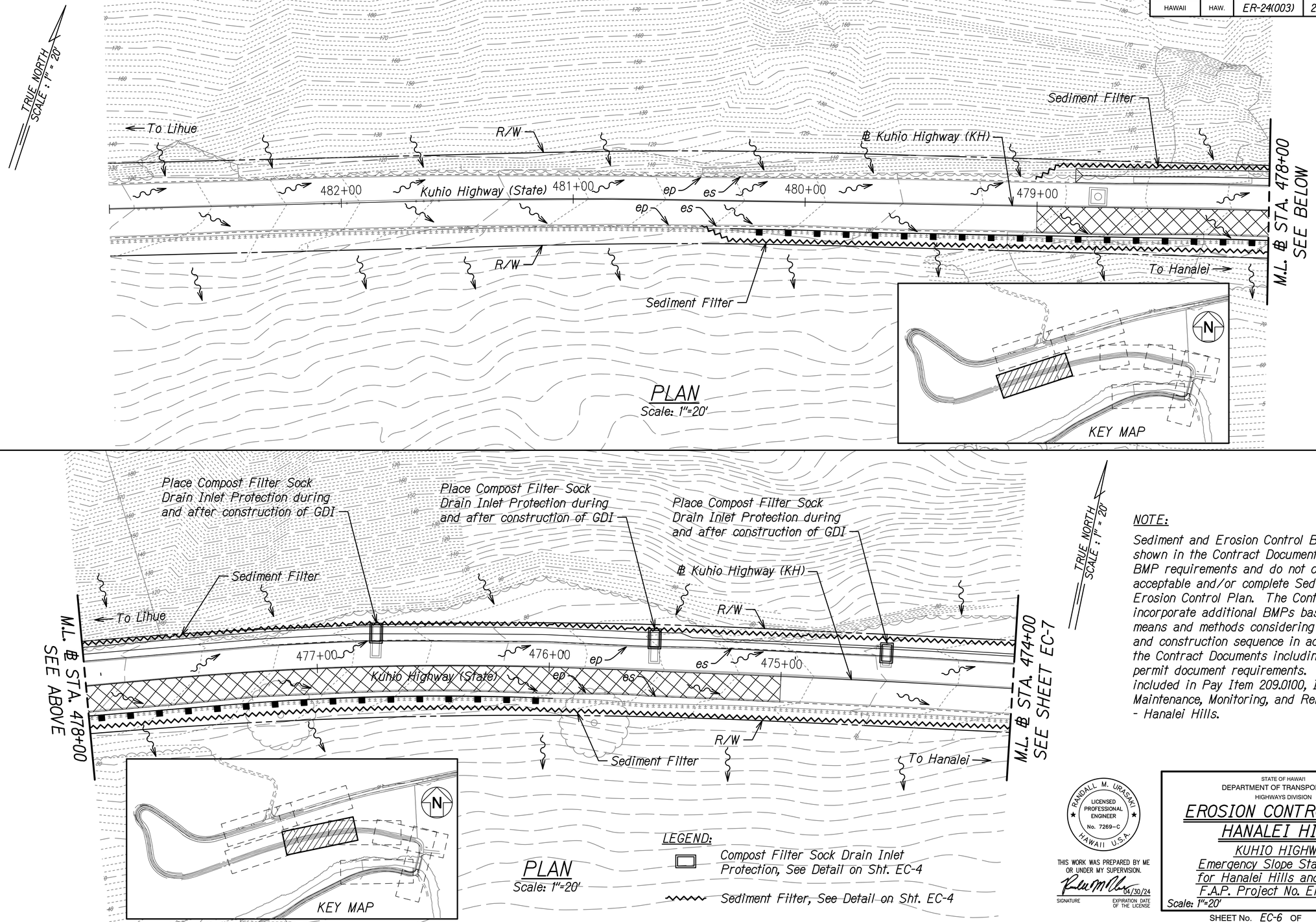
EROSION CONTROL PLAN
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

SHEET No. EC-5 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	14	100



TRUE NORTH
SCALE : 1" = 20'

NOTE:

Sediment and Erosion Control BMP measures shown in the Contract Documents are minimum BMP requirements and do not constitute an acceptable and/or complete Sediment and Erosion Control Plan. The Contractor shall incorporate additional BMPs based on their means and methods considering site conditions and construction sequence in accordance with the Contract Documents including applicable permit document requirements. Cost shall be included in Pay Item 209.0100, Installation, Maintenance, Monitoring, and Removal of BMP - Hanalei Hills.

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE: 04/30/24

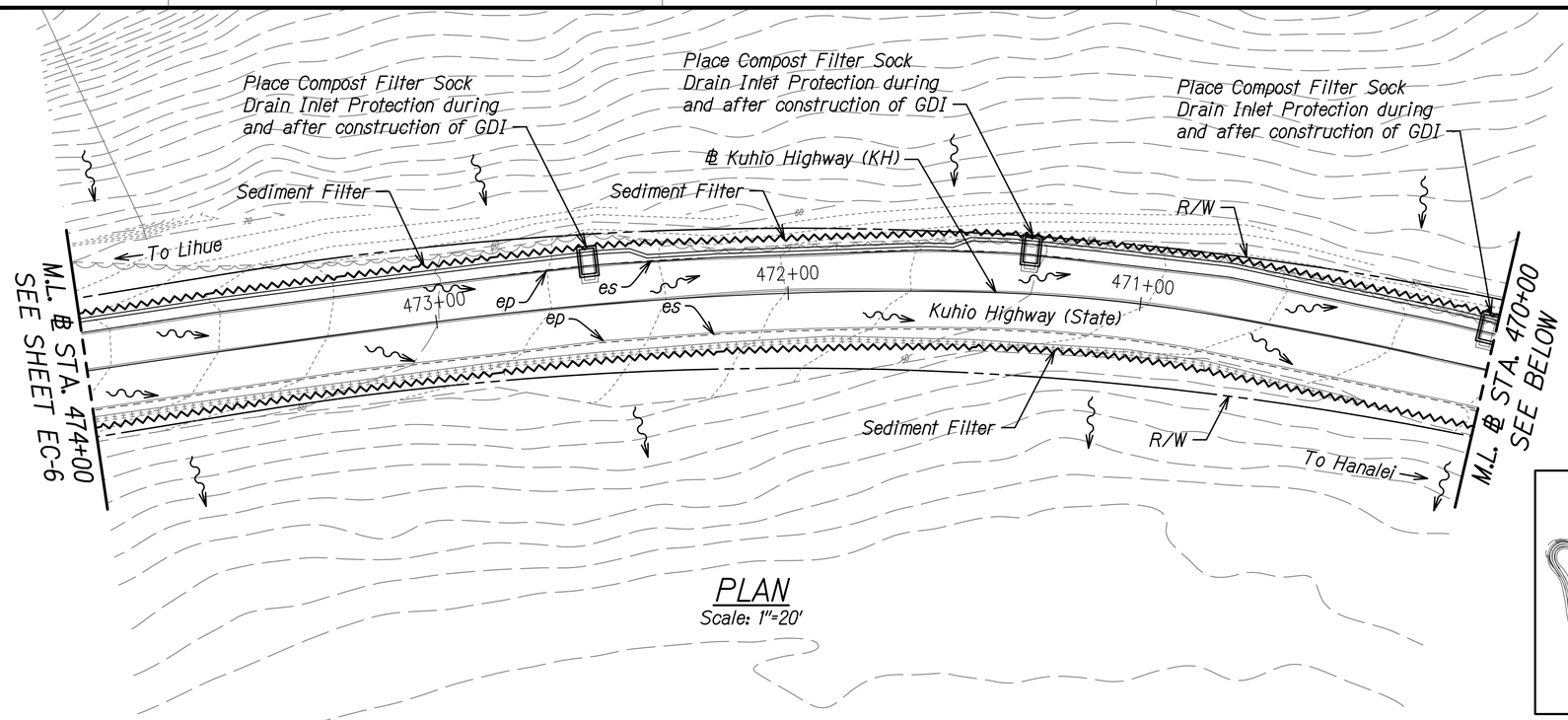
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

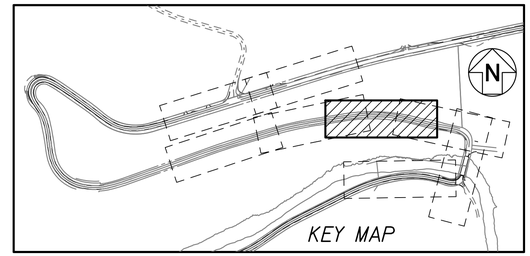
SHEET No. EC-6 OF 9 SHEETS

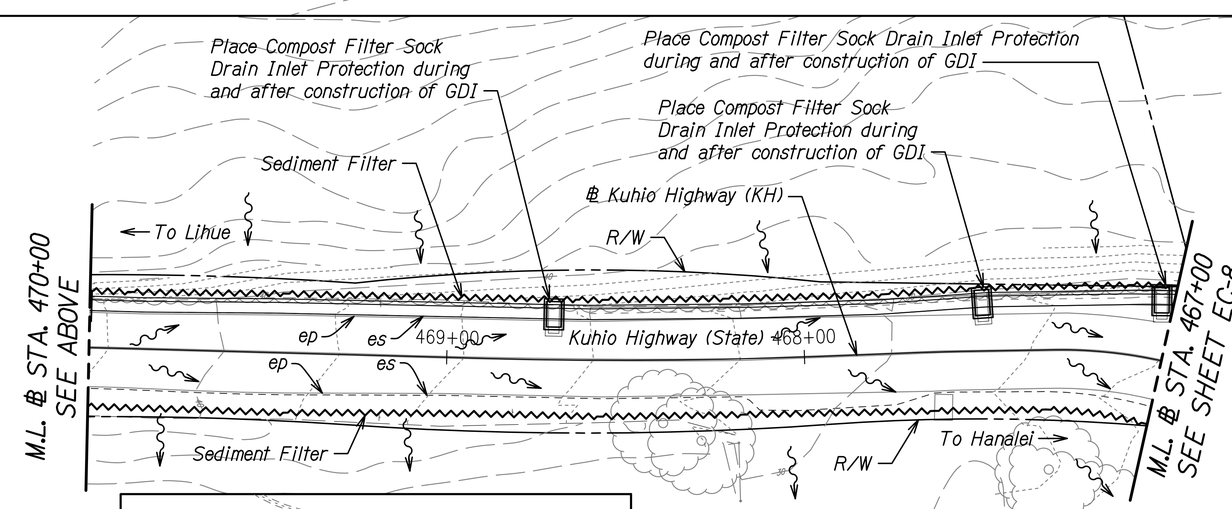
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	15	100

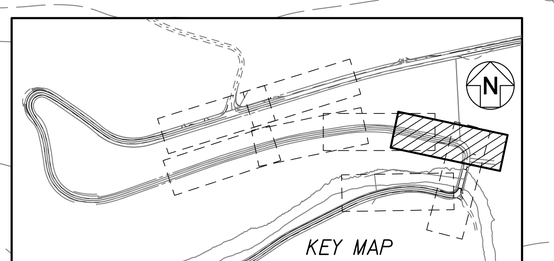


PLAN
Scale: 1"=20'

TRUE NORTH
SCALE : 1" = 20'







PLAN
Scale: 1"=20'

TRUE NORTH
SCALE : 1" = 20'

LEGEND:

Compost Filter Sock Drain Inlet Protection, See Detail on Sht. EC-4

Sediment Filter, See Detail on Sht. EC-4

NOTE:

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

RANDALL M. URASAKI
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No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE

04/30/24
EXPIRATION DATE OF THE LICENSE

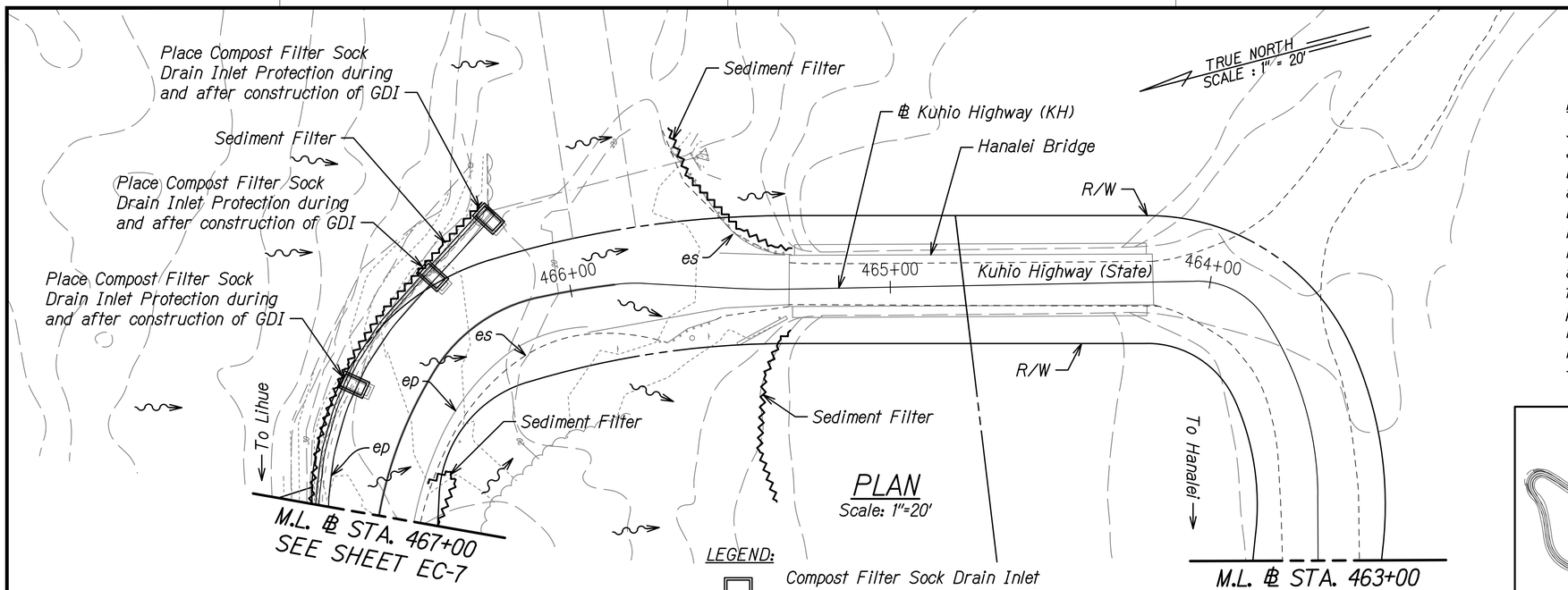
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

SHEET No. EC-7 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	16	100



PLAN
Scale: 1"=20'

LEGEND:

Compost Filter Sock Drain Inlet Protection, See Detail on Sht. EC-4

Sediment Filter, See Detail on Sht. EC-4

NOTE:

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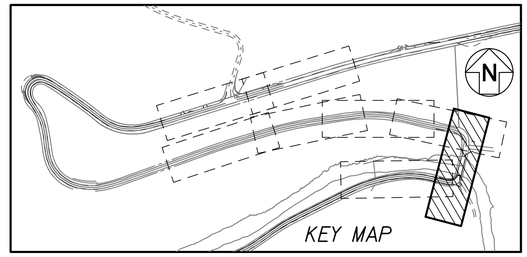

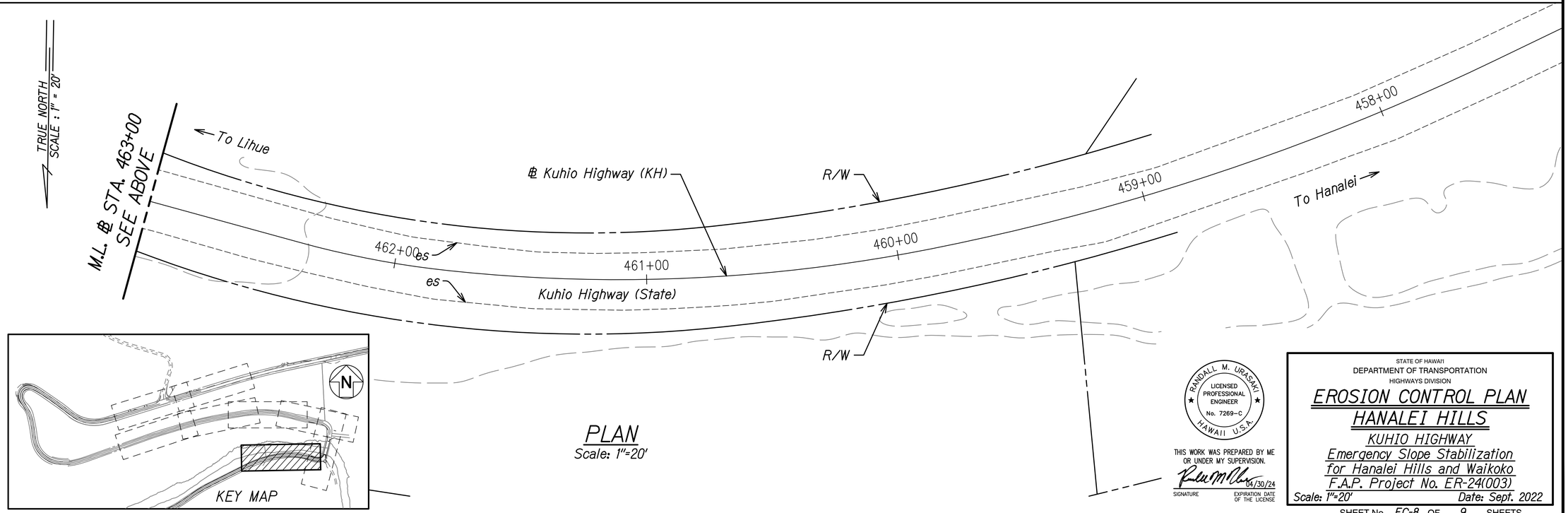

PLAN
Scale: 1"=20'

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

RANDALL M. URASAKI
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No. 7269-C
HAWAII U.S.A.

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SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

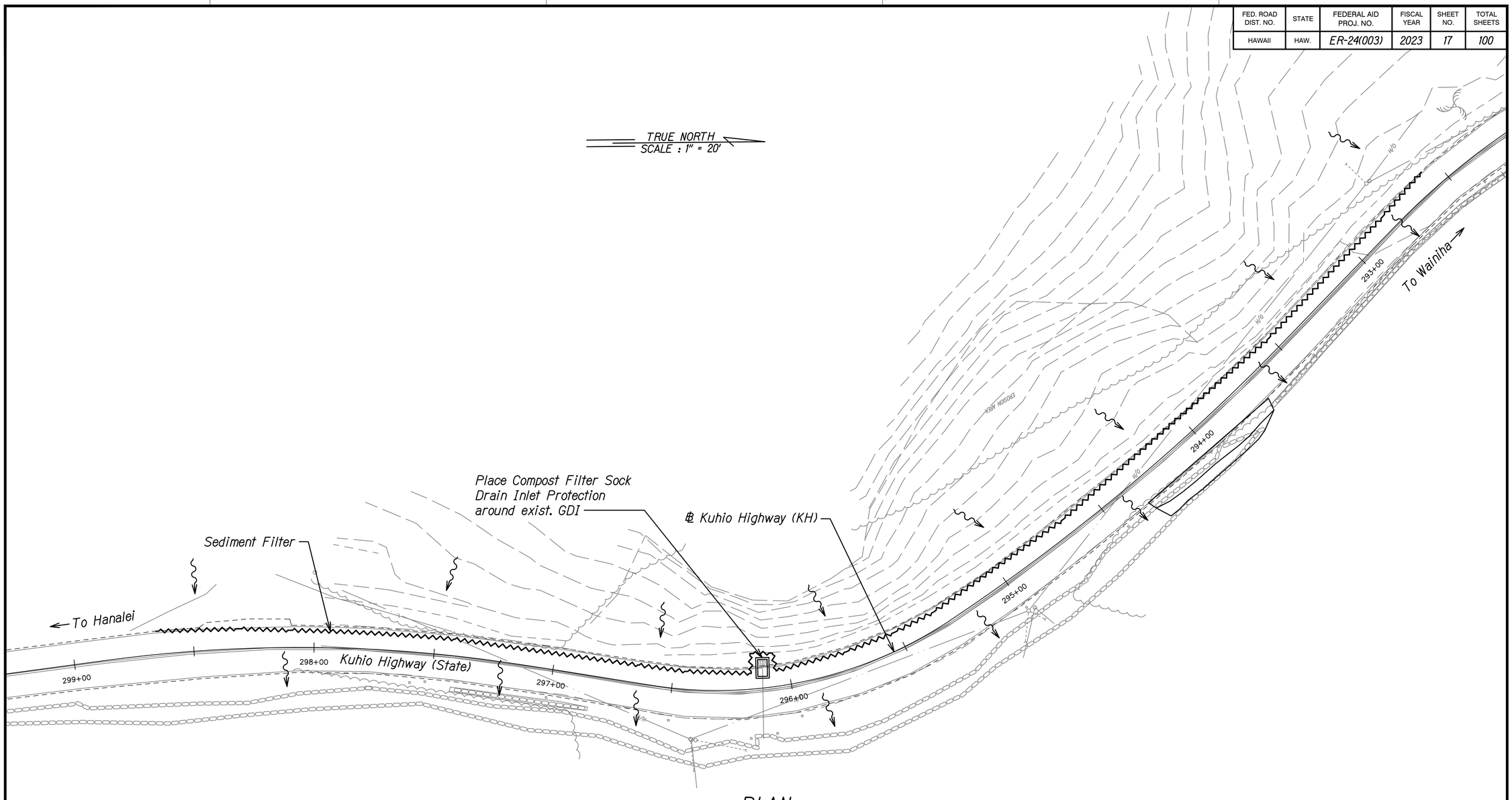
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

SHEET No. EC-8 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	17	100



PLAN
Scale: 1"=20'

LEGEND:

Compost Filter Sock Drain Inlet Protection, See Detail on Sht. EC-4

Sediment Filter, See Detail on Sht. EC-4

NOTE:

Sediment and Erosion Control BMP measures shown in the Contract Documents are minimum BMP requirements and do not constitute an acceptable and/or complete Sediment and Erosion Control Plan. The Contractor shall incorporate additional BMPs based on their means and methods considering site conditions and construction sequence in accordance with the Contract Documents including applicable permit document requirements. Cost shall be included in Pay Item 209.0101, Installation, Maintenance, Monitoring, and Removal of BMP - Waikoko.

ORIGINAL PLAN
NOTE BOOK
No.

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

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SIGNATURE

04/30/24
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

EROSION CONTROL PLAN
WAIKOKO
KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

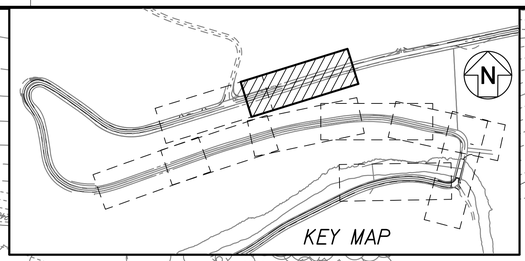
SHEET No. EC-9 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	18	100

TRUE NORTH
SCALE : 1" = 20'

End Hanalei PROJECT
Segment
Kuhio Highway
℄ Sta. 513+00
N 137,658.10
E 1,647,793.79

TMK (4) 5-4-004:032



← To Lihue

R/W

241°45'24.09"
91.90'

513+00

Kuhio Highway (State)

512+00

ep es

Sta. 507+58.04 to Sta. 513+00
252°58'19.67" ← 541.96'

ep es

511+00

510+00

M.L. ℄ STA. 509+50
SEE BELOW

R/W

℄ Kuhio Highway (KH)

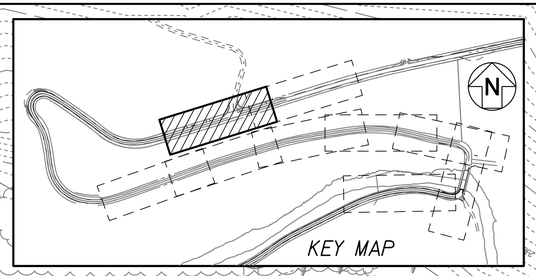
To Hanalei →

TMK (4) 5-4-005:033

Sta. 8
Iron Pin
Elev=244.09
N 137,701.59
E 1,647,874.75

PLAN
Scale: 1"=20'

TRUE NORTH
SCALE : 1" = 20'



M.L. ℄ STA. 509+50
SEE ABOVE

← To Lihue

TMK (4) 5-4-004:032

℄ Kuhio Highway (KH)

R/W

Begin Hanalei PROJECT
Segment
Kuhio Highway
℄ Sta. 505+00
N 137,422.87
E 1,647,029.16

509+00 Kuhio Highway (State)

508+00

507+58.04

507+00 ep es

Sta. 507+58.04 to Sta. 513+00
252°58'19.67" ← 541.96'

ep es

506+00

Sta. 505+00 to Sta. 507+58.04
252°44'50.25" ← 258.04'

505+00

45°29'56.00"
41.41'

Sta. 11
Mag Nail
Elev=230.03
N 137,393.84
E 1,646,999.62

To Hanalei →

R/W

Kuhio Highway
℄ Sta. 507+58.04
N 137,499.40
E 1,647,275.58

Hanalei Plantation Road

TMK (4) 5-4-005:033

TMK (4) 5-4-004:020

TMK (4) 5-4-004:019

TMK (4) 5-4-004:018

PLAN
Scale: 1"=20'

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

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SIGNATURE

04/30/24
EXPIRATION DATE OF THE LICENSE

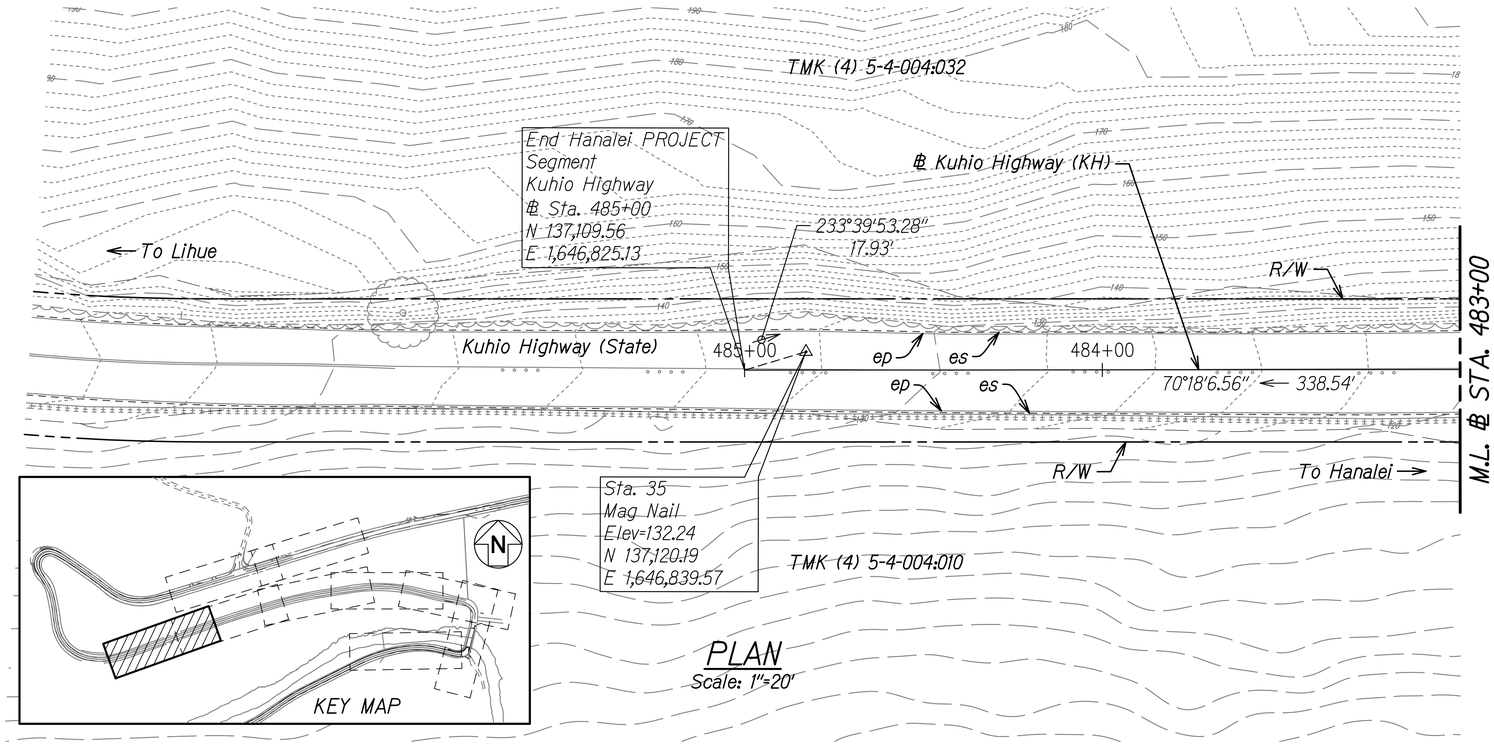
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALIGNMENT PLAN
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

SHEET No. A-1 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	19	100



PLAN
Scale: 1"=20'

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

RANDALL M. URASAKI
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No. 7269-C
HAWAII U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALIGNMENT PLAN
HANALEI HILLS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

SHEET No. A-2 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	20	100

TRUE NORTH
SCALE : 1" = 20'

TMK (4) 5-4-004:032

← To Lihue

R/W

K1

℄ Kuhio Highway (KH)

M.L. ℄ STA. 483+00
SEE SHEET A-2

Kuhio Highway (State) 482+00 — 481+00 — 480+00 — 479+00

ep es ep es

70°18'6.56" ← 338.54'

72°48'35.64" ← 283.01'

M.L. ℄ STA. 478+00
SEE BELOW

R/W

To Hanalei →

PT Sta. 481+61.46

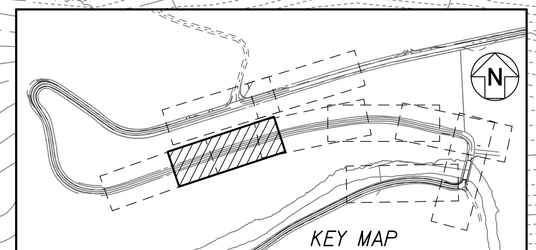
PC Sta. 480+52.03

TMK (4) 5-4-004:010

℄ CURVE DATA K1

Δ = 2°30'29.08"
Δ/2 = 1°15'14.54"
R = 2500.00'
T = 54.73'
Ch = 109.43'
Lc = 109.44'

PLAN
Scale: 1"=20'



℄ CURVE DATA K2

Δ = 7°42'24.87"
Δ/2 = 3°51'12.44"
R = 1,350.00'
T = 90.93'
Ch = 181.45'
Lc = 181.59'

TMK (4) 5-4-004:032

℄ Kuhio Highway (KH)

TRUE NORTH
SCALE : 1" = 20'

← To Lihue

K2

R/W

K3

M.L. ℄ STA. 478+00
SEE ABOVE

477+00 — 476+00 — 475+00

Kuhio Highway (State)

ep es ep es

72°48'35.64" ← 283.01'

80°31'0.51" ← 66.63'

M.L. ℄ STA. 474+00
SEE SHEET A-4

R/W

To Hanalei →

PT Sta. 477+69.10

PC Sta. 475+87.42

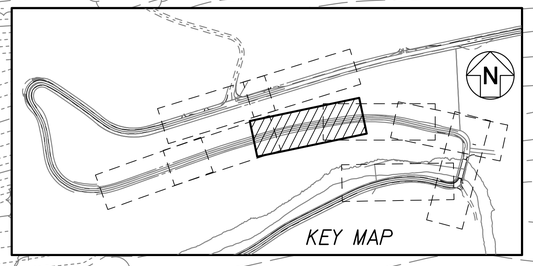
PT Sta. 475+20.79

TMK (4) 5-4-004:010

℄ CURVE DATA K3

Δ = 2°41.93"
Δ/2 = 1°20.97"
R = 6,000.00'
T = 108.25'
Ch = 216.47'
Lc = 216.48'

PLAN
Scale: 1"=20'



ORIGINAL PLAN

NOTE BOOK

SURVEY PLOTTED BY — DATE
DRAWN BY — " " "
TRACED BY — " " "
DESIGNED BY
QUANTITIES BY
CHECKED BY

No.

RANDALL M. URASAKI
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No. 7269-C
HAWAII U.S.A.

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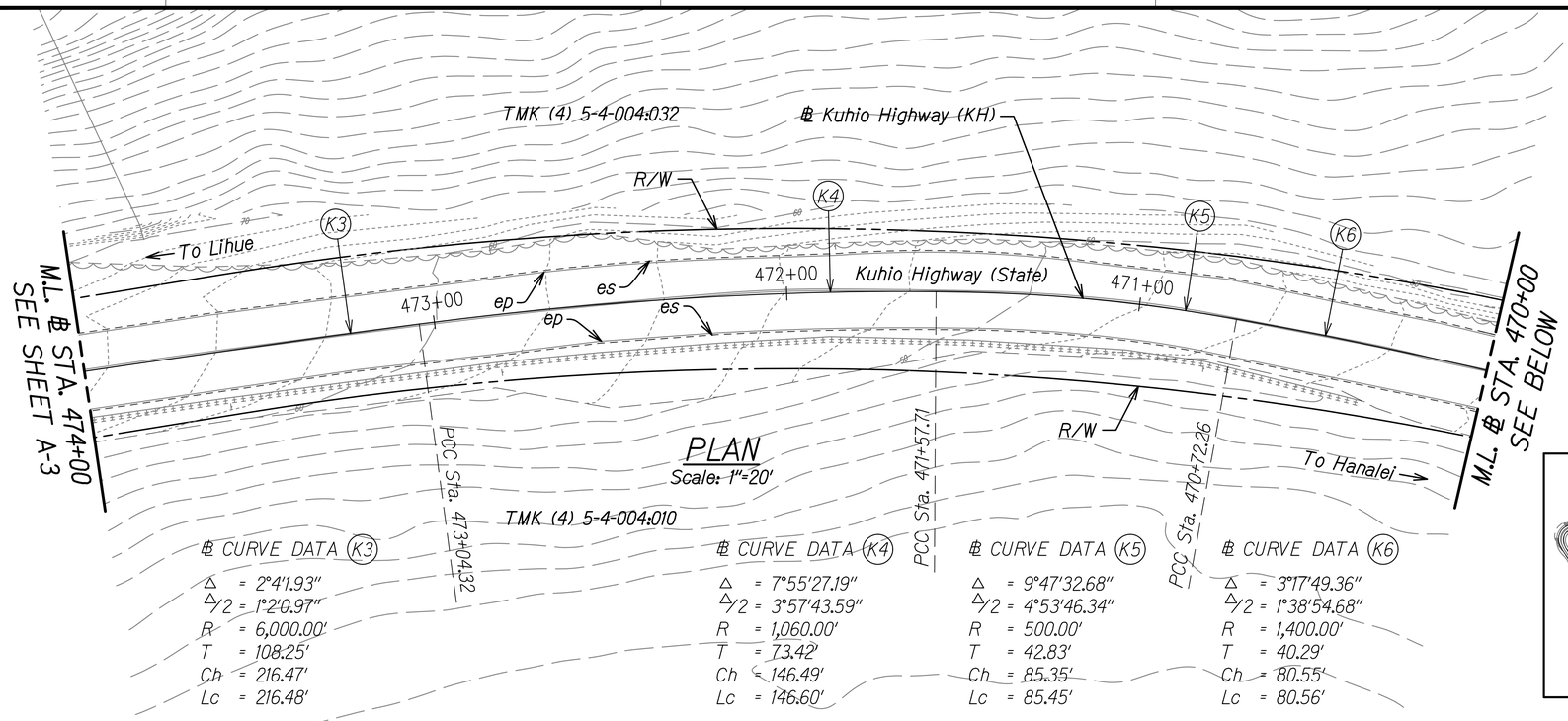
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALIGNMENT PLAN
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

SHEET No. A-3 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	21	100



PLAN
Scale: 1"=20'

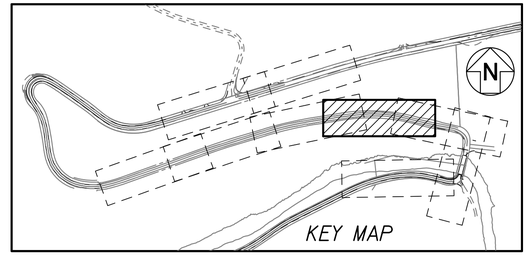
℄ CURVE DATA (K3)
△ = 2°4'1.93"
△/2 = 1°2'0.97"
R = 6,000.00'
T = 108.25'
Ch = 216.47'
Lc = 216.48'

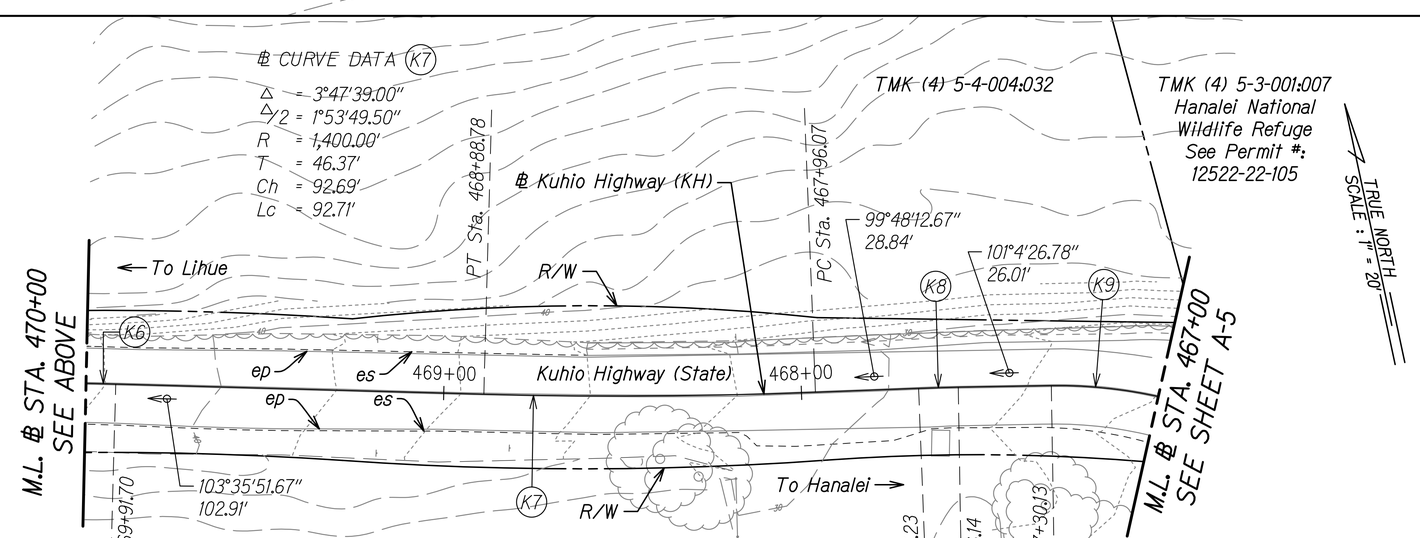
℄ CURVE DATA (K4)
△ = 7°55'27.19"
△/2 = 3°57'43.59"
R = 1,060.00'
T = 73.42'
Ch = 146.49'
Lc = 146.60'

℄ CURVE DATA (K5)
△ = 9°47'32.68"
△/2 = 4°53'46.34"
R = 500.00'
T = 42.83'
Ch = 85.35'
Lc = 85.45'

℄ CURVE DATA (K6)
△ = 3°17'49.36"
△/2 = 1°38'54.68"
R = 1,400.00'
T = 40.29'
Ch = 80.55'
Lc = 80.56'

TRUE NORTH
SCALE : 1" = 20'





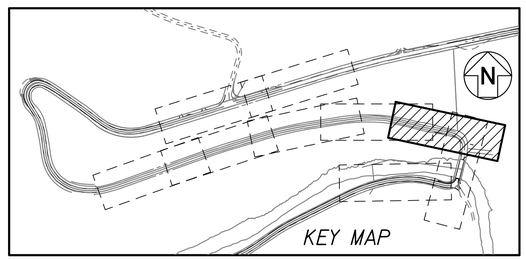
PLAN
Scale: 1"=20'

℄ CURVE DATA (K6)
△ = 3°17'49.36"
△/2 = 1°38'54.68"
R = 1,400.00'
T = 40.29'
Ch = 80.55'
Lc = 80.56'

℄ CURVE DATA (K8)
△ = 1°16'14.12"
△/2 = 0°38'7.06"
R = 500.00'
T = 5.54'
Ch = 11.09'
Lc = 11.09'

℄ CURVE DATA (K9)
△ = 35°32'7.41"
△/2 = 17°46'3.70"
R = 127.50'
T = 40.86'
Ch = 77.82'
Lc = 79.08'

TRUE NORTH
SCALE : 1" = 20'



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

RANDALL M. URASAKI
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No. 7269-C
HAWAII U.S.A.

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SIGNATURE — EXPIRATION DATE OF THE LICENSE: 04/30/24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALIGNMENT PLAN
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

SHEET No. A-4 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	22	100

℄ CURVE DATA (K9)
△ = 35°32'7.41"
△/2 = 17°46'3.70"
R = 127.50'
T = 40.86'
Ch = 77.82'
Lc = 79.08'

℄ CURVE DATA (K10)
△ = 45°40'34.84"
△/2 = 22°50'17.42"
R = 51.00'
T = 21.48'
Ch = 39.59'
Lc = 40.66'

℄ CURVE DATA (K11)
△ = 5°43'12.20"
△/2 = 2°51'36.10"
R = 250.00'
T = 12.49'
Ch = 24.95'
Lc = 24.96'

℄ CURVE DATA (K12)
△ = 9°42'10.35"
△/2 = 4°51'5.17"
R = 50.00'
T = 4.24'
Ch = 8.46'
Lc = 8.47'

℄ CURVE DATA (K13)
△ = 4°11'39.45"
△/2 = 2°5'49.72"
R = 215.00'
T = 7.87'
Ch = 15.74'
Lc = 15.74'

TMK (4) 5-3-001:007
Hanalei National
Wildlife Refuge
See Permit #:
12522-22-105

PT Sta. 465+48.57
PC Sta. 465+32.83

℄ Kuhio Highway (KH)
Hanalei Bridge
R/W
193°30'52.13"
32.83'
Kuhio Highway (State)
464+00
465+00
466+00
K9
K10
K11
K12
K13
es
ep
197°42'31.57"
28.40'
177°02'0.68"
37.43'
Benchmark RM6
Bronze Tablet
(Stamped 17)
Elev=16.60
N 137,211.32
E 1,648,595.53
Begin Hanalei
PROJECT Segment
Kuhio Highway
℄ Sta. 465+00
N 137,173.94
E 1,648,597.46
To Lihue
To Hanalei
M.L. ℄ STA. 467+00
SEE SHEET A-4
M.L. ℄ STA. 463+00
SEE BELOW
TMK (4) 5-4-004:010
PCC Sta. 466+51.06
PCC Sta. 466+10.40
PCC Sta. 465+85.44
PC Sta. 465+76.97

TRUE NORTH
SCALE : 1" = 20'

KEY MAP

PLAN
Scale: 1"=20'

TRUE NORTH
SCALE : 1" = 20'

M.L. ℄ STA. 463+00
SEE ABOVE
To Lihue
℄ Kuhio Highway (KH)
R/W
458+00
459+00
460+00
461+00
462+00
es
Kuhio Highway (State)
To Hanalei

KEY MAP

PLAN
Scale: 1"=20'

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE: 04/30/24

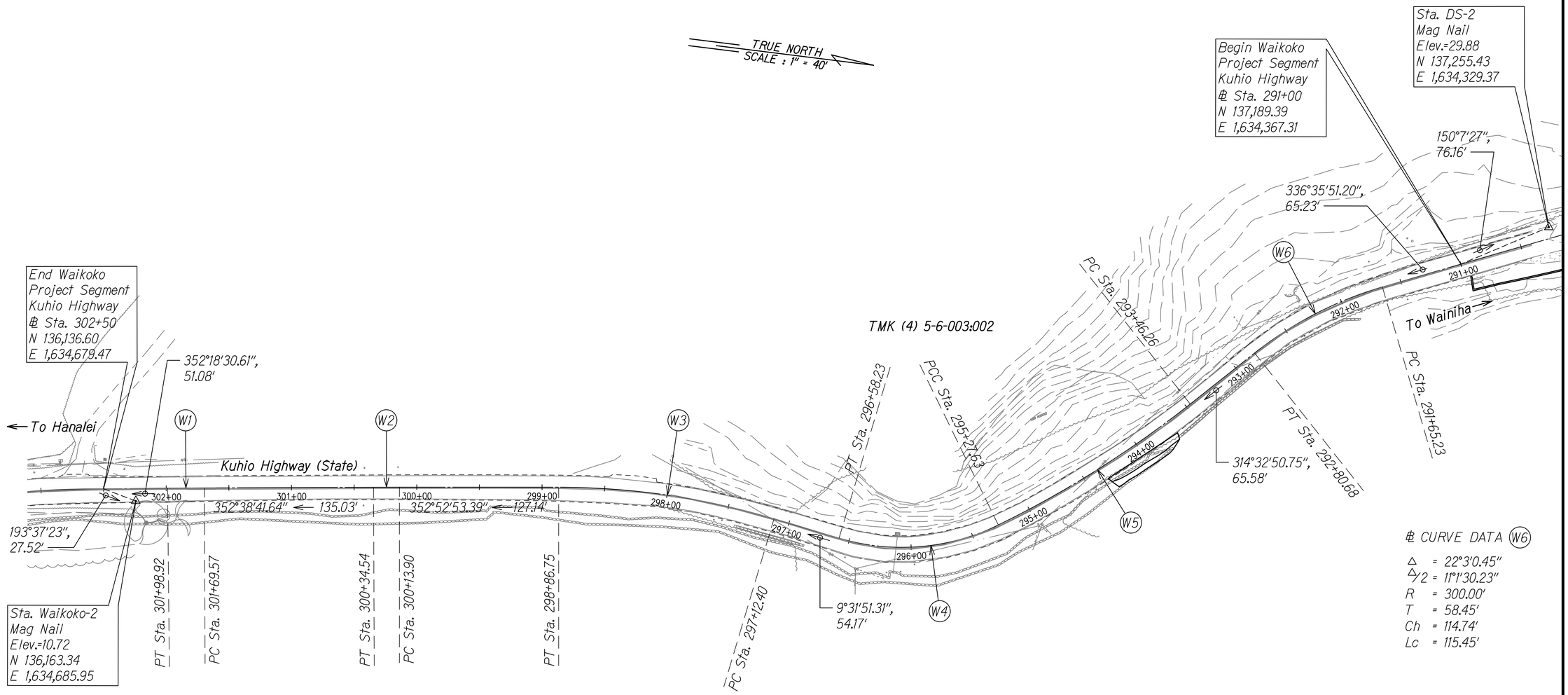
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALIGNMENT PLAN
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

SHEET No. A-5 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	23	100



PLAN
Scale: 1"=40'

℄ CURVE DATA (W1)
- △ = 0°20'11.03"
- △/2 = 0°10'05.52"
- R = 5,000.00'
- T = 14.68'
- Ch = 29.36'
- Lc = 29.36'

℄ CURVE DATA (W2)
- △ = 0°14'11.75"
- △/2 = 0°7'5.87"
- R = 5,000.00'
- T = 10.32'
- Ch = 20.65'
- Lc = 20.65'

℄ CURVE DATA (W3)
- △ = 16°38'57.92"
- △/2 = 8°19'28.96"
- R = 600.00'
- T = 87.79'
- Ch = 173.74'
- Lc = 174.35'

℄ CURVE DATA (W4)
- △ = 42°45'29.08"
- △/2 = 21°22'44.54"
- R = 175.00'
- T = 68.51'
- Ch = 127.59'
- Lc = 130.60'

℄ CURVE DATA (W5)
- △ = 12°13'31.49"
- △/2 = 6°6'45.75"
- R = 850.00'
- T = 91.03'
- Ch = 181.02'
- Lc = 181.37'

℄ CURVE DATA (W6)
- △ = 22°3'0.45"
- △/2 = 11°1'30.23"
- R = 300.00'
- T = 58.45'
- Ch = 114.74'
- Lc = 115.45'

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

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SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

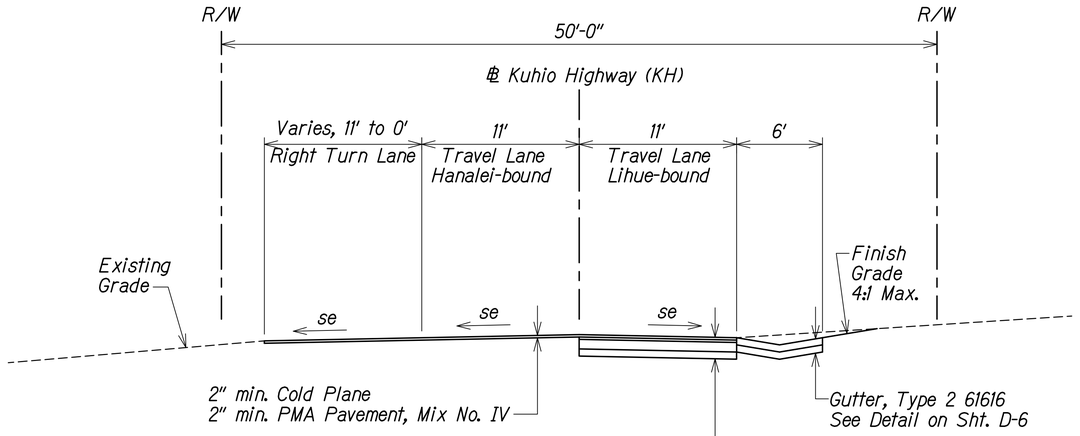
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ALIGNMENT PLAN
WAIKOKO
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

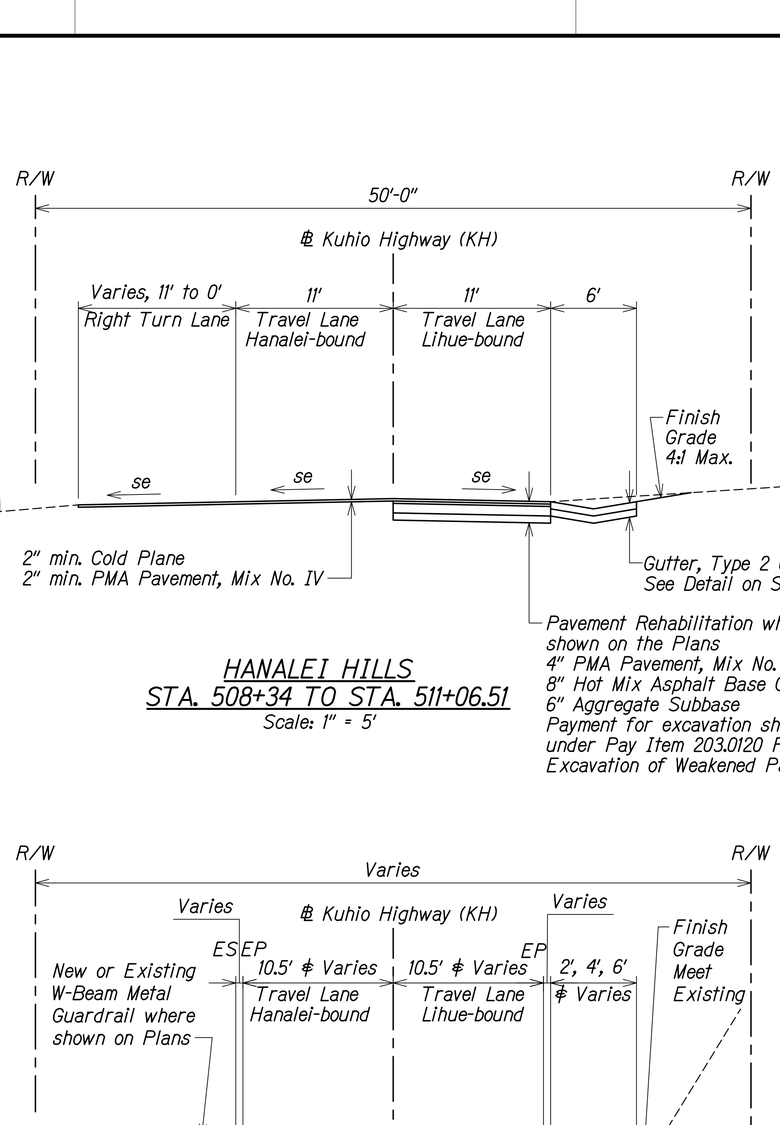
Scale: 1"=40' Date: Sept. 2022

SHEET No. A-6 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	24	100



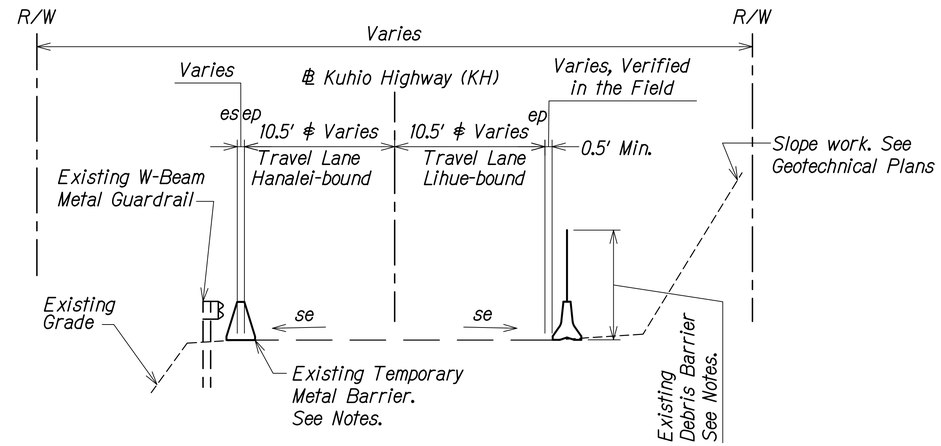
HANALEI HILLS
STA. 508+34 TO STA. 511+06.51
Scale: 1" = 5'



HANALEI HILLS
STA. 465+31.61 TO STA. 480+00
Scale: 1" = 5'

Barrier Notes:

1. Coordinate with the Engineer for night closures needed to remove debris behind the barrier.
2. Payment for Maintenance, Replacement, Removal and Disposal of Existing Barriers shall be under Section 645.2000 Additional Police Officers, Additional Traffic Control Devices, and Advertisement..



EXISTING TEMPORARY BARRIERS
HANALEI HILLS
STA. 475+00 TO STA. 481+00
Scale: 1" = 5'

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

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SIGNATURE — EXPIRATION DATE OF THE LICENSE: 04/30/24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

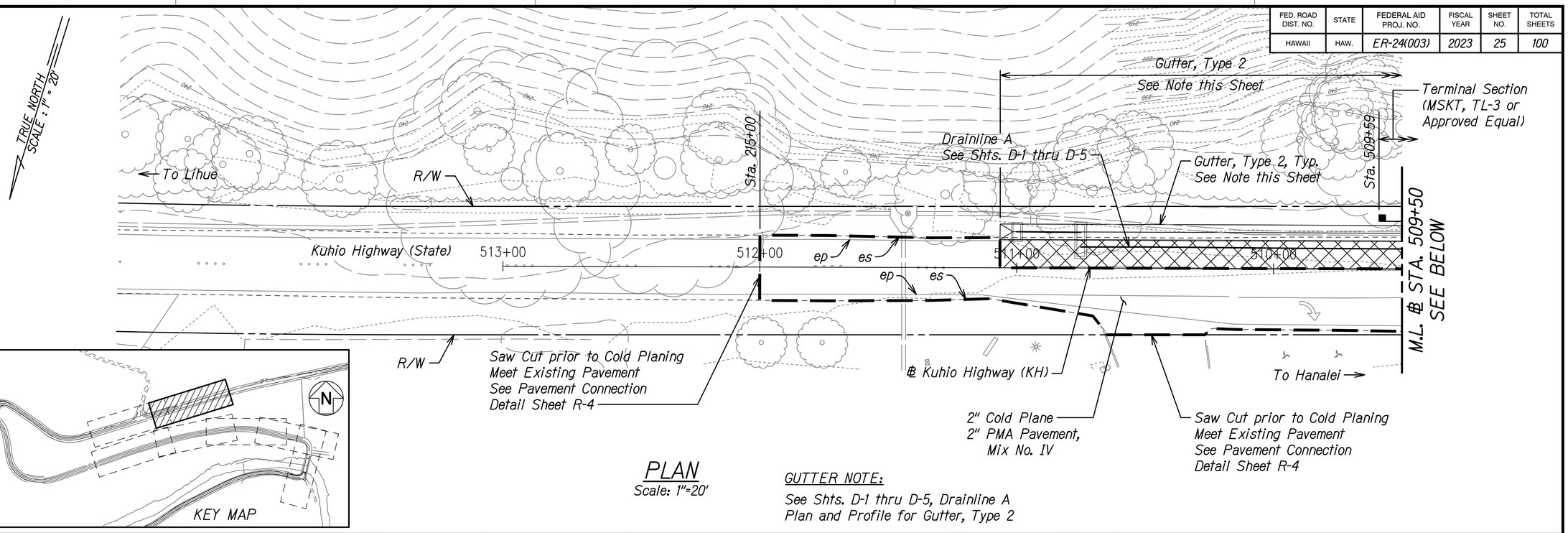
TYPICAL SECTION

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=5' Date: Sept. 2022

SHEET No. TS-1 OF 1 SHEETS

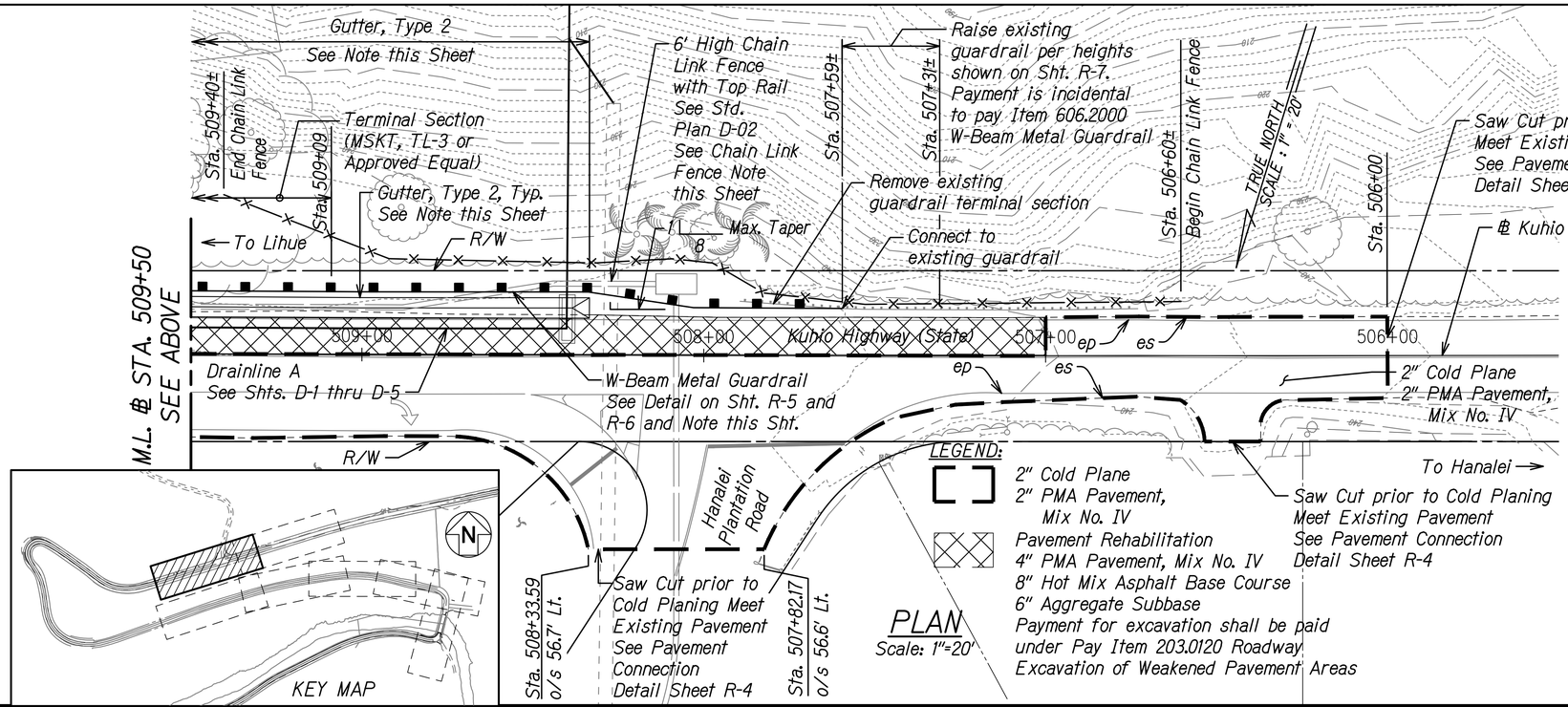
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	25	100



PLAN
Scale: 1"=20'

GUTTER NOTE:

See Shts. D-1 thru D-5, Drainline A Plan and Profile for Gutter, Type 2



PLAN
Scale: 1"=20'

LEGEND:

2" Cold Plane
2" PMA Pavement,
Mix No. IV

Pavement Rehabilitation
4" PMA Pavement, Mix No. IV
8" Hot Mix Asphalt Base Course
6" Aggregate Subbase
Payment for excavation shall be paid under Pay Item 203.0120 Roadway Excavation of Weakened Pavement Areas

GUARDRAIL NOTE:

Probe for existing telephone ductbank. Payment for probing is incidental to the various contract items. Locate guardrail posts to avoid the telephone ductbank.

CHAIN LINK FENCE NOTE:

Location of Chain Link Fence will be determined after other improvements have been constructed.

GUTTER NOTE:

See Shts. D-1 thru D-5, Drainline A Plan and Profile for Gutter, Type 2

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

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SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

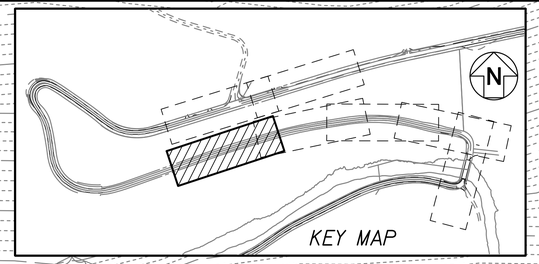
ROADWAY PLAN
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

SHEET No. R-1 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	26	100

TRUE NORTH
SCALE : 1" = 20'



Saw Cut prior to Cold Planing
Meet Existing Pavement
See Pavement Connection
Detail Sheet R-4

Drainline A
See Shts. D-1 thru D-5

See Geotechnical Plans
for Slope Protection
See Sht. G-7

Gutter, Type 2
See Note this Sheet

℄ Kuhio Highway (KH)

Sta. 480+00

R/W

← To Lihue

482+00

Kuhio Highway (State)

481+00

ep

es

480+00

479+00

M.L. ℄ STA. 478+00
SEE BELOW

To Hanalei →

Connect to
Existing Guardrail

Sta. 480+30±

Sta. 480+02±

2" Cold Plane
2" PMA Pavement,
Mix No. IV

Drainline A
See Shts. D-1
thru D-5

Gutter, Type 2, Typ.
See Note this Sheet

W-Beam Metal Guardrail
See Guardrail Notes this Sheet
and Shts. R-5 and R-6

MGS Transition to Strong-Post
Guardrail. See Sheet R-7

GUARDRAIL NOTES:

1. Remove existing guardrail and posts.
2. Fill hole with CLSM.
3. Allow CLSM to set.
4. Place new Guardrail Posts into existing hole to avoid existing Soil Nails.
5. Begin and End of Guardrail Limits shall be verified by the Engineer.

PLAN
Scale: 1"=20'

GUTTER NOTE:

See Shts. D-1 thru D-5, Drainline A
Plan and Profile for Gutter, Type 2

TRUE NORTH
SCALE : 1" = 20'

Gutter, Type 2
See Note this Sheet

See Geotechnical Plans
for Slope Protection.
See Sht. G-7

Gutter, Type 2, Typ.
See Note this Sheet

℄ Kuhio Highway (KH)

Drainline A
See Shts. D-1 thru D-5

2" Cold Plane
2" PMA Pavement,
Mix No. IV

← To Lihue

R/W

M.L. ℄ STA. 478+00
SEE ABOVE

477+00

476+00

ep

es

475+00

Kuhio Highway (State)

M.L. ℄ STA. 474+00
SEE SHEET R-3

Connect to
Existing Guardrail

Sta. 476+26±

Sta. 475+98±

To Hanalei →

W-Beam Metal Guardrail
See Guardrail Notes this Sheet
and Shts. R-5 and R-6

MGS Transition to Strong Post
Guardrail. See Sht. R-7

GUTTER NOTE:

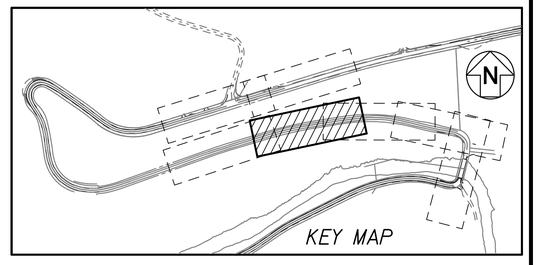
See Shts. D-1 thru D-5, Drainline A
Plan and Profile for Gutter, Type 2

PLAN
Scale: 1"=20'

LEGEND:

2" Cold Plane
2" PMA Pavement,
Mix No. IV

Pavement Rehabilitation
4" PMA Pavement, Mix No. IV
8" Hot Mix Asphalt Base Course
6" Aggregate Subbase
Payment for excavation shall be
paid under Pay Item 203.0120
Roadway Excavation of Weakened
Pavement Areas



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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE: 04/30/24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

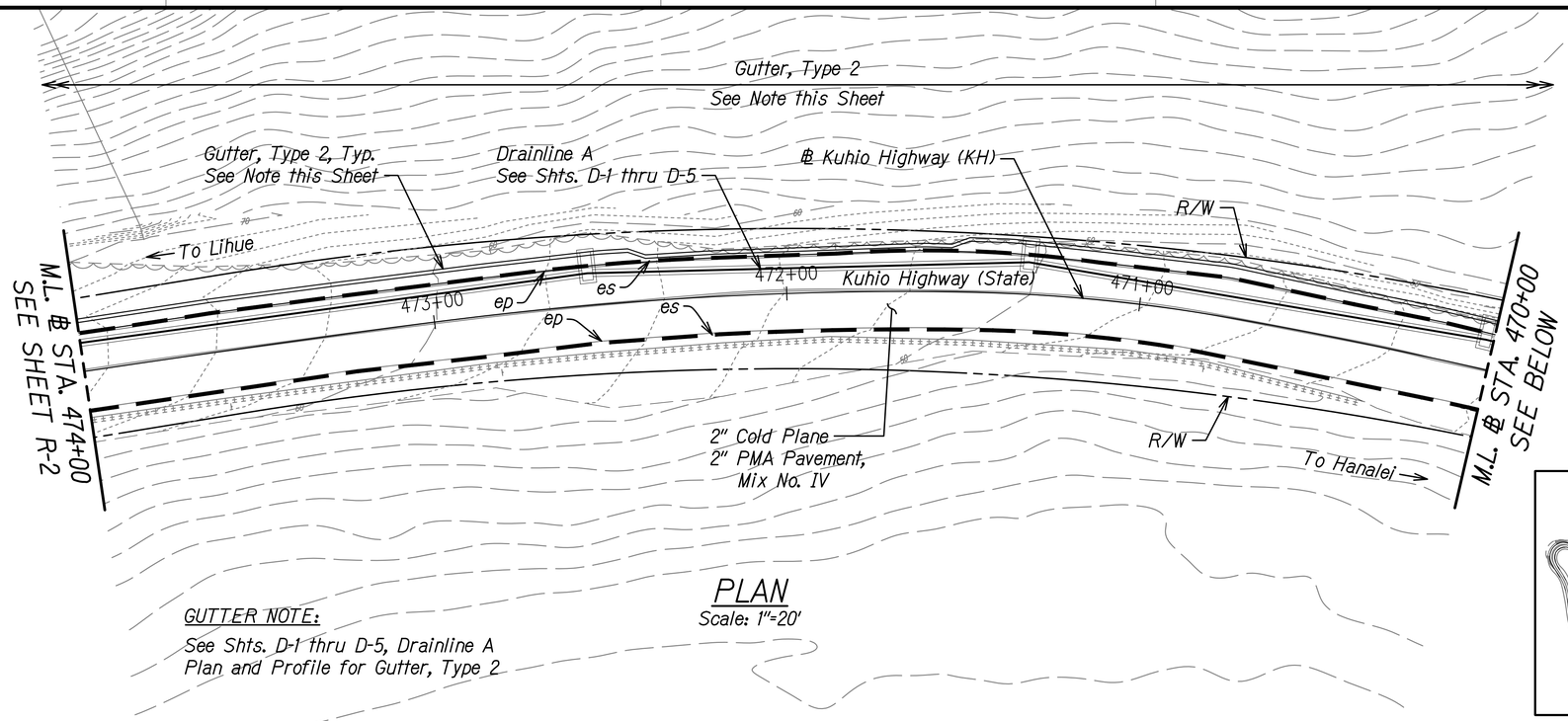
ROADWAY PLAN
HANALEI HILLS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

SHEET No. R-2 OF 7 SHEETS

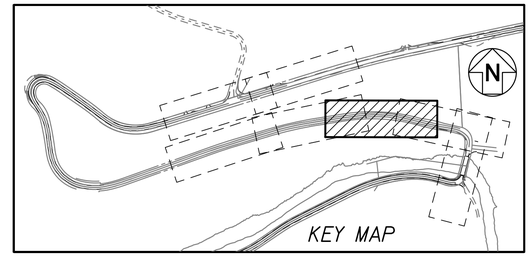
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	27	100

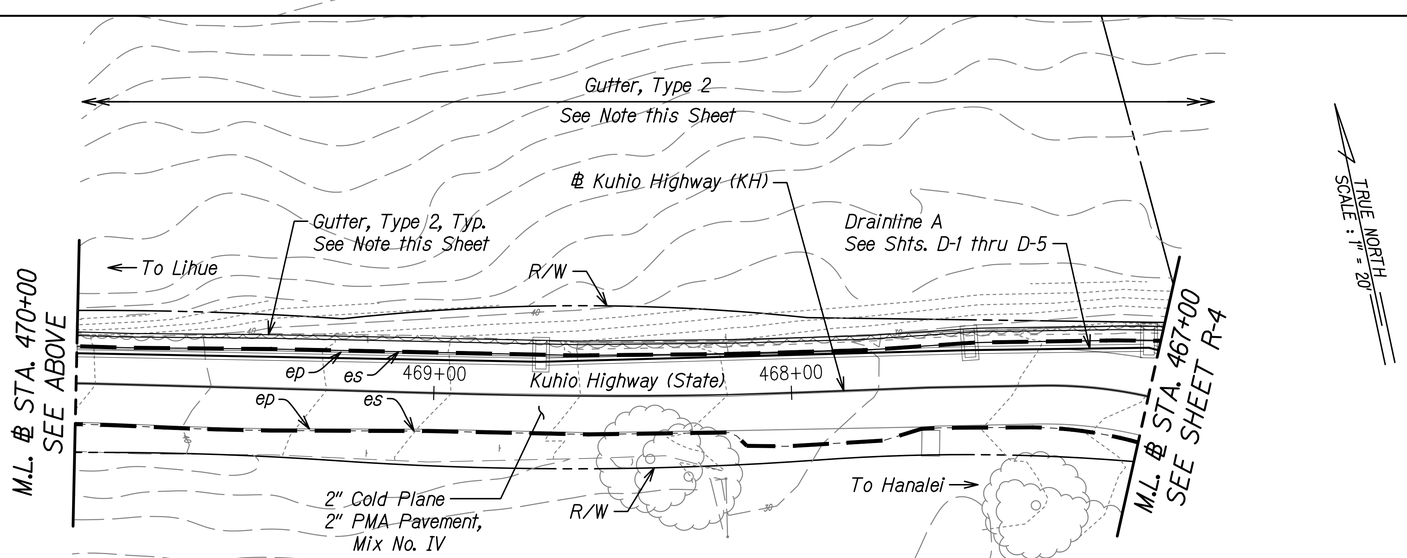


PLAN
Scale: 1"=20'

GUTTER NOTE:
See Shts. D-1 thru D-5, Drainline A
Plan and Profile for Gutter, Type 2

TRUE NORTH
SCALE : 1" = 20'

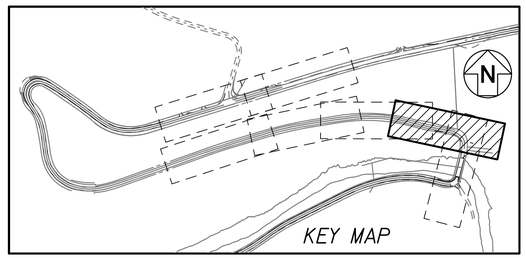




PLAN
Scale: 1"=20'

GUTTER NOTE:
See Shts. D-1 thru D-5, Drainline A
Plan and Profile for Gutter, Type 2

TRUE NORTH
SCALE : 1" = 20'



LEGEND:

[ ] 2" Cold Plane
2" PMA Pavement,
Mix No. IV

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

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SIGNATURE

04/30/24
EXPIRATION DATE OF THE LICENSE

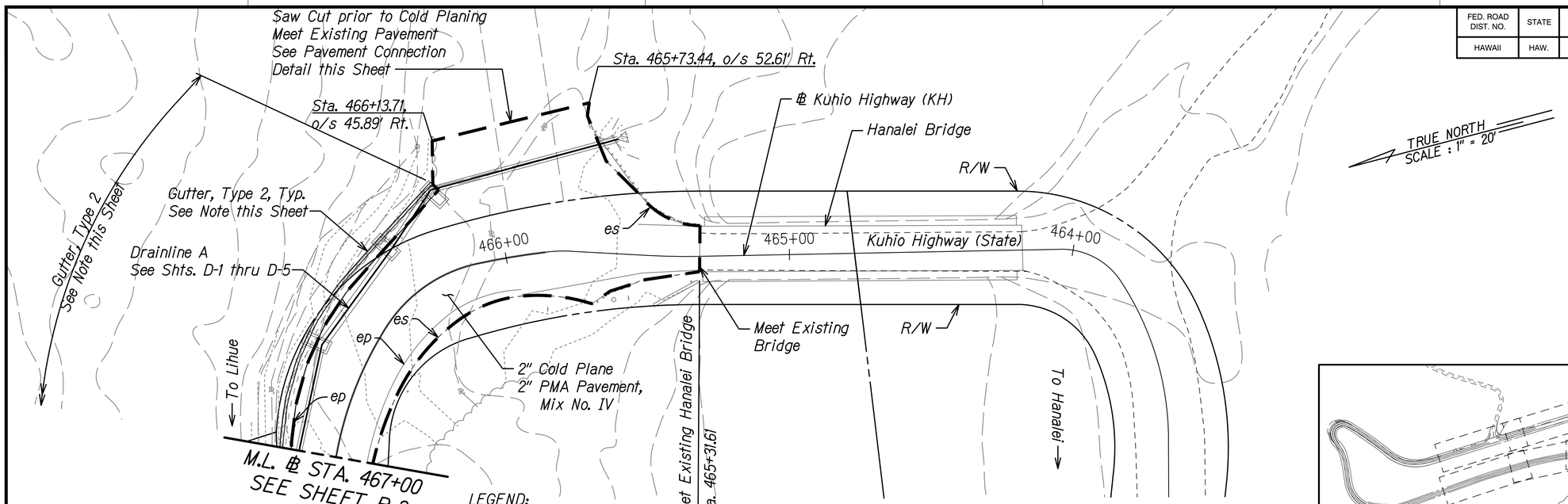
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

SHEET No. R-3 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	28	100



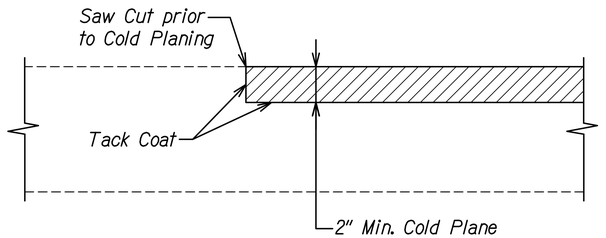
LEGEND:

2" Cold Plane
2" PMA Pavement,
Mix No. IV

PLAN
Scale: 1"=20'

GUTTER NOTE:

See Shts. D-1 thru D-5, Drainline A Plan and Profile for Gutter, Type 2



NOTE:

Payment for saw cutting and tack coat shall be considered incidental to the various pay items.

PAVEMENT CONNECTION DETAIL
Not to Scale

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

ORIGINAL PLAN
NOTE BOOK
No.

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

04/30/24
SIGNATURE
EXPIRATION DATE OF THE LICENSE

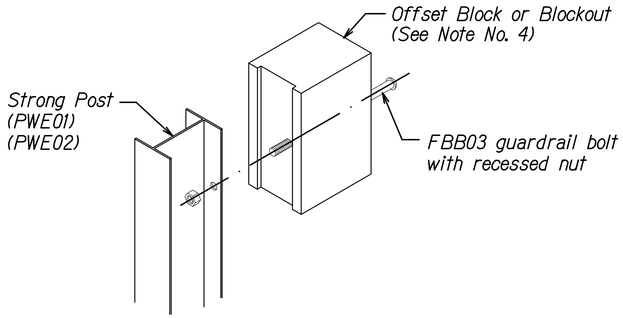
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROADWAY PLAN AND DETAIL
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

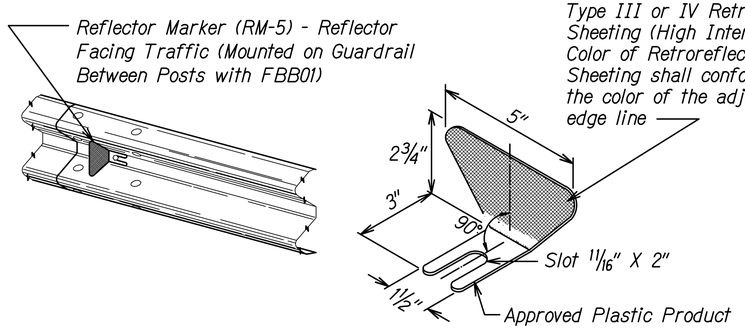
SHEET No. R-4 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	29	100



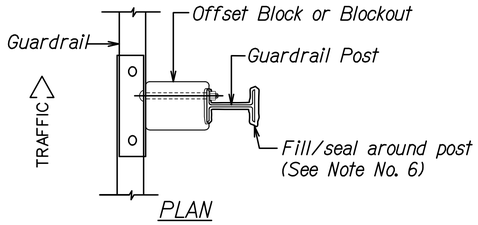
Exploded View
(Rail and washer not shown)

STEEL POST AND BLOCK DETAIL

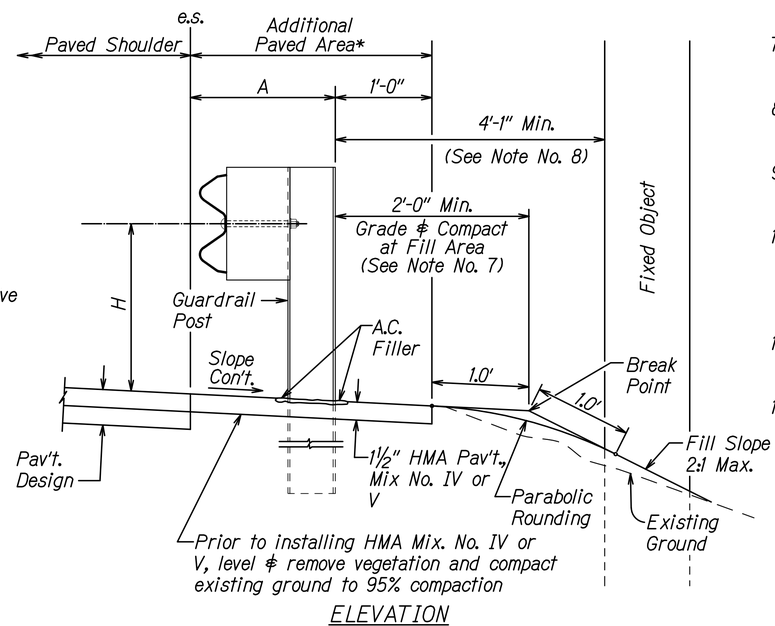


REFLECTOR MARKER (RM-5) DETAIL AND TYPICAL INSTALLATION

GUARDRAIL TYPE	DIMENSION	
	H	A
MGS w/ Standard 8" Offset Block	2'-1"	1'-6"
MGS w/ No Blockout	2'-7/8"	9¼"



PLAN



ELEVATION

TYPICAL GUARDRAIL INSTALLATION

GENERAL NOTES

1. All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
2. Where conditions require, special post lengths in increments of 6 inches may be specified by the Engineer.
3. All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM04b, etc.) shall conform to the latest edition and amendments of "A Guide to Standardized Highway Barrier Rail Hardware", a report prepared and approved by the AASHTO-AGC-ARTBA Joint Cooperative Committee, Subcommittee On New Highway Materials, Task Force 13 Report. Dimensions of fastners, posts and rail elements have been converted from metric units into their present form.
4. The Blockout or Offset Block shall be approved by the State.
5. All new guardrail systems (system consists of total length of guardrail including both end treatments) shall include the Additional Paved Area.
6. After the guardrail posts are installed in the paved area, the Contractor shall fill/seal around each guardrail post and all cracks in the paved area caused during the guardrail post installation. If required by the inspector/engineer, the Contractor shall tamper the paved area around the guardrail post prior to filling/sealing. All costs associated with this work shall not be paid for separately, but shall be considered incidental to the various guardrail items.
7. When standards for the fill slope area cannot be met, a site specific, engineer approved design may be used.
8. Minimum working width (clear distance) between back of MGS post to any fixed object is 4'-1" (49").
9. New Hot Mix Asphalt (HMA) pavement at guardrails shall extend 6 feet longitudinally beyond terminal ends.
10. Reflector Markers (RM-5) mounted on guardrails shall be spaced every 25 feet. RM-5's shall not be installed on Terminal Sections. Furnishing and installing of each RM-5 shall be considered incidental to the guardrail system.
11. Polymer-Modified Asphalt (PMA) pavement shall be used in place of HMA when the adjacent roadway is paved with PMA.
12. All guardrail, guardrail posts and appurtenances shall be painted in accordance to Note 13 - Guardrail Paint on Sheet N-2. Payment for painting shall be considered incidental to the Guardrail Pay items.

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

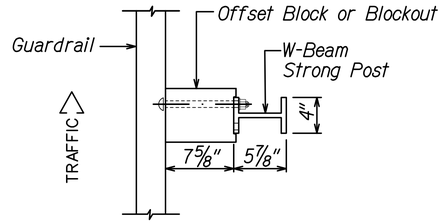
GUARDRAIL DETAILS & NOTES

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

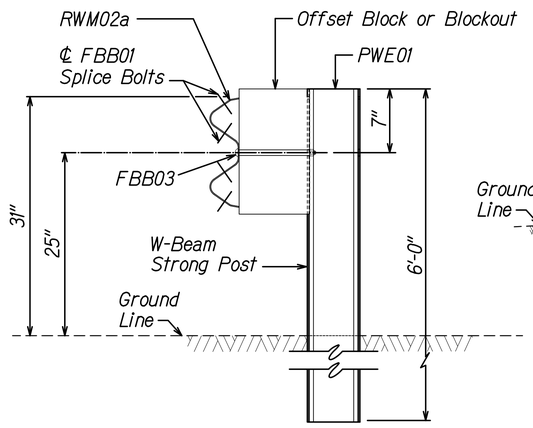
Scale: Not to Scale Date: Sept. 2022

SHEET No. R-5 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	30	100

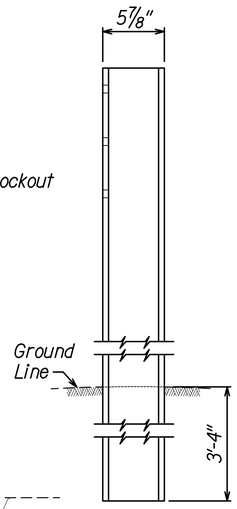


PLAN



SECTION A-A

NOTE:
All Holes are
¾" Dia.



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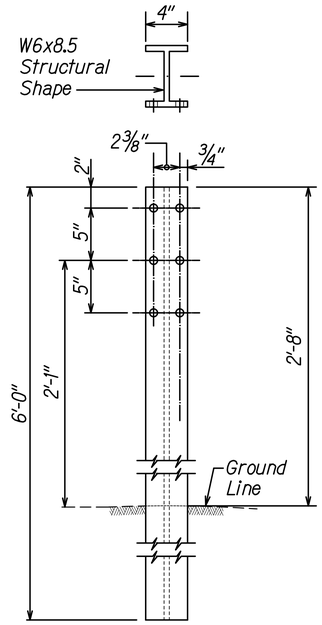
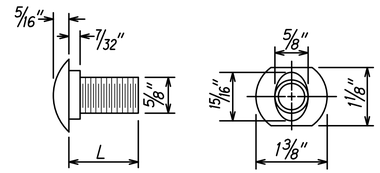
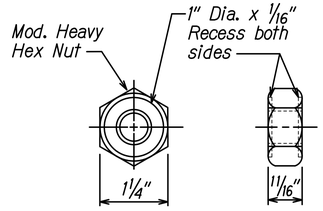


FRONT

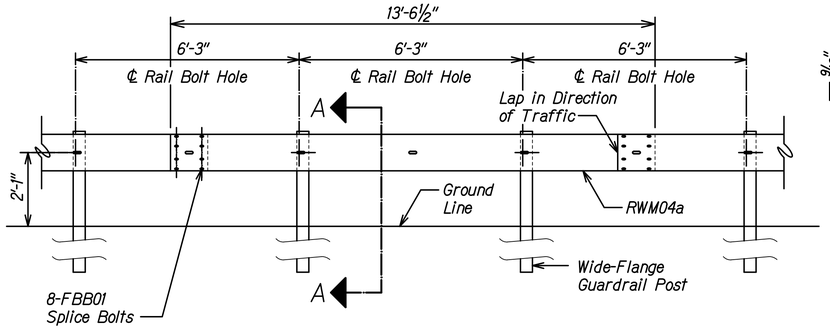
W-BEAM STRONG POST
(PWE01)



DESIGNATOR	L
FBB01	1 3/8"
FBB02	2"
FBB03	10"



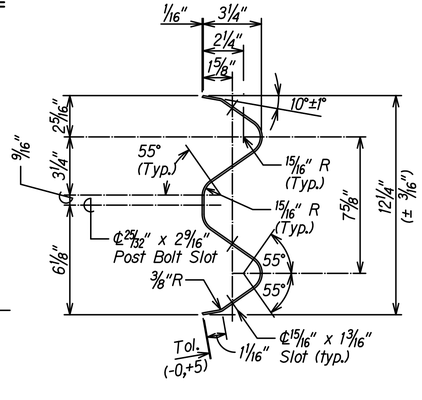
GUARDRAIL BOLTS AND RECESSED NUT

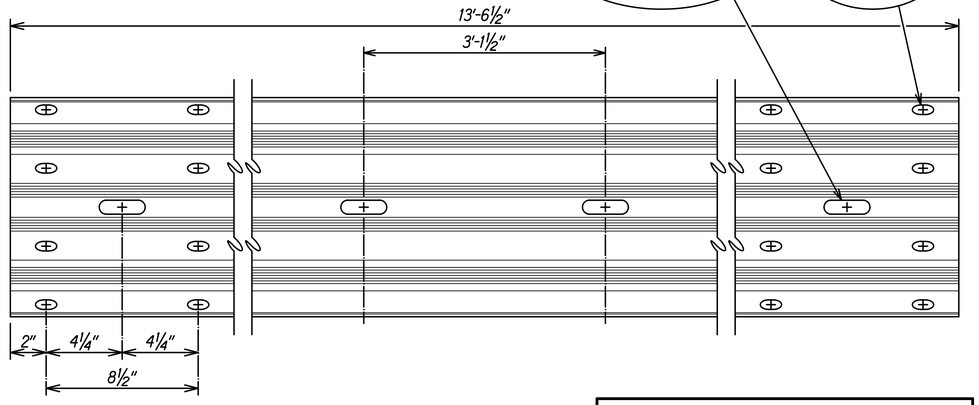


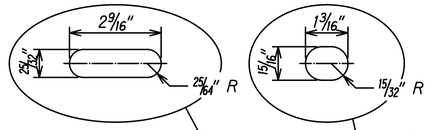
ELEVATION

MIDWEST GUARDRAIL SYSTEM WITH
STANDARD 8" OFFSET BLOCK (SGR47)

DESIGNATOR	BASE METAL THICKNESS
RWM04a	12 Gauge







4 SPACE W-BEAM GUARDRAIL (RWM04a)

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

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SIGNATURE

EXPIRATION DATE OF THE LICENSE 04/30/24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

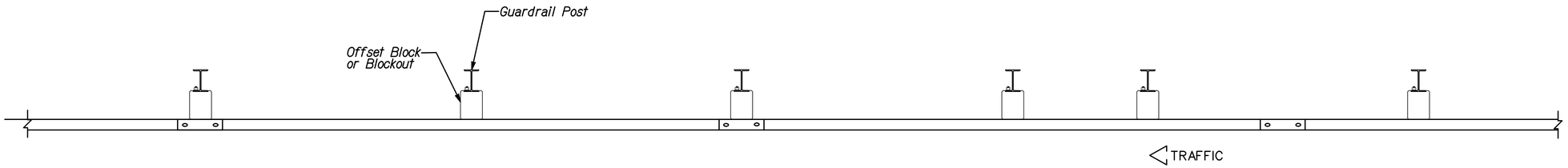
31" W-BEAM GUARDRAIL WITH STANDARD 8" OFFSET BLOCK

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

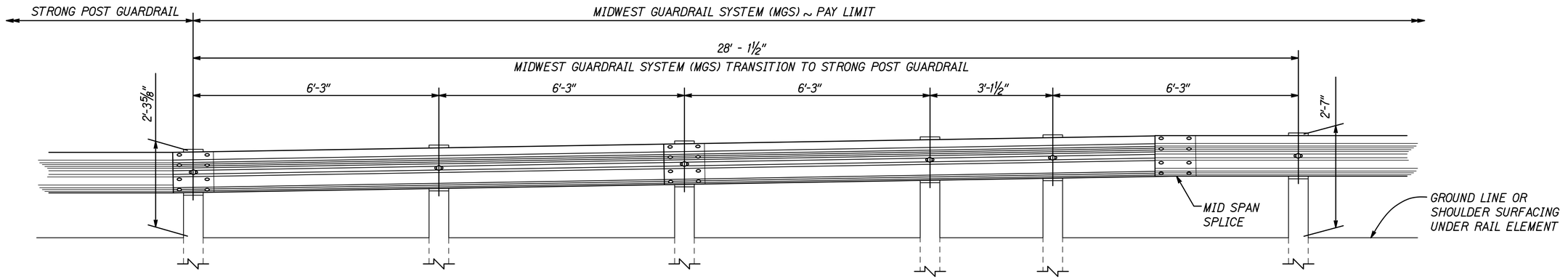
Scale: Not to Scale Date: Sept. 2022

SHEET No. R-6 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	31	100



PLAN



ELEVATION

ORIGINAL PLAN
NOTE BOOK
No.

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DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

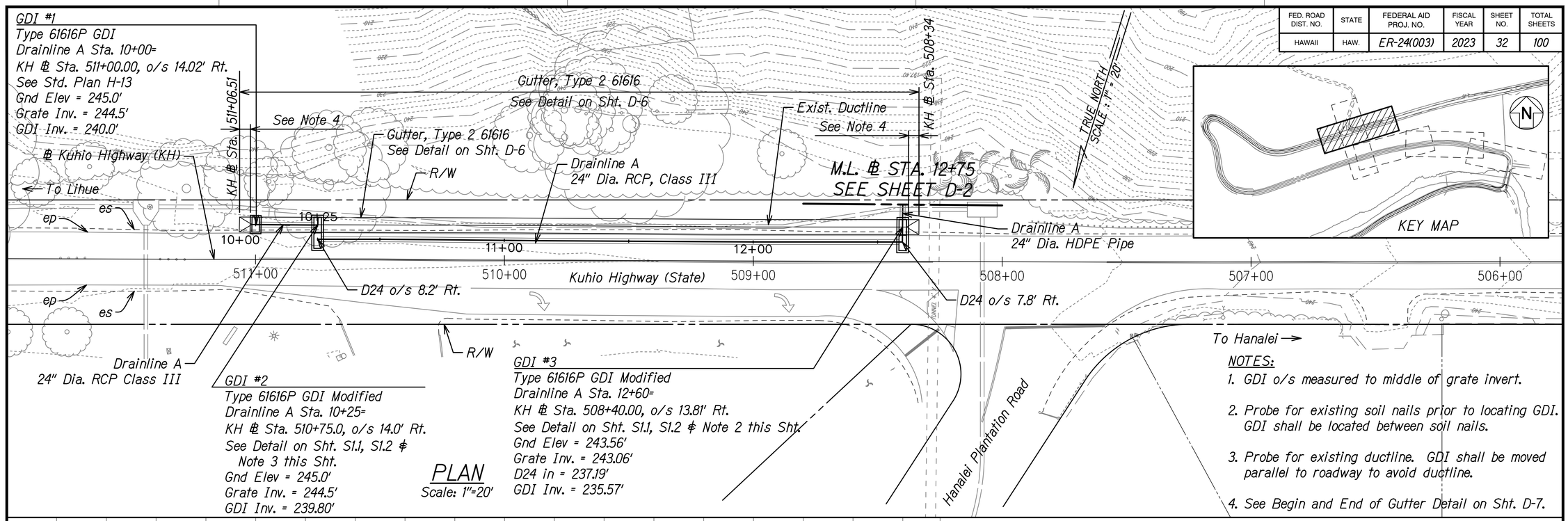
MGS TRANSITION TO STRONG POST GUARDRAIL

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

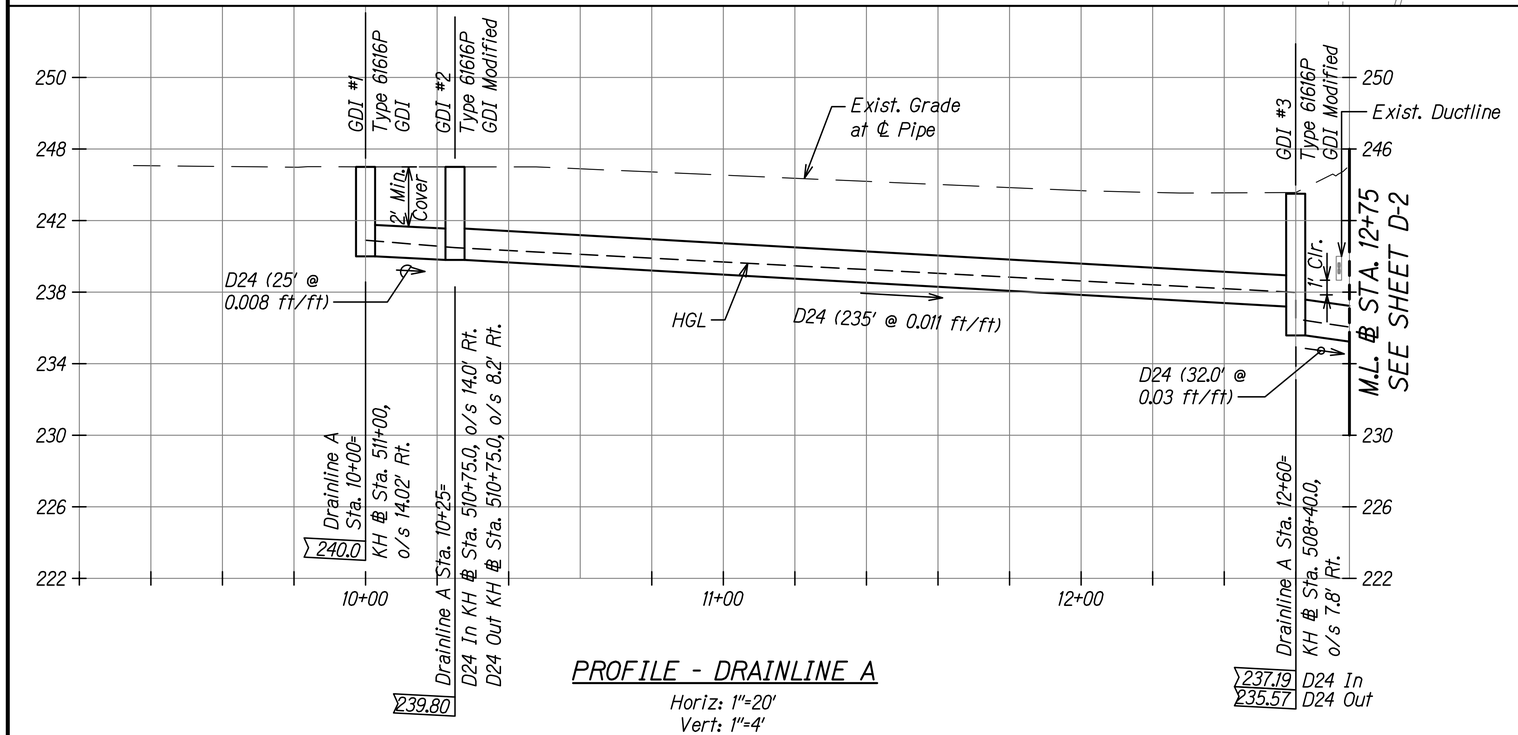
Scale: Not to Scale Date: Sept. 2022

SHEET No. R-7 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	32	100



PLAN
Scale: 1"=20'



PROFILE - DRAINLINE A
Horiz: 1"=20'
Vert: 1"=4'

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

RANDALL M. URASAKI
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

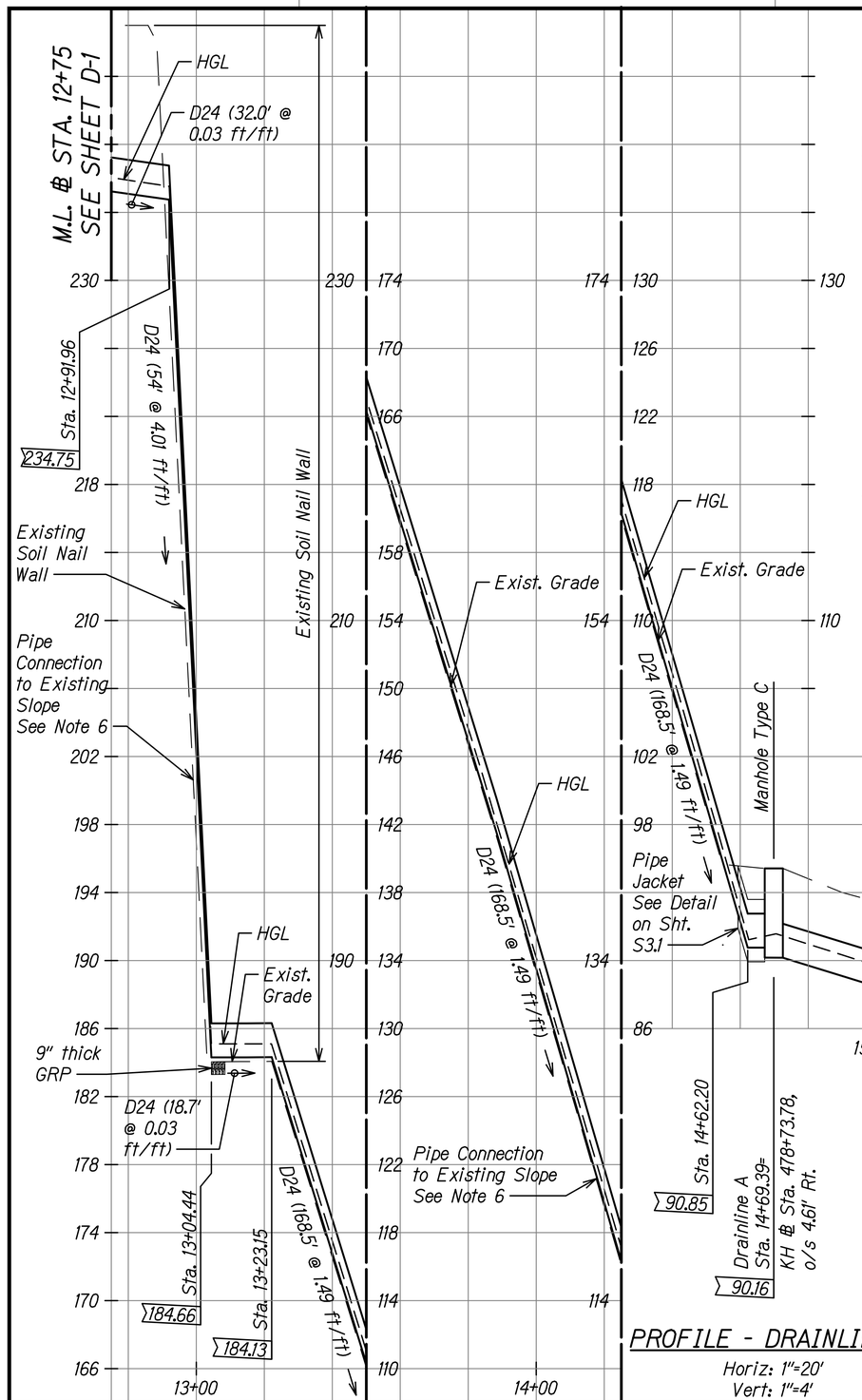
DRAINLINE PLAN AND PROFILE

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Shown Date: Sept. 2022

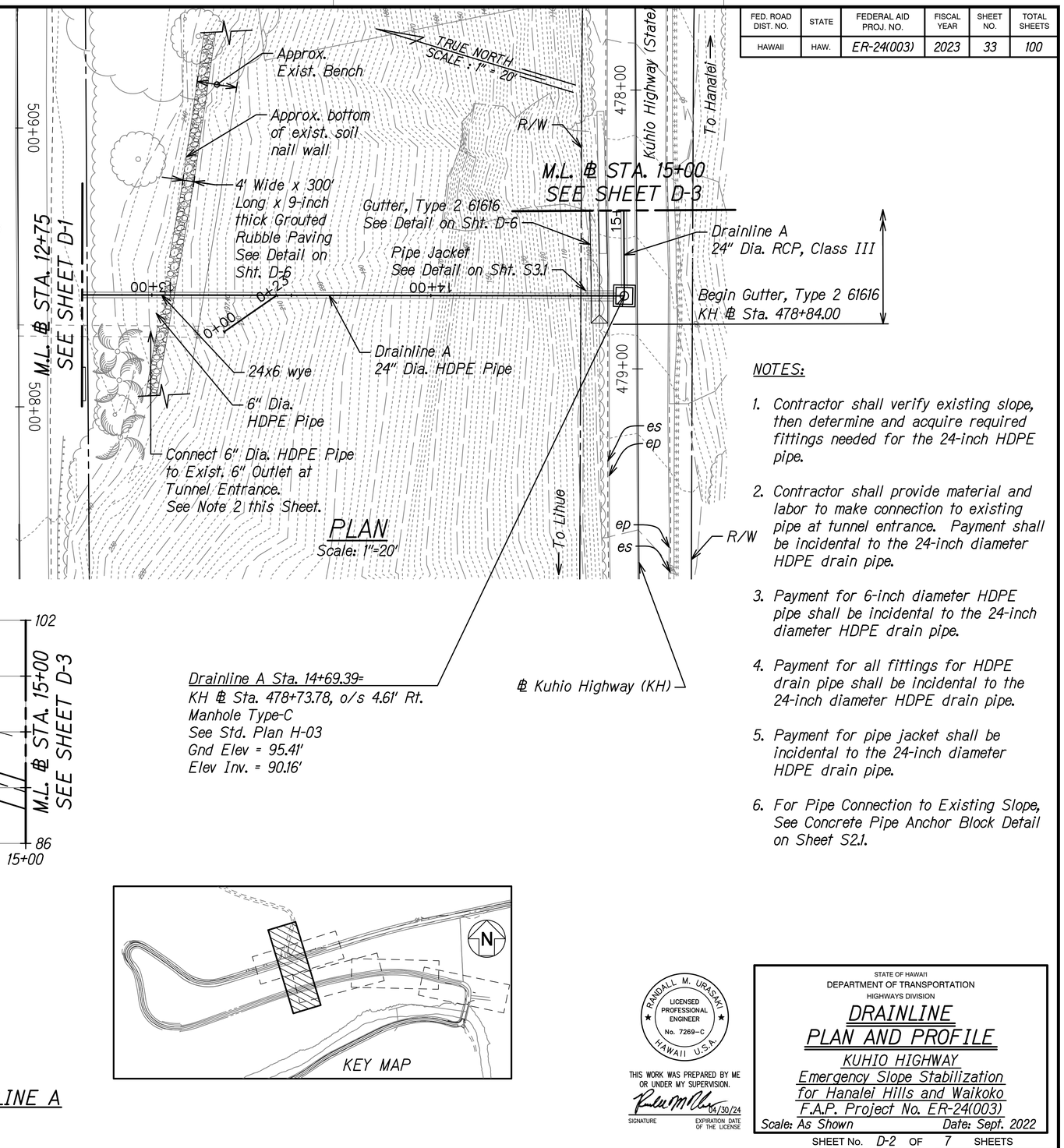
SHEET No. D-1 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	33	100



PROFILE - DRAINLINE A

Horiz: 1"=20'
Vert: 1"=4'



PLAN

Scale: 1"=20'

Drainline A Sta. 14+69.39=
KH ℄ Sta. 478+73.78, o/s 4.61' Rt.
Manhole Type-C
See Std. Plan H-03
Gnd Elev = 95.41'
Elev Inv. = 90.16'

NOTES:

1. Contractor shall verify existing slope, then determine and acquire required fittings needed for the 24-inch HDPE pipe.
2. Contractor shall provide material and labor to make connection to existing pipe at tunnel entrance. Payment shall be incidental to the 24-inch diameter HDPE drain pipe.
3. Payment for 6-inch diameter HDPE pipe shall be incidental to the 24-inch diameter HDPE drain pipe.
4. Payment for all fittings for HDPE drain pipe shall be incidental to the 24-inch diameter HDPE drain pipe.
5. Payment for pipe jacket shall be incidental to the 24-inch diameter HDPE drain pipe.
6. For Pipe Connection to Existing Slope, See Concrete Pipe Anchor Block Detail on Sheet S2.1.

ORIGINAL PLAN
NOTE BOOK
No.

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DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

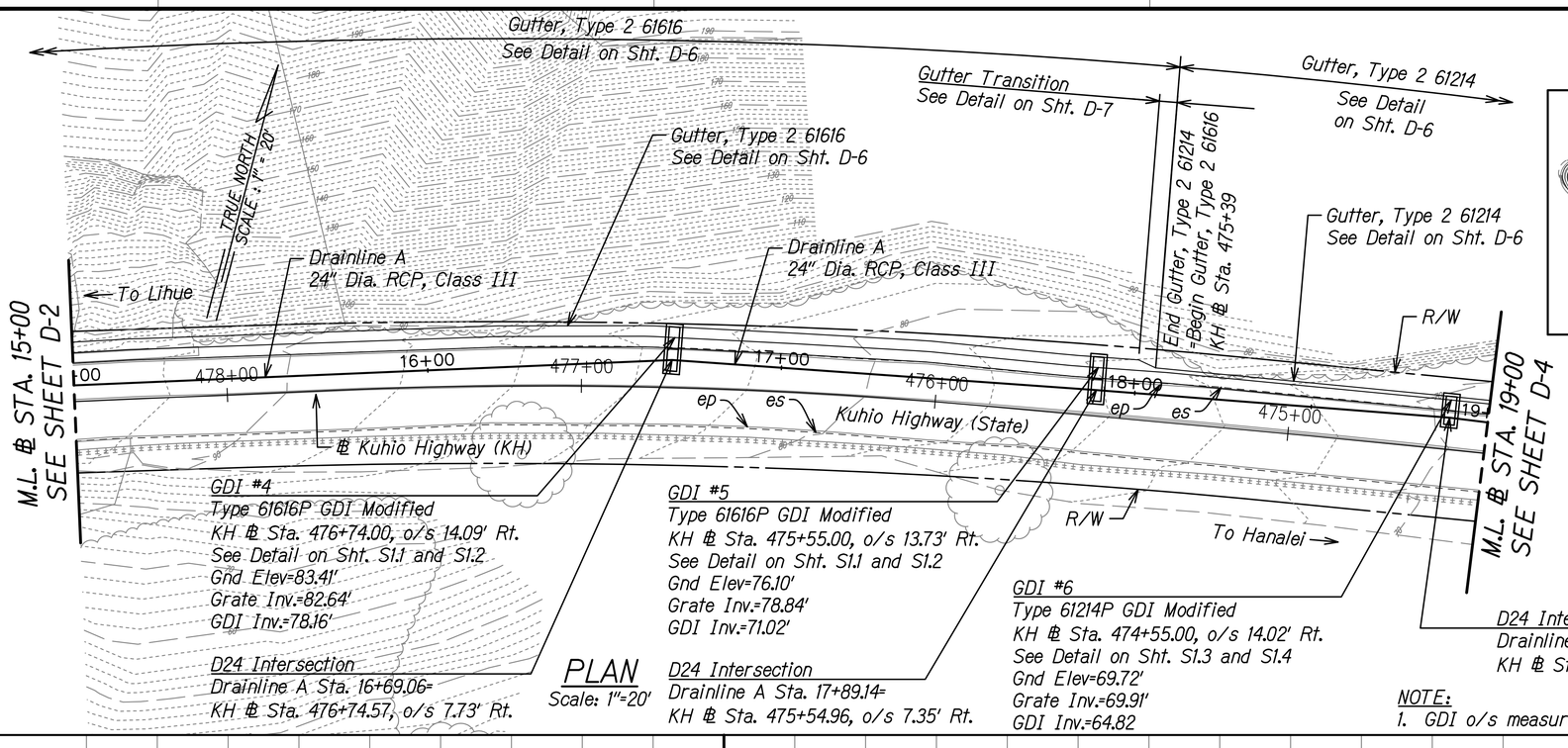
DRAINLINE PLAN AND PROFILE

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Shown — Date: Sept. 2022

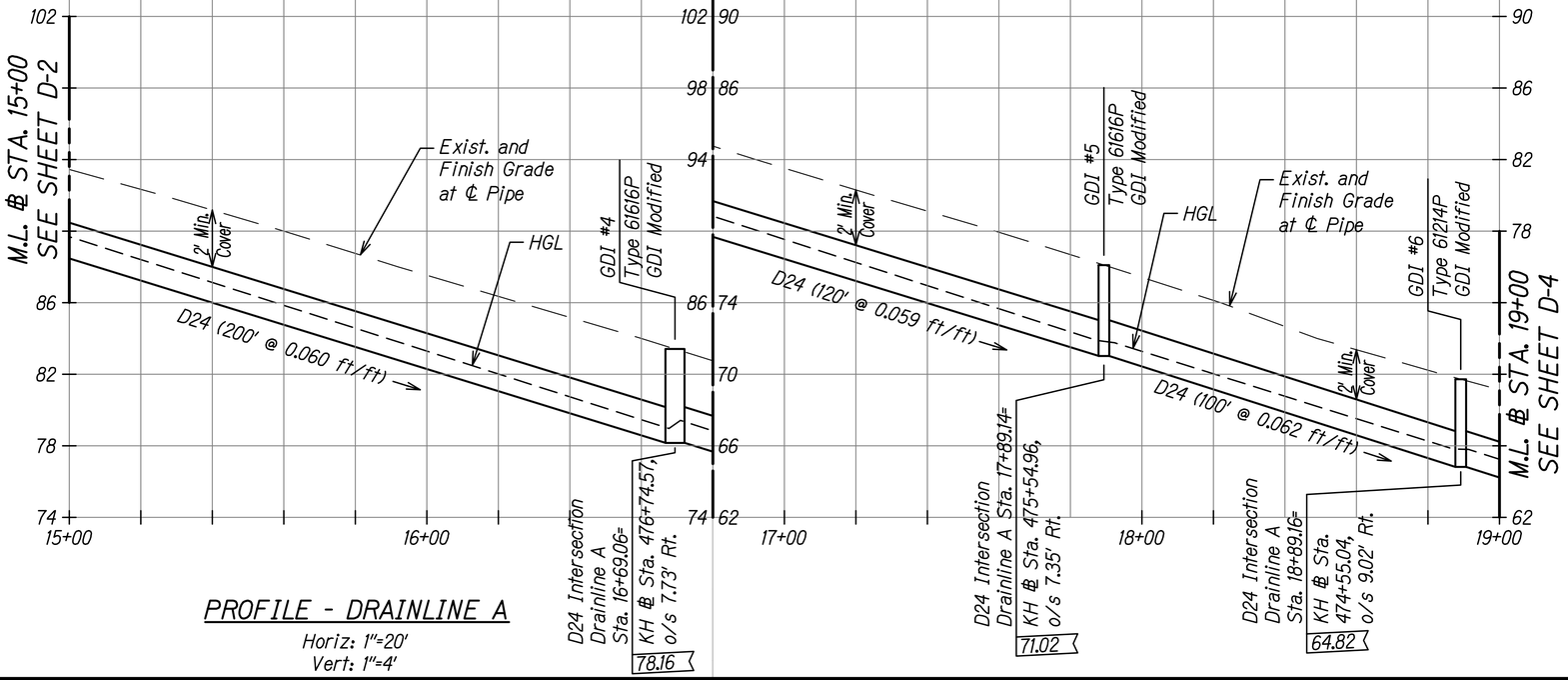
SHEET No. D-2 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	34	100



PLAN
Scale: 1"=20'

NOTE:
1. GDI o/s measured to middle of grate invert.



PROFILE - DRAINLINE A
Horiz: 1"=20'
Vert: 1"=4'

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

RANDALL M. URASAKI
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STATE OF HAWAII
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HIGHWAYS DIVISION

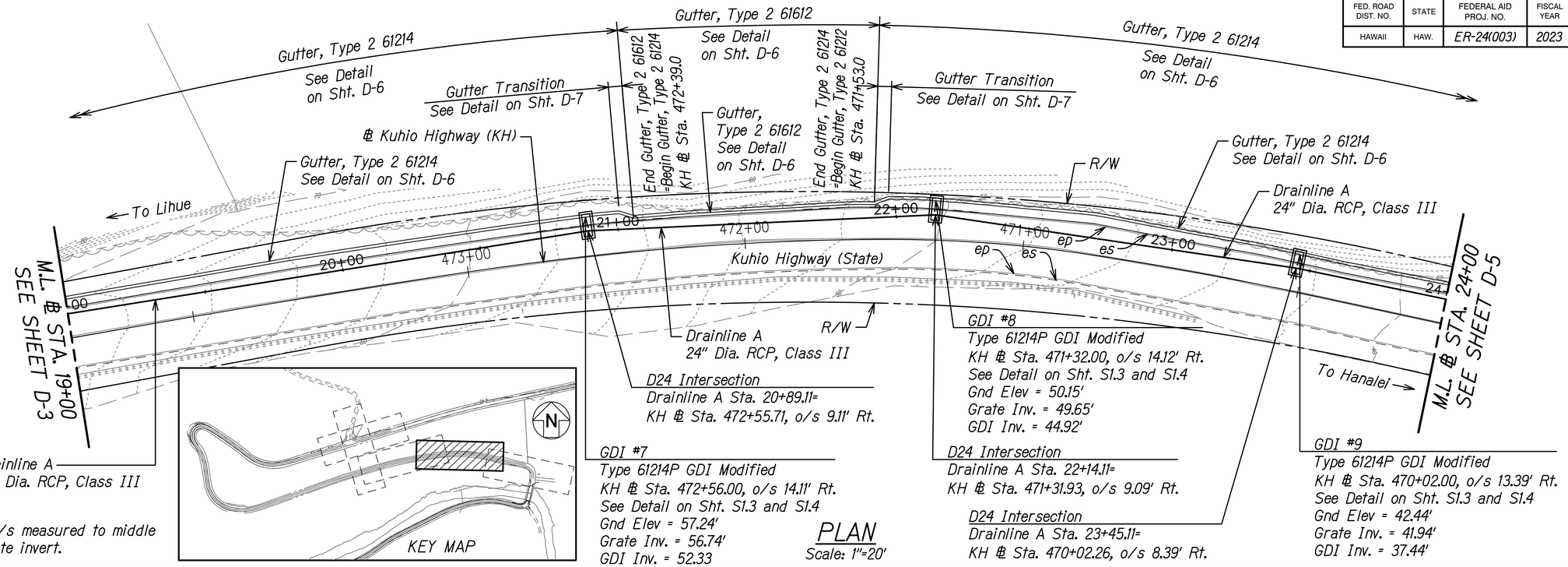
DRAINLINE PLAN AND PROFILE

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Shown Date: Sept. 2022

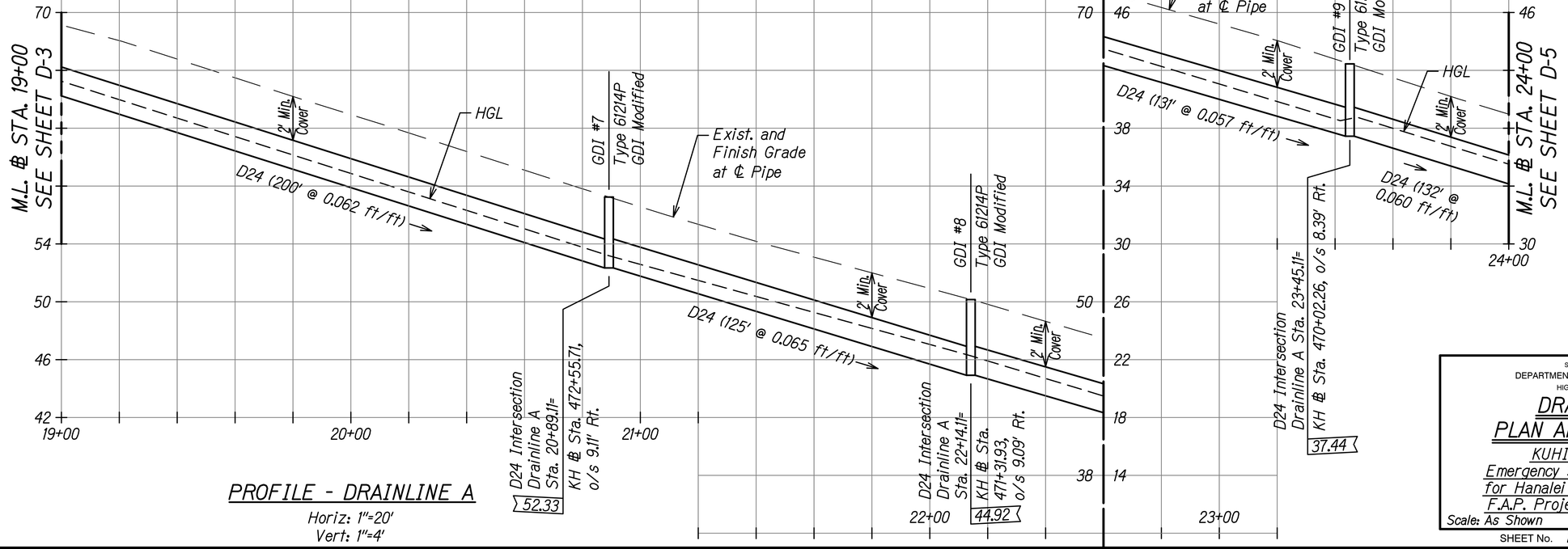
SHEET No. D-3 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	35	100



PLAN
Scale: 1"=20'

NOTE:
1. GDI o/s measured to middle of grate invert.



PROFILE - DRAINLINE A
Horiz: 1"=20'
Vert: 1"=4'

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

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

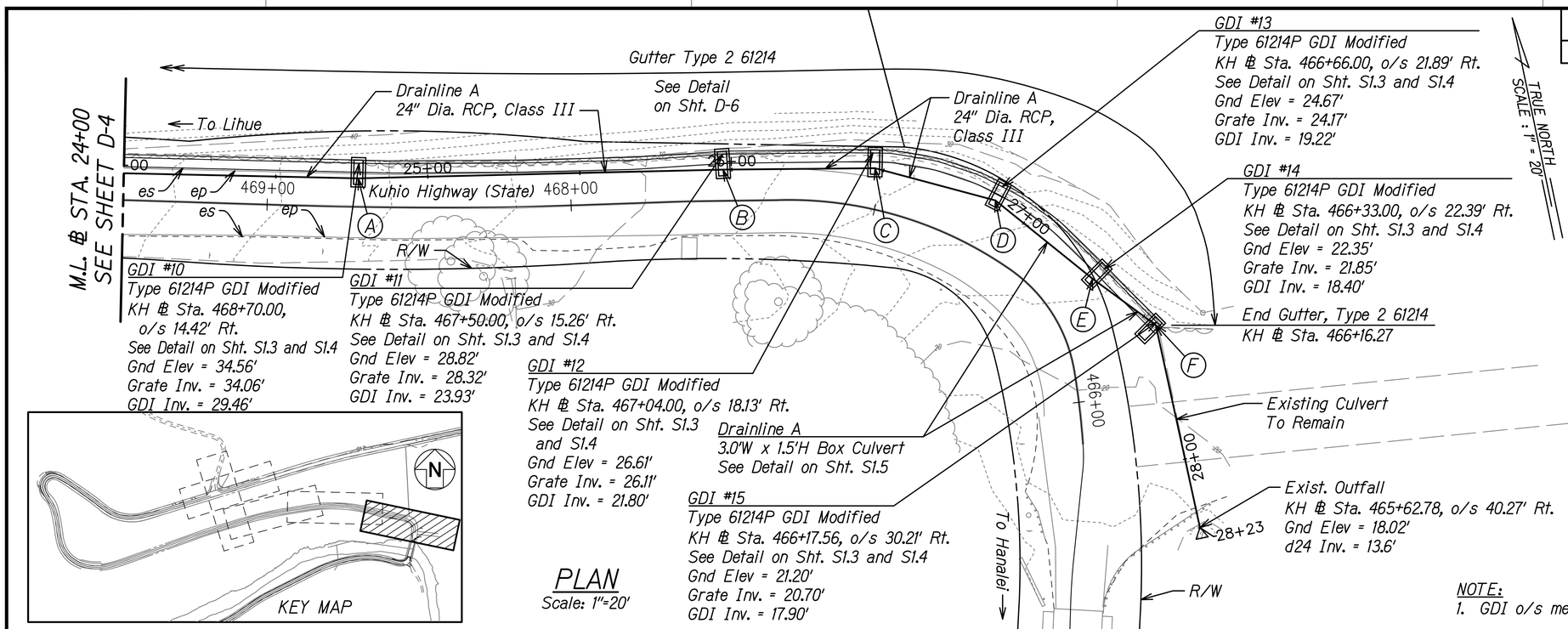
DRAINLINE PLAN AND PROFILE

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Shown — Date: Sept. 2022

SHEET No. D-4 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	36	100



PLAN
Scale: 1"=20'

Ⓐ D24 Intersection
Drainline A Sta. 24+77.11=
KH ℄ Sta. 468+70.21, o/s 9.42' Rt.

Ⓑ D24 Intersection
Drainline A Sta. 25+97.11=
KH ℄ Sta. 467+49.91, o/s 10.26' Rt.

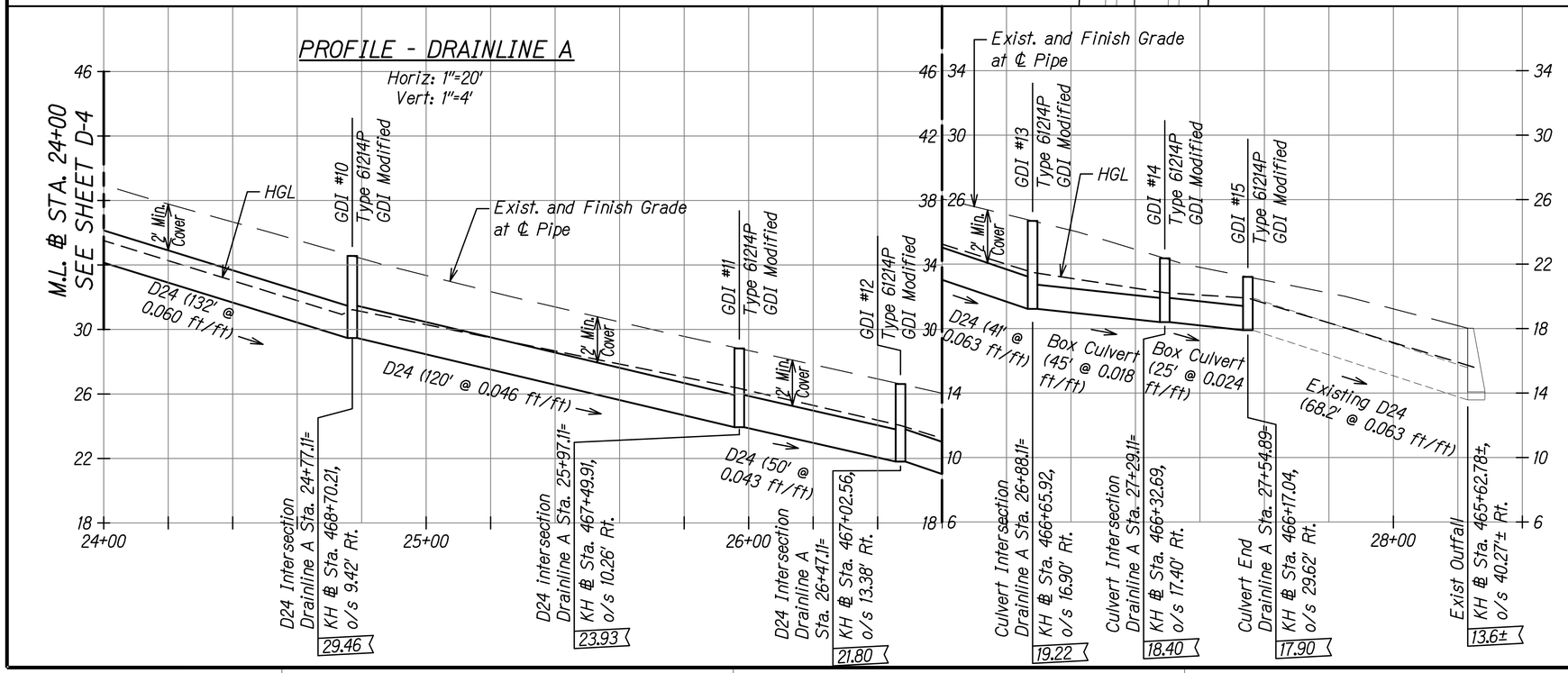
Ⓒ D24 Intersection
Drainline A Sta. 26+47.11=
KH ℄ Sta. 467+02.56, o/s 13.38' Rt.

Ⓓ Culvert Intersection
Drainline A Sta. 26+88.11=
KH ℄ Sta. 466+65.92, o/s 16.90' Rt.

Ⓔ Culvert Intersection
Drainline A Sta. 27+29.11=
KH ℄ Sta. 466+32.69, o/s 17.40' Rt.

Ⓕ Culvert End
Drainline A Sta. 27+54.89=
KH ℄ Sta. 466+17.04, o/s 29.62' Rt.

NOTE:
1. GDI o/s measured to middle of grate invert.



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

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STATE OF HAWAII
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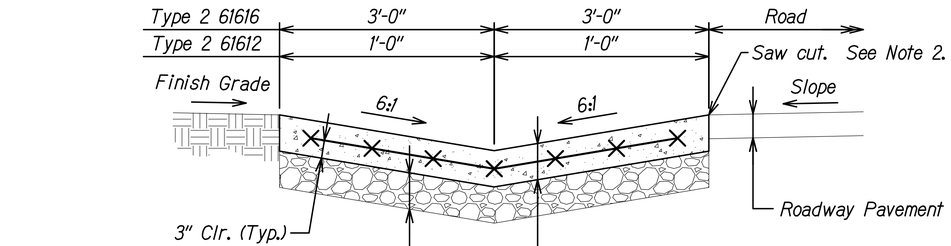
DRAINLINE PLAN AND PROFILE

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Shown — Date: Sept. 2022

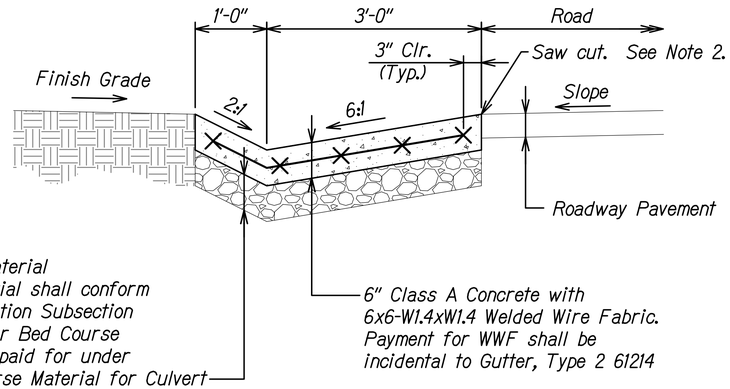
SHEET No. D-5 OF 7 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	37	100



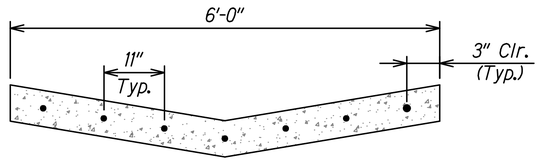
GUTTER, TYPE 2 61616 & GUTTER, TYPE 2 61612

Scale: NTS



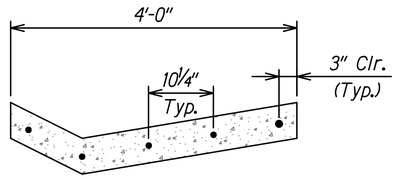
GUTTER, TYPE 2 61214

Scale: 1" = 1'-0"



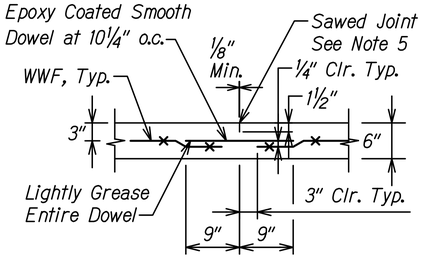
GUTTER, TYPE 2 61616 DOWEL PLACEMENT AT JOINT LOCATIONS

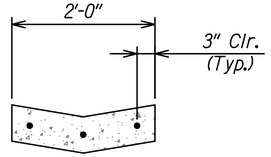
Scale: 1" = 1'-0"



GUTTER, TYPE 2 61214 DOWEL PLACEMENT AT JOINT LOCATIONS

Scale: 1" = 1'-0"





GUTTER, TYPE 2 61612 DOWEL PLACEMENT AT JOINT LOCATIONS

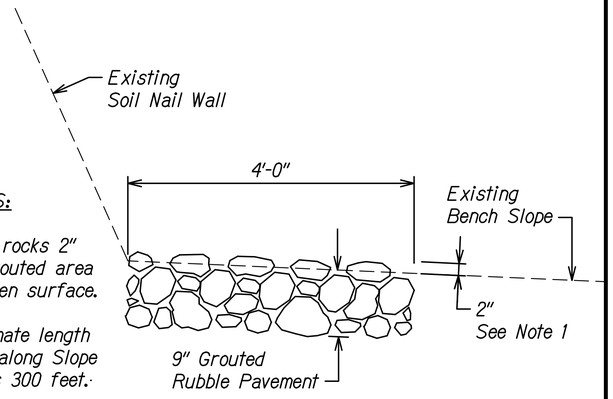
Scale: 1" = 1'-0"

NOTE:

Anchor dowels such that they do not move during concrete placement.

GRP NOTES:

1. Protude rocks 2" above grouted area to roughen surface.
2. Approximate length of GRP along Slope Bench is 300 feet.



GROUTED RUBBLE PAVEMENT DETAIL

Scale: NTS

GUTTER NOTES:

1. The Contractor shall provide contraction joints at 30' max. spacing. Payment for contraction joint shall be incidental to appropriate gutter type.
2. Saw cut existing asphalt pavement prior to pouring concrete gutter to provide smooth gutter edge. Payment shall be incidental to appropriate gutter type.
3. Payment for excavation for gutter shall be incidental to gutter type.
4. Macro-synthetic fibers may be substituted for Welded Wire Fabric. Concrete gutter shall contain a minimum of 5 lbs per cubic yard of a macro-synthetic fiber such as Forta Ferro, Strux 90/40, or approved equal. Payment for macro-synthetic fibers shall be incidental to gutter type.

CONTRACTION JOINT NOTES:

1. Epoxy coated dowels shall conform to AASHTO M 284/M 284 M Grade 40 or 60.
2. Contraction joints shall be placed at 30' max. spacing along gutter.
3. Payment for contraction joints shall be incidental to appropriate gutter type.
4. For joint filler, see State Specification Subsection 705.04.
5. Sawcut as soon as possible without dislodging aggregates, but not later than 12 hours after concrete pour.

CONTRACTION JOINT DETAIL

Scale: NTS

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

ORIGINAL PLAN
NOTE BOOK
No.

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HIGHWAYS DIVISION

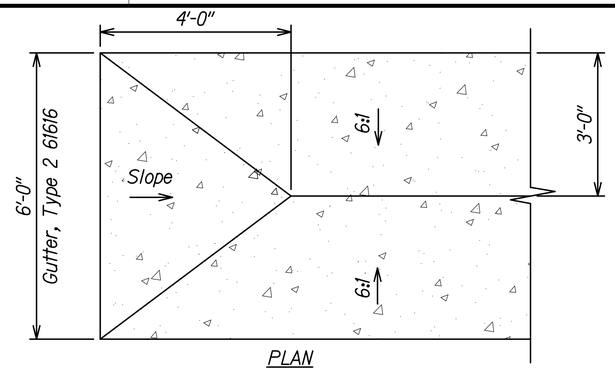
MISCELLANEOUS DRAINAGE DETAILS

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. D-6 OF 7 SHEETS

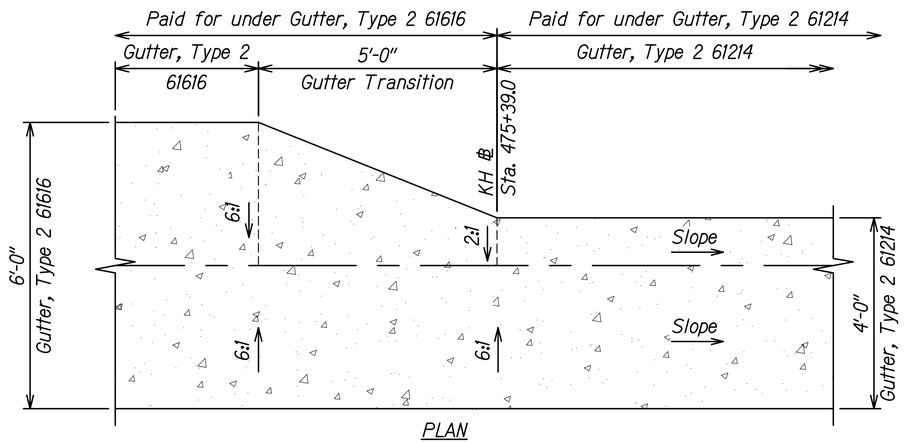
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	38	100



PLAN

BEGIN AND END OF GUTTER, TYPE 2 61616 DETAIL

Not to Scale

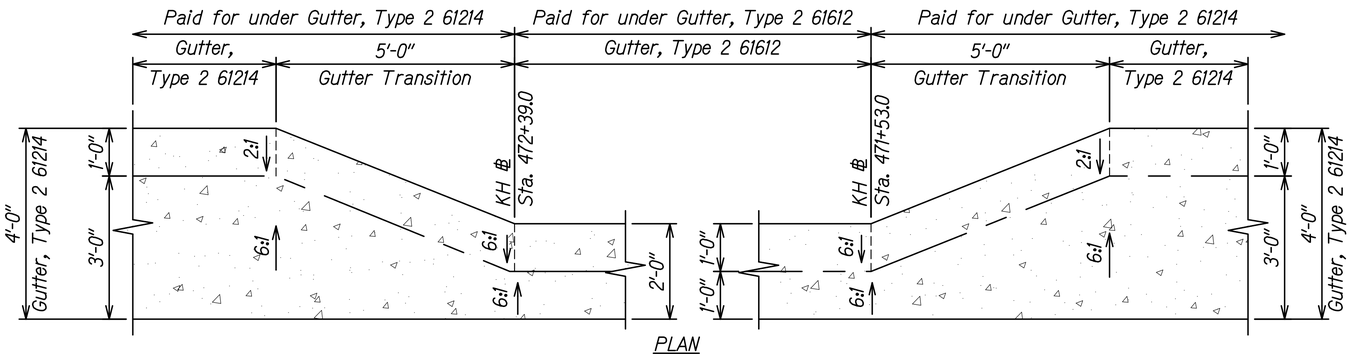


PLAN

GUTTER, TYPE 2 61616 TO TYPE 2 61214 TRANSITION DETAIL

KH ℄ Sta. 475+39.0

Not to Scale

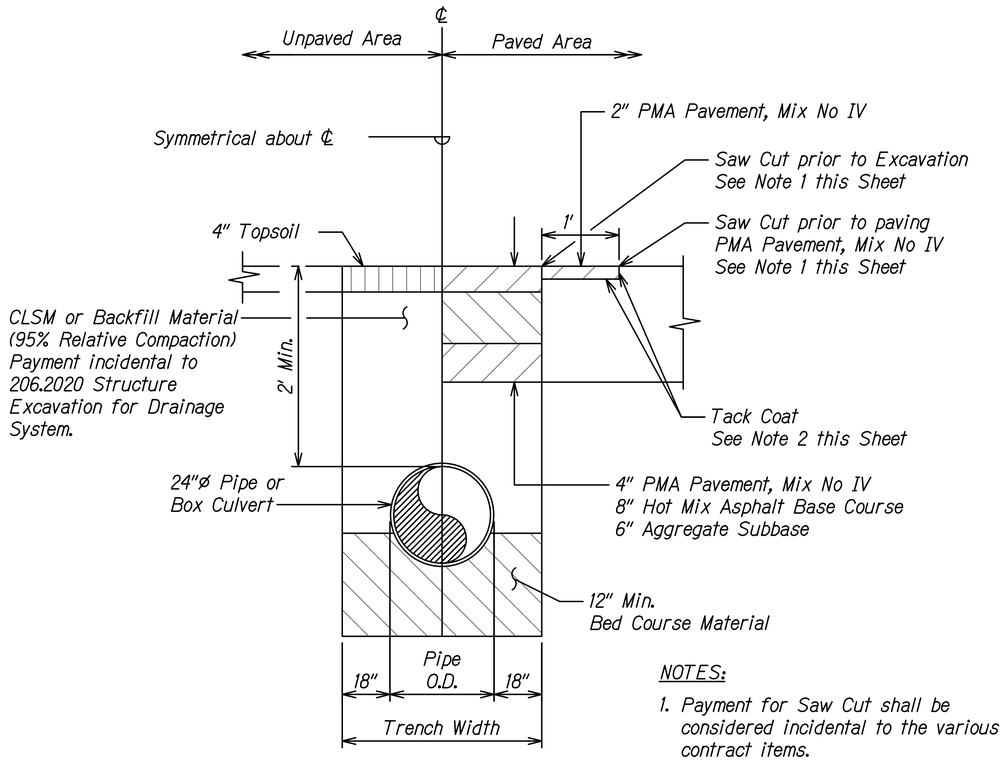


PLAN

GUTTER, TYPE 2 61214 TO TYPE 2 61612 TRANSITION DETAIL

KH ℄ Sta. 471+53.0 to 472+39.0

Not to Scale



TYPICAL TRENCH RESTORATION DETAIL

Not to Scale

NOTES:

1. Payment for Saw Cut shall be considered incidental to the various contract items.
2. Payment for Tack Coat shall be considered incidental to the various contract items.
3. Culvert Excavation shall be paid under Pay Item 206.2020 Structure Excavation for Drainage System.

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

04/30/24
SIGNATURE — EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

MISCELLANEOUS DRAINAGE DETAILS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. D-7 OF 7 SHEETS

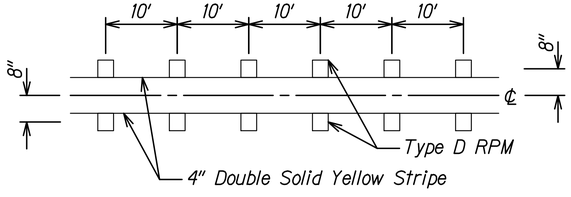
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	39	100

PAVEMENT MARKING AND SIGNING NOTES:

1. All sign panels shall conform to Section 630, 631 and 632 of Special Provisions, DOT standard plans, and the latest editions and amendments of the following FHWA publications:
   a. "Manual on Uniform Traffic Control Devices for Streets and Highways" (MUTCD)
   b. "Standard Highway Signs"
   c. "Standard Alphabets for Highway Signs"
2. The Contractor shall backfill all holes, depressions and pits left by the removal of the existing signs with embankment material and grass all areas exposed.
3. Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
4. Existing pavement markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer. The costs shall be incidental to the various pavement marking items.
5. Final locations of all signs shall be approved by the Engineer prior to any installation work.
6. Existing signs, object markers and reflector markers not shown on these plans shall remain as posted unless otherwise directed by the Engineer. Removal and disposal of existing signs and/or posts as designated on these plans shall be incidental to the various signing items.
7. All pavement striping shall be as noted on the legend or plans.
8. All preformed pavement marking tapes over existing pavement shall be applied with an approved primer as recommended by the tape's manufacturer and as approved by the Engineer. The primer shall be allowed to dry to the tacky stage prior to tape application.
9. The Contractor shall erect advanced construction warning signs at the beginning and at the end of the project site. Construction warning signs shall be placed as indicated on the plans or as directed by the Engineer. The signs shall be kept in place for the duration of the project and shall be maintained by the Contractor. These signs shall be placed in addition to the required traffic control signs called for in Section 645 - Work Zone Traffic Control. The advanced construction warning signs shall be new and become the property of the State. The Contractor shall remove, clean and deliver the signs and posts to the Kauai District Baseyard or as directed by the Engineer of the project.
10. Existing signs that are to be replaced shall not be removed until new signs are installed as replacements, or the messages are no longer necessary.
11. Backing for all new regulatory and warning signs shall not be spliced.
12. Removal of existing signs, delineators and posts, as directed by the Engineer or as shown on the plans, shall be considered incidental to the various signing items.
13. Contractor shall replace all Reflector Markers shown on the plans.
14. All pavement striping, legends and symbols shall be retroreflective thermoplastic compound pavement markings.
15. Location of pavement markers is shown schematically. For exact location of markers in relation to stripe, see Standard Plans TE-26, TE-27 & TE-28.
16. The Contractor shall remove all RM-2 Markers along the roadside and within the pavement area which conflict with the proposed construction.
17. All temporary signs shall be marked on their back side with the Contractor's name and the project number.

PAVEMENT MARKING AND SIGNING LEGEND:

- 6" White Edge Stripe (Tape, Type I or Thermoplastic Extrusion)
- Stop Bar (White) (Tape, Type III or Thermoplastic Extrusion)
- New or Relocated Sign (Single & Double Post)
- Existing Sign
- (A) Replace Existing Sign(s) with New Sign(s)
- (B) Existing Sign(s) to Remain
- Reflector Marker (RM-3) w/ Post



LAYOUT AT DOUBLE NO PASS ZONE
Not to Scale

ORIGINAL PLAN
NOTE BOOK
No.

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE

04/30/24
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

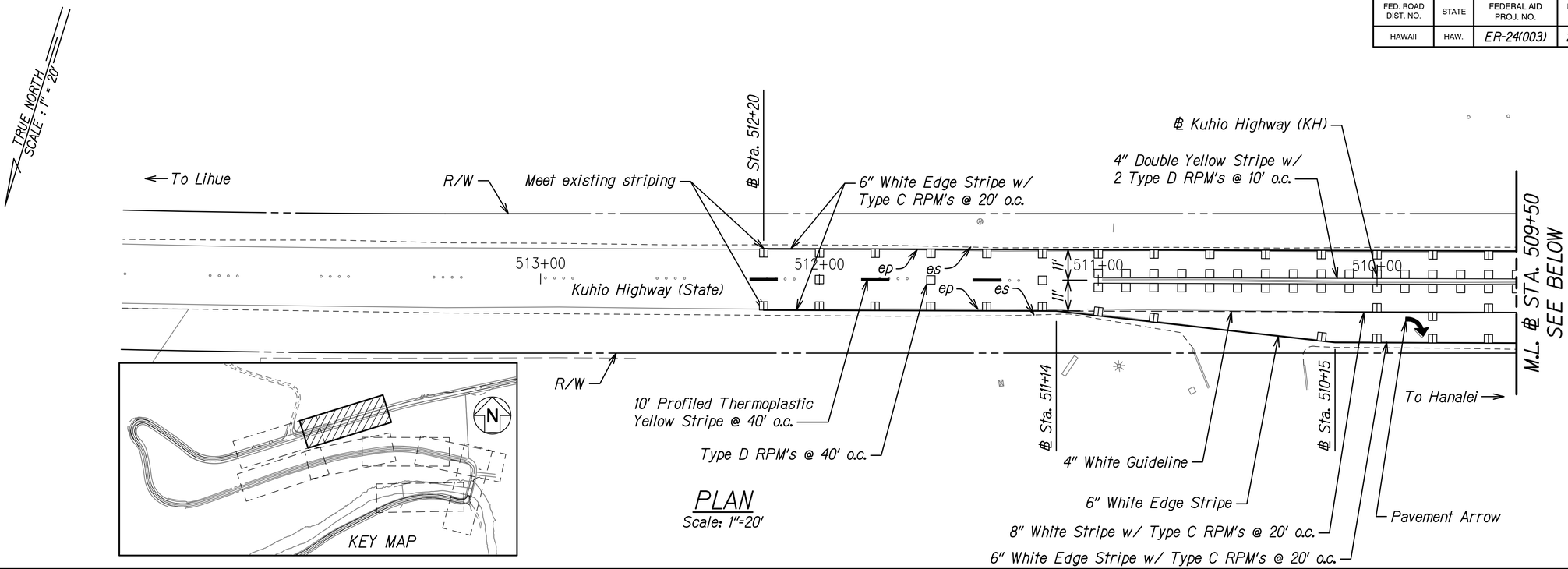
SIGNING AND PAVEMENT MARKINGS NOTES AND LEGEND

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

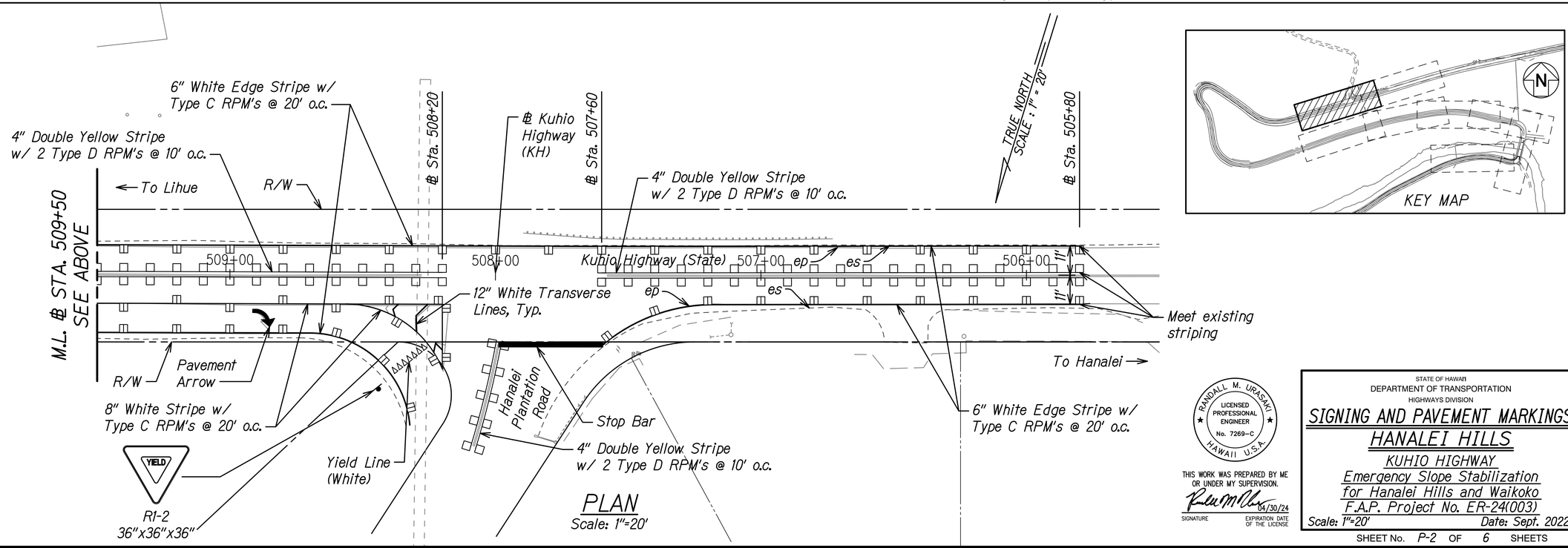
Scale: None Date: Sept. 2022

SHEET No. P-1 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	40	100



PLAN
Scale: 1"=20'



PLAN
Scale: 1"=20'

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

ORIGINAL PLAN
NOTE BOOK
No.

RANDALL M. URASAKI
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No. 7269-C
HAWAII U.S.A.

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SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

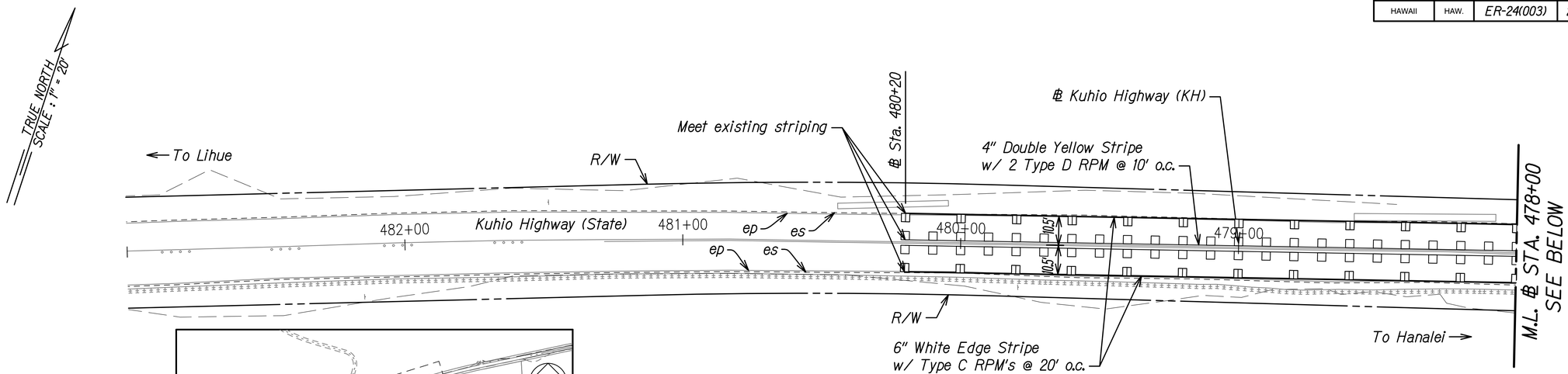
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING AND PAVEMENT MARKINGS
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

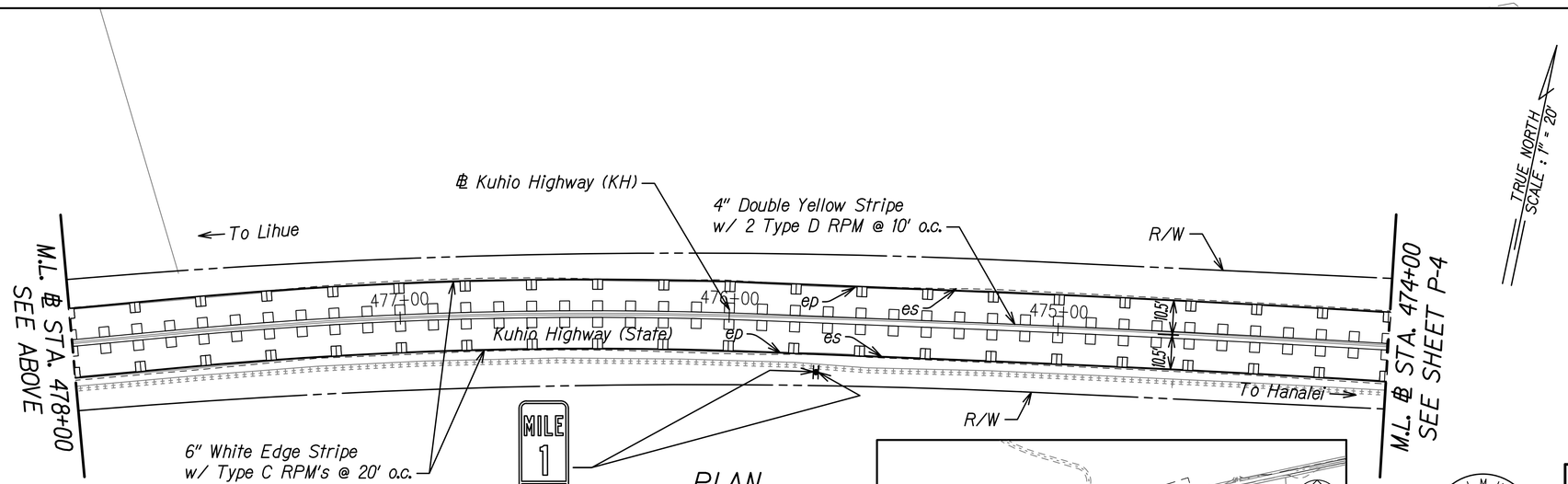
Scale: 1"=20' Date: Sept. 2022

SHEET No. P-2 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	41	100



PLAN
Scale: 1"=20'



PLAN
Scale: 1"=20'

MILE POST SIGN and
HIGHWAY ROUTE NUMBER
PLATE (2 Signs each on 1 Post)
See Details on Sht. P-6.
Install per Std. Plan TE-16.

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

LICENSED PROFESSIONAL ENGINEER
RANDALL M. URASAKI
No. 7269-C
HAWAII U.S.A.

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SIGNATURE — EXPIRATION DATE OF THE LICENSE: 04/30/24

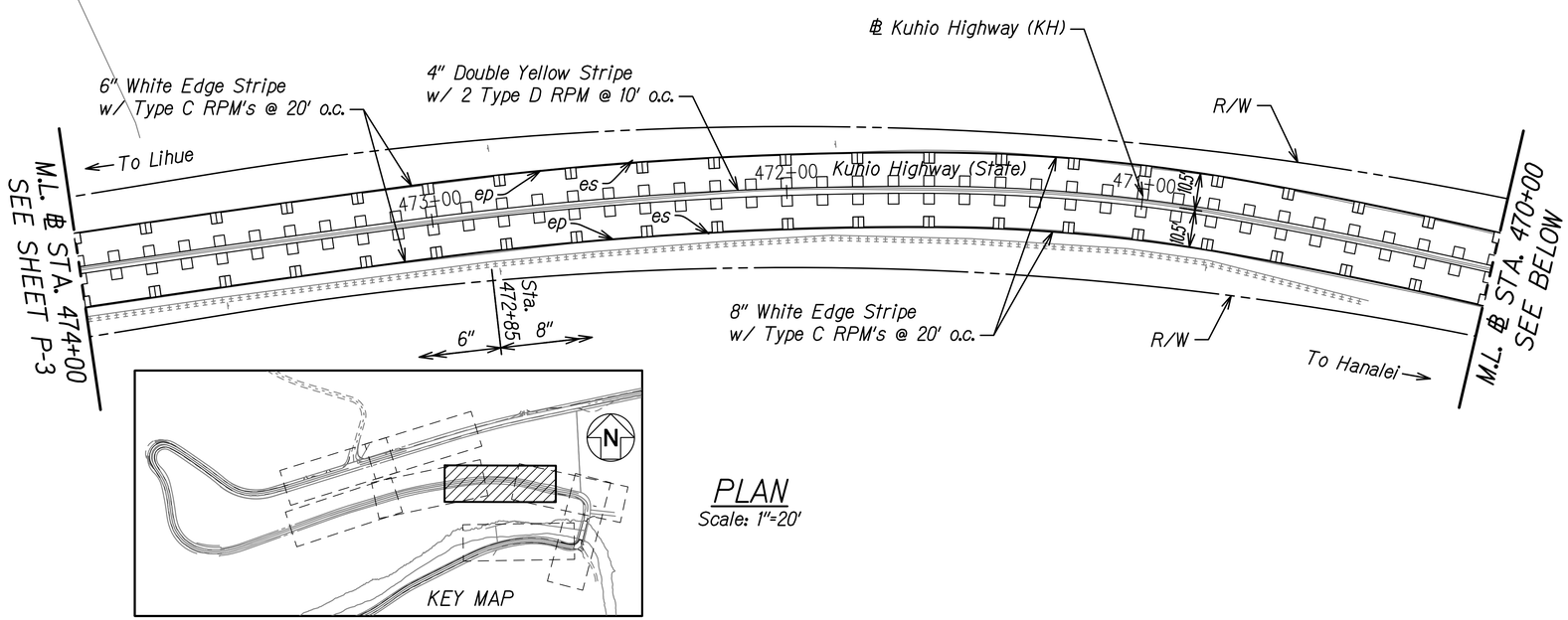
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING AND PAVEMENT MARKINGS
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=20' Date: Sept. 2022

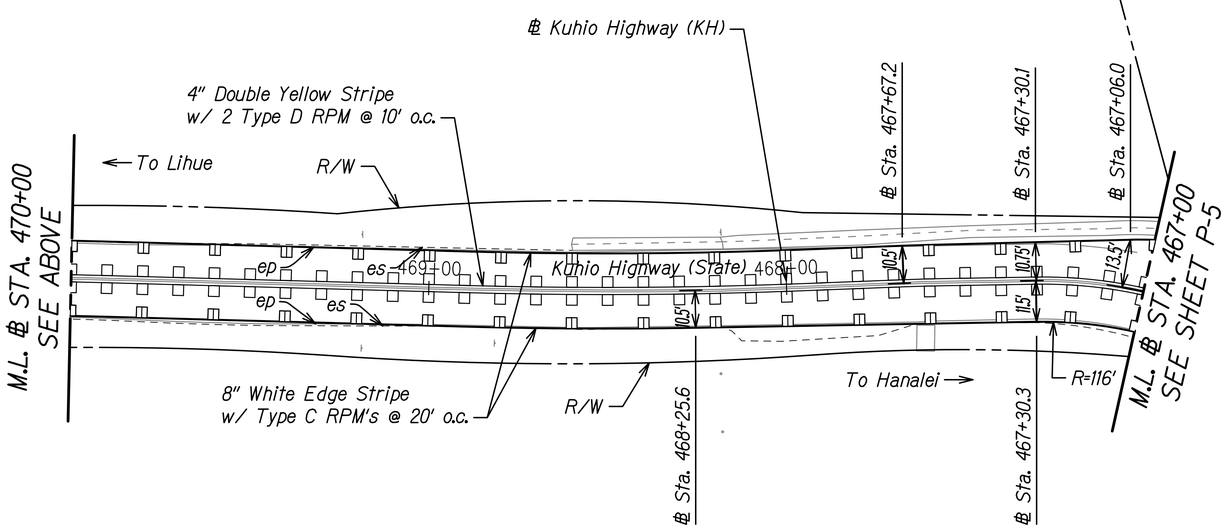
SHEET No. P-3 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	42	100



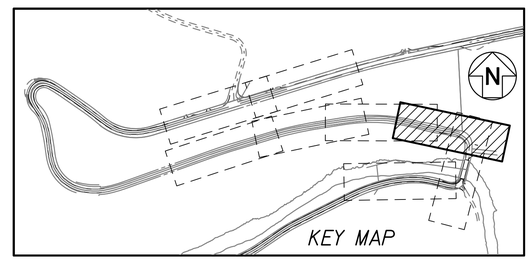
PLAN
Scale: 1"=20'

TRUE NORTH
SCALE : 1" = 20'



PLAN
Scale: 1"=20'

TRUE NORTH
SCALE : 1" = 20'



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

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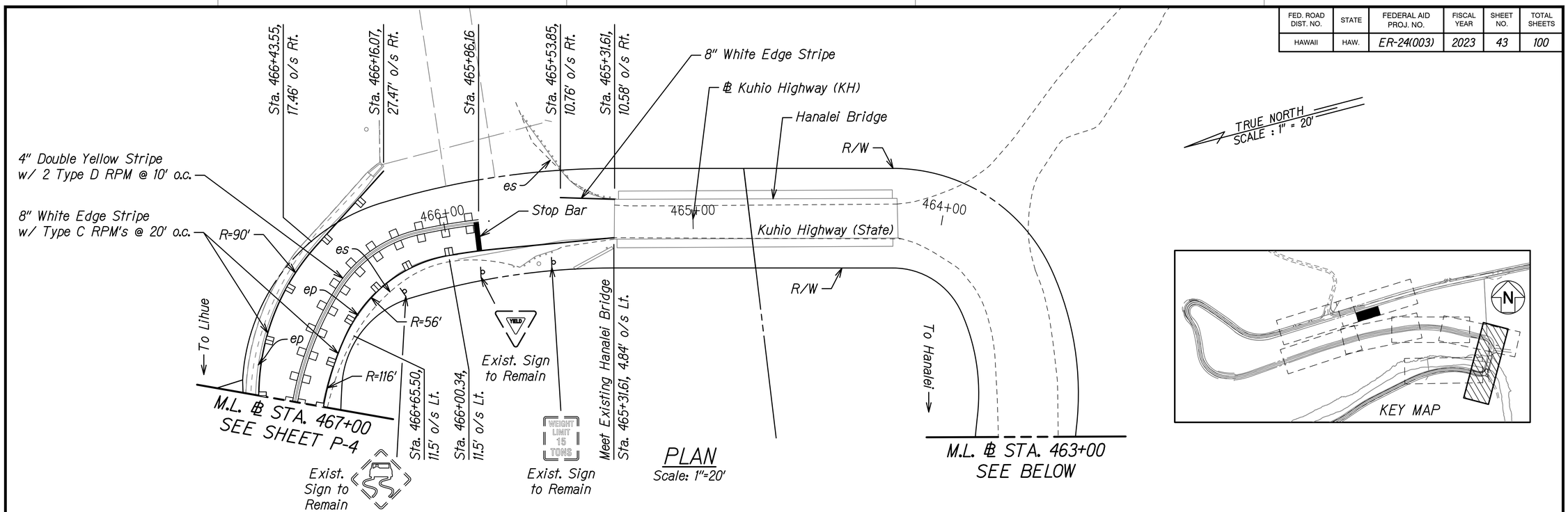
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING AND PAVEMENT MARKINGS
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

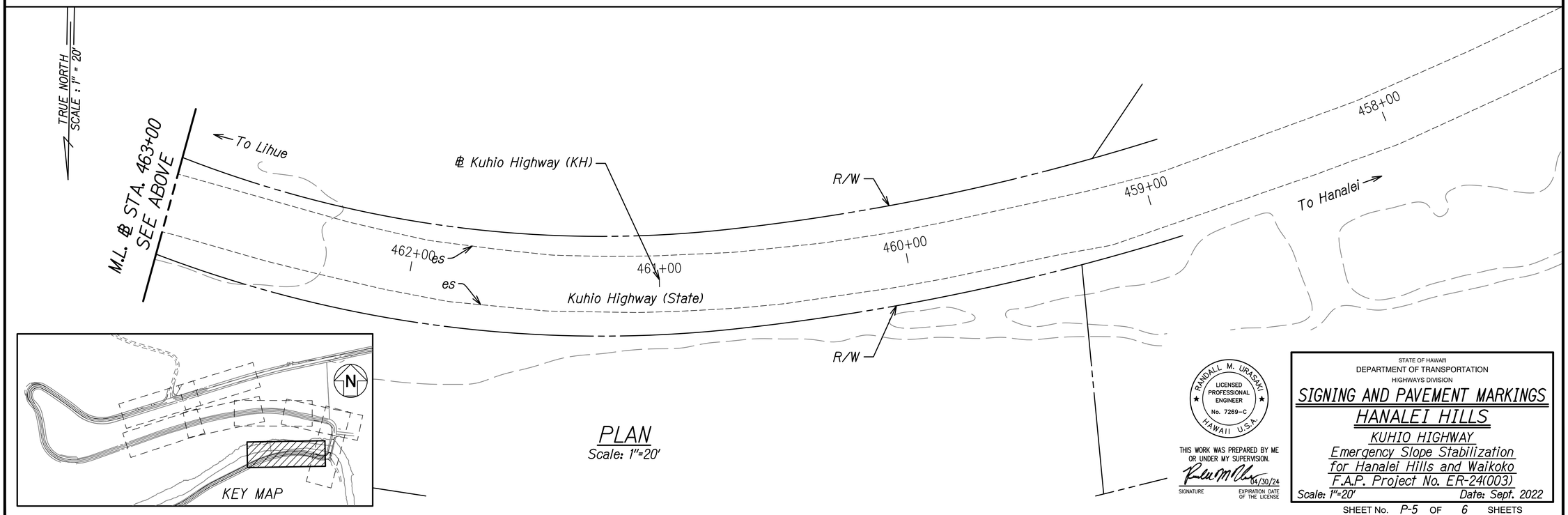
Scale: 1"=20' Date: Sept. 2022

SHEET No. P-4 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	43	100



PLAN
Scale: 1"=20'



PLAN
Scale: 1"=20'

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

RANDALL M. URASAKI
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SIGNATURE — EXPIRATION DATE OF THE LICENSE: 04/30/24

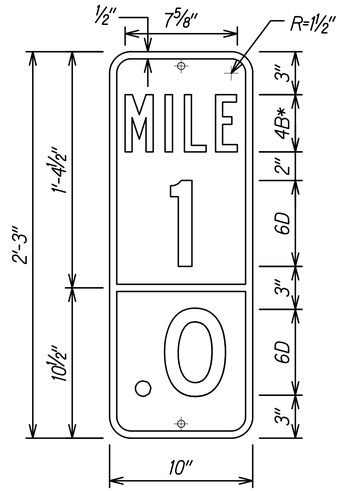
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING AND PAVEMENT MARKINGS
HANALEI HILLS
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko F.A.P. Project No. ER-24(003)

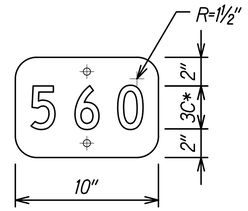
Scale: 1"=20' Date: Sept. 2022

SHEET No. P-5 OF 6 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	44	100



MILE POST SIGN
Not to Scale

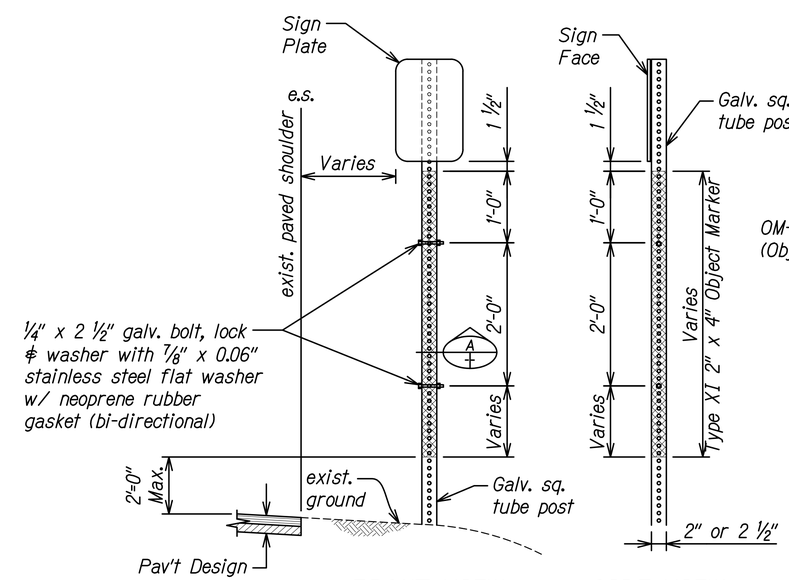


HIGHWAY ROUTE NUMBER PLATE DETAIL
Not to Scale

Colors: Legend: White
Background: Green

* Series 2000 Standard Alphabets
Optically locate numerals about centerline

NOTE:
Payment for Highway Route Number Plate shall be considered incidental to the Mile Post Sign.

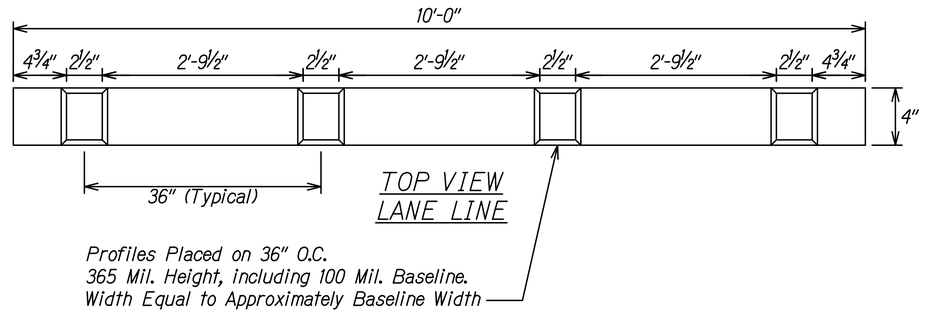


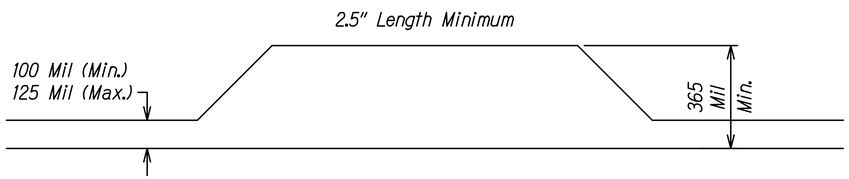
FRONT VIEW SIDE VIEW

GALVANIZED SQUARE TUBE SIGN POST DETAIL
Not to Scale

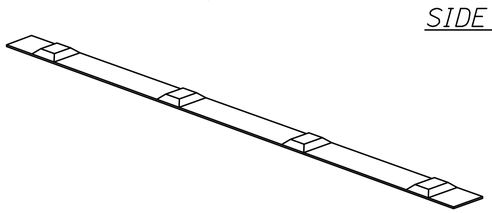
SIGN POST NOTES:

1. Object markers (OM-5) shall be installed on all proposed regulatory and warning sign posts within the project limits. Payment for Object Markers shall be considered incidental to the various pay items.
2. If a strip of reflective material is used on the sign support, it shall be at least 2 inches in width, it shall be placed for the full length of the support from the sign to within 2 feet above the edge of roadway, and its color shall match the background color of the sign, except that the color of the strip for the "YIELD" and "DO NOT ENTER" signs shall be red. Payment for reflective material shall be considered incidental to the various pay items.
3. Object marker shall be Vis-Z-Shield, manufactured by "Zumar" or approved equal.
4. Background of object marker shall be retroreflectorized with Type XI retroreflective sheeting.

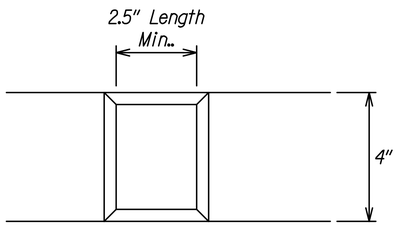




SIDE VIEW



PERSPECTIVE VIEW



TOP VIEW

PROFILED THERMOPLASTIC STRIPING
Not to Scale

NOTES:

1. The thermoplastic material shall be alkyd-based compound formulated for profiled pavement marking. See specs subsection 629.03 for additional requirements.
2. The Engineer will include the longitudinal gaps for skip striping, up to thirty (30) feet long, in the measurement for payment.
3. Install yellow profiled thermoplastic stripes for centerline passing zone.

RANDALL M. URASAKI
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HAWAII U.S.A.

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SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNING AND PAVEMENT MARKING DETAILS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: None Date: Sept. 2022

SHEET No. P-6 OF 6 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	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	45	100

GENERAL NOTES FOR TRAFFIC CONTROL PLAN

1. Only Traffic Control Plans for major construction activities are shown. The Contractor shall develop his own Traffic Control Plans in accordance with Section 645 of the Special Provisions for activities to complete work not covered by the Traffic Control Plans. The Contractor shall submit the Traffic Control Plans to the Engineer for approval. This work is included and paid under Pay Items 645.1000 Traffic Control - Hanalei Hills or 645.1001 Traffic Control - Waikoko.
2. The Contractor shall make minor adjustments to fit field conditions with approval of the Engineer.
3. Cones or delineators shall be extended to a point where they are visible to approaching traffic.
4. Traffic control devices shall be installed such that the sign or device farthest from the work area shall be placed first. The others shall then be placed progressively toward the work area.
5. Flaggers and/or police officers shall be in sight of each other or in direct communications at all times.
6. Sign spacings (L), taper lengths (T), and spacings of cones or delineators shall be as shown in Table 645-1 of Section 645 in the Specifications, unless otherwise noted on HDOT's Traffic Control Plans.
7. All traffic lanes shall be minimum of 10 feet wide.
8. All signs shall be promptly removed or covered whenever the message is not applicable or not in use.
9. The backs of all signs for traffic control shall be appropriately covered to preclude the display of inapplicable sign messages (i.e., when signs have messages on both faces).
10. At the end of each day's work or as soon as the work is completed, the Contractor shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic. Removal shall be in the reverse order of installation.
11. Existing conflicting pavement markings shall be removed and temporary pavement markings shall be installed before traffic patterns are changed.
12. The locations of pavement markings, signs, and delineators used in the Traffic Control shall be as shown on the plans, Contractor's approved Traffic Control Plans, and/or as determined in the field by the Engineer.
13. Damage to signs, temporary pavement markers, and delineators caused by the public or Contractor's negligence shall be repaired or replaced by the Contractor at the Contractor's expense.
14. Signs for night work shall be retroreflective and shall be mounted with a Type B high intensity flasher. The flasher shall be considered incidental to Pay Items 645.1000 Traffic Control - Hanalei Hills or 645.1001 Traffic Control - Waikoko.
15. Steel plates for covering trenches shall have a skid resistant surface. The skid resistant surface shall be maintained throughout its use. Steel plates shall be installed in such a manner as to minimize movement from its intended location and minimize noise when traffic crosses over it (i.e., steel plates shall not generate any noise impact). Payment for steel plates shall be considered incidental to the various contract items. Steel plates will not be allowed in the travelway for posted speeds in excess of 35 mph.
16. The Contractor shall limit the extent of trench and excavation work for pavement reconstruction to an area that can be satisfactorily backfilled in one work day.
17. Work zone limits shown for each traffic control phase encompass all work items to be completed in that particular phase. The length of the work zone may be reduced to accommodate the Contractor's actual work zone for that time period, provided it has been accepted by the Engineer, and all tangents, tapers, and buffer lengths are maintained.
18. The Contractor will be restricted to lane closures as specified in Special Provision Section 645.
19. All temporary signs shall be marked on their back side with the Contractor's name and the project number.
20. All Type II Barricades and Positive Protection Barriers shall include one Steady Burn Warning Light. Payment shall be considered incidental to Pay Item 645.1001 Traffic Control - Waikoko.

LEGEND:

- Work Area
- Traffic Cones
- Flagman
- Sign
- Direction of Traffic
- Positive Protection Barrier
- Terminal Impact Attenuator
- Temporary Portable Traffic Signal
- Portable Message Board
- Type II Barricade

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

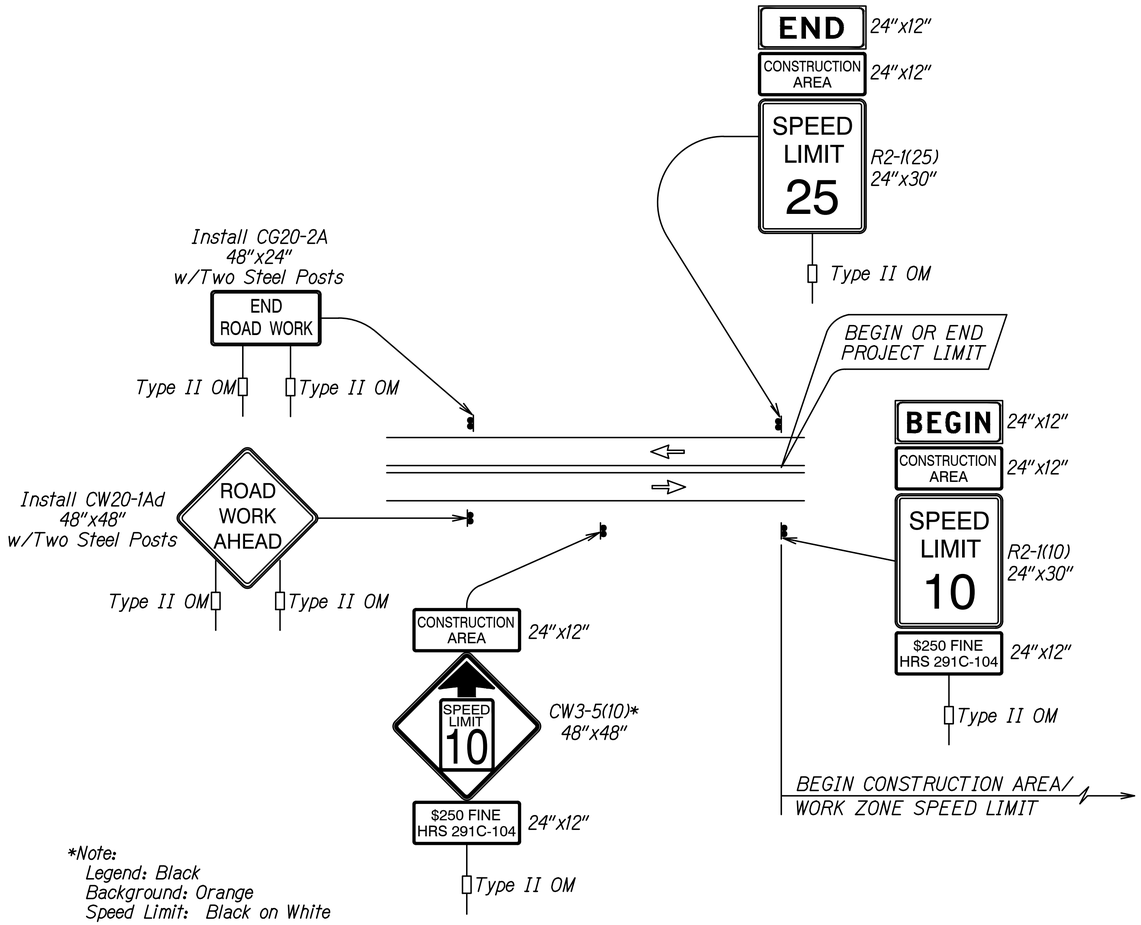
TRAFFIC CONTROL NOTES

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

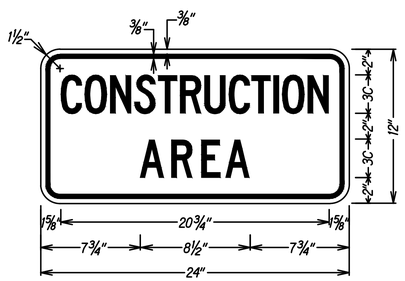
Scale: None Date: Sept. 2022

SHEET No. TC-1 OF 10 SHEETS

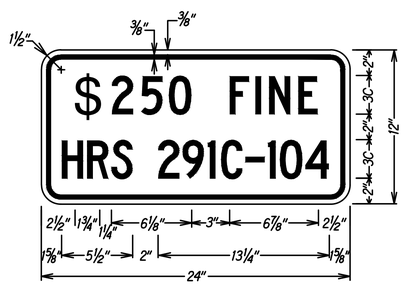
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	46	100



TYPICAL DETAIL FOR CONSTRUCTION SIGNS
ON TWO LANE OR MULTILANE UNDIVIDED LOW SPEED HIGHWAY



LEGEND: BLACK
BACKGROUND: ORANGE



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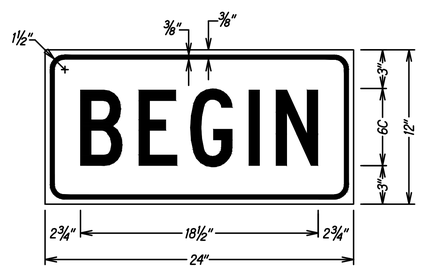
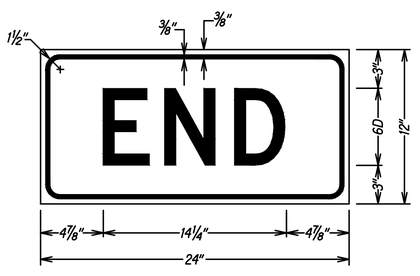
BACKGROUND: WHITE



LEGEND: BLACK
BACKGROUND: ORANGE



LEGEND: BLACK
BACKGROUND: ORANGE

Work Zone Notes:

1. *This Work Zone Sign Plan is intended for use on long-term stationary work zones/construction phases (3 days or more). All work zones or construction phases less than 3 days duration will use Traffic Control Plans shown in Section 645 of the Special Provisions.*
2. *All existing regulatory speed limit signs with posts within the work zone/project limits shall be removed and replaced with work zone speed limit sign assemblies (R2-1(10) with "CONSTRUCTION AREA" and "$250 FINE HRS 291C-104" Supplemental Signs).*
3. *Construction sign assemblies shall be installed on both the approaching and trailing ends of each work zone as shown on this plan.*
4. *Each construction warning sign shall have a minimum of two (2) Type II OM. Each work zone speed limit assembly shall have a minimum of one (1) Type II OM. Installation of each Type II OM shall be considered incidental to Pay Item No. 645.1000 Traffic Control - Hanalei Hills or 645.1001 Traffic Control - Waikoko.*
5. *Upon the completion of all physical work or as directed by the Engineer, all construction signs and work zone speed limit assemblies shall be removed. All speed limit signs and posts that were existing at the start of the project within the work zone/project limits shall be restored back to their original locations and configurations.*
6. *Placement of construction signs shall not obstruct the path of pedestrians and bicyclists.*
7. *The removal and restoration of existing regulatory speed limit signs shall be considered incidental to Pay Item No. 645.1000 Traffic Control - Hanalei Hills or 645.1001 Traffic Control - Waikoko.*
8. *The installation, maintenance and removal of work zone speed limit signs shall be paid for under Pay Item No. 645.1000 Traffic Control - Hanalei Hills or 645.1001 Traffic Control - Waikoko.*
9. *The work zone speed limit signs shall be new and become the property of the Contractor.*
10. *The Contractor shall adjust the locations of work zone signs to correspond with the beginning and end of work zone limits for each phase. Relocation of work zone signs shall be considered incidental to Pay Item No. 645.1000 Traffic Control - Hanalei Hills or 645.1001 Traffic Control - Waikoko.*
11. *For sign location and speed limits, see Traffic Control Plan.*

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE — EXPIRATION DATE OF THE LICENSE: 04/30/24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

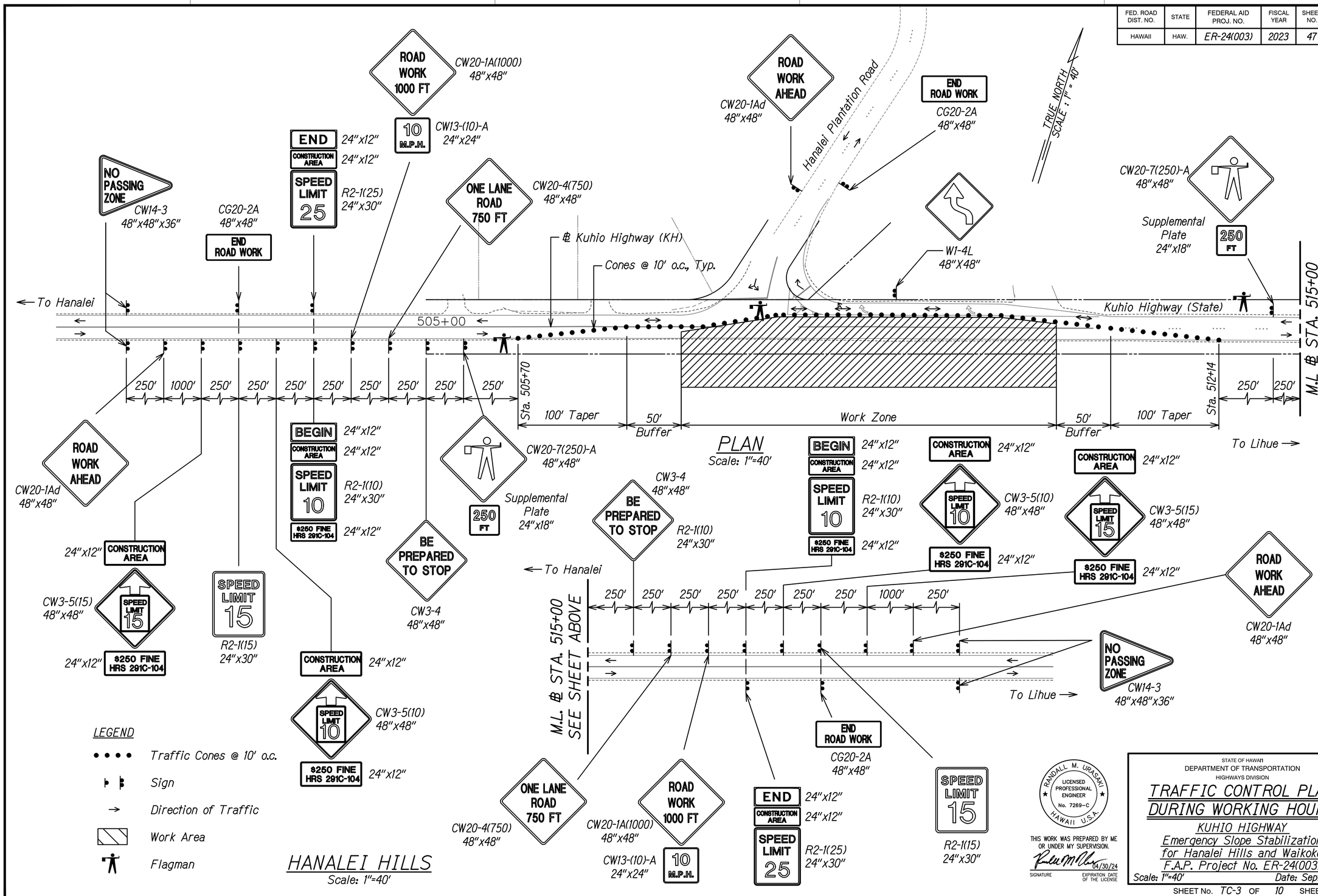
LOW SPEED UNDIVIDED HIGHWAY
WORK ZONE SIGNING PLAN, NOTES & DETAILS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: None Date: Sept. 2022

SHEET No. TC-2 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	47	100



SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

ORIGINAL PLAN
NOTE BOOK
No.

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

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SIGNATURE

04/30/24
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

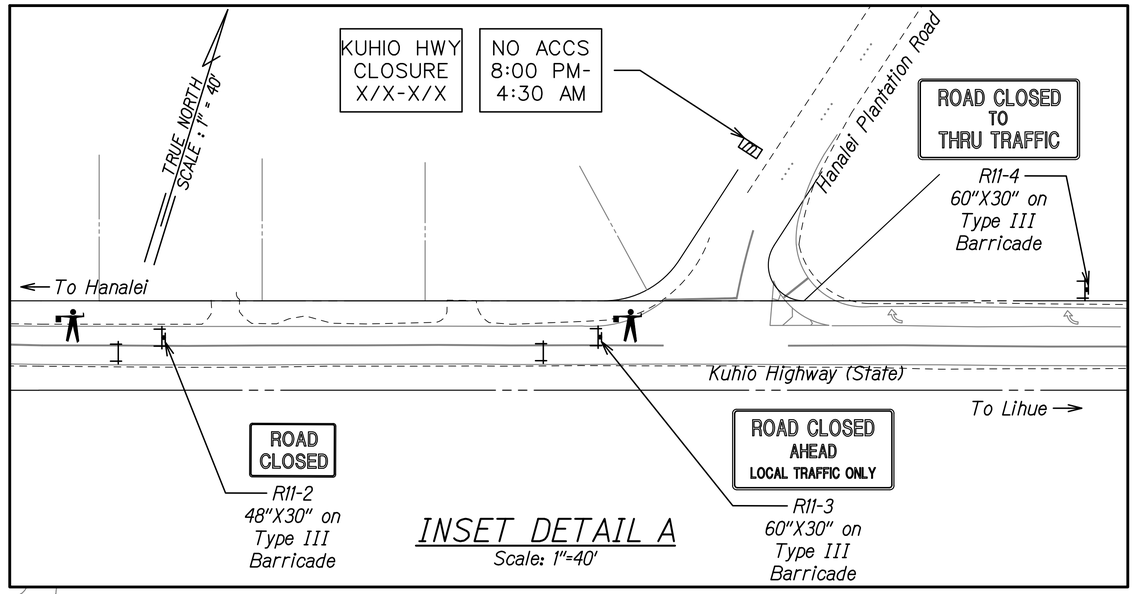
TRAFFIC CONTROL PLAN DURING WORKING HOURS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

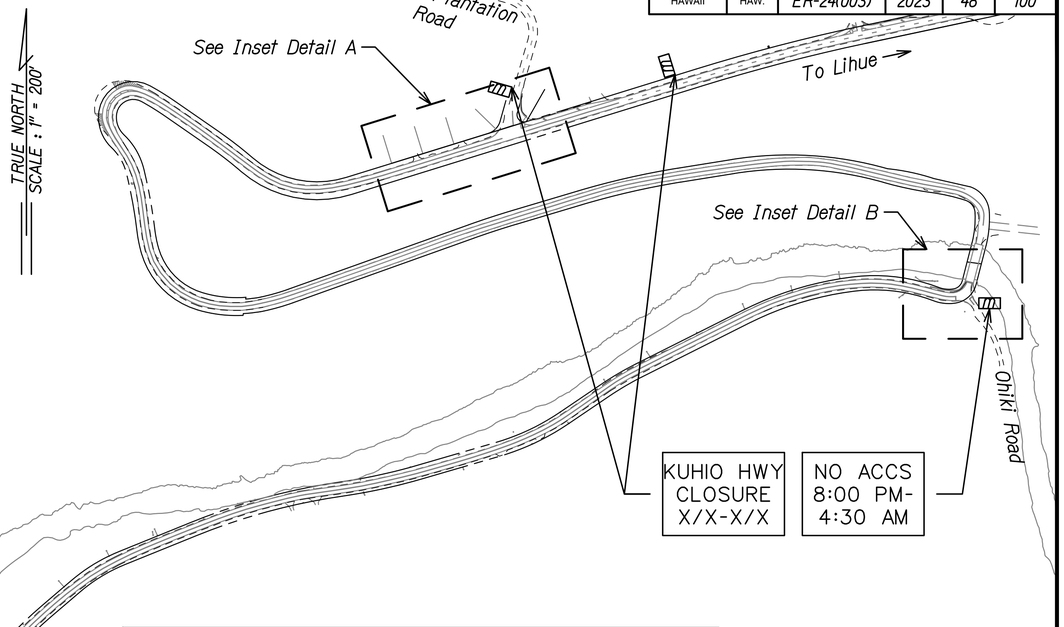
Scale: 1"=40' Date: Sept. 2022

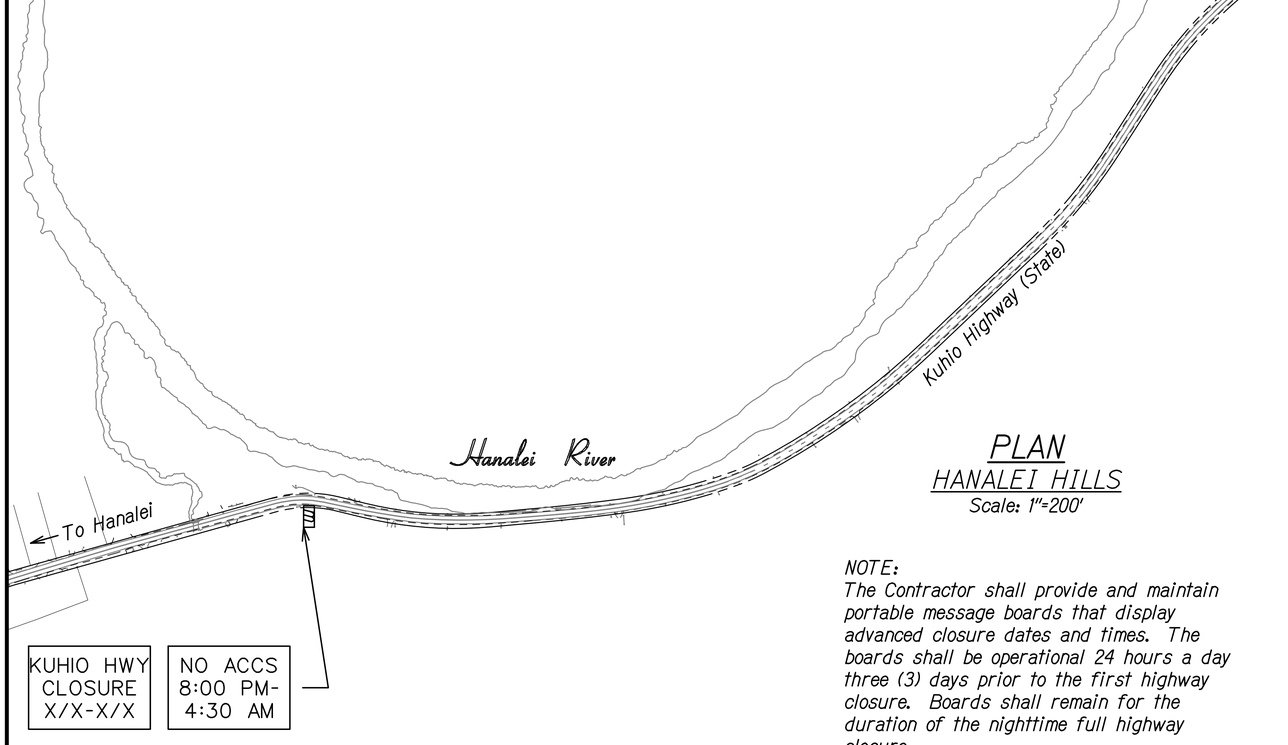
SHEET No. TC-3 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	48	100

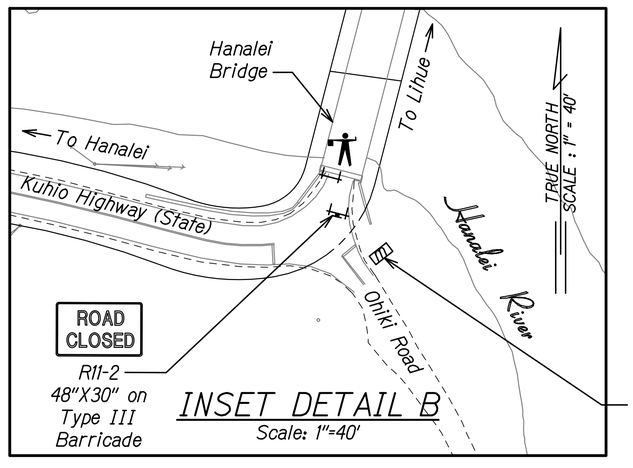


INSET DETAIL A
Scale: 1"=40'





PLAN
HANALEI HILLS
Scale: 1"=200'



INSET DETAIL B
Scale: 1"=40'

NOTE:
The Contractor shall provide and maintain portable message boards that display advanced closure dates and times. The boards shall be operational 24 hours a day three (3) days prior to the first highway closure. Boards shall remain for the duration of the nighttime full highway closure.

LEGEND

- Portable Message Board
- Type III Barricade
- Sign
- Flagman

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.
SIGNATURE
EXPIRATION DATE OF THE LICENSE 04/30/24

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

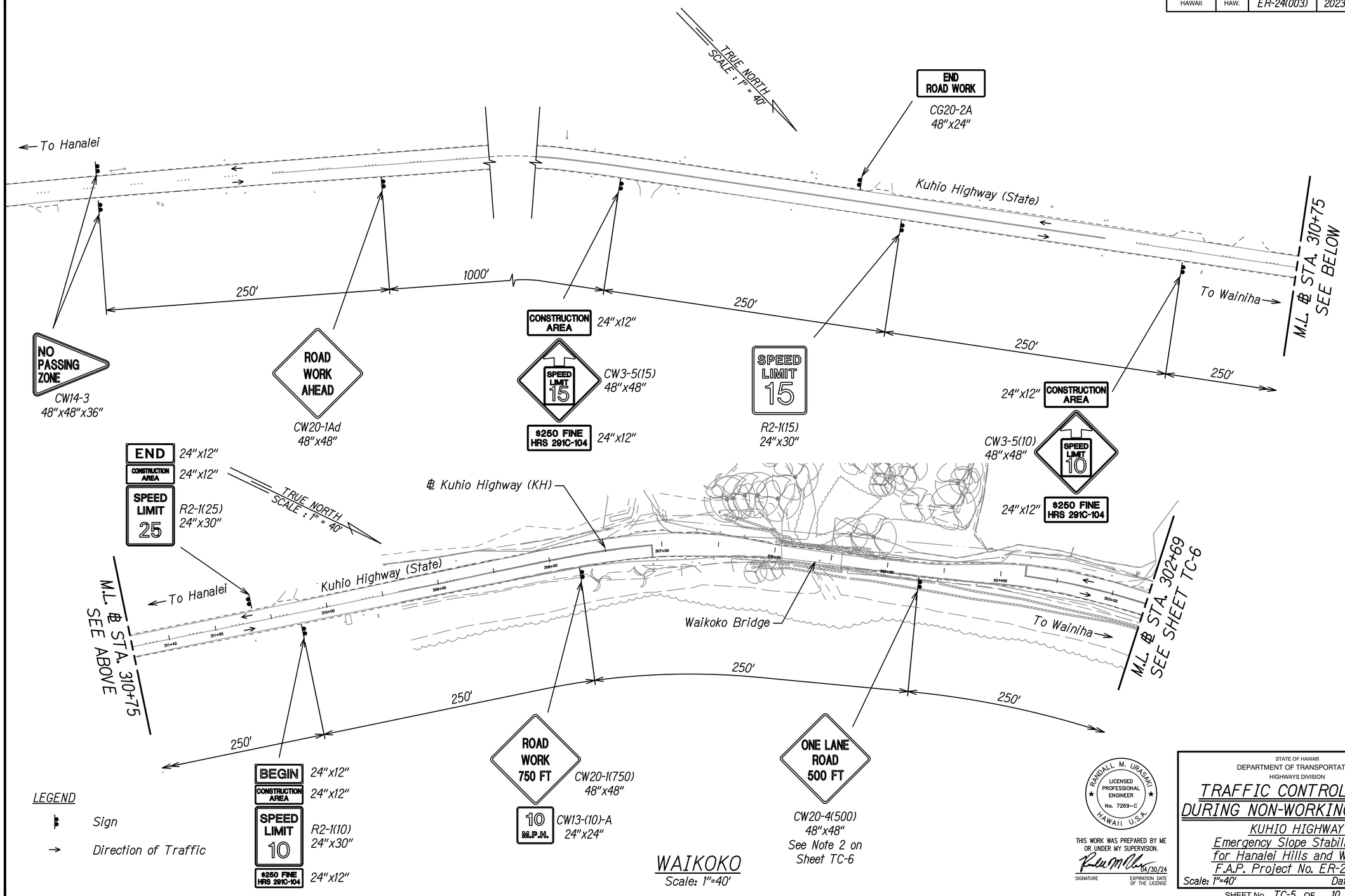
TRAFFIC CONTROL PLAN
ROADWAY FULL CLOSURE

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Shown Date: Sept. 2022

SHEET No. TC-4 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	49	100



LEGEND

Sign

Direction of Traffic

WAIKOKO
Scale: 1"=40'

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

RANDALL M. URASAKI
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HAWAII U.S.A.

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SIGNATURE

4/30/24
EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN DURING NON-WORKING HOURS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=40' Date: Sept. 2022

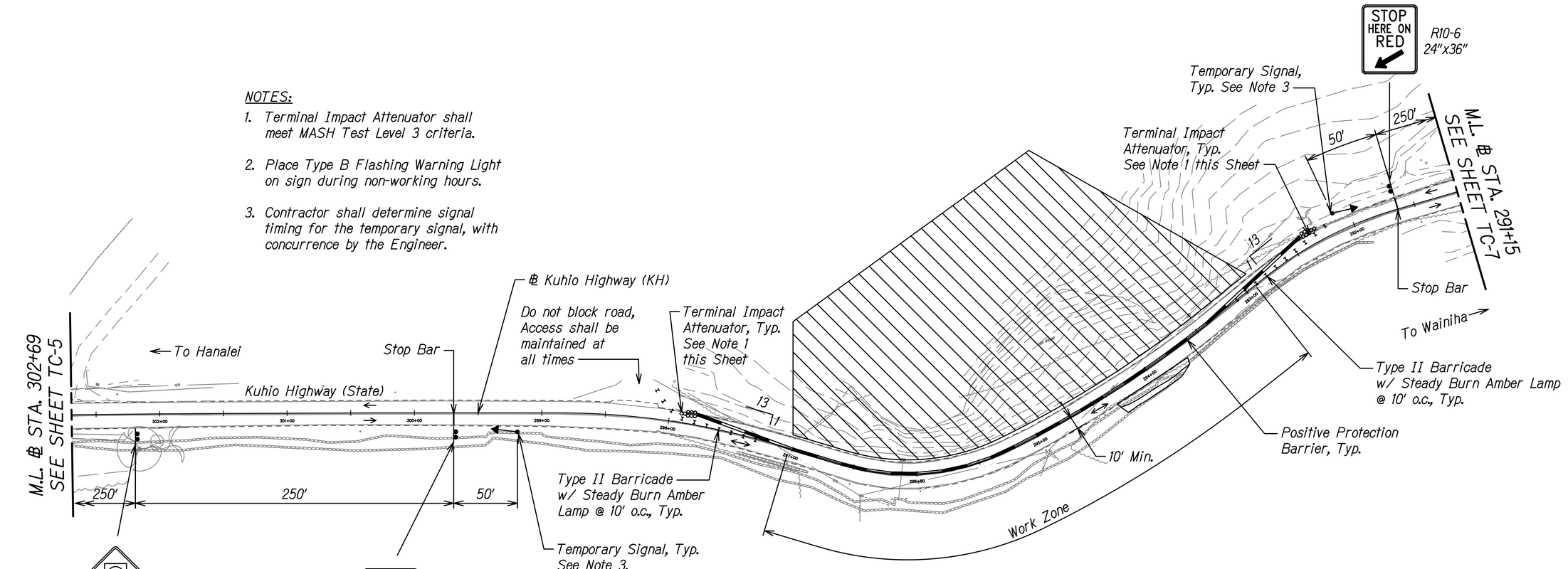
SHEET No. TC-5 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	50	100

TRUE NORTH
SCALE : 1" = 40'

NOTES:

1. Terminal Impact Attenuator shall meet MASH Test Level 3 criteria.
2. Place Type B Flashing Warning Light on sign during non-working hours.
3. Contractor shall determine signal timing for the temporary signal, with concurrence by the Engineer.



LEGEND

	Sign		Terminal Impact Attenuator
→	Direction of Traffic		Positive Protection Barrier
	Work Area	I	Type II Barricade with Steady Burn Amber Lamp
—	Stop Line		Temporary Signal

WAIKOKO
Scale: 1"=40'

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
No. 7269-C
HAWAII U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN DURING NON-WORKING HOURS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=40' Date: Sept. 2022

SHEET No. TC-6 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	51	100

CW3-3(250)
48"x48"
See Note 2
on Sheet TC-6

Supplementary Plate
24"x18"
250 FT

CW20-4(500)
48"x48"
See Note 2
on Sheet TC-6

ONE LANE ROAD 500 FT

250'

TRUE NORTH
SCALE : 1" = 40'

ROAD WORK 750 FT
CW20-1(750)
48"x48"

10 M.P.H.
CW13-(10)-A
24"x24"

BEGIN 24"x12"
CONSTRUCTION AREA 24"x12"
SPEED LIMIT 10 R2-1(10) 24"x30"
$250 FINE HRS 291C-104 24"x12"

℄ Kuhio Highway (KH)

250'
250'
250'

M.L. ℄ STA. 291+25
SEE SHEET TC-6

To Hanalei

Kuhio Highway (State)

24"x12" END
24"x12" CONSTRUCTION AREA
R2-1(25) 24"x30" SPEED LIMIT 25

To Wainiha

M.L. ℄ STA. 280+44
SEE BELOW

24"x12" CONSTRUCTION AREA

CW3-5(15)
48"x48"

SPEED LIMIT 15

24"x12" $250 FINE HRS 291C-104

1000'

℄ Kuhio Highway (KH)

Kuhio Highway (State)

M.L. ℄ STA. 280+44
SEE ABOVE

TRUE NORTH
SCALE : 1" = 40'

To Hanalei

250'
250'
250'

1000'
250'

To Wainiha

M.L. ℄ STA. 264+75
SEE BELOW

24"x12" CONSTRUCTION AREA

SPEED LIMIT 10

CW3-5(10)
48"x48"

$250 FINE HRS 291C-104
24"x12"

SPEED LIMIT 15
R2-1(15)
24"x30"

M.L. ℄ STA. 264+75
SEE ABOVE

TRUE NORTH
SCALE : 1" = 40'

℄ Kuhio Highway (KH)

To Hanalei

Kuhio Highway (State)

ROAD WORK AHEAD
CW20-1Ad
48"x48"

NO PASSING ZONE
CW14-3
48"x48"x36"

To Wainiha

END ROAD WORK
CG20-2A
48"x24"

LEGEND

Sign

Direction of Traffic

WAIKOKO
Scale: 1"=40'

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

RANDALL M. URASAKI
LICENSED PROFESSIONAL ENGINEER
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HAWAII U.S.A.

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04/30/24
SIGNATURE — EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

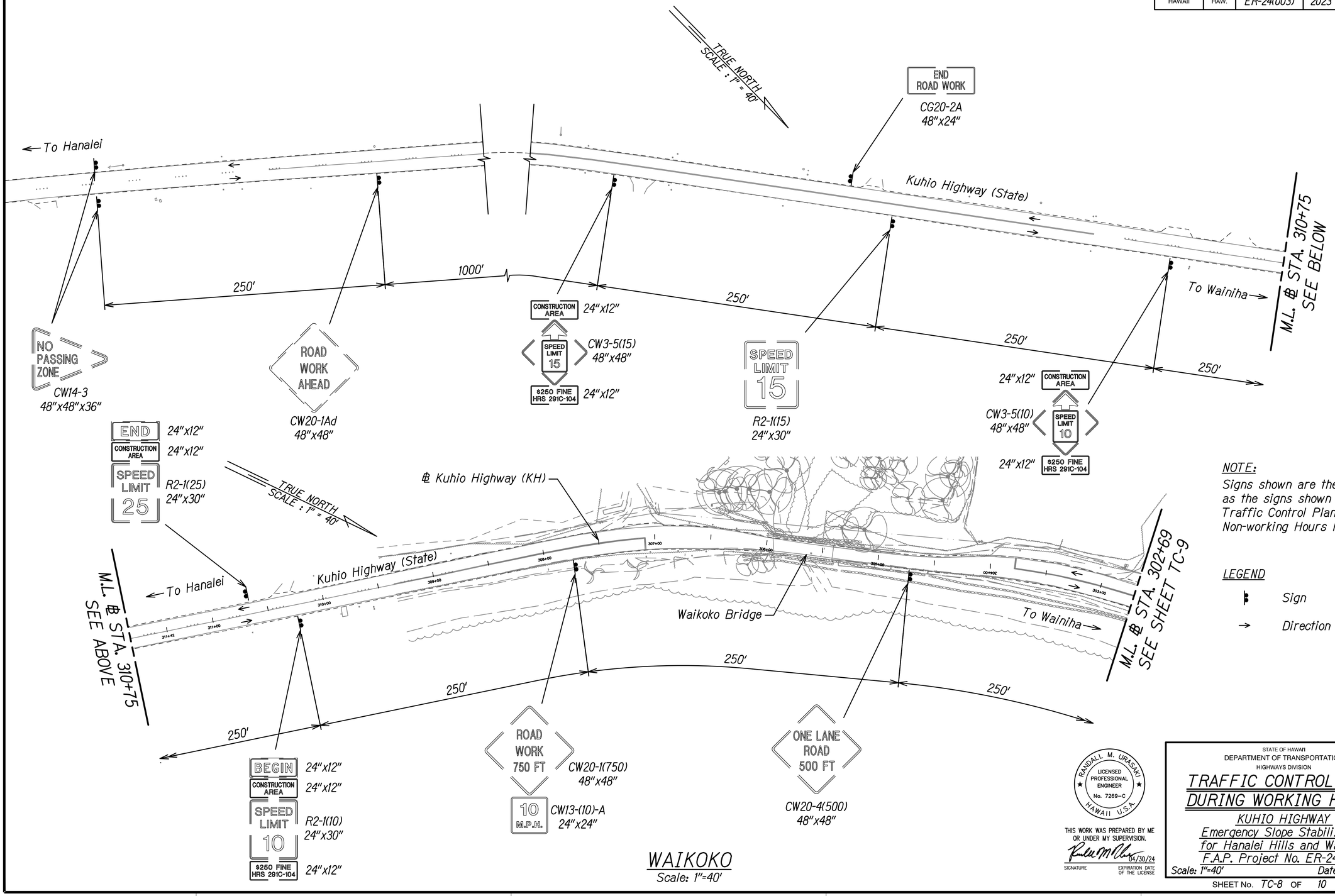
TRAFFIC CONTROL PLAN DURING NON-WORKING HOURS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=40' Date: Sept. 2022

SHEET No. TC-7 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	52	100



WAIKOKO
Scale: 1"=40'

NOTE:
Signs shown are the same as the signs shown under Traffic Control Plan During Non-working Hours Phase.

LEGEND

Sign

Direction of Traffic

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

RANDALL M. URASAKI
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TRAFFIC CONTROL PLAN DURING WORKING HOURS

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=40' Date: Sept. 2022

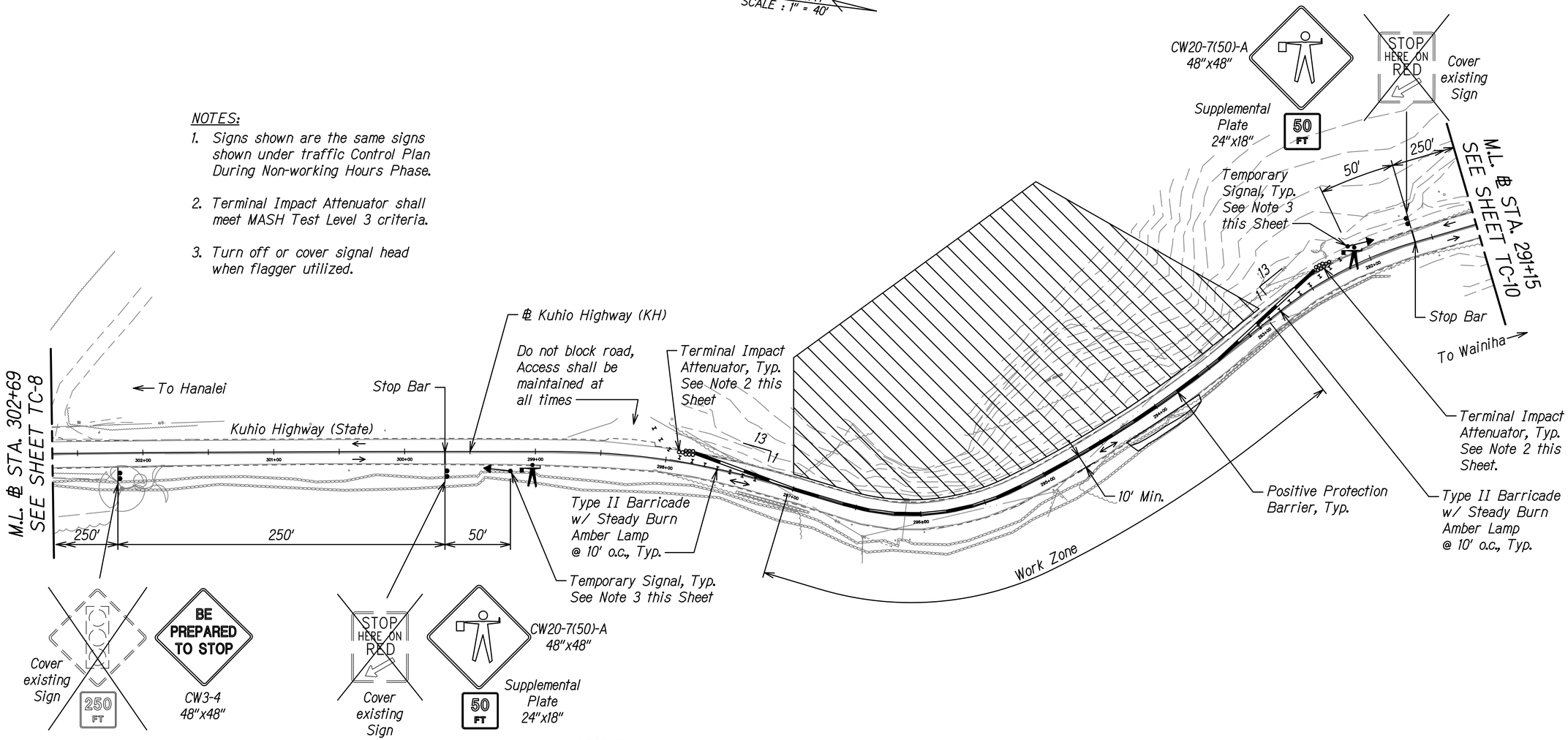
SHEET No. TC-8 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	53	100

TRUE NORTH
SCALE : 1" = 40'

NOTES:

1. Signs shown are the same signs shown under traffic Control Plan During Non-working Hours Phase.
2. Terminal Impact Attenuator shall meet MASH Test Level 3 criteria.
3. Turn off or cover signal head when flagger utilized.



LEGEND

Sign		Terminal Impact Attenuator	
Direction of Traffic	→	Positive Protection Barrier	
Work Area		Type II Barricade with Steady Burn Amber Lamp	I
Stop Line	—	Temporary Signal	←●
Flagman			

WAIKOKO
Scale: 1"=40'

ORIGINAL PLAN
NOTE BOOK
No.

SURVEY PLOTTED BY
DRAWN BY
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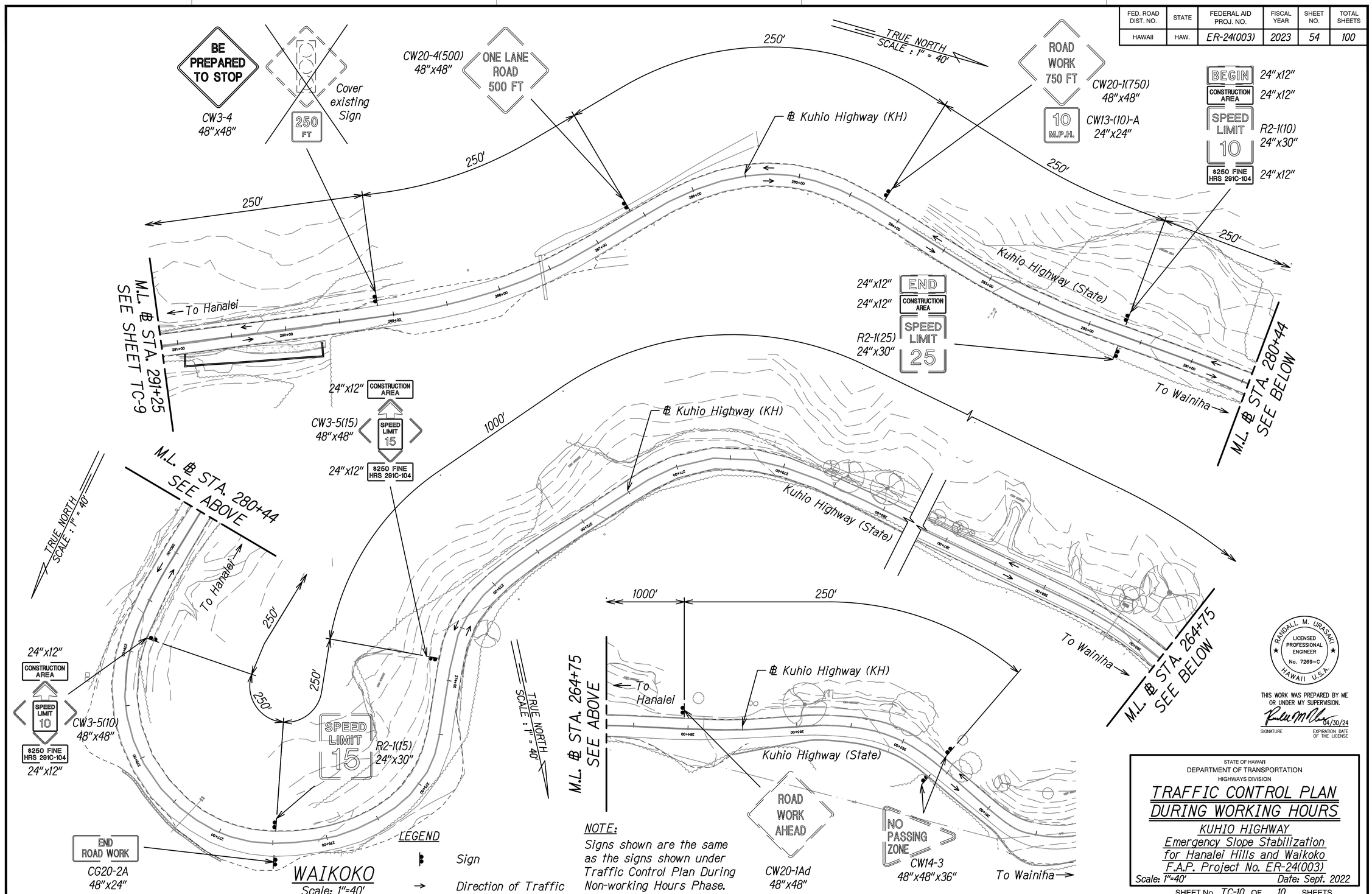
TRAFFIC CONTROL PLAN DURING WORKING HOURS

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=40' Date: Sept. 2022

SHEET No. TC-9 OF 10 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	54	100



NOTE:
Signs shown are the same as the signs shown under Traffic Control Plan During Non-working Hours Phase.

RANDALL M. URASAKI
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HAWAII U.S.A.

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TRAFFIC CONTROL PLAN DURING WORKING HOURS

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: 1"=40' Date: Sept. 2022

SHEET No. TC-10 OF 10 SHEETS

ORIGINAL PLAN
NOTE BOOK
No.

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DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	55	100

A. GENERAL ROCKFALL MITIGATION NOTES:

1. A grading permit is not procured nor required for this slope stabilization project.
2. The Contractor shall be responsible for procuring a right-of-entry to utilize the properties beyond the right-of-way shown during construction.
3. Earth materials placed by the Contractor on sloping ground to establish a temporary construction access/working platform for construction shall be completely removed and the slope restored to the pre-existing natural slope condition.
4. Verify and check all dimensions and details on the contract documents and specifications for discrepancies. Discrepancies shall be brought to the attention of the Engineer for clarification before proceeding with the work.
5. The Contractor shall compile documentation and records of the existence of any significant existing improvements adjacent to the project site immediately before beginning work (pre-construction survey). Documentation shall be performed by the Contractor on the day work commences and shall be done by labeled photographic records and annotated site plan showing the location of existing improvements, such as roadways and utilities.
6. Work incidental to the contract and necessary to complete the project, although not specifically referred to in the contract documents, shall be furnished and performed by the Contractor.
7. Incidental work shall include, but not be limited to, the clearing of existing boulder and vegetation obstructions from the slope face to facilitate construction in accordance with the contract documents. Cut vegetation shall be disposed of properly offsite. Boulders and scaling debris shall be removed from the project site. Select material will be allowed to be placed in an appropriate stable area if approved by the Engineer in writing.
8. In performing all work, the Contractor shall exercise due care and caution necessary to avoid damage to and impairment in the existing utility lines. Any damage inflicted on existing utility lines or structures shall be immediately repaired or restored as directed by the Engineer at the Contractor's expense.
9. The Contractor agrees that he/she will assume sole and complete responsibility for the job site and conditions during the course of construction of the project including safety of all persons and property. This requirement shall apply continuously and shall not be limited only to normal working hours. The Contractor shall indemnify and hold the owner and the Engineer harmless from any and all liability, real or alleged, in connection with the performance of the work on the project, except for liability arising out of the sole negligence of the Engineer.
10. The Contractor shall be responsible for providing a safe working environment on the project site meeting all applicable federal, state, and local requirements while executing the work contained in the contract documents.
11. All construction lines, grades, and survey monument stakeouts shall be performed by a licensed surveyor. The established survey stakeouts must be protected by the use of appropriate off-set survey pin markers for location reference during the construction period.
12. Underground utility lines known to exist by the Engineer are indicated on the plans. Location of the existing utility lines shown on the plans are approximate; therefore, no assurance can be provided that the actual locations will be precisely as shown in the contract documents. The Contractor shall verify the location and depth of the facilities and exercise proper care when excavating in the area.
13. The Contractor shall verify the location of all existing utility lines, whether shown on the plans or not, and shall be responsible for the repair or replacement of same in the event of damages resulting from his/her construction activities. The Contractor shall coordinate his/her work with the respective utility companies or agencies.
14. The Contractor shall make arrangements for utilities such as water, electricity, etc., required for the construction activities and all costs shall be borne by the Contractor.
15. No construction equipment shall be parked within the road such that the equipment will obstruct the normal movement and sight distance of the motorists.
16. The Contractor shall conduct all tests as required in the contract documents or as requested by the Engineer. The Contractor shall be responsible for the expenses incurred in conducting the tests.
17. The Contractor shall anticipate variable subsurface ground conditions consisting of, but not limited to, large embedded boulders, consolidated rocky colluvium, weathered and unweathered basalt rock formation. Foundation excavations encountering hard basalt rock material shall be anticipated by the Contractor. Hard rock excavation may require the use of hoeram and/or rock chipping tools.

B. EROSION CONTROL NOTES AND BEST MANAGEMENT PRACTICES:

1. Measures to control erosion and other pollutants such as temporary storm drain protection shall be in place before any construction work is initiated. These measures shall be properly constructed and maintained throughout the construction period.
2. Temporary silt fence shall be properly constructed and anchored in-place.
3. All erosion control measures shall be checked and repaired or replaced as necessary.
4. All slopes and exposed areas affected by the slope stabilization construction that are flatter than 1H:1V shall be mulched and/or sodded as soon as the rockfall protection system has been completed.
5. Temporary erosion control shall not be removed before permanent erosion control measures are in place and established.
6. All temporary erosion control measures shall be removed by the Contractor after completion of the project prior to final acceptance or as directed by the Engineer in the field.
7. Wash down and cleanup of equipment is not permitted within or adjacent to the existing paved surfaces of the project site.

C.1. ANCHORED WIRE MESH CONSTRUCTION SEQUENCE:

1. Clear slope face of vegetation, loose materials, and protruding rock outcrops.
2. Stake out grouted soil and/or rock anchors in general accordance with the project spacing requirements taking into account the low spots. Obtain Engineer's approval before starting work.
3. Excavation of the dell for pre-tensioning of the anchored wire mesh before drilling the grouted soil and/or rock anchors.
4. Installation of the grouted soil and/or rock anchors (final anchor heads shall not project above the terrain line or predominant slope line).
5. Lay and anchor erosion control matting in areas to receive new anchored wire mesh system in accordance with manufacturer's recommendations. Erosion control matting shall meet or exceed the following properties:

   Fibers: extruded monofilaments
   Specific Mass: g_m = 600 g/m^2
   Material: Polypropylene (PP)
   Structure: irregular loopy structure
   Thickness: h_m = 18 mm
   Tensile Strength: MD: $z_m \geq$ 1.8 kN/m, CMD: $z_m \geq$ 0.6 kN/m
   Tensile Strain: MD: ε = 20%, CMD: ε = 20%

6. Lay the steel wire mesh panels on the slope.
7. Join the steel wire mesh panels together with appropriate clips.
8. Fit the boundary wire ropes around the perimeter of the anchored wire mesh system and fasten the wire mesh to the boundary ropes with appropriate clips.
9. Install the spike plates and pre-tension the anchors with torque wrench in order to tension the anchored wire mesh to the grouted soil/rock anchors to at least 11.2 kips.

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

ROBIN M. LIM
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
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APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ROCKFALL PROTECTION NOTES-1

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-1 OF 30 SHEETS

DRAWING NAME: A:\DRAFTING\WORKING\7707-70_HANALEI_HILLSIDE_FLUME_AND_DITCH_CHANNEL\7707-70_SHEETGENERALNOTES.DWG PLOT TIME: 09-02-22, 1:32 PM)

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	56	100

C.2 SLOPE PREPARATION NOTES:

1. The Contractor shall be responsible for protecting the highway and all appurtenances from damage resulting from the Contractor's activities. The Contractor shall be solely responsible for repairing any damage resulting from the clearing and/or other construction activities.

2. The Contractor shall protect the traffic on the highway from any rockfall or debris hazards at all times during the Contractor's activities.

3. Prior to drilling the soil/rock anchors for the new anchored wire mesh system, the slope face shall be cleared of all trees and shrubs and any previously existing damaged anchor wire mesh structure.

4. The slope face to receive the new anchored wire mesh system shall be hand scaled to remove loose and/or excess materials to expose a firm substrate on the slope face to the Engineer's satisfaction.

5. Protruding rock outcrops shall be trimmed to provide a smooth face to receive the anchored wire mesh to the Engineer's satisfaction.

6. The tops of all slopes shall be rounded to the Engineer's satisfaction. (Applies to Hanalei Hills Only)

7. The Contractor shall exercise extra care in the hand scaling work and shall avoid over-steepening the slope face that may cause instability of the slope face. If the Contractor encounters unstable slope conditions that may constitute a potential landslide during the slope preparation work, notify the Engineer immediately.

8. Debris or other materials that hang up on the slope during the slope preparation operations shall be removed and completed to the satisfaction of the Engineer.

9. The Contractor shall maintain equipment on-site at all times to remove debris from the highway to allow the passage of emergency vehicles in the event that emergency vehicles require passage through the project area along the highway during the lane closure times. The slope preparation activities shall be temporarily suspended to allow the passage of the emergency vehicles through the project area along the highway.

C.3 ANCHORED WIRE MESH SYSTEM MATERIALS:

1. All hardware for the anchored wire mesh system shall be powder coated with a black pigment, and boundary wire rope shall be PVC coated (black in color).

2. Boundary wire rope and grouted soil and/or rock anchors (including the steel reinforcing bar for the grouted anchor, wire rope, heavy duty wire rope thimbles, wire rope clips (cable clamps), steel plates, heavy hex nuts, washers, etc.) shall be hot dipped galvanized. All exposed hardware shall be powder coated black.

3. Heavy-duty wire rope thimble shall not be in contact with the threads of the steel reinforcing bar.

4. The stainless steel sleeve (swage) shall be placed outside of the galvanized steel plate (trap plate) and within one wire rope diameter of the end of the heavy-duty wire rope thimble in accordance with the manufacturer's recommendations.

5. The saddle of the wire rope clip shall be placed on the live end of the wire rope cable and the U-bolt shall be placed on the dead end of the wire rope cable.

6. The Contractor shall follow the wire rope manufacturer's recommendation for the spacing of the wire rope clips and torque for the u-bolts.

7. The torque on 10% of the wire rope clips shall be checked after loading in the presence of the Engineer.

8. The grouted soil and/or rock anchors shall have a design pullout capacity (design load) of 36 kips unless directed otherwise by the Engineer. The Contractor shall test a minimum of 5% of the grouted soil and/or rock anchors for pullout in accordance with the specifications.

9. The steel wire mesh for the anchored wire mesh system shall be manufactured from 0.157-inch (4-mm) diameter high-tensile steel wire. The high-tensile steel wire shall have a minimum tensile strength of 256,000 psi or 4.5 kips.

10. The grouted soil and/or rock anchor shall consist of 1.375-inch diameter (38-mm diameter) high-strength Grade 75 solid threaded bar installed in a minimum 8-inch diameter drilled hole filled with non-shrink grout. The non-shrink grout shall be non-shrink, non-metallic, non-gaseous and shall have a minimum unconfined compressive strength of 4,000 psi or greater.

11. All soil nail grout shall have a minimum 28-day compressive strength f'c of 4,000 psi and have a maximum 0.36 water-to-cement ratio. In addition, the grout shall contain the following:

    (1) 94 lbs. of Type I/II cement, 4 gallons of water, 3-6 lbs. of MasterRoc FLC 100 Admixture or approved equal, and 1 oz. of an amine carboxylate corrosion inhibiting water-based admixture such as Cortec MCI 2005 NS or approved equal.

    (2) Glenium 3030 or approved equal may be used as a high range water reducer for workability.

Soil/Rock Anchor Design Parameters:
- A. Hanalei Hill 100% DL = 42 kips
- B. Waikoko Hill 100% DL = 42 kips

D. ADDITIONAL SCOPE OF WORK - LOWER SLOPE AREA BETWEEN STA. 477+50 AND 479+50

1. Replace the top three rows of the existing grouted soil/rock anchors (approximately 75 grouted soil/rock anchors).

2. Replace the anchored wire mesh (approximately 3,600 square feet).

3. Replace all the spike plates and end caps of all the remaining existing grouted soil/rock anchors.

4. All this additional scope of work will be paid as Force Account Work.

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

DRAWING NAME: A:\DRAFTING\DRAFTING\WORKING\7707-70_HANALEI_HILLSIDE_FLUME_AND_DITCH_CHANNEL\7707-70_SHEETGENERALNOTES.DWG PLOT TIME: 09-02-22, 1:31 PM)

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APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

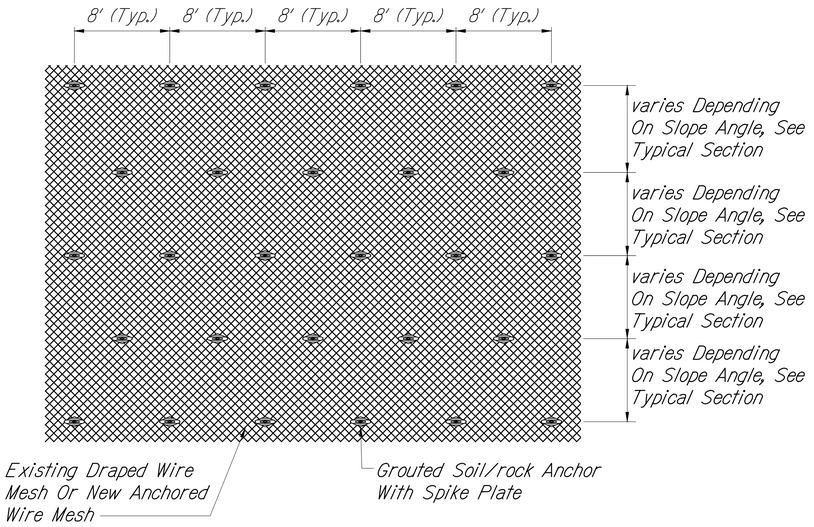
ROCKFALL PROTECTION NOTES-2

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

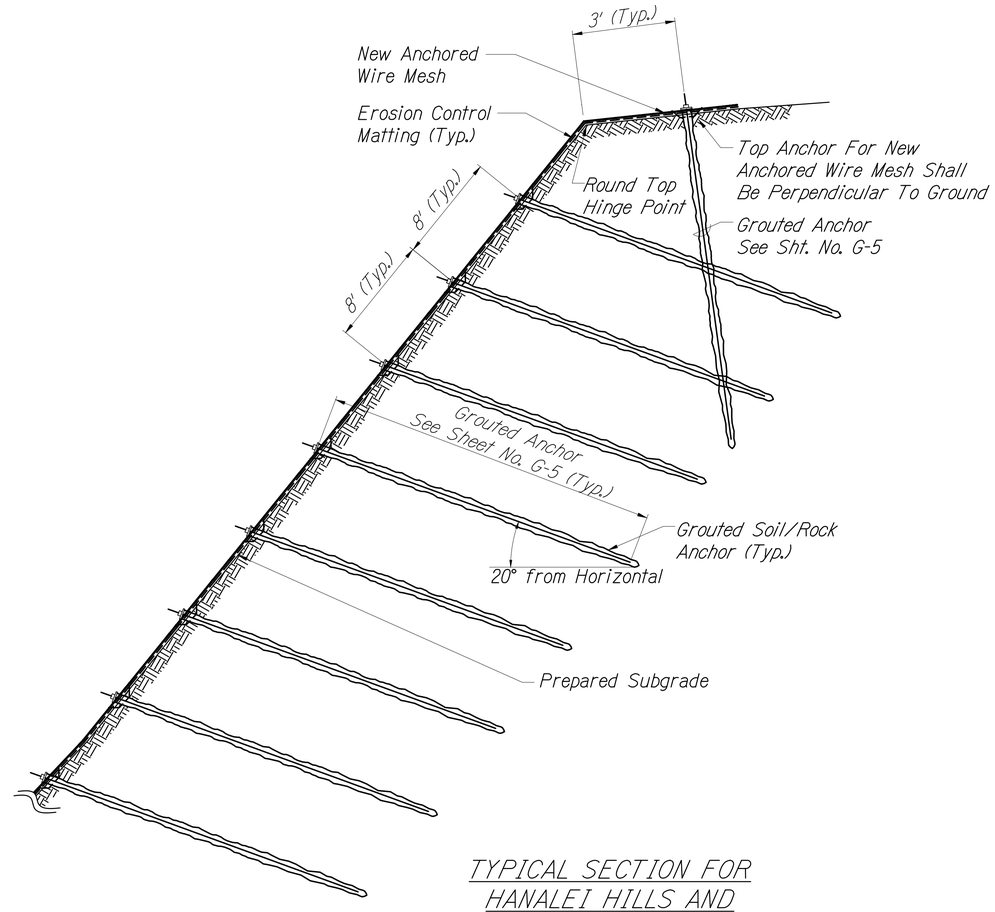
Scale: As Noted Date: Sept. 2022

SHEET No. G-2 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	57	100



TYPICAL ELEVATION VIEW FOR HANALEI HILLS AND WAIKOKO ROCKFALL



TYPICAL SECTION FOR HANALEI HILLS AND WAIKOKO ROCKFALL

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

DRAWING NAME: A:\DRAFTING\DRAFTING\WORKING\7707-70_HANALEI_HILLSIDE_FLUME_AND_DITCH_CHANNEL\7707-70_SHEETANCHORLAYOUTDETAILS.DWG PLOT TIME: 09-02-22, 1:34 PM)

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APRIL 30, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SLOPE STABILIZATION TYPICAL SECTION

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-3 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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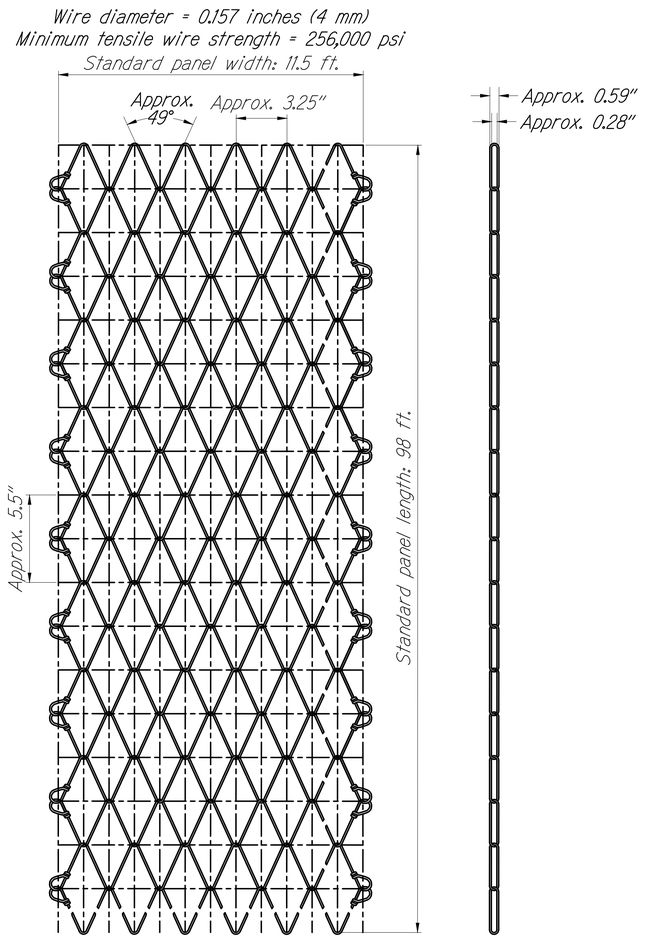
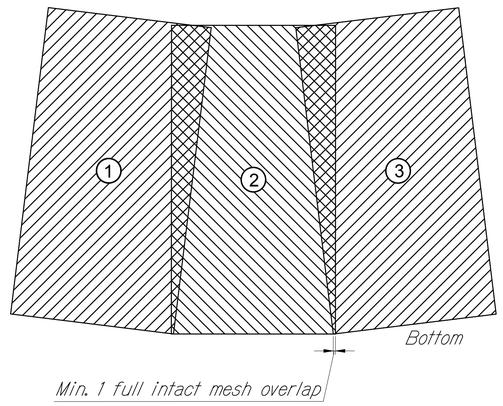
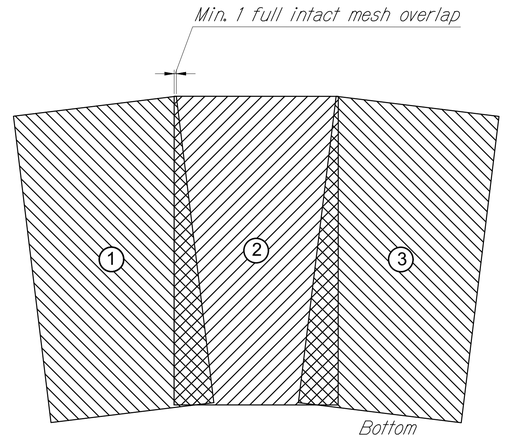


WIRE MESH PANEL (Typ.)

PROFILE VIEW



MESH OVERLAP FOR CONVEX SLOPE



MESH OVERLAP FOR CONCAVE SLOPE

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APRIL 30, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

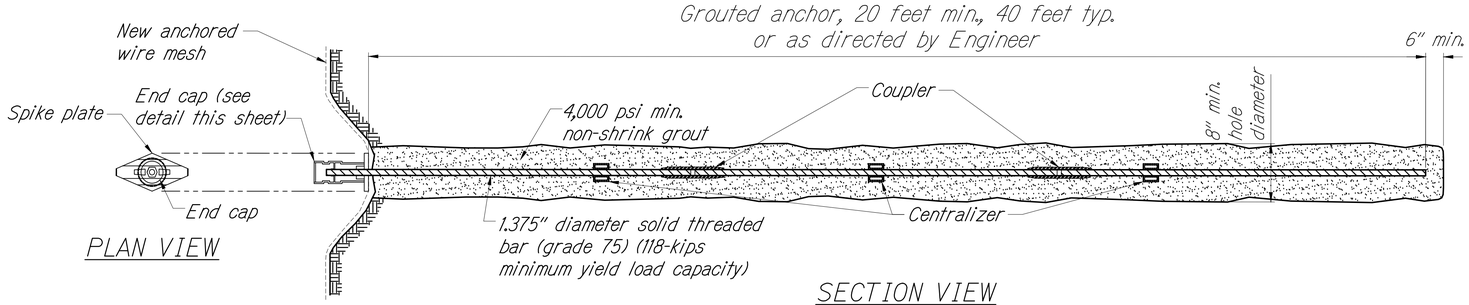
ANCHORED WIRE MESH DETAILS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

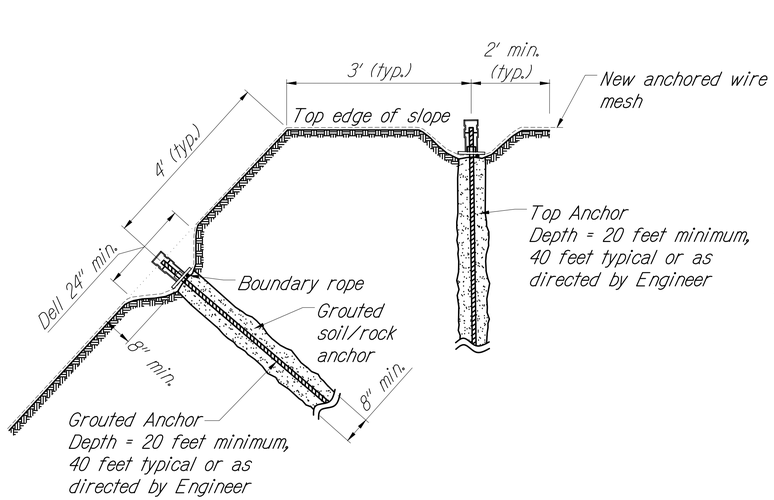
SHEET No. G-4 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	59	100

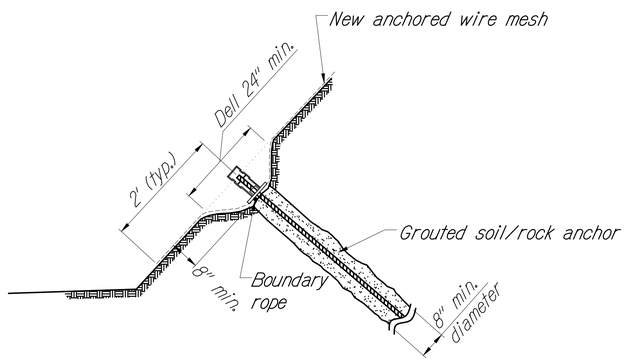


Note: Grouted Anchor Length Below:

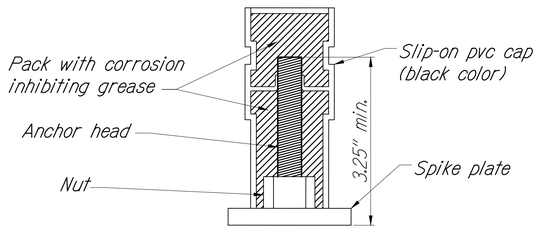
Location	Grouted Anchor Length (feet)
Hanalei Hills	20 feet minimum, 40 feet typical or as directed by Engineer
Waikoko	20 feet minimum, 40 feet typical or as directed by Engineer



TYPICAL DELL OR DEPRESSION AROUND GROUTED ANCHOR CONDITION AT TOP EDGE OF ANCHORED WIRE MESH



TYPICAL DELL OR DEPRESSION AROUND GROUTED ANCHOR CONDITION AT BOTTOM EDGE OF ANCHORED WIRE MESH



GROUTED ANCHOR END CAP ELEVATION

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APRIL 30, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

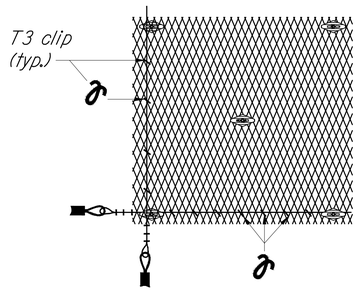
GROUTED SOIL/ROCK ANCHOR DETAIL

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

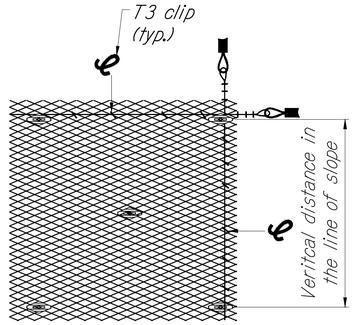
Scale: As Noted Date: Sept. 2022

SHEET No. G-5 OF 30 SHEETS

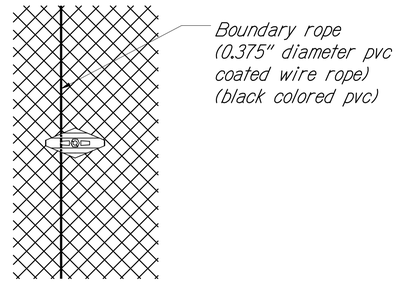
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	60	100



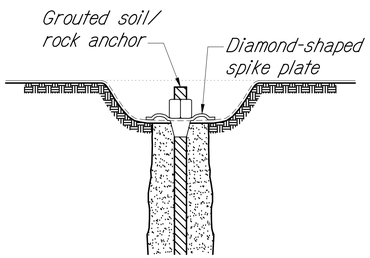
BOUNDARY ROPE AT
THE BOTTOM AND SIDE OF
ANCHORED WIRE MESH SYSTEM



BOUNDARY ROPE
AT THE TOP AND SIDE OF
ANCHORED WIRE MESH SYSTEM

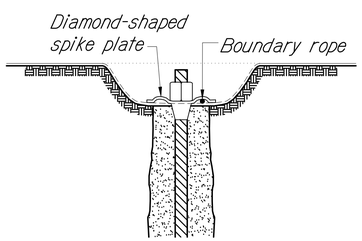


GROUTED SOIL/ROCK
ANCHOR AND SPIKE PLATE
WITH VERTICAL BOUNDARY ROPE



GROUTED SOIL/ROCK
ANCHOR AND SPIKE PLATE

Note: Plastic end cap
on grouted anchor
not shown



GROUTED SOIL/ROCK
ANCHOR AND SPIKE PLATE
WITH HORIZONTAL BOUNDARY ROPE

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
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APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

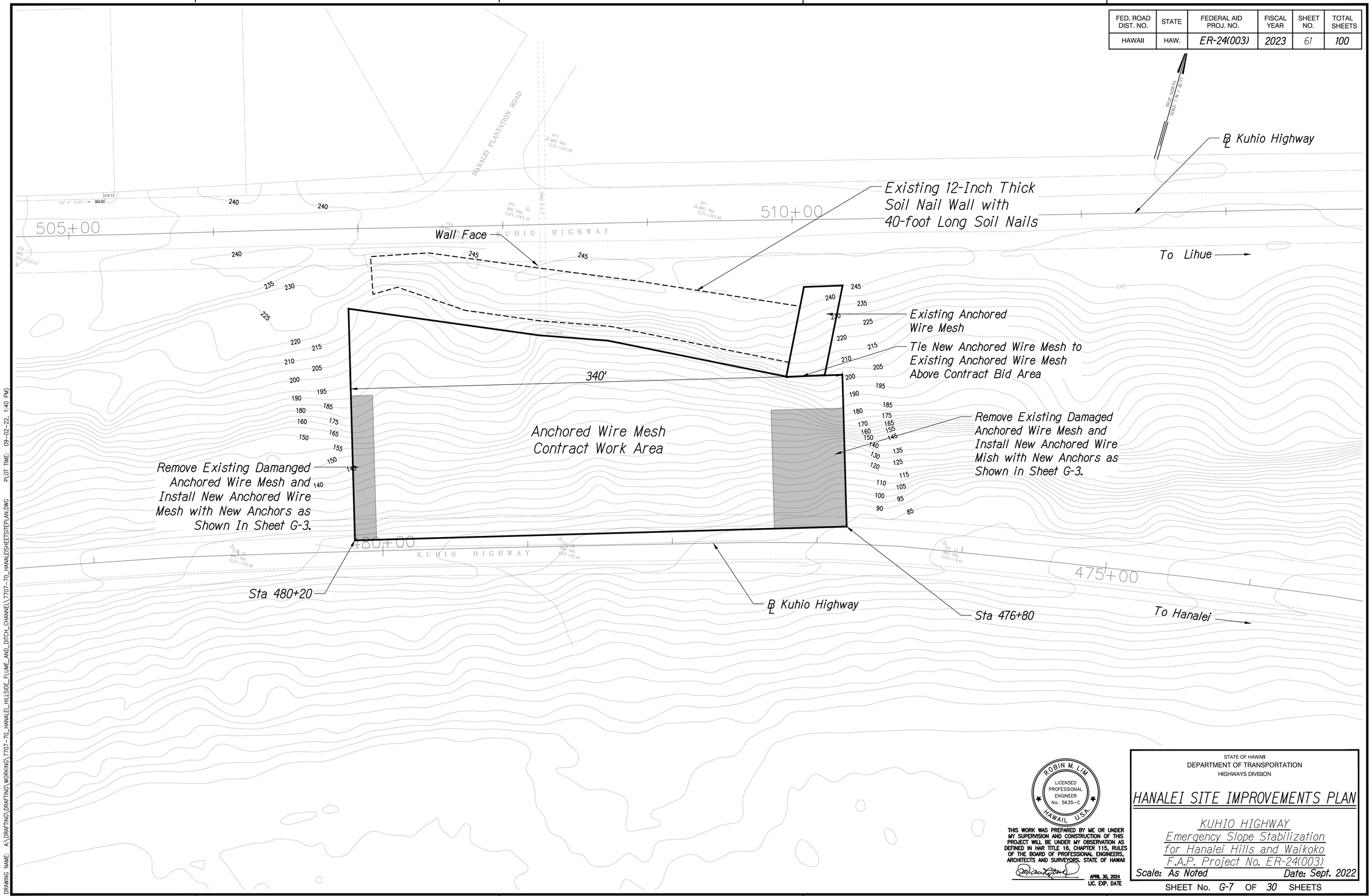
BOUNDARY ROPE DETAILS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-6 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	61	100



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ORIGINAL PLAN	SURVEY PLOTTED BY ____ DATE
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	DESIGNED BY ____
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	CHECKED BY ____

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APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

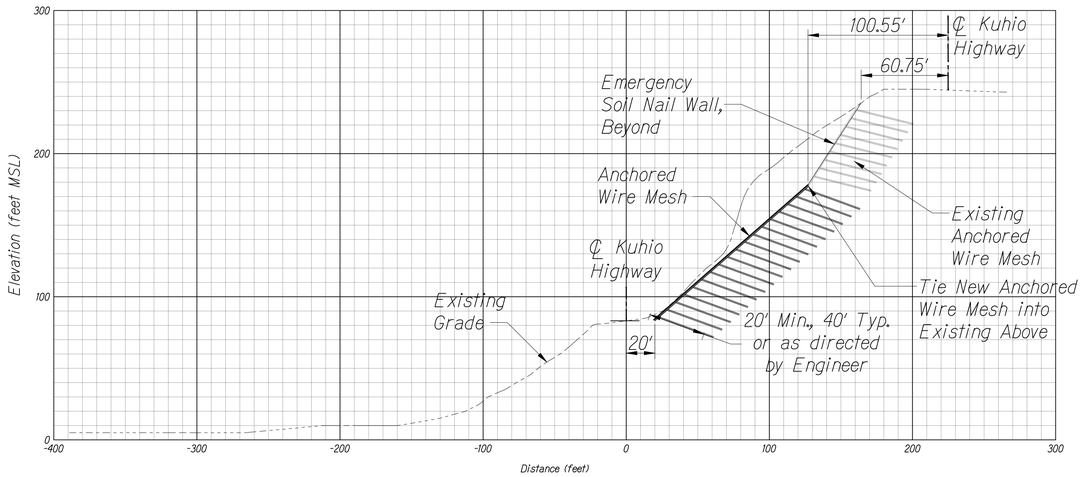
HANALEI SITE IMPROVEMENTS PLAN

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

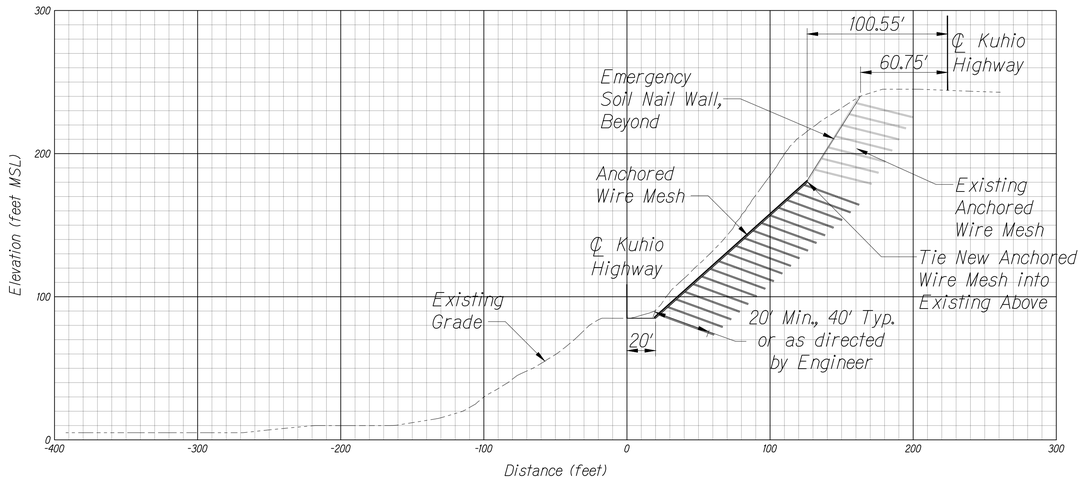
SHEET No. G-7 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	62	100



Sta. 476+80

Scale: 1" = 50'



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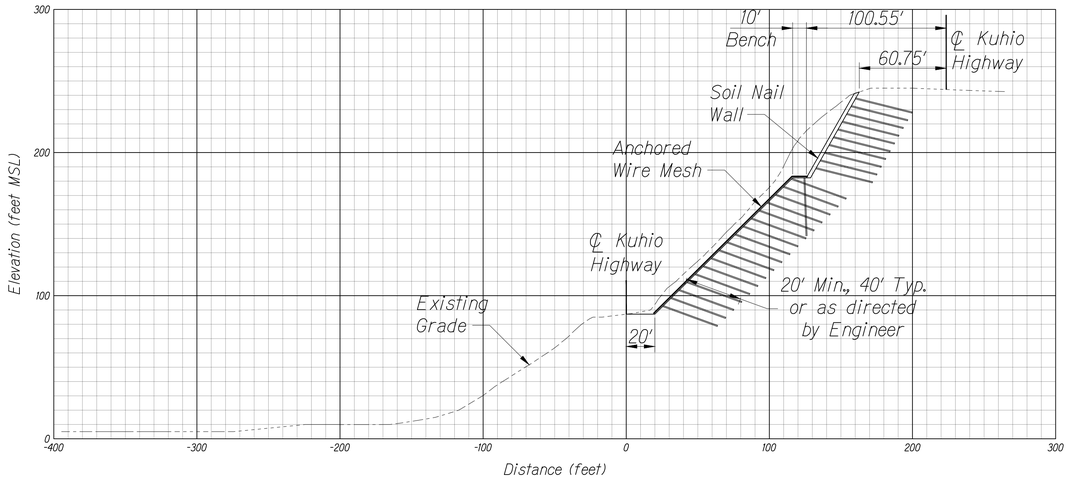
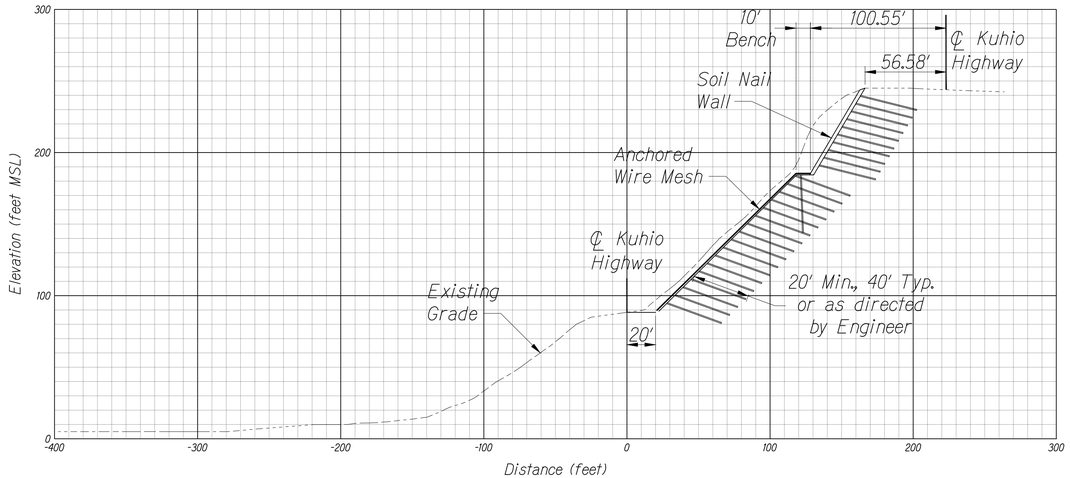


Sta. 477+20 Begin Soil Nail Wall

Scale: 1" = 50'



Sta. 477+40

Scale: 1" = 50'

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APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HANALEI CROSS SECTIONS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-8 OF 30 SHEETS

ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
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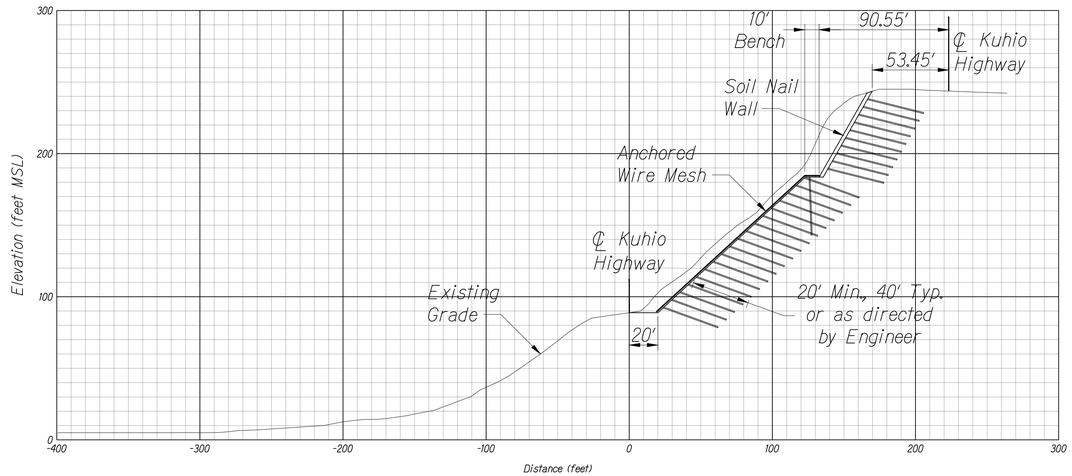
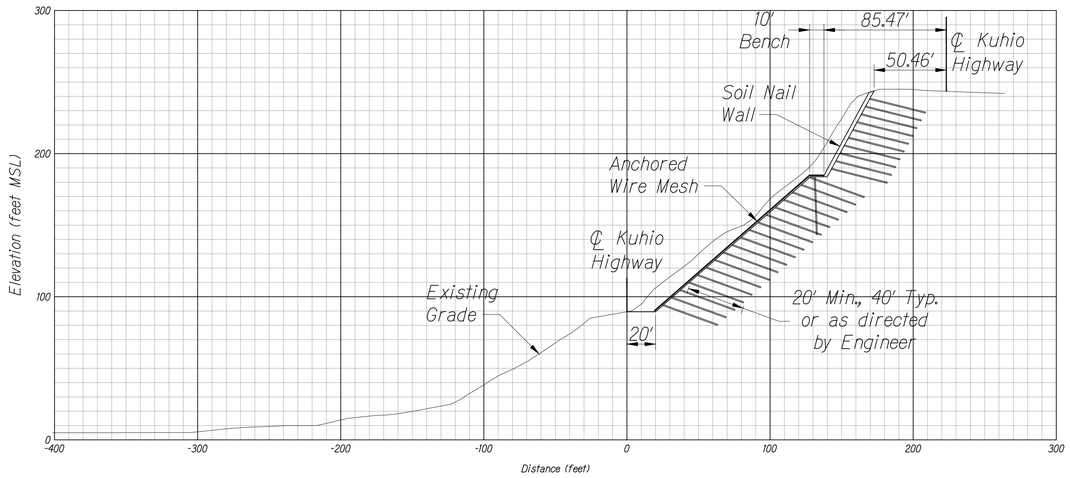
DRAWING NAME: A:\DRAFTING\DRAFTING\WORKING\7707-70_HANALEI_HILLSIDE_FLUME_AND_DITCH_CHANNEL\7707-70_HANALEISHEETCROSSSECTIONS.DWG PLOT TIME: 09-02-22, 1:43 PM)

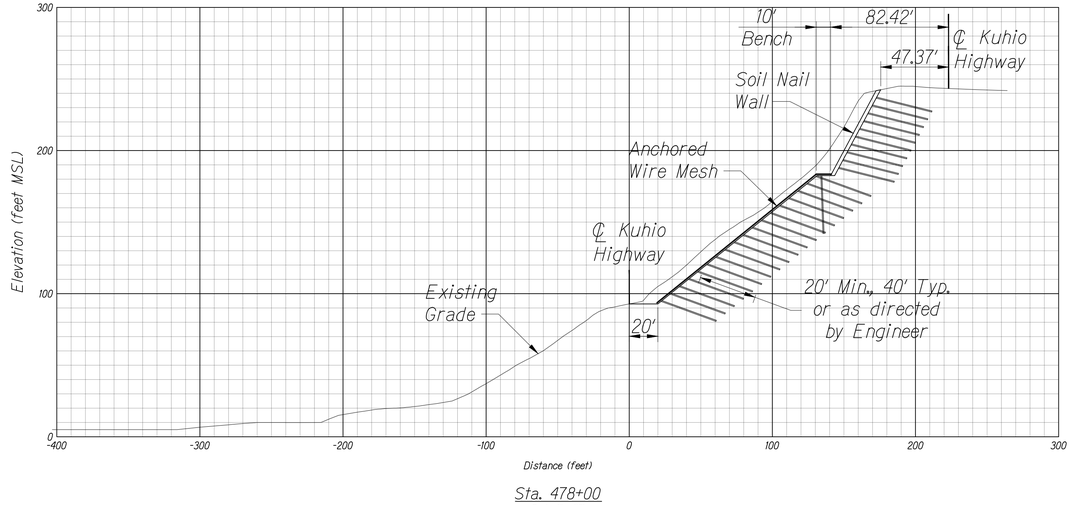
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	63	100



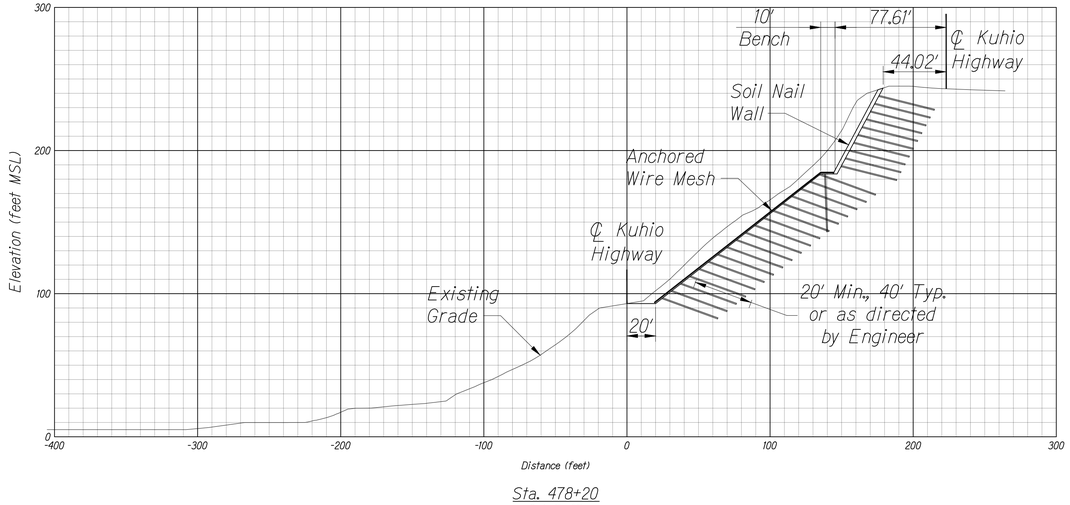
Sta. 477+60
Scales 1" = 50'



Sta. 477+80
Scales 1" = 50'



Sta. 478+00
Scales 1" = 50'



Sta. 478+20
Scales 1" = 50'

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

DRAWING NAME: A:\DRAFTING\DRAFTING\WORKING\7707-70_HANALEI_HILLSIDE_FLUME_AND_DITCH_CHANNEL\7707-70_HANALEISHEETCROSSSECTIONS.DWG PLOT TIME: 09-02-22, 1:43 PM)

ROBIN M. LIM
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
HAWAII, U.S.A.

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APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

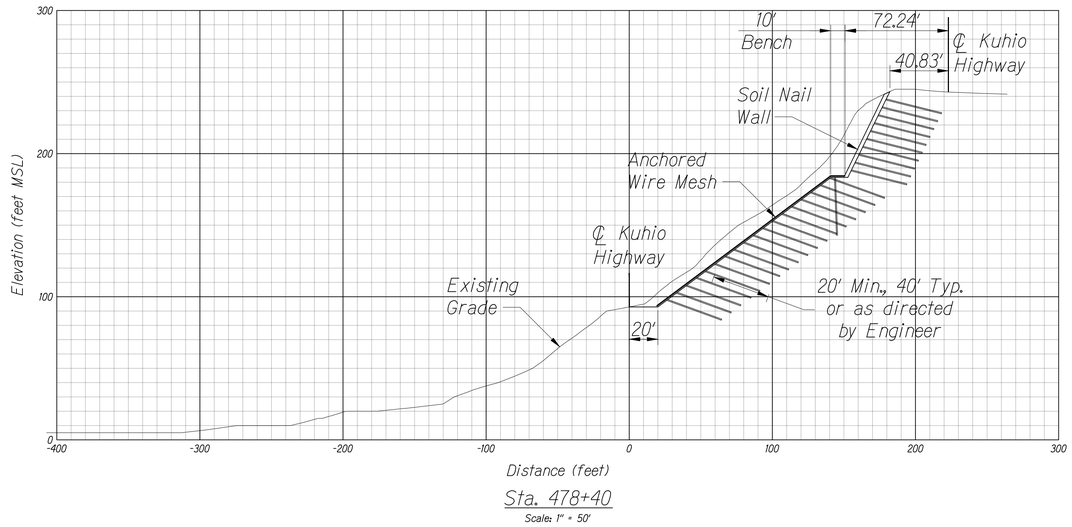
HANALEI CROSS SECTIONS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

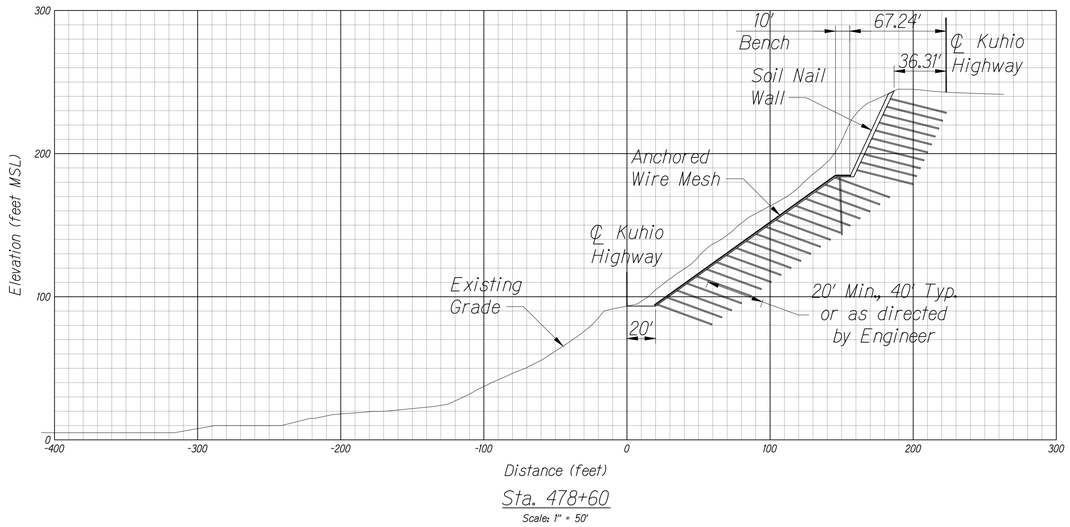
SHEET No. G-9 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	64	100



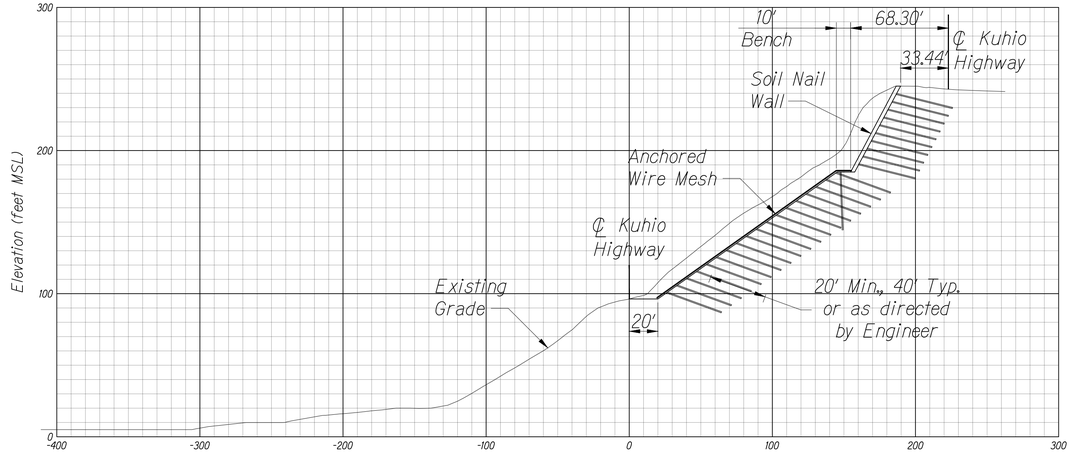
Sta. 478+40

Scale: 1" = 50'



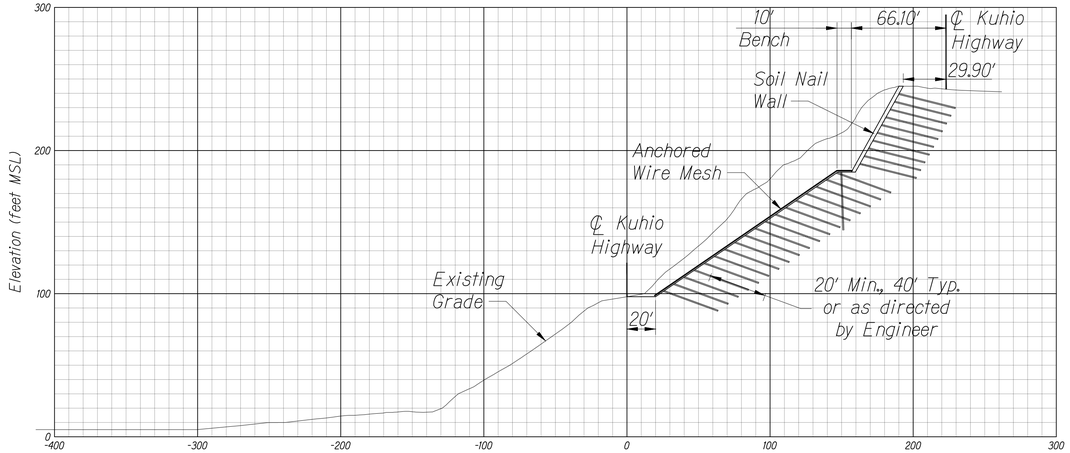
Sta. 478+60

Scale: 1" = 50'



Sta. 478+80

Scale: 1" = 50'



Sta. 479+00

Scale: 1" = 50'

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

DRAWING NAME: C:\USERS\HENRY\APPDATA\LOCAL\TEMP\ACPUBLISH_18660\7707-70_HANALEISHEETCROSSSECTIONS.DWG PLOT TIME: 09-02-22, 1:44 PM

ROBIN M. LIM
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
HAWAII, U.S.A.

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APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

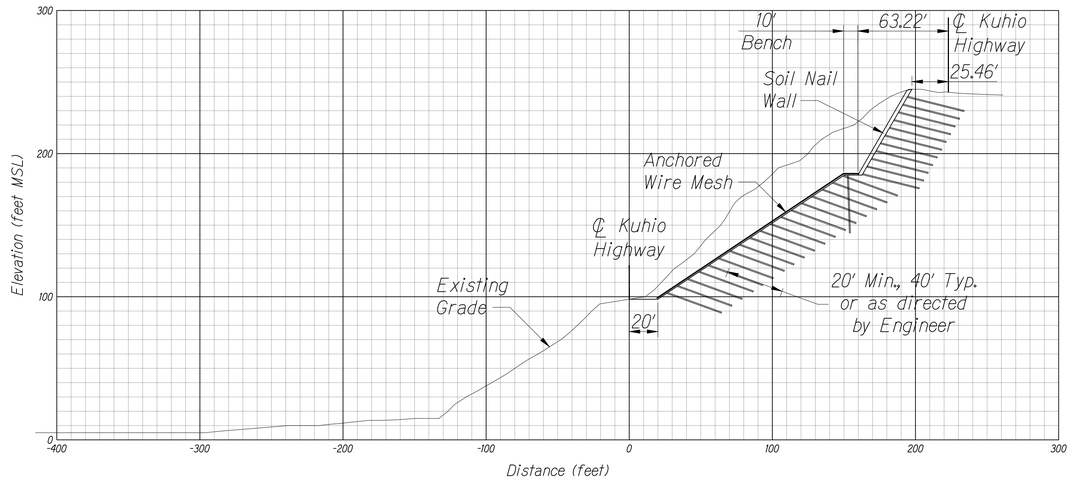
HANALEI CROSS SECTIONS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

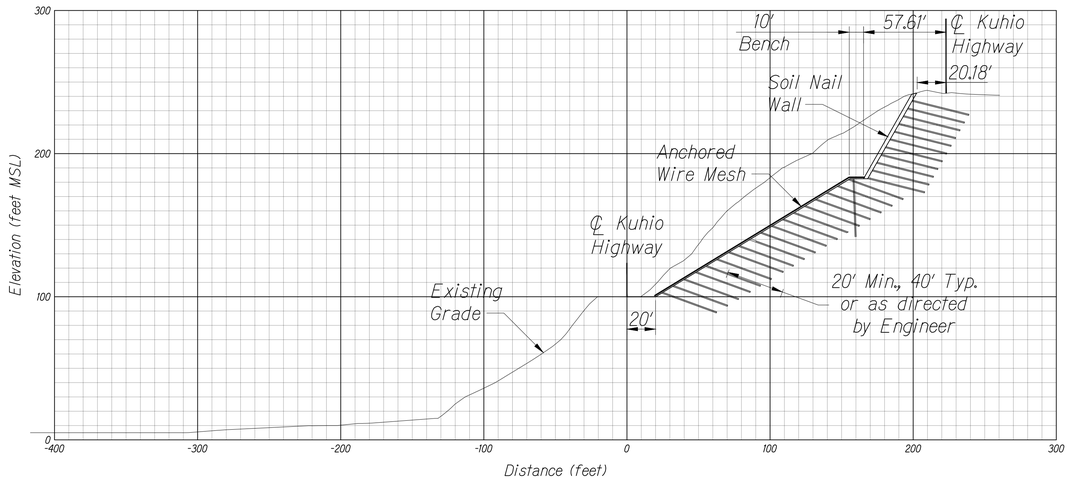
SHEET No. G-10 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	65	100



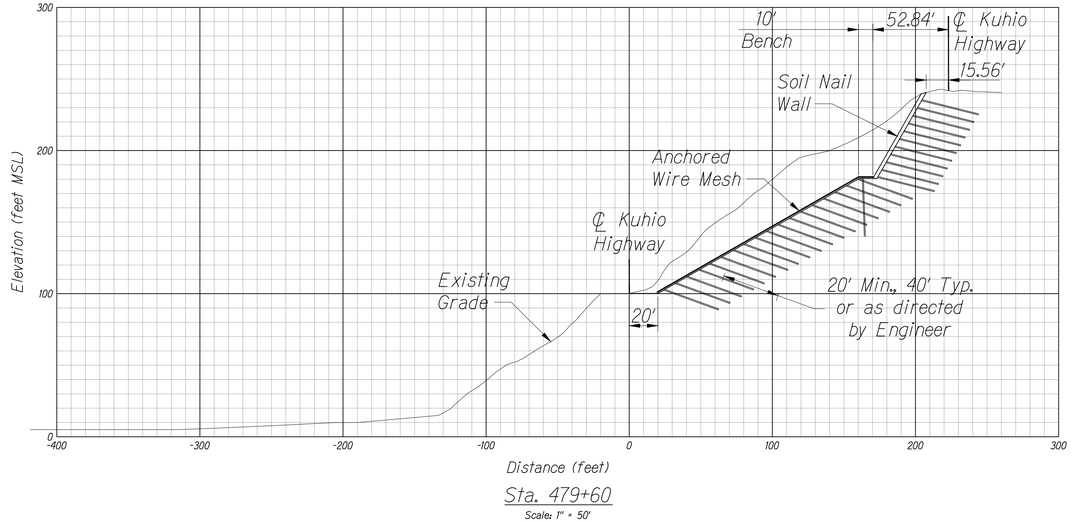
Sta. 479+20

Scale: 1" = 50'



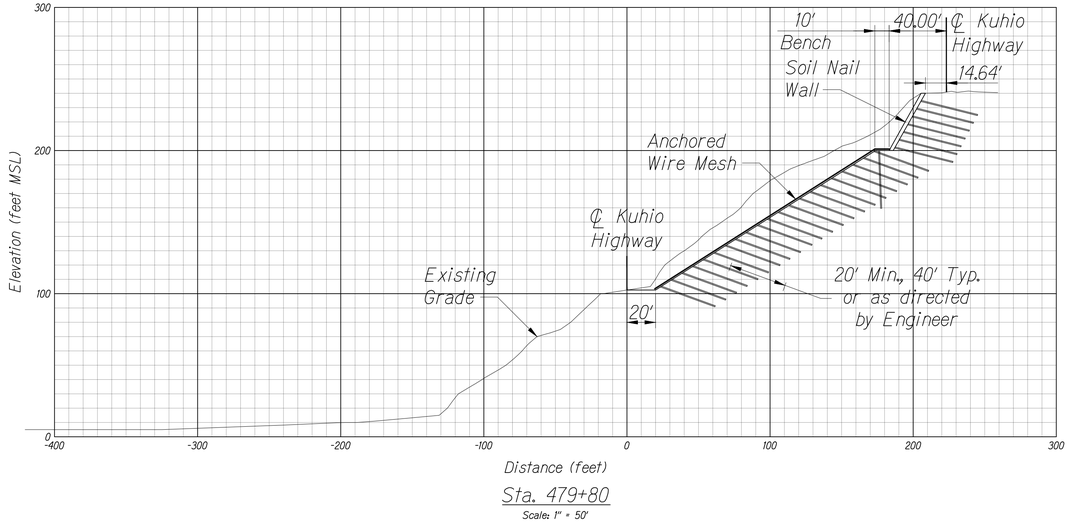
Sta. 479+40

Scale: 1" = 50'



Sta. 479+60

Scale: 1" = 50'



Sta. 479+80

Scale: 1" = 50'

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LICENSED PROFESSIONAL ENGINEER
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HAWAII, U.S.A.

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APRIL 30, 2024
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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

HANALEI CROSS SECTIONS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

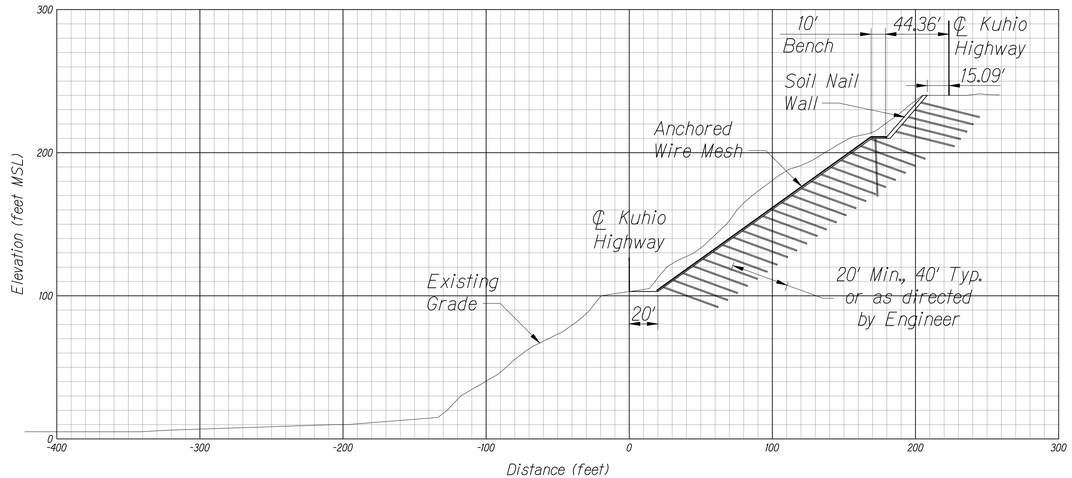
Scale: As Noted Date: Sept. 2022

SHEET No. G-11 OF 30 SHEETS

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

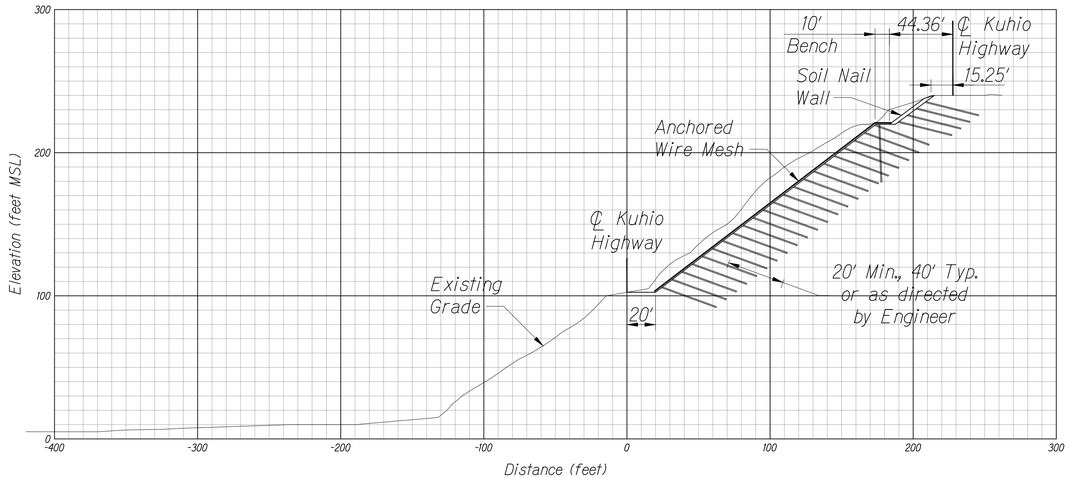
DRAWING NAME: C:\USERS\HENRY\APPDATA\LOCAL\TEMP\ACPUBLISH_18660\7707-70_HANALEISHEETCROSSSECTIONS.DWG PLOT TIME: 09-02-22, 1:44 PM)

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	66	100



Sta. 480+00

Scale: 1" = 50'



Sta. 480+20

Scale: 1" = 50'

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

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APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

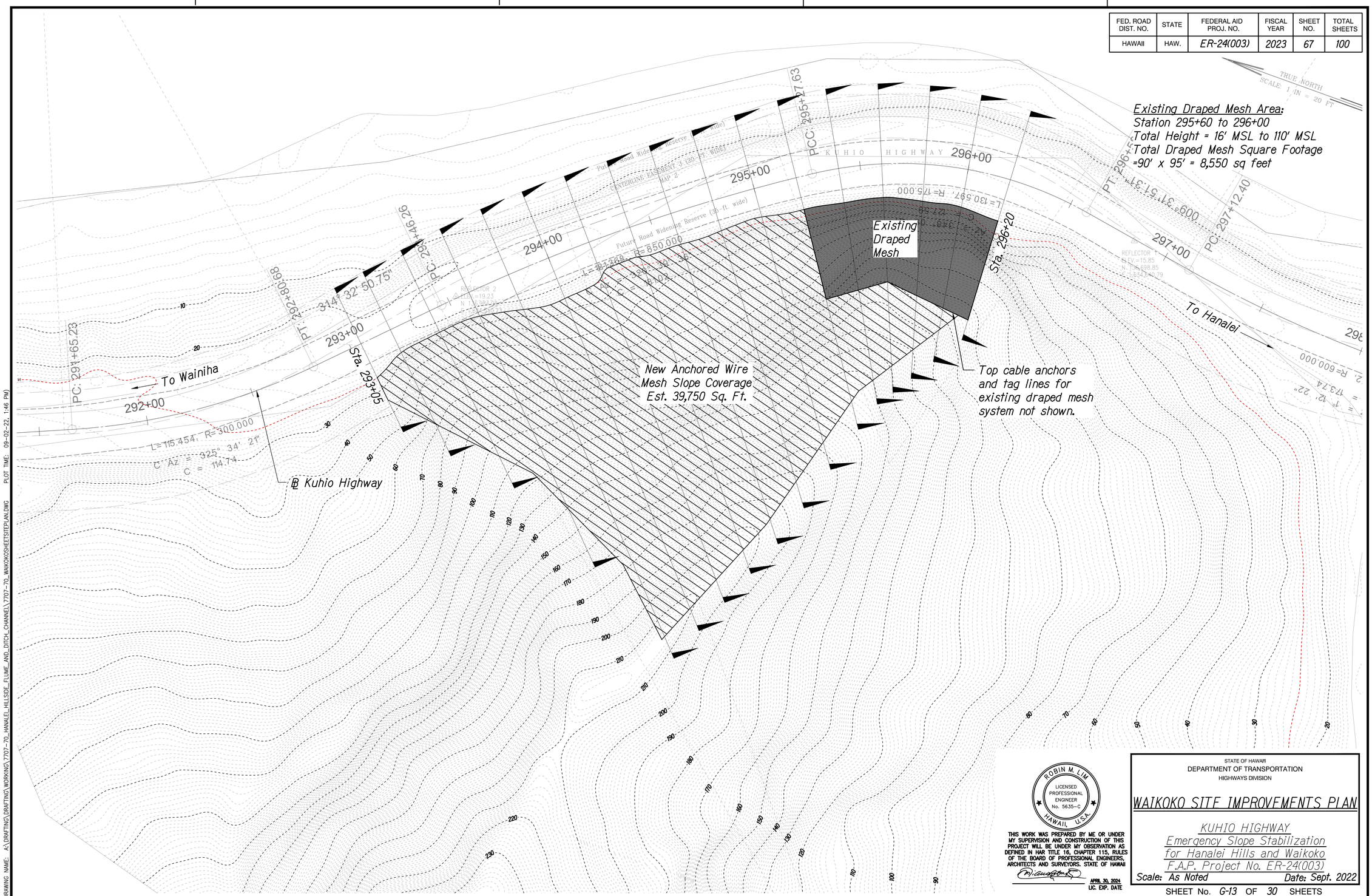
HANALEI CROSS SECTIONS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-12 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	67	100



PLOT TIME: 09-02-22, 1:46 PM)

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

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APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

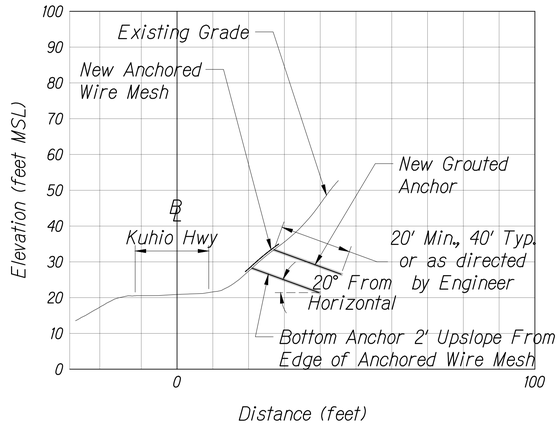
WAIKOKO SITE IMPROVEMENTS PLAN

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-13 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	68	100



Sta 293+05 - Start of Anchored Wire Mesh

Scale: 1"=20'

ORIGINAL PLAN

SURVEY PLOTTED BY _____ DATE
DRAWN BY _____
TRACED BY _____
DESIGNED BY _____
QUANTITIES BY _____
CHECKED BY _____

NOTE BOOK _____
No. _____

DRAWING NAME: C:\USERS\HENRY\APPDATA\LOCAL\TEMP\ACPUBLISH_18660\7707-70_WAIKOKOSHEETCROSSSECTIONS.DWG PLOT TIME: 09-02-22, 1:47 PM)

ROBIN M. LIM
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
HAWAII, U.S.A.

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APRIL 30, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

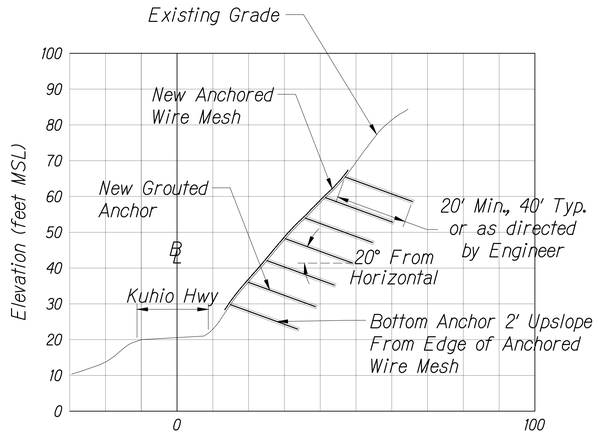
WAIKOKO CROSS SECTION - Sta 293+05

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-14 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	69	100



Sta 293+20

Scale: 1"=20'

ORIGINAL PLAN

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

DRAWING NAME: C:\USERS\HENRY\APPDATA\LOCAL\TEMP\ACPUBLISH_18660\7707-70_WAIKOKOSHEETCROSSSECTIONS.DWG PLOT TIME: 09-02-22, 1:47 PM

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LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

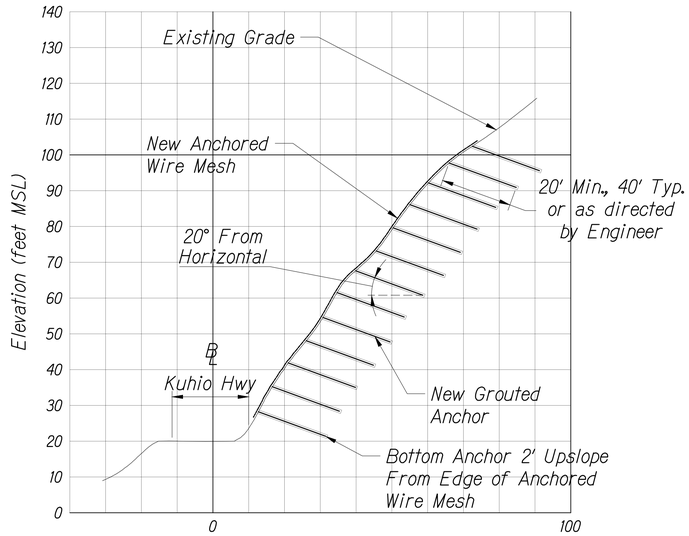
WAIKOKO CROSS SECTION - Sta 293+20

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-15 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	70	100



Sta 293+40

Scale: 1"=20'

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

DRAWING NAME: C:\USERS\HENRY\APPDATA\LOCAL\TEMP\ACPUBLISH_18680\7707-70_WAIKOKOSHEETCROSSSECTIONS.DWG PLOT TIME: 09-02-22, 1:47 PM)

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

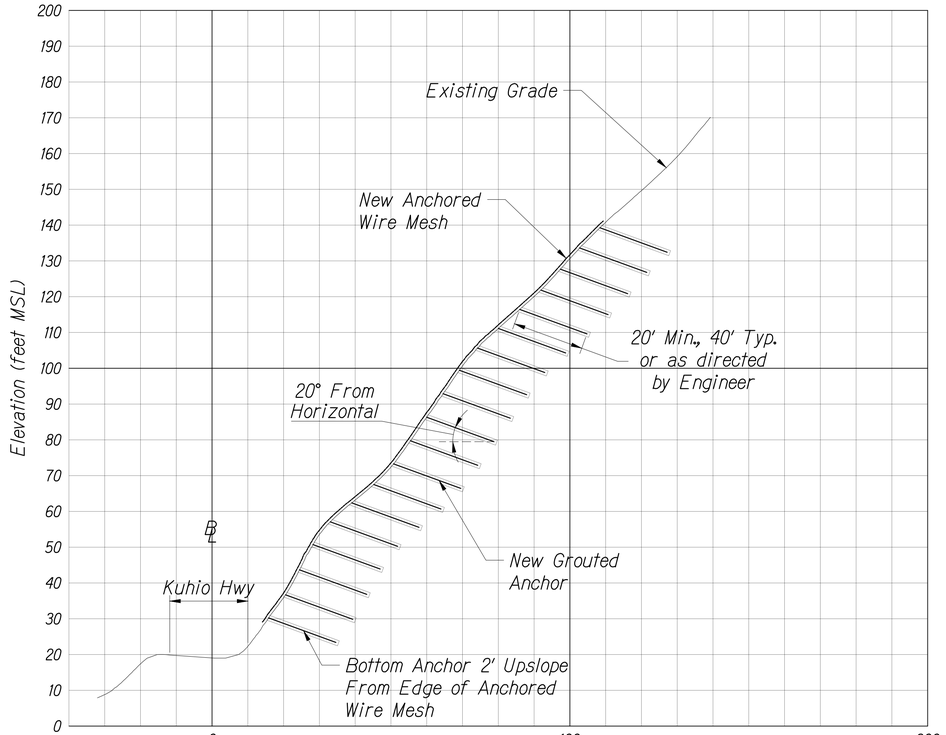
WAIKOKO CROSS SECTION - Sta 293+40

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-16 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	71	100



Sta 293+60

Scale: 1"=20'

ORIGINAL PLAN

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

DRAWING NAME: C:\USERS\HENRY\APPDATA\LOCAL\TEMP\ACPUBLISH_18660\7707-70_WAIKOKOSHEETCROSSSECTIONS.DWG PLOT TIME: 09-02-22, 1:48 PM)

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APRIL 30, 2024
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STATE OF HAWAII
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HIGHWAYS DIVISION

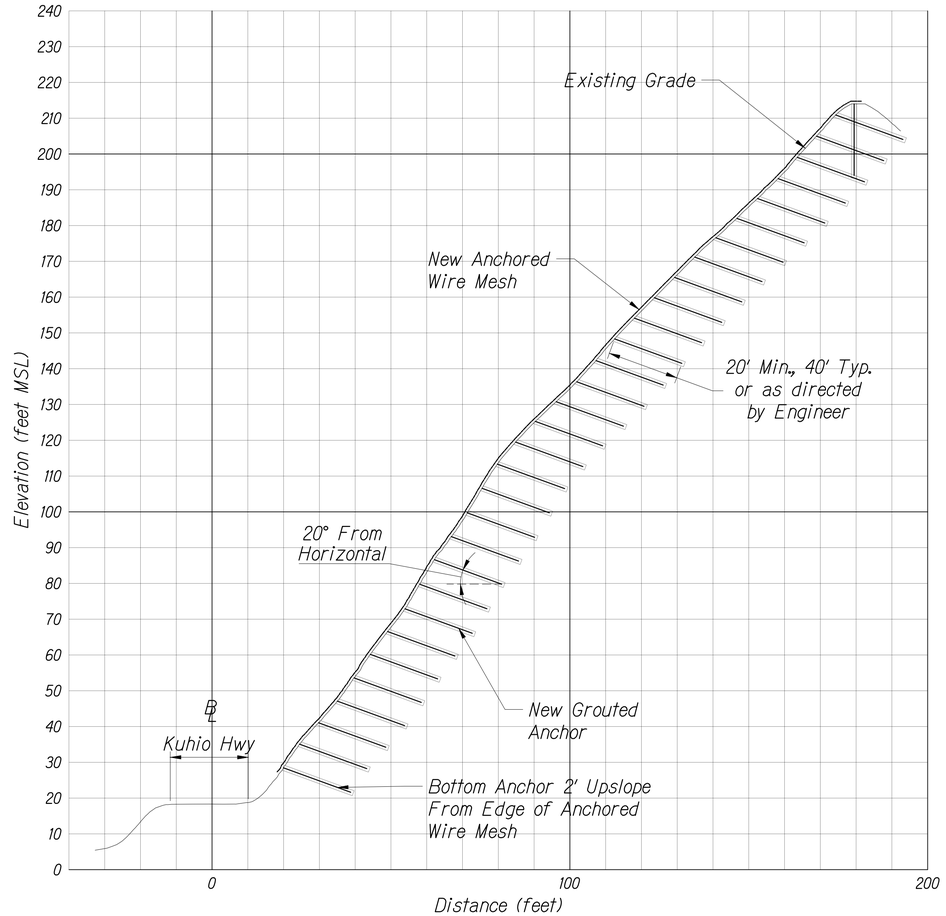
WAIKOKO CROSS SECTION - Sta 293+60

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-17 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	72	100



Sta 293+80

Scale: 1"=20'

ORIGINAL PLAN

SURVEY PLOTTED BY
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QUANTITIES BY
CHECKED BY
DATE

NOTE BOOK
No.

DRAWING NAME: C:\USERS\HENRY\APPDATA\LOCAL\TEMP\ACPUBLISH_18660\7707-70_WAIKOKOSHEETCROSSSECTIONS.DWG PLOT TIME: 09-02-22, 1:48 PM)

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APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

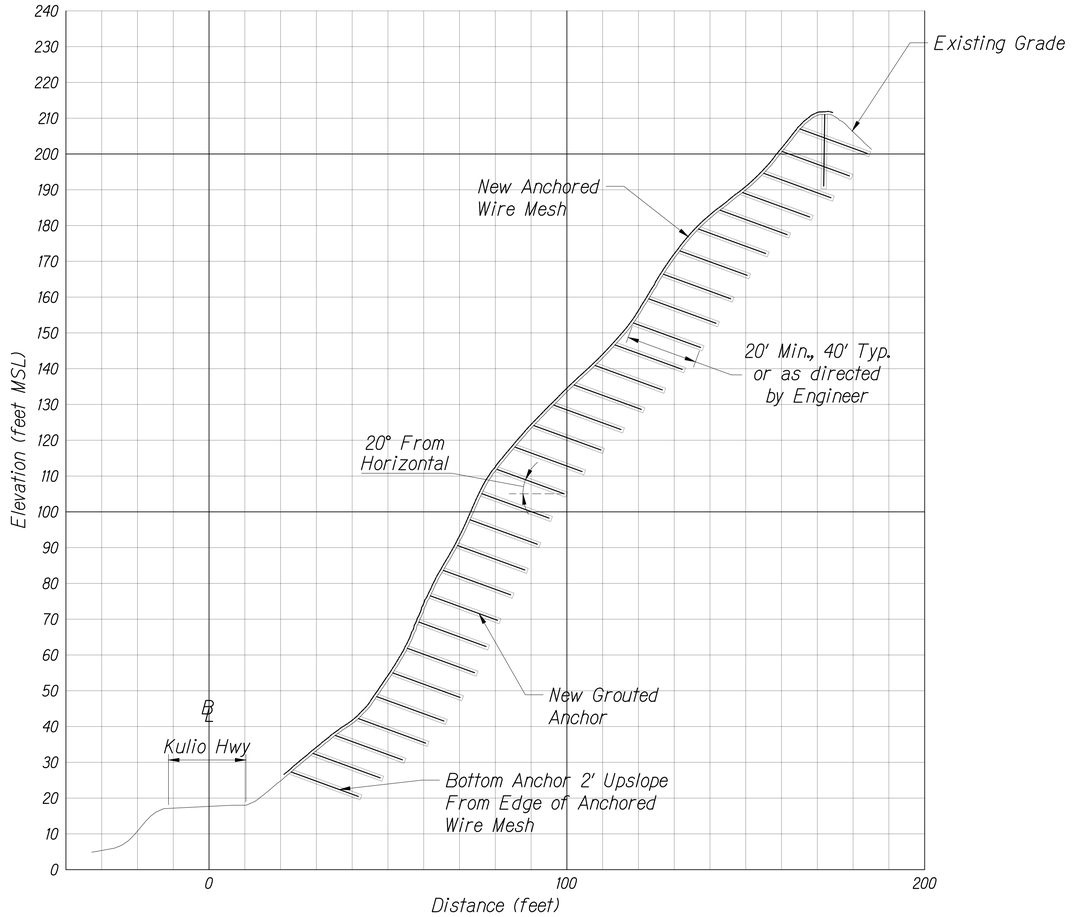
WAIKOKO CROSS SECTION - Sta 293+80

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-18 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	73	100



Sta 294+00

Scale: 1"=20'

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

DRAWING NAME: C:\USERS\HENRY\APPDATA\LOCAL\TEMP\ACPUBLISH_18660\7707-70_WAIKOKOSHEETCROSSSECTIONS.DWG PLOT TIME: 09-02-22, 1:48 PM

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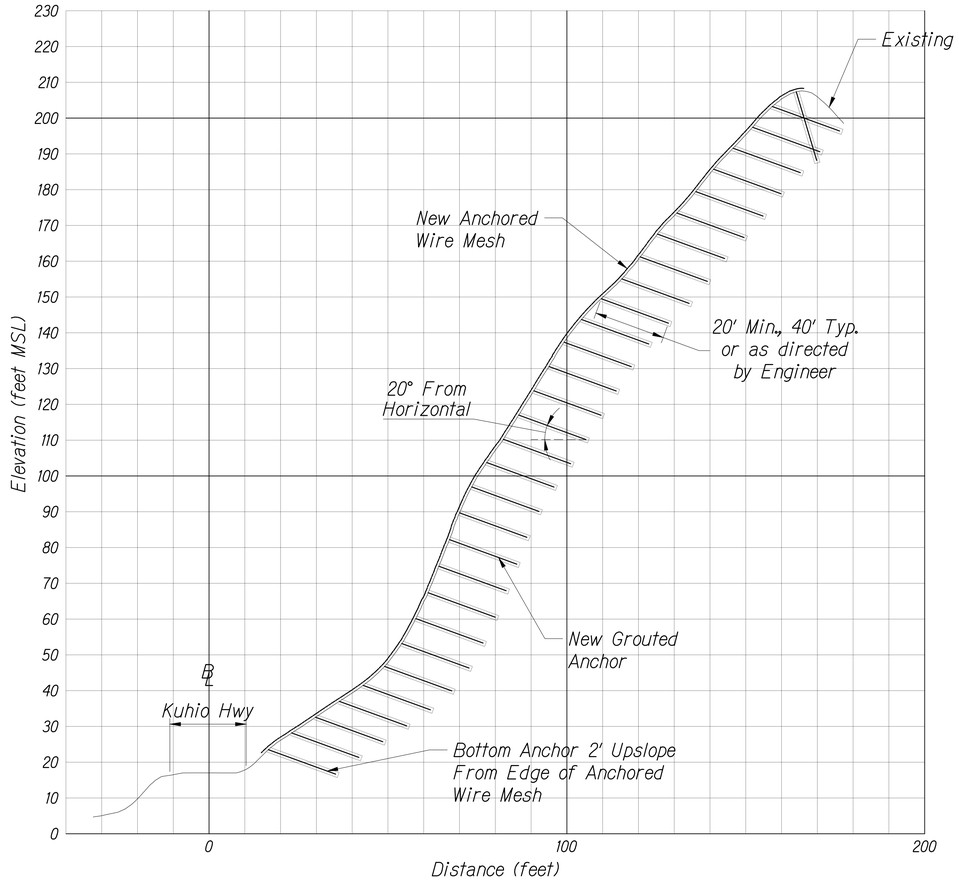
WAIKOKO CROSS SECTION - Sta 294+00

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-19 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	74	100



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ROBIN M. LIM
LICENSED PROFESSIONAL ENGINEER
No. 5635-C
HAWAII, U.S.A.

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APRIL 30, 2024
LIC. EXP. DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

WAIKOKO CROSS SECTION - Sta 294+20

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-20 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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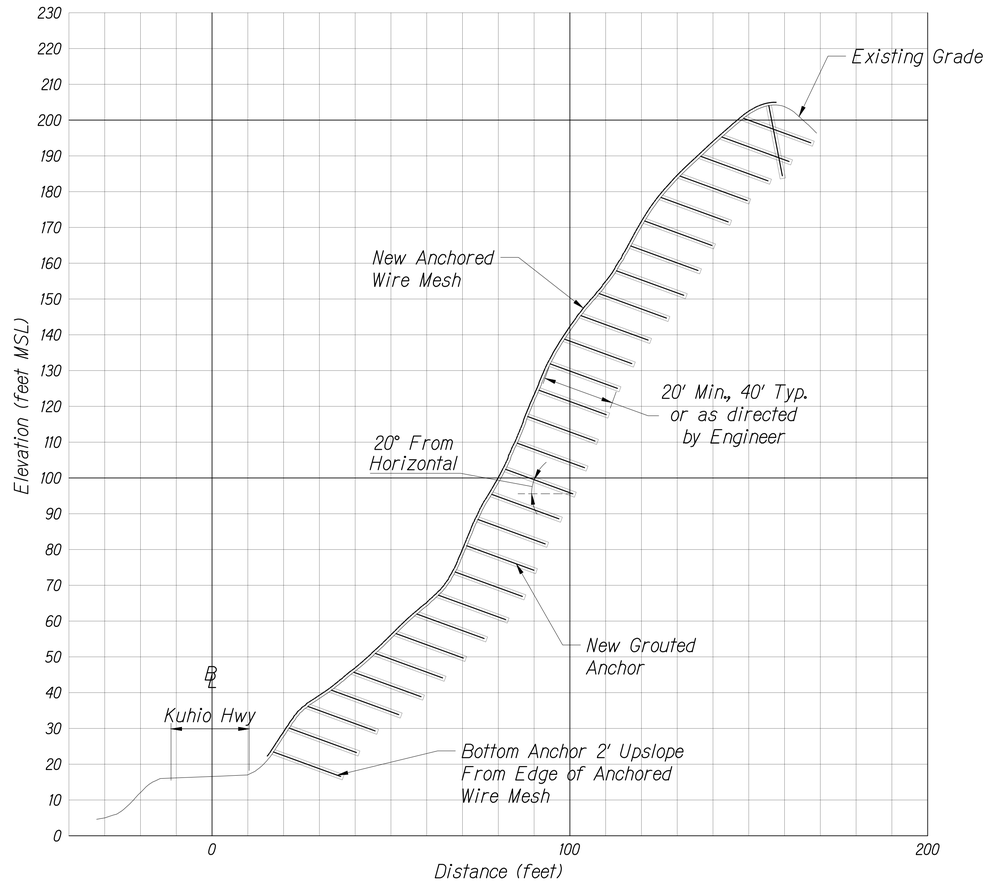

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Scale: 1"=20'

ORIGINAL PLAN

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WAIKOKO CROSS SECTION - Sta 294+40

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-21 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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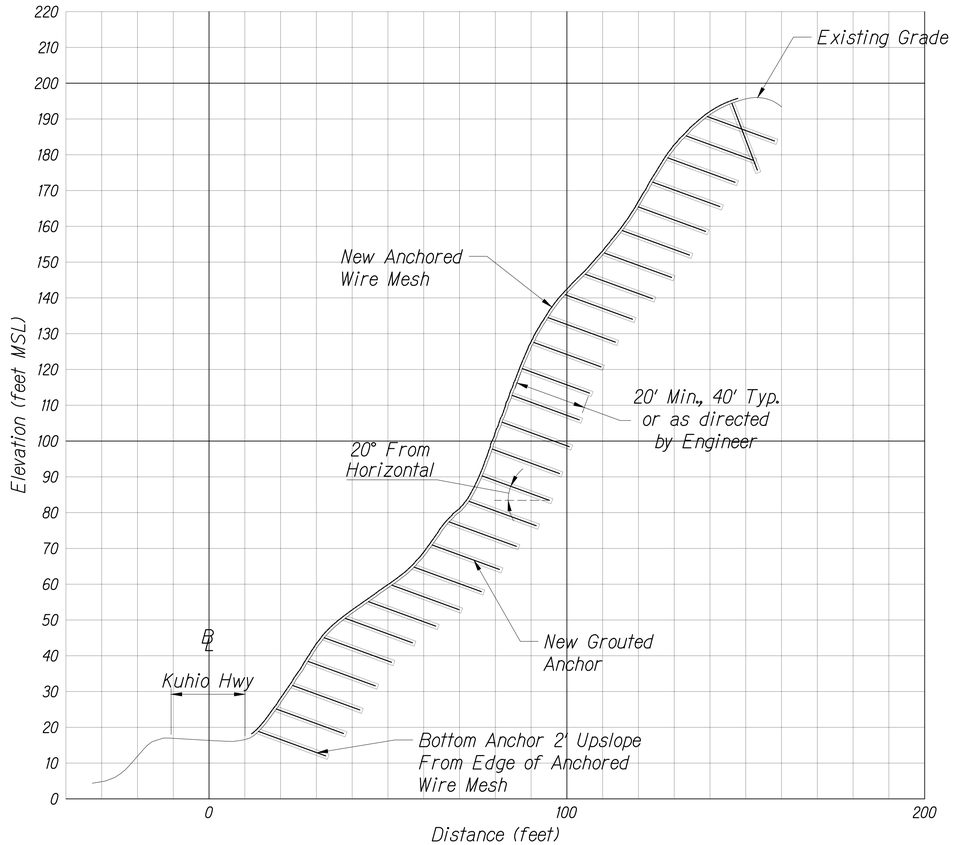

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STATE OF HAWAII
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WAIKOKO CROSS SECTION - Sta 294+60

KUHIO HIGHWAY
Emergency Slope Stabilization
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F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-22 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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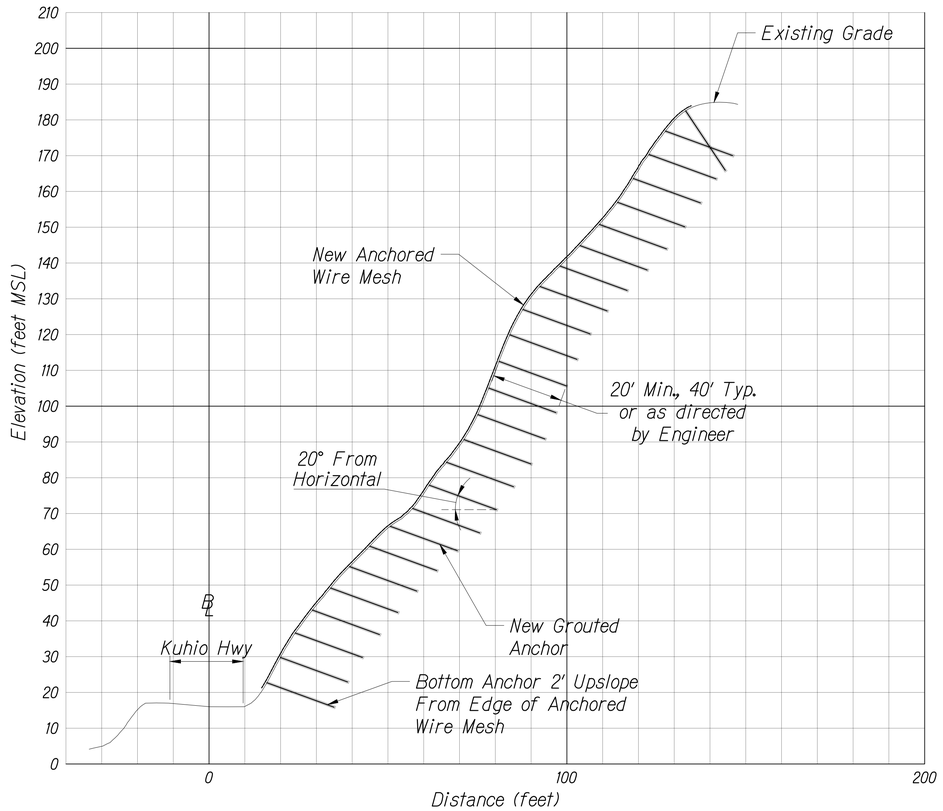

Sta 294+80

Scale: 1"=20'

ORIGINAL PLAN

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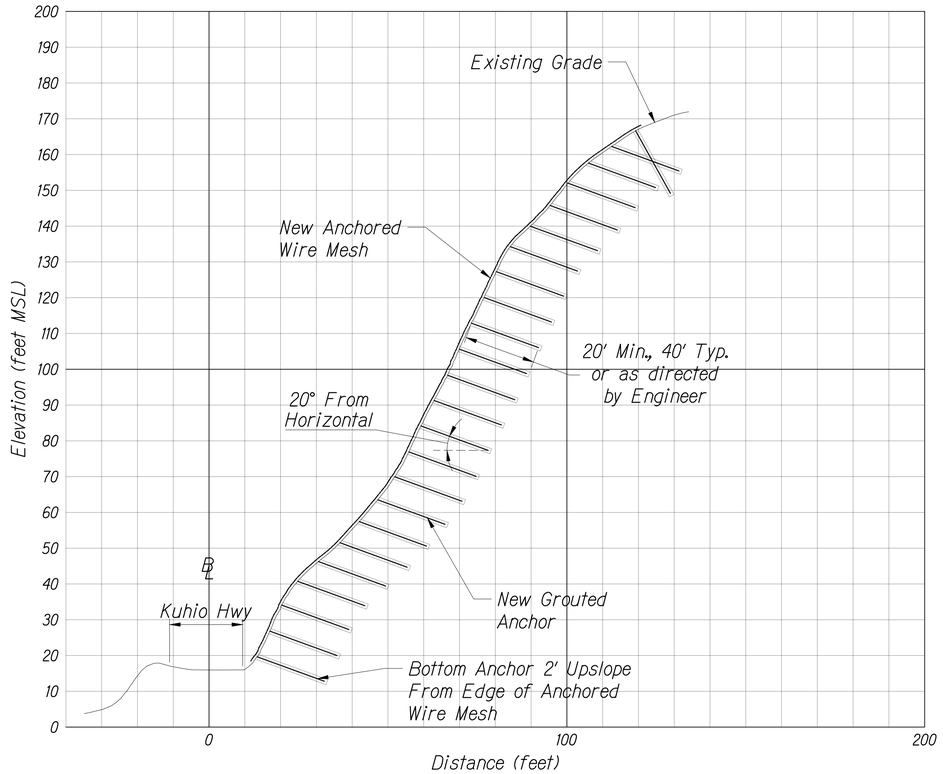
WAIKOKO CROSS SECTION - Sta 294+80

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-23 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	78	100



Sta 295+00

Scale: 1"-20'

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STATE OF HAWAII
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HIGHWAYS DIVISION

WAIKOKO CROSS SECTION - Sta 295+00

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-24 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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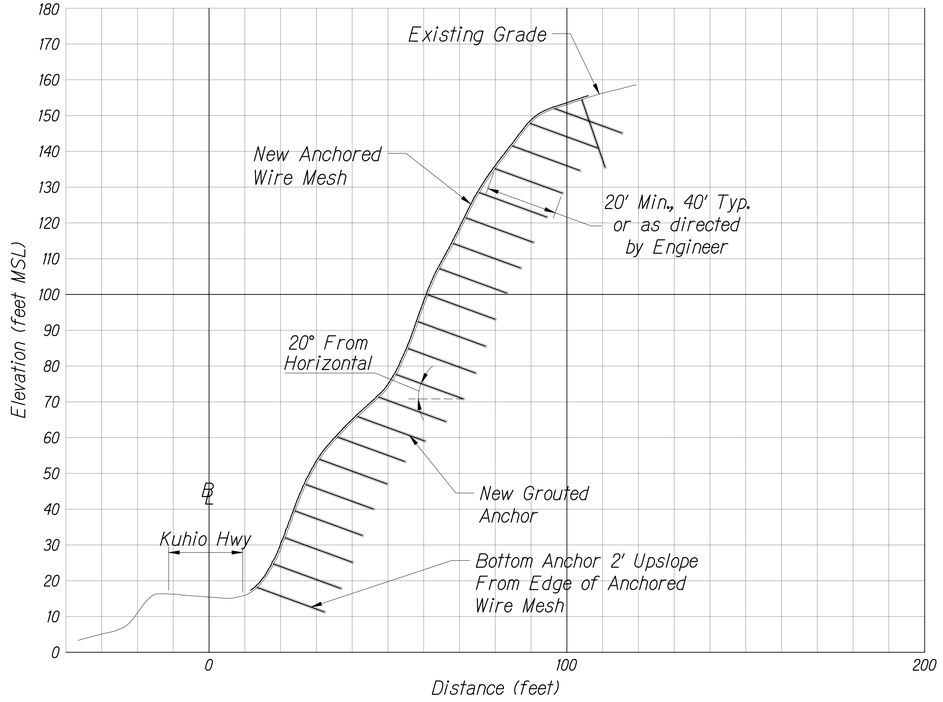

Sta 295+20

Scale: 1"-20'

ORIGINAL PLAN

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APRIL 30, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

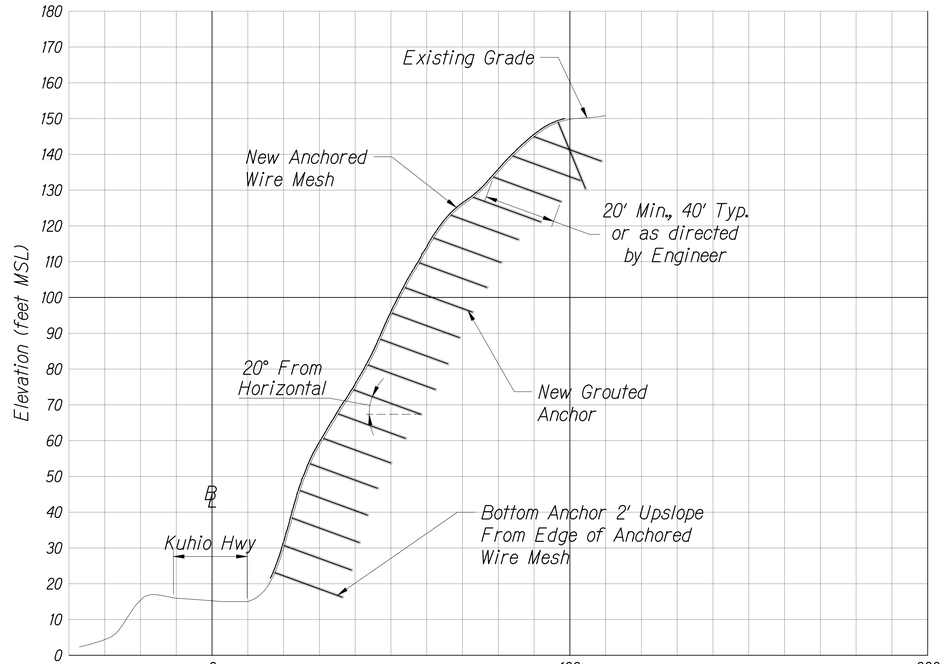
WAIKOKO CROSS SECTION - Sta 295+20

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-25 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	80	100



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Scale: 1"-20'

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

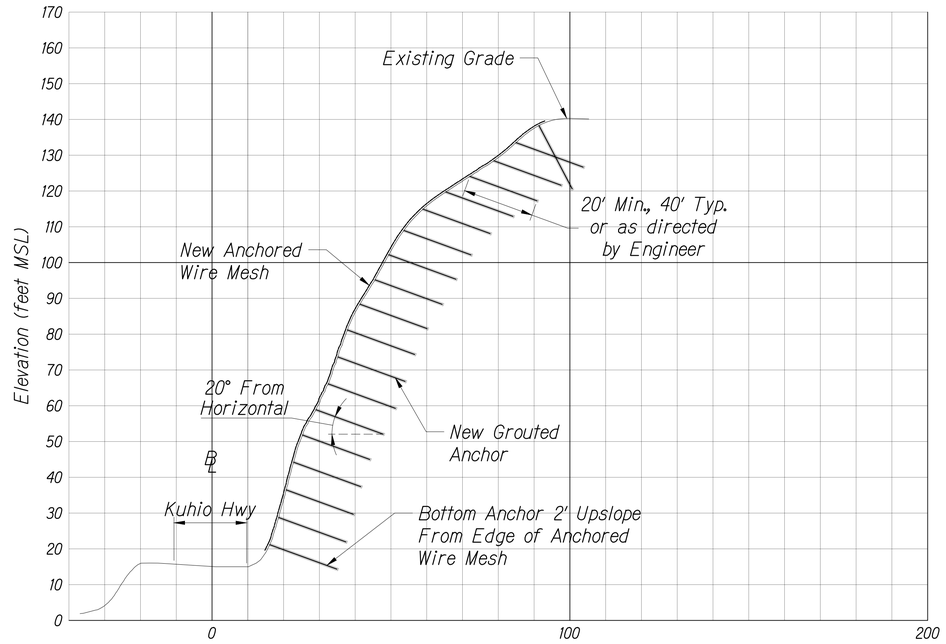
WAIKOKO CROSS SECTION - Sta 295+40

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-26 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	81	100



Sta 295+60

Scale: 1"-20'

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ROBIN M. LIM
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No. 5635-C
HAWAII, U.S.A.

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APRIL 30, 2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

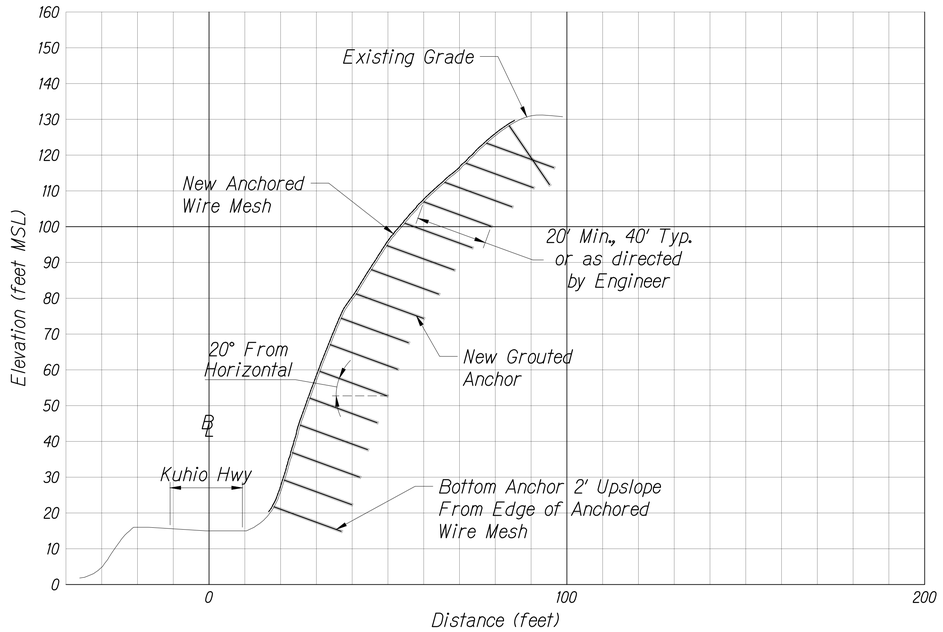
WAIKOKO CROSS SECTION - Sta 295+60

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-27 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	82	100



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ROBIN M. LIM
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No. 5635-C
HAWAII, U.S.A.

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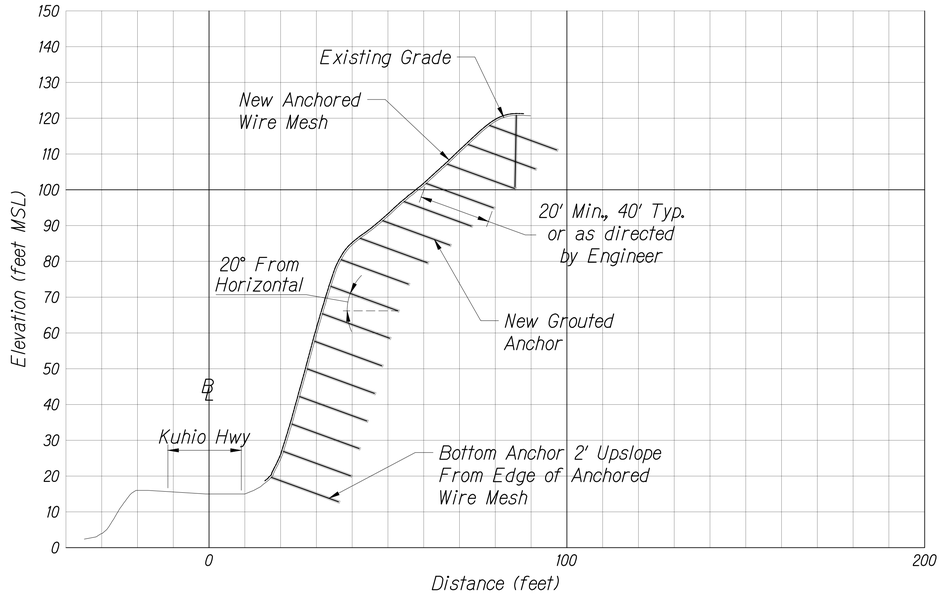
WAIKOKO CROSS SECTION - Sta 295+80

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-28 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	83	100



Sta 296+00

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LIC. EXP. DATE

STATE OF HAWAII
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HIGHWAYS DIVISION

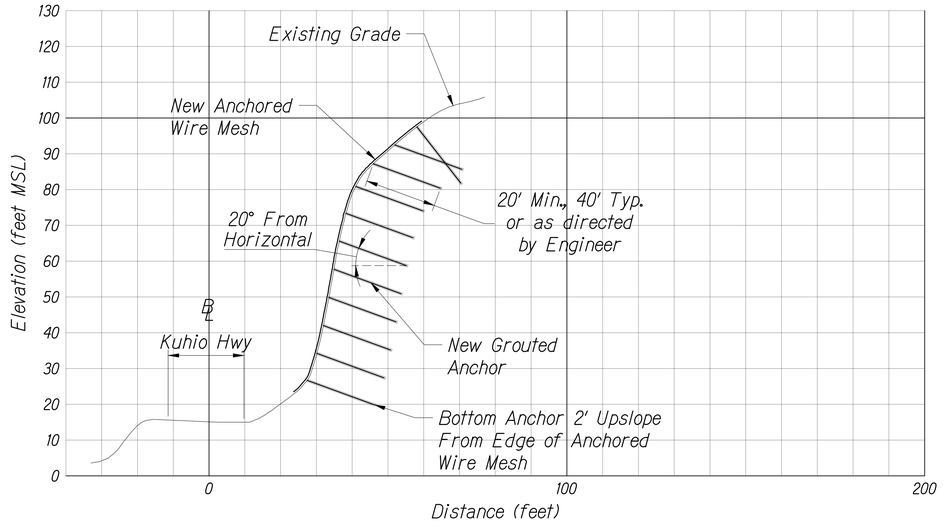
WAIKOKO CROSS SECTION - Sta 296+00

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-29 OF 30 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	84	100



Sta 296+20

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HAWAII, U.S.A.

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WAIKOKO CROSS SECTION - Sta 296+20

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. G-30 OF 30 SHEETS

INDEX TO STRUCTURAL DRAWINGS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	85	100

SHEET NO.	DESCRIPTION
S0.1	INDEX TO STRUCTURAL DRAWINGS
S0.2	STRUCTURAL GENERAL NOTES
S0.3	DRAINAGE STRUCTURE TYPICAL DETAILS
S1.1	SPECIAL GDI MODIFIED 61616P PLANS AND SECTION
S1.2	SPECIAL GDI MODIFIED 61616P SECTIONS
S1.3	SPECIAL GDI MODIFIED 61214P PLANS AND SECTION
S1.4	SPECIAL GDI MODIFIED 61214P SECTIONS
S1.5	TYPICAL 3'-0" X 1'-6" BOX CULVERT SECTION
S2.1	CONC. PIPE ANCHOR BLOCK DETAILS AT ANCHORED WIRE MESH
S2.2	PIPE STRAP DETAILS AT SOIL NAIL WALL
S3.1	VERTICAL BEND PIPE JACKET DETAILS

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ORIGINAL PLAN
NOTE BOOK
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DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

INDEX TO STRUCTURAL DRAWINGS

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: None Date: Sept. 2022

SHEET No. S0.1 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	86	100

STRUCTURAL GENERAL NOTES:

1. General Specifications:

   A. Hawaii Department of Transportation (HDOT) 2005 "Standard Specifications for Road and Bridge Construction", together with Special Provisions prepared for this project.

2. Design Specifications:

   A. American Association of State Highway and Transportation Officials (AASHTO) 2020 "LRFD Bridge Design Specifications", 9th Edition as amended by HDOT document dated August 8, 2014 with subject title "Design Criteria for Bridges and Structures".

   B. HDOT Document dated August 8, 2014 with subject title "Design Criteria for Bridges and Structures" and HDOT memorandum dated January 8, 2018 with subject title "Changes to Design Criteria for Bridges and Structures".

3. Design Loads:

   A. Dead Load: A weight of 25 psf for future wearing surface from curb to curb has been provided for in the design.

   B. Live Load: AASHTO HL-93 Vehicular Live Loading

4. Concrete:

   A. All concrete strengths shall be as noted below:

Item No.	Structural Parts	Compressive Strength, f'c (28 Days)	Maximum Water/ Cementitious (W/C)	Maximum Cementitious Material Content (lbs./cy)	Included Admixtures (See Notes Below in This Section)
(1)	Drain Inlets	5,000 psi	0.45	670	C
(2)	Support Block	4,000 psi	0.49	620	C
(3)	Box Culvert	5,000 psi	0.45	670	C
(4)	Except as noted otherwise, all others	4,000 psi	0.49	620	C

   B. The use of calcium chloride in any concrete is prohibited.

   C. Amine carboxylate corrosion inhibiting water-based admixture such as Cortec MCI 2005 NS or approved equal shall be added at a dosage of 24 ounces per cubic yard of concrete.

   D. If formwork is removed/stripped exposing concrete within 7 days of placement then concrete shall be cured.

   E. Cure concrete as specified in the Contract documents. Remove curing that may affect binding from all areas requiring future bonding unless a curing agent such as Sinak Lithium Cure or accepted equal that does not affect bond and provide equal or better curing is used.

   F. All concrete shall include at least one of the three methods stated in Section 601 of the Special Provisions, or approved equal, to reduce the embodied carbon footprint in concrete.

5. Materials:

   A. Non-shrink grout shall be a pre-mixed product consisting of non-staining, non-metallic aggregate cement, water reducing and plasticizing agents capable of developing a minimum compressive strength of 4,000 psi in 3 days and 7,000 psi in 28 days. The non-shrink grout shall contain at least 10 grams of migrating amine carboxylate corrosion inhibiting admixture per 0.4 to 0.5 cubic feet of non-shrink grout.

   B. Stainless steel inserts cast into concrete, post-installed threaded rods, and fasteners shall conform to ASTM A269 or ASTM A276 Type 316 L/UNS designation S31603.

   C. Stainless steel anchor bolts shall conform to ASTM F1554 Grade 55.

   D. Stainless steel nuts shall conform to ASTM F594 Type 316 L/UNS designation S31603.

   E. Stainless steel plates and shapes shall conform to ASTM A276 or A666 Type 316 LN/UNS designation S31653.

6. Reinforcement:

   A. All reinforcing steel shall be ASTM A 615, Grade 60 unless otherwise noted.

   B. Reinforcing steel shall be ASTM A 706, Type W, Grade 60 where welded connections are required.

   C. Epoxy-coated reinforcing steel shall be ASTM A775 where noted on the plans.

   D. Reinforcing bars shall be placed and installed in accordance with the CRSI Manual of Standard Practice and CRSI Placing Reinforcing Bars, unless otherwise noted.

   E. The covering measured from the surface of the concrete to the face of any reinforcing bars shall be as follows, except as otherwise shown:

      (1) Concrete cast against and permanently exposed to earth = 3"

      (2) All others unless otherwise noted = 2"

   F. Minimum lap splice length for steel reinforcing shall be 40 bar diameters or 2'-0", whichever is greater, for #8 bars or smaller. Minimum lap splice length for #9 bars or larger shall be 50 bar diameters. Increase lap length by multiplying the minimum lap splice length by 1.3 for bars having more than 12" of fresh concrete below bars. Increase lap length by 1.25 for ASTM A1035 reinforcing. Lap splices for bundled bars shall consist of individual bar splices within a bundle that do not overlap. Entire bundles shall not be lap spliced.

   G. Unless otherwise noted, reinforcing splices shall be staggered. Minimum distance between staggered lap splice shall be equal to the length required for the lap splice. Number of bars spliced at sections normal to axis of member shall not exceed 50 percent of the total main reinforcing in the member.

6. Reinforcement (Cont.):

   H. All dimensions relating to reinforcing bars are to centers of bars unless otherwise noted.

   I. Minimum clear spacing between parallel bars shall be 1 1/2 times the diameter of bars (for non bundled bars). In no case shall the clear distance between the bars be less than 1 1/2 times the maximum size of the coarse aggregate or 1 1/2".

   J. Reinforcing bars shall be securely tied at all intersections and lap splices except where the spacing of intersections is less than 1-foot in each direction, in which case alternate intersections shall be tied.

   K. Dissimilar metals in contact shall be avoided where possible. If unavoidable, wrap contact surface with several layers of a dielectric tape such as Teflon or polypropylene. Any type of reinforcing steel or prestressing strand in contact with stainless steel shall be considered a dissimilar metal contact.

7. General Construction Notes:

   A. The Contractor shall verify all site conditions and not rely upon these plans for existing elevations and azimuths, stream channel location, roads, roadway gutters, curbs and sidewalks, etc. Conditions may differ from those shown.

   B. The Contractor shall verify the location of all utility lines and notify the respective owners before commencing with excavation, and any temporary piling or sheeting.

   C. The Contractor shall be solely responsible for the protection of adjacent properties, utilities and existing and new structures from damage due to construction. Repairing any damage shall be at the Contractor's own expense, to the satisfaction of the Engineer.

   D. Except as otherwise noted, all vertical dimensions are measured plumb.

   E. Unless otherwise noted, all exposed concrete edges shall be chamfered 3/4"x3/4".

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-S
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STRUCTURAL GENERAL NOTES

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

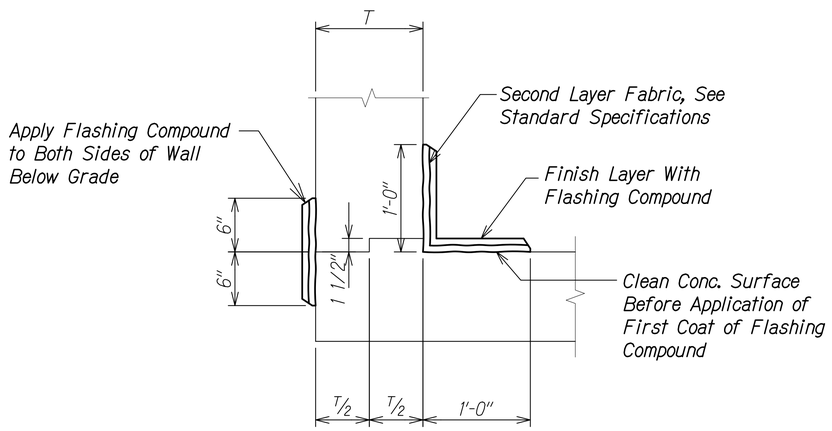
Scale: None Date: Sept. 2022

SHEET No. S0.2 OF 3 SHEETS

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

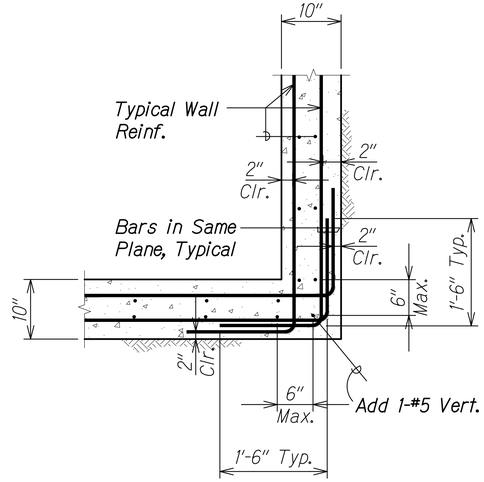
DRAWING NAME: Z:\00 ONGOING\21-010 - HANALEI HILLS #2 (80-20 SPLIT)\01 CAD\09-01-22 OBLIGATION\HI2-S0002 GENNOTES.DWG PLOT TIME: 08-31-22, 12:00 PM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	87	100



TYPICAL KEY DETAIL (1 S0.3 | S0.3)

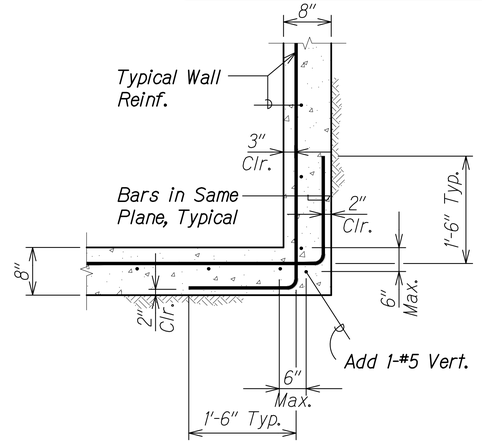
Scale: 1 1/2" = 1'-0"



TYPICAL CORNER REINFORCEMENT LAPPING (DOUBLE CURTAIN)

(2 S0.3 | S0.3)

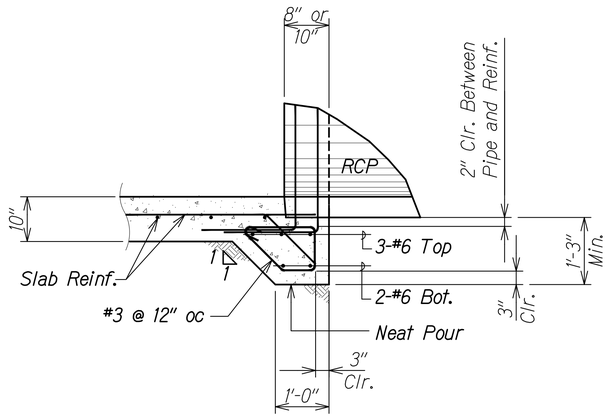
Scale: 1" = 1'-0"



TYPICAL CORNER REINFORCEMENT LAPPING (SINGLE CURTAIN)

(3 S0.3 | S0.3)

Scale: 1" = 1'-0"



TYPICAL SECTION - THICKENED EDGE FOR GRATED DROP INLETS

(4 S1.2 | S0.3; S1.4)

Scale: 3/4" = 1'-0"

Notes:

1. For all pre-cast portions of any drainage structure any gap left between the structure and pipe after the installation of the pipe shall be filled with concrete of equal strength as used for the pre-cast portion of the structure. No brick and mortar repairs or CMU shall be used.

2. Manhole rungs shall be spaced @ 12" oc, See Standard Plans, sht. H-07 for manhole rungs details.

3. See Standard Plans, sht. H-06 for added reinforcing at pipe openings.

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

DRAWING NAME: Z:\OD ONGOING\21-0101-HANALEI HILLS #2 (80-20 SPLIT)\01 CAD\09-01-22 OBLIGATION\H2-S0003 DRN BOX DETS.DWG PLOT TIME: 08-31-22, 12:00 PM

RUSS S. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 9444-S HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

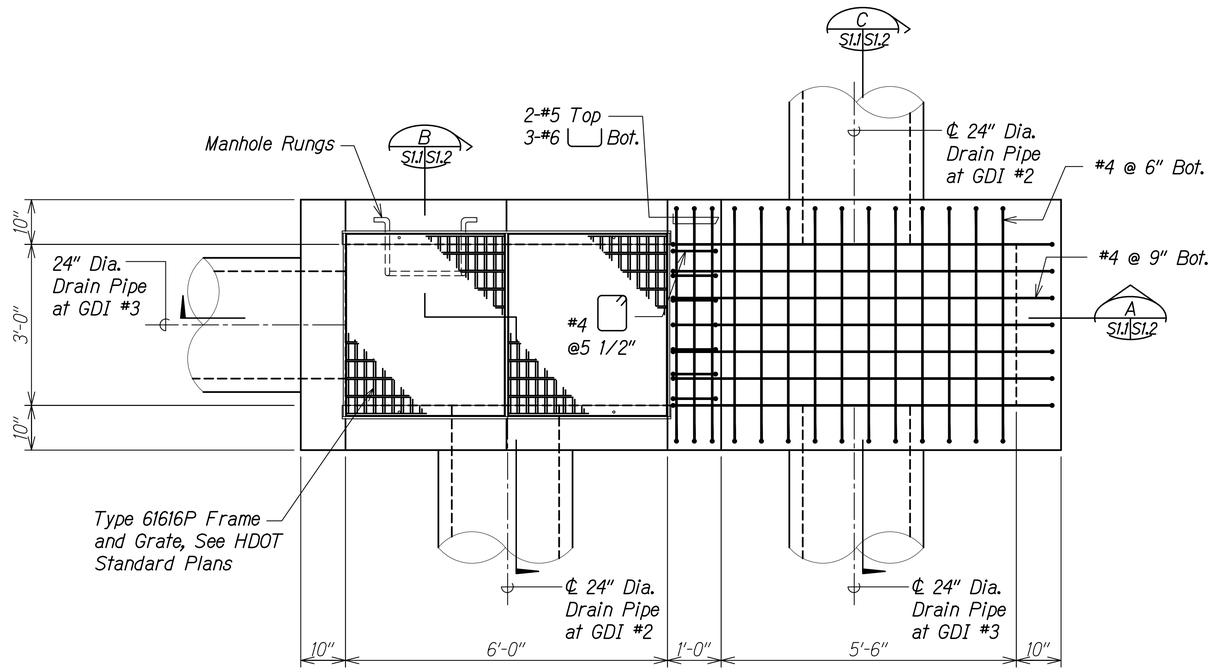
DRAINAGE STRUCTURE TYPICAL DETAILS

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

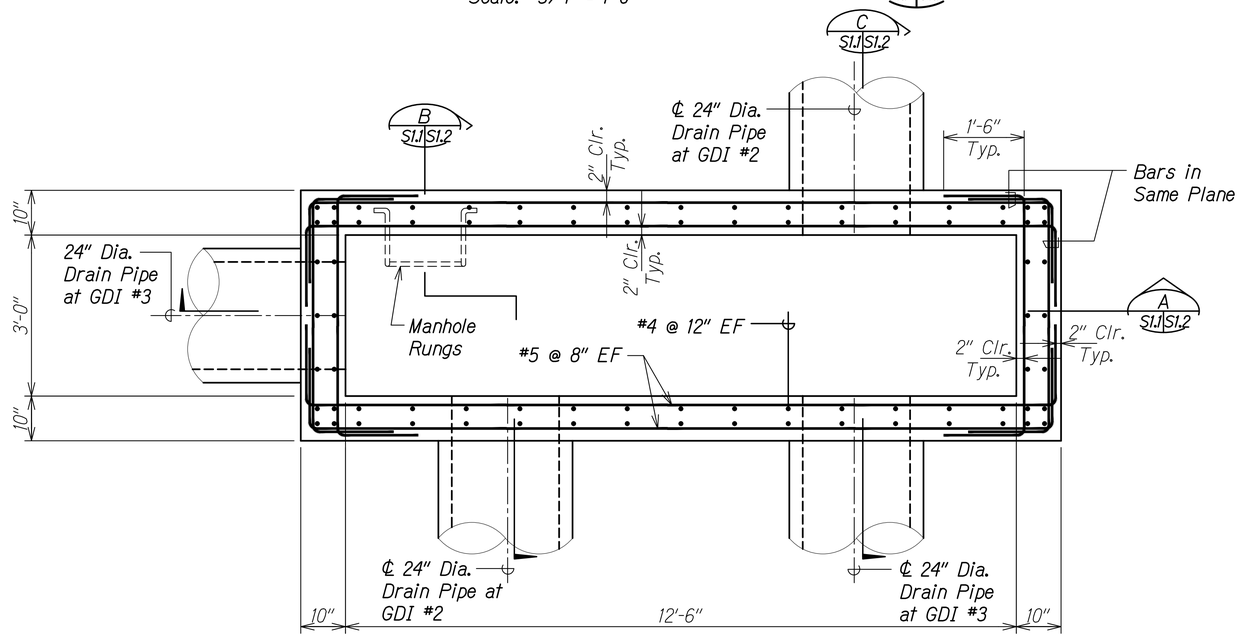
SHEET No. S0.3 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	88	100



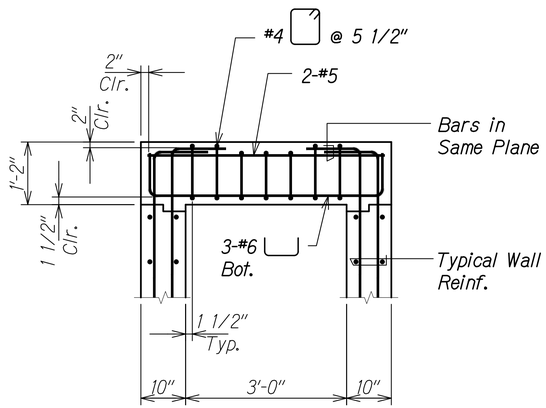
PLAN - TOP SLAB REINF.

Scale: 3/4" = 1'-0"



PLAN - WALL REINF.

Scale: 3/4" = 1'-0"



SECTION BEAM REINF.

Scale: 3/4" = 1'-0"

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SPECIAL GDI MODIFIED 61616P PLANS AND SECTION

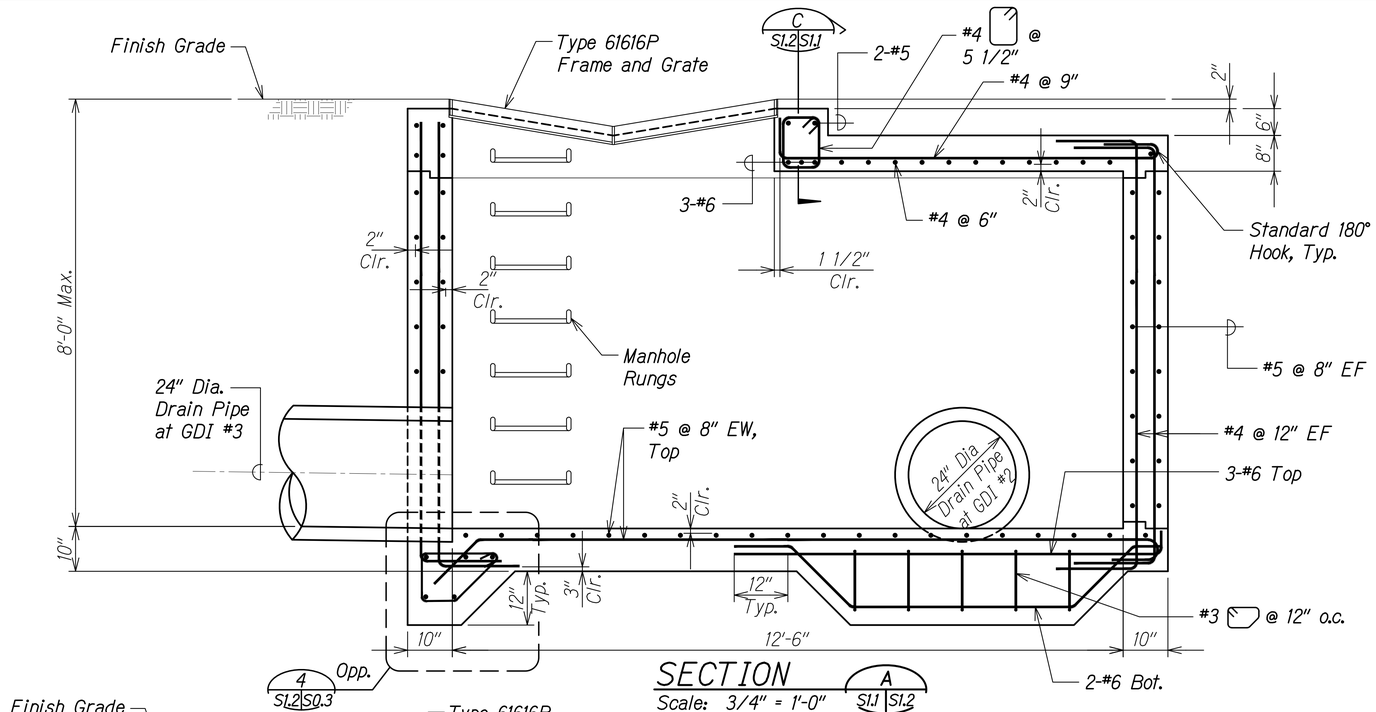
KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

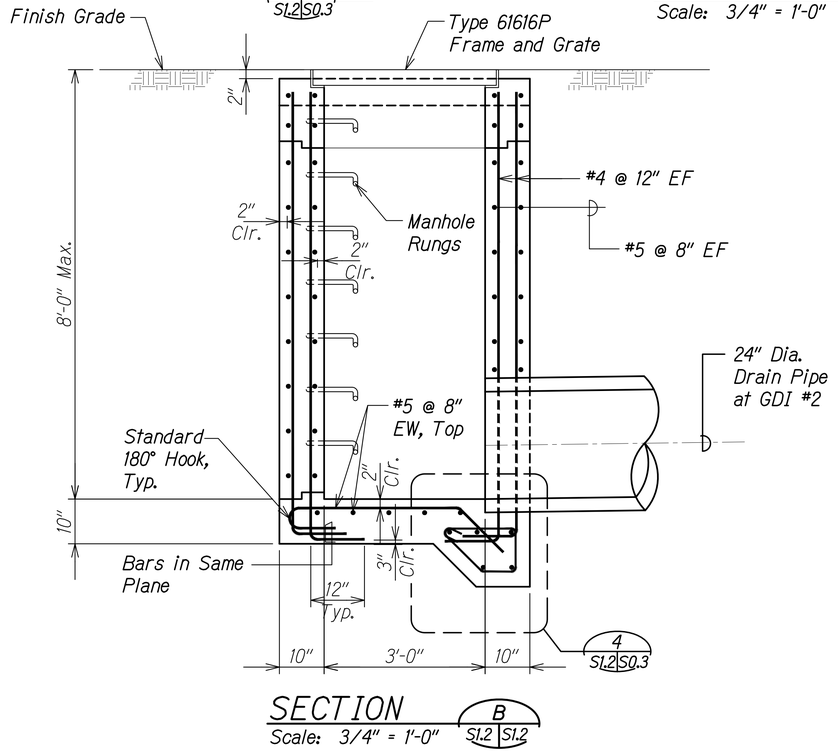
SHEET No. S1.1 OF 5 SHEETS

DRAWING NAME: Z:\OD ONGOING\21-0101-HANALEI HILLS #2 (80-20 SPLIT)\01 CAD\09-01-22 OBLIGATION\HH2-S0101 DRAW.DWG PLOT TIME: 08-31-22, 12:00 PM

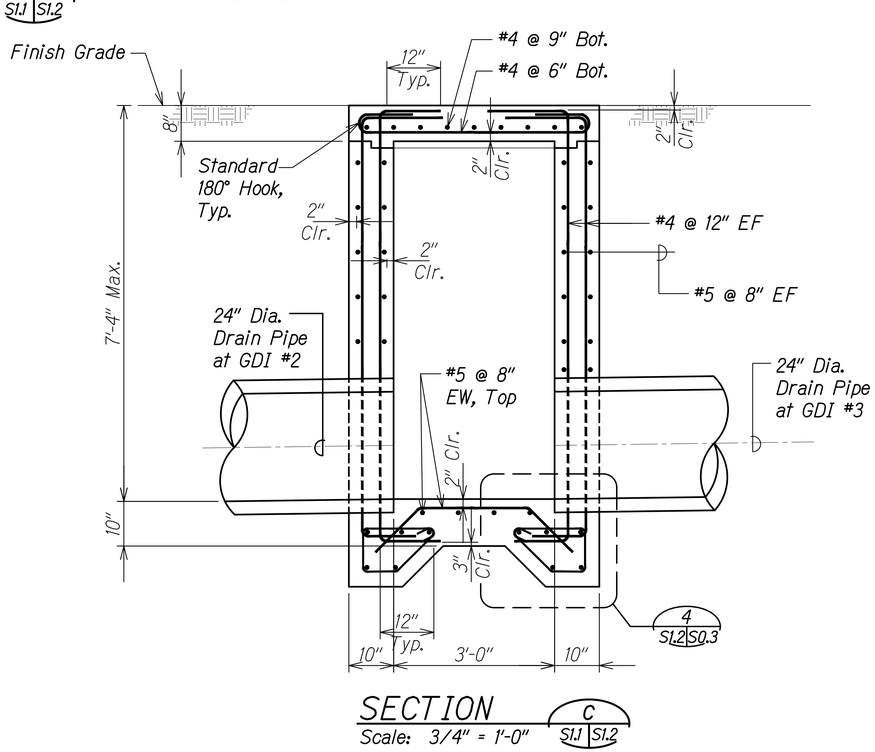
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	89	100



SECTION A
Scale: 3/4" = 1'-0"
S1.1 | S1.2



SECTION B
Scale: 3/4" = 1'-0"
S1.2 | S1.2



SECTION C
Scale: 3/4" = 1'-0"
S1.1 | S1.2

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

DRAWING NAME: Z:\OD ONGOING\21-010_HANALEI HILLS #2 (BI-20 SPLIT)\01 CAD\09-01-22 OBLIGATION\HH2-S9101 GRAIN BOX.DWG PLOT TIME 08-31-22, 12:01 PM

LICENSED PROFESSIONAL ENGINEER
RUSS S. MIYAHARA
NO. 9444-S
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

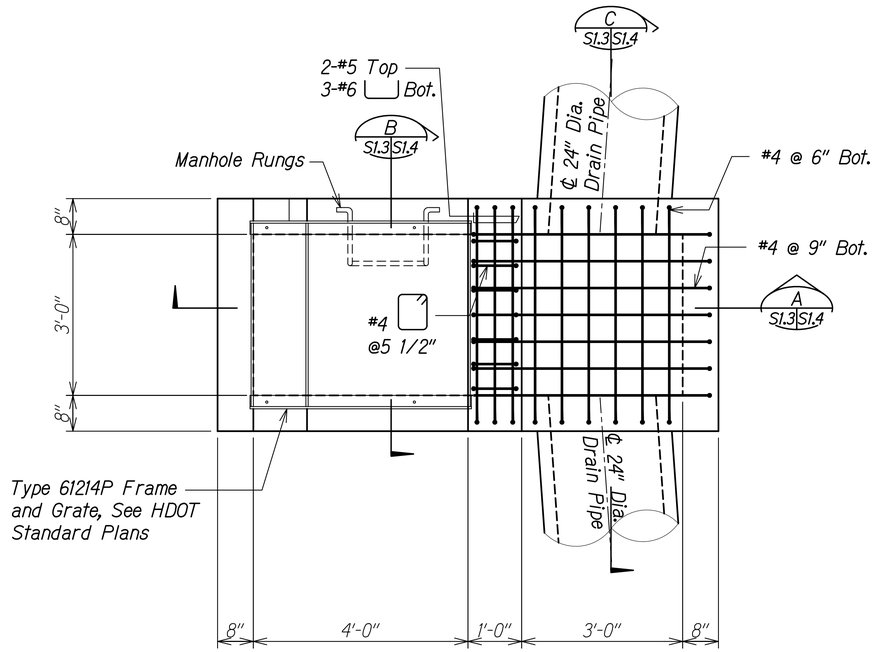
SPECIAL GDI MODIFIED 61616P SECTIONS

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. S1.2 OF 5 SHEETS

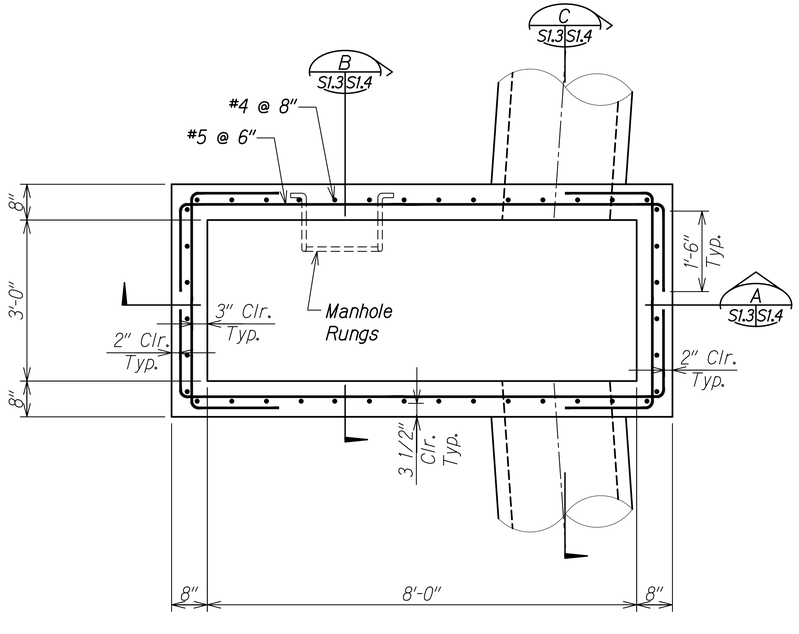
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	90	100



PLAN - TOP SLAB REINF.

Scale: 3/4" = 1'-0"

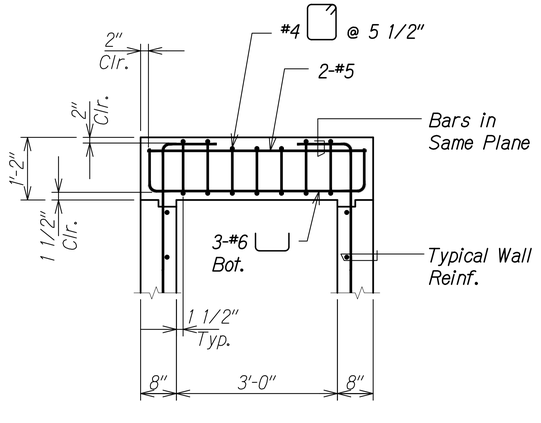
A S1.3 S1.3



PLAN - WALL REINF.

Scale: 3/4" = 1'-0"

B S1.3 S1.3



SECTION BEAM REINF.

Scale: 3/4" = 1'-0"

C S1.4 S1.3

ORIGINAL PLAN
NOTE BOOK
No.

SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

DRAWING NAME: Z:\OD ONGOING\21-0101-HANALEI HILLS #2 (80-20 SPLIT)\01 CAD\10-04-22 REPLOT\H2-S1103 DRAIN BOX2.DWG PLOT TIME: 10-04-22, 8:43 AM

RUSS S. MIYAHARA
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NO. 9444-S
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

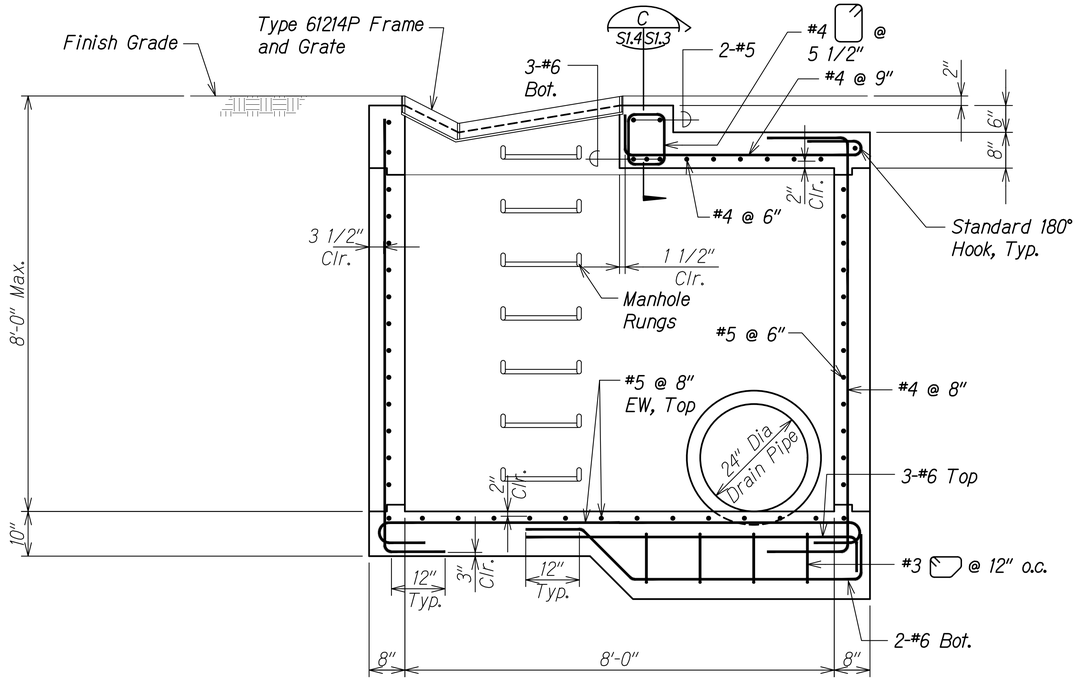
SPECIAL GDI MODIFIED 61214P PLANS AND SECTION

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

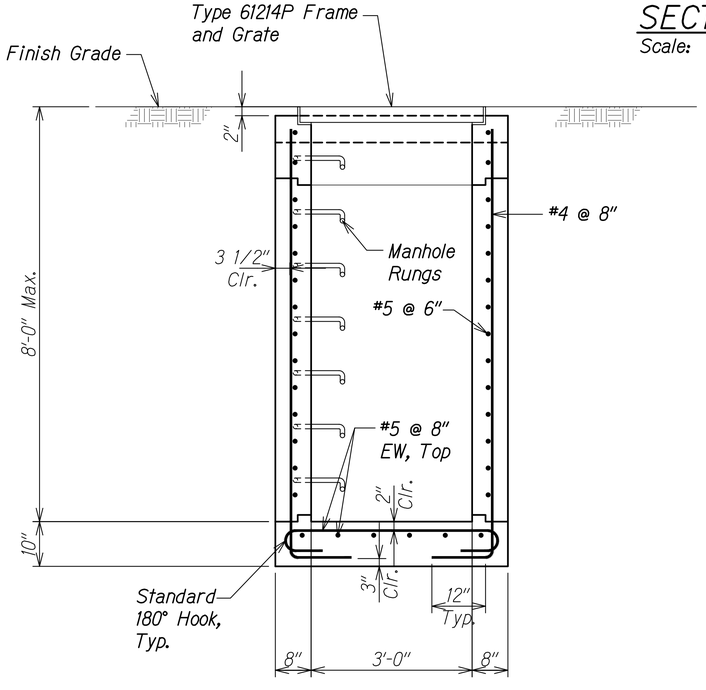
Scale: As Noted Date: Sept. 2022

SHEET No. S1.3 OF 5 SHEETS

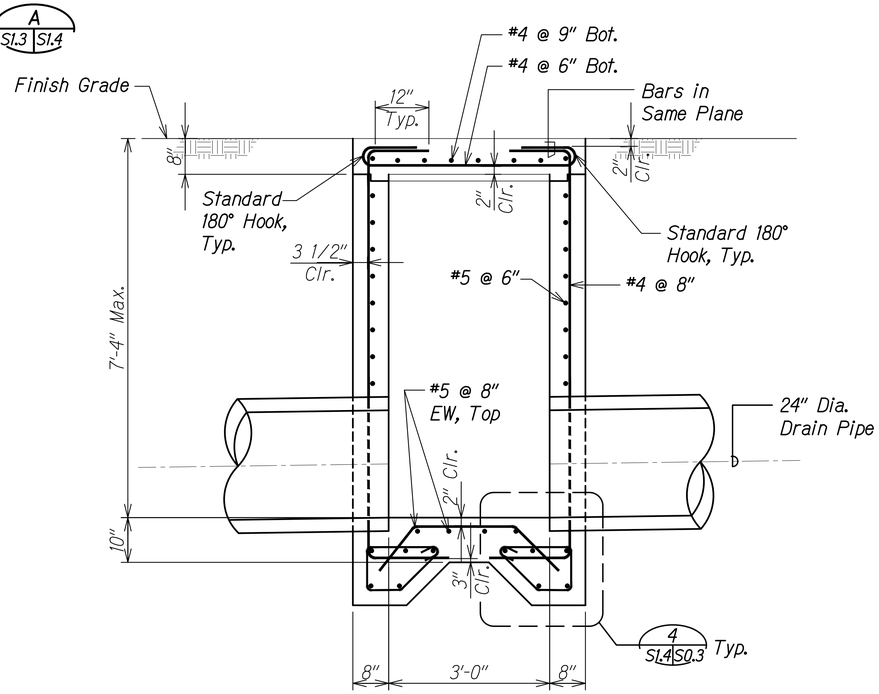
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	91	100



SECTION A
Scale: 3/4" = 1'-0"
S1.3 S1.4



SECTION B
Scale: 3/4" = 1'-0"
S1.3 S1.4



SECTION C
Scale: 3/4" = 1'-0"
S1.3 S1.4

ORIGINAL PLAN
NOTE BOOK No.

	DATE
SURVEY PLOTTED BY	
DRAWN BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

DRAWING NAME: Z:\OD DNCORN\21-010_HANALEI HILLS #2 (60-20 SPLIT)\01 CAD\10-04-22 REPLOT\HH2-SD103 DRGN B0V2.DWG PLOT TIME: 10-04-22, 8:43 AM

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-S
HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

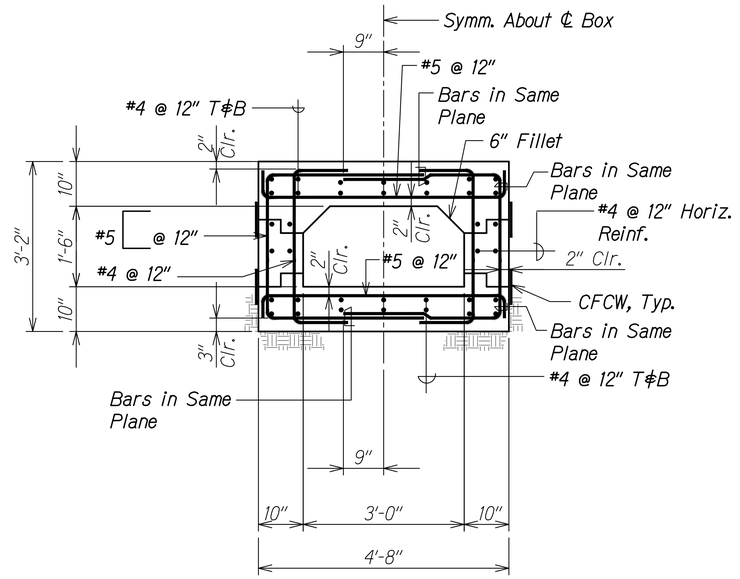
SPECIAL GDI MODIFIED 61214P SECTIONS

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. S1.4 OF 5 SHEETS

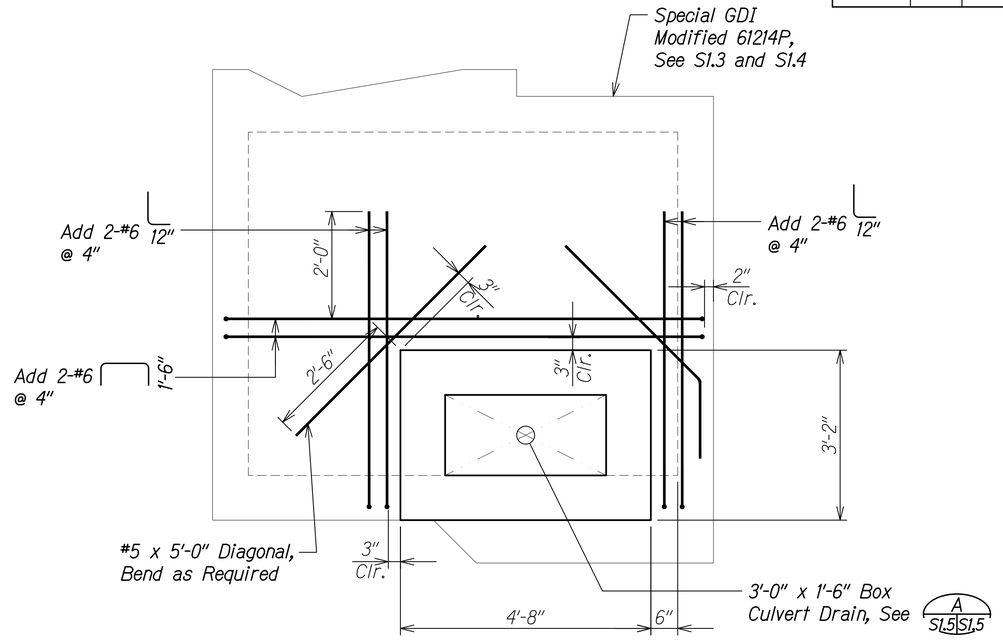
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	92	100



3'-0" X 1'-6" BOX CULVERT DRAIN TYPICAL CROSS SECTION

A S1.5 | S1.5

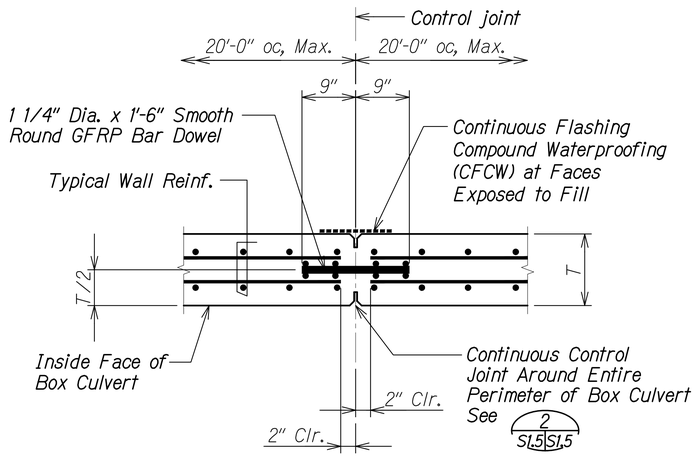
Scale: 3/4" = 1'-0"



ADDED REINFORCING FOR BOX CULVERT

B S1.5 | S1.5

Scale: 3/4" = 1'-0"



CONTROL JT. OR CONST. JT. DETAIL AT CONTROL JT. LOCATION

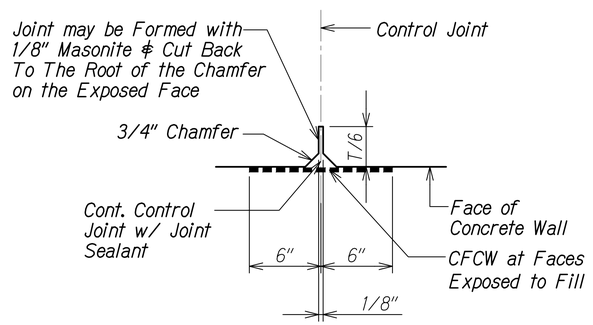
1 S1.5 | S1.5

Scale: 1" = 1'-0"

Notes:

1. Cost for concrete and reinforcing for the box culvert shall be paid under Item No. 603.8000 - 3.0 ft. Wide x 1.5 ft. High Box Culvert.

2. Cost for excavation and backfill of the box culvert shall be paid for under Section 206.



CONTROL JOINT DETAIL

2 S1.5 | S1.5

Scale: 3" = 1'-0"

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL 3'-0" x 1'-6" BOX CULVERT SECTION

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

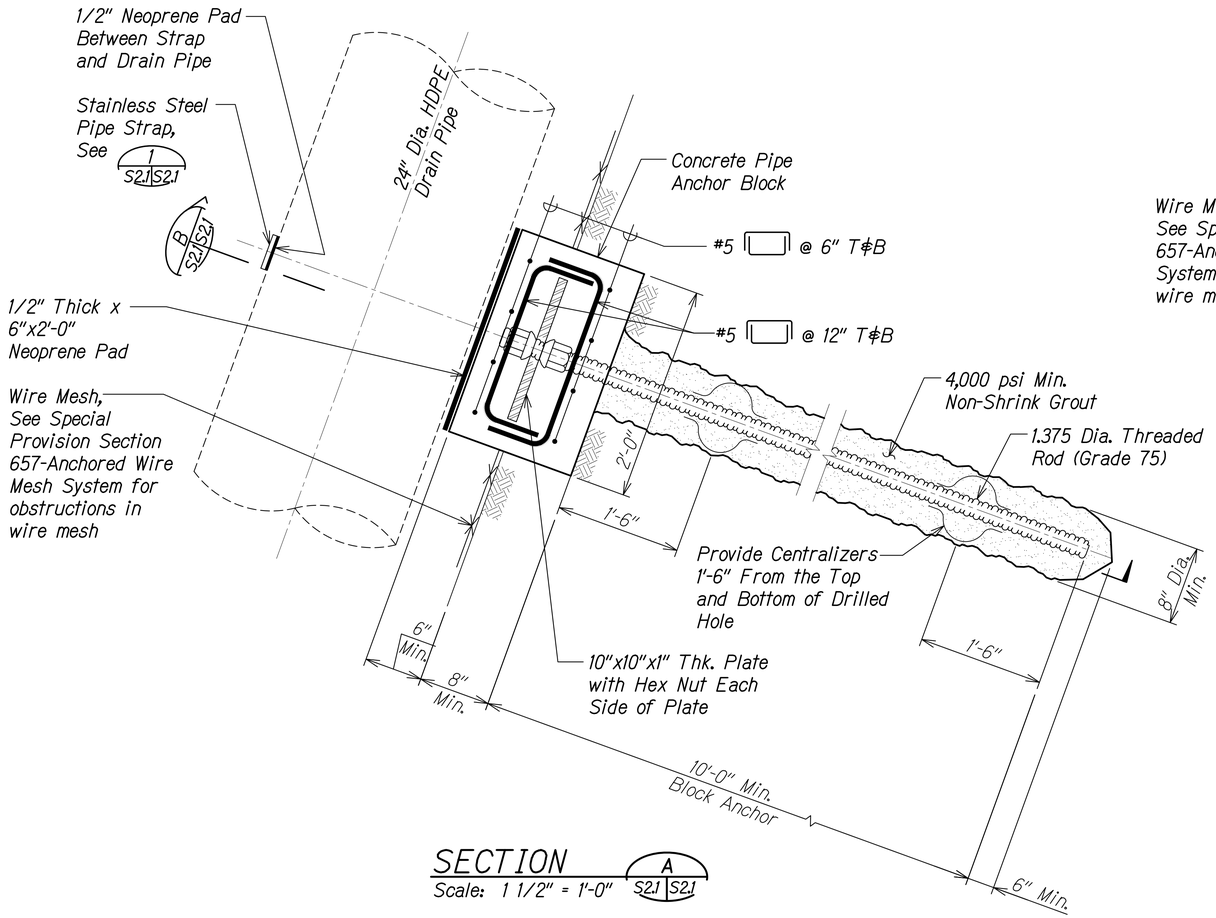
SHEET No. S1.5 OF 5 SHEETS

92

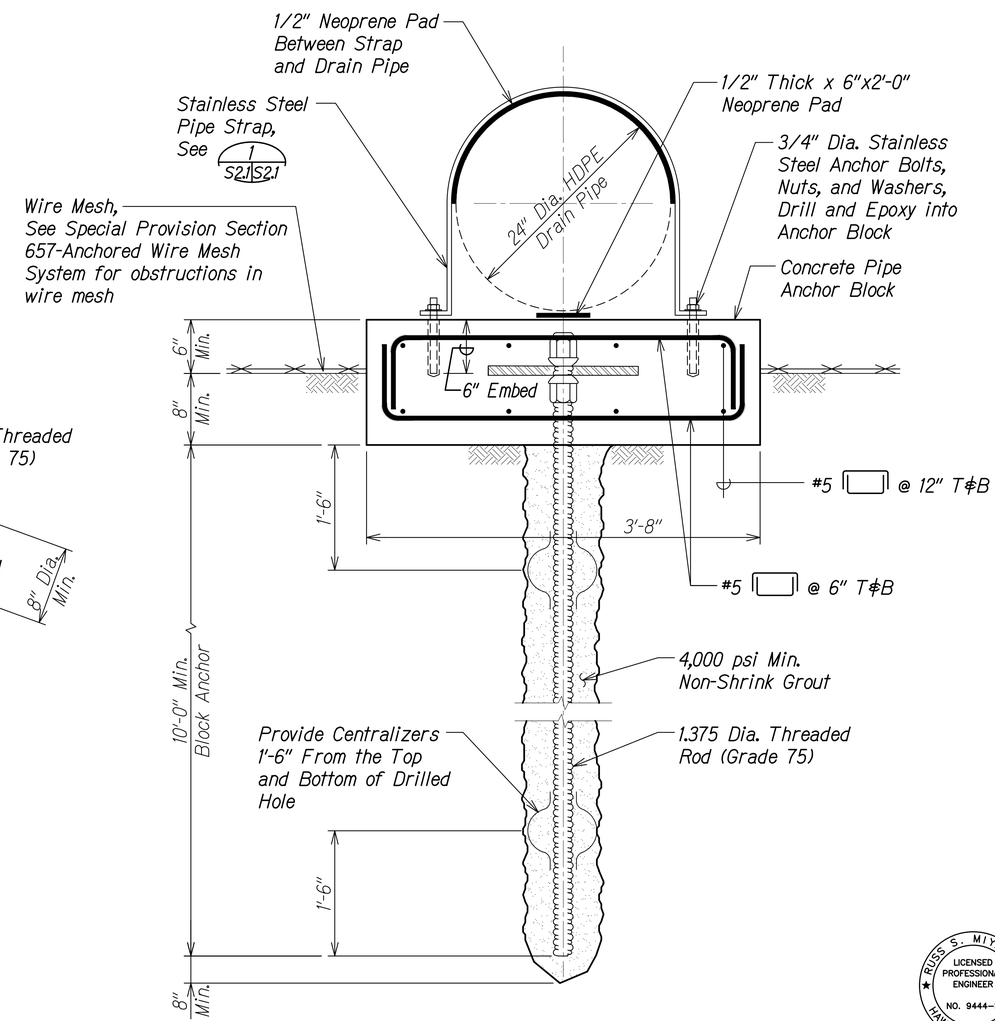
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DRAWN BY	
NOTE BOOK	TRACED BY	
	DESIGNED BY	
No.	QUANTITIES BY	
	CHECKED BY	

DRAWING NAME: Z:\OD ONGOING\21-010_HANALEI HILLS #2 (80-20 SPLIT)\OT CAD\09-01-22 OBLIGATION\HI2-S0105 BOX CULVERT.DWG PLOT TIME: 08-31-22, 12:01 PM

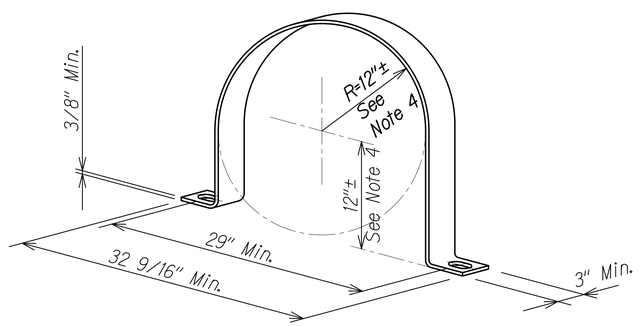
FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	93	100



SECTION A
Scale: 1 1/2" = 1'-0" A S2.1|S2.1



SECTION B
Scale: 1 1/2" = 1'-0" B S2.1|S2.1



STAINLESS STEEL PIPE STRAP DETAIL
Scale: 1 1/2" = 1'-0" 1 S2.1|S2.1 S2.2

Notes:

1. Contractor shall install pipe anchor block assembly at 12'-0" oc max, with a minimum of one anchor block assembly per drain pipe segment.
2. Cost for anchor block assembly shall be incidental to the 24" diameter drain pipe.
3. Pipe anchor block assembly consist of concrete anchor block, reinforcing, block anchor, pipe strap, and all material necessary to secure drain pipe to hillside
4. Dimension shown relate to the inside diameter of the pipe. Contractor shall consider the pipe thickness and neoprene pad when fabricating strap.

RUSS S. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 9444-S HAWAII, U.S.A.

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4-30-24
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONC. PIPE ANCHOR BLOCK DETAILS AT ANCHORED WIRE MESH

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

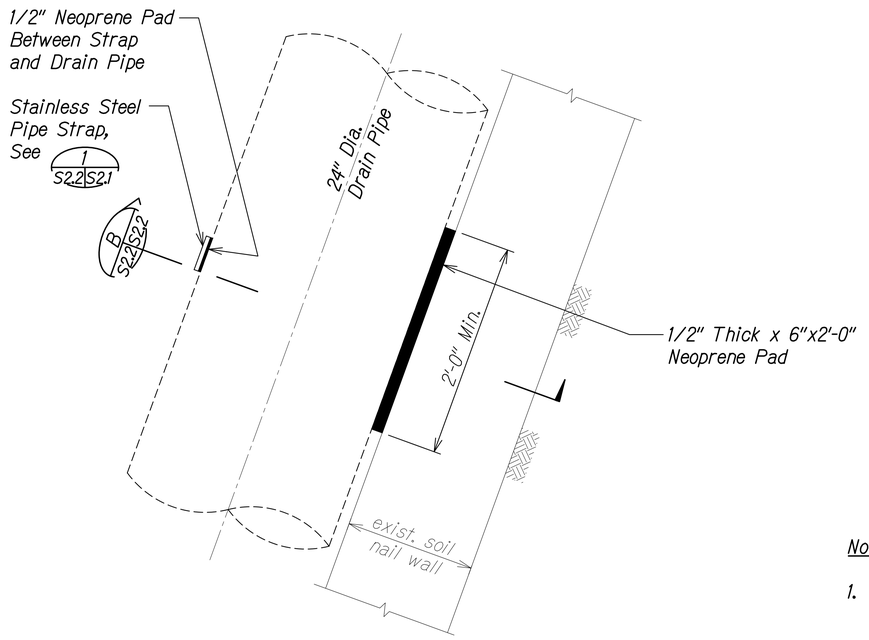
Scale: As Noted Date: Sept. 2022

SHEET No. S2.1 OF 2 SHEETS

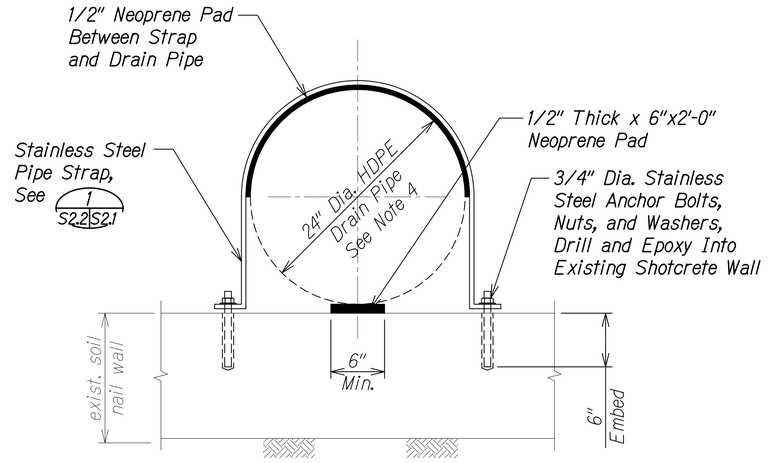
ORIGINAL PLAN | NOTE BOOK | No.
SURVEY PLOTTED BY
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

DRAWING NAME: Z:\OD ONGOING\21-010_HANALEI HILLS #2 (80-20 SPLIT)\01 CAD\10-04-22 REPLOT\HHZ-S0201 ANCHOR.DWG PLOT TIME: 10-04-22, 8:44 AM

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	94	100



SECTION A
Scale: 1 1/2" = 1'-0" S2.2|S2.2



SECTION B
Scale: 1 1/2" = 1'-0" S2.2|S2.2

Notes:

1. Contractor shall install pipe strap assembly at 12'-0" oc max, with a minimum of one pipe strap assembly per drain pipe segment.
2. Cost of pipe strap assembly shall be incidental to the 24" diameter drain pipe.
3. Pipe strap assembly consist of all material necessary to secure drain pipe to shotcrete.
4. Dimension shown is the inside diameter of the pipe. Contractor shall consider the pipe thickness and neoprene pad when fabricating strap.

RUSS S. MIYAHARA
LICENSED PROFESSIONAL ENGINEER
NO. 9444-S
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 4-30-24 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PIPE STRAP DETAILS AT SOIL NAIL WALL

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. S2.2 OF 2 SHEETS

94

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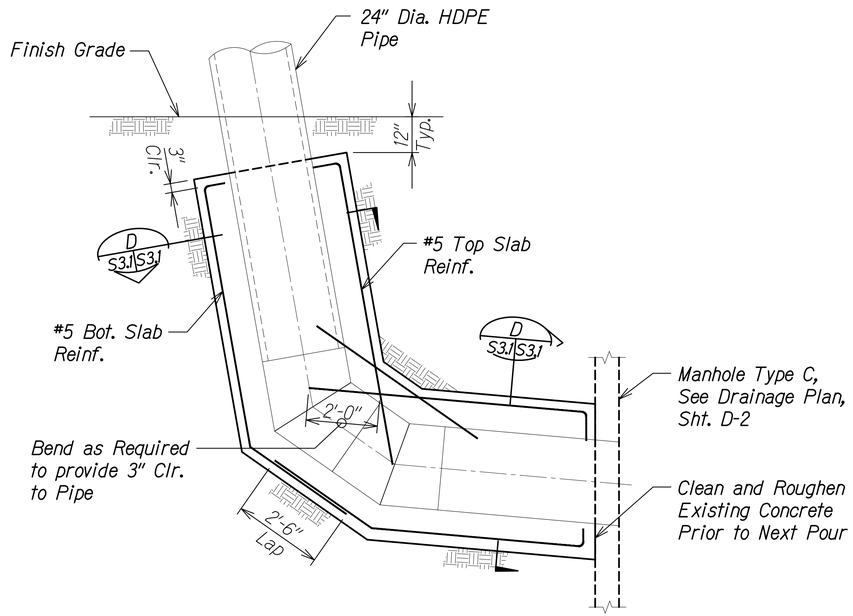
DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

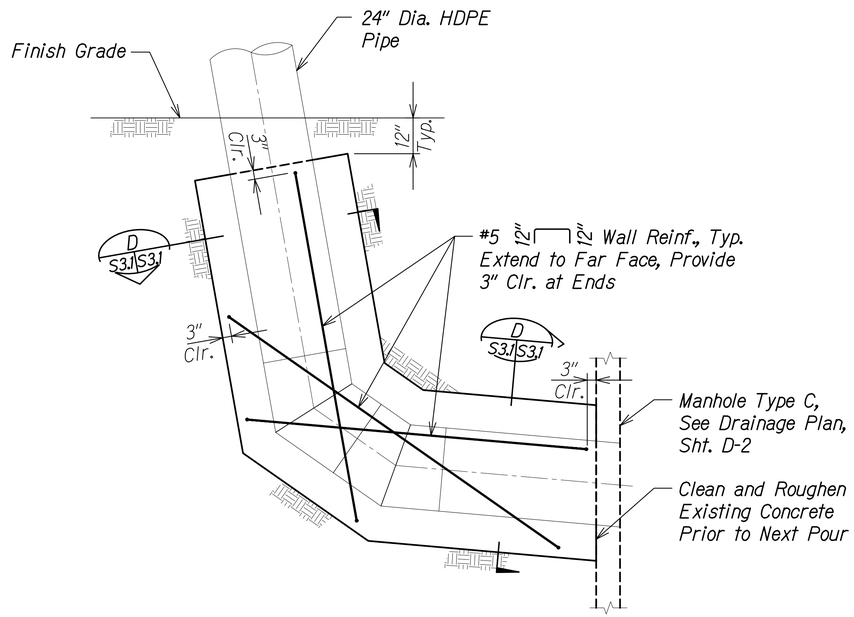
PLOT TIME: 10-04-22, 8:44 AM
DRAWING NAME: Z:\OD ENGINEERING\21-0101-HANALEI HILLS #2 (80-20 SPLIT)\01 CAD\10-04-22 REPLOT\H2-S0201 ANCHOR.DWG

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	95	100



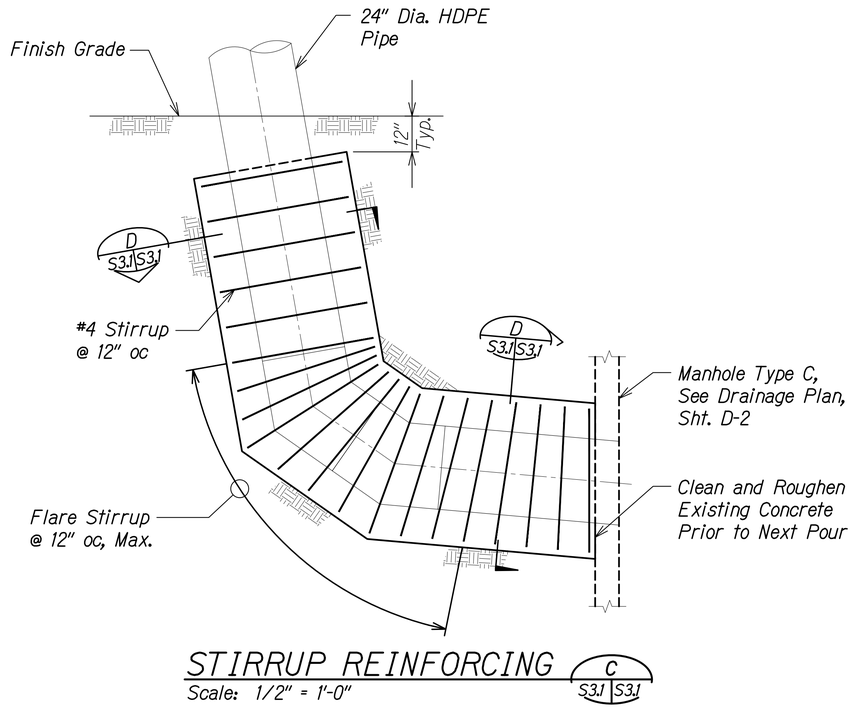
TOP AND BOTTOM SLAB REINF. A S3.1 S3.1

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



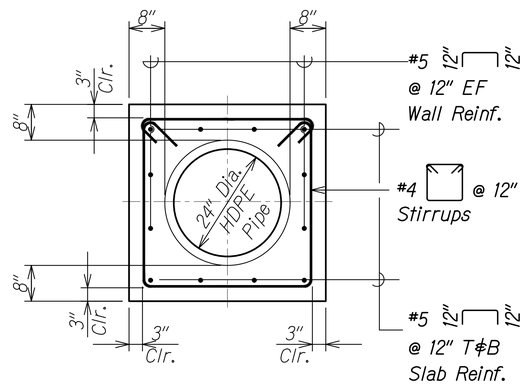
WALL REINFORCING B S3.1 S3.1

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



STIRRUP REINFORCING C S3.1 S3.1

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



TYP. PIPE JACKET SECTION D S3.1 S3.1

Scale: 3/4" = 1'-0"

Notes:

1. Concrete shall develop a minimum 28-Day compressive strength of 4,000 psi, unless shown otherwise.
2. Any soft soil encountered during excavation shall be removed to firm soil and replaced with compacted fill.
3. 90 degree maximum bottom vertical bends.
4. Cost for reinforcing and concrete for the pipe jacket shall be incidental to the 24" diameter drain pipe.

RUSS S. MIYAHARA LICENSED PROFESSIONAL ENGINEER NO. 9444-S HAWAII, U.S.A.

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

VERTICAL BEND PIPE JACKET DETAILS

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. S3.1 OF 1 SHEETS

ORIGINAL PLAN | NOTE BOOK | No.
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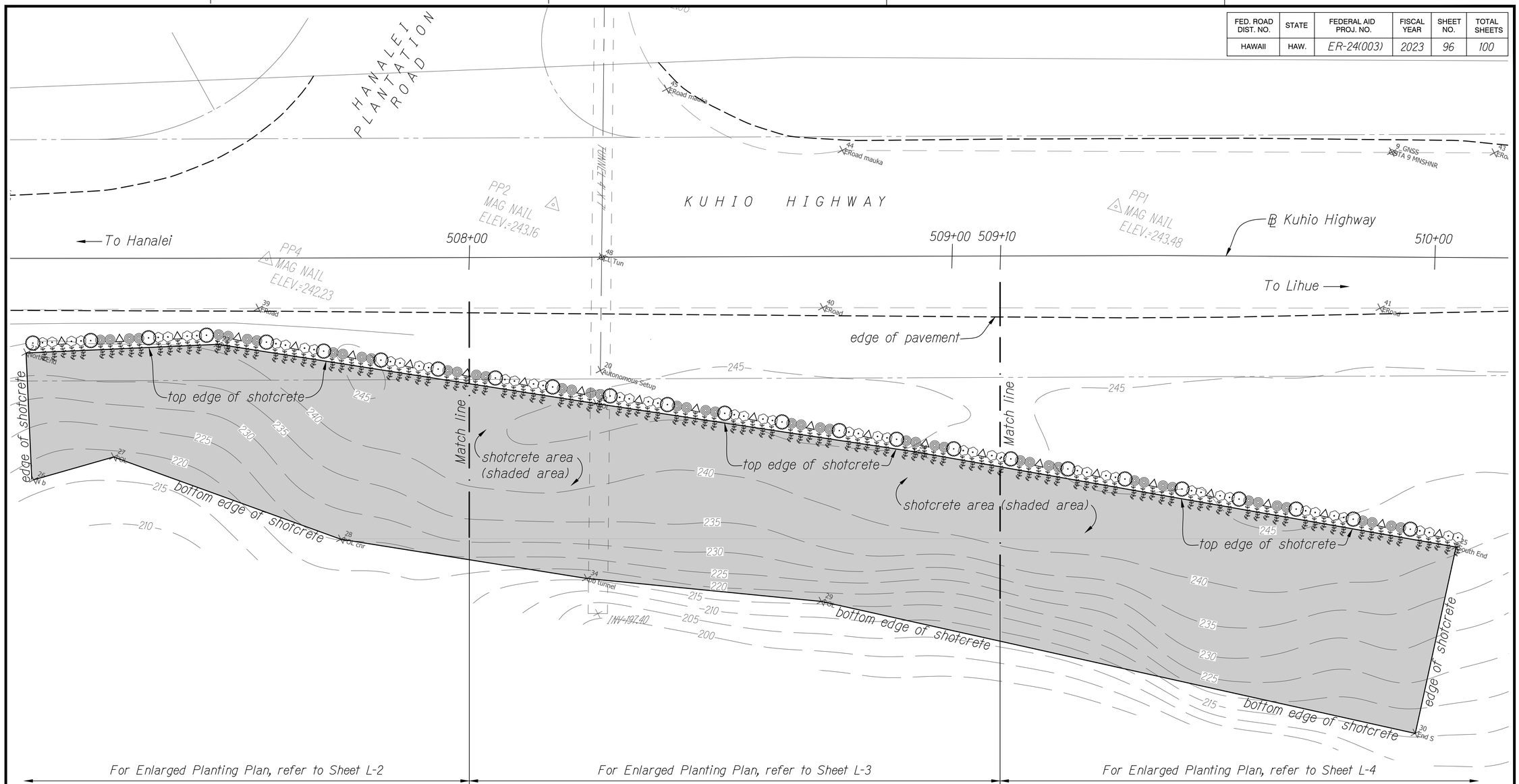
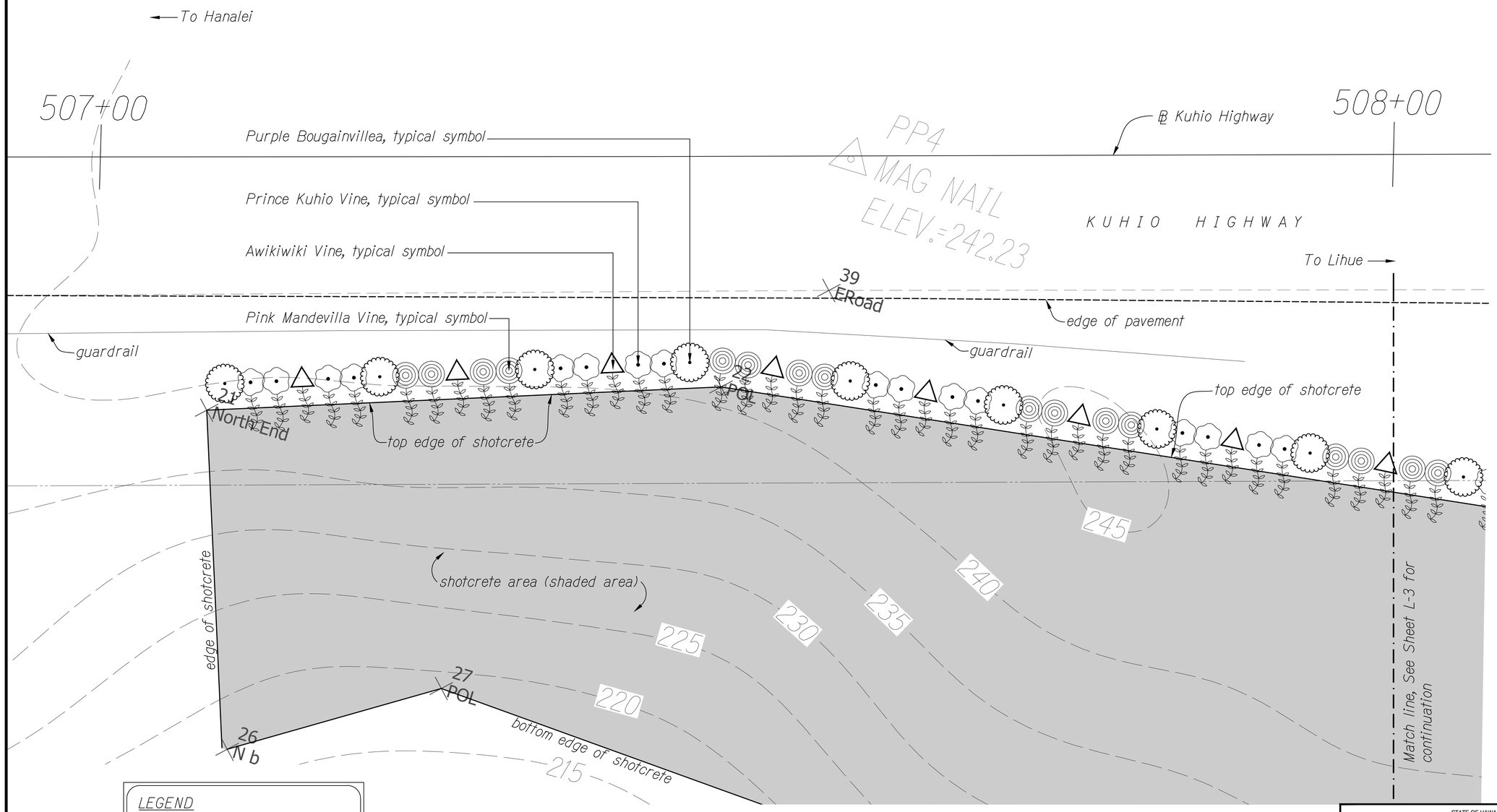
CHECKED BY
DATE

DRAWING NAME: Z:\OD ONGOING\21-010_1-HANALEI HILLS #2 (80-20 SPLIT)\01 CAD\09-01-22 OBLIGATION\H2-S3301 BOT VERT JACKET DET.DWG PLOT TIME: 08

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	96	100


HANALEI PLANTATION ROAD
KUHIO HIGHWAY
TUNNEL #1
To Hanalei
To Lihue
Kuhio Highway
508+00
509+00
509+10
510+00
PP1 MAG NAIL ELEV.=243.48
PP2 MAG NAIL ELEV.=243.16
PP4 MAG NAIL ELEV.=242.23
edge of pavement
top edge of shotcrete
bottom edge of shotcrete
edge of shotcrete
shotcrete area (shaded area)
Match line
Match line
245
240
235
230
225
220
215
210
205
200
IHW-197.40
Autonomous Setup
Tun
Road
Northern
Rdl
Wb
Rdl. Chr
to tunnel
Rdl
GNSS
DATA 9 MNSHNR
Rdl
Rdl
Rdl

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	97	100



LEGEND

- Purple Bougainvillea
- Awikiwiki Vine
- Prince Kuhio Vine
- Pink Mandevilla Vine

ENLARGED PLANTING PLAN (STA. 507+08 - 508+00)
SCALE: 1/4" = 1'-0"

0 1' 2' 4' 8' 12'

N W E S

SURVEY PLOTTED BY ____ DATE
DRAWN BY
TRACED BY
DESIGNED BY
QUANTITIES BY
CHECKED BY

ORIGINAL PLAN
NOTE BOOK
No.

MICHELE R. NAGAMUCHI
LICENSED PROFESSIONAL LANDSCAPE ARCHITECT
No. 13587
HAWAII, U.S.A.

4/30/2024
SIGNATURE EXP. DATE OF LICENSE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

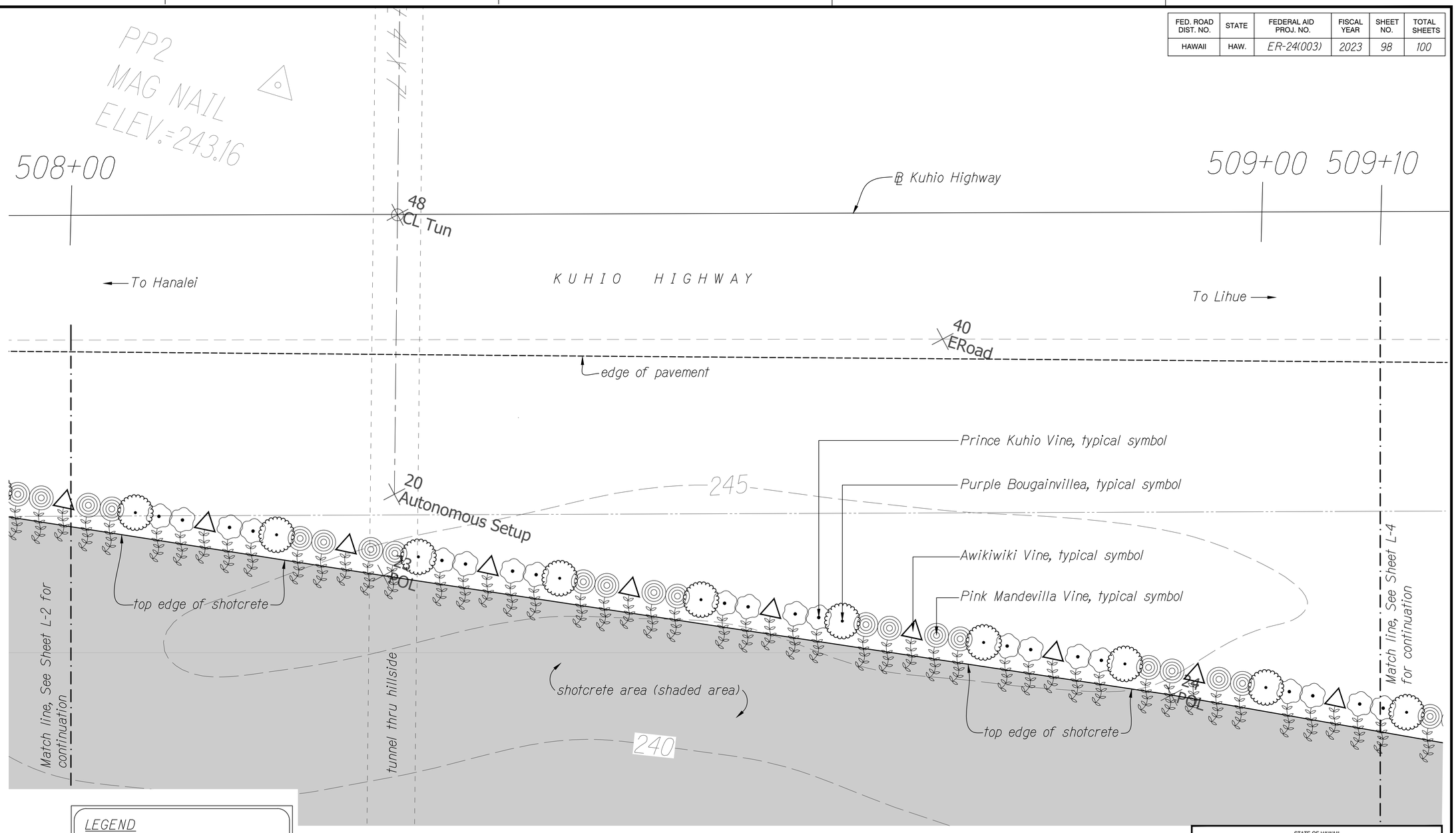
ENLARGED PLANTING PLAN STA. 507+08 - 508+00

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. L-2 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	98	100



LEGEND

- Purple Bougainvillea
- Awikiwiki Vine
- Prince Kuhio Vine
- Pink Mandevilla Vine

ENLARGED PLANTING PLAN (STA. 508+00 - 509+10)
SCALE: 1/4" = 1'-0"

0 1' 2' 4' 8' 12'

N W E S

ORIGINAL PLAN | NOTE BOOK No.
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DESIGNED BY
QUANTITIES BY
CHECKED BY
DATE

MICHELE R. NAGAHIGH
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No. 13587
HAWAII, U.S.A.

4/30/2024
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ENLARGED PLANTING PLAN STA. 508+00 - 509+10

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. L-3 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	99	100

509+10

℄ Kuhio Highway

510+00

To Hanalei

KUHIO HIGHWAY

To Lihue

41

ERoad

edge of pavement

245

Match line, See Sheet L-3 for continuation

Prince Kuhio Vine, typical symbol

Purple Bougainvillea, typical symbol

Awikiwiki Vine, typical symbol

Pink Mandevilla Vine, typical symbol

top edge of shotcrete

shotcrete area (shaded area)

245

25

South Eng

top edge of shotcrete

LEGEND

- Purple Bougainvillea
- Awikiwiki Vine
- Prince Kuhio Vine
- Pink Mandevilla Vine

ENLARGED PLANTING PLAN (STA. 509+10 - 510+04)

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

0 1' 2' 4' 8' 12'

N W E S

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

MICHELE R. NAGAMICH
LICENSED PROFESSIONAL LANDSCAPE ARCHITECT
No. 13587
HAWAII, U.S.A.

4/30/2024
SIGNATURE EXP. DATE OF LICENSE

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ENLARGED PLANTING PLAN STA. 509+10 - 510+04

KUHIO HIGHWAY
Emergency Slope Stabilization for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

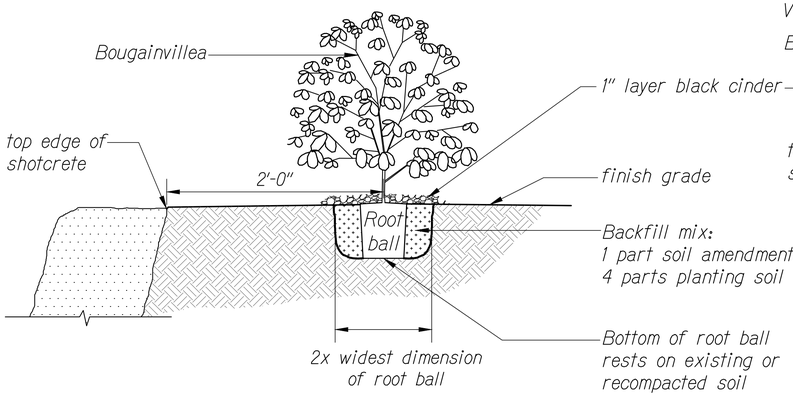
Scale: As Noted Date: Sept. 2022

SHEET No. L-4 OF 5 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	ER-24(003)	2023	100	100

Notes:

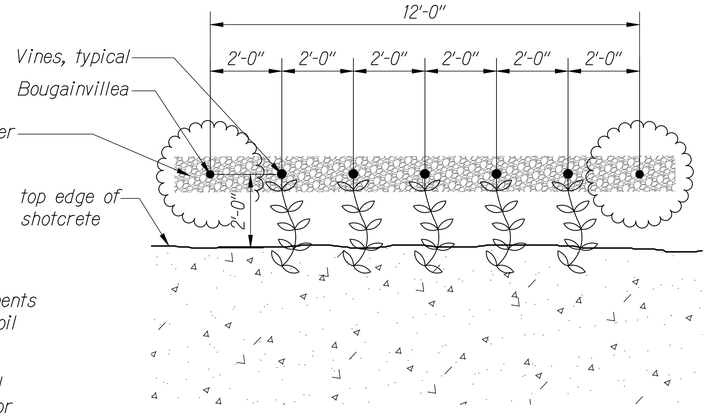
1. Top of root ball to be set at one-quarter inch above finish grade.
2. Prior to adding black cinder, lightly tamp soil around the root ball to brace shrub. Do not over compact. When the planting hole has been backfilled, pour water around the root ball to settle the soil.



1 PLANTING DETAIL (1 GALLON SHRUB/VINE)
SCALE: 1-1/2" = 1'-0"

Notes:

1. Plant center of each vine 2'-0" from edge of shotcrete.
2. Space all vines 2'-0" away from each other, in a single row. Top dress planting bed (minimum 1'-0" wide) with black cinder.



2 VINE SPACING DETAIL
SCALE: 1/2" = 1'-0"

PLANT NOTES:

1. Contractor shall be responsible for locating and protecting existing utilities.
2. Notify engineer of any discrepancies in plant locations due to actual field conditions.
3. Contractor shall be solely responsible for the complete removal and damages resulting from planting any plant species listed on the Hawaii Department of Agriculture 'Noxious Weed Rules" as defined in Hawaii Administrative Rules, Title 4, Chapter 68, or on the United States Department of Agriculture 'Federal Noxious Weed List'.
4. If an archaeological site is found, see Historical Preservation Note 1 on Sheet N-3.

TEMPORARY IRRIGATION NOTES:

1. Avoid any conflict between underground utilities, structures and plantings. the contractor shall be responsible for locating and protecting all existing utilities.
2. If an archaeological site is found, see Historical Preservation Note 1 on Sheet N-3.
3. Contractor shall secure all necessary permits and observe all local codes and regulations.
4. Contractor shall coordinate the installation of all sleeves, conduits, mainlines and laterals under pavement and through walls.
5. Install all sprinkler heads minimum 6" away from sidewalks, curbs, driveways, pavement and walls unless otherwise noted.
6. Adjust all sprinkler heads and flow control for maximum coverage and minimum overthrow and misting.
7. Within 30 calendar days after notice to proceed of the contract, submit for the Engineer's acceptance, detailed scaled Plans showing the irrigation point of connection, mainline routing, valve locations, timer locations, and wiring diagrams for the temporary irrigation system.
8. Group valve boxes so that the outer edges are no closer than five feet to roadway pavement. Group valve boxes as feasible.

PLANT LIST

Symbol	Quantity	Common Name	Botanical Name	Size	Description
	25 each	Purple Bougainvillea	Bougainvillea spectabilis	1 gallon can	12" height, 18" spread
	25 each	Awikiwiki Vine	Canavalia hawaiiensis	4" pots	12" lengths
	52 each	Prince Kuhio Vine	Ipomoea horsfalliae	4" pots	12" lengths
	48 each	Pink Mandevilla Vine	Mandevilla x amabilis	4" pots	12" lengths

Other Items:

	1 cubic yard	Soil Amendments (Menehune Magic Soil Conditioner Compost 100% Organic, or approved equal)	1" layer	Install over all new planting areas and till to a 4" depth
	1 cubic yard	Black Cinder	1" layer	Install over all new planting areas as a top dress
	3 months	Plant Maintenance Period	See specifications	
	lump sum	Temporary Irrigation	For the duration of the Plant Maintenance Period	

ORIGINAL PLAN
NOTE BOOK No.
SURVEY PLOTTED BY
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MICHELE R. NAGAFUCHI
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No. 13597
HAWAII, U.S.A.

4/30/2024
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DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

PLANT LIST, NOTES & DETAILS

KUHIO HIGHWAY
Emergency Slope Stabilization
for Hanalei Hills and Waikoko
F.A.P. Project No. ER-24(003)

Scale: As Noted Date: Sept. 2022

SHEET No. L-5 OF 5 SHEETS