

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS

ADDENDUM NO. 1  
FOR  
TRAFFIC SIGNAL MODERNIZATION, OAHU, PHASE 2A  
DISTRICT OF HONOLULU, ISLAND OF OAHU  
FEDERAL-AID PROJECT NO. STP-0300(214)

OCTOBER 28, 2024

This Addendum shall make the following amendment(s) to the Solicitation:

A. PLANS

1. Delete the **PLANS** set posted on HIePRO on 10/16/2024, in its entirety, and replace with the attached **PLANS** dated 10/28/2024.

Please acknowledge receipt of this **ADDENDUM NO. 1** by recording the date of its receipt in the space provided on the **PAGE P-4** of the Proposal.



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BRYAN J. KIMURA  
Traffic Branch Head



# STANDARD PLANS SUMMARY

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	2	149

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 CAN DETAILS	05/31/07
B-12A	PRESTRESSED CONCRETE PILES, PILE & COMPRESSION SPLICE CAN DETAILS & NOTES	05/31/07
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 FRAME AND GRATES	05/31/07
H-16	TYPE 61614, 61614P, 61616, 61616P STEEL FRAME AND GRATES	05/31/07
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-01A	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 GUIDE SIGNS	07/11/08
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	CANTILEVER SIGN FRAME DETAIL AND SECTION	05/31/07
TE-17C	CANTILEVER SIGN FRAME DETAIL	05/31/07
TE-17D	CANTILEVER SIGN FRAME SECTION	05/31/07
TE-17E	CANTILEVER 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 ACCESSORY DETAILS	05/31/07
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
TE-31	PAVEMENT ALPHABETS, NUMBERS & SYMBOLS	07/11/08

STANDARD PLAN NO.	TITLE	DATE
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

DATE	_____
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Original Plan No. \_\_\_\_\_  
 Note Book No. \_\_\_\_\_  
 Checked By \_\_\_\_\_  
 Date \_\_\_\_\_

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

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

## STANDARD PLANS SUMMARY

### TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

SHEET No. 1 OF 1 SHEETS

**GENERAL NOTES**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	3	149

1. The project includes removing portions of existing traffic signal equipment, roadway pavement, curb, gutter, sidewalks, driveways, and curb ramps; installing new traffic signal equipment, curb, gutter, sidewalks, driveways, curb ramps, signing, and pavement markings; relocation of existing irrigation system; restoration of asphalt concrete roadway pavement and landscaping.
2. The Contractor is reminded of the requirements of Subsection 105.16-Subcontracts, which requires him to perform work amounting to not less than 30 percent of the total contract cost less deductible items. Non-compliance with this subsection may be grounds for rejection of bid.
3. The Contractor's attention is directed to the following sections of the special provisions: Subsection 107.06 - Contractor Duty Regarding Public Convenience; Subsection 107.12 - Protection of Persons and Property; and Section 645 - Work Zone Traffic Control.
4. At the end of each day's work, the Contractor shall remove all equipment and other obstructions to permit free and safe passage of public traffic.
5. 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 tone for the exact locations and depths of all underground facilities, either shown on the or omitted from the plans, in areas where work, such as the placement of sign posts, traffic signal conduits, etc. may affect these properties. Toning shall be considered incidental to the various contract items and will not be paid for separately. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.
6. The exact pavement locations and limits or areas to be resurfaced or reconstructed shall be determined in the field by the Engineer.
7. The Contractor shall notify the Department of Transportation Services, Public Transit Division at (808) 768-8396 and Oahu Transit Services, Inc. [bus operations: (808) 848-4578 or (808) 848-6016 and para-transit operations: (808) 454-5041 or (808) 454-5020] of scope of work, location, and proposed closure of any street, traffic lane, sidewalk, or bus stop and duration of project at least two (2) weeks prior to construction.
8. The Contractor shall notify the Emergency Medical Services Department, EMS Operations Chief [phone number: (808) 723-7906], one (1) week prior to construction, informing them of location, scope of work, and dates of lane closure(s). For after hours, in case of emergency notify District Chief on duty [phone number: (808) 723-7844].
9. The Contractor shall notify the Honolulu Fire Department, Fire Communication Center [phone number: (808) 723-3473], one (1) week prior to construction, informing them of location, scope of work, and dates of lane closure(s).
10. The Contractor shall notify the Honolulu Police Department, Downtown Police Station, District 7 [phone number: (808) 723-3369], one (1) week prior to construction, informing them of location, scope of work, and dates of lane closure(s).
11. The Contractor shall notify the Engineer in writing, two (2) weeks prior to starting paving operations.
12. The Contractor shall remove and dispose of all existing raised pavement markers prior to the overlaying of asphalt concrete. This work shall be considered incidental to asphalt concrete pavement, Mix No. IV and will not be paid for separately.
13. Smooth riding connections shall be constructed at all connections between new and existing pavement, sidewalk, ramps, driveway, curb, and gutter.
14. Existing drainage system shall be functional at all times during construction. The Contractor shall furnish materials, equipment, labor, tools and incidentals necessary to maintain flow. This work shall be considered incidental to various contract items.
15. The Contractor shall provide for access to and from all existing streets at all times.
16. All saw cutting work shall be considered incidental to the various contract items and not be paid for separately. Removal of slurry generated by all saw cutting work shall be incidental to the contract items and will not be paid for separately.
17. Prime coat/tack coat shall be incidental to the various contract items and will not be paid for separately.
18. Drilling holes and installing dowel reinforcing bars shall be incidental to the various contract items and will not be paid for separately.
19. The Contractor's attention is directed to Subsection 401.03 of the special provisions. All longitudinal and transverse tapers within the traveled way shall be removed prior to commencing and continuing of paving operations.
20. Per Subsection 107.02, the Contractor shall obtain all permits and licenses required to perform the work; and shall be responsible for identifying, acquiring, and paying for all permits and licenses required to perform the work.
21. The Contractor is reminded that this is a Federal-Aid project and, as such, shall conform to the requirements in Subsection 106.11. For Federal-Aid projects, the major quantities of steel and iron construction material that are permanently incorporated into the project shall consist of American-made materials only in accordance with 23 CFR Subpart 635.410 and 49 CFR 661.
22. The Contractor shall coordinate all lane closures with other projects.
23. Per Subsection 645.03, the Contractor shall furnish a minimum of two (2) police officers, unless otherwise requested by the State.
24. The Contractor shall not do operations involving traffic lane closures or slow down of traffic during the following peak hours:  
 Morning peak hours - 6:30 a.m. to 8:30 a.m.  
 Afternoon peak hours - 3:00 p.m. to 6:00 p.m.  
 Exceptions to the above peak hours, as required by the contract documents, shall require the acceptance of the Engineer.
25. The Contractor may use Figures 1 through 7 in Section 645 of the Hawaii Standard Specifications for Road and Bridge Construction, 2005, if necessary, in addition to the traffic control plans on sheets 137 through 149.
26. Traffic signal systems shall remain operational at all times during construction. Existing traffic signal standards, vehicle signal heads, and pedestrian signal heads may be removed ONLY after new equipment is operational.
27. All work specified in the Contract but not listed separately in the Proposal Schedule shall be considered incidental to the various contract items and shall not be paid for separately.
28. All materials shall be new and free from defects, such as rust, damage, or corrosion. The Engineer will determine acceptability. No payment will be made for material that is not accepted by the Engineer. Removed signs or guardrails shall not be reused.
29. The Contractor shall be responsible for coordinating with the HDOT Surveyor and referencing monuments prior to disturbance of survey monuments. All survey monuments disturbed or destroyed by the Contractor shall be reinstalled at no cost to the State. Only licensed State of Hawaii Land Surveyor's shall reinstall monuments.
30. In the event subsurface historic resources, including human skeletal remains, structural remains, cultural deposits, artifacts, sand deposits, or sink holes are identified during the demolition and/or construction work, the Contractor shall cease work in the immediate vicinity of the find, protect the find from additional disturbance, and contact the State Historic Preservation Division, at (808) 692-8015.
31. The Contractor shall provide oversight for quality control of work. The Contractor shall submit copies of all measurements and test results to the Engineer on a weekly basis. This includes compaction, density, survey, drill shaft, and pavement quality results.
32. The Contractor shall indemnify and be solely responsible for the protection of adjacent properties, utilities, and existing structures from damage due to construction. Repairing any damages to the satisfaction of the Engineer shall be at the Contractor's own expense.
33. The Contractor shall comply with utility coordination requirements per Standard Specification Section 104.11. As part of coordination requirements, the Contractor shall include the Engineer in all email correspondences with utilities, facilities, and agencies
34. The Contractor shall verify the presence of existing utilities which may conflict with construction activities and shall coordinate with utility companies for temporary relocation as necessary. All costs associated with the temporary relocation shall be borne by the Contractor.
35. The Contractor shall inform the Engineer of all scheduled work to facilitate inspection per Subsection 105.11 - Inspection of the Work and Materials. See schedule requirements in Subsections 108.06 - Progress Schedules and 108.07 - Weekly Meetings. Failure to inform the Engineer shall result in withholding payment or the work being considered unauthorized and subject to Subsection 105.12 - Removal of Non-Conforming and Unauthorized Work.
36. The Contractor shall allow access to all materials that will be used in the project for inspection and/or testing (this includes, but is not limited to, access to the Contractor's or Subcontractor's baseyards, manufacturers' yards, production plants, and separate storage areas). The Engineer reserves the right to reject any material for which access or inspection is not allowed.

ORIGINAL PLAN	DATE
BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NO.	

Oct 10, 2024 - 1:45pm  
 C:\Users\jgibson\Documents\Projects\2024\2024 STP Phase 2A\ENR\1003\_Note-1 Notes\_HDOT.dwg

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.  
 Conrad Higashimura

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**NOTES**  
TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024  
 SHEET No. 1 OF 15 SHEETS

**NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	4	149

- The Contractor shall obtain a permit to perform work upon State highways from the Oahu District Engineer, State Highways, at 727 Kakoi Street, prior to commencement of work within State highway right-of-way.
- 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 Hawaii Standard Specifications for Road and Bridge Construction, 2005, and the Specifications for Installation of Miscellaneous Improvements within State Highways, of the State Highways Division.
- Work may be performed only between the hours of 8:30 a.m. and 3:00 p.m., Monday through Friday, except holidays, unless otherwise permitted by the District Engineer.

During work hours, only one lane of traffic shall be closed, unless otherwise approved in writing by the District Engineer.

At certain locations, "No Lane Closure" will be allowed during the "Back to School Jam", Thanksgiving weekend, Christmas/New Year period and at other times as directed by the Highways Division.

- 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 Highway Administration "Manual on Uniform Traffic Control Devices, Part 6 - Temporary Traffic Control".

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

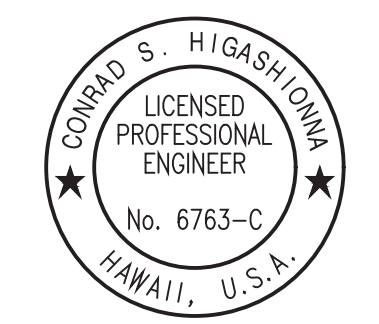
- No material and/or equipment shall be stockpiled or otherwise stored within the highway right-of-way, except at locations designated in writing and approved by the District Engineer.
- Compaction tests shall be taken in accordance with the specifications for installation of miscellaneous improvements within State highways, as follows:
  - Subbase: One (1) compaction test per lift per 1,000 square feet of roadway.
  - Base Course: One (1) compaction test per lift per 1,000 square feet of roadway.
  - One (1) compaction test per 300 lineal feet of trench.
  - A copy of the test results shall be submitted to the Resident Engineer.

- Prior to commencing trench excavation work, the Contractor shall take a profile along the centerline of the proposed utility trench. This information shall be used in the verification of restoring the roadway to its original condition. A copy of the profile shall be submitted to the District Engineer.
- The Contractor shall provide an adequate and safe non-skid bridging material, including shoring, over trenches in pavement areas. The bridging shall be able to support all types of vehicular traffic.
- Unless otherwise noted, no trench shall be opened more than 300 feet in advance of installed and tested pipeline and/or duct line.
- Existing drainage systems shall be functional at all times.
- 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.
- All regulatory, guide and construction signs and barricades shall have a high-intensity reflective background.
- The Contractor shall submit requests for detours and lane closures in accordance with Hawaii Standard Specification Subsection 645.03(F) and with the minimum time frames required for implementation. Once the request has been approved by HDOT, the Contractor shall provide written Weekly Lane Closure Request to the HDOT Construction field office at least one (1) week prior to commencing work.
- Driveways shall be kept open unless the owners of the property using these right-of-way are otherwise provided for satisfactorily.
- 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 provided. All walkways shall conform to the ADA requirements.
- 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.
- The Contractor shall exercise care when performing work in or adjacent to the State highway right-of-way. Damages to all existing buried facilities, surface facilities, and overhead utility lines shall be immediately reported to the respective utility companies, and/or City or State agencies. The repair work shall be done at the Contractor's expense.
- The Contractor shall notify the State Highway's highway lighting supervisor [(808) 837-8056] one (1) week prior to commencing work.
- The Contractor shall notify the City Department of Transportation Services, Traffic Signal Engineer [(808) 523-4589], one (1) week prior to any signalization intersection work.

- Traffic signals shall be kept operational during construction. Temporary operational microwave or other approved detection devices shall be installed one (1) week prior to any signalization intersection excavation work. All work shall be done in accordance to the requirements of the Department of Transportation Services, City and County of Honolulu, and paid for by the Contractor.
- The Contractor shall notify the Department of Transportation Services, Public Transit Division at (808) 768-8396 and Oahu Transit Services, Inc. [bus operations: (808) 848-4578 or (808) 848-6016 and para-transit operations: (808) 454-5041 or (808) 454-5020] of scope of work, location, and proposed closure of any street, traffic lane, sidewalk, or bus stop and duration of project at least two (2) weeks prior to construction.
- The permit to perform work upon State Highways may be revoked because of default in any of the following, but not limited to, conditions:
  - Work performed before or after permitted hours.
  - Failure to maintain roadway surfaces in a smooth and safe condition.
  - Failure to clean up construction debris generated from project work.
  - Failure to provide proper traffic control.
  - Failure to replace damaged pavement markings and signs.

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 Conrad Higashimura

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**NOTES**

**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A

Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	5	149

**NOTES FOR CONSTRUCTION W/IN STATE ROW** (Continued)

23. The Contractor shall notify the HDOT Construction field office in writing at least one week of all upcoming work. This work shall include any backfilling and compacting trench material; any placing and compacting of base course material; and any 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 at the Contractor's expense.
24. Temporary cold mix trench patches will be permitted in any given area for a maximum duration of two weeks, and shall be a minimum of 2 inches thick. All temporary patches shall be placed over properly placed and compacted backfill and base course layers. Contractor shall be responsible for maintaining all temporary patches and to make repairs to unsatisfactory patches within 24 hours.
25. 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 patches of trenches due to the excessive usage of steel plates.
26. Plastic marking tape. Provide plastic marking tape that is acid and alkali resistant polyethylene film 6 inches wide with minimum thickness of 0.004 inch. Provide tape with minimum strength of 1,750 PSI lengthwise and 1,500 PSI crosswise. Manufacture tape with integral wires, foil backing or other means to enable detection by a metal detector when tape is buried up to 3 feet deep. Manufacture tape specifically for marking and locating underground utilities. Provide the metallic core of the tape encased in a protective jacket or provided with other means to protect it from corrosion. Conform to the following tape color and bear a continuous printed inscription describing the specific utility.
  - Red: Electric
  - Yellow: Gas, oil & dangerous materials
  - Orange: Telephone, telegraph, television, police & fire communications
  - Blue: Water systems
  - Green: Sewer systems
27. The Contractor shall place an advertisement in the newspaper for the temporary road closure. The "Notice to Motorist" shall be placed in the Honolulu Star Advertiser for three consecutive days within one week before the temporary lane closures. The "Notice to Motorist" shall be in accordance with the current Hawaii Standard Specifications for Road and Bridge Construction, 2005, Subsection 107.06 - Contractor Duty Regarding Public Convenience and Subsection 645.03(H) - Advertisement. The Notice to Motorist advertisement shall be incidental to lump sum traffic control item 645.1000 - Traffic Control and shall not be paid for separately unless otherwise directed by the Engineer.

**ABBREVIATIONS**

- A.C. Asphalt Concrete
- Approx. Approximate
- BL Base Line
- BC Bottom of Curb
- BW Bottom of Wall
- Blvd. Boulevard
- CL Center Line
- Ch Chord
- C & C City & County of Honolulu
- Clr. Clear
- Conc. Concrete
- CMU Concrete Masonry Unit
- CRM Concrete Rubble Masonry
- Demo. Demolition
- Dept. Department
- Det. Detail
- DOT Dept. of Transportation
- Dwy. Driveway
- E.W. Each Way
- Elev. Elevation
- ESCP Erosion and Sediment Control Plan
- Exist. Existing
- Ex. Existing
- G Gutter
- Ft. Feet
- HECO Hawaiian Electric Co.
- HMA Hot Mix Asphalt
- HTCO Hawaiian Telcom
- Hwy. Highway
- Inv. Invert
- Irr. Irrigation
- Lc Length of Curve
- LF Linear Feet
- Lt. Left
- Max. Maximum
- Min. Minimum
- Mon. Street Monument
- No. Number
- o.c. On Center
- O.D. Outside Diameter
- o/s Offset
- P Top of Pavement

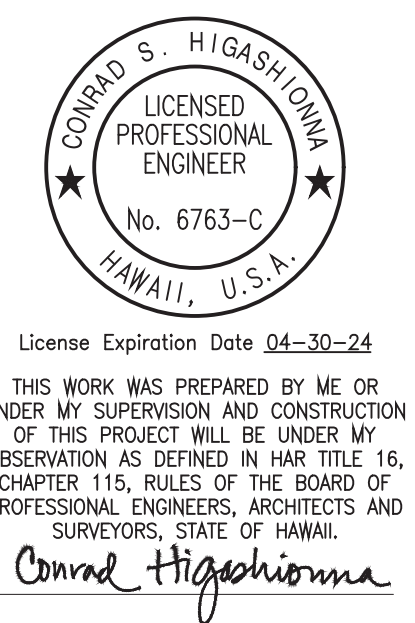
- Pav't Pavement
- PPB Pedestrian Push Button
- P.C. Point of Curvature
- PCC Portland Cement Concrete
- P.O.C. Point on Curve
- P.T. Point of Tangency
- PL Property Line
- R Radius
- Rd. Road
- Rt. Right
- ROW Right-of-Way
- R/W Right-of-Way
- Sh't. Sheet
- Shldr. Shoulder
- St. Street
- Sta. Station
- Std. Standard
- T Tangent
- Thk. Thick
- TMK Tax Map Key
- TC Top of Curb
- TW Top of Wall
- Trans. Transition
- Typ. Typical
- WWF Welded Wire Fabric

**LEGEND**

- e - oh - Existing Electrical Overhead Line
- e - Existing Electrical Duct
- o jp Existing Joint Utility Pole
- o emh Existing Electrical Manhole
- t - Existing Telephone Duct
- o tmh Existing Telephone Manhole
- catv - Existing Cable TV Duct
- w 12 - Existing 12" Water Line
- o wmh Existing Water Manhole
- o arv Existing Water Air Relief Valve
- wv Existing Water Valve
- ☒ wm Existing Water Meter
- s 12 - Existing 12" Sewer Line
- ⊙ smh Existing Sewer Manhole
- g 4 - Existing 4" Gas Line
- o gv Existing Gas Valve
- ⊙ mon Existing Monument
- d 24 - Existing 24" Drain Line
- o dmh Existing Storm Drain Manhole
- ▤ gdi Existing Grated Drop Inlet
- ▭ cb Existing Catch Basin
- Existing Traffic Sign
- sl - Existing Street Light Duct
- slpb Existing Street Light Box
- sl Existing Highway Lighting Standard
- ⊙ tss Existing Traffic Signal Standard
- ▭ tspb Existing Traffic Signal Pullbox
- "
- "
- "
- "
- Existing Guardrail

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Conrad Higashimura

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**NOTES**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	6	149

## WATER POLLUTION AND EROSION CONTROL NOTES

### A. GENERAL:

- 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.
- Follow the guidelines in the current HDOT Construction Best Management Practices Field Manual in developing, installing and maintaining the Best Management Practices (BMP) for the project. For any conflicting requirements between the Manual and applicable bid documents, the applicable bid documents will govern. Should a requirement not be clearly described within the applicable bid documents, the Contractor shall notify the Engineer immediately for interpretation. For the purposes of clarification under Note A.2, "applicable bid documents" include the construction plans, standard specifications, Special Provisions, Permits, and the Storm Water Pollution Prevention Plan (SWPPP) when applicable.
- Follow the guidelines in the Honolulu's City & County "Rules Relating to Soil Erosion Standard and Guidelines" along with applicable Soil Erosion Guidelines for projects on Maui, Molokai, Kauai, and Hawaii.
- The Engineer may assess liquidated damages of up to \$27,500 for non-compliance of each BMP requirement and each requirement stated in Section 209 and special provisions, for every day of non-compliance. There is no maximum limit on the amount assessed per day.
- The Engineer will deduct the cost from the progress payment for all citations received by the Department for non-compliance, or the Contractor shall reimburse the State for the full amount of the outstanding cost incurred by the State.
- If necessary, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. Do not install in a location where rain water may splash into rain gage. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.
- Submit Site-Specific BMP Plan to the Engineer along with a completed Site-Specific BMP Review Checklist within 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 from 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.

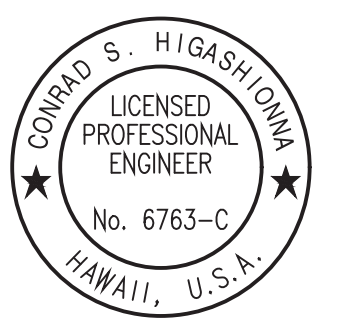
### C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

- For projects with a NPDES Permit for Construction Activities, inspect at the following intervals. For construction areas discharging to nutrient or sediment impaired waters, inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.25 inches or greater within a 24 hour period. For construction areas discharging to waters not impaired for nutrient or sediments, inspect all control measures weekly. Inspections are only required during the project's normal working hours. The discharge point water classification may be found in the SWPPP.
- For projects without a NPDES Permit for Construction Activities, inspect all control measures weekly.

- Maintain all erosion and sediment control measures in good working order. If repair is necessary, initiate repair immediately and complete by the close of the next work day if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance. When installation of a new erosion or sediment control or a significant repair is needed, install the new or modified control or complete the repair no later than 7 calendar days from the time of discovery. "Immediately" means the Contractor shall take all reasonable measures to minimize or prevent discharge of pollutants until a permanent solution is installed and made operational. If a problem is identified at a time in the day in which it is too late to initiate repair, initiation of repair shall begin on the following work day.
- Remove built-up sediment from silt fence when it has reached one-third the height of the fence. Remove sediment from other perimeter sediment control devices when it has reached one-half the height of the device.
- Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.
- Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.
- Complete and submit to the Engineer a maintenance inspection report within 24 hours after each inspection.

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Conrad Higashimura

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**NOTES**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 4 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	7	149

**WATER POLLUTION AND EROSION CONTROL NOTES** (Continued)

**C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES** (continued):

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 materials 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.
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 a 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 project 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
Paint (enamel and latex)	Masonry Block
Metal Studs	Herbicides and Pesticides
Tar	Curing Compounds
Fertilizers	Adhesives
Petroleum Based Products	
  - b. Used 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:

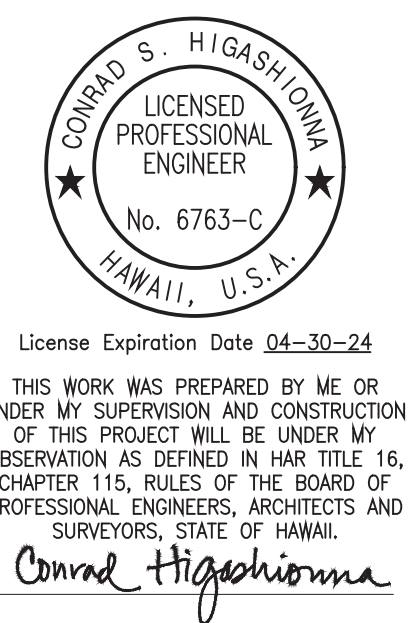
- a. **Petroleum Based Products:**

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.



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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**NOTES**

**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A

Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 5 OF 15 SHEETS







FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	10	149

**CONSTRUCTION NOTES**

- All applicable construction work shall be done in accordance with the, Standard Specifications for Public Works construction, September 1986 and Standard Details for Public Works Construction, September 1984, as amended, of the Department of Public Works, City and County of Honolulu and the Counties of Kauai, Maui, and Hawaii.
- The underground pipes, cables or duct lines known to exist by the engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for new lines. The Contractor shall contact the Hawaii One Call Center at 811 prior to any work in public right of way or on private property.
- No Contractor shall perform any construction operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow into existing City drainage systems, or adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.
- The General Contractor/Developer/Owner of the project shall be responsible for conformance with applicable provisions of the Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards," and Title 11, Chapter 55, "Water Pollution Control", as well as Chapter 14 of the Revised Ordinances of Honolulu, as amended. Best Management Practices shall be employed at all times during construction.

The General Contractor/Developer/Owner of the project shall obtain National Pollutant Discharge Elimination System (NPDES) Permit coverage(s) for the following:

- Storm water discharges associated with construction activities that disturb one (1) acre or more, and
- Discharges of hydrotesting effluent, dewatering effluent, and well drilling effluent to state waters.

In accordance with State law, all discharges related to project construction or operations are required to comply with State Water Quality Standards (Hawaii Administrative Rules, Chapter 11-54). Best Management Practices shall be used to minimize or prevent the discharge of sediment, debris, and other pollutants to State waters. Permit coverage is available from the Department of Health, Clean Water Branch at <http://health.hawaii.gov/cwb>. The owner/developer/contractor is responsible for obtaining other Federal, State, or local authorizations as required by law.

- The Contractor shall notify the Civil Engineering Branch, Department of Planning and Permitting, at (808) 768-8084 to arrange for inspection services and submit two (2) sets of approved construction plans seven (7) days prior to commencement of construction work.

**6. Confined Space**

For entry by City personnel, including inspectors, into a permit required confined space as defined in 29 CFR Part 1910.146(b), the Contractor shall be responsible for providing:

- All safety equipment required by the confined space regulations applicable to all parties other than the construction industry, to include, but not limited to the following:
  - Full body harnesses for up to two personnel.
  - Lifeline and associated clips.
  - Ingress/egress and fall protection equipment.
  - Two-way radios (walkie-talkies) if out of line-of-sight.
  - Emergency (escape) respirator (10 minute duration).
  - Cellular telephone to call for emergency assistance.
  - Continuous gas detector (calibrated) to measure oxygen, hydrogen sulfide, carbon monoxide and flammables (capable of monitoring at a distance at least 20 feet away).
  - Personal multi-gas detector to be carried by inspector.
- Continuous forced air ventilation adequate to provide safe entry conditions.
- One attendant/rescue personnel topside (two, if conditions warrant it).

- Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources-Historic Preservation Division [(808) 692-8015]. In addition, for non-City projects, the Contractor shall inform the Civil Engineering Branch, Department of Planning and Permitting [(808) 768-8084]; and for City projects, notify the responsible City agency.

- For bench mark, see sheet 22. The Contractor shall survey and stake out the work per Section 105.10 Construction Stakes, Lines and Grades of the Hawaii Standard Specifications for Road and Bridge Construction, 2005.

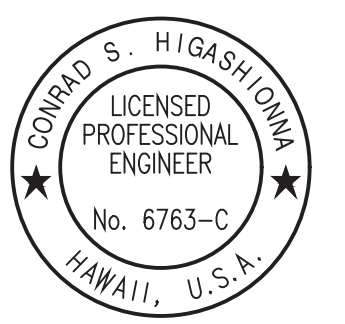
- The Contractor shall verify and check all dimensions and details shown on the drawings prior to the start of construction. The Contractor shall immediately notify the Engineer of any discrepancy or conflict found in the field prior to or during the course of construction and shall not proceed with construction until the Engineer resolves the said discrepancy or conflict.

- Unless otherwise noted, all existing pavement, utility lines and other improvements damaged or undermined as a result of the Contractor's operations shall be reconstructed or replaced by the Contractor at his own expense to match existing conditions.

- All visible utility structures have been located in the field. However, connections to underground utility lines as shown are unverified and compiled from existing data. Underground utilities shown hereon are for information only, having been obtained from the best available sources. No guarantee is made on the accuracy or completeness of said information. The contractor shall be responsible for and pay for all damaged utilities.
- The Contractor shall observe and comply with all federal, state and local laws required for the protection of public health, safety and environmental quality.
- The Contractor shall observe and comply with the administrative rules of the Department of Health regarding noise control for Oahu.
- The Contractor shall exercise care when performing work in or adjacent to the State highway right-of-way. Damages to all existing buried facilities, surface facilities, and overhead utility lines shall be immediately reported to the respective utility companies, and/or City or State agencies. The repair work shall be done at the Contractor's expense.

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 Conrad Higashimura

APPROVED BY: \_\_\_\_\_ Date: \_\_\_\_\_  
Director, Department of Planning and Permitting (for construction in City R/W only)      Chief, Civil Engineering Branch, DPP (for construction in City R/W only)

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**NOTES**

**TRAFFIC SIGNAL MODERNIZATION**

**Oahu - Phase 2A**

**Federal Aid Project No. STP-0300(214)**

Scale: As noted      Date: August 2024



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	12	149

## WATER NOTES

- Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the City and County of Honolulu Board of Water Supply's "Water System Standards" dated 2002, the "Water System External Corrosion Control Standards", Volume 3, dated 2021, and all subsequent amendments and additions.
- The Contractor shall chlorinate the entire inside surface of each pipe and fitting with disinfection solution of 5 ounces of sodium hypochlorite mixed with 10 gallons of water. (for connection only)
- The Contractor shall be responsible for the protection of all water lines during construction. The Contractor shall be especially careful when excavating behind water lines, tees and bends wherever there is a possibility of water line movement due to the removal of the supporting earth beyond the existing reaction blocks. The Contractor shall take whatever measure necessary to protect the water lines, such as constructing special reaction blocks (with BWS approval) and/or modifying his construction method.
- The existence and location of underground utilities and structures as shown on the plans are from the latest available data but are not guaranteed as to the accuracy or the encountering of other obstacles during the course of the work. The Contractor shall be responsible and shall pay for all damages to existing utilities. The Contractor shall not assume that where no utilities are shown, that none exist.
- The Contractor/Developer shall obtain a NPDES permit prior to chlorination and/or hydrotesting as required. A copy of the permit shall be submitted to the Board of Water Supply, Capital Projects Division, Construction Section.
- Cleaning shall be by the use of "pigs" introduced into the pipeline and run completely through all installed pipelines and all branch lines for fire hydrants. "Pigging" of service laterals is not required. Bare foam "pigs" shall be used to swab piping clean as each length of the pipeline is installed. The type, density, size, diameter and length of the pig shall be submitted for review and approval by the manager prior to pigging work. "Pig" shall be used per manufacturer's specifications. Prior to use, the "pig" shall be submerged in a chlorine solution of 1 oz. of 5% chlorine bleach in 5 gallons of water. "Pigging" of the pipeline shall be considered incidental to the installation of the new pipeline. Manual sweeping, hand cleaning or swabbing may be allowed in lieu of "pigging" as approved by the Board of Water Supply manager.
- Pipe cushion shall be of high resistivity material. The Contractor shall submit a soil certification that high resistant cushion material has a resistivity greater than 5,000 ohm-cm. Remainder of the backfill material shall be as specified in Volume 1 of the Water System Standards. Pipe cushion and backfill material shall contain no hazardous substances above regulatory action levels including but not limited to lead, asbestos, mercury, chromium, cadmium, zinc, strontium, and polychlorinated biphenyl's (pcb).
- Two-way blue reflective hydrant markers Type DB shall be installed at all new fire hydrant installations. Contractor shall verify the exact locations of hydrant markers with the nearest Honolulu Fire Department Battalion Chief.

- Install 4 mil. thk. detectable, blue colored, 6 inches wide warning tape over centerline of the PVC pipe and below the base course along the entire length of trench in roadway areas and 6" below finish grade in landscape areas. Tape should be marked with "Caution Water Line Buried Below".
- All water mains and appurtenances shall be subject to hydrostatic test pressure of 150 psi by the Contractor in accordance with Division 300 - Construction, Section 302.28, pipe pressure test of the "Water System Standards", dated 2002. During the 30-minute pressure test, the pressure shall not drop more than 10 psi.
- Water Pipeline chlorination and testing procedures.

The following chlorination and water sample collection procedure shall apply to all water pipeline projects (all work to be coordinated through Board of Water Supply inspector):

### Chlorination of water systems

- The contractor shall provide a 4-week advance notice, in writing, to the officer-in-charge for proposed flushing, filling and bacterial testing of the new pipeline.
- The Contractor shall hire a State of Hawaii - Department of Health certified laboratory to provide water sampling services and to deliver water samples to the micro lab for analysis. Water samples for bacterial testing shall be delivered no later than 2:30 p.m. on the day the samples are taken to the Board of Water Supply micro lab located at 630 S. Beretania St., Honolulu, HI 96843. The micro lab shall perform analysis and provide their results to the Officer-in-Charge by 4:30 p.m. on the following day (in some cases, final results notification may take up to 48 hours).
- Water mains shall be disinfected in accordance with the Board of Water Supply Water System Standards (2002), as amended, Section 302.29.

Step 1 - Preliminary flushing (prior to chlorination): the mains shall be flushed with maximum available pressure and velocity. adequacy of turnovers shall be determined by the absence of particles. Turbidity shall be less than 1.0 NTU before chlorination. During all flushing operations, the Manager or the Manager's authorized representative shall determine the rate of water use.

Step 2 - Chlorination: The contractor shall submit to the Manager, for approval, a sketch showing locations of sampling points and a plan or schedule delineating the method or steps the contractor proposes to use to accomplish the work. The following methods for chlorination shall be used:

- The following chlorination and water sample collection procedure shall apply to all water pipeline projects:
  - Step 1: Chlorinate main by filling with water and introducing chlorine in sufficient quantity to obtain a minimum chlorine concentration of 50 parts per million. leave chlorinated water in main overnight.

((ii)) Step 2: Flush main with fresh water until all chlorine has been flushed out as evidenced by the n,n-diethyl-p-phenylenediamine (dpd) test, then collect a water sample while continuing to flush the main.

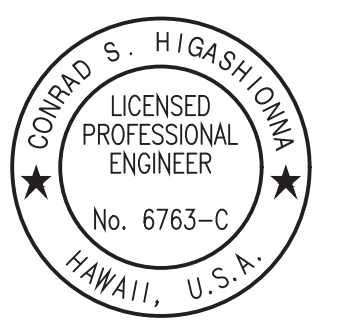
((iii)) Step 3: Repeat steps 1 and 2. After collecting the second water sample, stop flushing and allow the water to stand in the main overnight.

((iv)) Step 4: Thoroughly flush the main with fresh water until all water that had been standing in the main overnight has been flushed out. Stop flushing and let the water stand in the main for one hour. Collect a water sample.

(B) The main is deemed acceptable and certified when (i) the three consecutive water samples, collected on different days as reasonably close to 24 hours apart as practical operating conditions allow under Steps 1 and 2, show no TC (total coliform bacteria), no E Coli, less than 200 CFU/ml (colony forming units per ml) of HPC (heterotrophic plate count bacteria) or less than 202 HPC using the MPN (most probable number) method and turbidity <1.0 NTU and (ii) the sample of water held in the main for one hour, collected under step 4, also shows no TC, no E. Coli, less than 200 CFU/ml of HPC or less than 202 HPC using the MPN method and turbidity <1.0 NTU.

ORIGINAL PLAN	DATE
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Oct 10, 2024 - 1:45pm  
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License Expiration Date 04-30-24  
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 Conrad Higashinoma

APPROVED BY: \_\_\_\_\_  
 Manager and Chief Engineer, BWS  
 (for work affecting BWS facilities in City/State 1/16 and BWS assessments only)

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**NOTES**

**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

SHEET No. 10 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	13	149

**WATER NOTES**

11. Water Pipeline Chlorination and Testing Procedures (continued)

- (C) Chlorination, flushing, sampling and testing will be extended should unsatisfactory results be encountered. any sample that shows positive to, E. Coli, hpc >200 cfu/ml, hpc >202 mpn or turbidity >1.0 ntu is unsatisfactory.
- (D) Steps 1 and 2 may be repeated before collecting the one hour hold sample specified in Step 4. Repeating Steps 1 and 2 is recommended in the event samples show the presence of to and/ or E. Coli and/or increasing total bacterial results from one sample to the next.
- (E) Water samples that show the presence of atypical results, debris, high turbidity or results inconsistent with existing water are subject to reconfirmation. The Manager reserves the right to request and test additional water samples in the interest of safeguarding public health and safety at no cost to the Department.
- (F) Liquid chlorine, chlorine based liquid disinfectants or calcium hypochlorite that has been tested and certified as meeting the specifications of ANSI/NSF Standard 60, Drinking Water Treatment Chemicals - Health Effects, shall be used for the chlorination of the water mains.

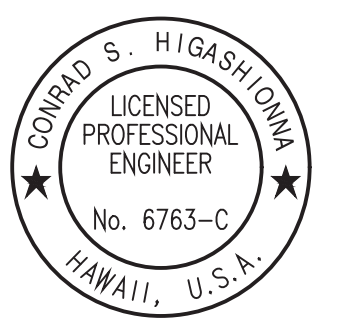
- D) Prior to chlorination, the water mains shall be thoroughly flushed.
- E) The interior surfaces of the water mains shall be exposed to the chlorinating solution by completely filling the main to remove air pockets for a minimum of 24-hours and the free chlorine residual shall not be less than 10 ppm after such time.
- F) Should the calcium hypochlorite be used, no solid and/or undissolved portion of the compound shall be introduced into any section of the water mains to be chlorinated.
- G) At the end of the 24-hour disinfection period, representative samples shall be taken and analyzed to assure a free chlorine residual of at least 10 ppm.
- H) Should the free chlorine residual results indicate adequate chlorination, the water mains shall be thoroughly flushed and filled with water from the existing system and again tested for free chlorine residual. The flushing shall be considered adequate if the free chlorine residual test results indicate that the water in the water mains has a comparable chlorine residual as the water in the existing system.
- I) The contractor shall be responsible for the proper disposal of chlorinated water to safeguard public health and the environment in accordance with applicable State of Hawaii Department of Health requirements. A neutralizing chemical shall be applied to the water to be disposed to thoroughly neutralize the chlorine residual remaining in the water in accordance with Board of Water Supply Water System Standards (2002), as amended.

- J) The Contractor shall be responsible for obtaining a National Pollutant Discharge Elimination System (NPDES) permit from the Department of Health, Clean Water Branch prior to the start of construction, for the disposal of water used for hydro testing and chlorination, as required by the contract documents.
- K) Following the acceptable flushing of the water mains, three (3) consecutive days of acceptable samples, taken at least 24-hours apart, from representative points shall be taken and subjected to microbiological tests. For water lines, at least one set of samples shall be collected from every 1,200 feet of the new water main, plus one from the end of the line and at least one set from each branch. Positive or invalid test results will not be acceptable, and the process will be repeated.
- L) All measurements for chlorine residual shall be analyzed using E.P.A. approved methods for drinking water.
- M) All microbiological tests shall be performed by a laboratory approved by the Department of Health, State of Hawaii and the Water Quality Division of the Board of Water Supply.
- N) The contractor shall be responsible for all costs associated with all of the foregoing.
- O) Cleaning and swabbing procedures shall be in accordance with Board of Water Supply Water System Standards (2002), as amended.
- P) All materials in direct contact with the potable water shall have National Sanitation Foundations (NSF) approvals. The contractor shall submit these approvals to the Board of Water Supply for information only prior to its application.
- 12. All duct iron pipe, including sections requiring reinforced concrete jacketing, shall be ductile iron pipe Class 53 with a bonded dielectric coating as per the Board of Water Supply 2002 Water System Standards, as amended.
- 13. Contractor shall cut & plug all existing unused laterals at the main whether or not shown on the plans. Meter and valve boxes to be or already abandoned shall be demolished or removed and properly disposed of. The damaged area shall be repaired to an equal or better condition than the immediate area. All work shall be done at the expense of the Contractor.
- 14. No deviation to the Board of Water Supply 2002 Water System Standards as amended, shall be allowed without the Manager and Chief Engineer's approval.
- 15. When a utility (gas, sewer, electrical duct line, fiber optic, drainage, etc.) crosses below a Board of Water Supply water main, the designer of record and their construction engineer shall be responsible for determining the adequate water main structural support and submit the construction method and shop drawing, stamped by a licensed engineer and reviewed and accepted by the designer of record, to the Board of Water Supply for review and approval. All work shall be at no cost to the Board of Water Supply.

- 16. The contractor shall notify Board of Water Supply Capital Projects Division, Construction Section in writing or call (808) 748-5730, and submit six (6) sets of 24"x36" approved construction drawings, one week prior to commencing construction activities.
- 17. Re-approval shall be required if this project is not under construction within a period of two (2) years.
- 18. Prior to any excavation, the Contractor shall verify in the field, the location of existing waterlines and appurtenances.
- 19. Any adjustments to the existing water system required during construction, to meet the requirements of the Board of Water Supply standards, whether shown on the plans or not, shall be done by the Contractor at no cost to the Board of Water Supply.
- 20. All plans approved by the Board of Water Supply are based solely on the adequacy of the water supply.
- 21. All waterline construction requiring shutdown connection shall be scheduled for normal working hours at six (6) hours maximum downtime.

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Oct 10, 2024 - 1:45pm  
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 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAWAII TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.  
 Conrad Higashimura

APPROVED BY: \_\_\_\_\_  
 Manager and Chief Engineer, BWS  
 (for work affecting BWS facilities in City/State 1/2W and BWS easement only)

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**NOTES**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024

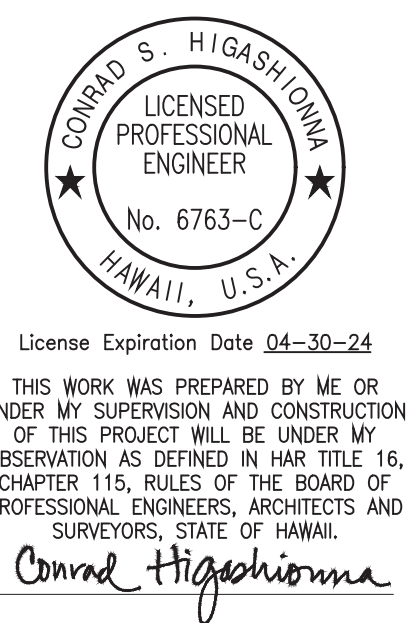
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	14	149

**WATER NOTES**

22. Prior to installation, the Contractor shall submit for approval by Board of Water Supply, the manufacturer's certification that all cast iron (gray or ductile) fittings for the project conform in all respects to the Water System Standards, dated 2002 and addendums.
23. Polygon shape for mechanical joint glands as described in AWWA Standard C111 shall be "straight-sided" or an approved equal on a job-to-job basis.
24. All ductile iron fittings and metallic valves shall have a factory applied coating and wrapped with petrolatum wax tape.
25. All fire hydrants to be adjusted and/or relocated shall be replaced with new fire hydrants, unless otherwise directed by the Board of Water Supply.
26. The contractor shall install electronic markers to all mains and test the electronic markers prior to installations to verify proper operation. Board of Water Supply personnel shall verify the number and locations of placed electronic markers before final paving of the project.
27. Soil resistivity for the site has a corrosion rating of \_\_\_ as reported by Geolabs, Inc. All required electrical isolation procedures and corrosion control requirements shall apply.
28. The contractor shall furnish and install an insulating corporation stop and petrolatum wax tape at all taps (for D.I. pipe and copper lateral combination only).
29. The electrical/cable/signal ductline water crossings, adjust all electrical/cable/signal ductline elevations to maintain 12" vertical clear separation from all waterlines at no cost to the Board of Water Supply.
30. Maintain 3'-0" minimum horizontal clear separation between all waterlines, and the nearest electrical/cable/signal ductlines paralleling the water system at no cost to the Board of Water Supply.
31. Maintain 3'-0" minimum horizontal clear separation electrical/cable/signal appurtenances (including any modular units) and the nearest waterline or water appurtenance. contractor shall field verify for any conflict at each electrical/ cable/signal appurtenance location. Where conflicts occur, the Contractor shall coordinate with the Project Engineer to revise the electrical/cable/signal appurtenance to provide the required clearances at no cost to the BWS.
32. Wherever new electrical/cable/signal duct lines, 16-inches wide or greater, cross over an existing cast iron water main, the Contractor shall re-align the water main with ductile iron pipe, encase the duct iron pipe with a concrete jacket, and provide corrosion protection in accordance with BWS standards and the water notes. The Contractor shall submit plans/drawings to BWS for review and approval prior to construction and pay for all costs for this work.
33. Wherever new electrical/cable/signal duct lines, 16-inches wide or greater, cross over an existing ductile iron water main, the Contractor shall encase the existing main in a concrete jacket in accordance with BWS standards and the water notes. The Contractor shall pay for all costs for this work.
34. Thirty (30) days prior to any work on the existing water systems, the Contractor shall submit six (6) sets of their cathodic protection plan/shop drawings designed and stamped by a registered professional corrosion engineer or NACE certified Cathodic Protection Specialist (CP4) to the design consultant, Engineering Concepts, Inc. prior to submitting to the Board of Water Supply for acceptance and approval. No work on the water systems shall commence until this is approved by the Board of Water Supply. External corrosion control requirements shall comply with the Water System External Corrosion Control Standards, dated 2021 and its subsequent amendments and additions.
35. The Contractor shall construct the water system improvements and its cathodic protection system per the approved plans and shop drawings. The approved cathodic protection plans/shop drawings shall be incorporated on the as-built drawings submitted to the Board of Water Supply upon completion of the project.
36. At utility crossings where proper compaction under a water main is difficult to achieve, CLSM shall be installed in place of backfill material and pipe cushion material. CLSM mixture to be furnished shall be in accordance with Division 200 - Materials, Section 209.06 Controlled Low Strength Material (CLSM) of the Water System Standards, as amended.

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APPROVED BY: \_\_\_\_\_  
Manager and Chief Engineer, BWS (for work affecting BWS facilities in City/State 1/2 and BWS assessments only)

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**NOTES**

**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	15	149

SEWER NOTES

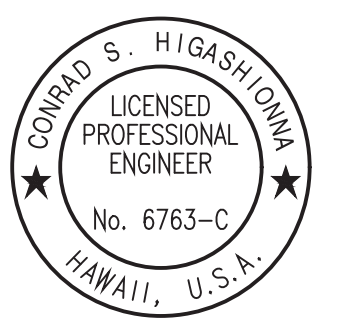
- All sewer construction shall be performed in accordance with the City's "Standard Specifications," September 1986, the Department of Environmental Services "Wastewater System Design Standards," July 2017, and "Wastewater System Standard Details," July 2017, Current City Practices and Revised Ordinances of Honolulu, 1990 as amended.
- The Contractor shall notify the Construction Management Branch, Wastewater Engineering and Construction Division, ENV, at (808) 768-8785, (808) 768-8769, or (808) 768-8755 to arrange for inspection services and submit four (4) sets of approved construction plans to Wastewater Branch, DPP seven (7) days prior to commencement of sewer work. The Contractor shall pay for all inspection costs.
- The underground pipes, cables or duct lines known to exist by the engineer from his research of records are indicated on the plans. The Contractor shall verify the location and depth of the facilities, including and affecting sewer lines, in the presence of the wastewater inspector and exercise proper care in excavating the area. The Contractor shall be responsible and shall pay for all damaged utilities.
- The Contractor shall be responsible for maintaining continuous sewer service to all affected areas during construction.
- The Contractor shall be responsible for any sewage spills caused during construction. The Contractor shall notify the State Department of Health and utilize appropriate sampling and analyzing procedures. The Contractor shall be responsible for all public notifications and press releases.
- Maintain 3'-0" minimum horizontal clear separation between all sewer systems and nearest duct lines, pull boxes, and hand holes paralleling the sewer system at no cost to the City. Maintain 6'-0" minimum horizontal clear separation between all sewer system and electrical transformer pads at no cost to the City. Do not place electrical appurtenances in between sewer laterals.
- At the duct line sewer crossings, adjust all duct line elevations to maintain 24" vertical clear separation above all sewer lines. If less than 24" clear above the sewer line, RC jacket the sewer line per City Standard Detail S-03 at no cost to City.
- If the duct line crosses under the sewer line, provide a RC jacket on the sewer line per City Sewer Standard Detail S-03 at no cost to the City.

CONSTRUCTION NOTES FOR GAS FACILITIES

- HawaiiGas gas pipeline in the project area are plastic coated and cathodically protected. The Contractor shall be extremely careful when working near these gas pipelines.
- Written clearances must be obtained from HawaiiGas, Maps and Records Department, 515 Kamakee Street, at least five (5) working days prior to starting excavation near these gas pipelines.
- Since gas line locations on field maps are approximate, the Contractor, after obtaining written clearance, shall call Hawaii One Call Center a minimum of five (5) working days before starting excavation to arrange for field location of the existing gas pipelines. The telephone number is 811 or 1-866-423-7287.
- The Contractor shall excavate and backfill around gas pipelines in the presence of a representative of HawaiiGas.
- For relocation of any gas pipeline, the Contractor shall notify HawaiiGas five (5) working days before starting work. The telephone number is (808) 594-5574. The Contractor shall provide the necessary excavation and backfill, obtain traffic permits, and restore pavement, sidewalks, and other facilities. Any relocation of gas facilities shall be done by HawaiiGas and paid for by the Contractor.
- The Contractor shall notify HawaiiGas immediately after any damage has been caused to existing gas pipelines, coatings, or its cathodic protection devices. The telephone number is (808) 535-5933, 24 hours a day. The Contractor shall be liable for any damage of HawaiiGas facilities. Repair work on such damage shall be done by HawaiiGas with payment for this work to be borne by the Contractor.
- Minimum vertical and horizontal clearance between the gas pipelines and other pipelines, conduits, ductlines, or other facilities shall be 12 inches. Adequate support and protection for gas pipelines exposed in the trench shall be provided by the Contractor and approved by HawaiiGas.
- The Contractor shall work in an expeditious manner in order to keep the uncovered gas pipelines exposed for as short a period of time as possible.
- The Contractor shall exercise care when performing work in or adjacent to the State highway right-of-way. Damages to all existing buried facilities, surface facilities, and overhead utility lines shall be immediately reported to the respective utility companies, and/or City or State agencies. The repair work shall be done at the Contractor's expense.

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*Conrad Higashimura*

APPROVED BY: \_\_\_\_\_  
Date: \_\_\_\_\_  
Chief, Wastewater Branch, DPP

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION  
**NOTES**  
TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)  
Scale: As noted Date: August 2024

SHEET No. 13 OF 15 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	16	149

TRAFFIC NOTES FOR WORK IN CITY STREETS

1. A permit shall be obtained from the Department of Transportation Services before work on any portion of a public street or highway may begin. Construction traffic control plans approved by the Department of Planning and Permitting must be provided when applying for the permit.
2. The Contractor shall provide, install, and maintain all necessary signs and other protective facilities, which shall conform with the "Hawaii Administrative Rules 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 Highway Administration's "Manual on Uniform Traffic Control Devices for Streets and Highways, Part 6 - Temporary Traffic Control."
3. Work on any City street area may be performed only between the hours of 8:30 a.m. to 3:30 p.m., Monday through Friday, unless otherwise permitted by the Department of Transportation Services.
4. During working hours, the Contractor shall provide for through traffic. During non-working hours, all trenches shall be covered with a safe non-skid bridging material and all lanes shall be open to the traffic.
5. As required by the Department of Transportation Services, the Contractor shall provide off-duty police officers to control the flow of traffic.
6. Where pedestrian walkways exist, they shall be maintained in passable condition or other facilities for pedestrians shall be provided. Passage between walkways at intersections shall likewise be provided.
7. Driveways shall be kept open unless the owners of the property using these rights-of-way are otherwise provided for satisfactorily.
8. The Contractor shall reference to the approval of the Department of Transportation Services and the Department of Planning and Permitting, all existing traffic signs, posts and pavement markings prior to the commencement of construction. The Contractor shall replace or repair all traffic sign, posts and pavement markings disturbed by his activities.
9. The Contractor shall notify the Department of Planning and Permitting at (808) 768-8084 one (1) week prior to any work to be done on signs, post and pavement markings.
10. No equipment shall be stored within street rights-of-way except at locations designated in writing and approved by the Department of Transportation Services.
11. The State Department of Transportation shall ensure that the Contractor installs the construction traffic control devices in accordance with the MUTCD and the Hawaii Administrative Rules as specified in traffic note #2.

HPD-PARKING METER NOTE

1. The Contractor shall contact the Honolulu Police Department, Parking Meter Section at (808) 832-7836 at least five (5) working days prior to any parking meter work.

SIGNS & MARKINGS NOTES FOR WORK IN CITY STREETS

1. All traffic sign and pavement marking installations shall be done in accordance with the "Manual of Uniform Traffic Control Devices for Streets and Highways," 2009 Edition, as amended, the latest specifications from the Traffic Review Branch, Department of Planning and Permitting and as shown on the plans.
2. The Contractor shall notify and coordinate work with the Civil Engineer Branch, Department of Planning and Permitting, one (1) week in advance of commencing work at (808) 768-8084.
3. The Contractor shall submit material brochures for all signs and paint materials to the Permitting and Inspection Section of the Civil Engineering Branch, Department of Planning and Permitting.
4. The signing and/or striping contractor shall keep one (1) set of approved plans at the project site at all times during construction work.
5. The Contractor shall paint temporary guidelines and outline of arrows, legends and crosswalks with a two (2) inch wide brushed line on the day of the roadway is opened to traffic. These markings must be approved by the Inspector from the Civil Engineering Branch, Department of Planning & Permitting.
6. The Contractor shall notify the Civil Engineering Branch, Department of Planning and Permitting at (808) 768-8084, three (3) days in advance of final inspection.
7. The Contractor shall meet with the Inspector from the Civil Engineering Branch, Department of Planning and Permitting during the final inspection.
8. Within ten (10) days following notification of award of contract, the Contractor shall submit to the Permitting and Inspection Section, Civil Engineering Branch, Department of Planning and Permitting (768-8084) for approval, a list of any signing and pavement marking material, which he proposes to install. The list shall be complete as to the name of manufacturer, catalog number and shall be supplemented with material brochures.
9. Upon final inspection of the project, the Contractor shall submit a letter of certification for all traffic signing and pavement marking materials installed.
10. Signs shall be attached to brackets with 5/16" zinc plated steel bolts, nuts and washers. Signs 48" wide or larger than 10 square feet in area shall be mounted on two - 2" galvanized pipe post. The sign shall be installed with at least one (1) foot clearance from the sign edge to the curb face.
11. All traffic signs shall be reflectorized.
12. Raised pavement markers shall be installed in accordance with the Department of Planning and Permitting standards.
13. Pavement word and symbol marking shall be in accordance with the Department of Planning and Permitting standards.

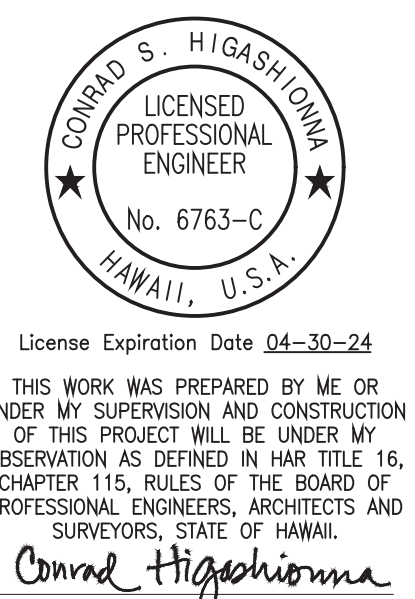
14. The Contractor shall use thermoplastic material, approved by the Permitting and Inspection Section of the Civil Engineering Branch, Department of Planning and Permitting, for all crosswalks, stop bars, pavements arrows, centerlines, lane lines, arc lines, channelized traffic islands and legends.
15. All construction material submittals within the State's limits shall be approved and accepted first by Hawaii Department of Transportation (HDOT) Materials Testing and Research Laboratory prior to using the materials in any construction work.

TRAFFIC SIGNAL AND TECHNOLOGY DIVISION NOTES

1. The Contractor shall notify the Traffic Signal and Technology Division, Department of Transportation Services [(808) 768-8388] three (3) working days prior to commencing work on the traffic signal system.
2. The traffic signal system shall be kept operational during construction. Any relocation required shall be approved by the Traffic Signal and Technology Division, Department of Transportation Services and paid for by the Contractor.
3. The Contractor shall be responsible for any damages to the existing traffic signal facilities, including the traffic signal interconnect system. Any and all damages to these facilities shall be repaired by the Contractor at his cost in accordance with the requirements of the City and County of Honolulu and the State of Hawaii.
4. The Contractor shall be responsible for any damages to the existing traffic signal fiber optic cable system. Any and all damages to these facilities shall be repaired by the Contractor at his cost in accordance with the requirements of the City and County of Honolulu and the State of Hawaii.

ORIGINAL PLAN	DATE
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QUANTITIES BY	
CHECKED BY	
NOTE BOOK No.	

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APPROVED BY: \_\_\_\_\_ Date: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**NOTES**

TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 14 OF 15 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	17	149

GENERAL NOTES FOR TRAFFIC CONTROL PLAN

- The permittee shall make minor adjustments at intersections, driveways, bridges, structures, etc., to fit field conditions.
- Cones or delineators shall be extended to a point where they are visible to approaching traffic.
- Traffic control devices shall be installed such that the sign or device farthest from the work area is placed first. The others shall then be placed progressively toward the work area.
- Regulatory and warning signs within the construction zone that are in conflict with the traffic control plans shall be removed or covered.
- Flaggers and/or police officers shall be in sight of each other or in direct communication at all times.
- When required by the issuing office, the permittee shall install a flashing arrow signal as shown on the traffic control plans.
- All traffic lanes shall be a minimum of ten (10) feet wide.
- All construction warning signs shall be promptly removed or covered whenever the message is not applicable or not in use.
- The backs of all signs used for traffic control shall be appropriately covered to preclude the display of inapplicable sign messages (i.e., when signs have message on both faces).
- Lane closure shall be limited only to the extent of accomplishing each day's work. As soon as each day's work is completed, the permittee 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. Existing faded or obliterated pavement markings that are necessary for safe traffic flow in the construction area shall be replaced with temporary or permanent markings before opening the roadway to public traffic each day.
- Permanent pavement markings and traffic signs shall be replaced upon completion of each phase of work.
- Cones and delineators shall be spaced at a maximum distance of twenty (20) feet apart. A minimum of six (6) channelizing devices shall be used for each taper length.
- Driveways shall be kept open unless the owners of the property using the right-of-way are otherwise provided for satisfactorily. Further, the permittee shall control traffic going in and out of driveway.
- Buffer and taper areas on approach to any work area shall be kept clear of vehicles and equipment.
- A high level warning device (flag tree) shall be installed on approach to all work areas.
- "NO PARKING" signs shall be posted within any work area and for the buffer and taper areas approaching the work area.
- Traffic control plans are approved for work on any City street area only between the evening hours of 8:00 p.m. and Midnight, Monday thru Thursday; and between the morning hours of Midnight and 5:00 a.m., Tuesday thru Friday.

MECHANICAL & ELECTRICAL DIVISION NOTES

- The Contractor shall notify the Joint Pole Committee two (2) weeks in advance of any relocation of utility pole(s) that may be necessary.
- The Contractor shall notify the Mechanical & Electrical Division, Department of Design and Construction [(808) 768-8431], three (3) working days prior to commencing work on the street lighting system.
- The street lighting system shall be kept operational during construction. Any relocation required shall be approved by the Mechanical & Electrical Division, Department of Design and Construction, and paid for by the Contractor.
- The Contractor shall be responsible for any damages to the existing street lighting facilities. Any and all damages to these facilities shall be repaired by the Contractor at his cost in accordance with the requirements of the City and County of Honolulu and the State of Hawaii.
- The Contractor shall be responsible for any damages to the City's existing communications fiber optic cable system. Any and all damages to these facilities shall be repaired by the Contractor at his cost in accordance with the requirements of the City and County of Honolulu and the State of Hawaii.
- The Contractor shall exercise care when performing work in or adjacent to the State highway right-of-way. Damages to all existing buried facilities, surface facilities, and overhead utility lines shall be immediately reported to the respective utility companies, and/or City or State agencies. The repair work shall be done at the Contractor's expense

PUBLIC TRANSIT DIVISION (DTS) NOTES

CONSTRUCTION OF THIS PROJECT SHALL NOT AFFECT TRANSIT OPERATIONS. BUS ROUTES AND BUS STOPS SHALL REMAIN OPEN AND ACCESSIBLE AT ALL TIMES. ANY WORK AFFECTING BUS OPERATIONS, ROUTES, OR STOPS MUST BE SUBMITTED TO DTS-TMD FOR REVIEW NO LESS THAN 30 DAYS PRIOR TO START DATE.

POINT OF CONTACT INFORMATION (NOTIFICATION IS REQUIRED TO ALL PHONE NUMBERS AND EMAILS):

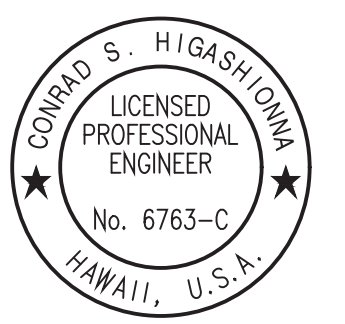
DTS-TMD  
 (808) 768-8371  
 THEBUSSTOP@Honolulu.gov  
 HANDIVAN@Honolulu.gov

OAHU TRANSIT SERVICES - BUS OPERATIONS

(808) 768-9520  
 (808) 768-9534  
 Sean-Bennett.Paio@TheBUS.org  
 Joshua.Vaoalii@TheBUS.org  
 Walter.Oba@TheBUS.org

OAHU TRANSIT SERVICES - PARATRANSIT OPERATIONS

(808) 768-9802  
 (808) 768-9851  
 (808) 454-5021  
 Tracie.Coelho@TheBUS.org  
 Richard.Mole@TheBUS.org



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 Conrad Higashimura

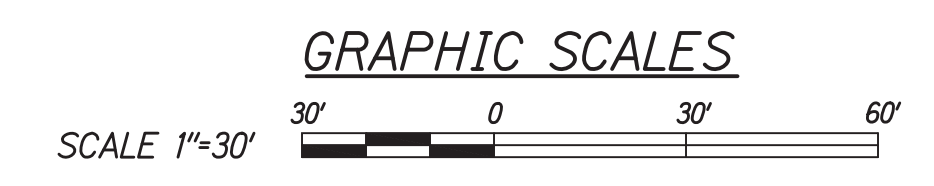
APPROVED BY: \_\_\_\_\_  
 \_\_\_\_\_  
 Chief, Wastewater Branch, DDP Date: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**NOTES**  
TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024

ORIGINAL PLAN	DATE
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QUANTITIES BY	
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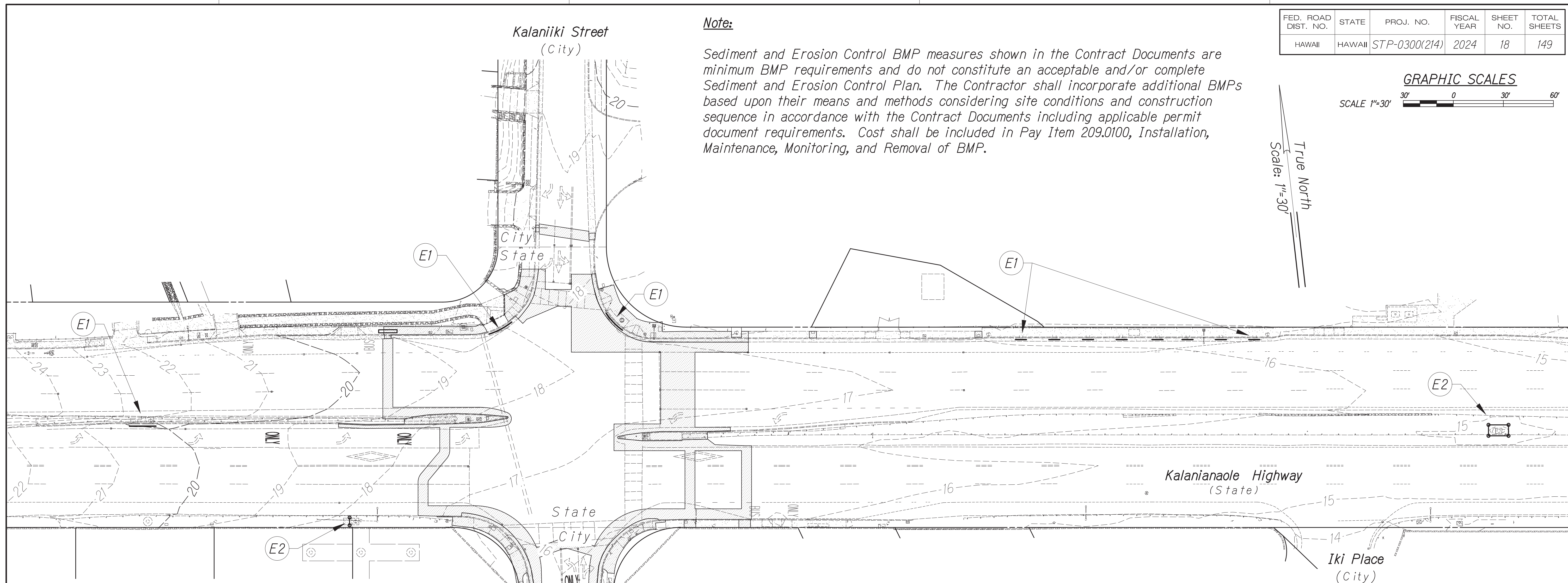
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	18	149



True North  
Scale: 1"=30'

**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 upon 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.



**EROSION & SEDIMENT CONTROL PLAN (ESCP)**

Scale: "40"

**Erosion & Sediment Control Plan Callouts:**

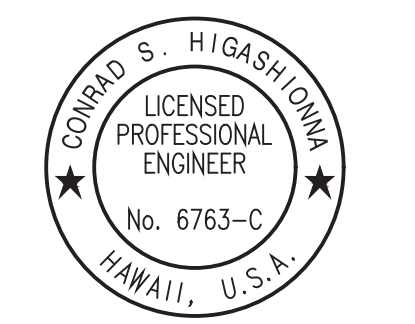
- (E1) Install catch basin inlet protection. For detail, see sheet 19.
- (E2) Install compost filter sock. For detail, see sheet 19.

**Legend:**

- Remove and dispose of existing A.C. pavement, curb & gutter, driveway, concrete sidewalk, and curb ramp.
- Compost Filter Sock
- Catch Basin Protection
- Existing Contour Major
- Existing Contour Minor

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 Conrad Higashidoma

APPROVED BY: \_\_\_\_\_ Date: \_\_\_\_\_  
Chief, Civil Engineering Branch, EPP (for construction in City ROW only)

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**ESCP**

TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 1 OF 4 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	20	149

**EROSION AND SEDIMENT CONTROL NOTES (FOR WORK WITHIN CITY RIGHT-OF-WAY):**

1. The Contractor shall follow the guidelines in the City and County of Honolulu's "Rules Relating to Water Quality."
2. Measures to control erosion and other pollutants shall be in place before any construction is initiated.
3. Regularly inspect and maintain all erosion and sediment controls to ensure continued performance.
4. **PERMANENT STABILIZATION**  
All disturbed areas shall be permanently stabilized using vegetative covering, pavement, or equivalent, prior to removing erosion and sediment measures. Trapped sediment and areas of disturbed soil which result from the removal of the temporary measures shall be immediately and permanently stabilized.
5. **PERIMETER CONTROLS**  
Perimeter controls are required down slope of equipment/ vehicle staging areas at the end of each business day and around material stockpiles that are not actively being used. Stockpiles are not allowed in the City right-of-way.
6. **INLET PROTECTION**
  - All storm drain inlets onsite and those offsite which may receive runoff from the site shall use an inlet protection device unless they are directed to a sediment basin.
  - Sediment levels may not exceed one third of the height of a sediment barrier or inlet protection device at any point along the length of the sediment barrier or the inlet protection device.
  - Sediment barriers and inlet protection devices must be unclogged and cleaned when performance is compromised.
  - Torn, weathered or sagging sediment barriers or inlet protection devices must be repaired or replaced immediately.
7. **TRACKING CONTROL**
  - Minimize sediment track-out onto off-site streets, other paved areas, and sidewalks from vehicles exiting the construction site by restricting vehicle traffic to properly designated areas and using additional controls to remove sediment from vehicle tires prior to exiting the site.
  - Vehicular parking and movements on project sites must be confined to paved surfaces or predefined parking areas and vehicle paths, which shall be marked with flags or boundary fencing.
  - All pollutants and materials that are dropped, washed, tracked, spilled, or otherwise discharged from a project site to off-site streets, other paved areas, sidewalks or the MS4 must be cleaned using dry methods such as sweeping or vacuuming.
  - Washing pollutants and materials that are discharged from the project site to the MS4 into drain inlets or catch basins is prohibited unless the material is sediment and the inlets are directed to a sediment basin or sediment trap.

8. Best management practices (BMPs) shall not be removed until final stabilization is complete for that phase.
9. Refer to City and County of Honolulu Best Management Practices Manual-Construction for more information on BMPs.
10. The following BMP's were determined to not be applicable based on the site-specific conditions. As construction progresses, revisions may be necessary and will be provided to DPP inspectors.
  - Dewatering practices are not applicable.
  - Diversion BMPs to divert runoff from upstream areas around disturbed areas of the site are not applicable.
  - Velocity dissipation devices are not applicable.
  - Sediment barriers are not applicable.
11. An ESCP coordinator must be designated using the form in Appendix A of the Rules Relating to Water Quality prior to permitting.
12. Notify DPP in writing of project start date two weeks prior to starting work.
13. Practice good housekeeping measures throughout the duration of construction.
14. Inspections will be performed weekly.

**PROJECT SEQUENCE:**

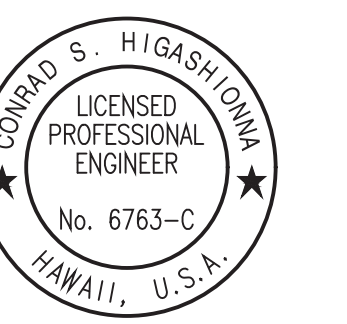
- Install inlet protection and perimeter controls around staging areas and material stockpiles as needed.
- Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
- Install perimeter controls around active work areas at the end of each business day if not stabilized.
- Plant permanent ground cover according to the landscaping plan as soon as possible.
- Remove or dismantle temporary erosion control structures after permanent stabilization.

**RAIN RESPONSE PLAN:**

- The following will be performed when rain is imminent or is forecasted in the next 48 hours:
1. Temporary suspension of active trenching.
  2. Inspect all perimeter controls and inlet protection devices and maintain as needed. Reinstall any perimeter controls that were removed due to active work in the area. If severe storm is expected, remove inlet protection devices to prevent flooding on surrounding streets.
  3. Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwater.
  4. Place spill pans or oil-only spill pads under construction vehicles to prevent runoff from contacting any spilled petroleum products. Properly dispose of any accumulated oily water after the rain event.
  5. Re-inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain BMPs as needed.

ORIGINAL PLAN	DATE
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 Conrad Higashimura

APPROVED BY: \_\_\_\_\_ Date: \_\_\_\_\_  
Chief, Civil Engineering Branch, DPP (for construction in City ROW only)

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**ESCP**

**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	21	149

**GOOD HOUSEKEEPING BMPs:**

1. STREET SWEEPING AND VACUUMING

All pollutants discharged from construction site to off-site areas must be swept or vacuumed each day before leaving the job site.

2. MATERIALS DELIVERY, STORAGE AND USE MANAGEMENT

Prevent, reduce, or eliminate the discharge of pollutants from material delivery, storage, and use to the storm water system or watercourses by minimizing the storage of hazardous materials onsite, storing materials in a designated area, installing secondary containment. Construction materials, waste, toxic and hazardous substances, stockpiles and other sources of pollution shall not be stored in buffer areas, near areas of concentrated flow, or areas abutting the MS4, receiving waters, or drainage improvements that discharge off-site. Primary and secondary containment controls and covers shall be implemented to the MEP.

3. SPILL PREVENTION AND CONTROL

Create and implement spill prevention and response plans to eliminate and minimize the discharge of pollutants to the MS4 and receiving waters from leaks and spills by reducing the chance for spills, absorbing, containing, and cleaning up spills and properly disposing of spill materials. At a minimum, all projects shall cleanup all leaks and spills immediately.

4. HAZARDOUS MATERIALS

Prevent or reduce the discharge of pollutants to storm water from hazardous waste through proper material use and waste disposal. In the event that hazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall immediately notify the Department of Facilities Maintenance, Honolulu Fire Department, and Honolulu Police Department of the discharge by telephone. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the director no less than 3 days after notification by phone.

5. NONHAZARDOUS MATERIALS

In the event that nonhazardous materials are discharged to the MS4, the property owner or ESCP coordinator shall notify the City Department of Facilities Maintenance by telephone no later than the next business day. A written report describing the pollutants that were discharged, the reasons for the discharge, and the measures that have been taken or will be taken to prevent a reoccurrence of the discharge shall be submitted to the director no less than 3 days after notification by phone.

6. VEHICLE AND EQUIPMENT CLEANING

Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment cleaning operations by using off-site facilities when feasible, washing in designated, contained areas only, and eliminating discharges to the storm drain system by evaporating and/or treating wash water, as appropriate or infiltrating wash water for exterior cleaning activities that use water only.

7. VEHICLE AND EQUIPMENT FUELING

Prevent fuel spills and leaks by using off-site facilities, fueling only in designated areas, enclosing or covering stored fuel, and implementing spill controls such as secondary containment and active measures using spill response kits.

8. VEHICLE AND EQUIPMENT MAINTENANCE

Eliminate and minimize the discharge of pollutants to storm water from vehicle and equipment maintenance operations by using off-site facilities when feasible, performing work in designated areas only, using spill pads under vehicles and equipment, checking for leaks and spills, and containing and cleaning up spills immediately.

9. SOLID WASTE MANAGEMENT

Prevent or reduce discharge of pollutants to the land, groundwater, and in storm water from solid waste or construction and demolition waste by providing designated waste collection areas, collect site trash daily, and ensuring that construction waste is collected, removed, and disposed of only at authorized disposal areas.

10. SANITARY/SEPTIC WASTE MANAGEMENT

Temporary and portable sanitary and septic waste systems shall be mounted or staked in, well-maintained and scheduled for regular waste disposal and servicing. Sources of sanitary and/or septic waste shall not be stored near the MS4 or receiving waters.

11. STOCKPILE MANAGEMENT

Stockpiles shall not be located in drainage ways, within 50 feet from areas of concentrated flows, and are not allowed in the city right-of-way. Sediment barriers or silt fences shall be used around the base of all stockpiles. Stockpiles shall not exceed 15 feet in height. Stockpiles greater than 15 feet in height shall require 8-foot wide benching in accordance with ROH Chapter 14, Article 15. Stockpiles must be covered with plastic sheeting or a comparable material if they will not be actively used within 7 days.

12. LIQUID WASTE MANAGEMENT

Liquid waste shall be contained in a controlled area such as a holding pit, sediment basin, roll-off bin, or portable tank of sufficient volume and to contain the liquid wastes generated. Containment areas or devices must be impermeable and leak free and should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains.

13. CONCRETE WASTE MANAGEMENT

Prevent or reduce the discharge of pollutants to storm water from concrete waste by conducting washout offsite or performing onsite washout in a designated area constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations. Plastic lining material should be a minimum of 10-millimeter polyethylene sheeting and should be free of holes, tears, or other defects that compromise the impermeability of the material. Containment areas or devices should not be located where accidental release of the contained liquid can discharge to water bodies, channels, or storm drains. Washout facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75 percent full. Once concrete wastes are washed into the designated area and allowed to harden, the concrete should be broken up, removed, and disposed of as solid wastes.

14. CONTAMINATED SOIL MANAGEMENT

At minimum contain contaminated material soil by surrounding with impermeable lined berms or cover exposed contaminated material with plastic sheeting. Contaminated soil should be disposed of properly in accordance with all applicable regulations.

15. DUST CONTROL

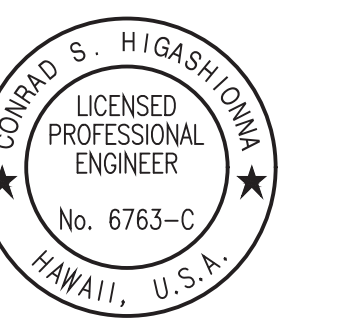
Dust from the project site shall not be transported or discharged to off-site areas.

16. DEWATERING OPERATIONS

Non-storm water from dewatering operations cannot be discharged from the site without prior notice and approval from the DPP and Department of Health. Dewatering discharges shall be kept onsite using a sediment basin, sediment trap, weir tank, dewatering tank, filtration system or other manufactured system.

ORIGINAL PLAN	DATE
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SURVEY PLOTTED BY	
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 Conrad Higashimura

APPROVED BY: \_\_\_\_\_ Date: \_\_\_\_\_  
Chief, Civil Engineering Branch, ESCP (for construction in City ROW only)

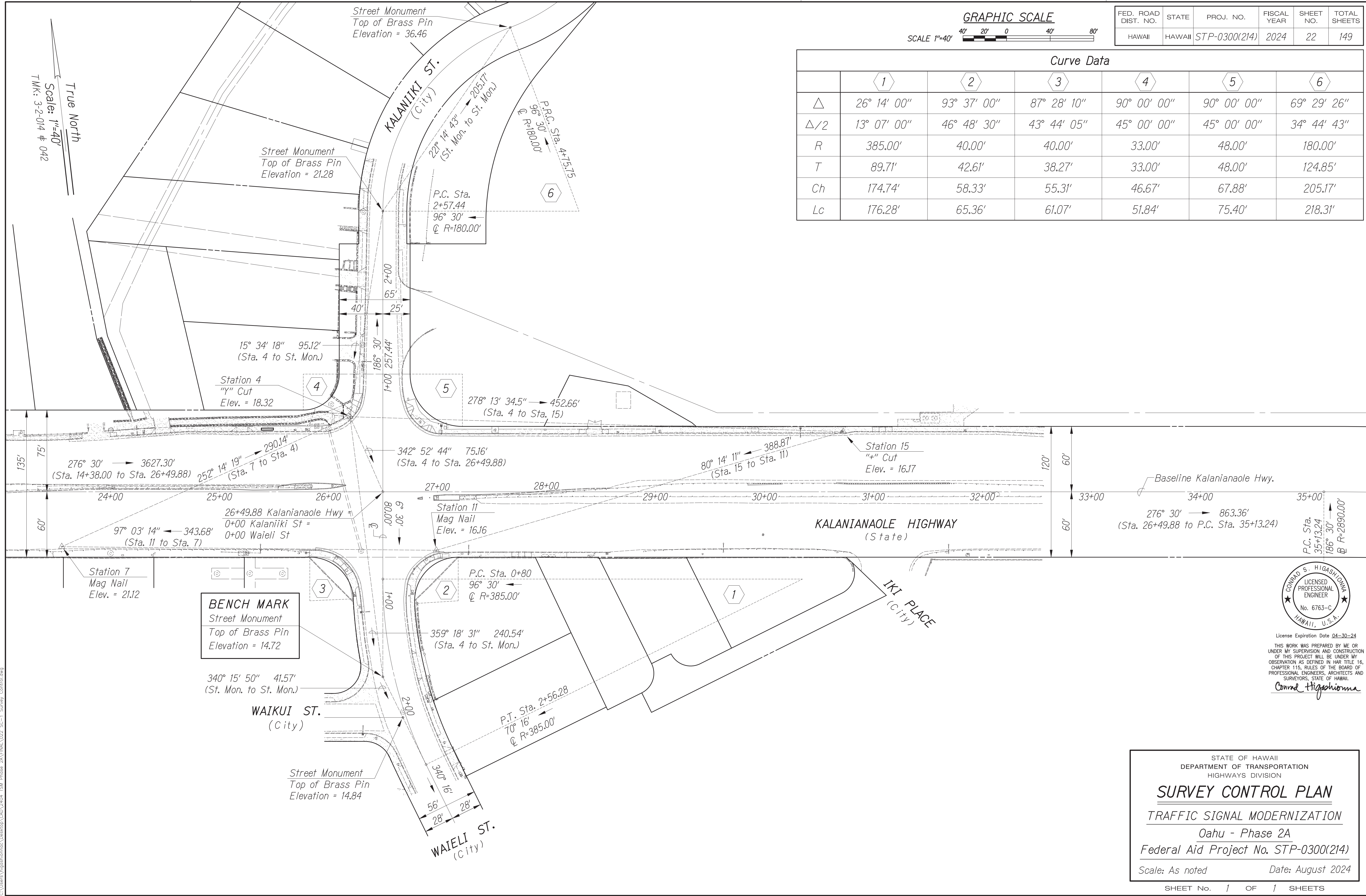
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**ESCP**

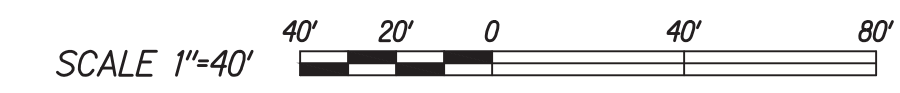
**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024



**GRAPHIC SCALE**



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	22	149

**Curve Data**

	1	2	3	4	5	6
$\Delta$	26° 14' 00"	93° 37' 00"	87° 28' 10"	90° 00' 00"	90° 00' 00"	69° 29' 26"
$\Delta/2$	13° 07' 00"	46° 48' 30"	43° 44' 05"	45° 00' 00"	45° 00' 00"	34° 44' 43"
R	385.00'	40.00'	40.00'	33.00'	48.00'	180.00'
T	89.71'	42.61'	38.27'	33.00'	48.00'	124.85'
Ch	174.74'	58.33'	55.31'	46.67'	67.88'	205.17'
Lc	176.28'	65.36'	61.07'	51.84'	75.40'	218.31'

True North  
Scale: 1"=40'  
T.M.K.: 3-2-014 # 042

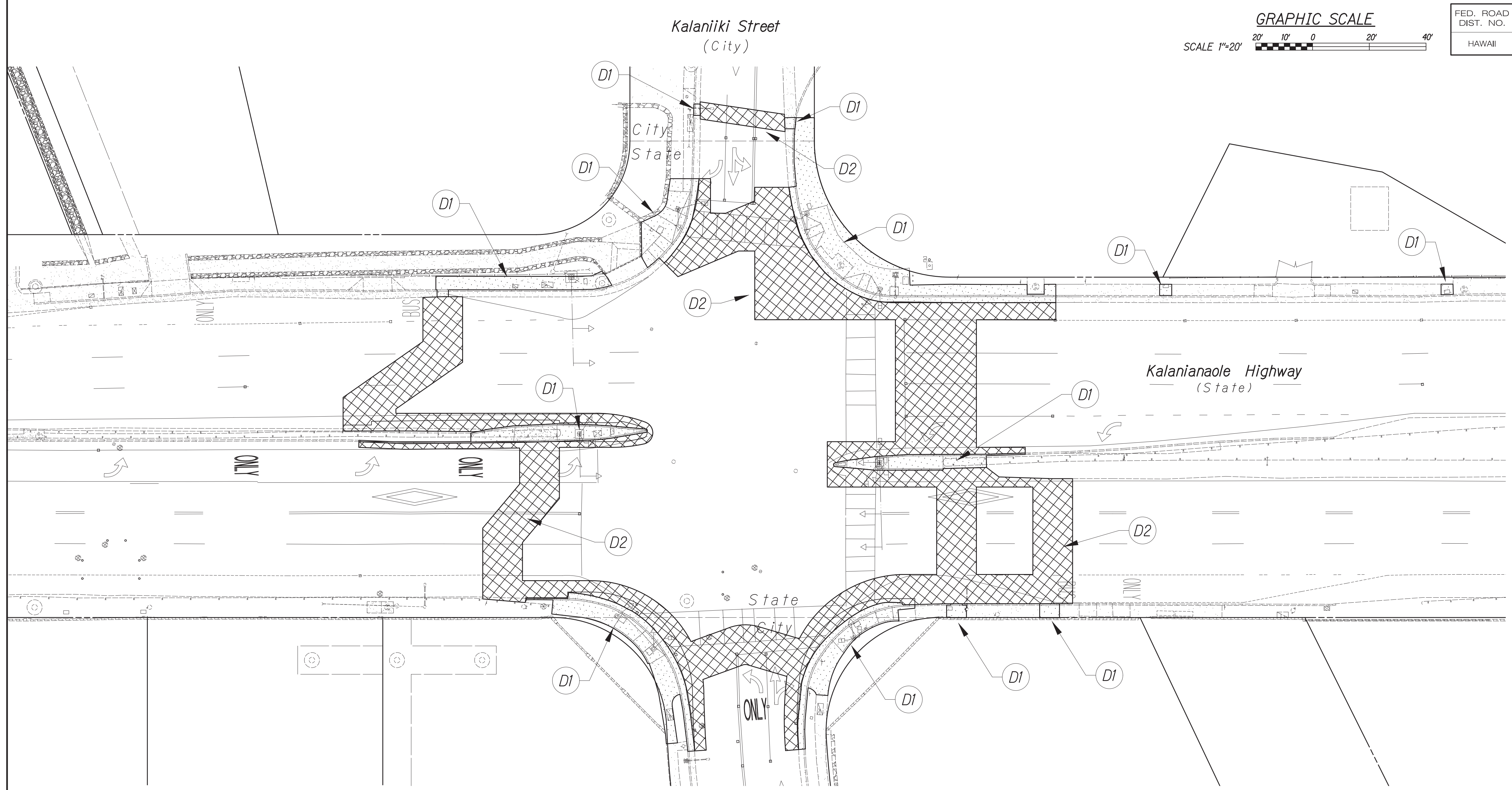
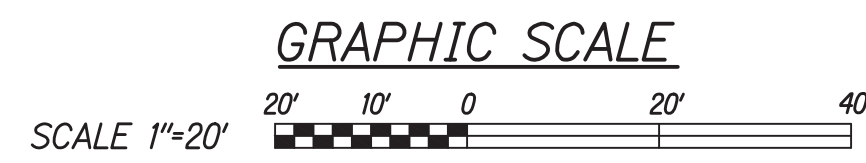
DATE	BY

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CONRAD S. HIGASHIDOMA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6763-C  
 HAWAII, U.S.A.  
 License Expiration Date 04-30-24  
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 Conrad Higashidoma

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**SURVEY CONTROL PLAN**  
 TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024  
 SHEET No. 1 OF 1 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	23	149



**Legend:**

- Remove and dispose of concrete sidewalk, ramps, driveway, curb, and gutter.
- Remove and dispose of asphalt concrete pavement.

**Demolition Callouts:**

Prior to demolition work, the Contractor shall coordinate with the State Surveyor to locate existing street monuments. For removal of traffic signal equipment, see Traffic Signal demolition plans.

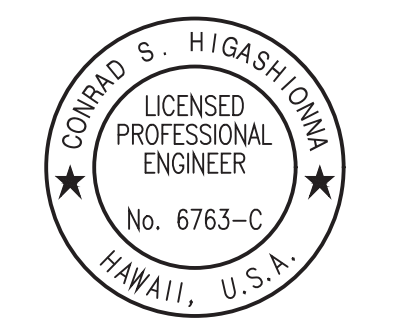
- Approximate limits of demolition of concrete sidewalk, ramps, driveway, curb, and gutter.
- Approximate limits of demolition of asphalt concrete pavement.

**DEMOLITION PLAN**

DATE	BY

SURVEY PLOTTED BY \_\_\_\_\_  
 TRACED BY \_\_\_\_\_  
 DESIGNED BY \_\_\_\_\_  
 QUANTITIES BY \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 No. \_\_\_\_\_

Oct 10, 2024 - 1:56pm  
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 Conrad Higashidoma

APPROVED BY: \_\_\_\_\_  
 Chief, Civil Engineering Branch, DPP  
 (for construction in City ROW only)

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**ROADWAY PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024

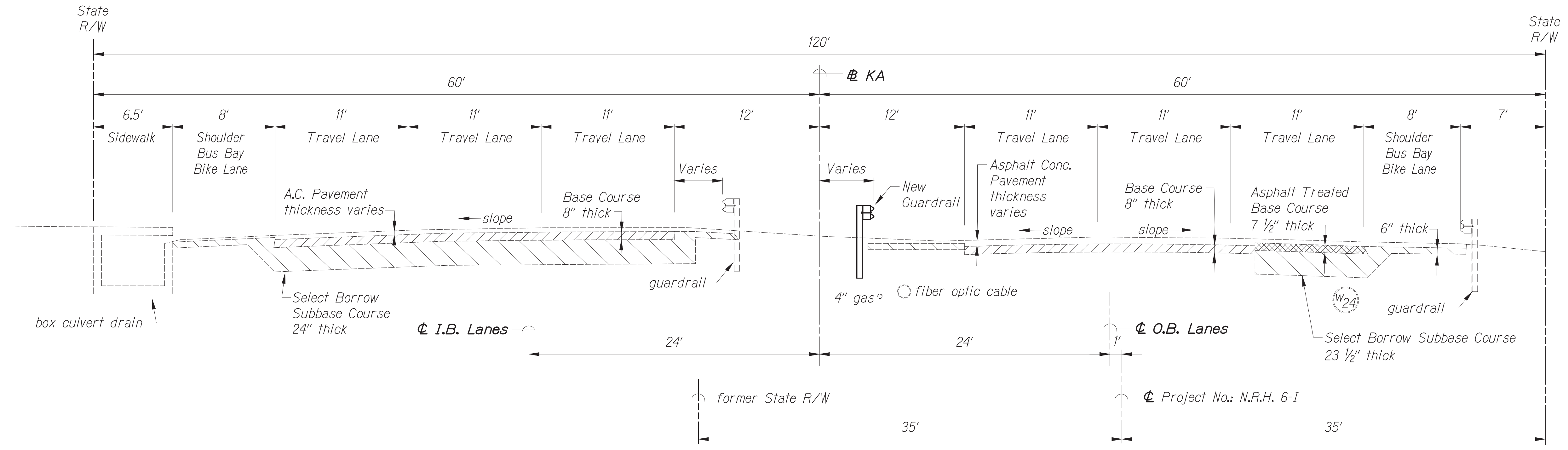
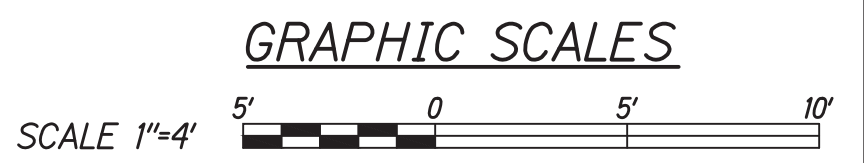
SHEET No. 1 OF 42 SHEETS







FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	26	149



(Sta. 27+75 to 31+00)  
**TYPICAL SECTION - KALANIANA'OLE HWY.**  
 Scale: 1" = 5'

DATE	BY

Oct 10, 2024 - 1:15 PM  
 C:\Users\jgarcia\OneDrive\Documents\2024\2024 STP Phase 2A\ENR\026\_P-04\_Typical Section.dwg

CONRAD S. HIGASHIYAMA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6763-C  
 HAWAII, U.S.A.  
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 Conrad Higashiyama

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

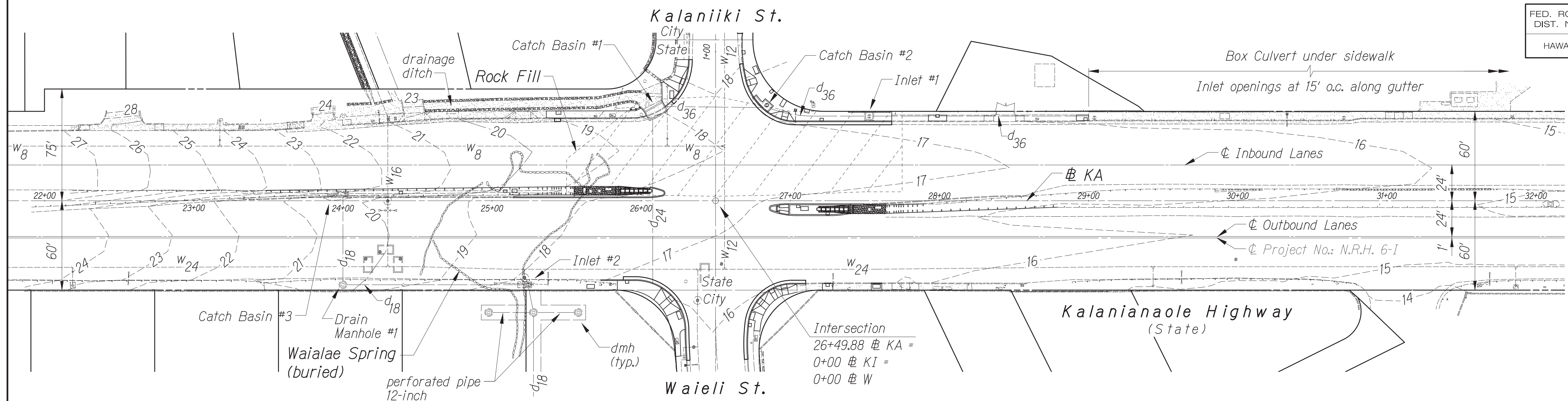
**ROADWAY PLAN**

TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

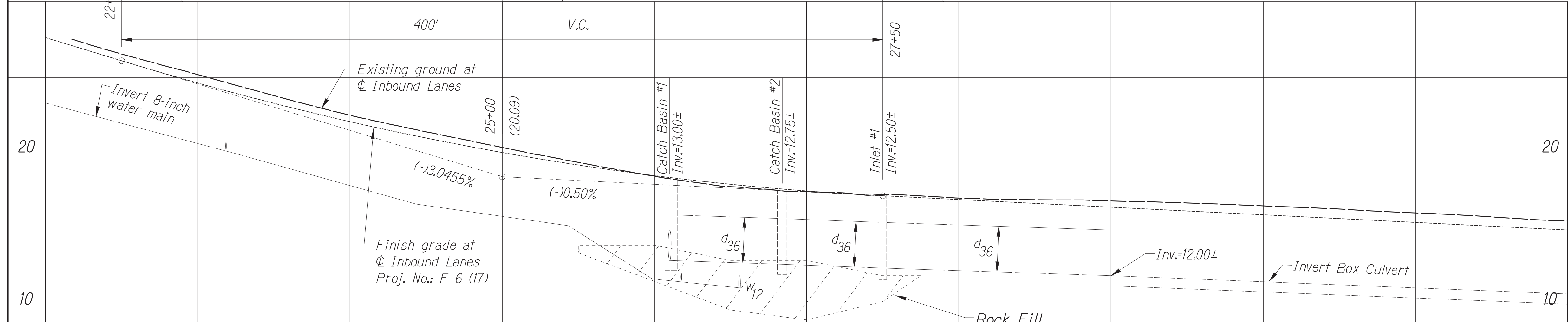
Scale: As noted Date: August 2024

SHEET No. 4 OF 42 SHEETS

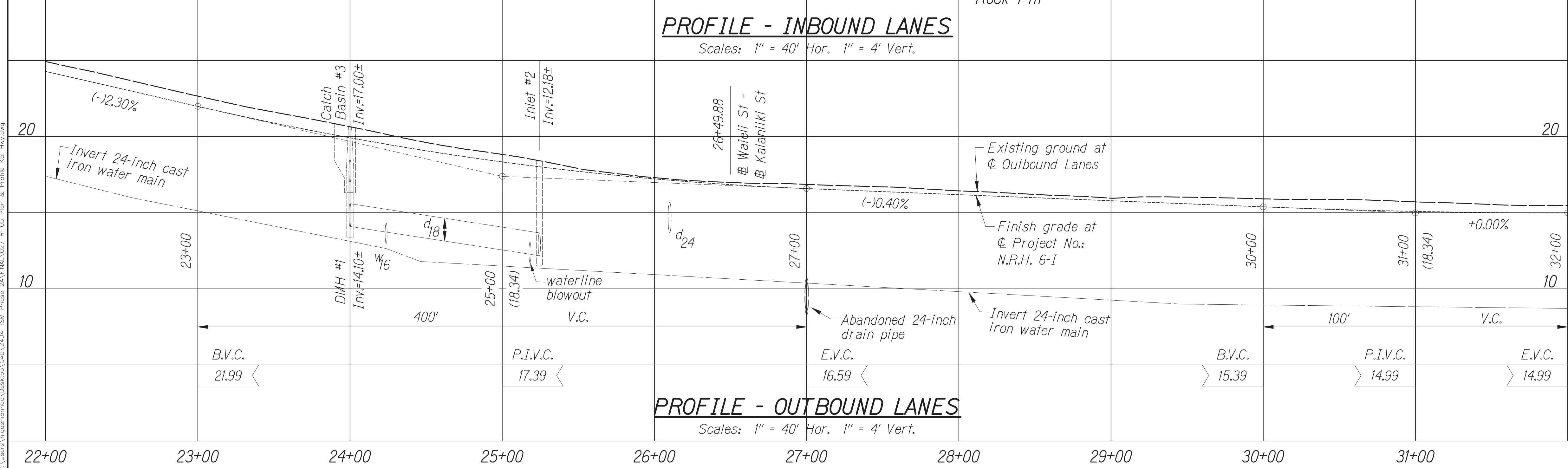
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	27	149



**PLAN**  
Scale: 1" = 40'



**PROFILE - INBOUND LANES**  
Scales: 1" = 40' Hor. 1" = 4' Vert.



**PROFILE - OUTBOUND LANES**  
Scales: 1" = 40' Hor. 1" = 4' Vert.

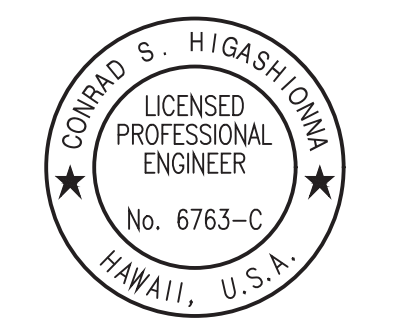
**Legend:**

- Approximate Limits of Rock Fill
- Approximate Limits of former Waialae Spring

True North  
Scale: 1" = 40'

DATE	BY

Oct. 10, 2024 - 15:15pm  
C:\Users\higashidoma\OneDrive\Documents\2024\2024 STP Phase 2A\ENR\027\_R-05\_Plan & Profile.kit\149.dwg



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*Conrad Higashidoma*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 5 OF 42 SHEETS





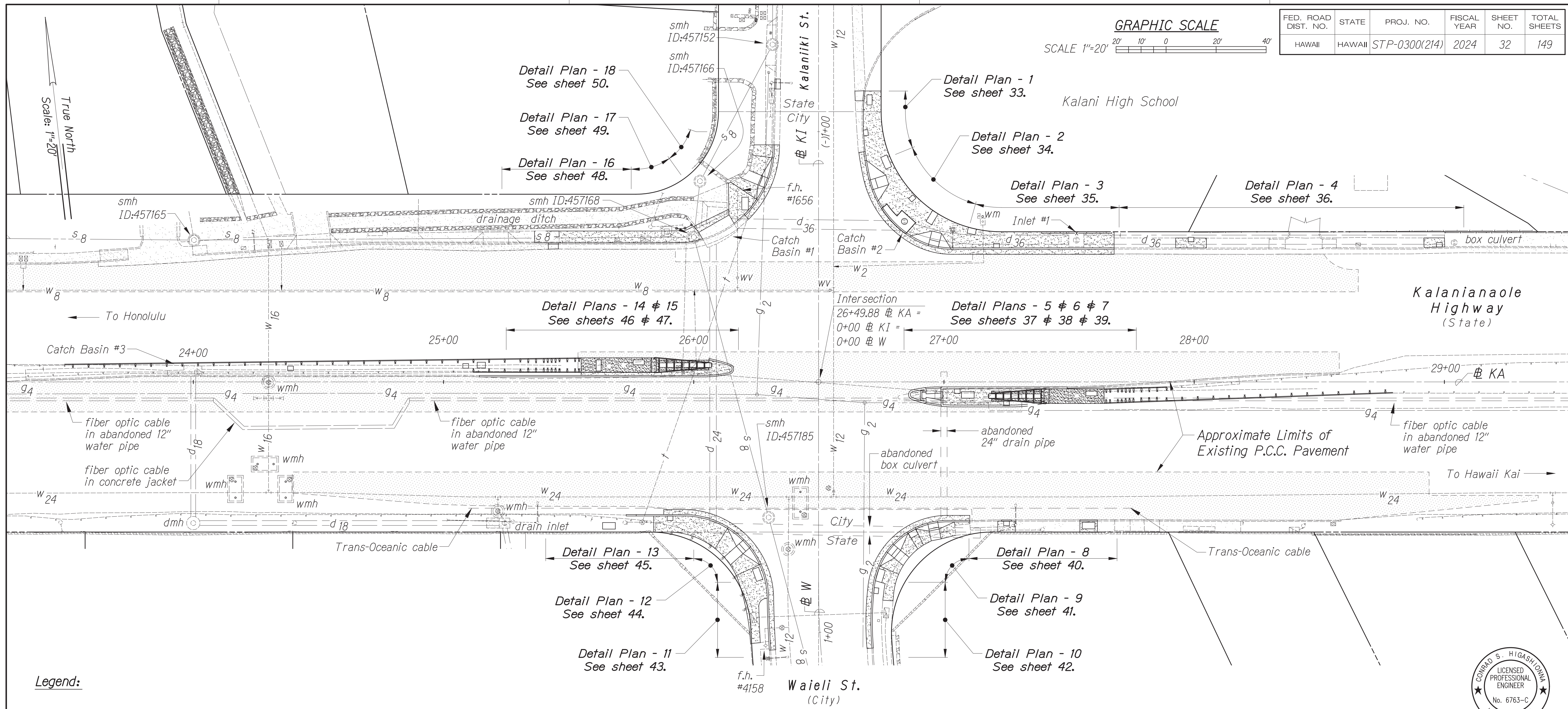
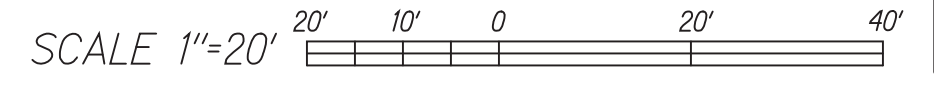






FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	32	149

GRAPHIC SCALE



Legend:

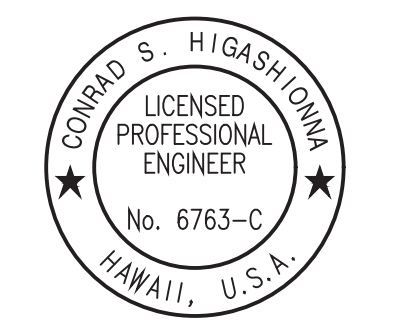
Approximate Limits of Existing 8" thick P.C.C. Pavement.

**PLAN - EXISTING P.C.C. PAVEMENT & DETAIL PLAN KEY**

Scale: 1" = 20'

DATE	BY

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Conrad Higashidoma

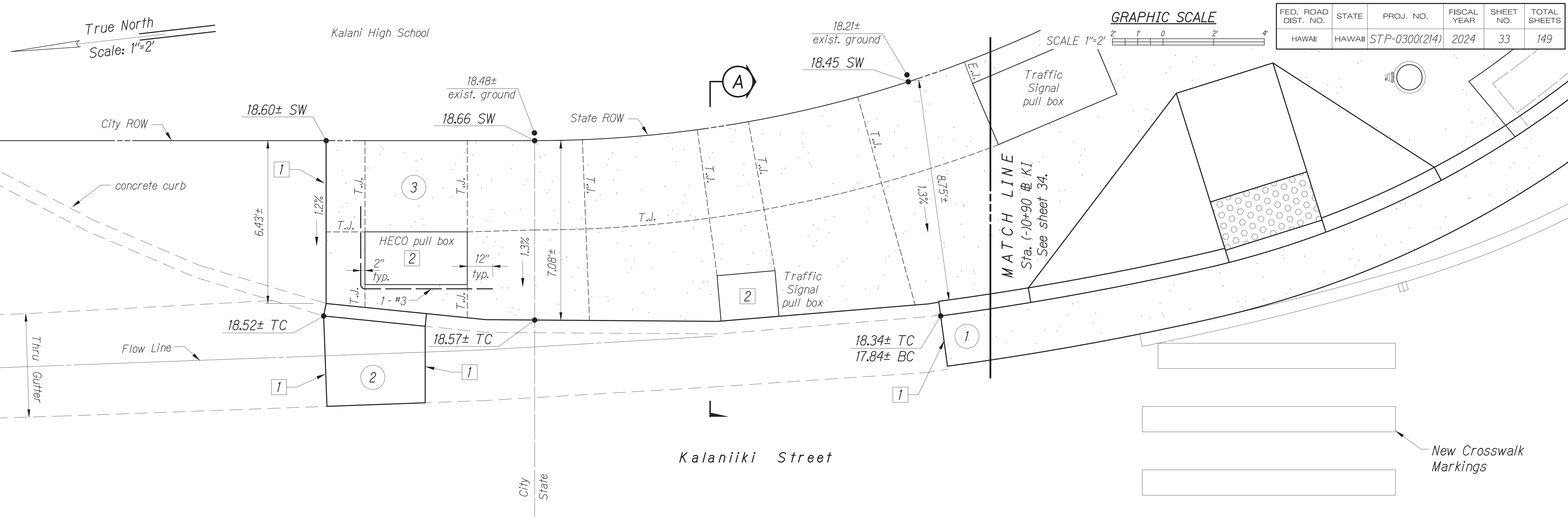
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

SHEET No. 10 OF 42 SHEETS



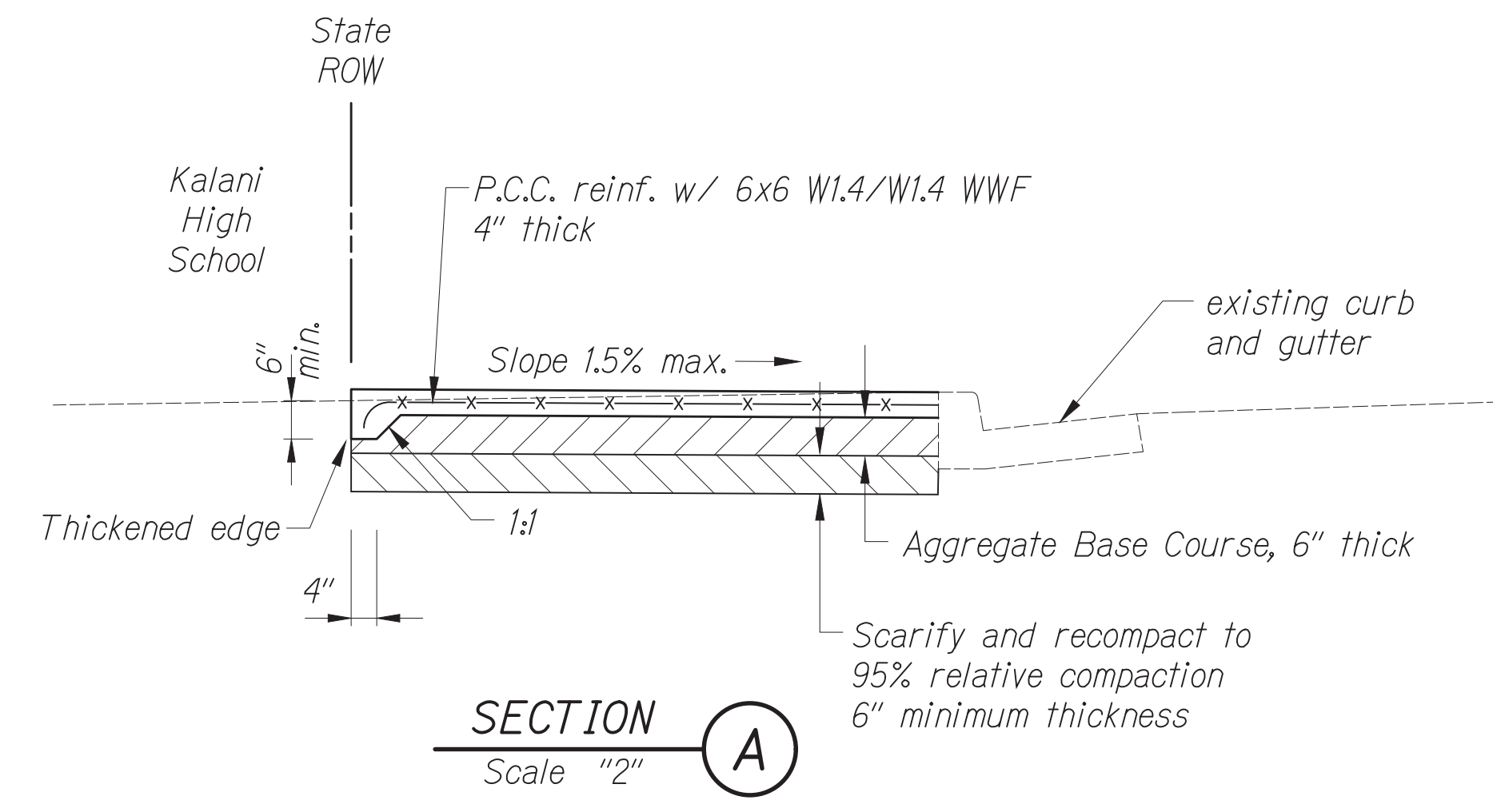
True North  
Scale: 1"=2'



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	33	149

**New Construction Callouts:**

- 1 Curb & Gutter, Type 2DG Modified.
- 2 Thru-Gutter per City Standard Detail R-9
- 3 Portland Cement Concrete Sidewalk, per Section A on this sheet.



**SECTION A**  
Scale "2"

**Legend:**

- 20.67± Existing Elev.
- 20.04 Finish Elev.
- 20.04± Finish Elev. (Approx.)
- P Pavement
- TC Top Curb
- BC Bottom Curb
- G Gutter
- SW Sidewalk

**Notes:**

- 1 Neat saw cut. Provide smooth riding connection.
- 2 Provide smooth riding connection to existing/new pull box. Provide sidewalk isolation joint around pull box as shown per City Standard Details R-16.

**DETAIL PLAN - 1**  
Scale: 1" = 2'

New Crosswalk Markings

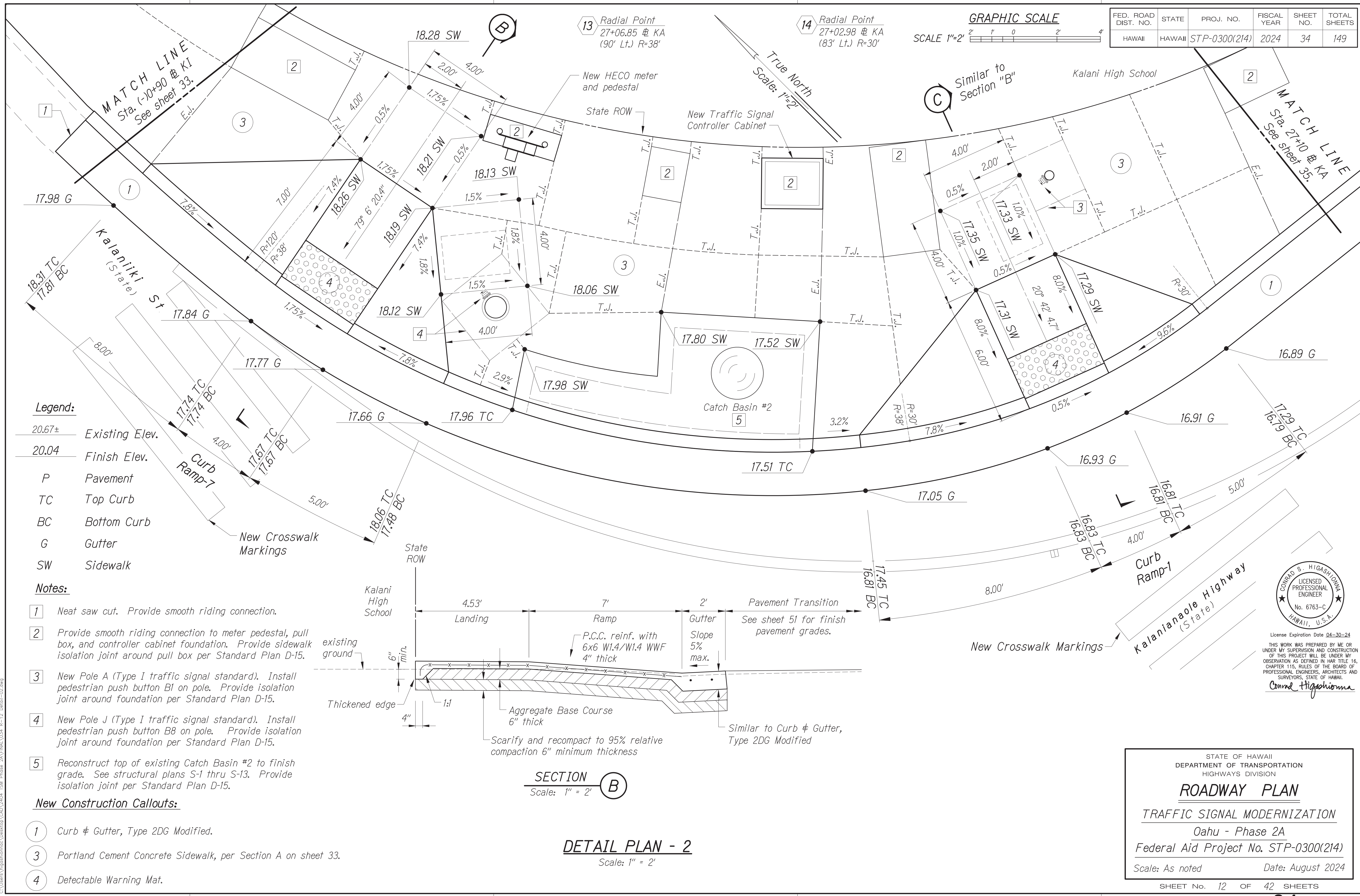
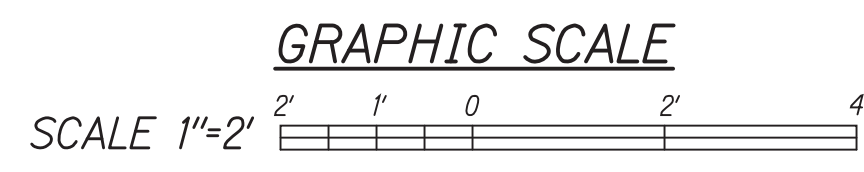
DATE	BY

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 C:\Users\higashidoma\OneDrive\Documents\24092404 TSM Phase 2A\FINAL\033 R=11 Detail=01.dwg

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 Conrad Higashidoma

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**ROADWAY PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024  
 SHEET No. 11 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	34	149



**Legend:**

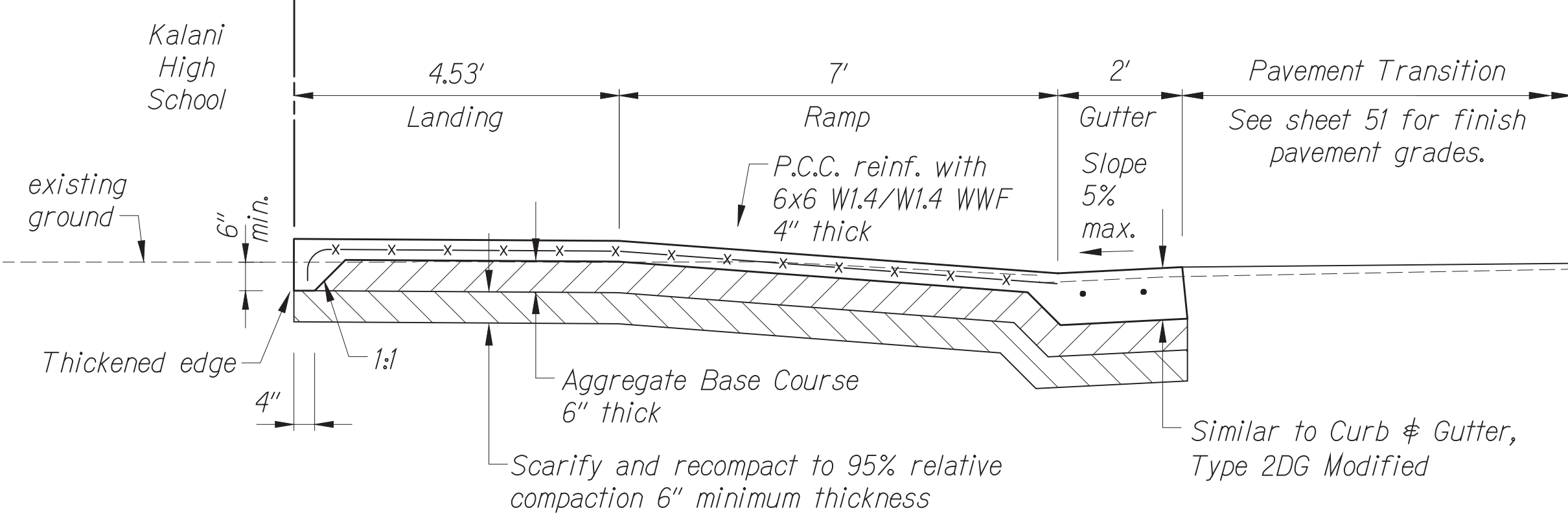
- 20.67± Existing Elev.
- 20.04 Finish Elev.
- P Pavement
- TC Top Curb
- BC Bottom Curb
- G Gutter
- SW Sidewalk

**Notes:**

- 1 Neat saw cut. Provide smooth riding connection.
- 2 Provide smooth riding connection to meter pedestal, pull box, and controller cabinet foundation. Provide sidewalk isolation joint around pull box per Standard Plan D-15.
- 3 New Pole A (Type I traffic signal standard). Install pedestrian push button B1 on pole. Provide isolation joint around foundation per Standard Plan D-15.
- 4 New Pole J (Type I traffic signal standard). Install pedestrian push button B8 on pole. Provide isolation joint around foundation per Standard Plan D-15.
- 5 Reconstruct top of existing Catch Basin #2 to finish grade. See structural plans S-1 thru S-13. Provide isolation joint per Standard Plan D-15.

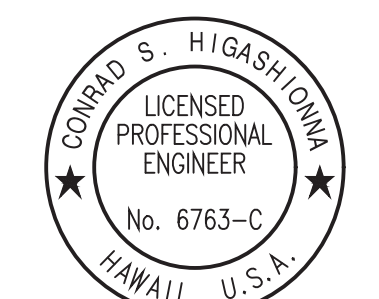
**New Construction Callouts:**

- 1 Curb & Gutter, Type 2DG Modified.
- 3 Portland Cement Concrete Sidewalk, per Section A on sheet 33.
- 4 Detectable Warning Mat.



**SECTION B**  
Scale: 1" = 2'

**DETAIL PLAN - 2**  
Scale: 1" = 2'



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STATE OF HAWAII  
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HIGHWAYS DIVISION  
**ROADWAY PLAN**  
TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)  
Scale: As noted Date: August 2024

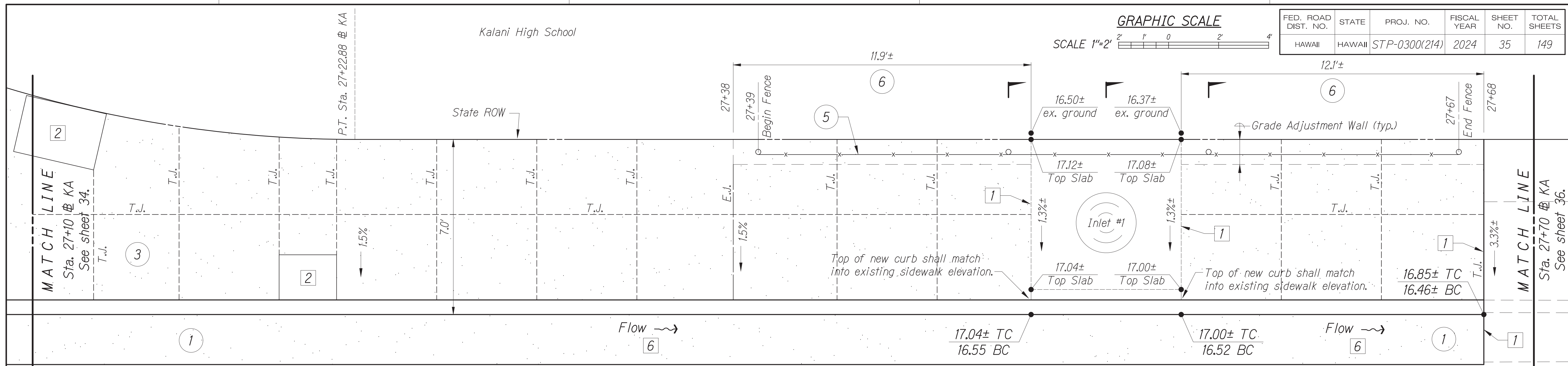
DATE	BY

DATE	BY

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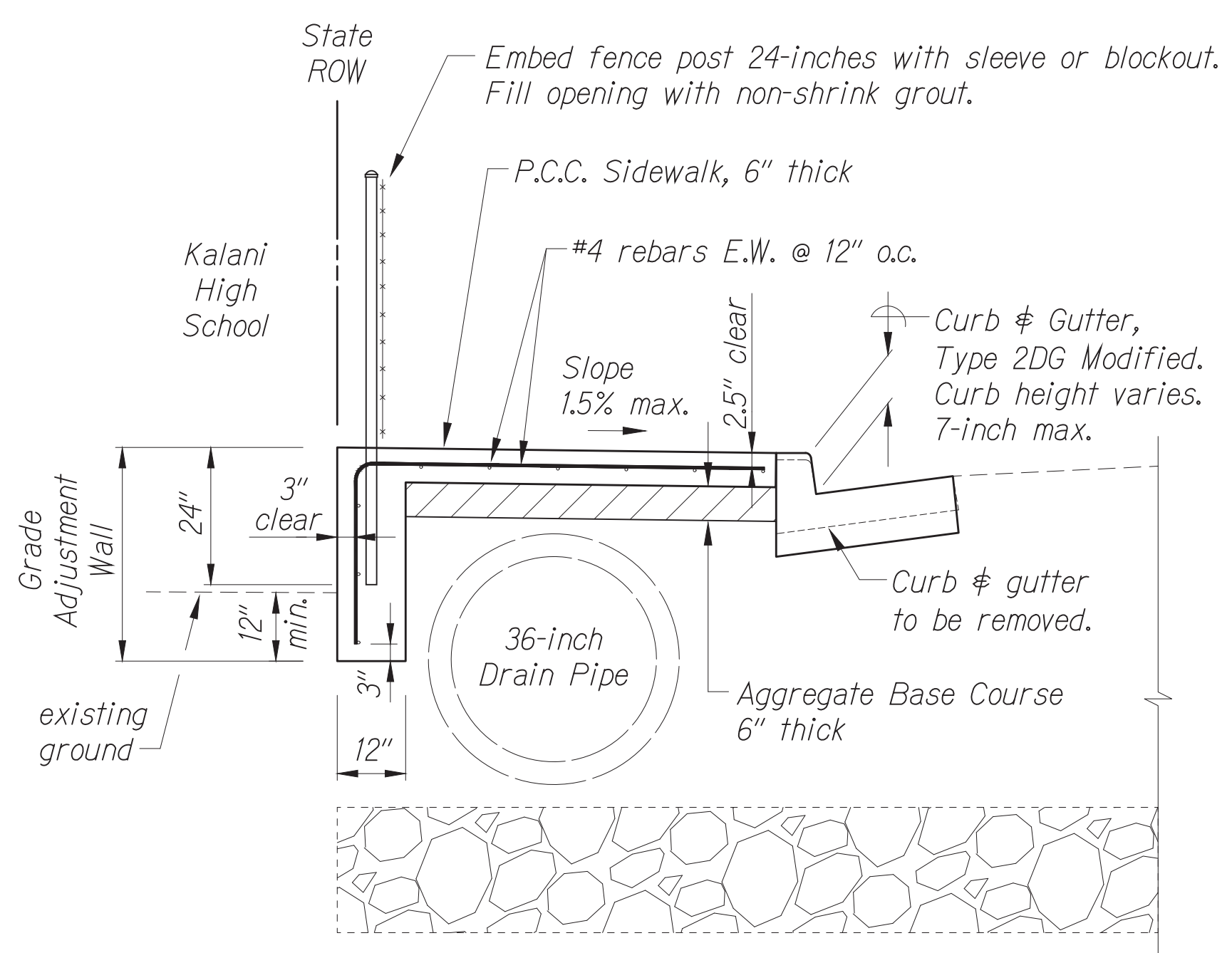
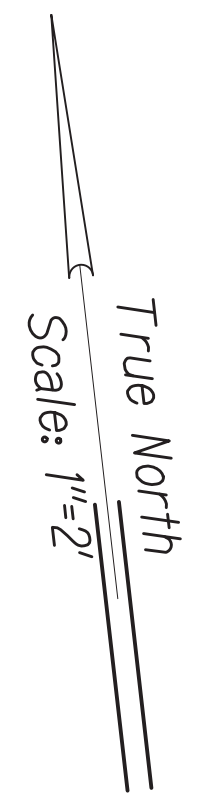
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	35	149



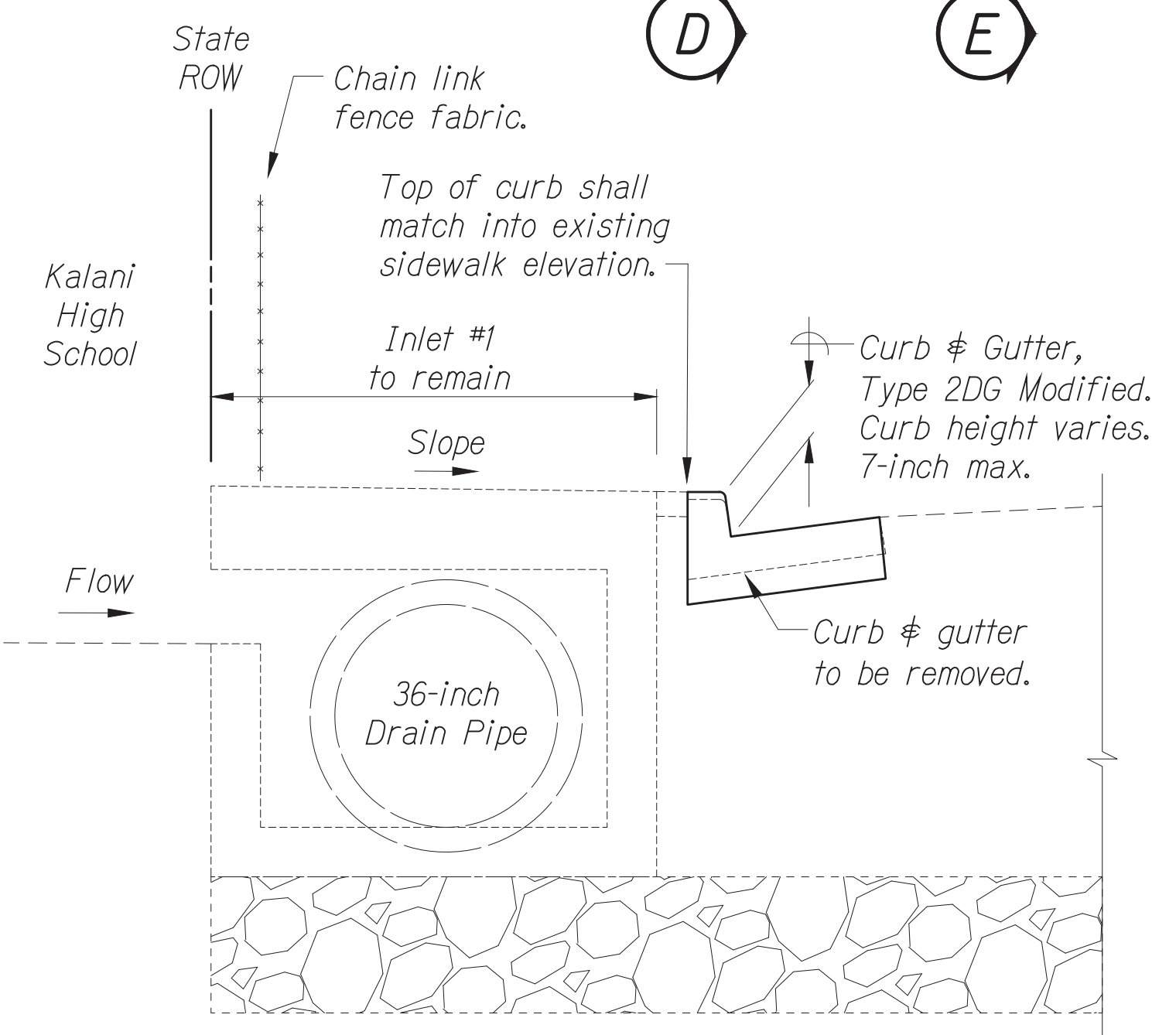
- Legend:**
- 20.67± Existing Elev.
  - 20.04 Finish Elev.
  - 20.04± Finish Elev.
  - P Pavement
  - TC Top Curb
  - BC Bottom Curb
  - G Gutter
  - SW Sidewalk

- New Construction Callouts:**
- 1 Curb & Gutter, Type 2DG Modified.
  - 3 Portland Cement Concrete Sidewalk, per Section A on sheet 33.
  - 5 4-foot, Chain Link Fence per Standard Plan D-03. For foundation, see Section D on this sheet.
  - 6 6-inch thick, Portland Cement Concrete Sidewalk with grade adjustment wall per Section D on this sheet.

- Notes:**
- 1 Neat saw cut. Provide smooth riding connection. Provide isolation joint at Inlet #1 per Standard Plan D-15.
  - 2 Provide smooth riding connection to new pull box. Provide sidewalk isolation joint around pull box per Standard Plan D-15.
  - 6 The Contractor shall verify 0.5% minimum gutter slope prior to construction.



**SECTION D**  
Scale: 1" = 2'



**SECTION E**  
Scale: 1" = 2'

**DETAIL PLAN - 3**  
Scale: 1" = 2'

DATE	BY

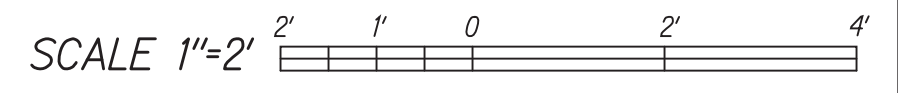
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 HIGHWAYS DIVISION  
**ROADWAY PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024  
 SHEET No. 13 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	35	149

GRAPHIC SCALE



Legend:

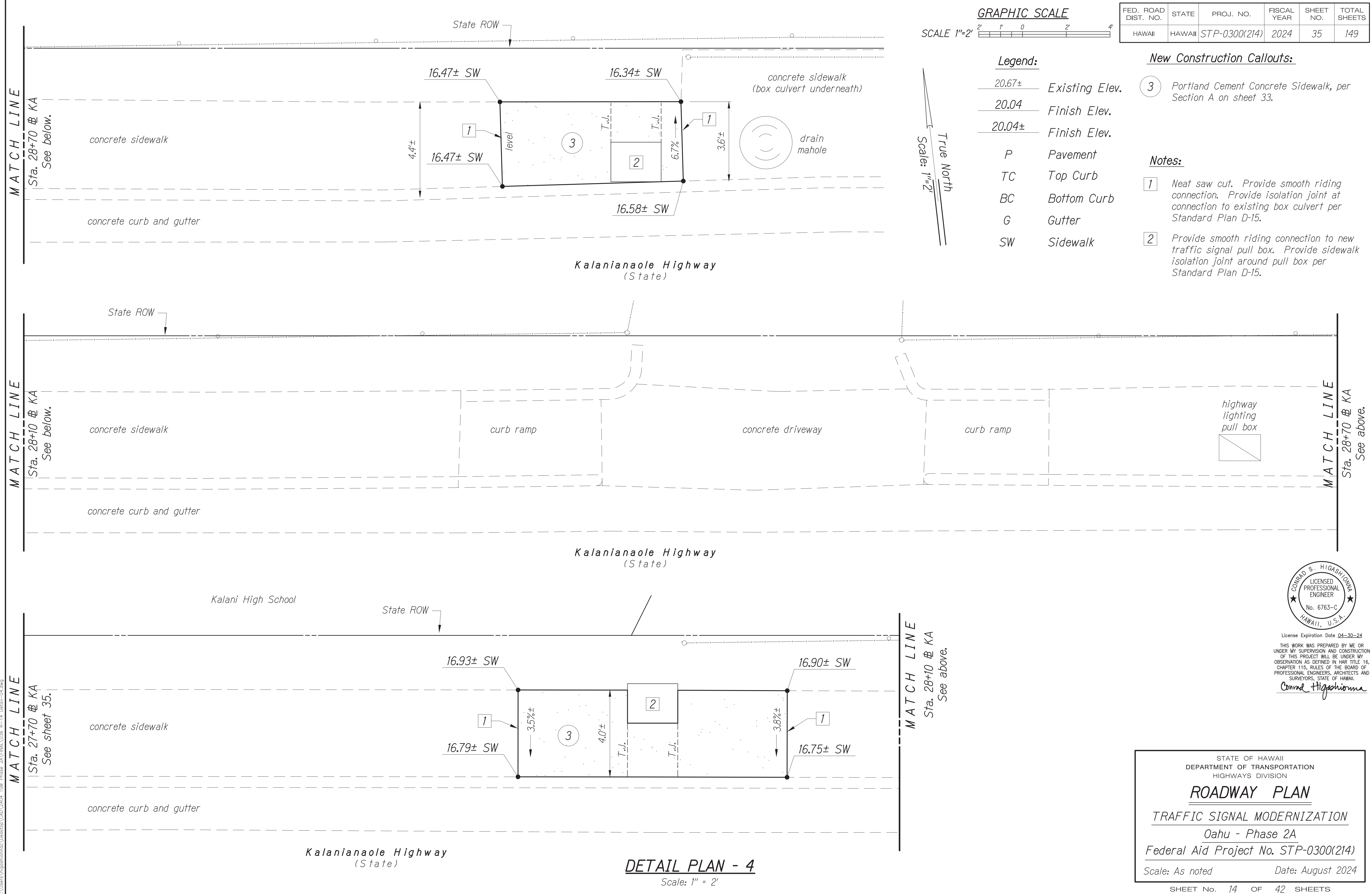
- 20.67± Existing Elev.
- 20.04 Finish Elev.
- 20.04± Finish Elev.
- P Pavement
- TC Top Curb
- BC Bottom Curb
- G Gutter
- SW Sidewalk

New Construction Callouts:

- 3 Portland Cement Concrete Sidewalk, per Section A on sheet 33.

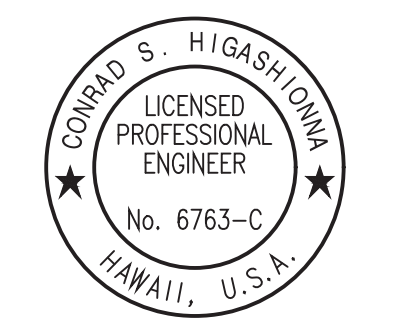
Notes:

- 1 Neat saw cut. Provide smooth riding connection. Provide isolation joint at connection to existing box culvert per Standard Plan D-15.
- 2 Provide smooth riding connection to new traffic signal pull box. Provide sidewalk isolation joint around pull box per Standard Plan D-15.



ORIGINAL PLAN	DATE

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Conrad Higashidoma

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DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

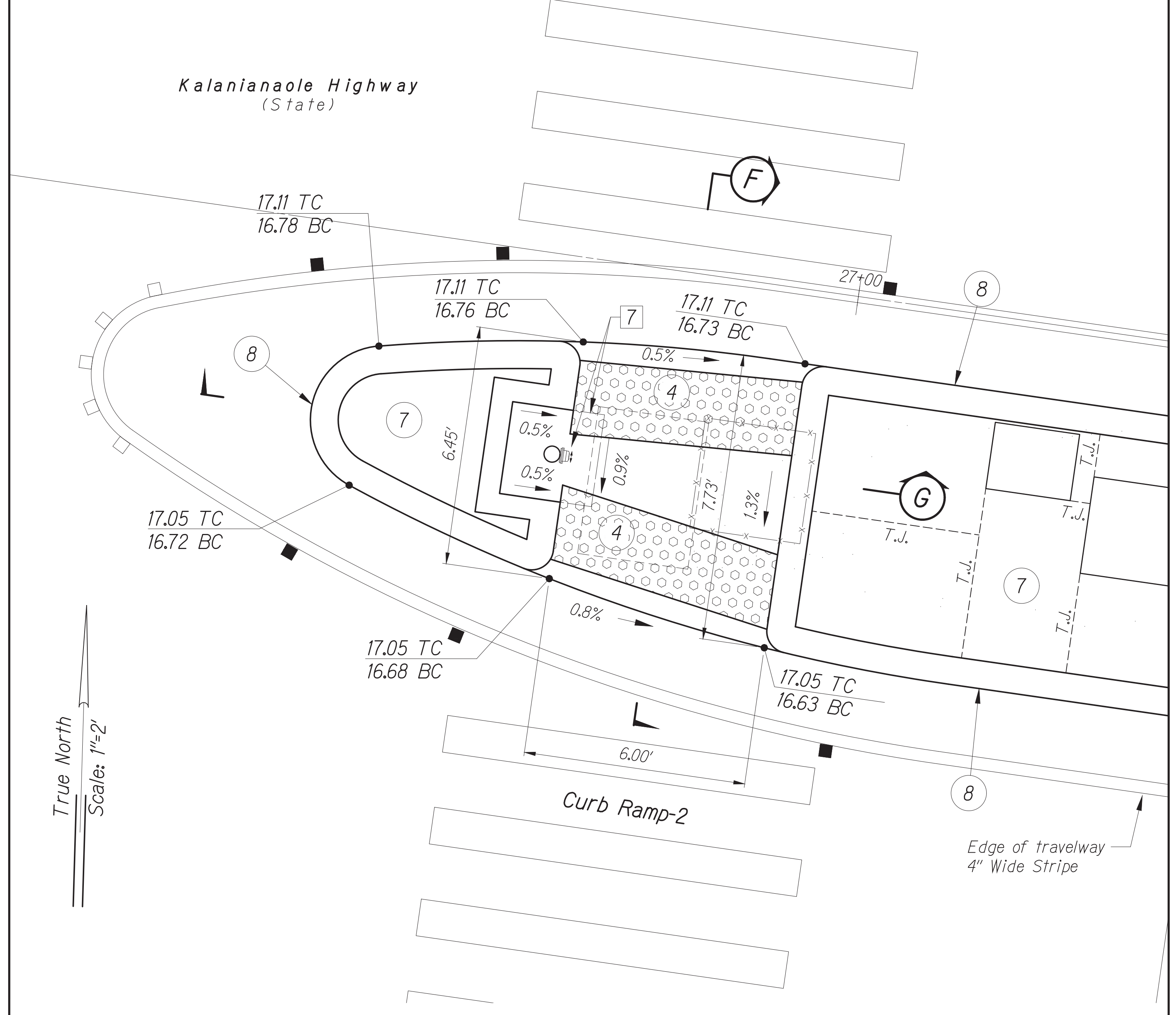
**ROADWAY PLAN**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

DETAIL PLAN - 4  
Scale: 1" = 2'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	31	149



**DETAIL PLAN - 5**  
Scale: 1" = 2'

**Notes:**

- 7 New Pole B (Type I traffic signal standard). Install pedestrian push button B2 on pole. Provide isolation joint around foundation per Standard Plan D-15.

**New Construction Callouts:**

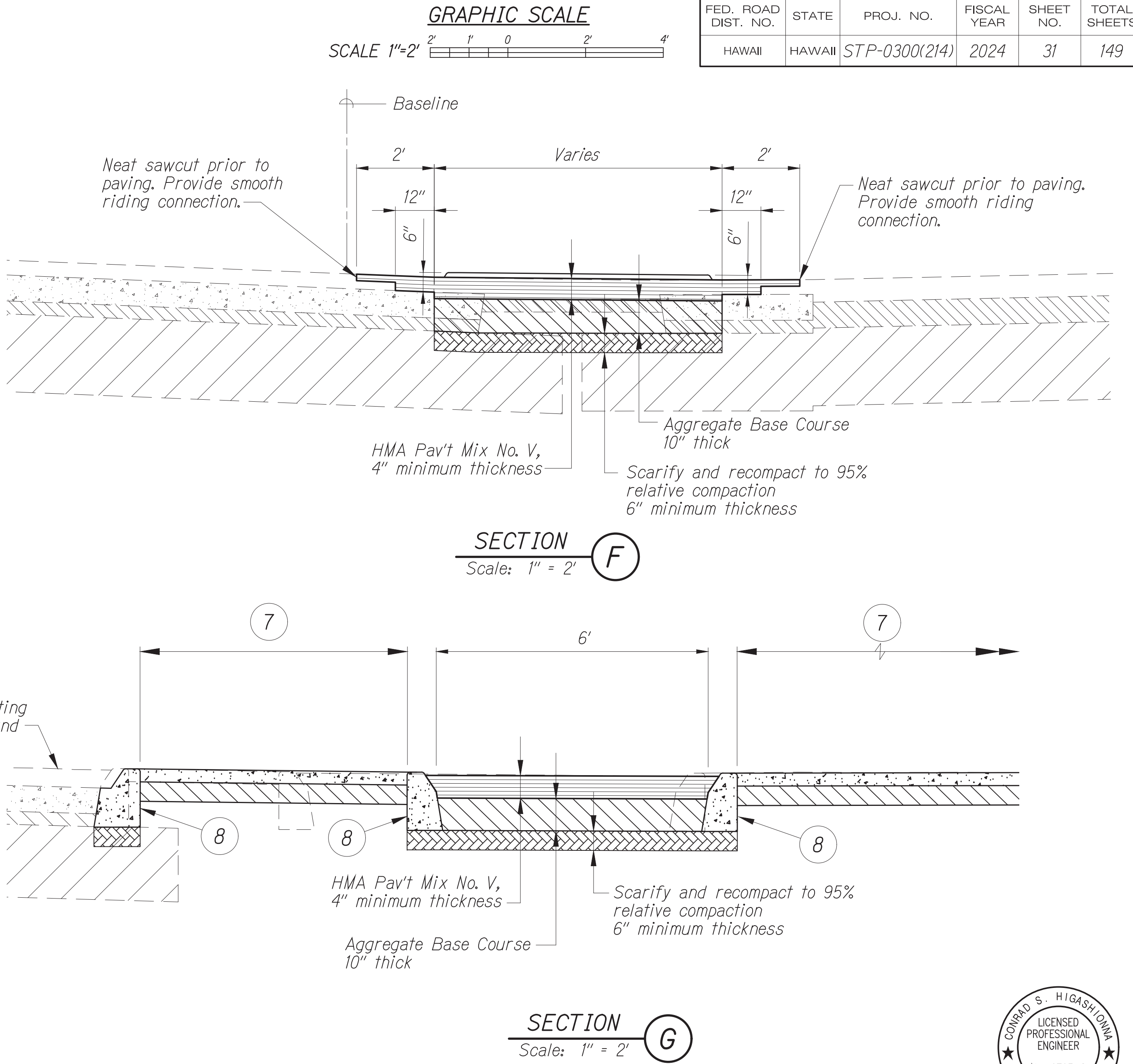
- 4 Detectable Warning Mat.
- 7 P.C.C. Sidewalk per Standard Plan D-15.
- 8 Curb, Type 2A Modified.

**Legend:**

- 16.80 TC Finish Top Curb Elevation
- 16.71 BC Finish Bottom Curb Elevation

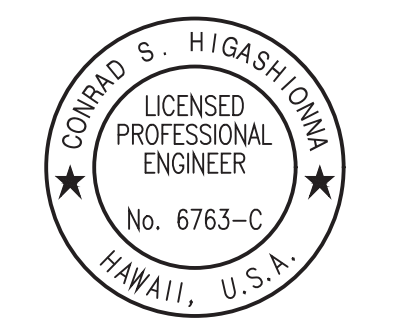
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TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

Oct 10, 2024 - 1:52pm  
 C:\Users\jgashiro\OneDrive\Documents\2024\2404 TSM Phase 2A\FINAL\0317\_R-15\_Detail-05.dwg



**SECTION F**  
Scale: 1" = 2'

**SECTION G**  
Scale: 1" = 2'

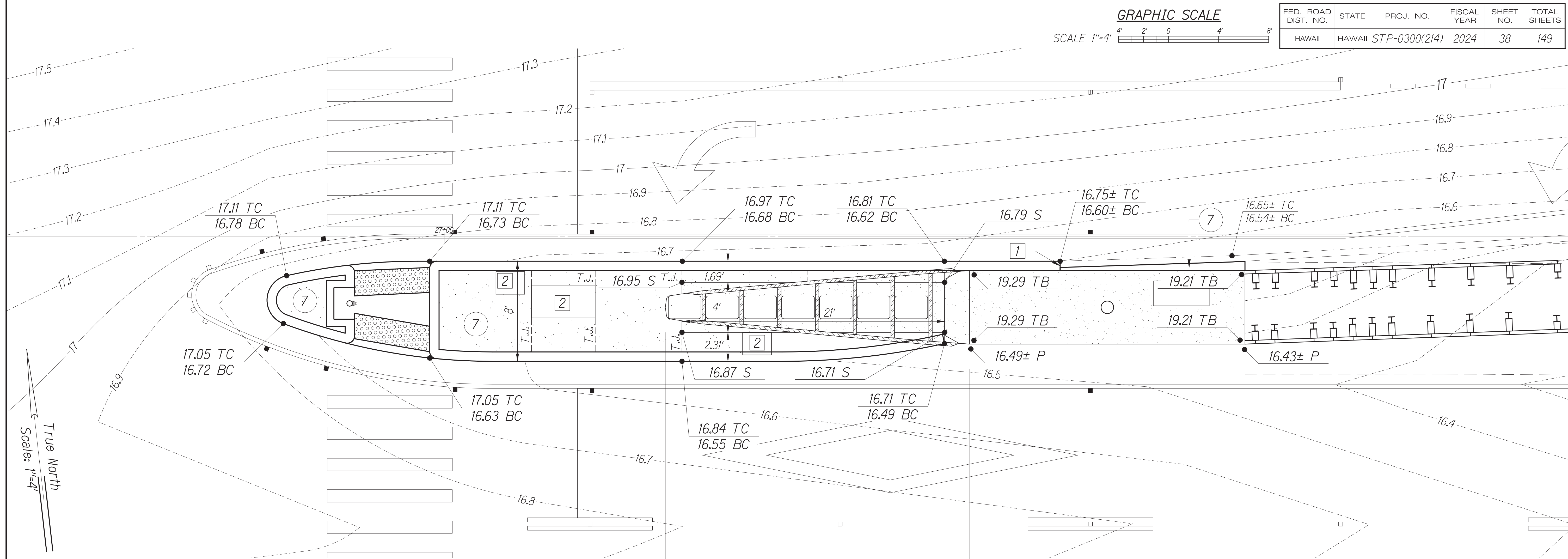
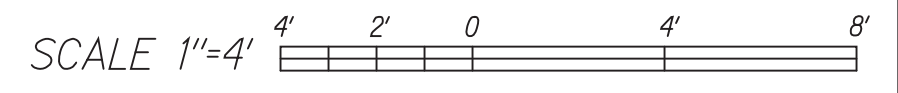


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 Conrad Higashinoma

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**ROADWAY PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	38	149

GRAPHIC SCALE

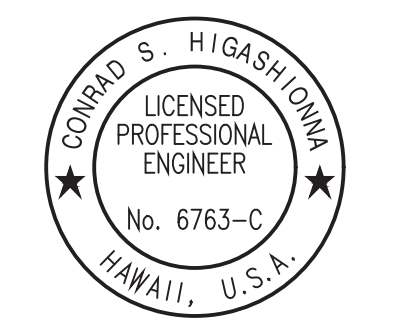


True North  
Scale: 1"=4'

- Legend:**
- 20.67± Existing Elev.
  - 20.04 Finish Elev.
  - 20.04± Finish Elev.
  - S Top Slab for Crash Attenuator
  - TC Top Curb
  - BC Bottom Curb
  - P Pavement
  - TB Top of Median Barrier

- New Construction Callouts:**
- 7 P.C.C. Sidewalk per Standard Plan D-15.
  - 8 Curb, Type 2A Modified.

- Notes:**
- 1 Neat saw cut. Provide smooth riding connection.
  - 2 Provide smooth riding connection to new traffic signal pull box.



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 Conrad Higashimura

ORIGINAL PLAN	DATE

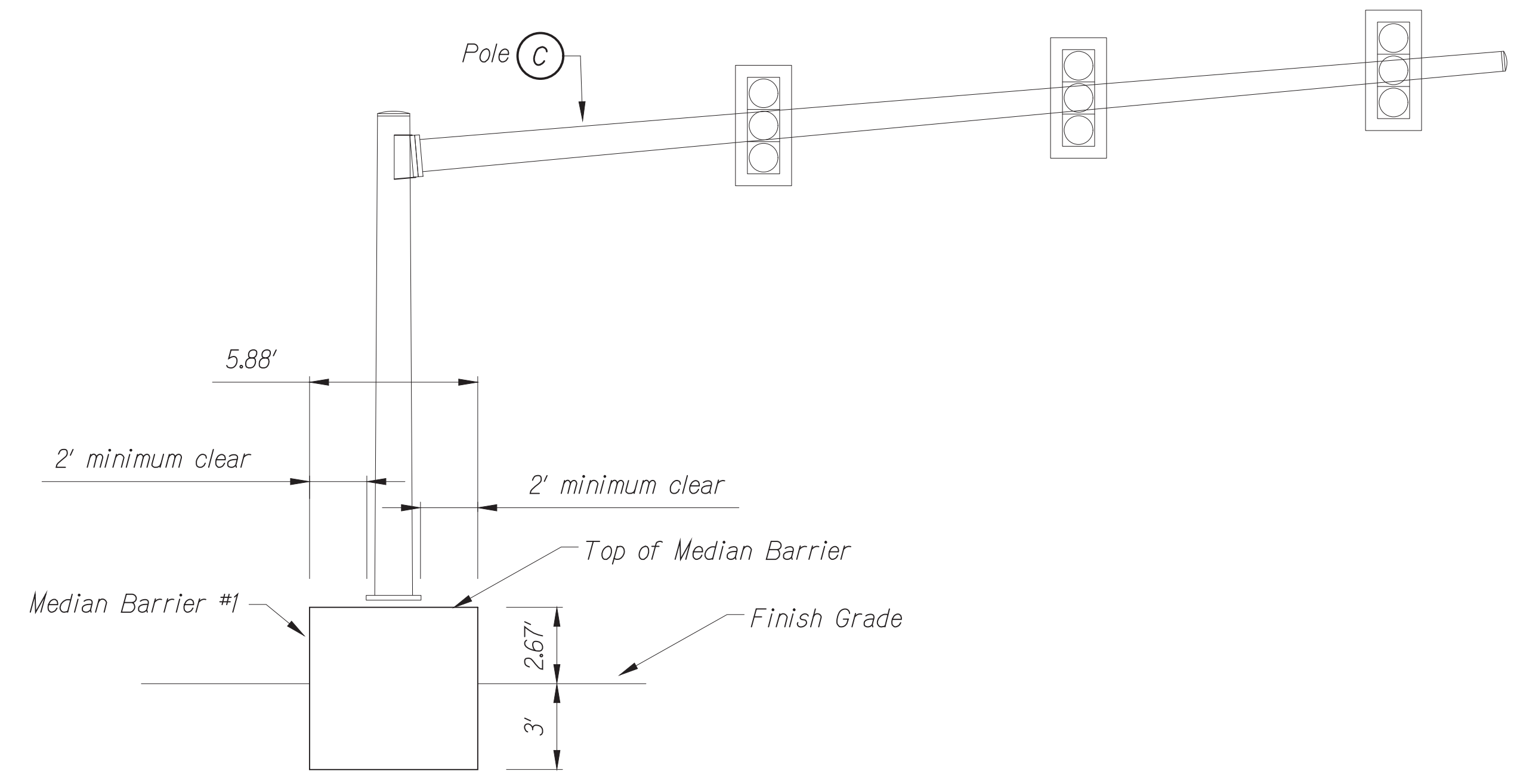
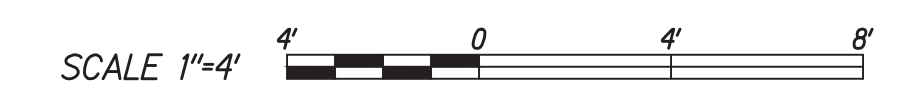
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**DETAIL PLAN - 6**  
 Scale: 1" = 2'

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**ROADWAY PLAN**  
 TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024  
 SHEET No. 16 OF 42 SHEETS

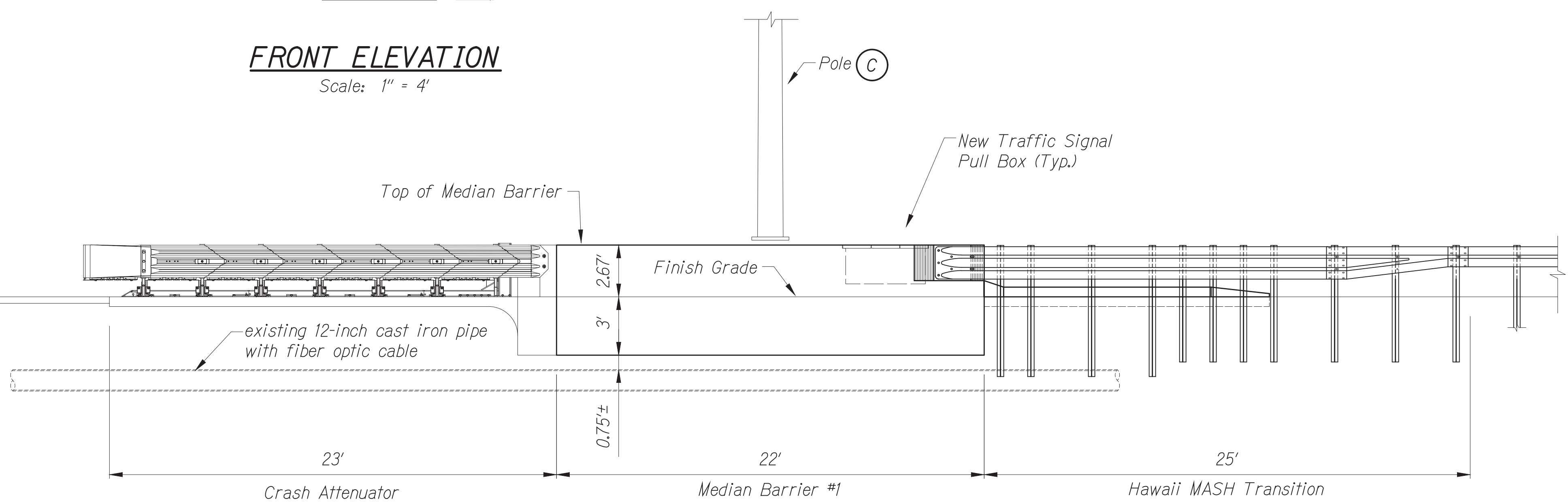
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	39	149

**GRAPHIC SCALES**



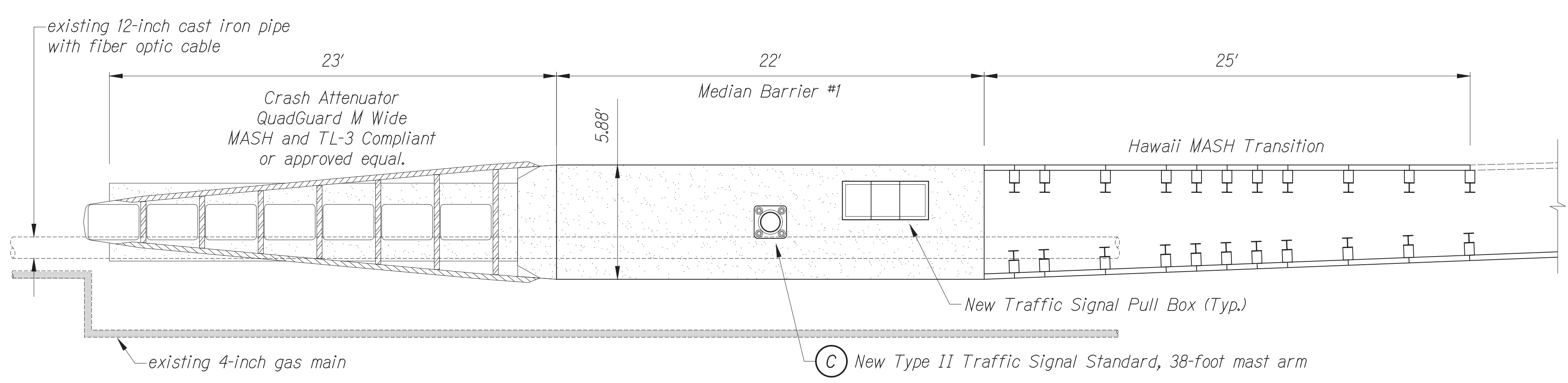
**FRONT ELEVATION**

Scale: 1" = 4'



**SIDE ELEVATION**

Scale: 1" = 4'

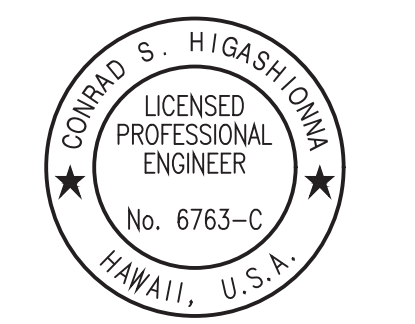


**PLAN - CONCRETE BARRIER TRANSITION**

Scale: 1" = 4'

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Oct 10, 2024 - 1:35pm  
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 Conrad Higashidoma

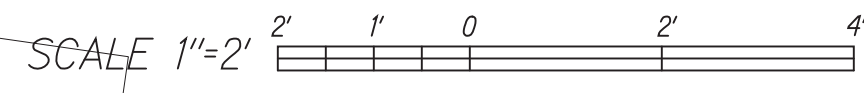
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**ROADWAY PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024  
 SHEET No. 17 OF 42 SHEETS



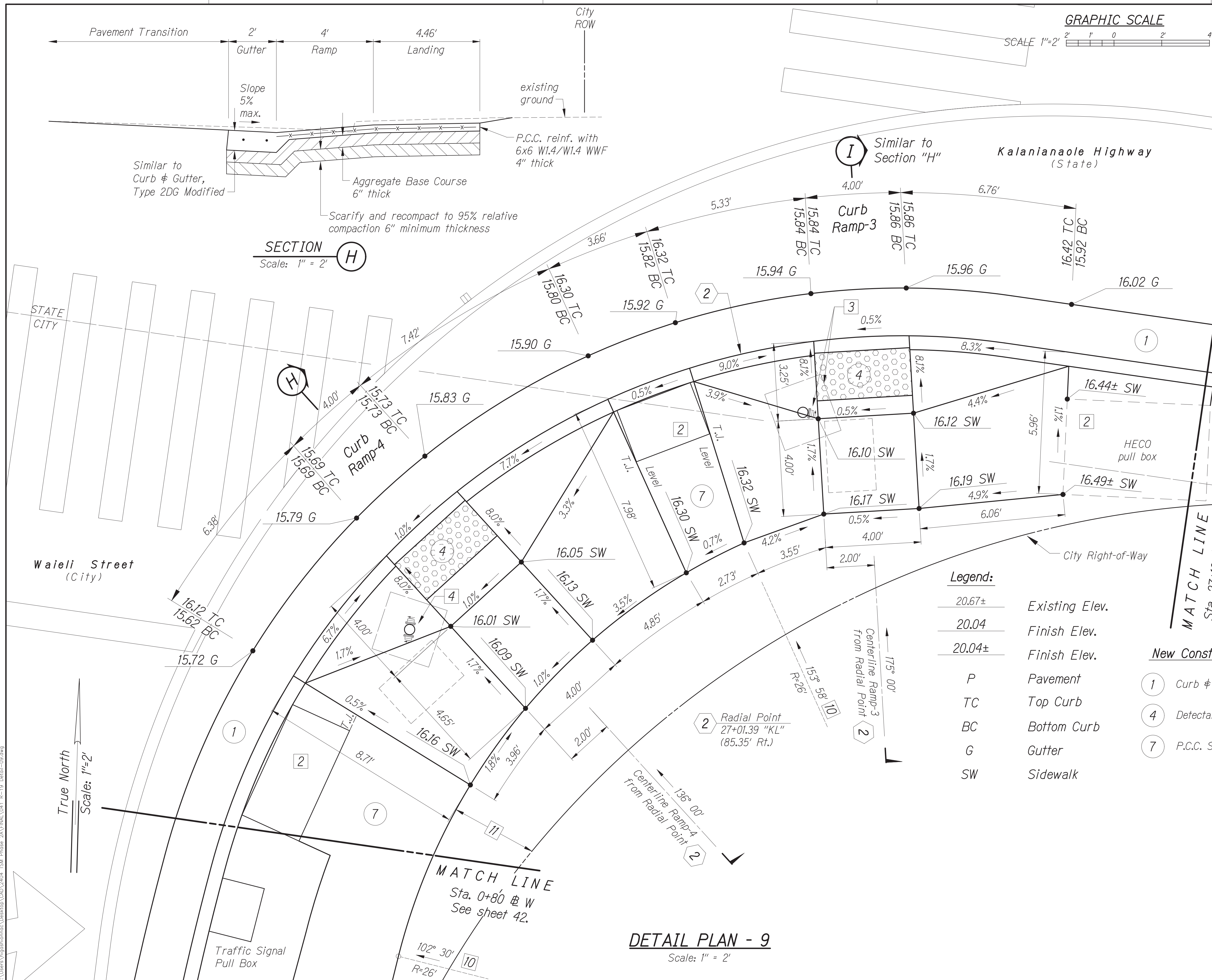


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	41	149

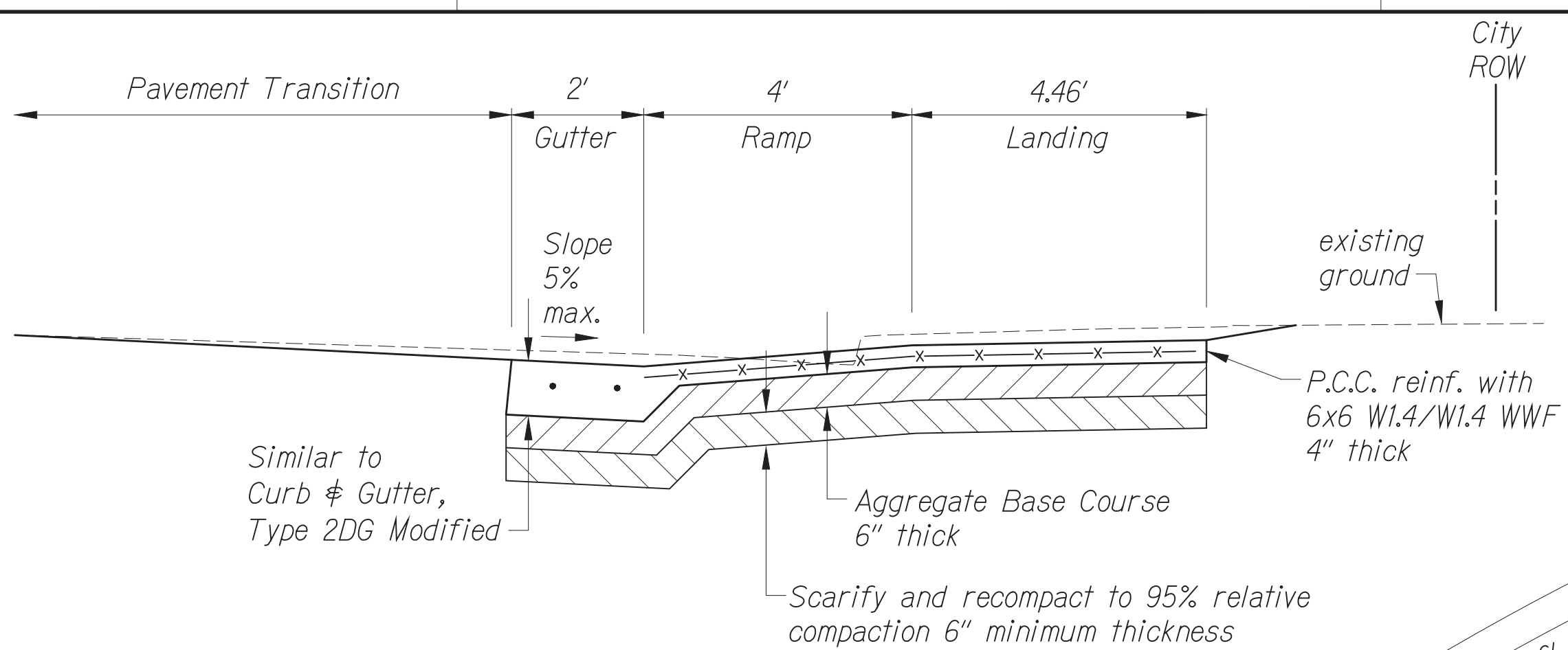
GRAPHIC SCALE



- Notes:**
- 1 Neat saw cut. Provide smooth riding connection.
  - 2 Provide smooth riding connection to new traffic signal pull box and to existing HECO pull box. Provide sidewalk isolation joint around pull boxes per Standard Plan D-15.
  - 8 New Pole D (Type I traffic signal standard). Install pedestrian push button B3 on pole. Provide isolation joint around foundation per Standard Plan D-15.
  - 9 New Pole E (Type I traffic signal standard). Install pedestrian push button B4 and B5 on pole. Provide isolation joint around foundation per Standard Plan D-15.
  - 10 Radial Point for curve at back of sidewalk = 27+05.76 (87.11' Rt.)
  - 11 The Contractor shall restore existing landscaping and irrigation system affected by his work to equal or better condition. The restoration work shall be incidental to the various contract items.



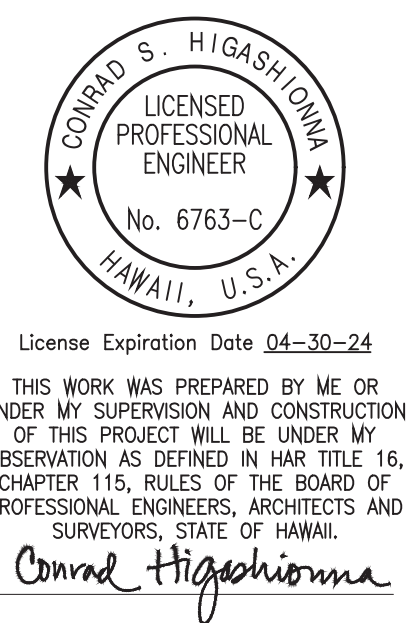
**SECTION H**  
Scale: 1" = 2'



**Legend:**

20.67±	Existing Elev.
20.04	Finish Elev.
20.04±	Finish Elev.
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk

- New Construction Callouts:**
- 1 Curb & Gutter, Type 2DG Modified.
  - 2 Detectable Warning Mat.
  - 7 P.C.C. Sidewalk, per Standard Plan D-15.



DATE	BY

SURVEY PLOTTED BY: \_\_\_\_\_  
 TRACED BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 QUANTITIES BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_

Oct 10, 2024 - 11:35am  
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**DETAIL PLAN - 9**  
Scale: 1" = 2'

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

SHEET No. 19 OF 42 SHEETS

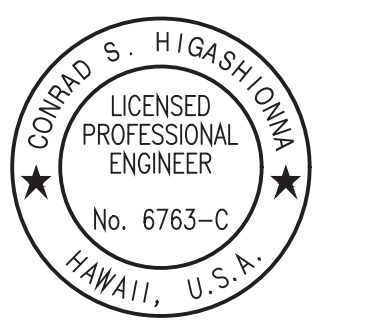
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	42	149

**Legend:**

20.67±	Existing Elev.
20.04	Finish Elev.
20.04±	Finish Elev. (Approx.)
P	Pavement
TC	Top Curb
BC	Bottom Curb
G	Gutter
SW	Sidewalk

- New Construction Callouts:**
- 1 Curb & Gutter, Type 2DG Modified.
  - 7 P.C.C. Sidewalk, per Standard Plan D-15.

- Notes:**
- 1 Neat saw cut. Provide smooth riding connection.
  - 10 Radial Point for curve at back of sidewalk = 27+05.76 (87.11' Rt.)
  - 11 The Contractor shall restore existing landscaping and irrigation system affected by his work to equal or better condition. The restoration work shall be incidental to the various contract items.



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 Conrad Higashimura

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**ROADWAY PLAN**

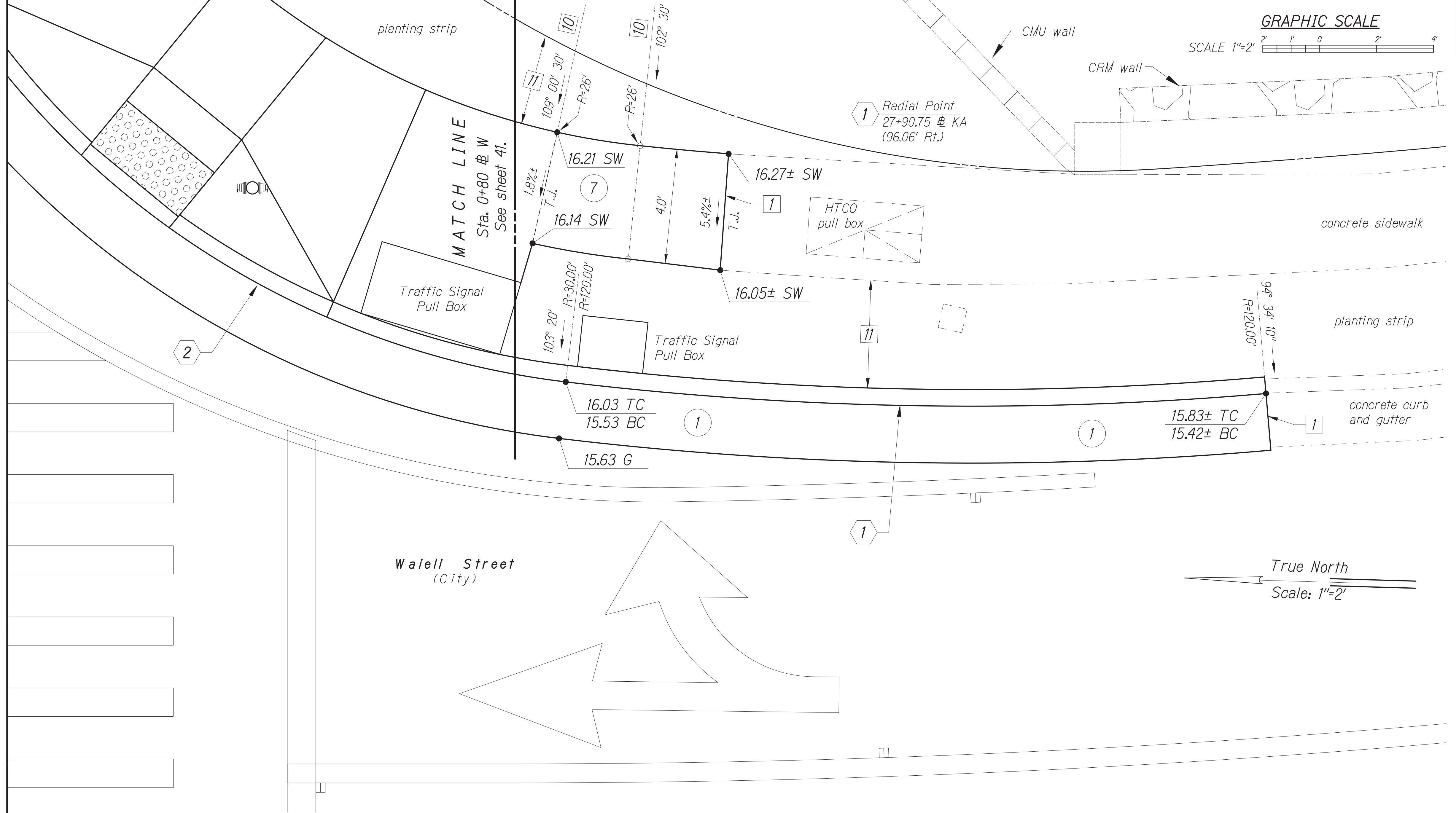
**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A

Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

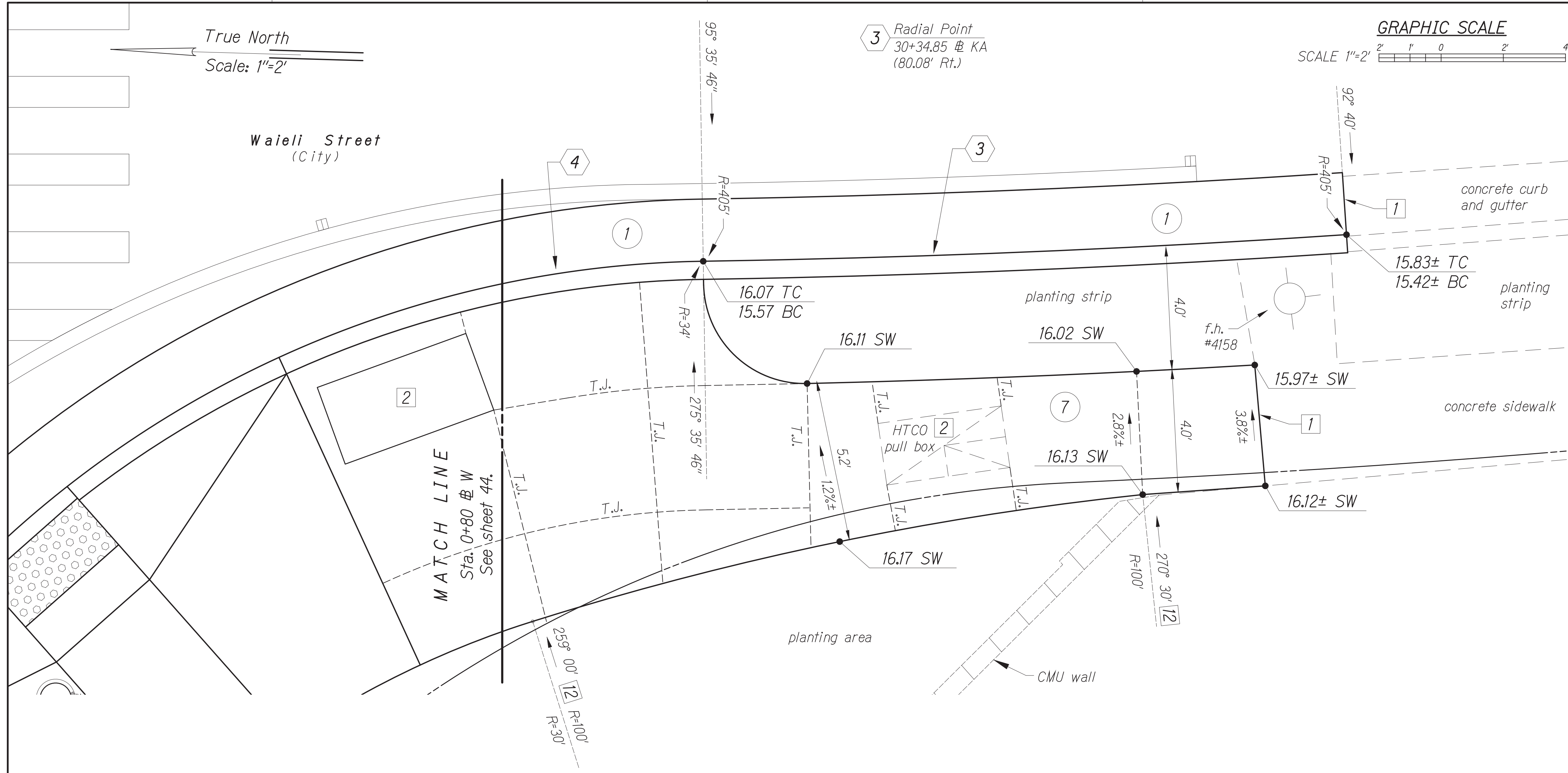
SHEET No. 20 OF 42 SHEETS



**DETAIL PLAN - 10**  
 Scale: 1" = 2'

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

Oct 10, 2024 - 1:53pm  
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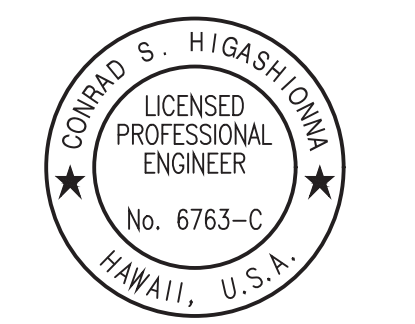


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	43	149

- Legend:**
- 20.67± Existing Elev.
  - 20.04 Finish Elev.
  - 20.04± Finish Elev. (Approx.)
  - P Pavement
  - TC Top Curb
  - BC Bottom Curb
  - G Gutter
  - SW Sidewalk

- New Construction Callouts:**
- 1 Curb & Gutter, Type 2DG Modified.
  - 7 P.C.C. Sidewalk, per Standard Plan D-15.

- Notes:**
- 1 Neat saw cut. Provide smooth riding connection.
  - 2 Provide smooth riding connection to new traffic signal pull box/existing HTCO pull box. Provide sidewalk isolation joint around pull boxes per Standard Plan D-15.
  - 12 Radial Point for curve at back of sidewalk = 25+82.82 @ KA (100.00' Rt.)



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Conrad Higashimura

DATE	BY
	DESIGNED BY
	TRACED BY
	QUANTITIES BY
	CHECKED BY

Oct 10, 2024 - 1:35pm  
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**DETAIL PLAN - 11**  
Scale: 1" = 2'

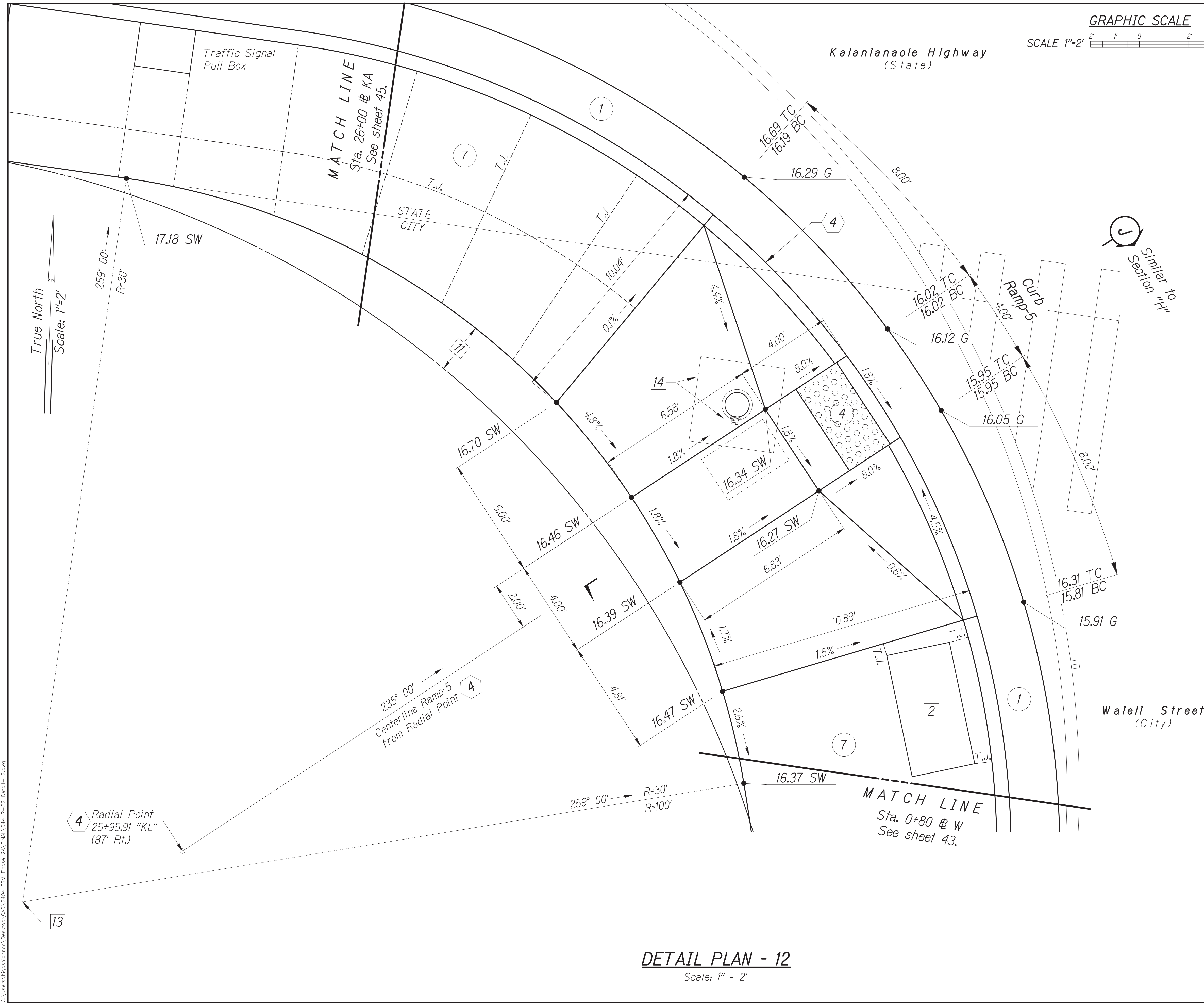
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 21 OF 42 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	44	149

GRAPHIC SCALE  
SCALE 1"=2'

**Notes:**

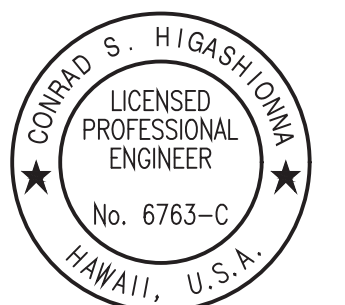
- 2 Provide smooth riding connection to new traffic signal pull box. Provide sidewalk isolation joint around pull box per Standard Plan D-15.
- 11 The Contractor shall restore existing landscaping and irrigation system affected by his work to equal or better condition. The restoration work shall be incidental to the various contract items.
- 13 Radial Point for curve at back of sidewalk = 25+89.70 (90' Rt.)
- 14 New Pole F (Type I traffic signal standard). Install pedestrian push button B6 on pole. Provide isolation joint around foundation per Standard Plan D-15.

**New Construction Callouts:**

- 1 Curb & Gutter, Type 2DG Modified.
- 4 Detectable Warning Mat.
- 7 P.C.C. Sidewalk, per Standard Plan D-15.

**Legend:**

- 20.67± Existing Elev.
- 20.04 Finish Elev.
- 20.04± Finish Elev. (Approx.)
- P Pavement
- TC Top Curb
- BC Bottom Curb
- G Gutter
- SW Sidewalk



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DATE	BY
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	DESIGNED BY
	QUANTITIES BY
	CHECKED BY

Oct. 10, 2024 - 13:58m  
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**DETAIL PLAN - 12**  
Scale: 1" = 2'

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

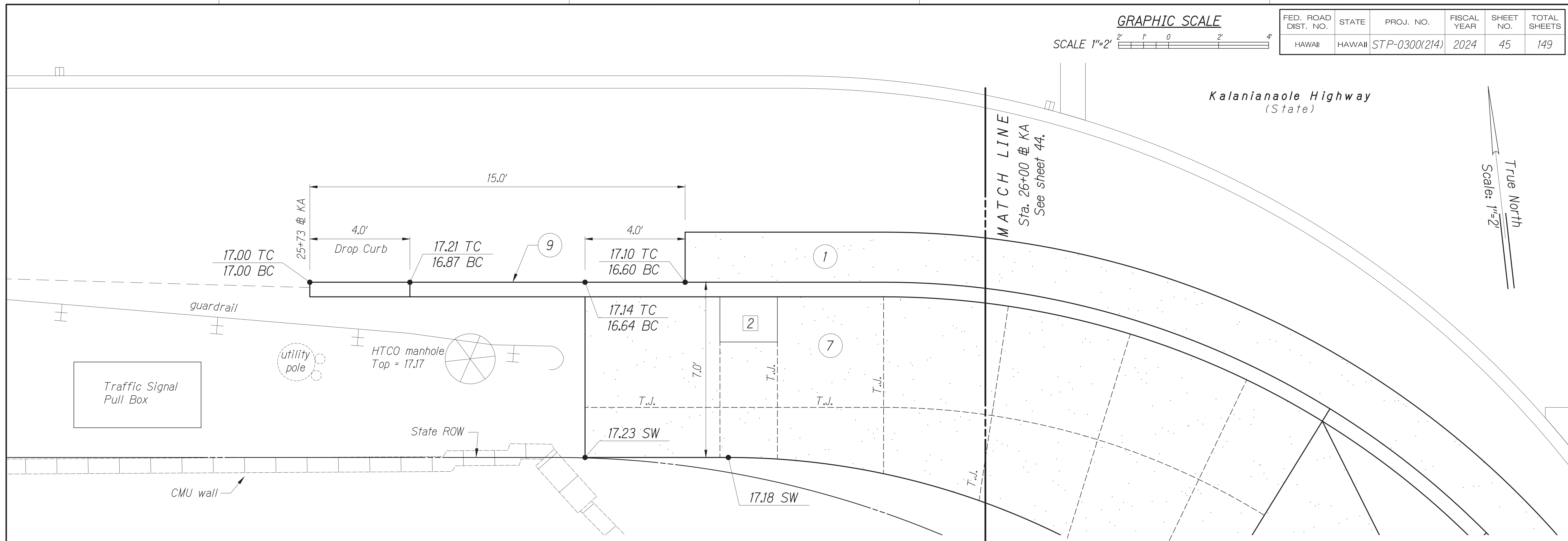
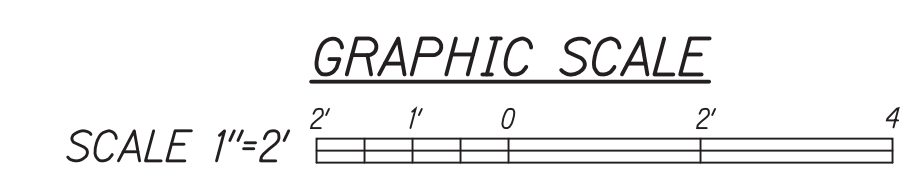
**ROADWAY PLAN**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 22 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	45	149



True North  
Scale: 1"=2'

- Legend:**
- 20.67± Existing Elev.
  - 20.04 Finish Elev.
  - 20.04± Finish Elev.
  - P Pavement
  - TC Top Curb
  - BC Bottom Curb
  - G Gutter
  - SW Sidewalk

- New Construction Callouts:**
- 1 Curb & Gutter, Type 2DG Modified.
  - 7 P.C.C. Sidewalk per Standard Plan D-15.
  - 9 Curb, Type 2D

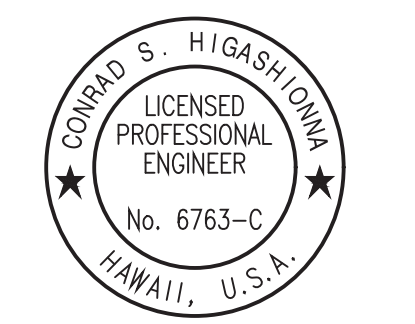
**Notes:**

- 2 Provide smooth riding connection to new traffic signal pull box. Provide sidewalk isolation joint around pull box per Standard Plan D-15.

DATE	BY	REVISION

SURVEY PLOTTED BY: \_\_\_\_\_  
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 DESIGNED BY: \_\_\_\_\_  
 QUANTITIES BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_

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 Conrad Higashidoma

**DETAIL PLAN - 13**  
Scale: 1" = 2'

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**

**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A

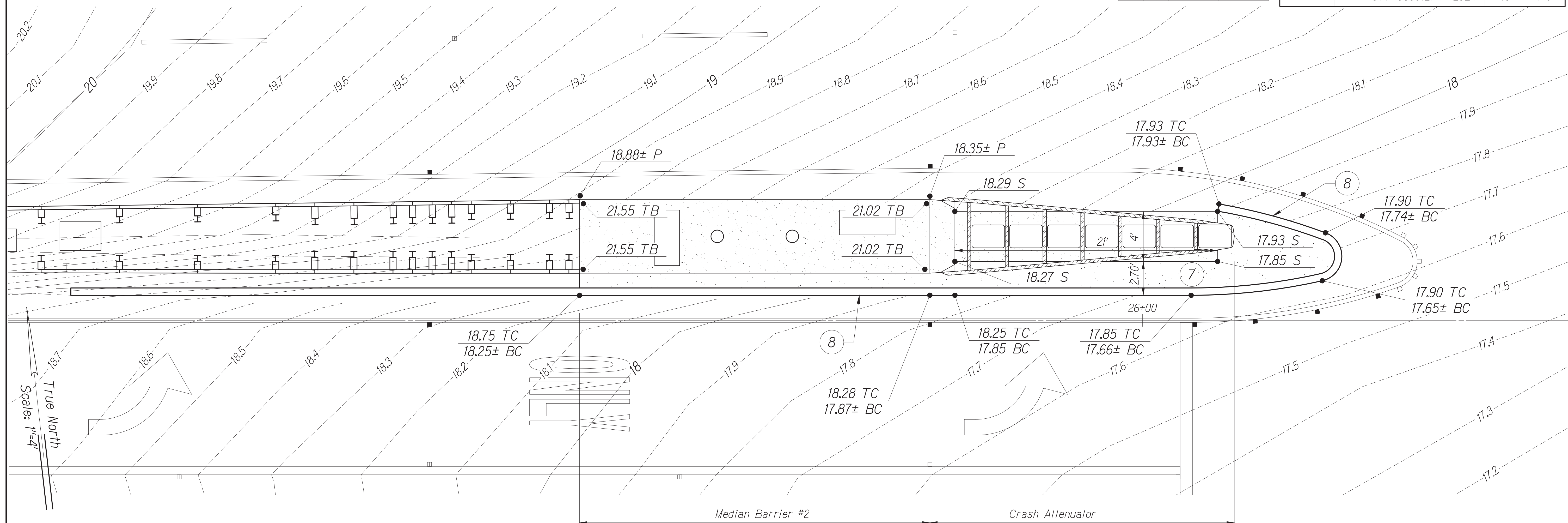
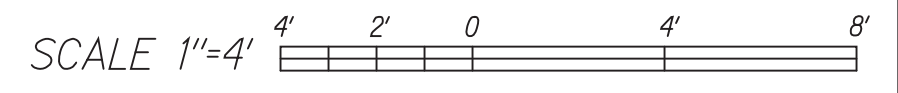
Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

SHEET No. 23 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	46	149

GRAPHIC SCALE



**Legend:**

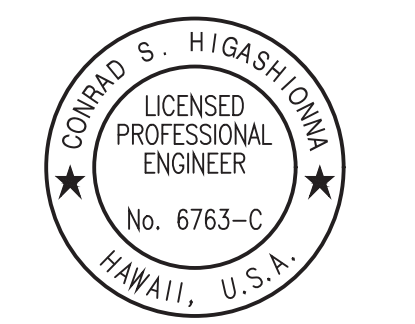
- 20.67± Existing Elev.
- 20.04 Finish Elev.
- 20.04± Finish Elev.
- S Top Slab for Crash Attenuator
- TC Top Curb
- BC Bottom Curb
- P Pavement
- TB Top of Median Barrier

**New Construction Callouts:**

- 7 P.C.C. Sidewalk per Standard Plan D-15.
- 8 Curb, Type 2A Modified.

DATE	BY

Oct 10, 2024 - 1:56pm  
 C:\Users\jgash@hawaii.gov\Documents\2024\2024 STP Phase 2A\Final\046 R-24 Detail - 14.dwg



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 Conrad Higashiyama

**DETAIL PLAN - 14**

Scale: 1" = 2'

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**ROADWAY PLAN**

**TRAFFIC SIGNAL MODERNIZATION**

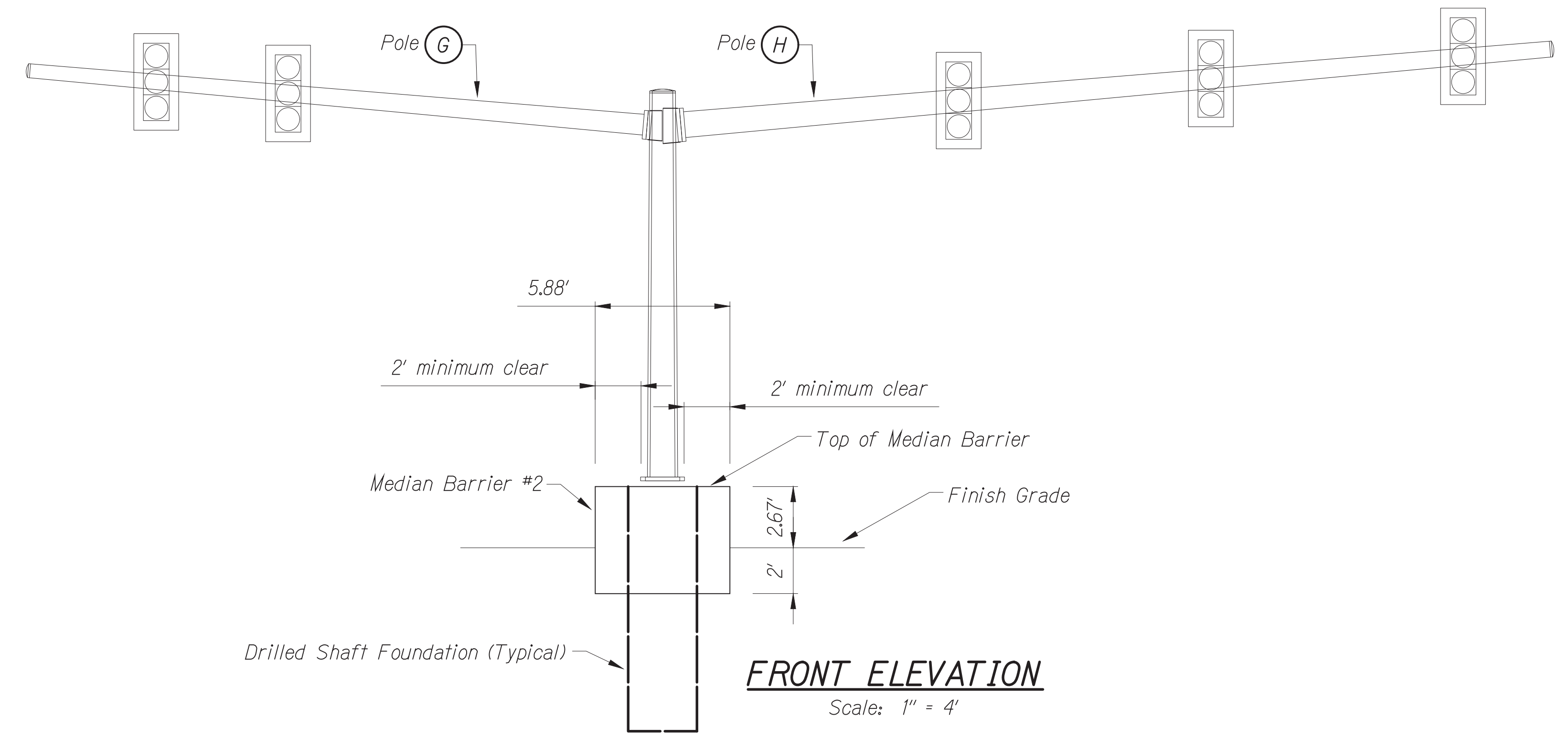
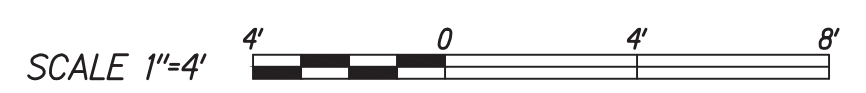
Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

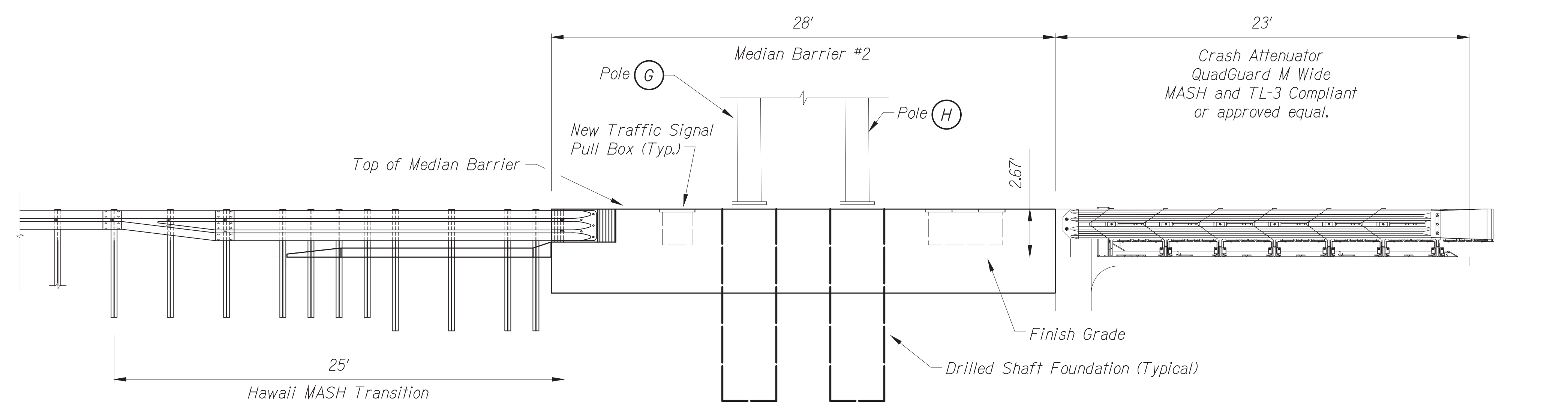
SHEET No. 24 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	47	149

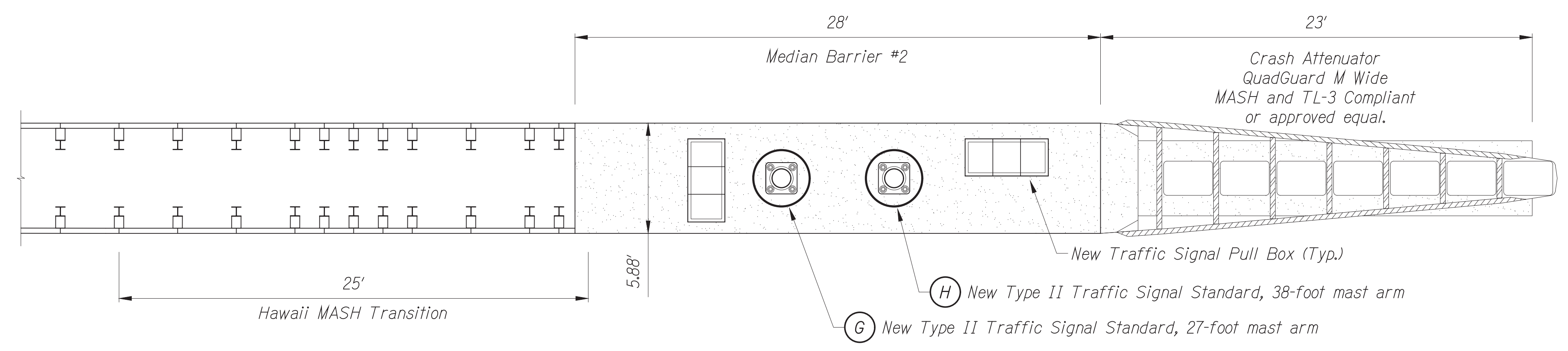
GRAPHIC SCALES



**FRONT ELEVATION**  
Scale: 1" = 4'



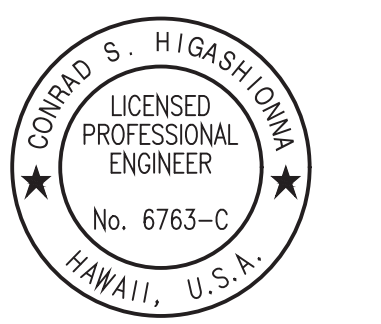
**SIDE ELEVATION**  
Scale: 1" = 4'



**PLAN - CONCRETE BARRIER TRANSITION**  
Scale: 1" = 4'

DATE	BY	REVISION

Oct 10, 2024 - 1:58pm  
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*Conrad Higashinoma*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**

**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A

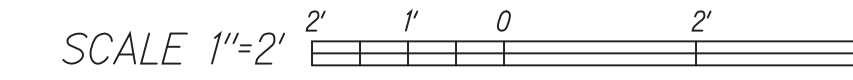
Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

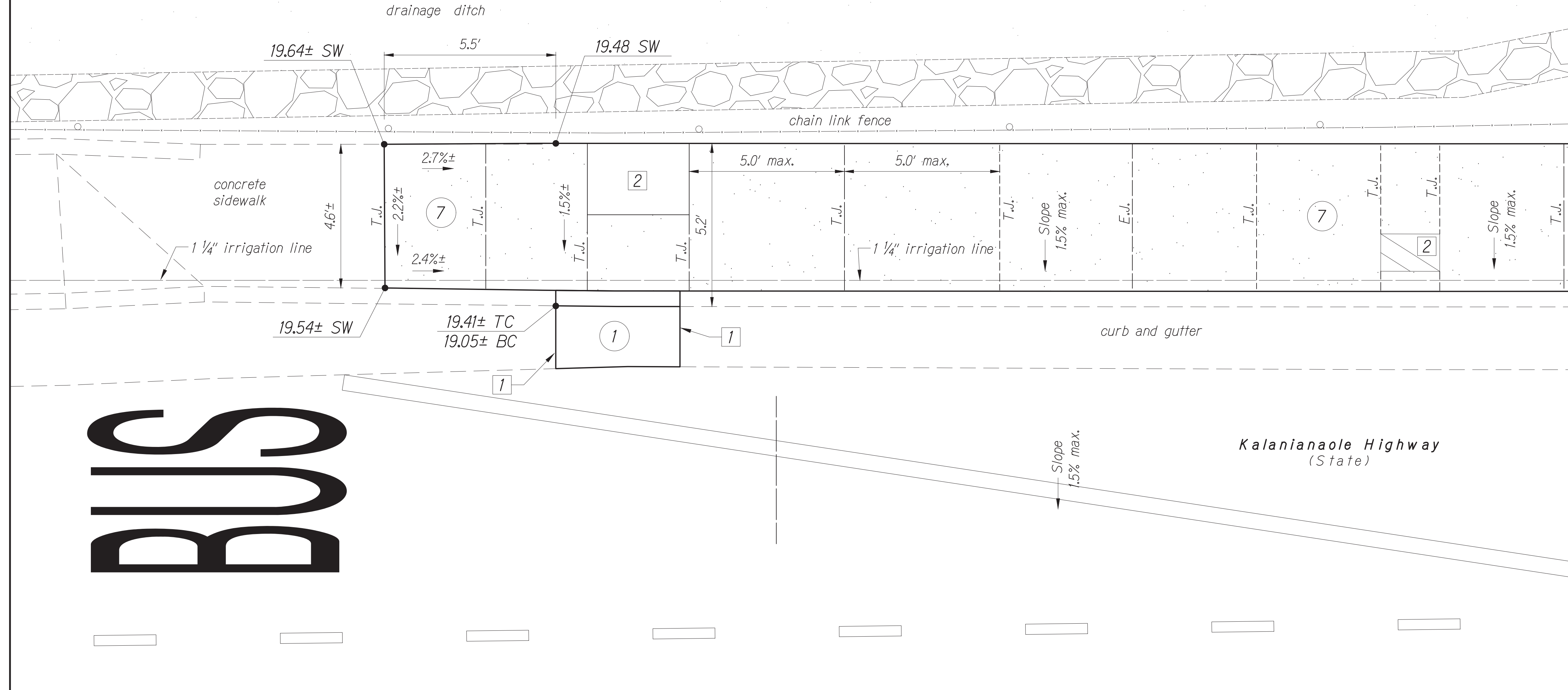
SHEET No. 25 OF 42 SHEETS



GRAPHIC SCALE



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	48	149



**BUS**

True North  
Scale: 1"=2'

MATCH LINE  
Sta. 25+75 @ KA  
See sheet 49.

Legend:

- 20.67± Existing Elev.
- 20.04 Finish Elev.
- 20.04± Finish Elev.
- P Pavement
- TC Top Curb
- BC Bottom Curb
- G Gutter
- SW Sidewalk

New Construction Callouts:

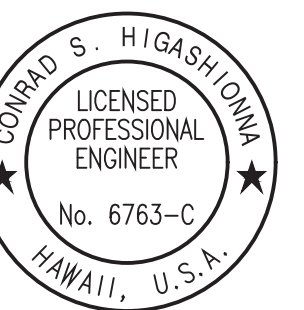
- 1 Curb & Gutter, Type 2DG Modified.
- 7 P.C.C. Sidewalk per Standard Plan D-15.

Notes:

- 1 Neat saw cut. Provide smooth riding connection.
- 2 Provide smooth riding connection to new traffic signal pull box and existing highway lighting pull box. Provide sidewalk isolation joint around pull box per Standard Plan D-15.

ORIGINAL PLAN	DATE

Oct 10, 2024 - 11:56am  
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 Conrad Higashidoma

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**ROADWAY PLAN**

TRAFFIC SIGNAL MODERNIZATION

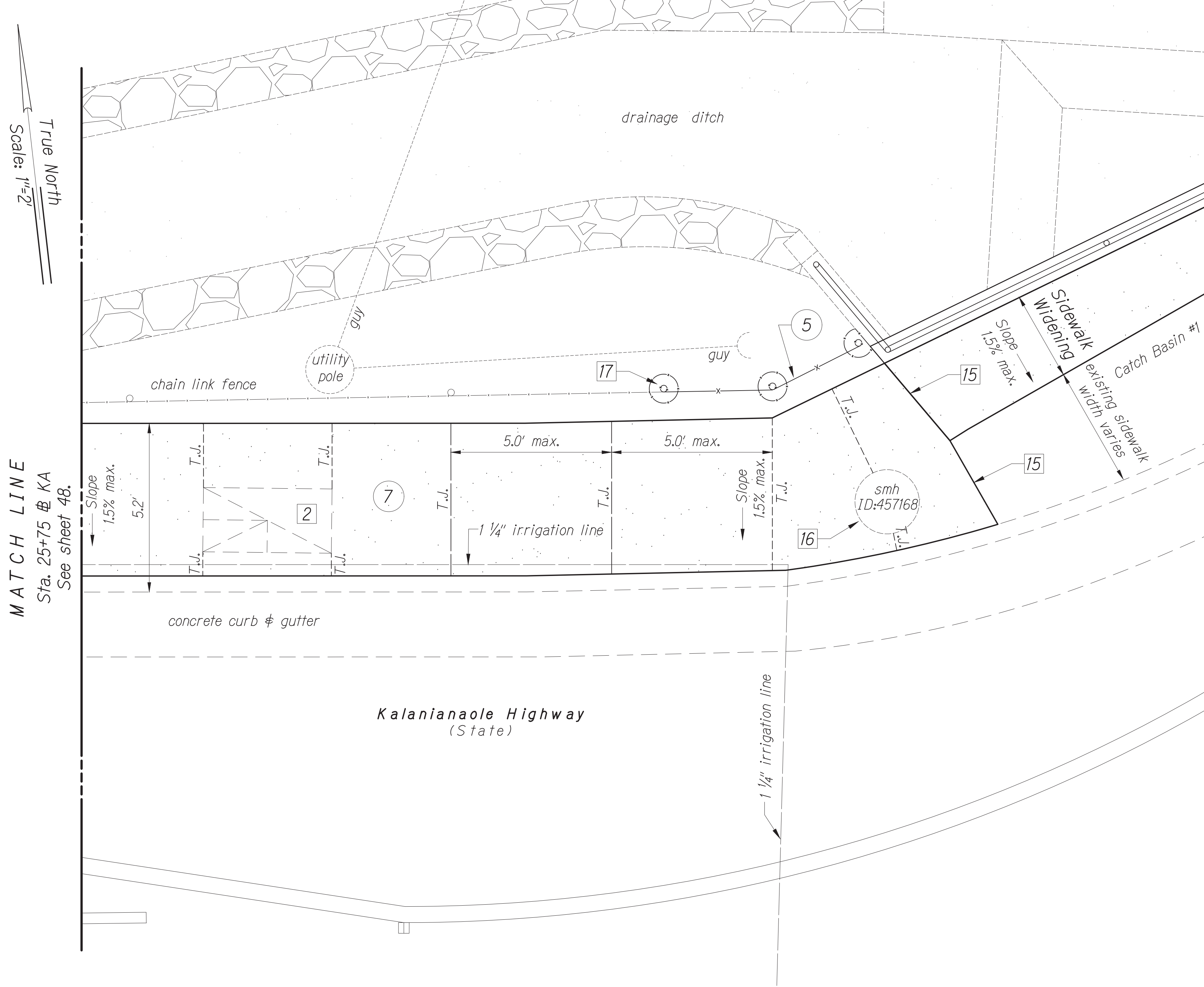
Oahu - Phase 2A

Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

**DETAIL PLAN - 16**

Scale: 1" = 2'



True North  
Scale: 1"=2'

MATCH LINE  
Sta. 25+75 @ KA  
See sheet 48.

MATCH LINE  
Sta. 26+10 @ KA  
See sheet 50.



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	49	149

- Legend:**
- 20.67± Existing Elev.
  - 20.04 Finish Elev.
  - 20.04± Finish Elev.
  - P Pavement
  - TC Top Curb
  - BC Bottom Curb
  - G Gutter
  - SW Sidewalk

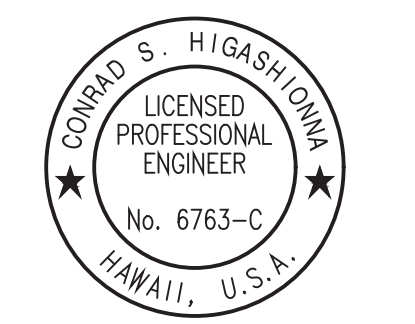
- New Construction Callouts:**
- 5 4-foot, Chain Link Fence per Standard Plan D-03.
  - 7 P.C.C. Sidewalk per Standard Plan D-15.

- Notes:**
- 2 Provide smooth riding connection to existing utility pull box and sidewalk isolation joint around pull box per Standard Plan D-15.
  - 15 Provide smooth riding connection to Catch Basin #1 and transverse joint to structure per Standard Plan D-15. For sidewalk widening (i.e., widening of catch basin top slab), see structural plans S-1 thru S-13.
  - 16 Adjust sewer manhole frame and cover to finish grade. Provide isolation joint around manhole frame/cover per Standard Plan D-15.
  - 17 Connect new fence to existing fence at new fence post.

ORIGINAL PLAN	DATE
SURVEY PLOTTED BY	
TRACED BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

Oct 10, 2024 - 1:56pm  
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DETAIL PLAN - 17  
Scale: 1" = 2'



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Conrad Higashiyama

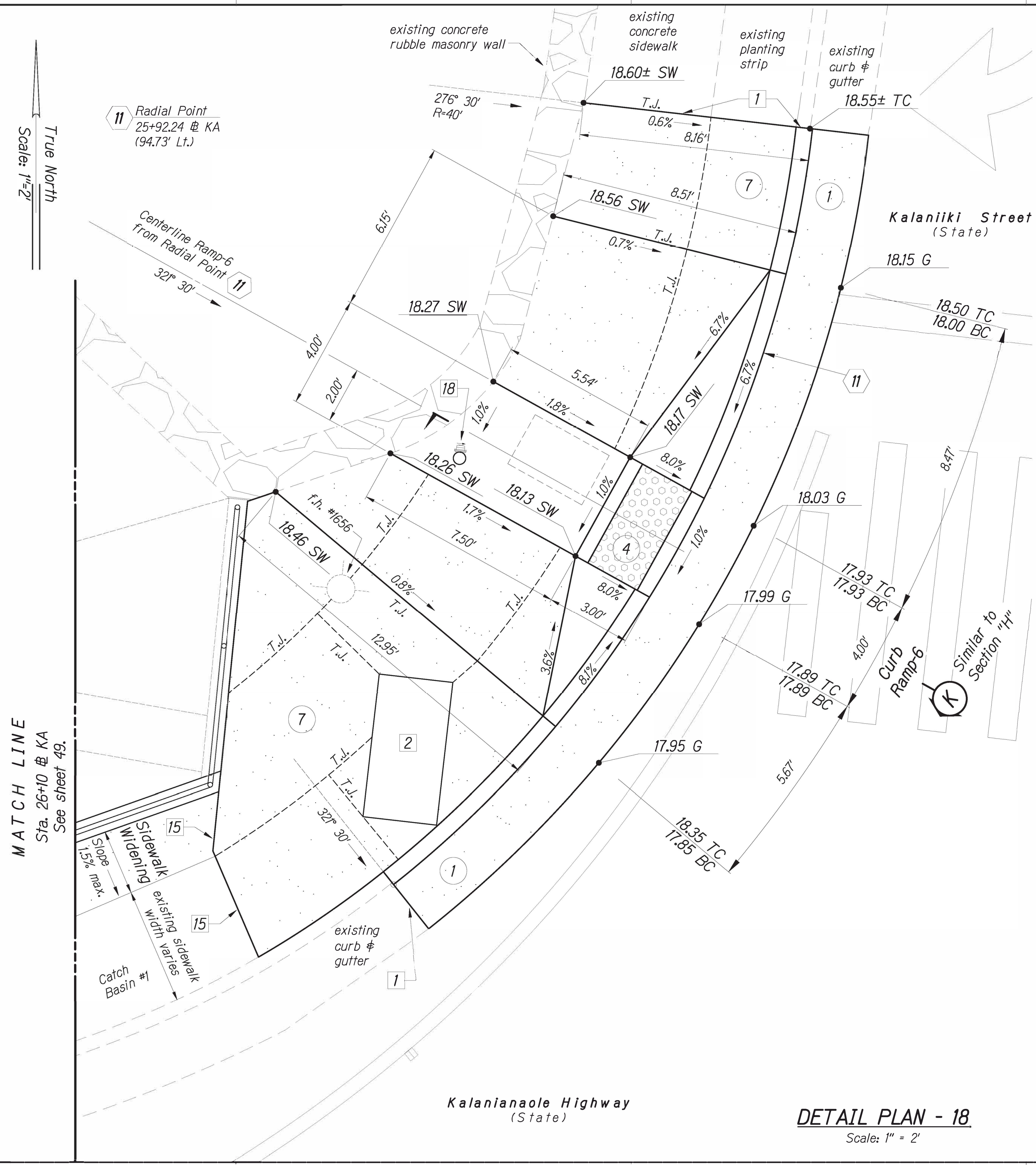
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**  
TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

SHEET No. 27 OF 42 SHEETS

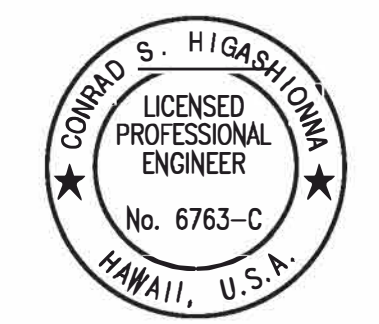
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	50	149



- Legend:**
- 20.67± Existing Elev.
  - 20.04 Finish Elev.
  - 20.04± Finish Elev.
  - P Pavement
  - TC Top Curb
  - BC Bottom Curb
  - G Gutter
  - SW Sidewalk

- New Construction Callouts:**
- 1 Curb & Gutter, Type 2DG Modified.
  - 4 Detectable Warning Mat.
  - 7 P.C.C. Sidewalk, per Standard Plan D-15.

- Notes:**
- 1 Neat saw cut. Provide smooth riding connection and transverse joint at existing sidewalk per Standard Plan D-15.
  - 2 Provide smooth riding connection to existing utility pull box and sidewalk isolation joint around pull box per Standard Plan D-15.
  - 15 Provide smooth riding connection to Catch Basin #1 and transverse joint to structure per Standard Plan D-15. For sidewalk widening (i.e., widening of catch basin top slab), see structural plans S-1 thru S-13.
  - 18 New pedestrian push button B7 mounted on new Pole I (Type I traffic signal standard).



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*Conrad Higashimura*

DATE	BY

011.10, 2024-11:56pm  
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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**

**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A

Federal Aid Project No. STP-0300(214)

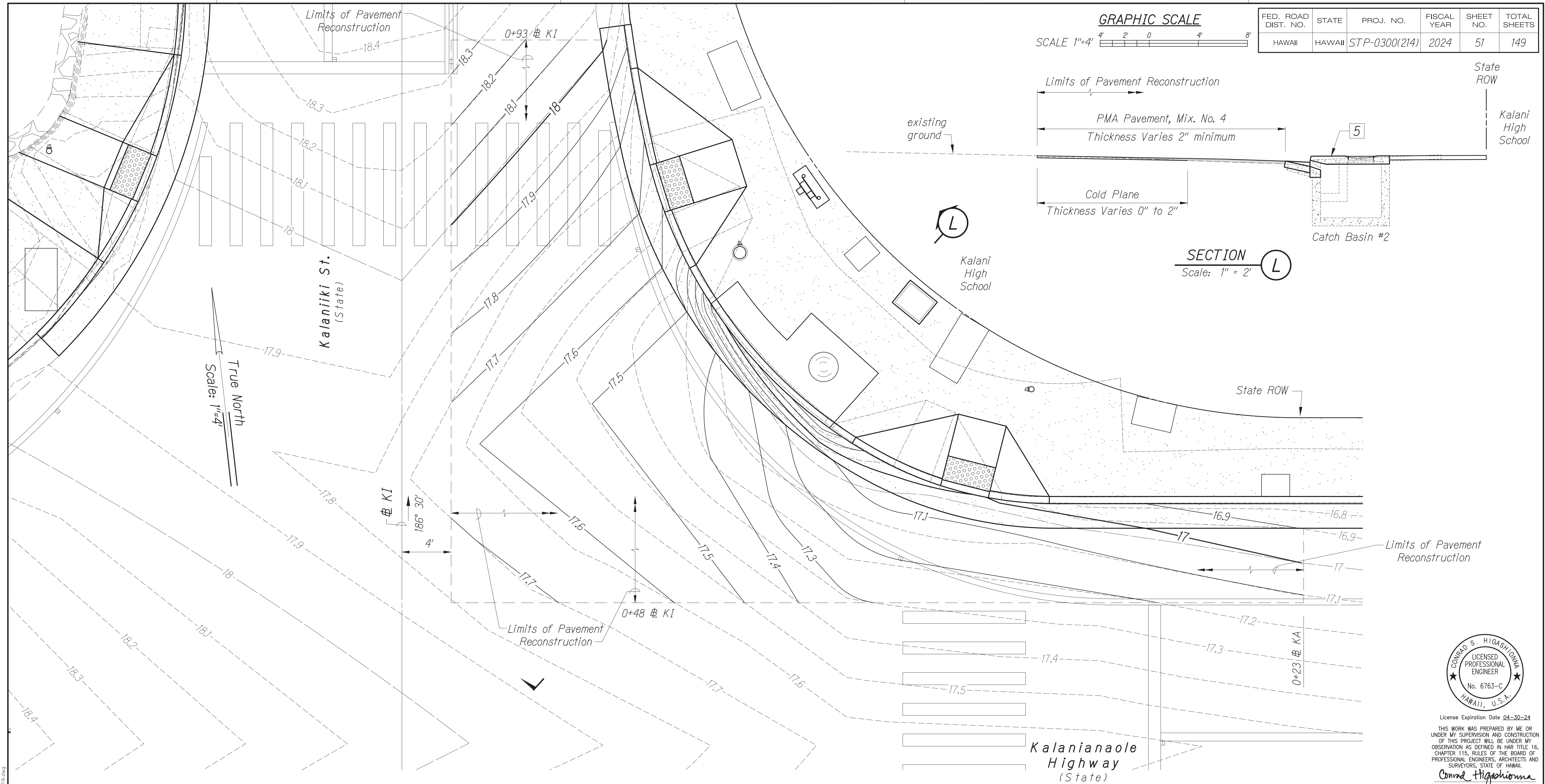
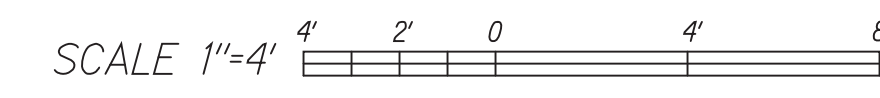
Scale: As noted Date: August 2024

SHEET No. 28 OF 42 SHEETS

**DETAIL PLAN - 18**  
Scale: 1" = 2'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	51	149

GRAPHIC SCALE



Limits of Pavement Reconstruction

PMA Pavement, Mix. No. 4  
Thickness Varies 2" minimum

Cold Plane  
Thickness Varies 0" to 2"

Catch Basin #2

SECTION L

Scale: 1" = 2'

State ROW  
Kalani High School

State ROW

Limits of Pavement Reconstruction

Kalaniana'ole Highway (State)

Kalaniki St. (State)

Kalani High School

True North  
Scale: 1"=4"

**Legend:**

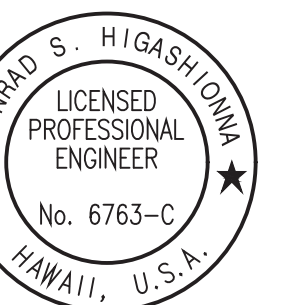
- Property Line
- Existing Contour Major
- Existing Contour Minor
- New Contour Major
- New Contour Minor

**Notes:**

- 5 Reconstruct top of existing catch basin to finish grades. See structural plans S-1 thru S-13.
- 19 Finish contours shown is for use in pavement drainage.
- 20 The Contractor shall reconstruct pavement to drain with 0.5% minimum slope and provide smooth riding pavement.

**DETAIL PLAN - 19**

Scale: 1" = 2'



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Conrad Higashimura

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**

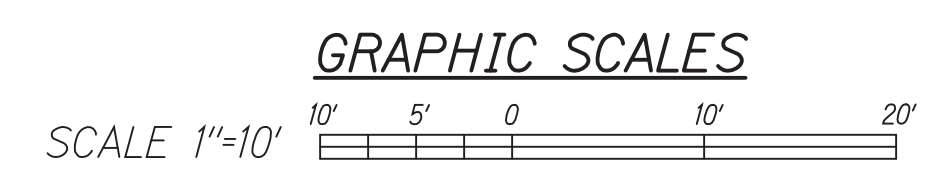
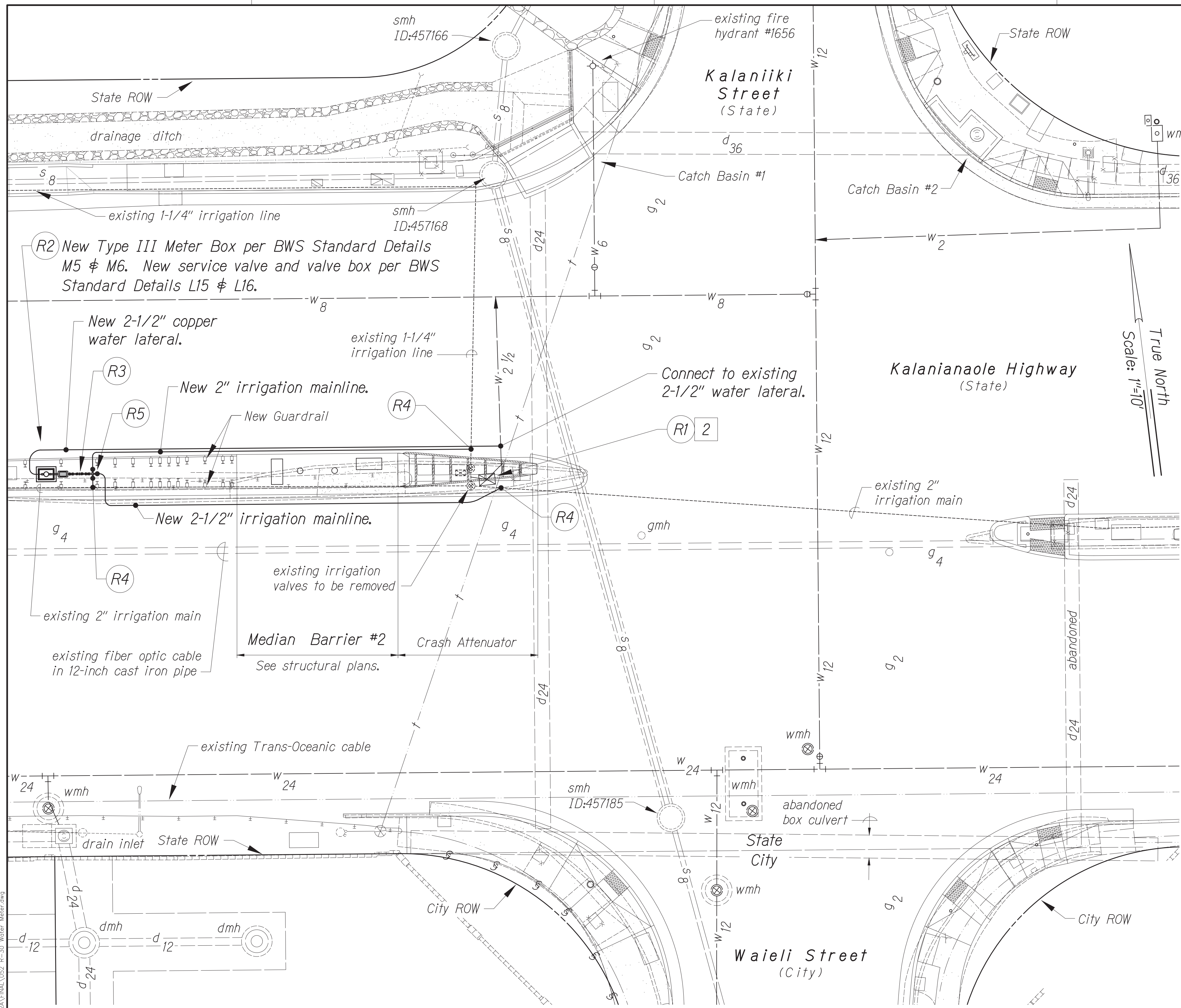
TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 29 OF 42 SHEETS

DATE	BY

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	52	149

**Notes:**

- 1 No additional irrigation water demand will be required. Existing meters are adequate to serve the existing irrigation system.
- 2 P/ID 6663933769 M/N 13070170
- 3 Prior to construction, the Contractor shall verify the location of the existing irrigation system. The Contractor shall relocate the existing irrigation system affected by the construction. This work, including trenching, excavation, backfill, and pavement restoration shall be incidental to the various contract items.

**Water Relocation Callouts:**

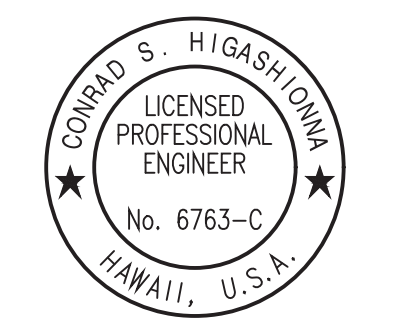
- The following work (R1 thru R5) shall be paid for under Proposal Item No. 624.0100 - Water Meter Relocation:
- R1 Remove and dispose of water meter box and valve boxes. Salvage frames and covers. Relocate water meter.
  - R2 P/ID 6663933769 M/N 13070170  
The Contractor shall install new 2-1/2" lateral & all necessary fittings to accommodate the relocation of the existing 2" meter, new Type III meter box & all appurtenances in accordance with Board of Water Supply standards. The Contractor shall relocate the existing meter and reconnect to the existing property pipe. The Contractor shall coordinate the relocation work with the Board of Water Supply.
  - R3 New Board of Water Supply approved 2 1/2" reduced pressure principal backflow prevention assembly after the water meter prior to any tees or branches per BWS Standard Detail V-9 and HDOT Standard Plan L-21.
  - R4 The Contractor shall connect new 2-inch (or 2 1/2"-inch where noted) irrigation mainlines to existing irrigation mainlines per HDOT Standard Plans L-23.
  - R5 Install three (3) new 2-inch irrigation gate valves and new valve boxes per HDOT Standard Plans L-23. The Contractor shall furnish and install new valve boxes suitable for asphalt concrete paved areas.

DATE	BY

Oct 10, 2024 - 1:56pm  
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**WATER METER RELOCATION PLAN**

Scale: 1" = 10'



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 Conrad Higashimura

APPROVED BY: \_\_\_\_\_  
 Manager and Chief Engineer, BWS (for work affecting BWS facilities in City/State V/W and BWS easements only)

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**ROADWAY PLAN**

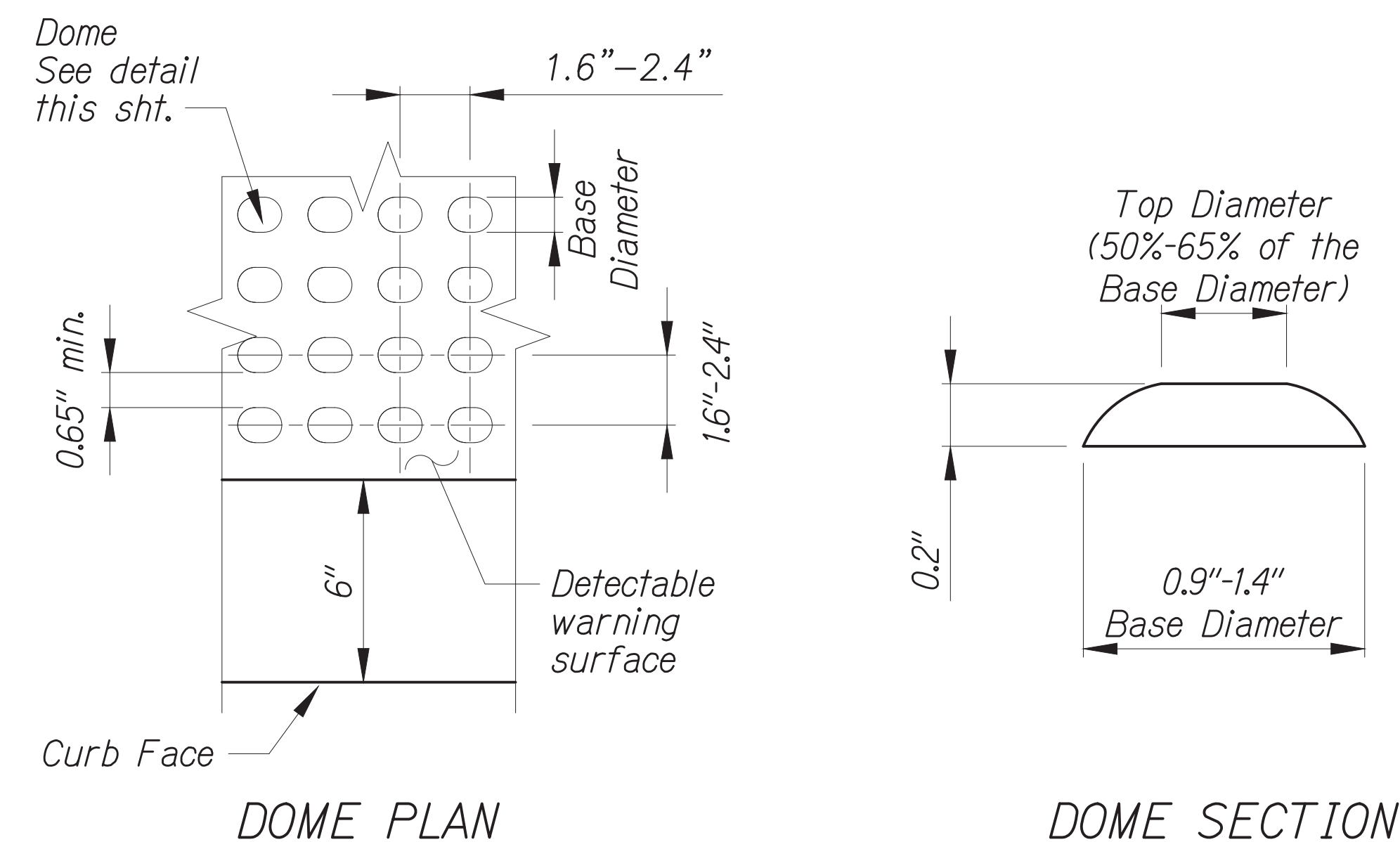
**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 30 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	53	149



### DETECTABLE WARNING DETAILS

No Scale

#### DETECTABLE WARNING DETAIL

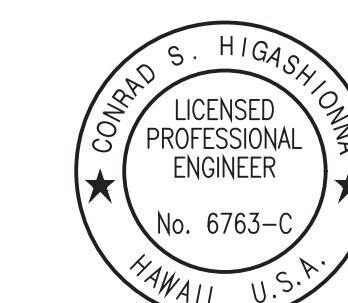
- Detectable warnings shall be 24 inches in the direction of travel and extend the full width of the curb ramp or flush surface (does not include flares).
- Truncated domes shall have a diameter of 0.9 to 1.4 inch at the bottom, a diameter of 50%-65% of the base diameter at the top, a height of 0.2 inch and a center-to-center spacing of 1.6 to 2.4 inches measured along one side of a square arrangement.
- Domes shall be aligned on a square grid in the predominant direction of travel to permit wheels to roll between the domes.
- There shall be a minimum of 70 percent contrast in light reflectance between the detectable warning and an adjoining surface, or the detectable warning shall be "safety yellow".
- The material used to provide visual contrast shall be an integral part of the detectable warning surface.
- The detectable warning shall be located so that the edge nearest the curb face or other potential hazard is 6 to 8 inches from curb face.
- Detectable warnings shall be cast-in-place and replaceable. The Contractor shall submit the detectable warning material/product description to the Engineer for review and approval.

#### CURB RAMP NOTES

- The Contractor shall not exceed a 2% maximum cross slope in the direction of pedestrian traffic, unless indicated otherwise.
- Subject to field conditions, the Engineer shall determine the final location of curb ramps.
- The Contractor shall adjust existing pullboxes, handholes, manholes, etc. to match curb ramp grade. Adjustments shall not be paid for separately but shall be considered incidental to the various curb ramp items, unless indicated otherwise.
- Transitions from ramps to gutters and roadways shall be flush.
- The Contractor shall install pedestrian push buttons to comply with operational and reach requirements of the American with Disability Act Accessibility Guidelines (ADAAG):
  - Forward Reach. The maximum height for forward reach shall be 48".
  - Side Reach. The maximum height for side reach shall be 48".
  - Operation. Controls and operating mechanisms shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. The force required to activate controls shall be no greater than 5 lbf.
- Construction joints are required to join curb ramps with sidewalks.
- All curb ramps shall be reinforced with 6x6 W1.4/W1.4 welded wire fabric.
- Surface of sidewalks and curb ramps shall be firm, stable, and slip-resistant. This includes the surfaces of pullboxes, valve covers, manhole covers, etc.
- Objects protruding from utility poles and walls adjacent to the sidewalks (i.e., wall mounted fire hydrants, telephones, meters on poles, etc.) shall be mounted to meet the current Americans with Disabilities Act Accessibility Guidelines (ADAAG) and will be subject to the Engineer's approval.
- If a curb ramp is not constructed according to the plans, the Contractor shall reconstruct the curb ramp at no cost to the State. Construction tolerance for Portland Cement Concrete shall be based on 1/4 inch per 10 feet ( $\pm 0.2\%$ ). Remedial measures will not be accepted.
- The Contractor shall comply with City & County Jointing Policy (Memorandum No. CEB 1-09) dated April 6, 2009 for new sidewalks within City right-of-way.
- The Contractor shall construct curb ramps in accordance with City & County of Honolulu Standard Detail R-25A, unless indicated otherwise.

ORIGINAL PLAN	DATE
NO. _____	_____
DESIGNED BY _____	_____
CHECKED BY _____	_____
DATE	_____

Oct 10, 2024 - 1:56pm  
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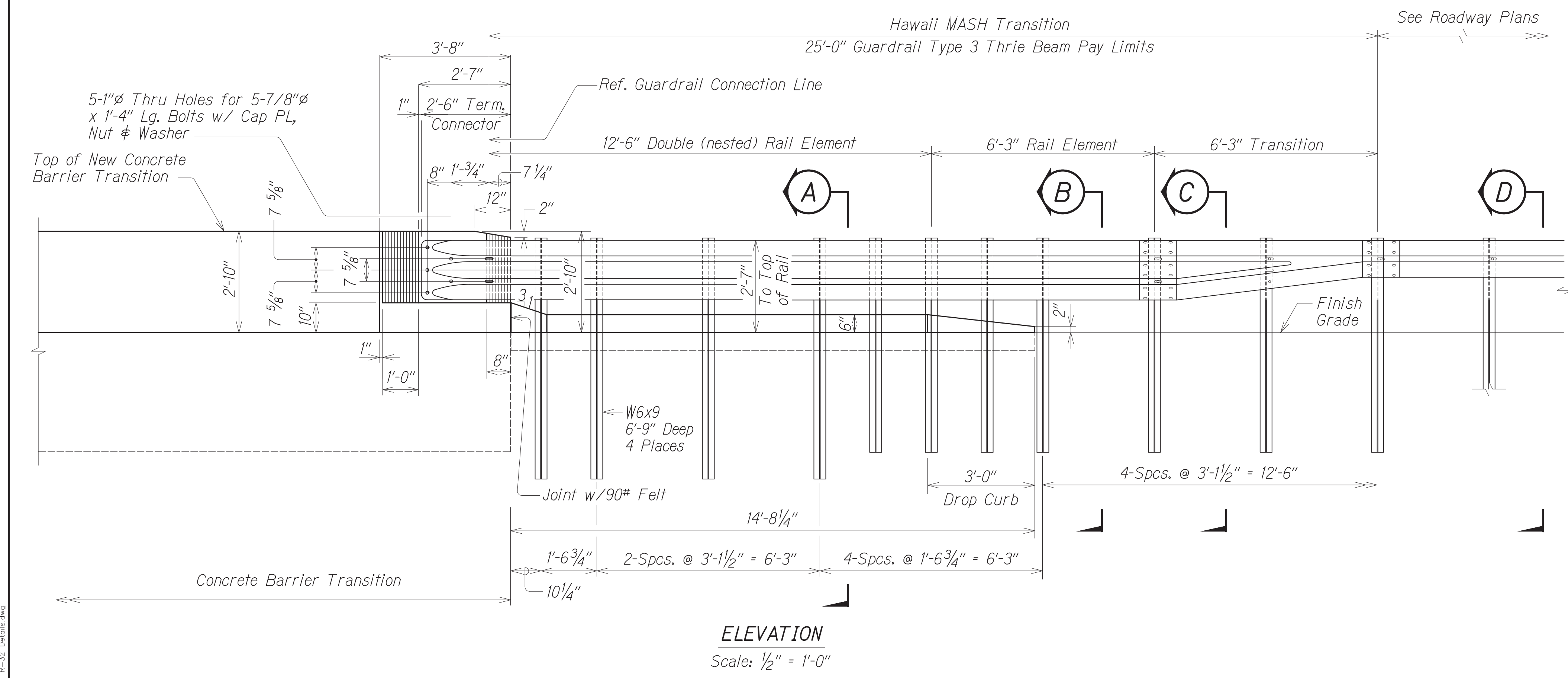
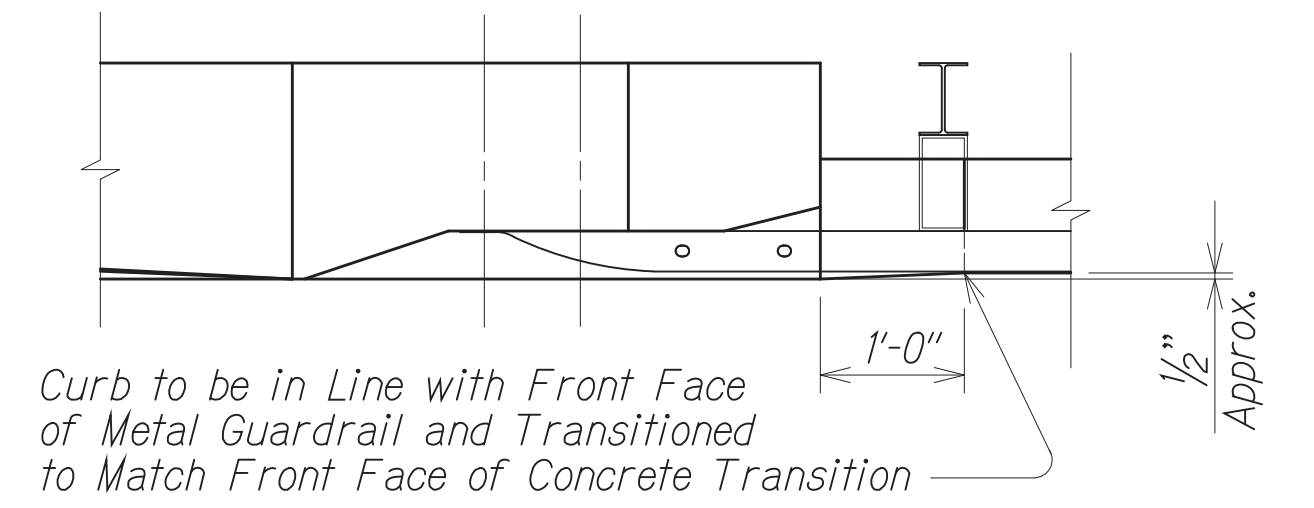
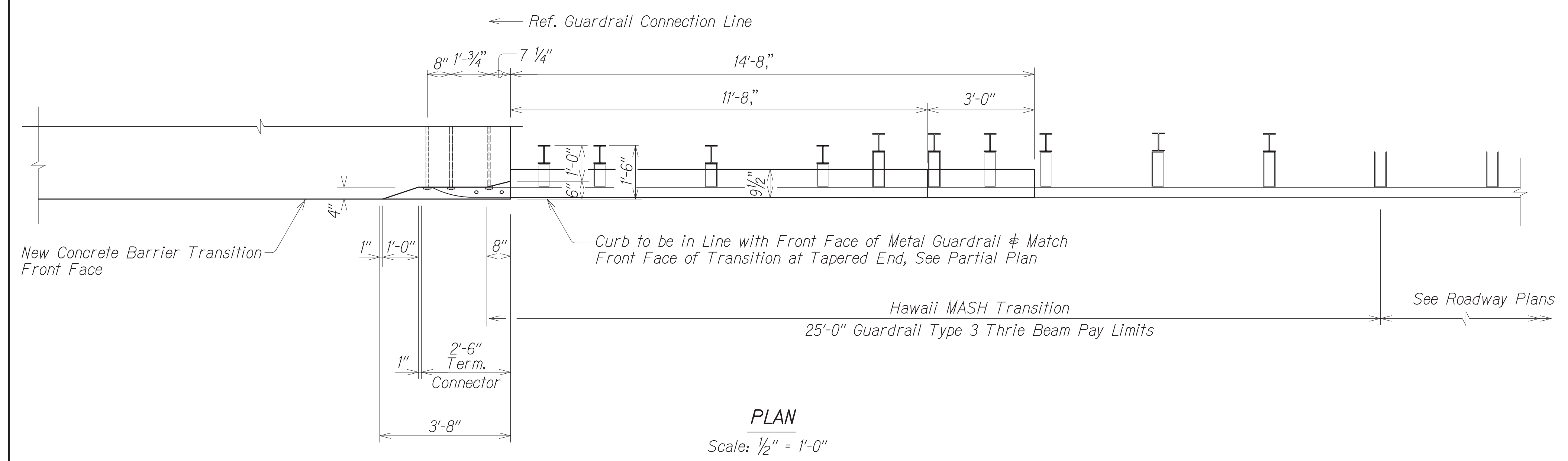


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 Conrad Higashioma

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**ROADWAY PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024

SHEET No. 31 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	54	149



**HAWAII MASH TRANSITION  
CONNECTION TO  
CONCRETE BARRIER TRANSITION**  
Scale: 1" = 2'

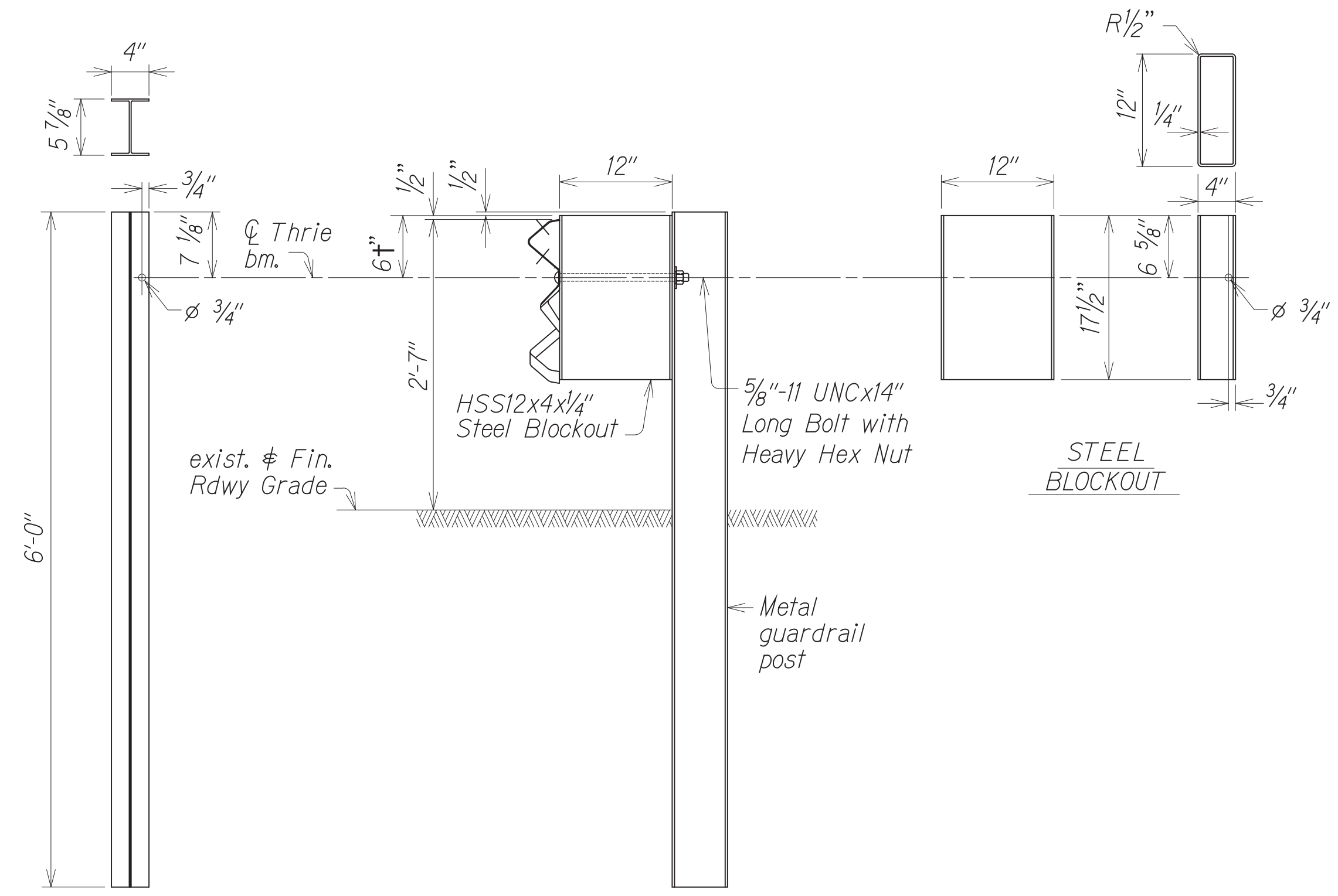
DATE	BY

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CONRAD S. HIGASHIDOMA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6763-C  
 HAWAII, U.S.A.  
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 Conrad Higashidoma

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**ROADWAY PLAN**  
 TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024  
 SHEET No. 32 OF 42 SHEETS

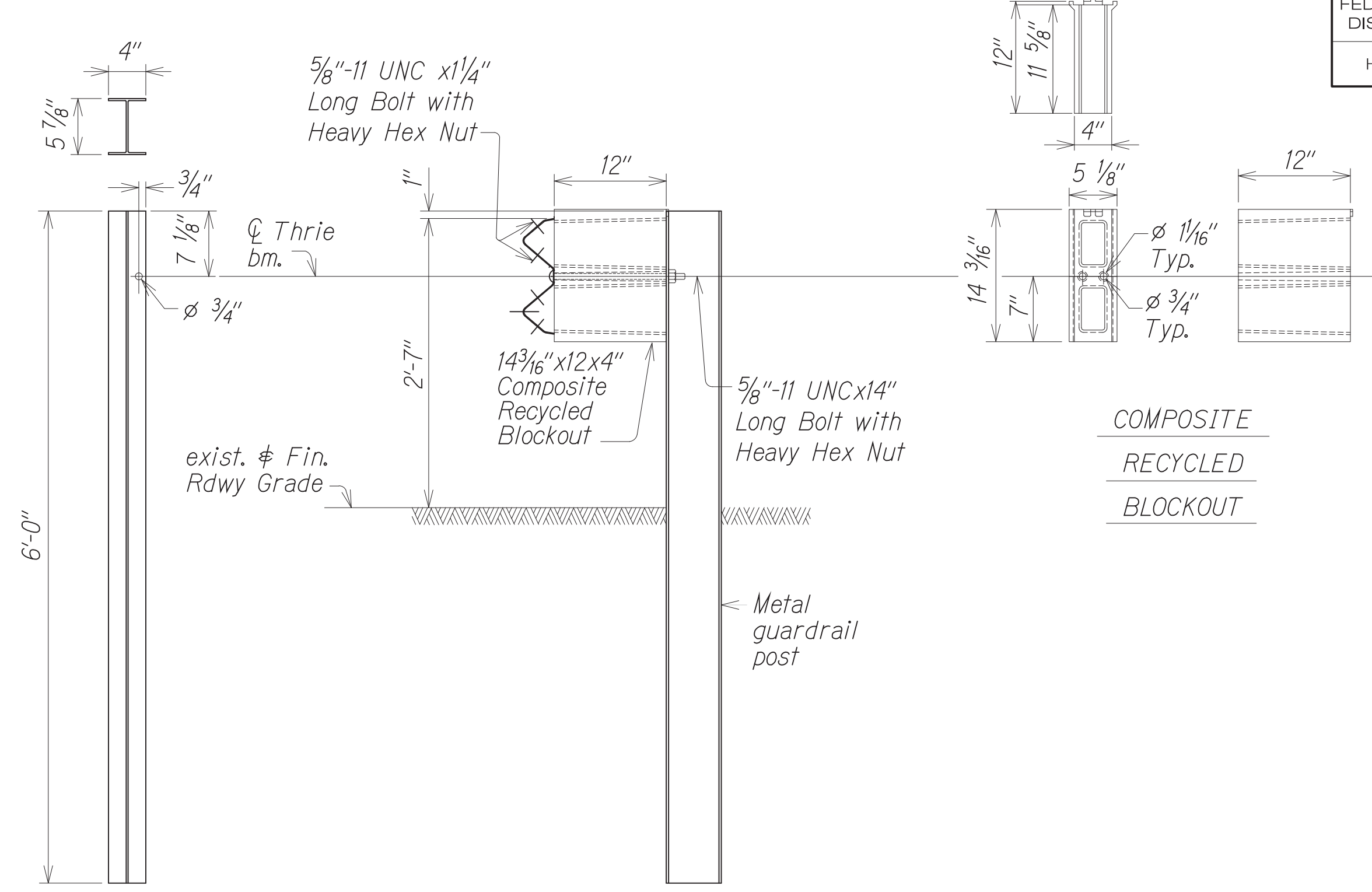
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	55	149



W6x9 POST

**SECTION "C"**

Scale: 1" = 1'-0"

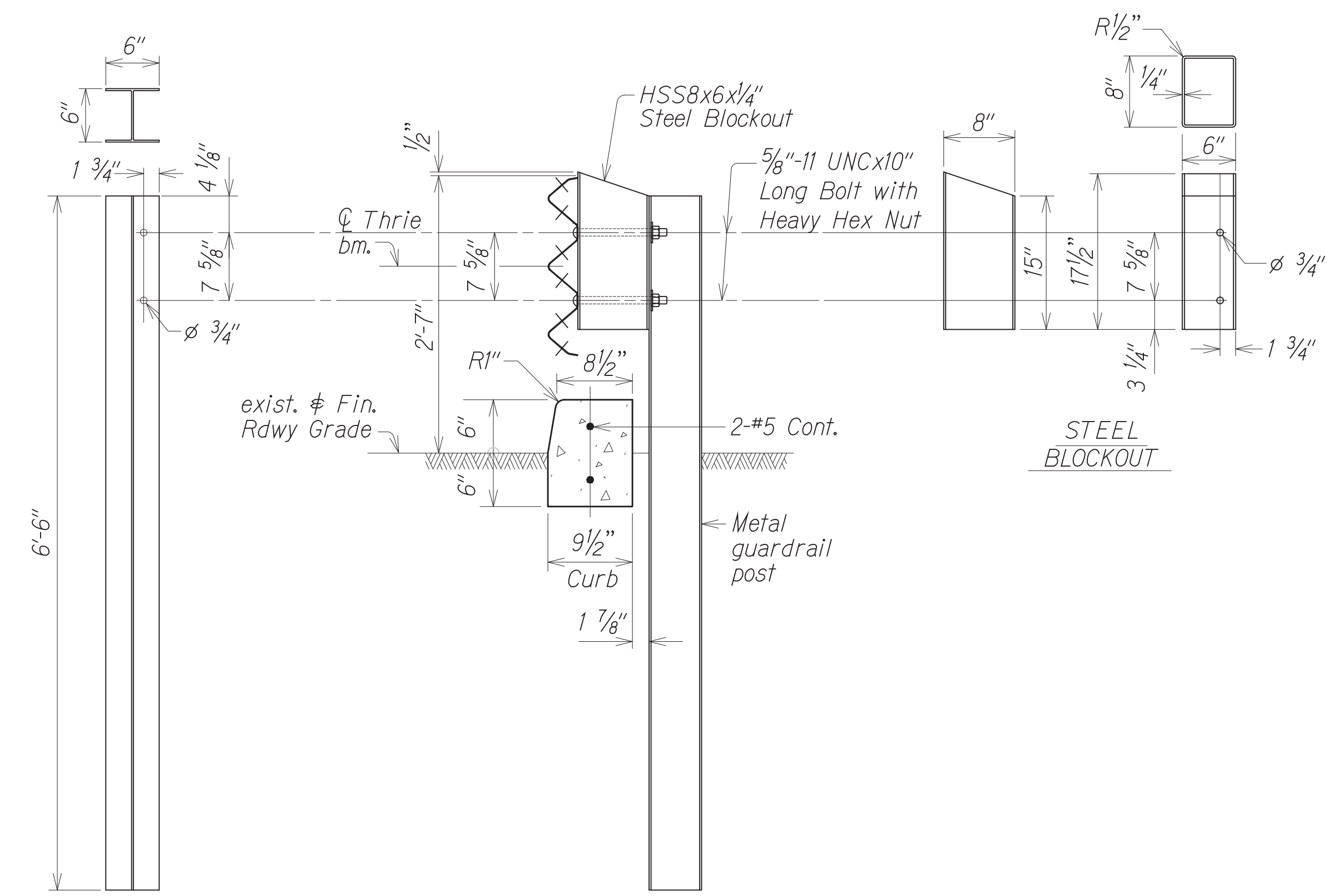


W6x9 POST

**SECTION "D"**

Scale: 1" = 1'-0"

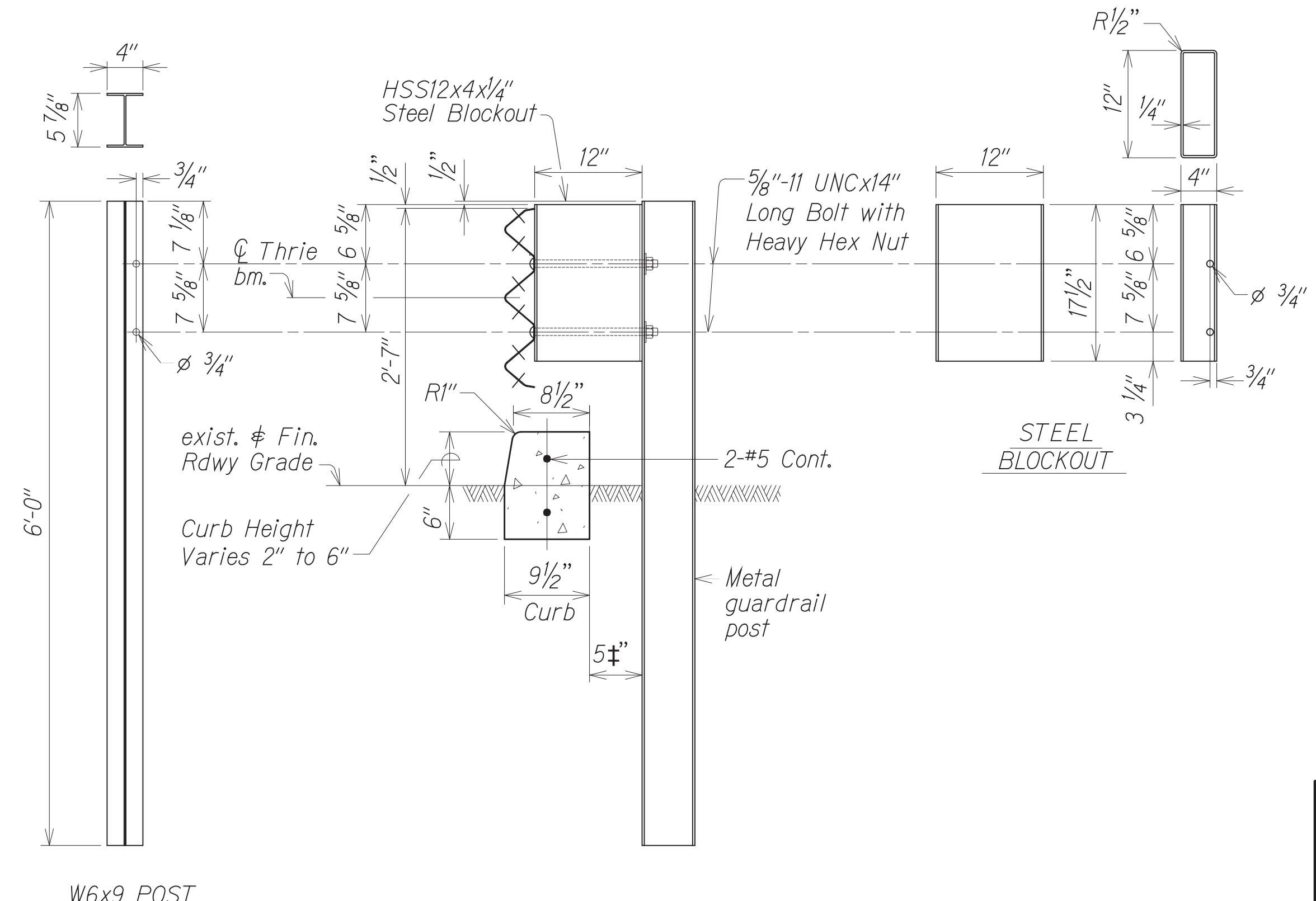
COMPOSITE  
RECYCLED  
BLOCKOUT



W6x15 POST

**SECTION "A"**

Scale: 1" = 1'-0"



W6x9 POST

**SECTION "B"**

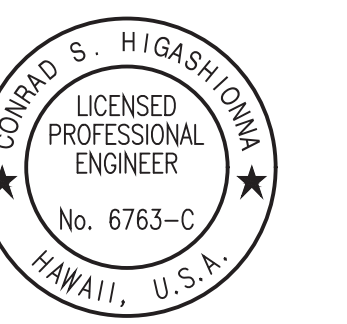
Scale: 1" = 1'-0"

STEEL  
BLOCKOUT

DATE	BY

ORIGINAL PLAN  
NOTE BOOK  
No.

Oct 10, 2024 - 1:55pm  
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Conrad Higashi

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

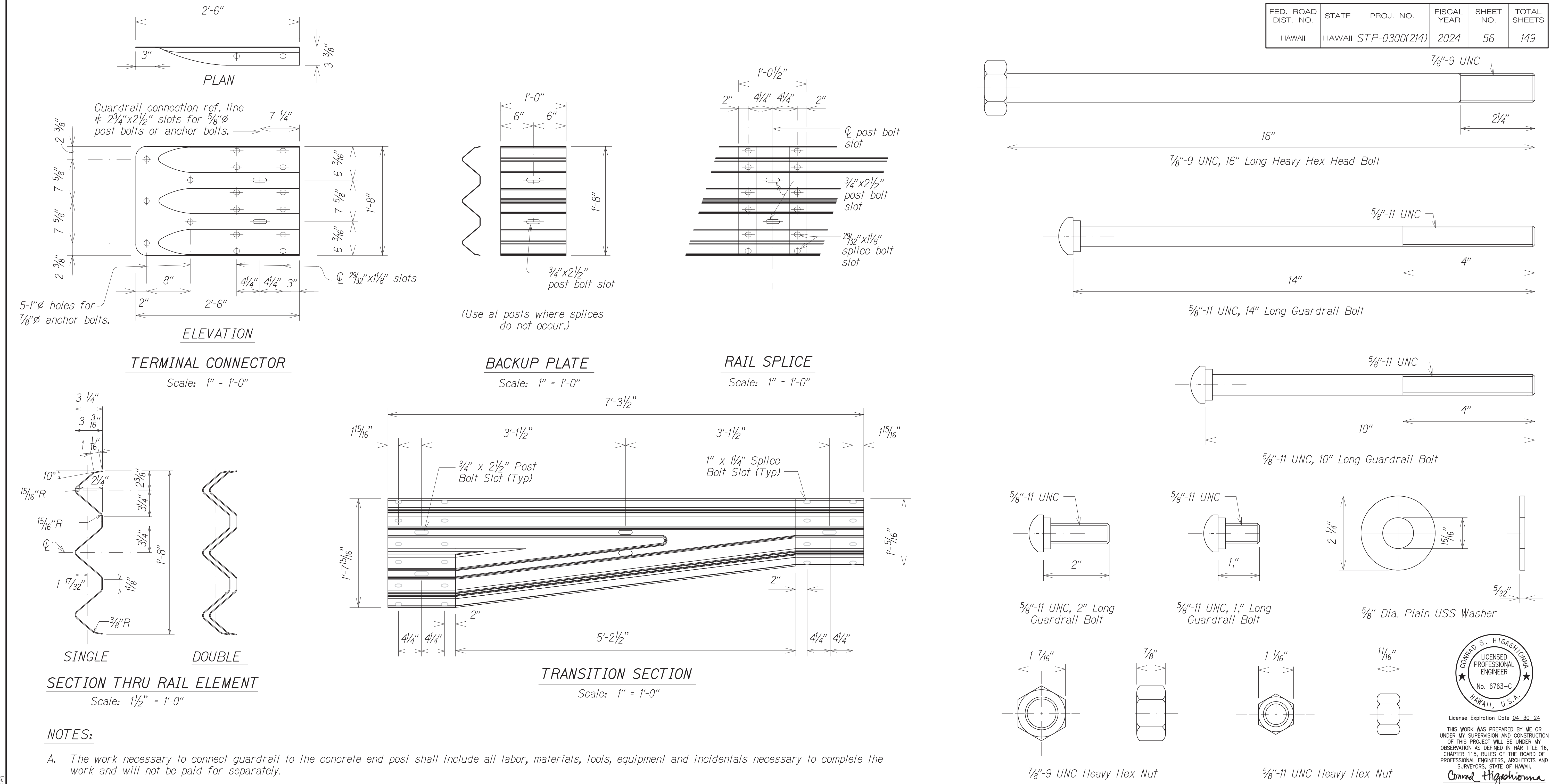
Scale: As noted      Date: August 2024

SHEET No. 33 OF 42 SHEETS

**HAWAII MASH TRANSITION SECTIONS**  
Scale: 1" = 1'-0"



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	56	149



- NOTES:**
- The work necessary to connect guardrail to the concrete end post shall include all labor, materials, tools, equipment and incidentals necessary to complete the work and will not be paid for separately.
  - Lap terminal connector and rail elements in the direction of traffic to prevent snagging.
  - Bolts shall have sufficient length when installed to ensure that the nut is at least flush but should not project more than 1/4". The Contractor will not be allowed to cut, grind or otherwise alter the bolt to meet this requirement unless it is done during the fabrication of the bolt prior to galvanizing.
  - The first 25'-0" of guardrail adjoining the "Terminal Connector" shall be placed tangent to the concrete transition front face or parallel to the roadway, unless conditions at the site renders it impossible to do so. Flare point to be determined in field.
  - Head of all bolts shall be placed on the traffic side of the rail.
  - All W6x8.5, W6x9 and W6x15 guardrail posts shall be clearly stamped during fabrication "W6x8.5", "W6x9", or "W6x15", respectively, on each post.

**METAL GUARDRAIL TYPE 3 THRIE-BEAM & APPURTENANCES DETAILS**

Scale: 1" = 1'-0"

DATE	BY

SURVEY PLOTTED BY: \_\_\_\_\_  
 TRACED BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 QUANTITIES BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 No. \_\_\_\_\_

Oct 10, 2024 - 1:55pm  
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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 34 OF 42 SHEETS

CONRAD S. HIGASHIDOMA  
LICENSED PROFESSIONAL ENGINEER  
No. 6763-C  
HAWAII, U.S.A.  
License Expiration Date 04-30-24

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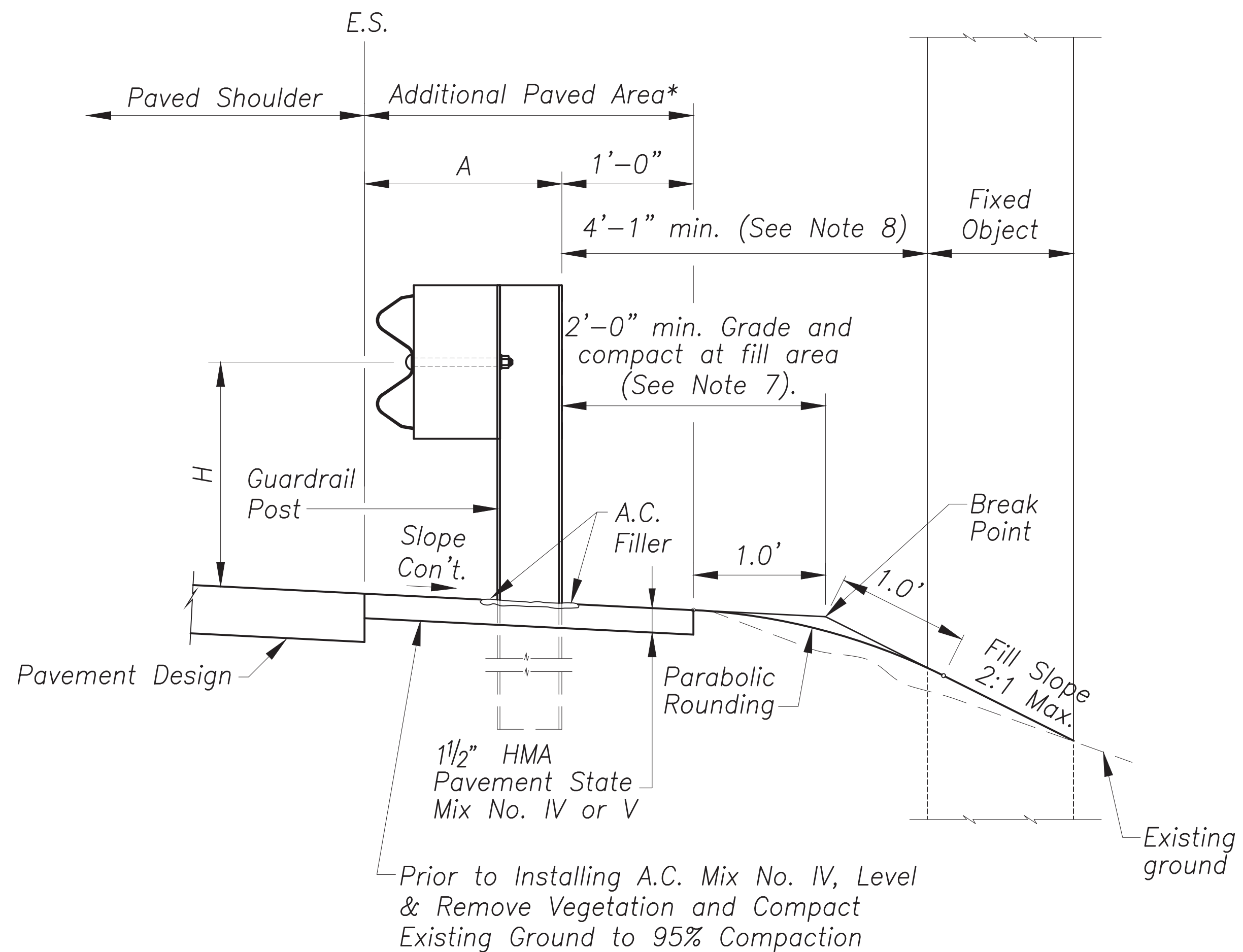
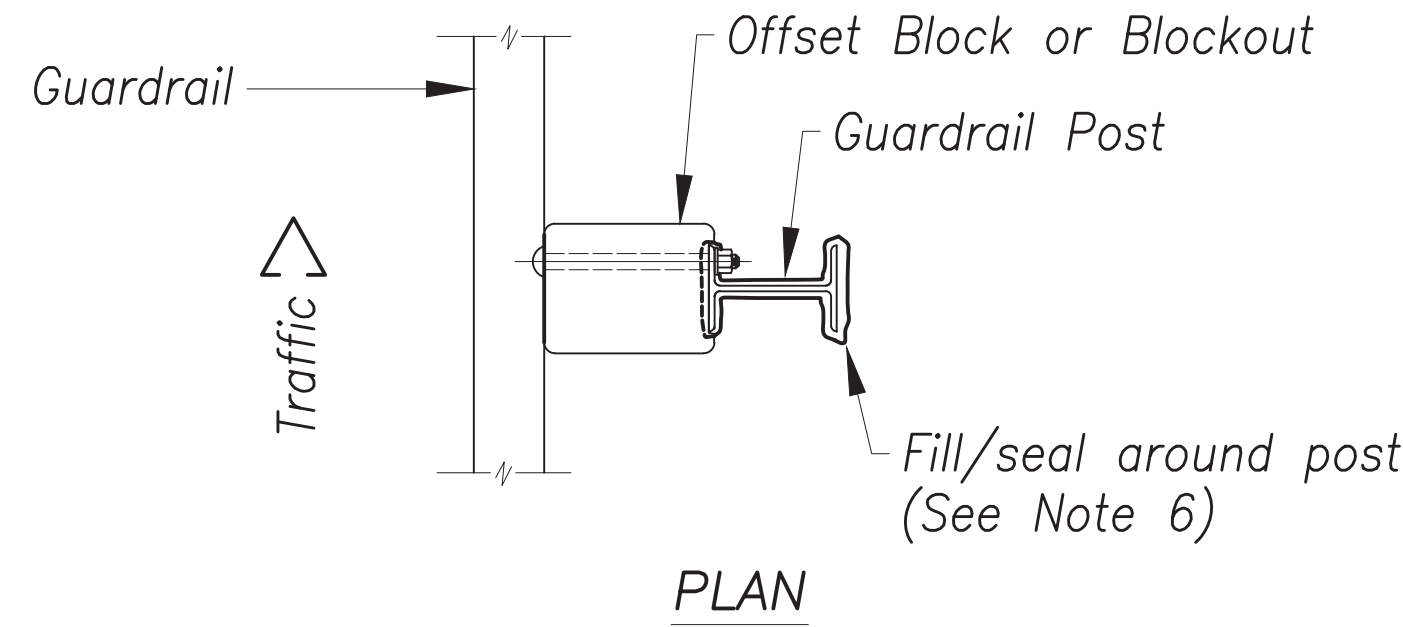
Conrad Higashidoma

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	57	149

**General Notes:**

- All hardware, posts and fasteners shall be hot-dip zinc coated galvanized after fabrication. No punching, drilling or cutting will be permitted after galvanizing.
- Where conditions require, special post lengths in increments of 6 inches may be specified by the Engineer.
- All fasteners, posts, and rail elements (i.e. FBB03, PWE01, RWM04a, 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 fasteners, posts and rail elements have been converted from metric units into their present form.
- The Blockout or Offset block shall be approved by the State.
- All new guardrail systems (system consists of total length of guardrail including both end treatments) shall include the Addition Paved Area.
- 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.
- When standards for the fill slope area cannot be met, a site specific, Engineer approved design may be used.
- Minimum working width (clear distance) between back of MGS post to any fixed object is 4'-1" (49").
- New Hot Mix Asphalt (HMA) pavement at guardrails shall extend 6 feet longitudinally beyond terminal ends.
- 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.

Guardrail Type	Dimension	
	H	A
MGS with Standard 8" Offset Block	2'-1"	1'-6"
MGS with No Blockout	2'-7/8"	1'-6"

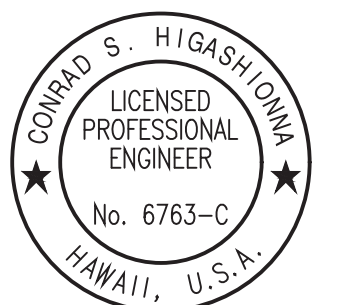


ELEVATION

**TYPICAL GUARDRAIL INSTALLATION**

DATE	BY

Oct 10, 2024 - 1:55pm  
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 Conrad Higashioma

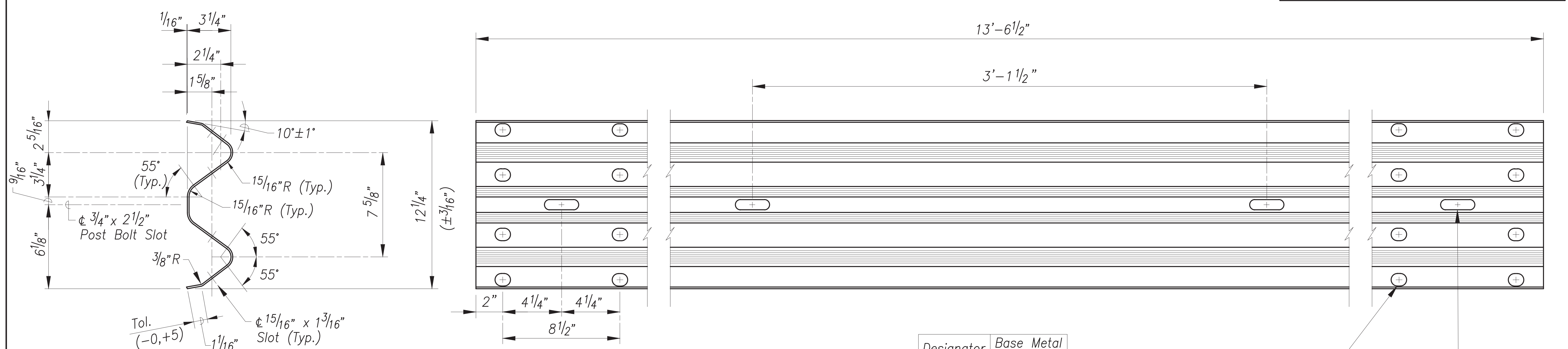
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**ROADWAY PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024

SHEET No. 35 OF 42 SHEETS

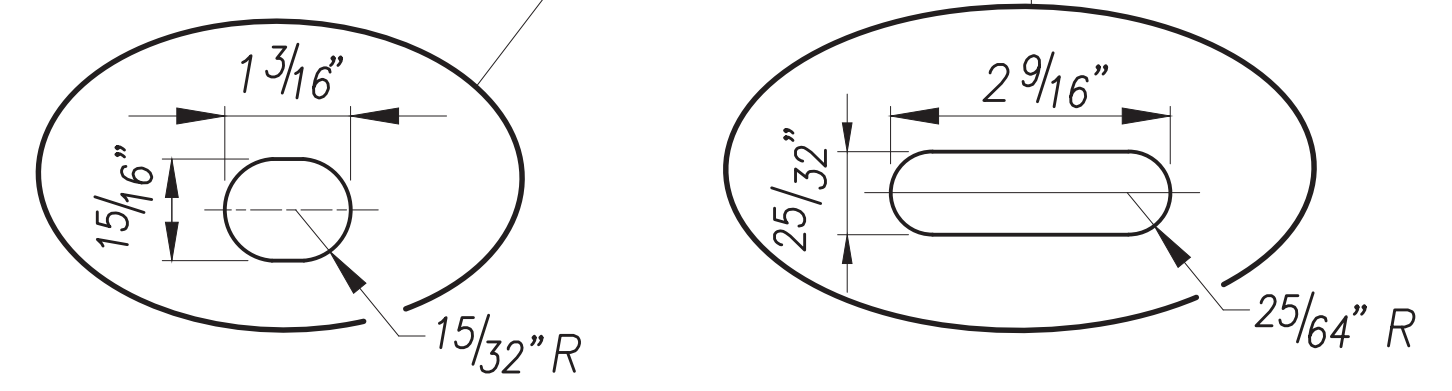




FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	60	149



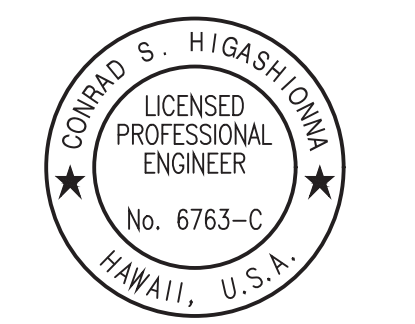
Designator	Base Metal Thickness
RWM04a	12 Gauge



**4 SPACE W-BEAM GUARDRAIL (RWM04a)**

ORIGINAL PLAN	DATE
NO. _____	_____
SURVEY PLOTTED BY _____	DATE _____
TRACED BY _____	_____
DESIGNED BY _____	_____
QUANTITIES BY _____	_____
CHECKED BY _____	_____

Oct 10, 2024 - 1:55pm  
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 Conrad Higashidoma

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

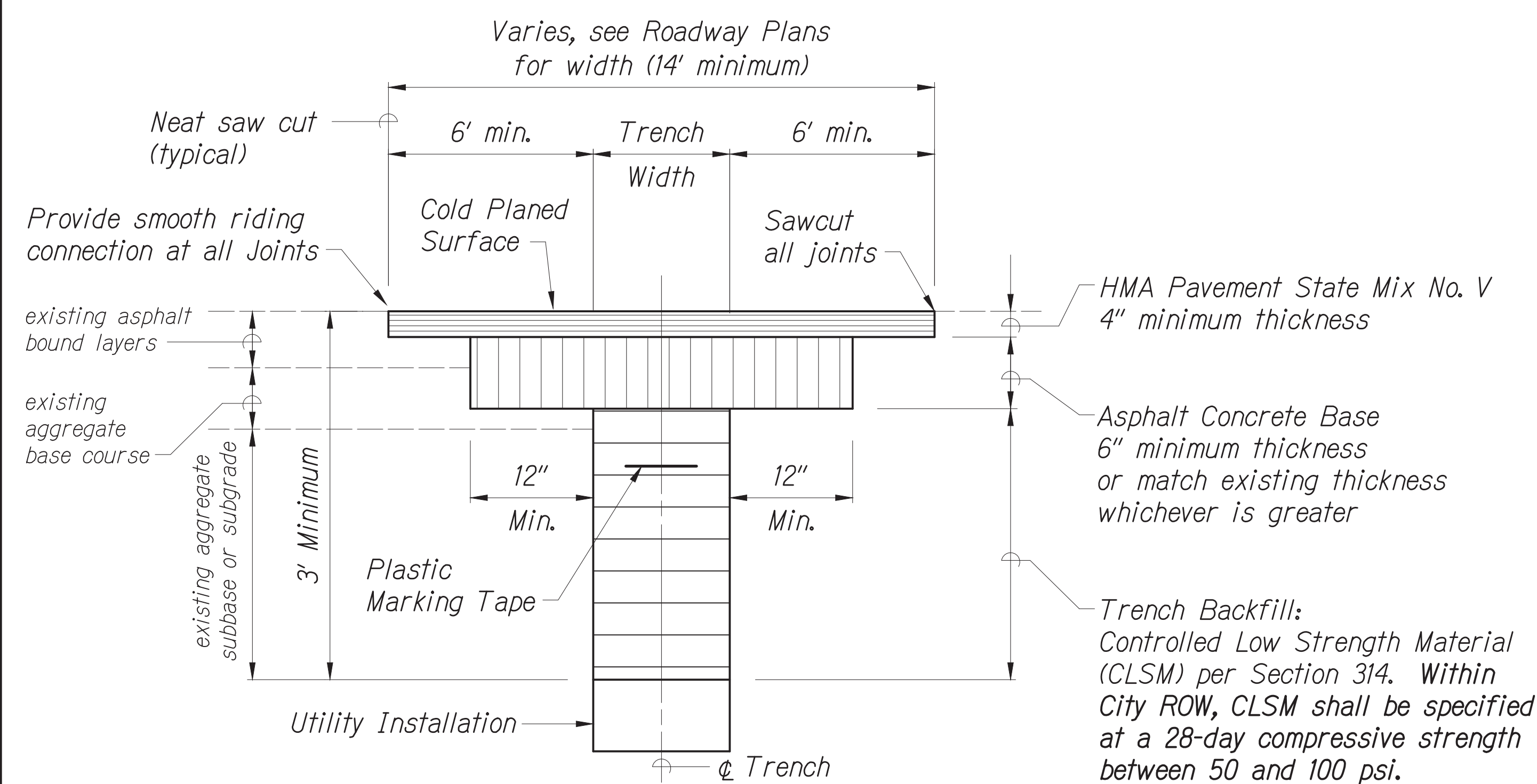
**ROADWAY PLAN**

TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 38 OF 42 SHEETS

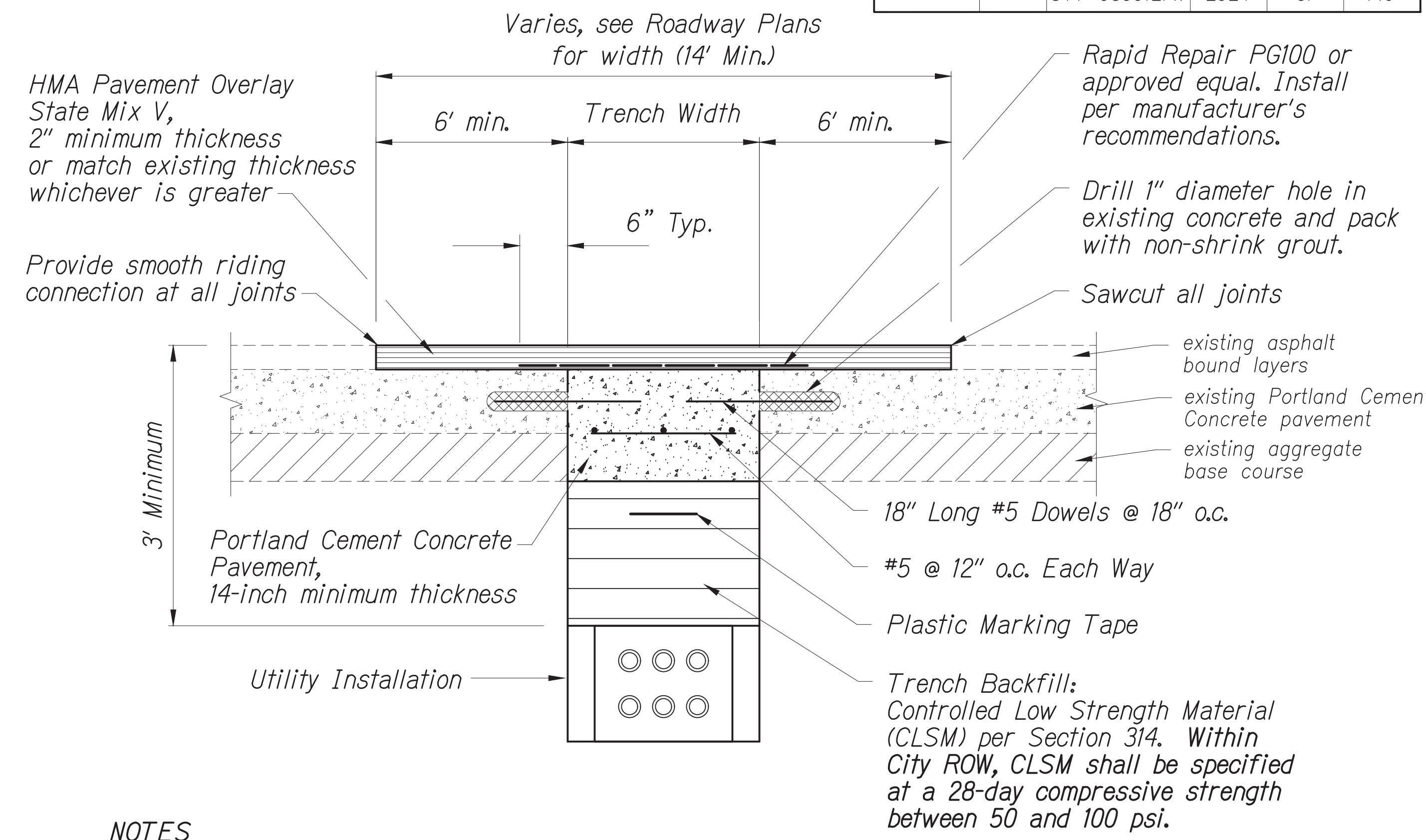
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	61	149



(for Work within State R/W)  
**ASPHALT PAVEMENT RESTORATION OVER TRENCH EXCAVATION**  
 No Scale

**NOTES**

- Tack coat faces of existing asphalt bound materials prior to filling excavation with new asphalt bound materials.
- All work performed shall be subject to inspection by the State and shall be to the State's satisfaction.
- Construct the trench restoration in accordance with the Hawaii Standard Specifications for Road and Bridge Construction, 2005, and its special provisions, and the specification of installation of miscellaneous improvements within State Highways.
- Pavement Smoothness
  - Obtain a profile of the existing roadway surface that is to have a new surface as a result of the restoration of the trench excavation and submit the profile to the district Engineer before any work for trench excavation begins.
  - Obtain a profile of the roadway surface after the roadway surface has been repaved and submit the profile to the district Engineer. The profile of the roadway surface after repaving shall be equal to or smoother than the profile obtained before trench excavation began.
  - The distance from the paved surface to the testing edge of ten-foot long straight edge between two points of contact shall not exceed inch.
- Place all unbound materials in the trench as follows:
  - Compaction by water jetting or ponding is not permitted.
  - All unbound materials, except the permeable base and ASTM C-33 size 67:
    - Place material in accordance with subsection 206.03 (B) Structure and Trench Backfill of the Hawaii Standard Specifications for Road, Bridge, and Public Works Construction.
    - Take one compaction test for 300 lineal feet of trench. Submit compaction test results to The District Engineer.
  - Permeable Base:
    - Place permeable material in uniform horizontal layer not exceeding 9 inches in compacted thickness.
    - Compact each layer with at least 8 passes with a smooth drum vibratory compactor (Rammix) until compacted material is firm and unyielding. Use hand tamper if trench too narrow to accommodate the vibrating plate compactor.
  - ASTM C-33, size 67:
    - Place material in uniform horizontal layer not exceeding 9 inches in loose thickness.
    - Compact each layer with at least 8 passes with a smooth drum vibratory compactor (Rammix) until compacted material is firm and unyielding. Use hand tamper if trench too narrow to accommodate the vibrating plate compactor.



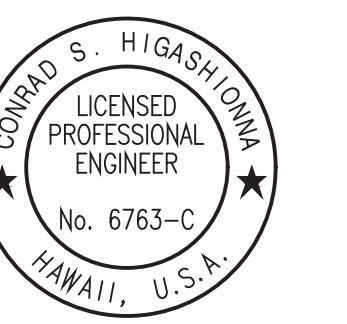
**NOTES**

- The cost for HMA pavement overlay and furnishing/installation of Rapid Repair PG100 shall be incidental to the various contract items and will not be paid for separately.
- The cost for furnishing and installing reinforcing bars and dowels shall be incidental to the 14-inch thick Portland Cement Concrete Pavement and will not be paid for separately.

(for Work within State R/W)  
**ASPHALT/P.C.C. PAVEMENT RESTORATION OVER TRENCH EXCAVATION**  
 No Scale

DATE	BY
	DESIGNED BY
	TRACED BY
	QUANTITIES BY
	CHECKED BY
	NO.

Oct 10, 2024 - 1:55pm  
 C:\Users\higashidoma\Documents\24092404 TSM Phase 2A\ENR\061 P-39 Detail.dwg



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 Conrad Higashidoma

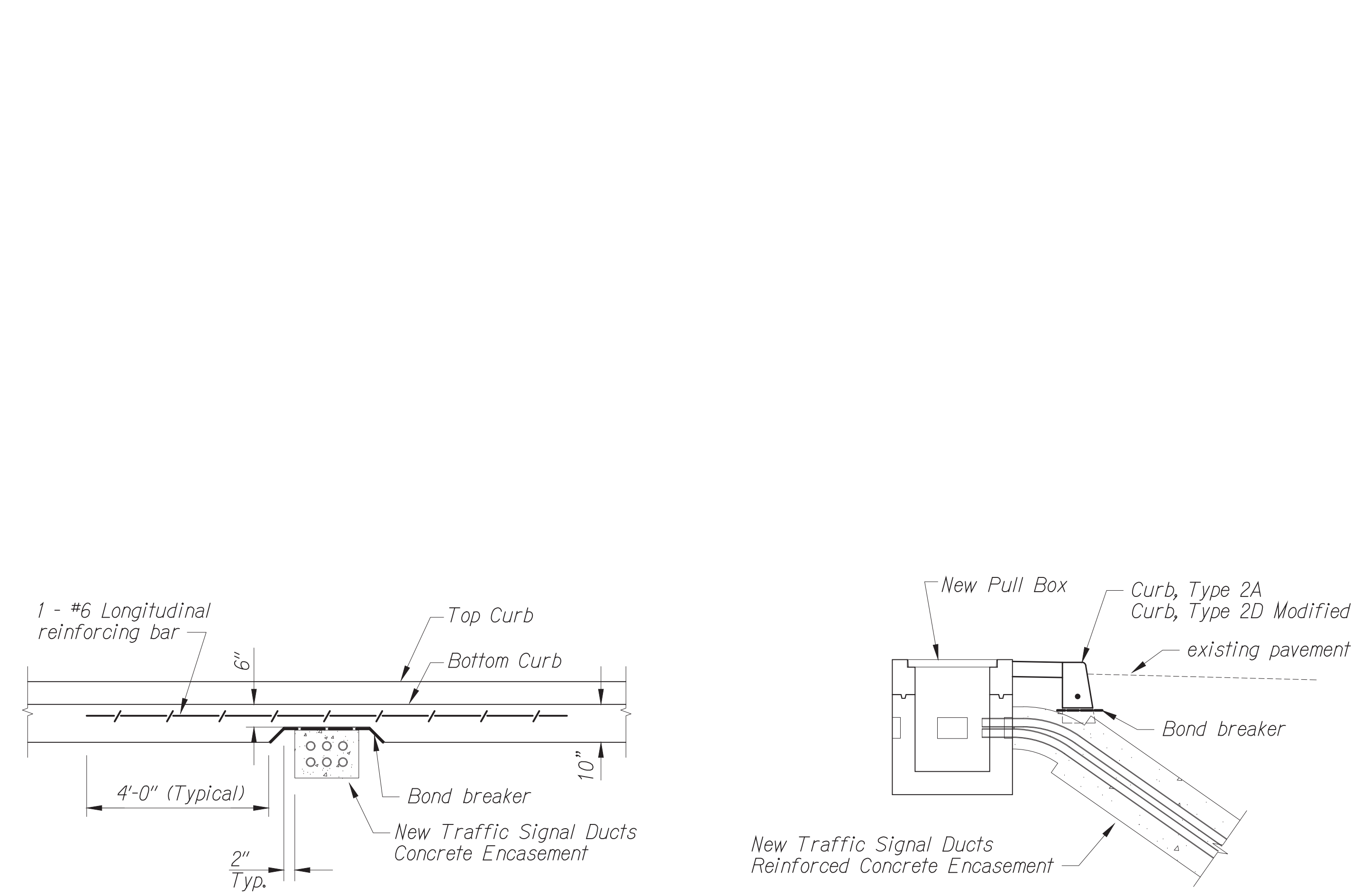
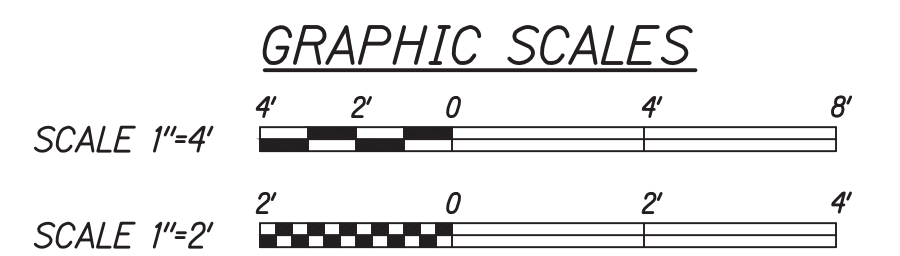
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**ROADWAY PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

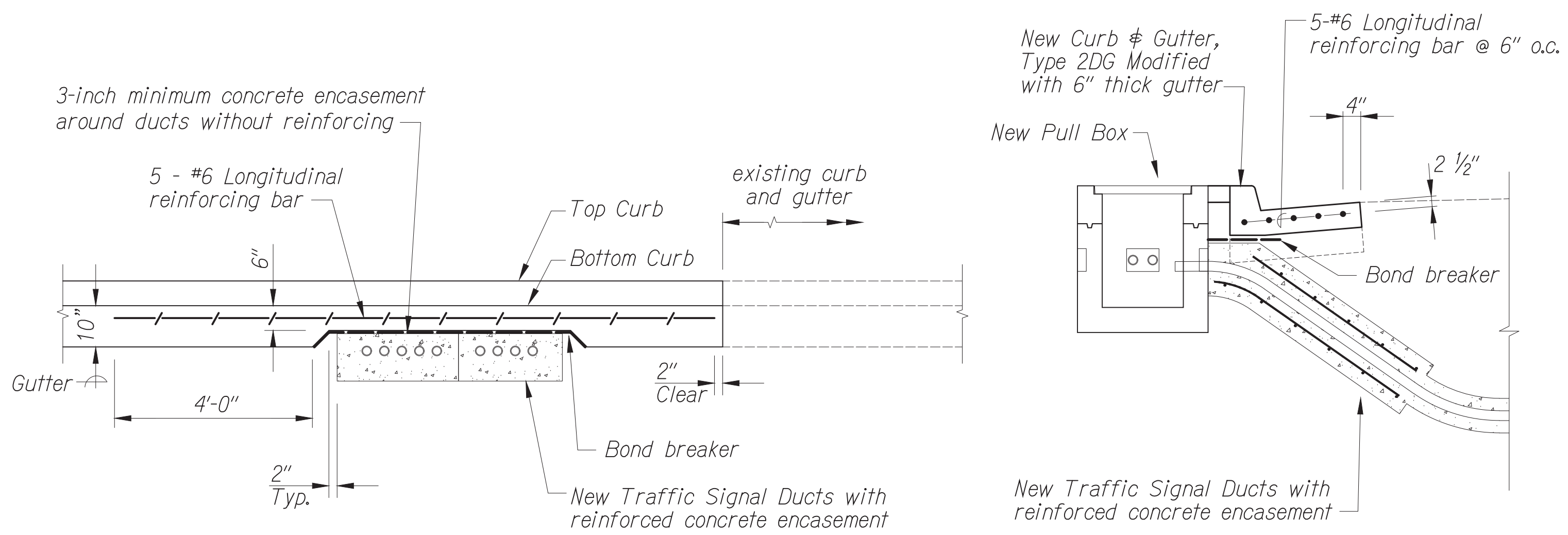
Scale: As noted      Date: August 2024

SHEET No. 39 OF 42 SHEETS

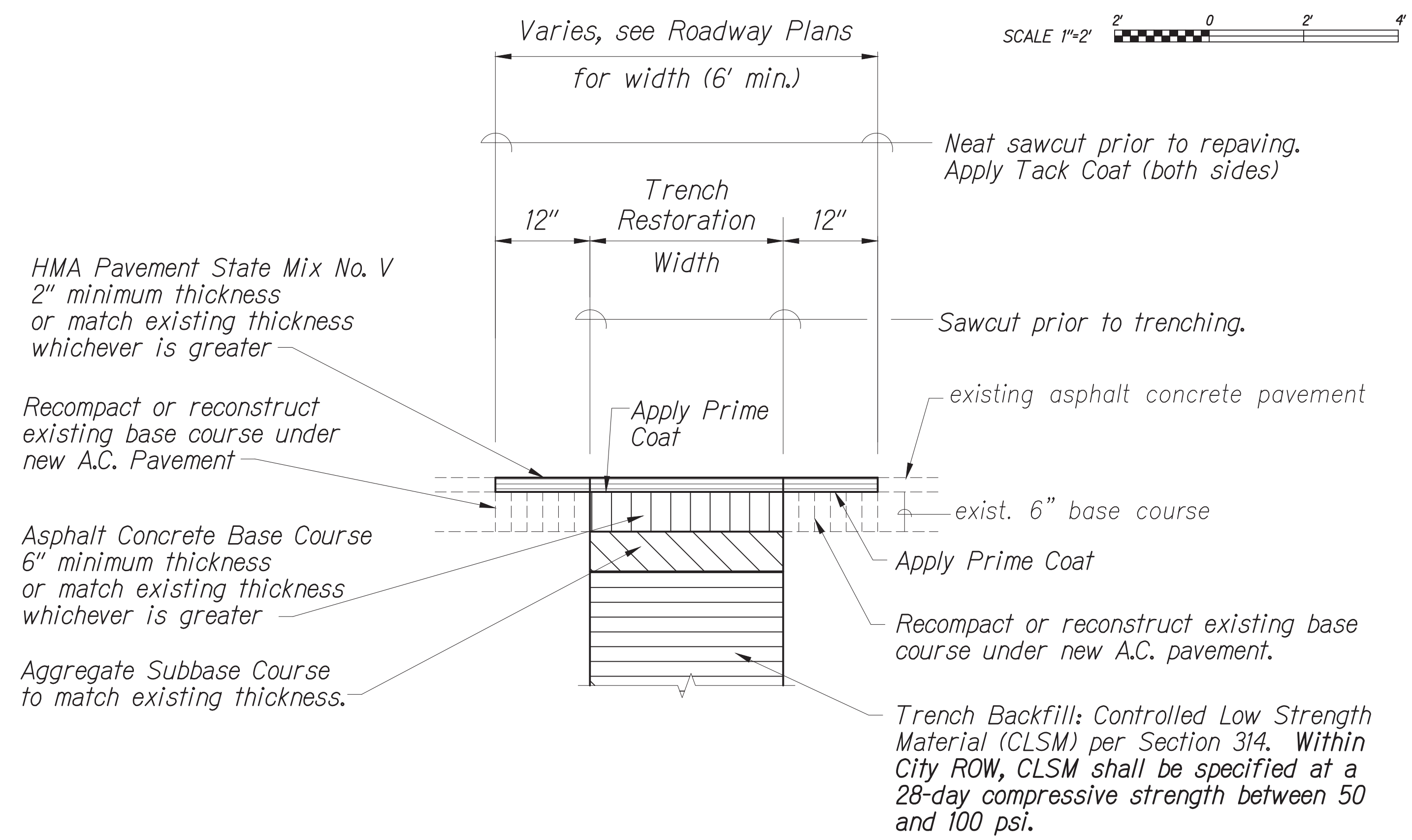
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	62	149



**DETAIL - CURB OVER TRAFFIC SIGNAL DUCT LINE**  
Scale: 1" = 2'



**ELEVATION - CURB & GUTTER OVER DUCT LINE**  
Scale: 1" = 2'



**NOTE**  
Pavement shall be restored to equal or better than original condition in thickness and quality.

**TYPICAL PAVEMENT RESTORATION DETAIL**  
No Scale

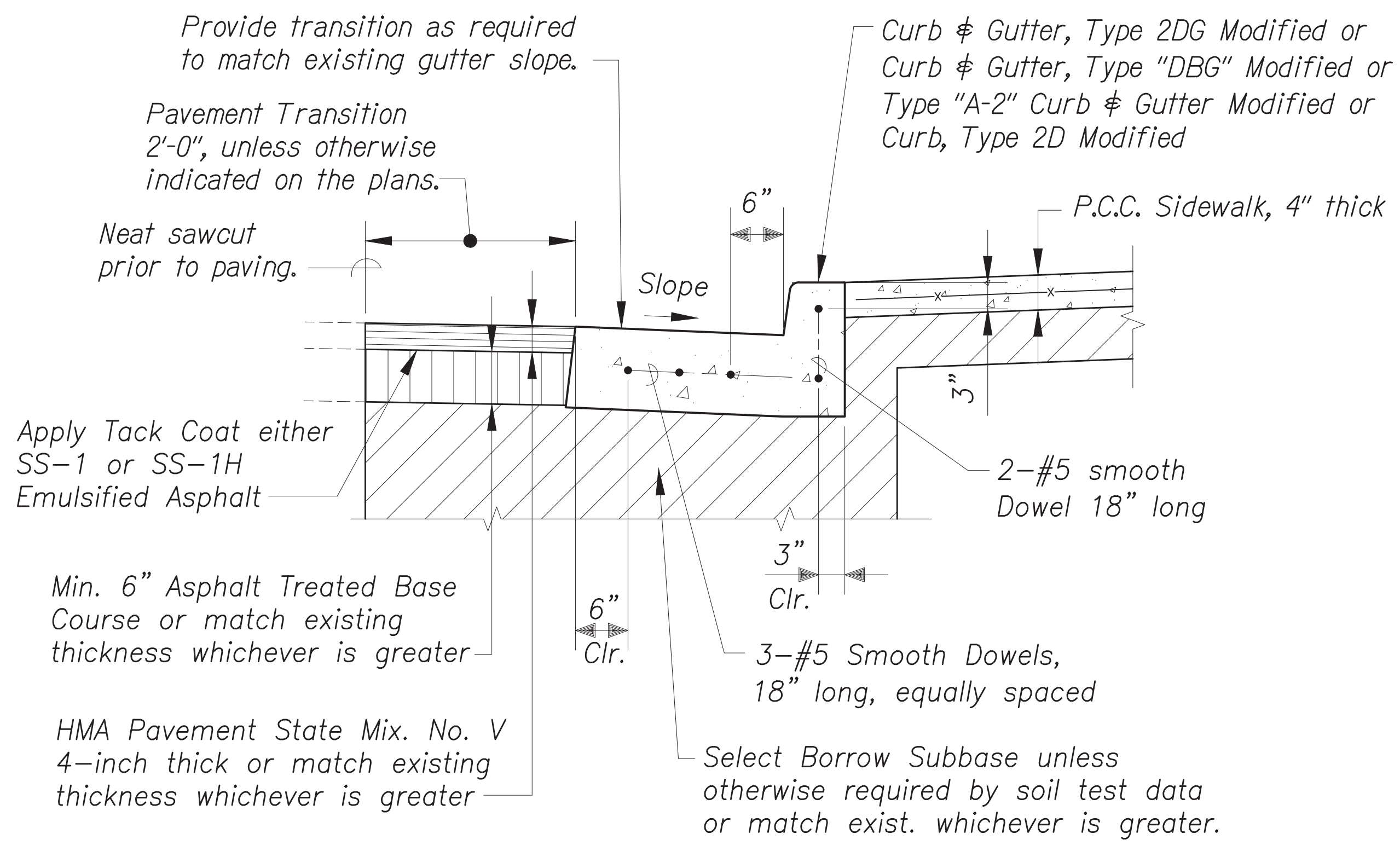
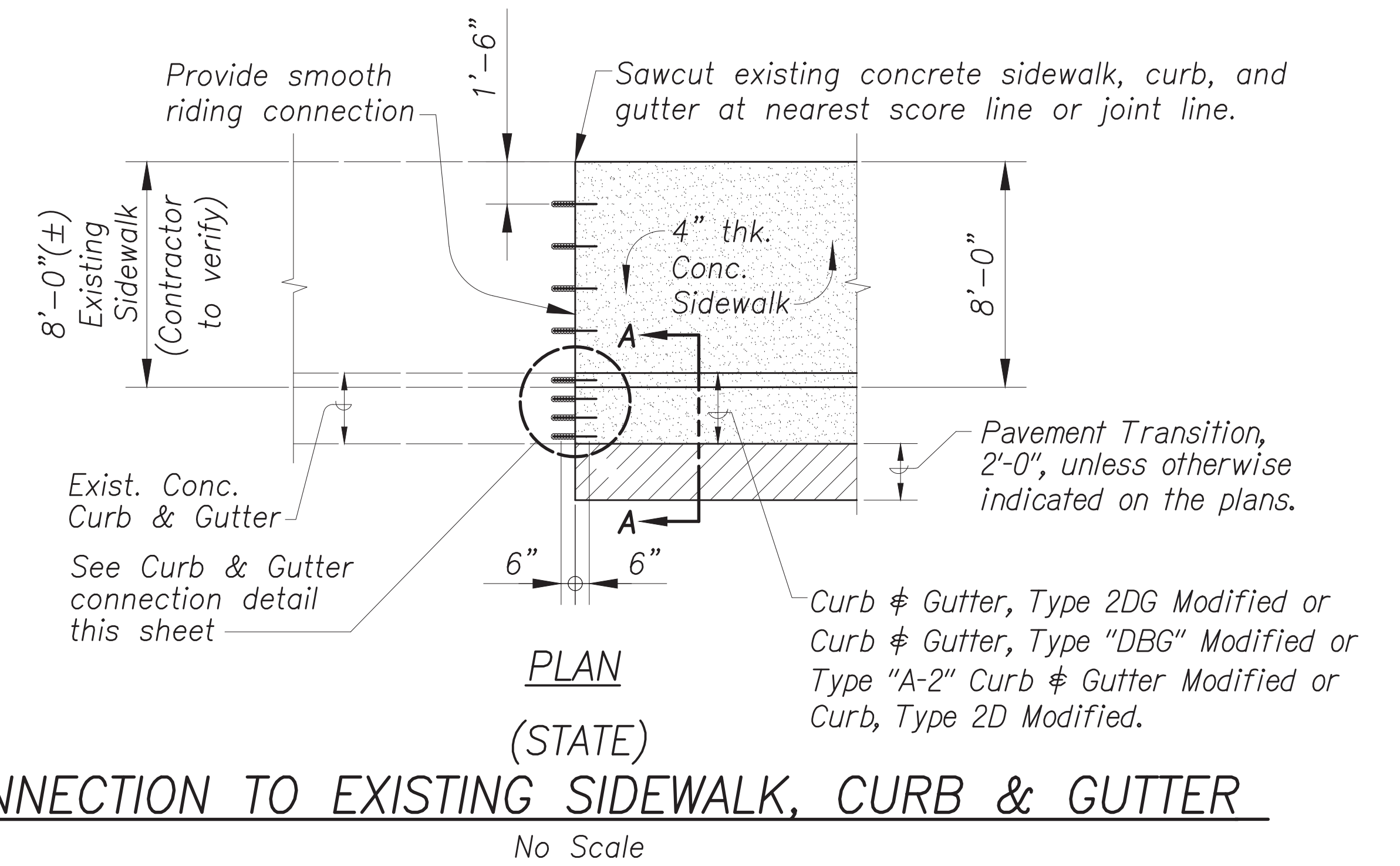
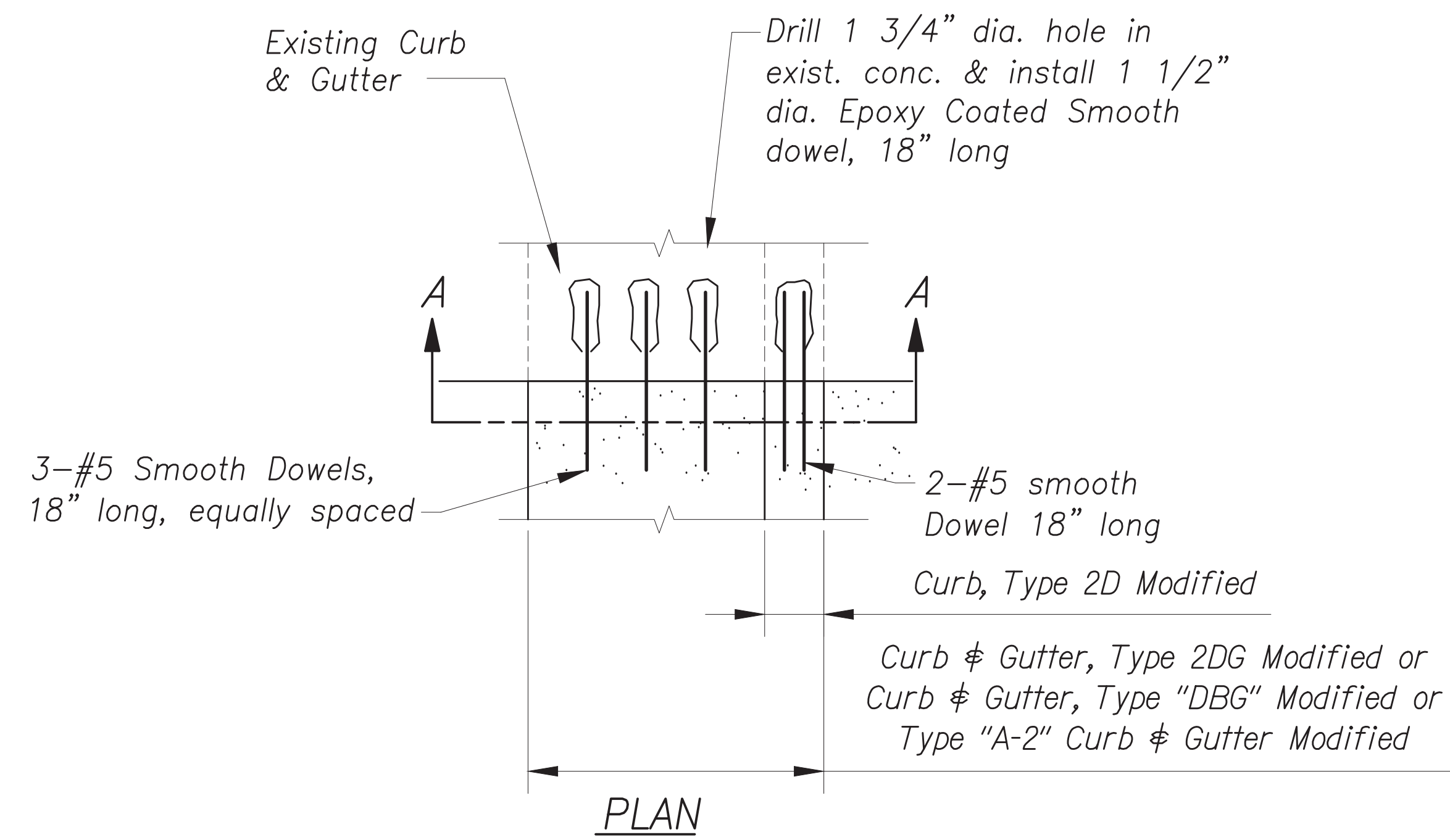
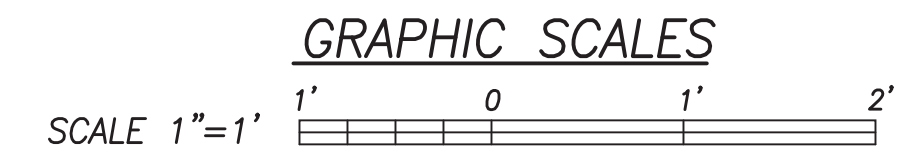
DATE	BY

Oct 10, 2024 - 1:55pm  
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 LICENSED PROFESSIONAL ENGINEER  
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 Conrad Higashioma

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**ROADWAY DETAILS**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024  
 SHEET No. 40 OF 42 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	63	149



**SECTION AA**  
(STATE)  
**CURB & GUTTER CONNECTION DETAILS**  
No Scale

DATE	BY

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C:\Users\jgustafson\OneDrive\Documents\2024\2024 STP Phase 2A\ENR\003 R=41 Details.dwg

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*Conrad Higashiyama*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**ROADWAY PLAN**

**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

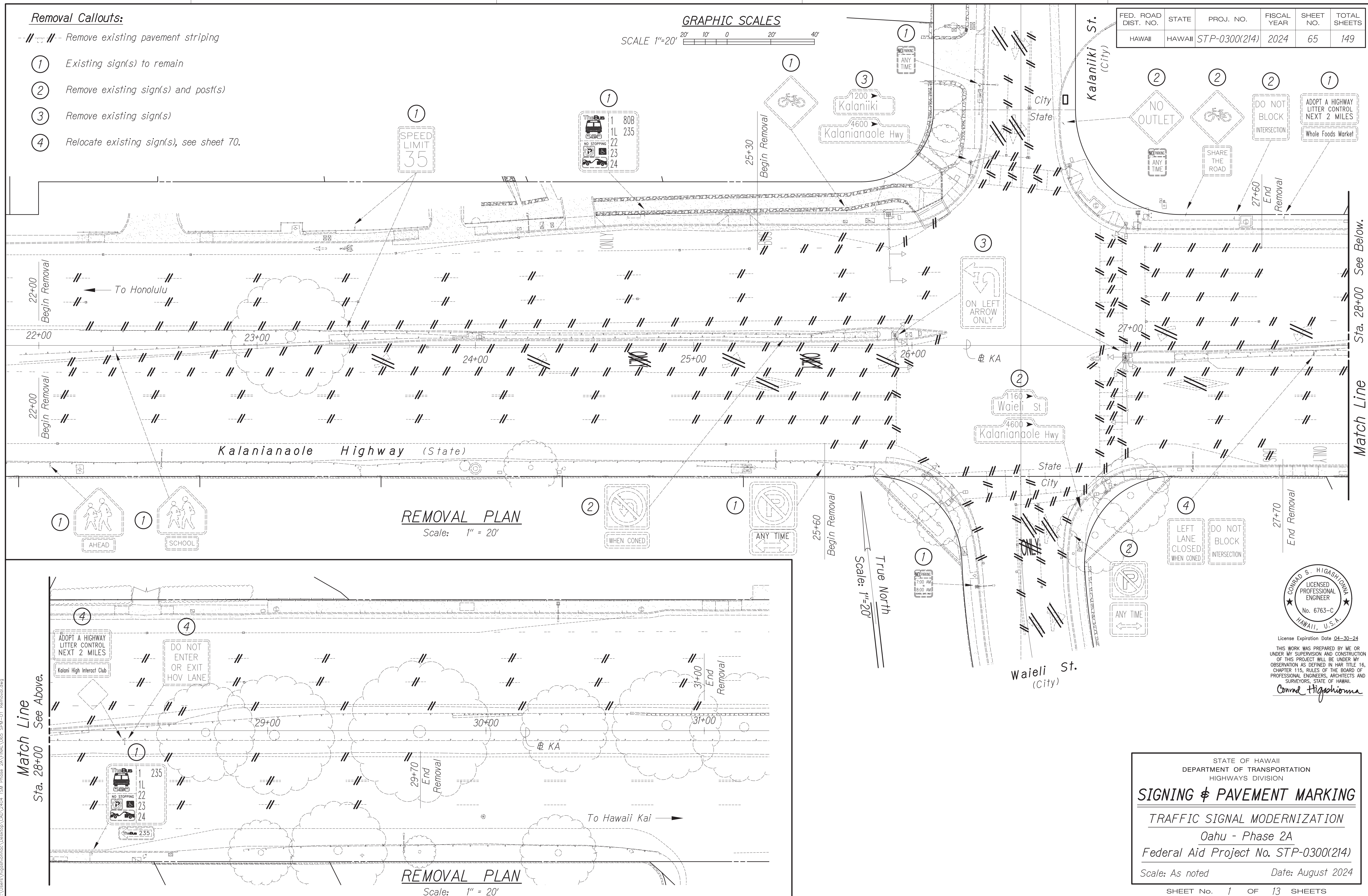
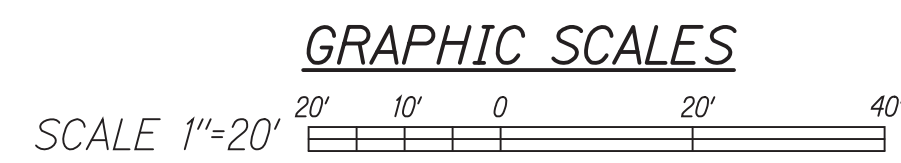
SHEET No. 41 OF 42 SHEETS





FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	65	149

- Removal Callouts:**
- //-- Remove existing pavement striping
  - ① Existing sign(s) to remain
  - ② Remove existing sign(s) and post(s)
  - ③ Remove existing sign(s)
  - ④ Relocate existing sign(s), see sheet 70.

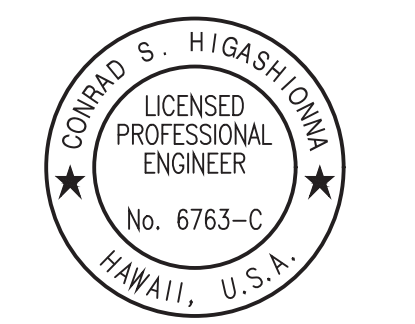


DATE	BY

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

ORIGINAL PLAN  
 NOTE BOOK  
 No.

Oct. 10, 2024 - 1:56pm  
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Conrad Higashidonna

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**SIGNING & PAVEMENT MARKING**

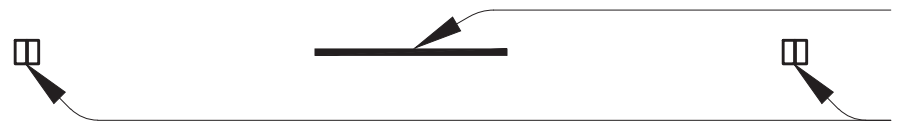





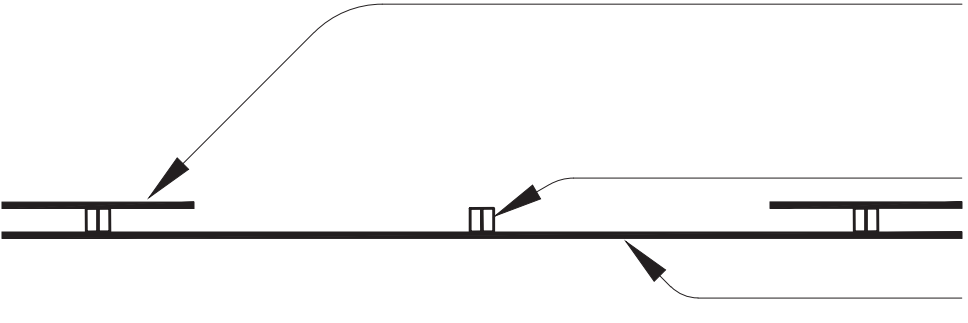
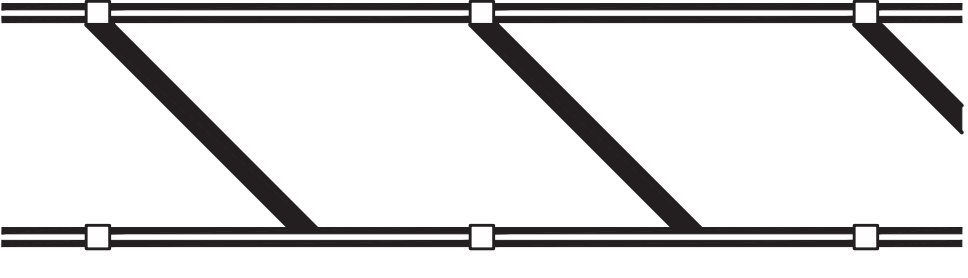
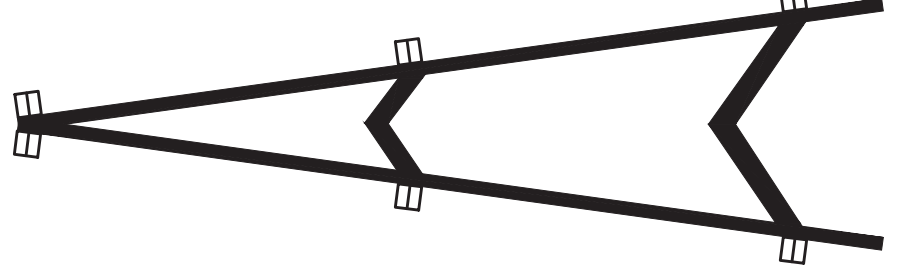

TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

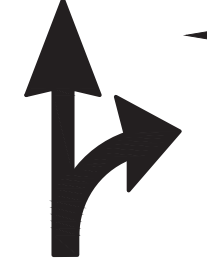


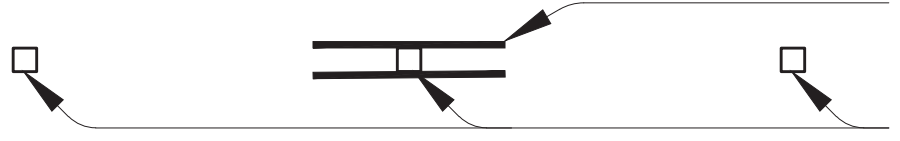

SHEET No. 1 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	66	149

### LEGEND

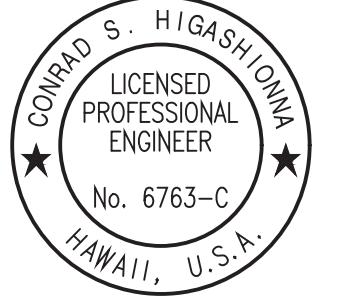
-  10' White Profiled Thermoplastic Stripe  
Type "C" Raised Pavement Markers @ 40'-0" o.c.
-  8" White Stripe with Type "C" Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
-  4" Double Solid Yellow with Type "D" Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
-  4" Double Solid Yellow with Type "H" Raised Pavement Markers @ 20'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
-  6" Yellow Edge Stripe with Type "H" Raised Pavement Markers @ 40'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
-  6" or 8" White Edge Stripe with Type "C" Raised Pavement Markers @ 40'-0" o.c. (Tape, Type I or Thermoplastic Extrusion)
-  Lane Change Restriction Marking  
10' White Profiled Thermoplastic Stripe  
Type C Raised Pavement Markers @ 20' o.c.  
4" White Stripe (Tape, Type I or Thermoplastic Extrusion)
-  Transverse Median Marking (Tape, Type III or Thermoplastic Extrusion)
-  Channelizing Island or Deceleration Lane Gore (Tape, Type III or Thermoplastic Extrusion)
-  2  
Crosswalk and Stop Line. All stop lines shall be 10'-0" from crosswalk unless otherwise noted. The number indicates the number of lanes for payment. (Tape, Type III or Preformed Thermoplastic)

### LEGEND (continued)

-  Pavement Arrow (Tape, Type III or Preformed Thermoplastic)
-  ONLY  
Pavement Word (Tape, Type III or Preformed Thermoplastic)
-  4" White or Yellow Guide Lines (Tape, Type I or Thermoplastic Extrusion)
-  10' Double Yellow Profiled Thermoplastic Stripe  
Type "D" Raised Pavement Markers @ 20'-0" o.c.
-  Elongated HOV Lane Diamond (Tape, Type I or Thermoplastic Extrusion)

DATE	BY

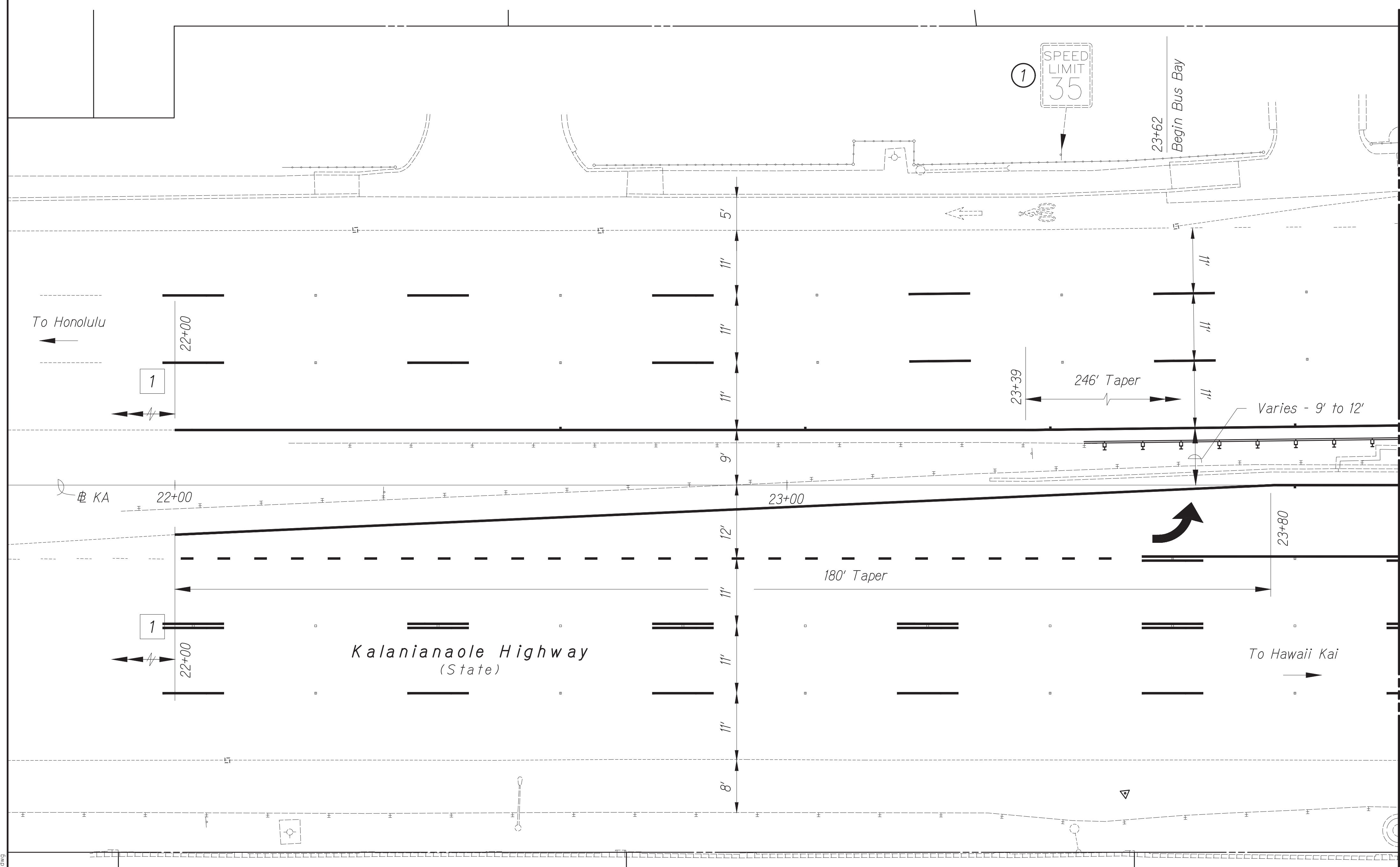
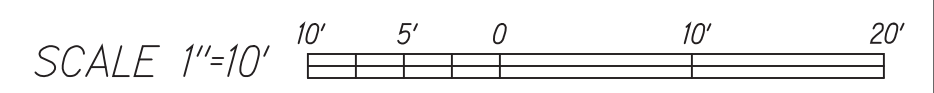
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*Conrad Higashimura*

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**SIGNING & PAVEMENT MARKING**  
 TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024  
 SHEET No. 2 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	67	149

**GRAPHIC SCALES**



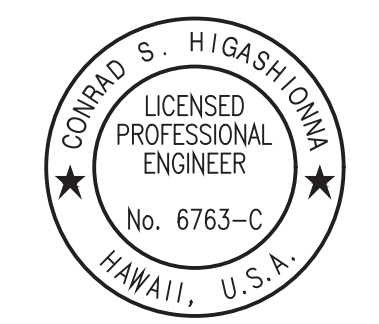
**KEY:**  
 ① Existing sign(s) to remain

**Notes:**  
 1 Tie into existing pavement markings.

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

Oct 10, 2024 - 1:56pm  
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**PLAN - 1**  
 Scale: 1" = 10'



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 Conrad Higashidoma

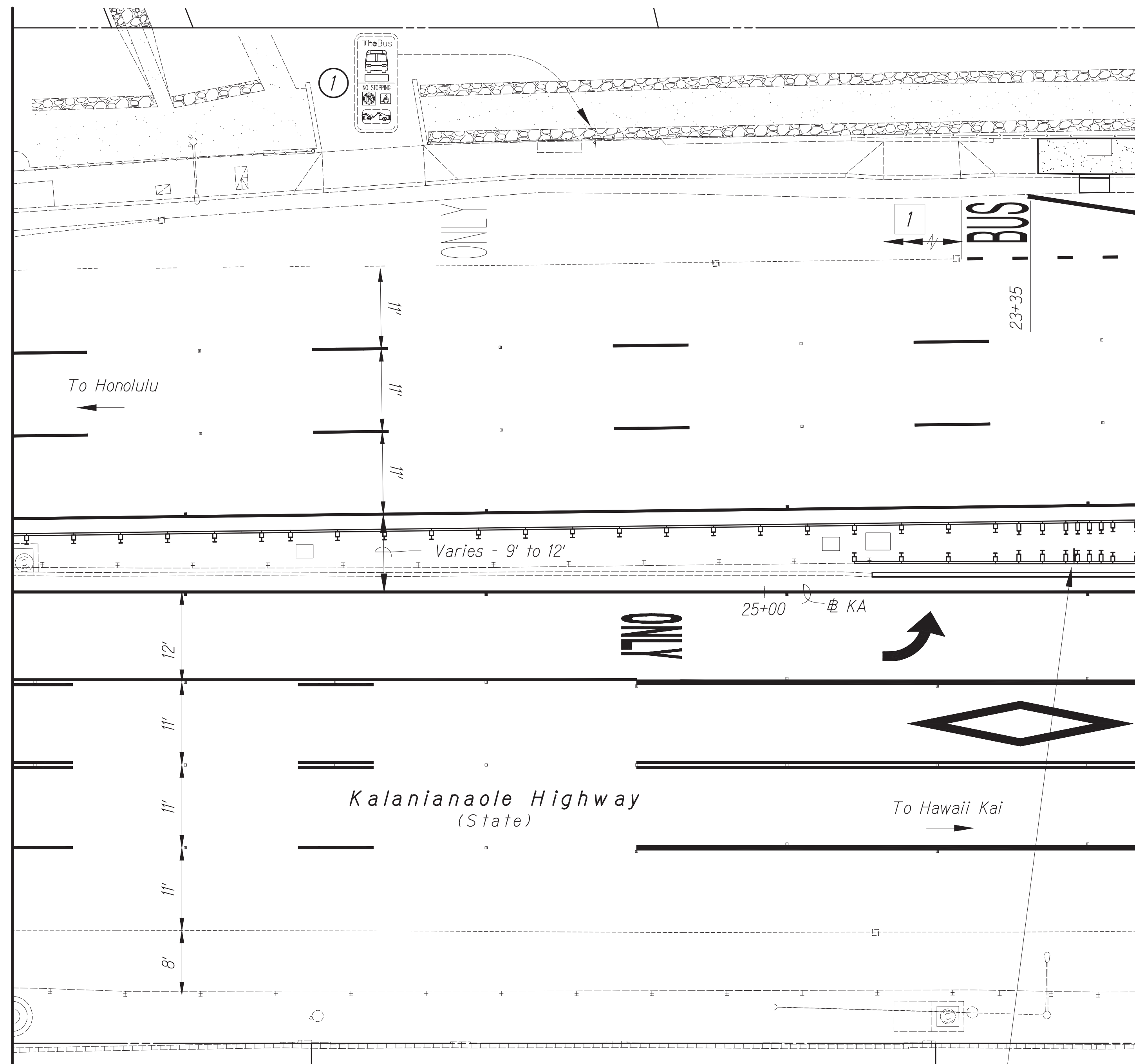
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**SIGNING & PAVEMENT MARKING**

TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

True North  
Scale: 1"=10'



Match Line  
Sta. 24+00  
See sheet 67.

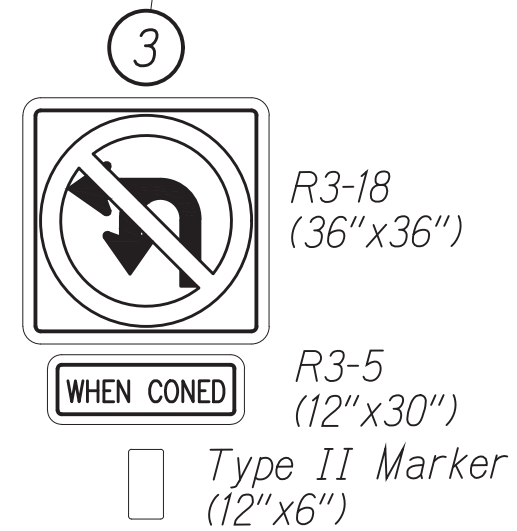
Match Line  
Sta. 25+50  
See sheet 69.

**Notes:**

- 1 Tie into existing pavement markings.

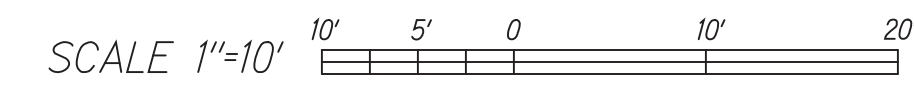
**KEY:**

- ① Existing sign(s) to remain
- ③ Install new sign(s) with post(s).



**PLAN - 2**  
Scale: 1" = 10'

**GRAPHIC SCALES**

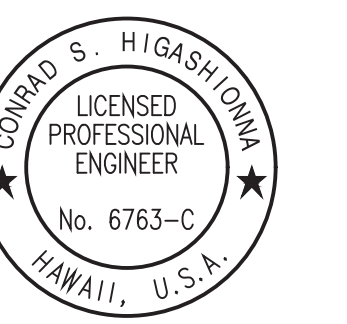


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	68	149

Curve Data						
Curve	①	②	③	④	⑤	⑥
Δ	8° 20' 00"	82° 30' 00"	92° 00' 00"	22° 46' 20"	137° 37' 00"	19° 36' 40"
Δ/2	4° 10' 00"	4° 15' 00"	46° 00' 00"	11° 23' 10"	68° 48' 30"	9° 48' 20"
R	387.00'	45.00'	40.00'	45.00'	3.00'	50.00'
T	28.19'	39.46'	41.42'	9.06'	7.73'	8.64'
Ch	56.24'	59.34'	57.55'	17.77'	5.59'	7.03'
Lc	56.29'	64.80'	64.23'	17.89'	7.20'	17.11'
Curve	⑦	⑧	⑨	⑩	⑪	⑫
Δ	61° 00' 00"	25° 00' 00"	82° 02' 30"	23° 26' 20"	137° 37' 00"	13° 06' 40"
Δ/2	30° 30' 00"	12° 30' 00"	41° 01' 15"	11° 43' 10"	68° 48' 30"	6° 33' 20"
R	35.00'	80.00'	40.00'	45.00'	3.00'	50.00'
T	20.62'	17.74'	38.99'	9.34'	7.73'	8.64'
Ch	35.61'	34.63'	55.84'	18.28'	5.59'	17.03'
Lc	37.26'	34.91'	61.81'	18.41'	7.20'	17.11'

DATE	BY

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Conrad Higashimura

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGNING & PAVEMENT MARKING**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

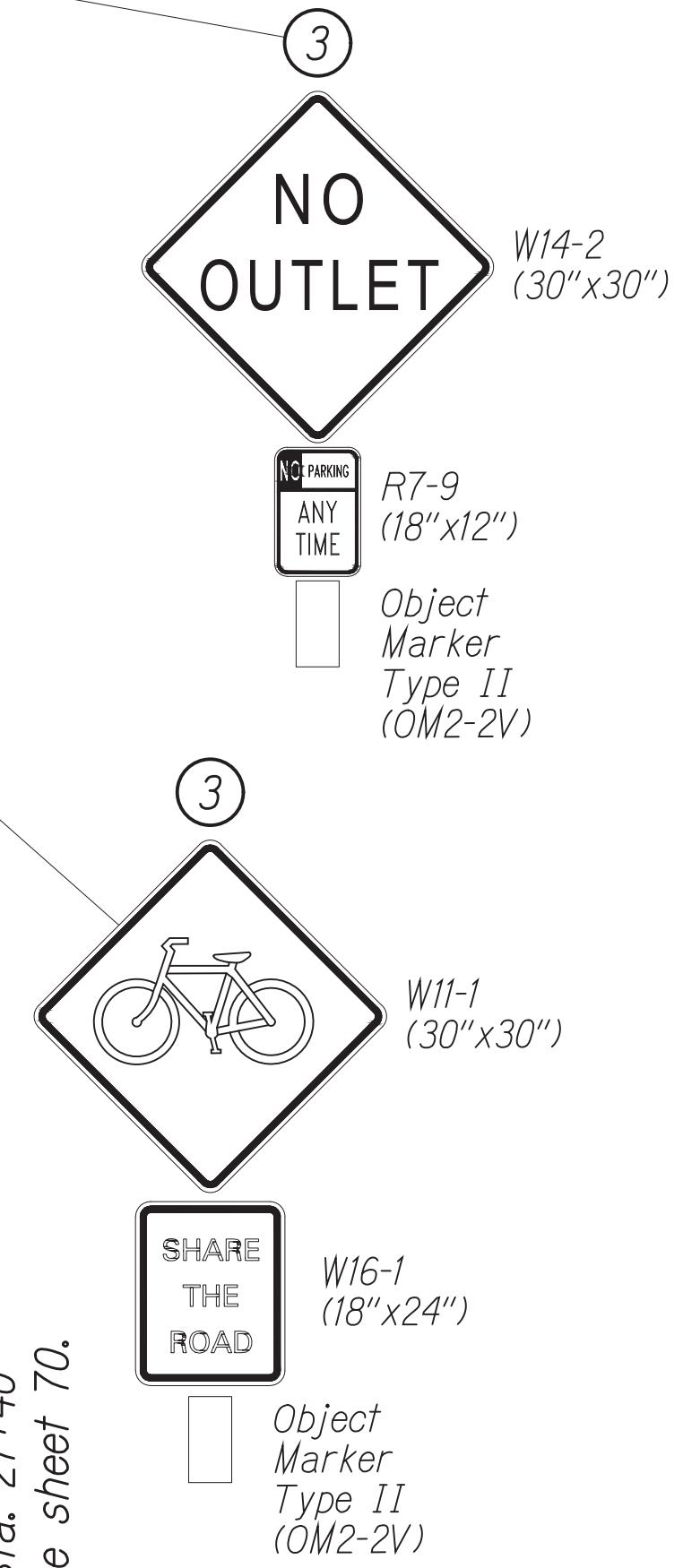
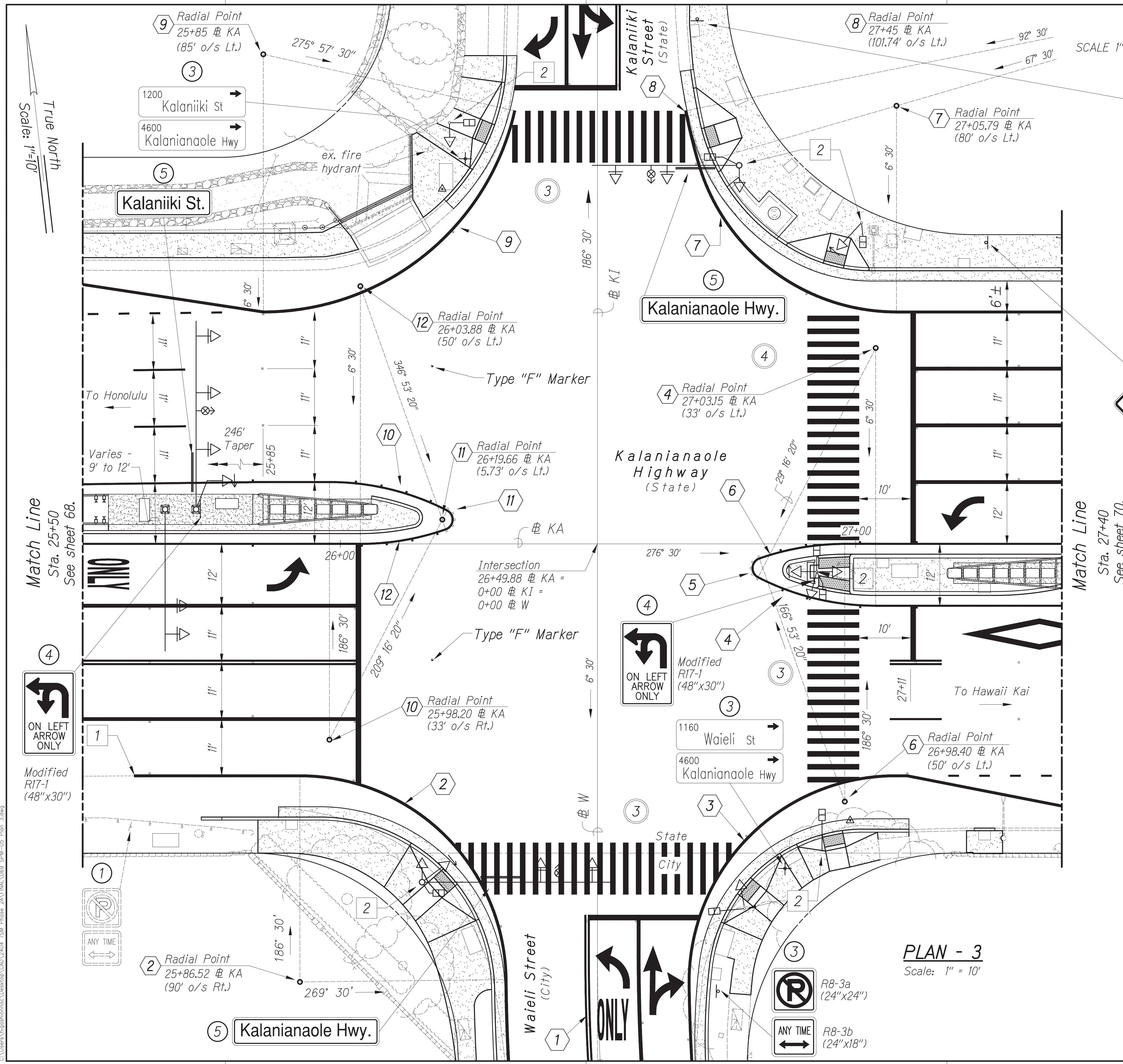
Scale: As noted      Date: August 2024

SHEET No. 4 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	69	149

- KEY:**
- ① Existing sign(s) to remain.
  - ② Install existing sign(s) on new post(s).
  - ③ Install new sign(s) with post(s).
  - ④ Install new sign on new traffic signal standard pole.
  - ⑤ Install new street name sign on new traffic signal standard mast arm.

- Notes:**
- ② Install Type II Object Marker on pole.



CONRAD S. HIGASHIOWA  
LICENSED PROFESSIONAL ENGINEER  
No. 6763-C  
HAWAII, U.S.A.  
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Conrad Higashiomma

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGNING & PAVEMENT MARKING**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 5 OF 13 SHEETS

ORIGINAL PLAN No.	DATE

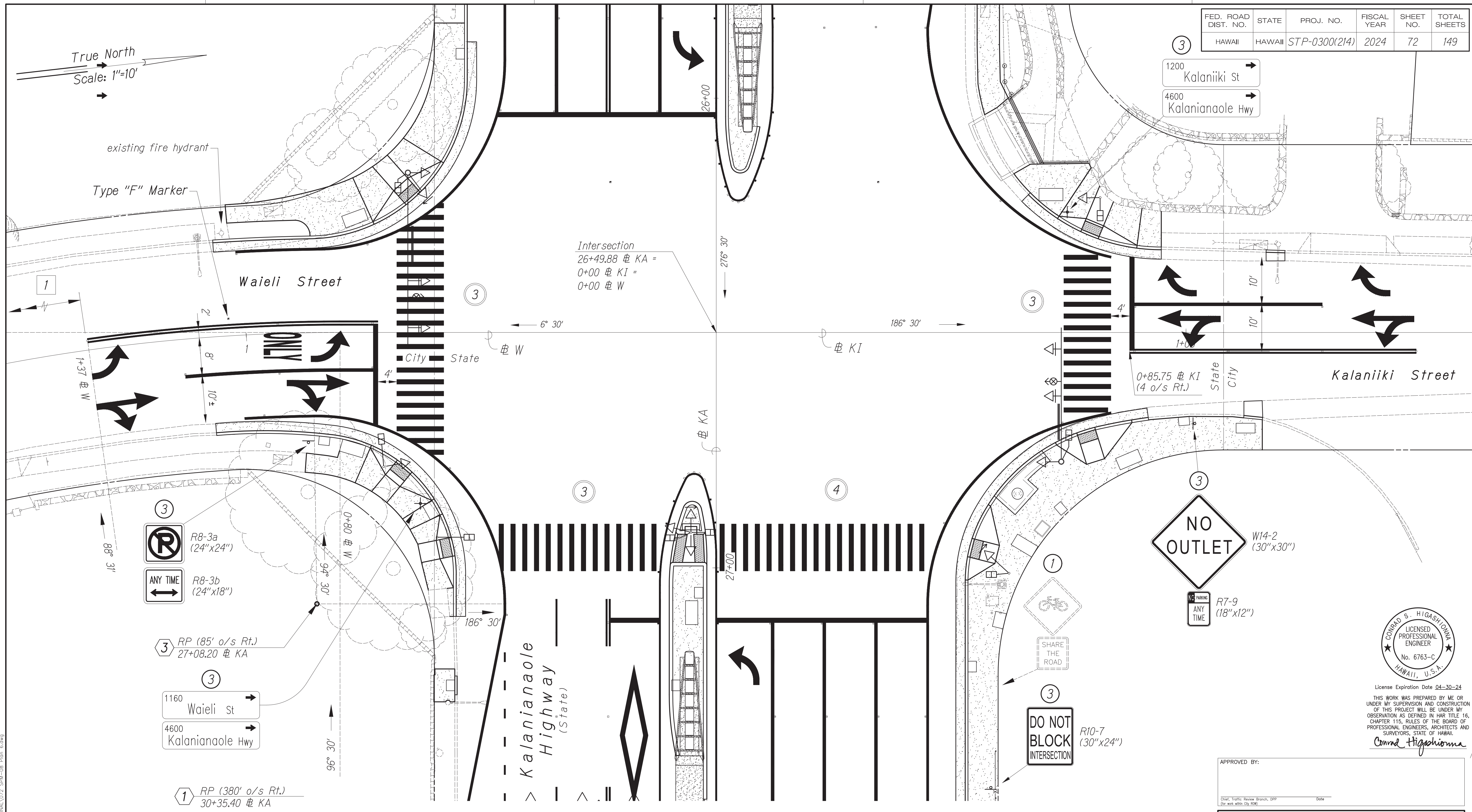
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	72	149



True North  
Scale: 1"=10'

existing fire hydrant  
Type "F" Marker

Intersection  
26+49.88 @ KA =  
0+00 @ KI =  
0+00 @ W

1200  
Kalaniki St  
4600  
Kalaniana'ole Hwy

R8-3a  
(24"x24")  
R8-3b  
(24"x18")  
ANY TIME

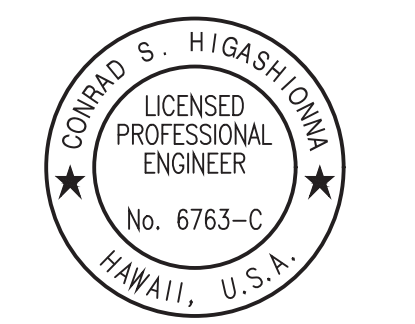
RP (85' o/s Rt.)  
27+08.20 @ KA

1160  
Waieli St  
4600  
Kalaniana'ole Hwy

RP (380' o/s Rt.)  
30+35.40 @ KA

NO OUTLET  
W14-2  
(30"x30")  
R7-9  
(18"x12")  
ANY TIME

DO NOT BLOCK INTERSECTION  
R10-7  
(30"x24")



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Conrad Higashimura

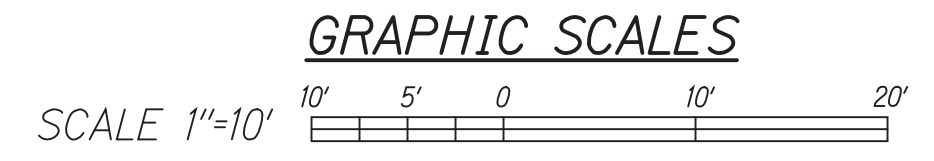
APPROVED BY: \_\_\_\_\_  
Date: \_\_\_\_\_

**KEY:**

- ① Existing sign(s) to remain
- ② Install existing street name sign(s) mounted onto new traffic signal standard pole
- ③ Install new sign(s) with post(s)

**Notes:**

- ① Tie into existing pavement markings.



PLAN - 6  
Scale: 1" = 10'

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGNING & PAVEMENT MARKING**

TRAFFIC SIGNAL MODERNIZATION  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 8 OF 13 SHEETS

DATE	BY

DATE

BY

DATE

BY

DATE

BY

DATE

BY

DATE

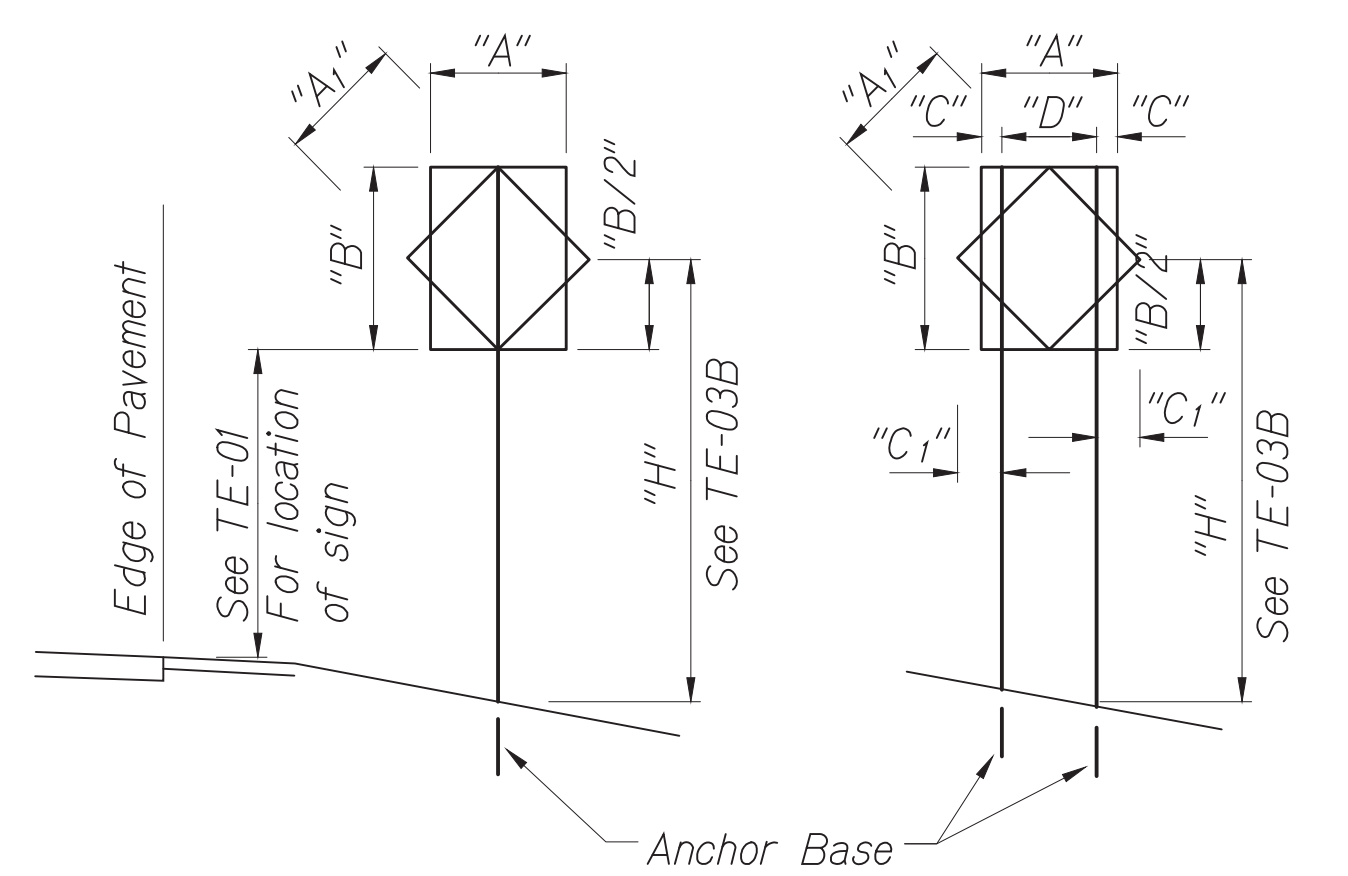
BY

Oct 10, 2024 - 1:57pm  
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	73	149

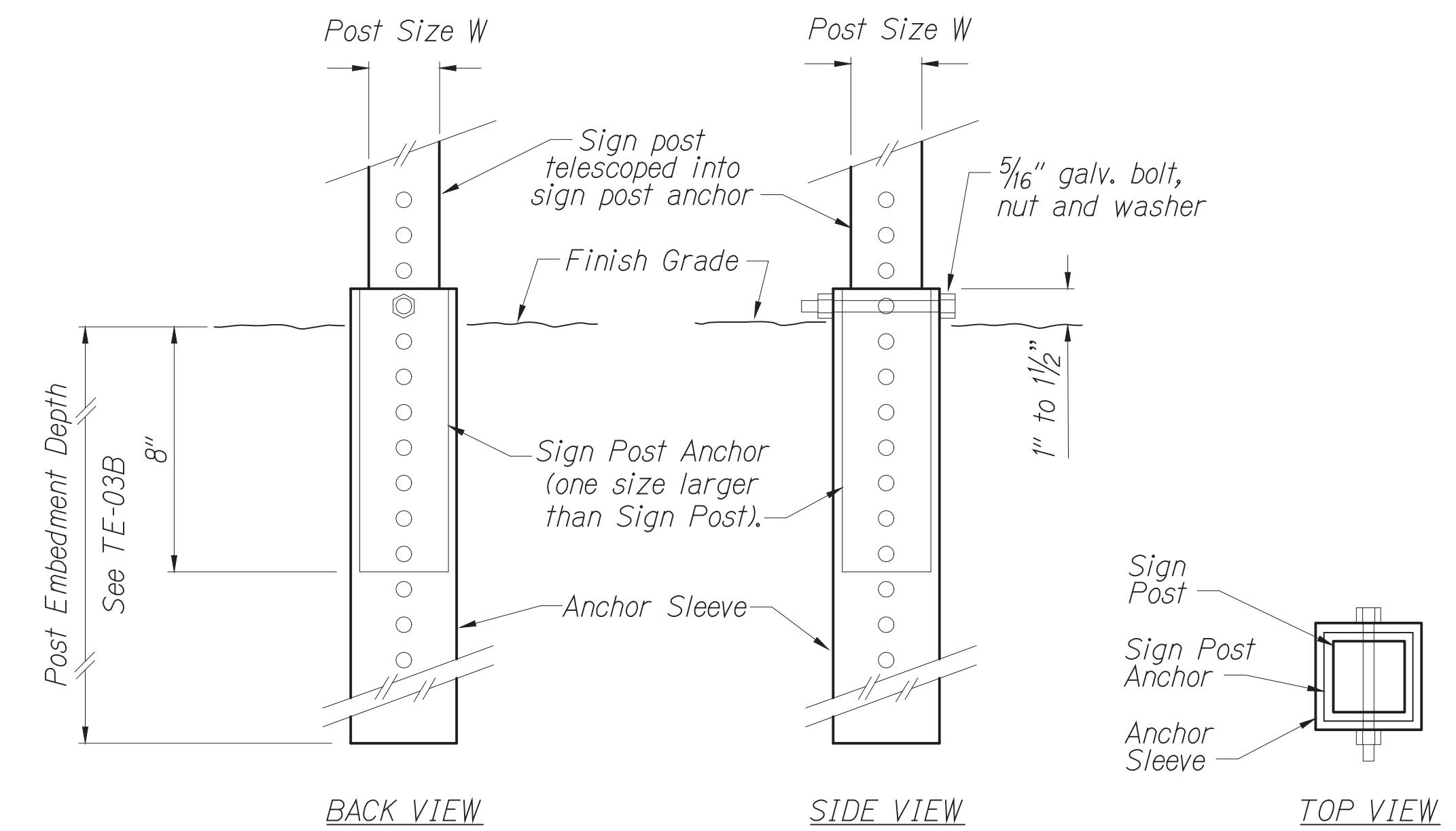
**Notes:**

- Layout of pavement markings and striping shall be done by the Contractor and approved by the Engineer prior to any installation work.
- Existing pavement markings not incorporated in the final traffic pattern shall be removed as directed by the Engineer. Costs shall be incidental to the various pavement marking items.
- Raised pavement markers shall not be installed within crosswalks.
- Final locations of all signs shall be approved by the Engineer prior to any installation work.
- Existing signs 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.
- Final locations of all Stop Lines shall be approved by the Engineer prior to installation.
- All pavement striping shall be as noted on the legend or plans.
- All preformed pavement marking tapes over existing pavement shall be applied with an approved primer as recommended by the tape manufacturer and as approved by the Engineer. The primer shall be allowed to dry to the tacky stage prior to tape applications.
- All pedestrian warning signs with supplemental sign shall be on a fluorescent yellow-green retroreflective background with a black legend and border.
- The Contractor shall install preformed thermoplastic pavement markings per the manufacturer's recommendations.

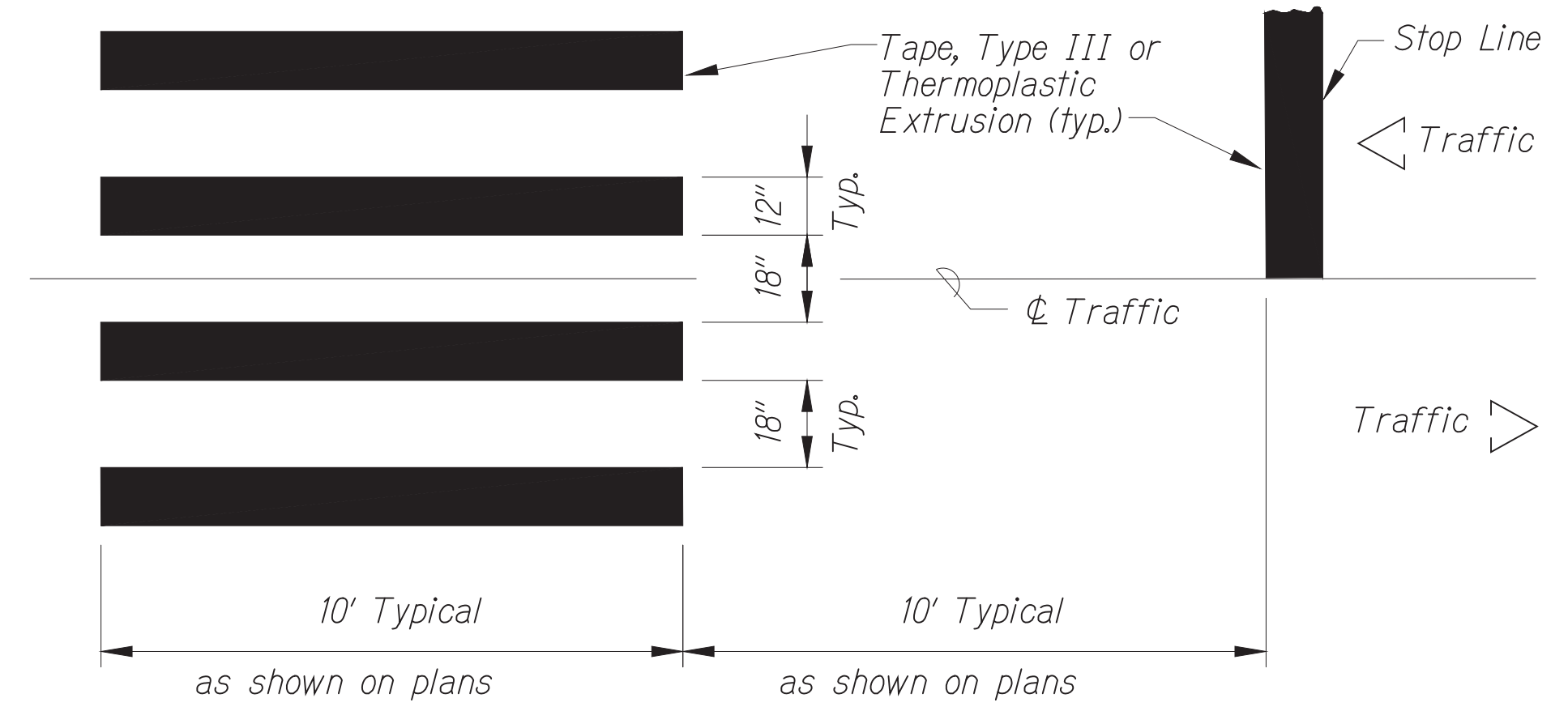


"A" or "A <sub>1</sub> "	"C"	"C <sub>1</sub> "
Less than 36"	6"	-
Greater than 36" and less than 48"	9"	19"
Greater than 48"	12"	24"

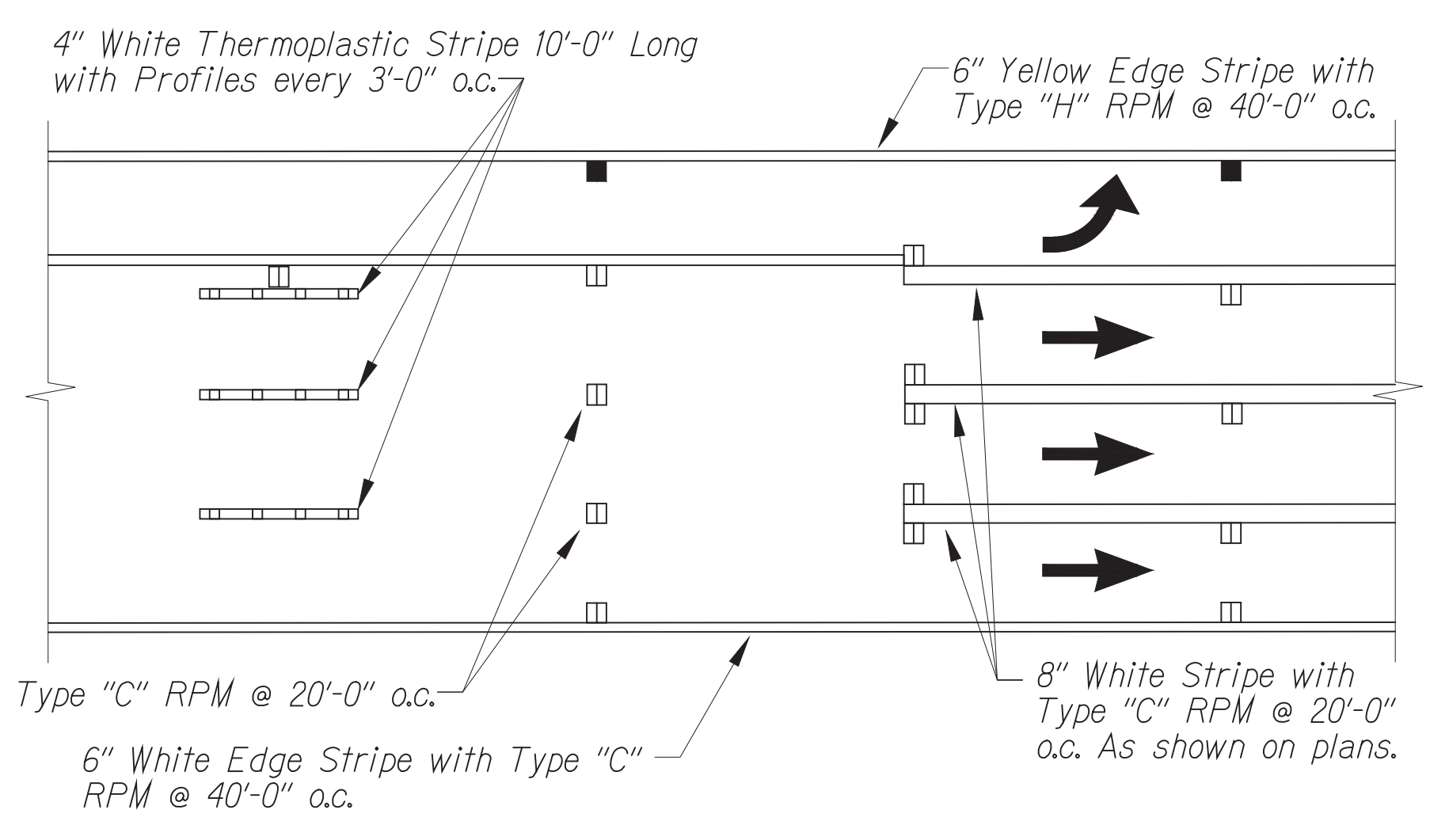
NOTE:  
Frame stiffeners are required when D is greater than 24". See General Notes.



**SIGN POST INSTALLATION**  
**ANCHOR BASE DETAIL**



**CROSSWALK STRIPING DETAIL**  
Not to Scale



**LANE LINE PAVEMENT MARKINGS**  
No Scale

**TYPICAL INSTALLATION**

**General Notes:**

- Design Specifications:
  - (A) Design shall conform w/ the latest AASHTO Standard Specifications for the Structural Supports for Highway Signs, Luminaires & Traffic Signals and its interim supplements and modifications by the Highways Division, Department of Transportation State of Hawaii.
  - (B) Latest HDOT Memorandum with subject title "Design Criteria for Bridges and Structures."
  - (C) All connection bolts shall be AASHTO M164 bolts and anchor bolts shall be AASHTO M314-105 bolt. (D) Lap splice nuts and bolts shall be M180, with an ultimate tensile strength of 180 ksi, min. (E) Aluminum members and surfaces in contact with structural steel shall be isolated with neoprene material as approved by the Engineer.
- Loads:
  - (A) Basic Wind Speed: 105 mph.
  - (B) Recurrence Interval of 10 years.
- Materials:
  - (A) Post shall conform to the Standard Specifications.
  - (B) All posts shall be 12 gage unless otherwise specified or shown on the plans.
  - (C) Square tube posts shall be perforated with 7/16" ø holes, 1" o.c., 4 sides, along entire length of post.
  - (D) All accessories, fittings and stiffener details (as required) shall be submitted to the Engineer for approval 20 days prior to installation.
  - (E) Alternate designs in accordance with the plans and specifications shall use the Service Load Design Method and shall be stamped by a registered structural engineer of the State of Hawaii and submitted to the Engineer for approval.
  - (F) All sign support posts shall be outside of the clear zone or shielded by an appropriate traffic barrier system. The traffic barrier system shall be submitted to the Engineer for his approval.
  - (G) The Contractor shall use templates while installing the anchor bolts. Anchor bolts shall be vertical.
  - (H) Excavation and backfill shall be considered incidental to the cost of the sign foundation.
- General:
  - (A) See General Notes on B-01, TE-01, and TE-03B for additional information.

**GALVANIZED SQUARE TUBE SIGN POST MOUNTING**

No Scale

DATE	BY
DATE	BY
DATE	BY
DATE	BY
DATE	BY

CONRAD S. HIGASHIYAMA  
LICENSED PROFESSIONAL ENGINEER  
No. 6763-C  
HAWAII, U.S.A.  
License Expiration Date 04-30-24

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Conrad Higashiyama

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGNING & PAVEMENT MARKING**

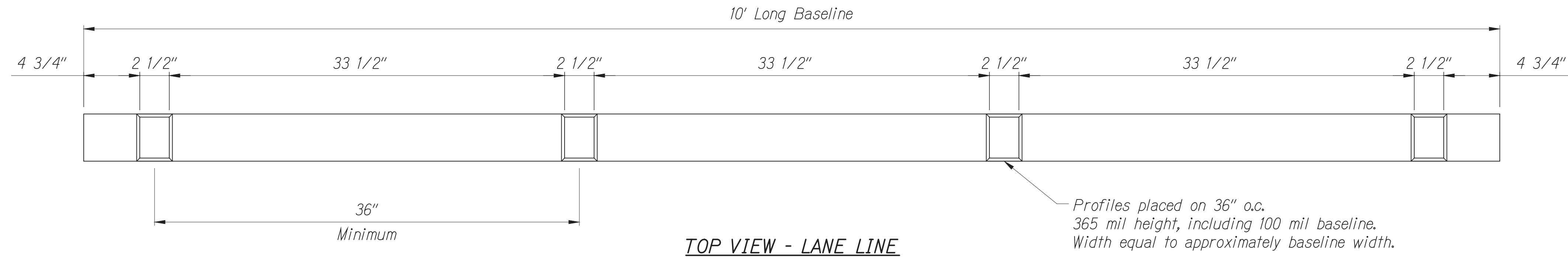
**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

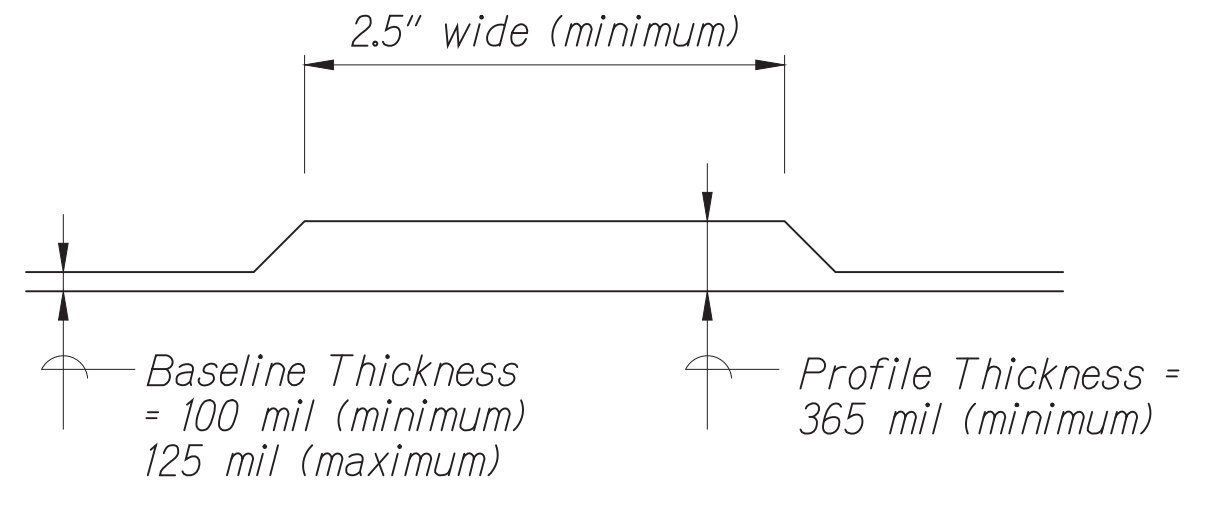
Scale: As noted Date: August 2024

SHEET No. 9 OF 13 SHEETS

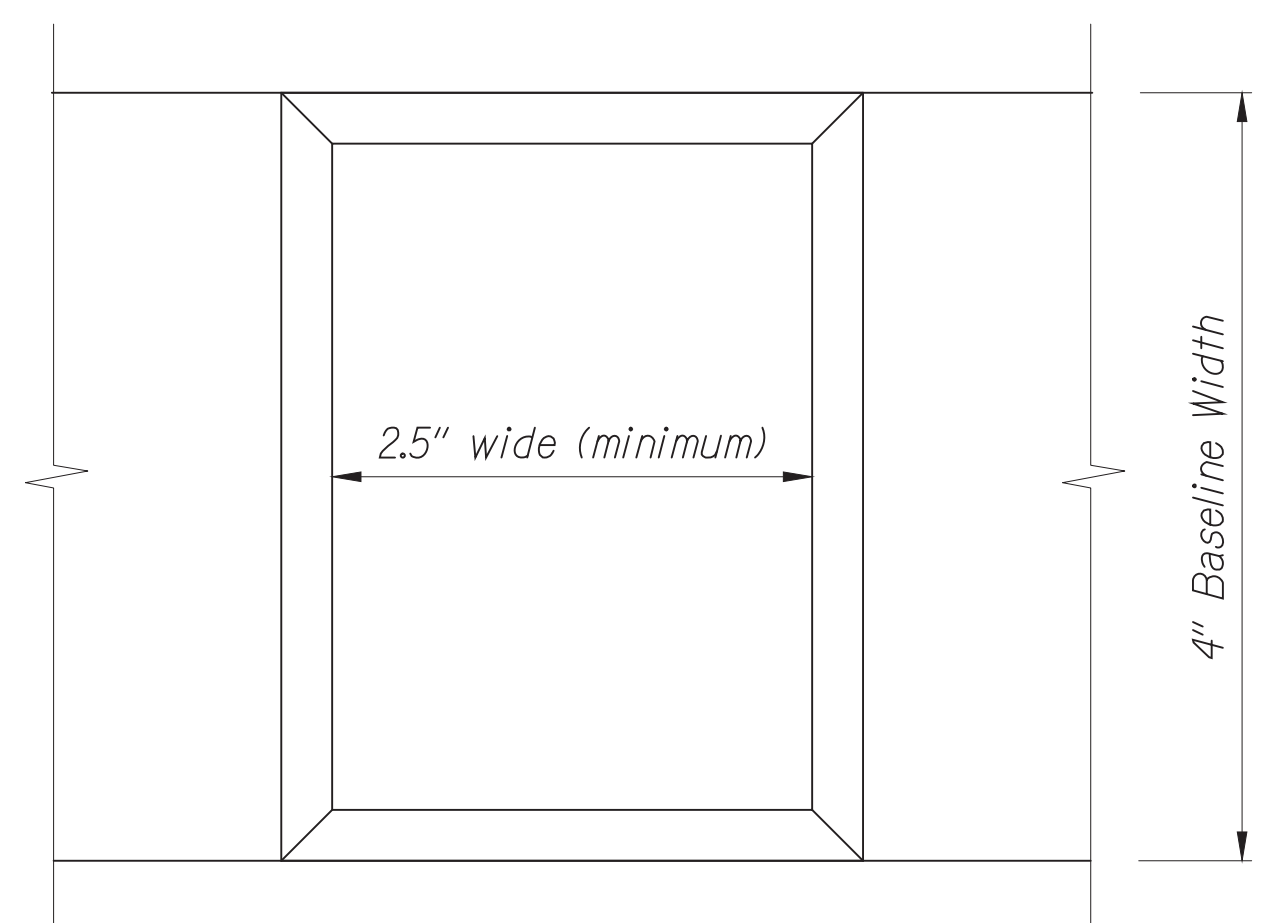
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	74	149



Profiles placed on 36" o.c.  
365 mil height, including 100 mil baseline.  
Width equal to approximately baseline width.



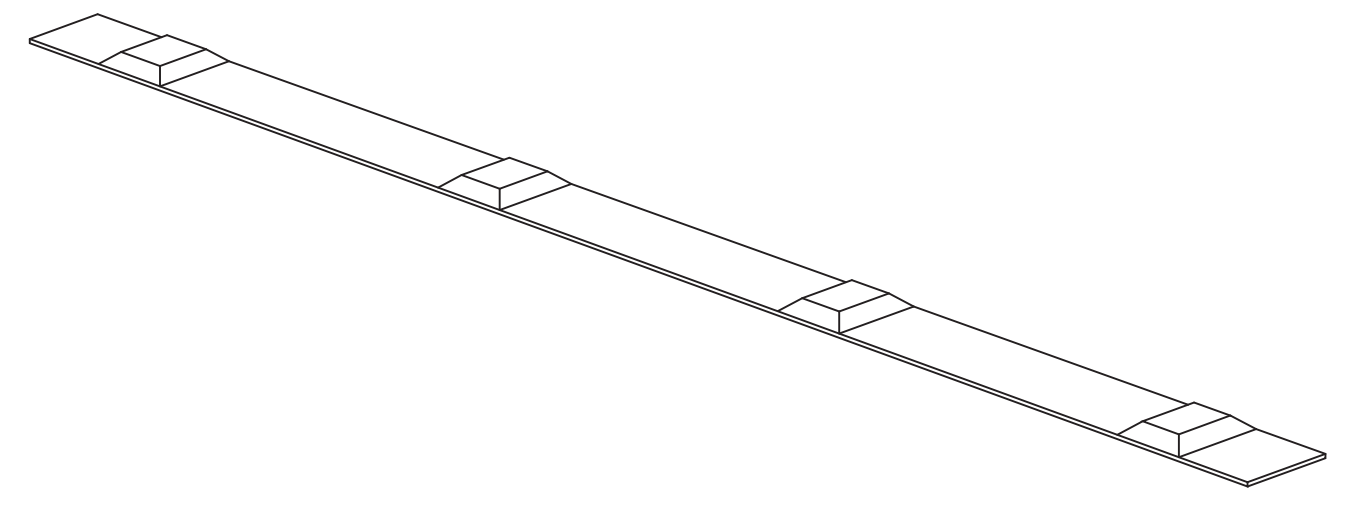
**PROFILES - SIDE VIEW**



**PROFILES - TOP VIEW**

**Notes:**

1. The thermoplastic material shall be a alkyd-based compound formulated for profiled pavement marking. See specifications 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 white profiled thermoplastic stripes as lane line.
4. Install yellow profiled thermoplastic stripes for centerline passing zone.
5. In areas with centerline milled rumble strips, install standard yellow thermoplastic stripes without raised profiles.



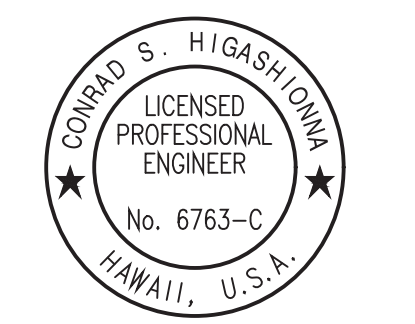
**PERSPECTIVE VIEW - LANE LINE**

**PROFILED THERMOPLASTIC STRIPING**

No Scale

ORIGINAL PLAN	DATE
DESIGNED BY	
CHECKED BY	
DATE	

Oct 10, 2024 - 1:57pm  
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*Conrad Higashinoma*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SIGNING & PAVEMENT MARKING**

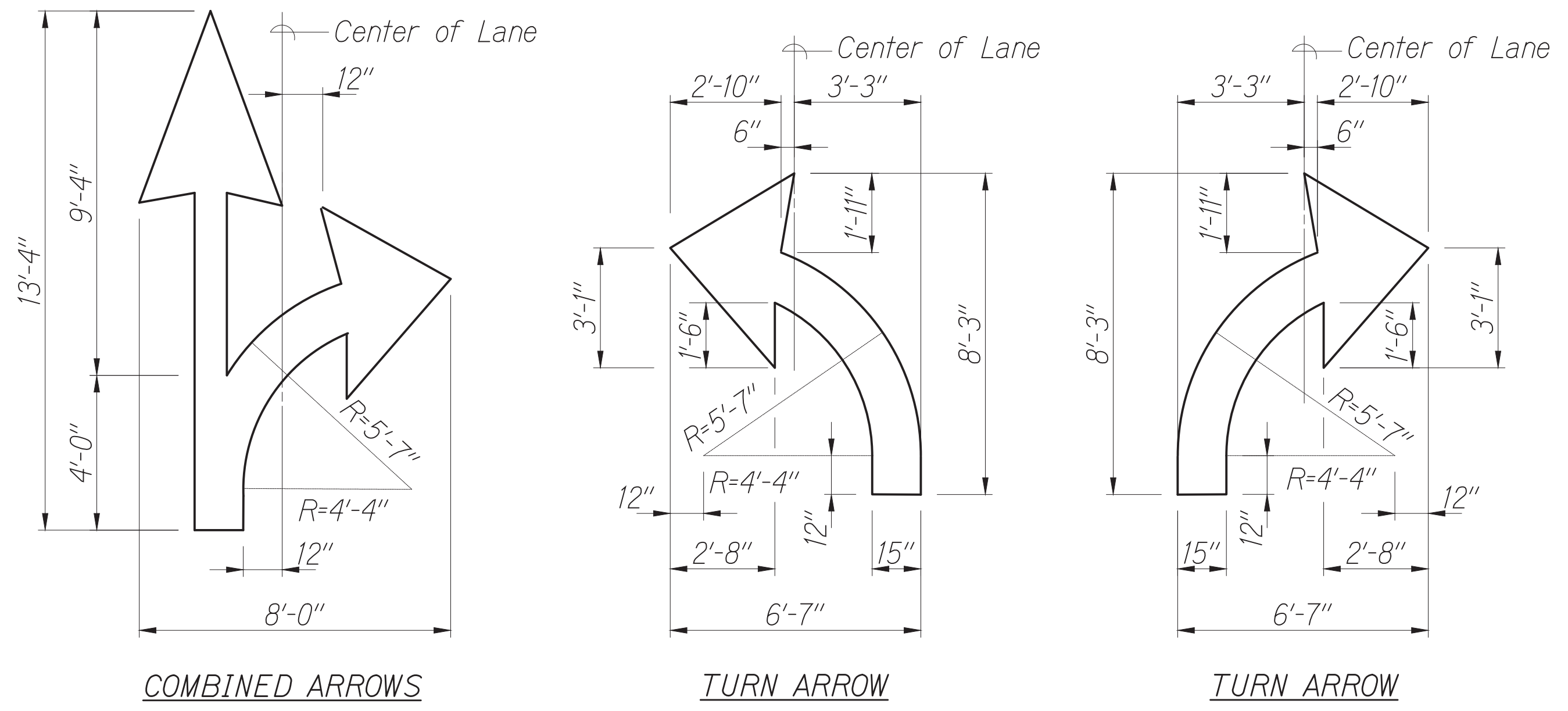
**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

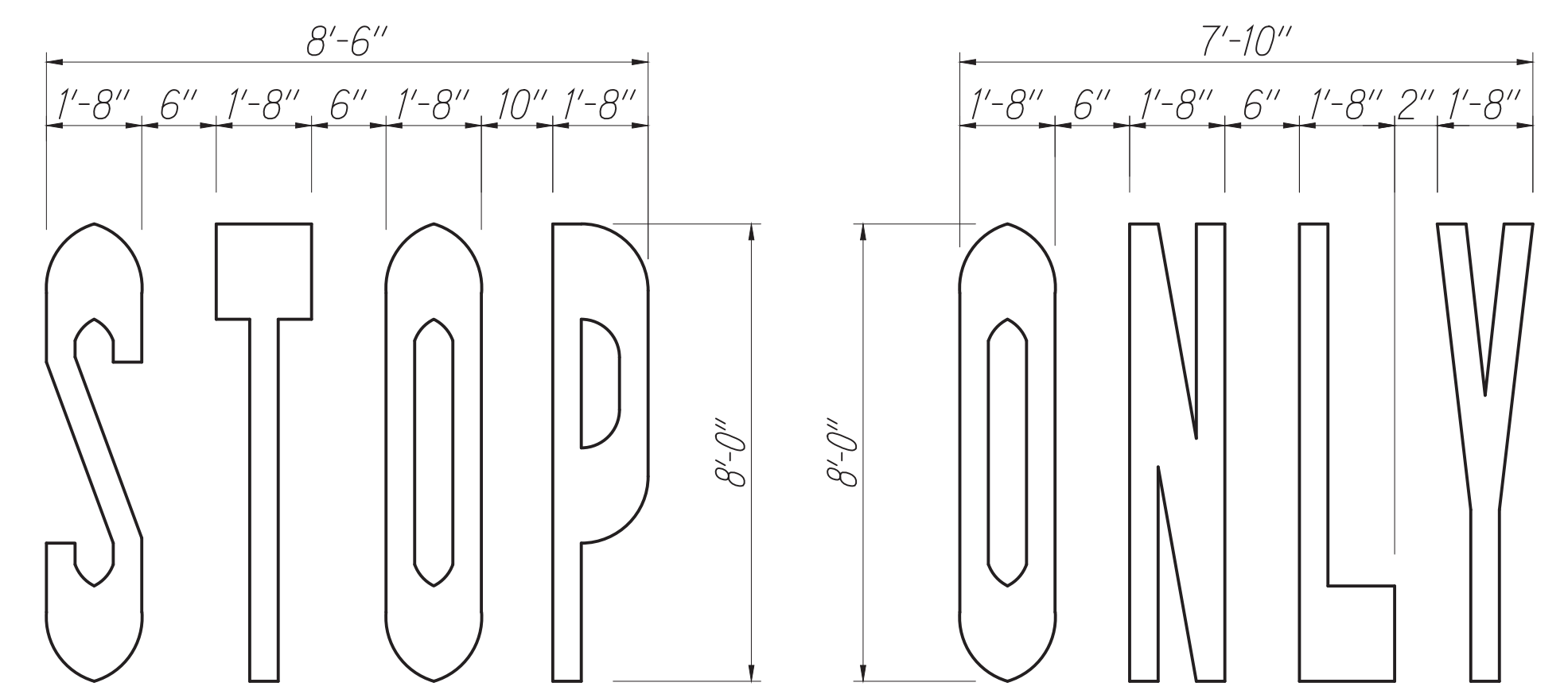
Scale: As noted      Date: August 2024

SHEET No. 10 OF 13 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	75	149



(For Work in CITY Right-of-Way)  
**TYPICAL PAVEMENT ARROW**  
 No Scale



**NOTE:** When this marking is used, it shall be painted in each lane of traffic approaching the intersection.

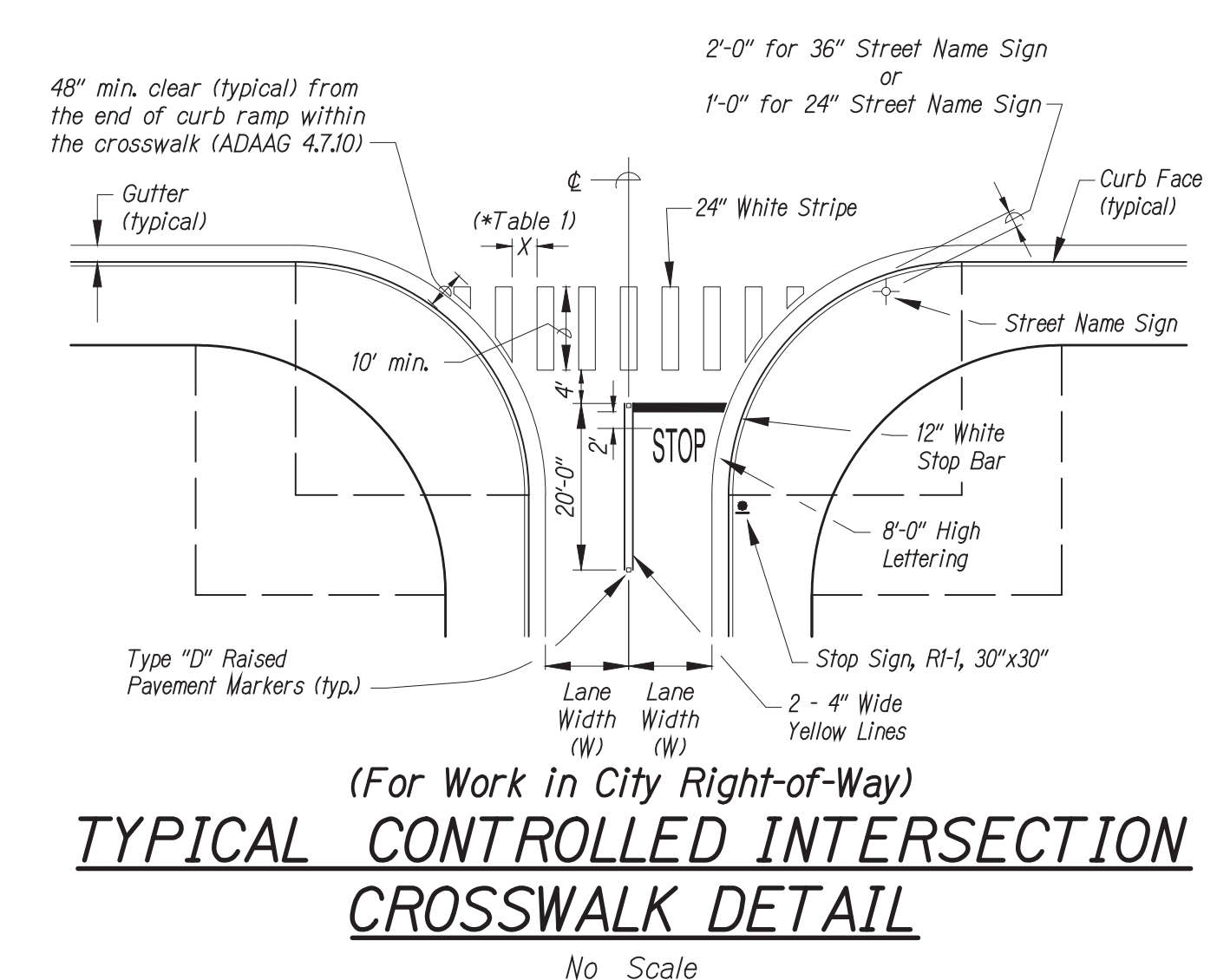
(For Work in CITY Right-of-Way)  
**STANDARD DETAIL OF THE WORDS "STOP AND ONLY" 8'-0" SIZE**  
 No Scale

\*TABLE 1

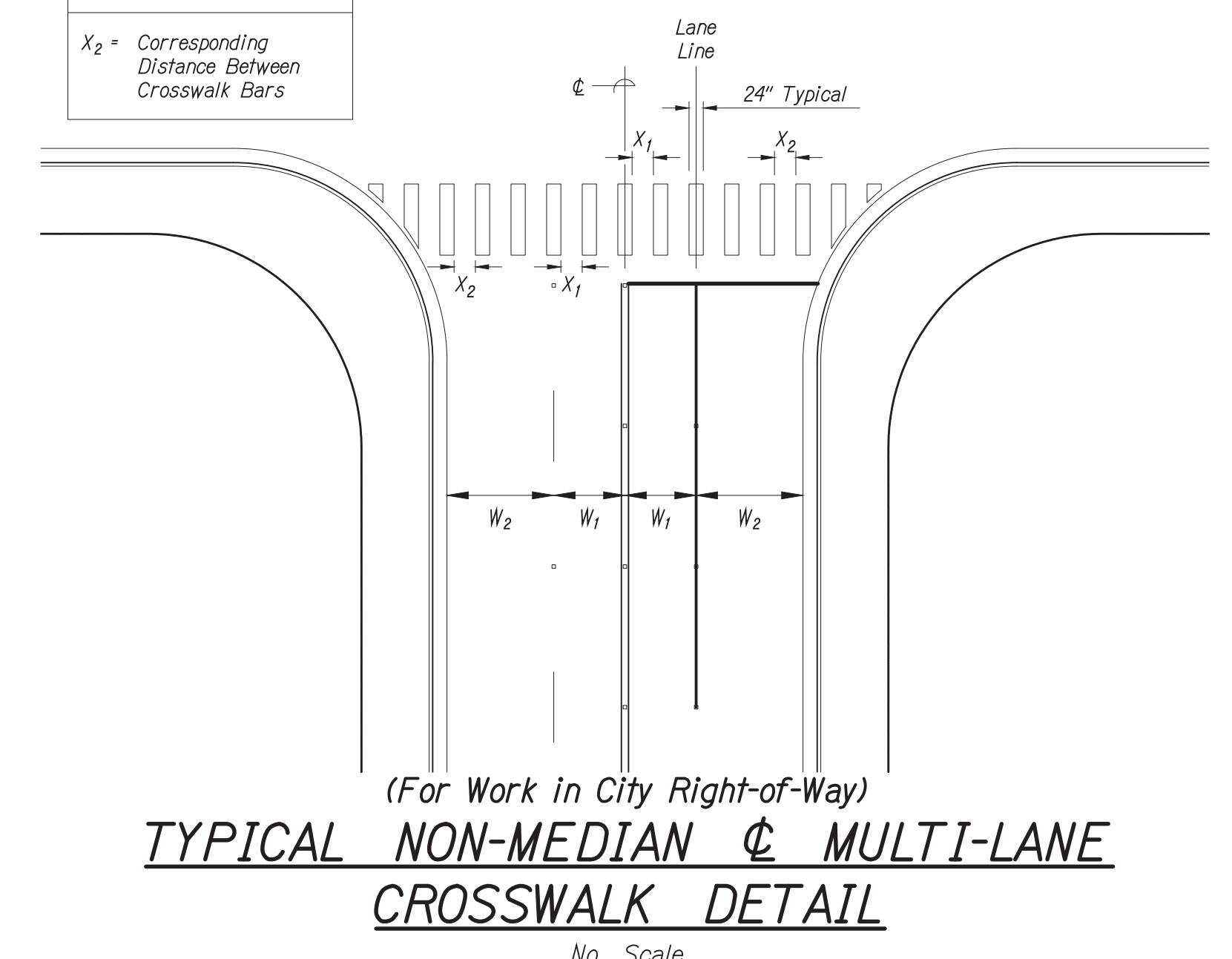
Lane Width (W)	X (Distance Between Crosswalk Bars)
< 12'	3'
12'-14'	4'
15'-17'	5'
> 17'	3'

\*TABLE 2

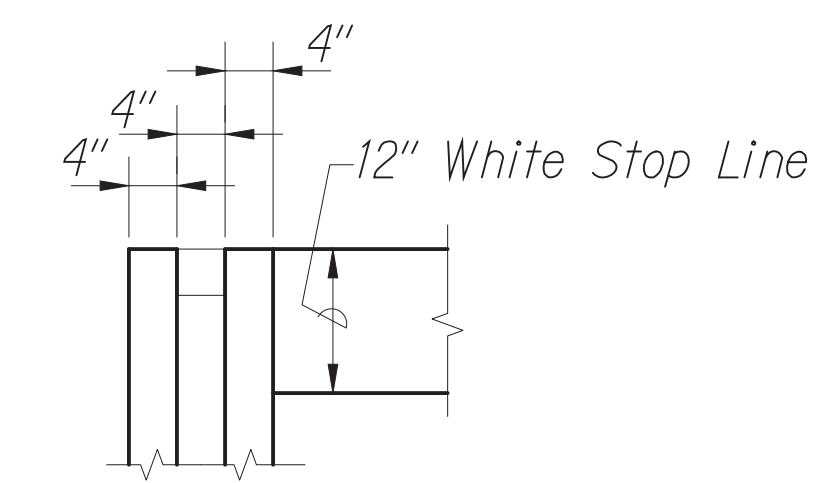
$W_1$ = Width of Lane 1
$W_2$ = Width of Lane 2
$X_1$ = Corresponding Distance Between Crosswalk Bars
$X_2$ = Corresponding Distance Between Crosswalk Bars



(For Work in City Right-of-Way)  
**TYPICAL CONTROLLED INTERSECTION CROSSWALK DETAIL**  
 No Scale



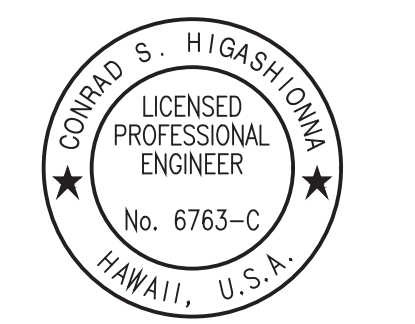
(For Work in City Right-of-Way)  
**TYPICAL NON-MEDIAN CENTERLINE MULTI-LANE CROSSWALK DETAIL**  
 No Scale



(For Work in CITY Right-of-Way)  
**CENTERLINE & STOP BAR**  
 No Scale

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

Oct 10, 2024 - 1:57pm  
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Conrad Higashidom

APPROVED BY: \_\_\_\_\_ Date: \_\_\_\_\_  
 Chief, Traffic Review Branch, DPP  
 (for use only City RWS)

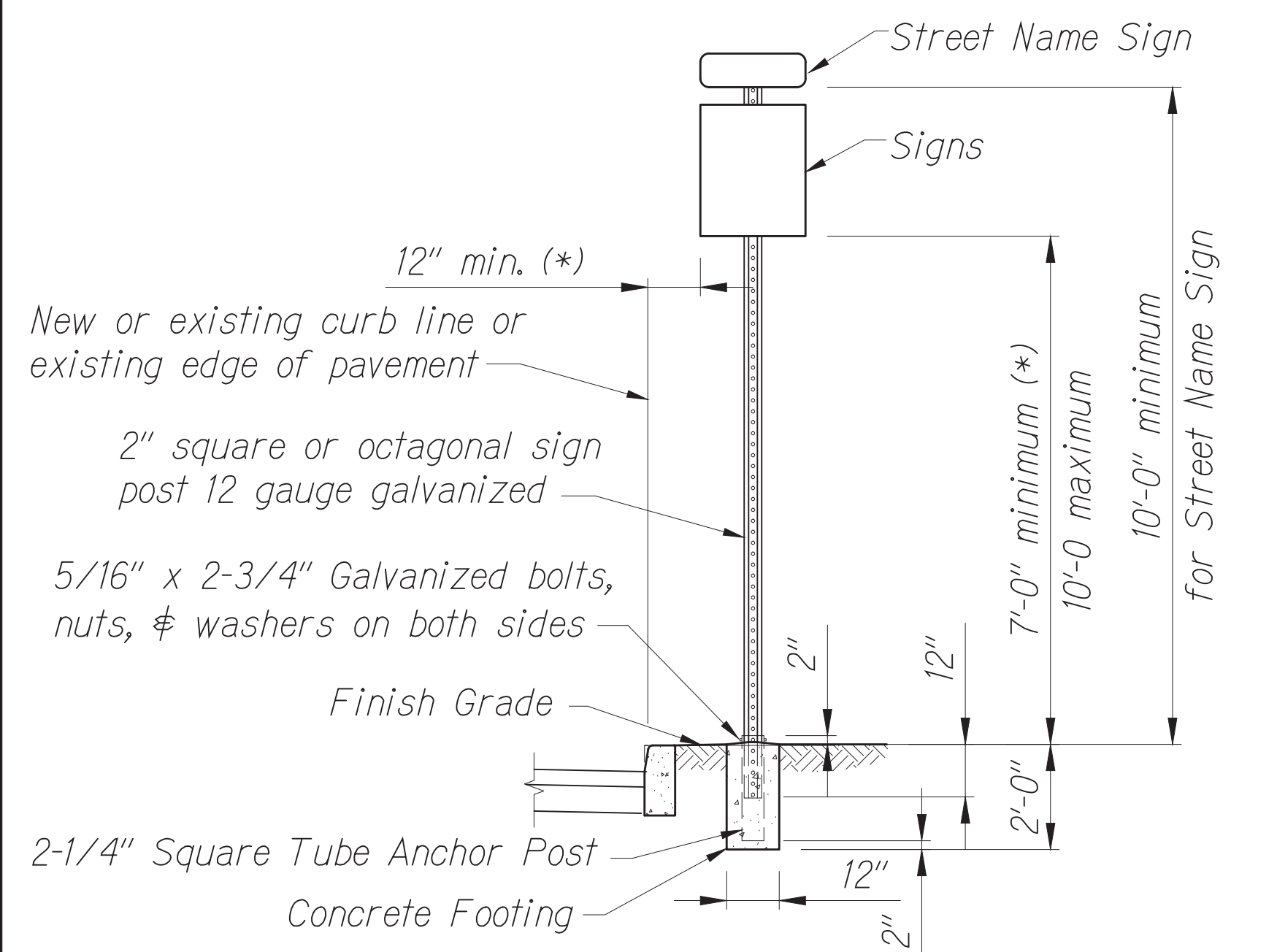
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**SIGNING & PAVEMENT MARKING**  
 TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024

SHEET No. 11 OF 13 SHEETS

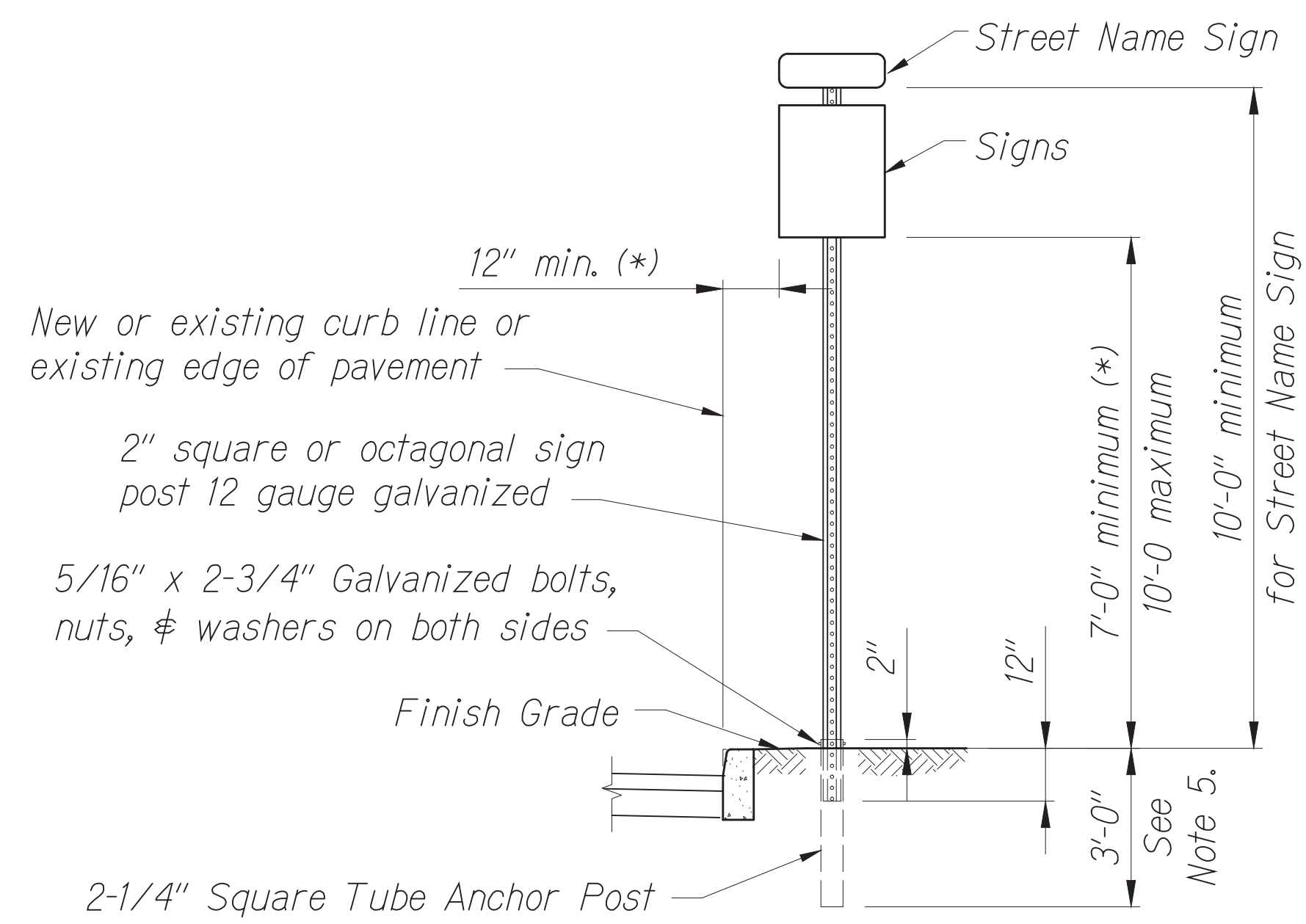
**ANCHOR POSTS NOTES:**

1. Keep inside of 2-1/4" anchor post free from impediments that may prevent proper seating of 2" sign post.
2. Square tubing sign post shall be telescoping type with 7/16" dia. Holes at 1" o.c. on four sides.
3. Octagon sign post shall be telescoping type with 7/16" dia. Holes at 1" o.c. on two sides.
4. Use 5/16" x 2-3/4" bolts to secure the octagonal and square tubing post onto the 2-1/4" square tube anchor post.
5. Minimum bury depth for the 2-1/4" anchor post shall be as follows:  
 4'-0" minimum at poor soil conditions  
 2'-6" minimum at rocky conditions

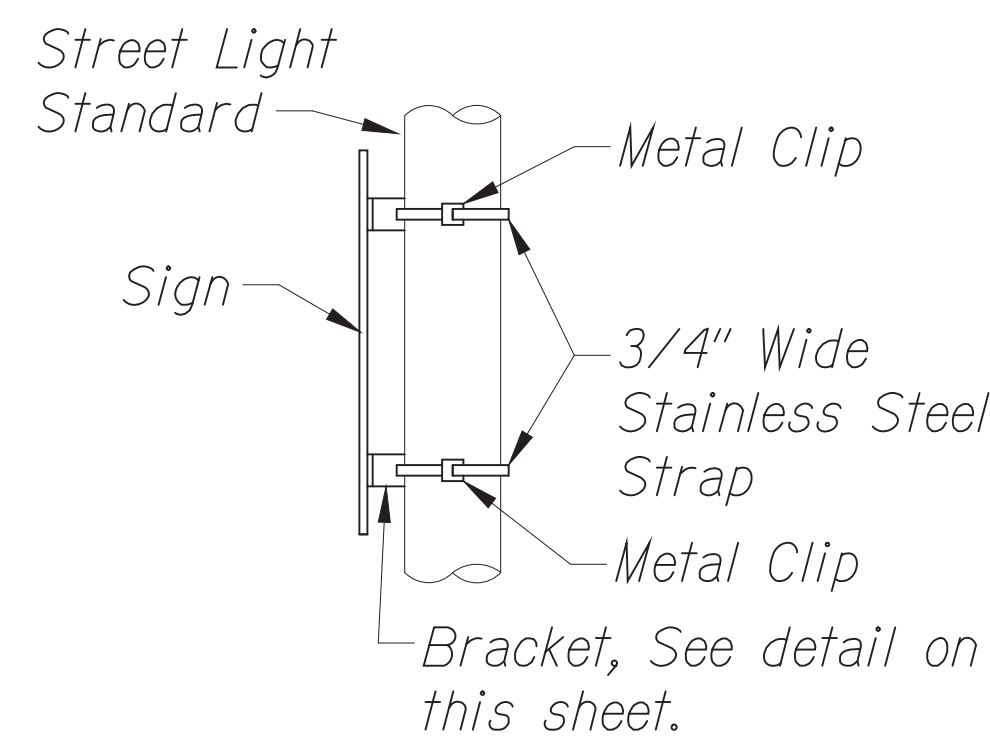
(\* ) All sign(s) installations must meet lateral and height clearances, including new signs that will be posted on to existing sign post. Extend, relocate or replace as required to meet clearance requirements.



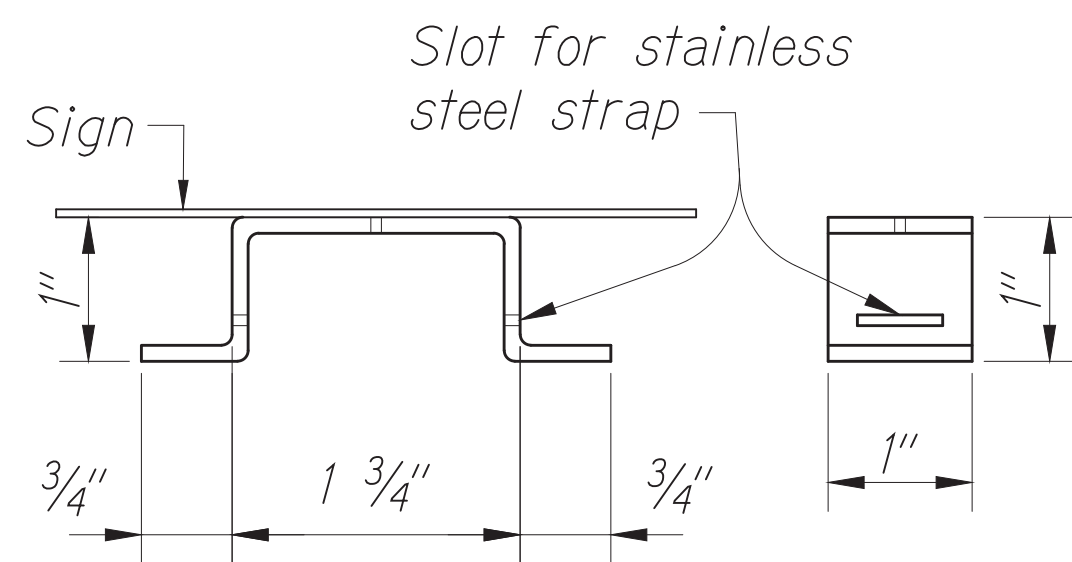
(For Work in CITY Right-of-Way)  
**INSTALLATION OF NEW OR RELOCATED SIGN POST W/ CONCRETE FOOTING**  
 No Scale



(For Work in CITY Right-of-Way)  
**INSTALLATION OF NEW OR RELOCATED SIGN POST W/ ANCHOR POST, WITHOUT CONCRETE FOOTING**  
 No Scale

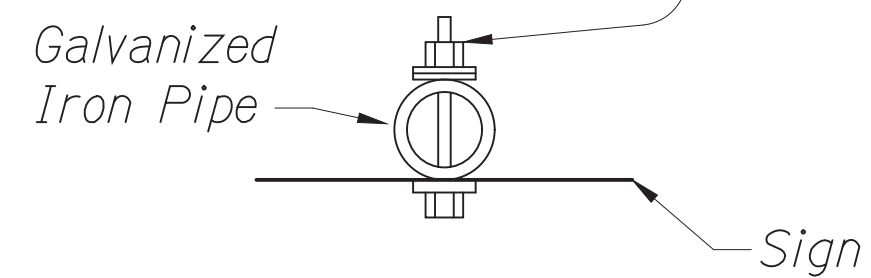


(For Work in CITY Right-of-Way)  
**BRACKET STRAP**  
 No Scale



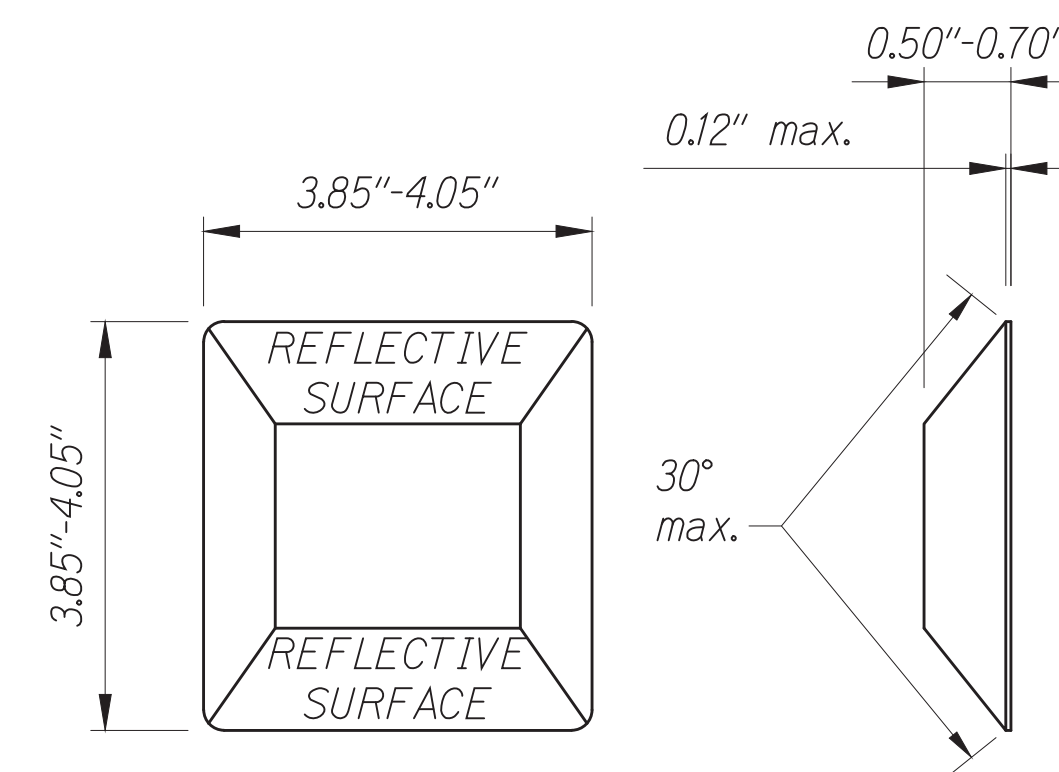
(For Work in CITY Right-of-Way)  
**SIGN BRACKET**  
 No Scale

3/8" x 3-1/2" stainless steel bolt, nut, lock washer, and 7/8" x 0.06" stainless steel flat washer with neoprene rubber gasket.

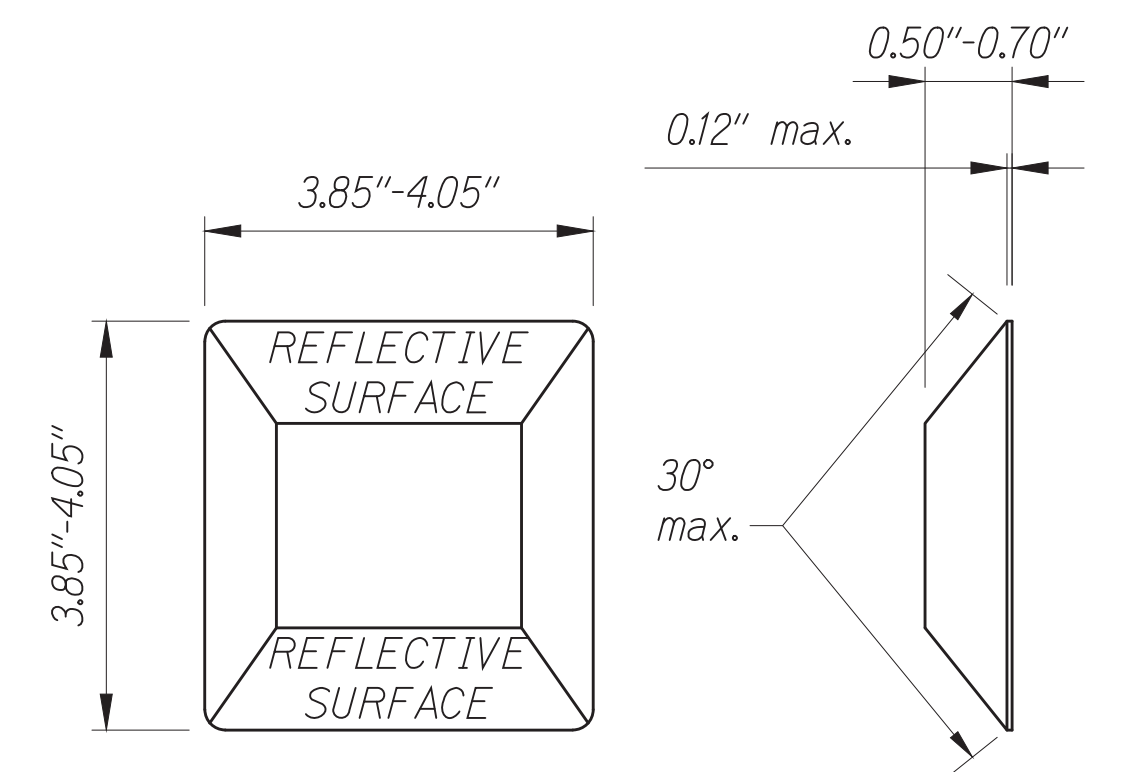


(For Work in CITY Right-of-Way)  
**TYP. MOUNTING DETAIL**  
 No Scale

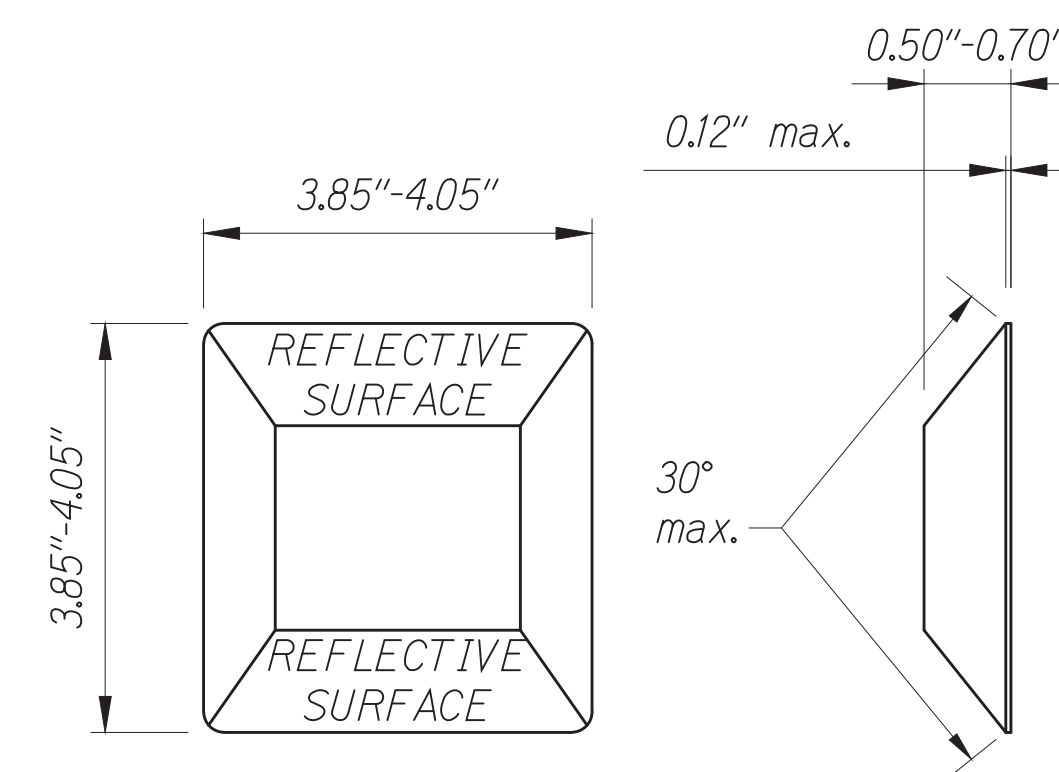
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	76	149



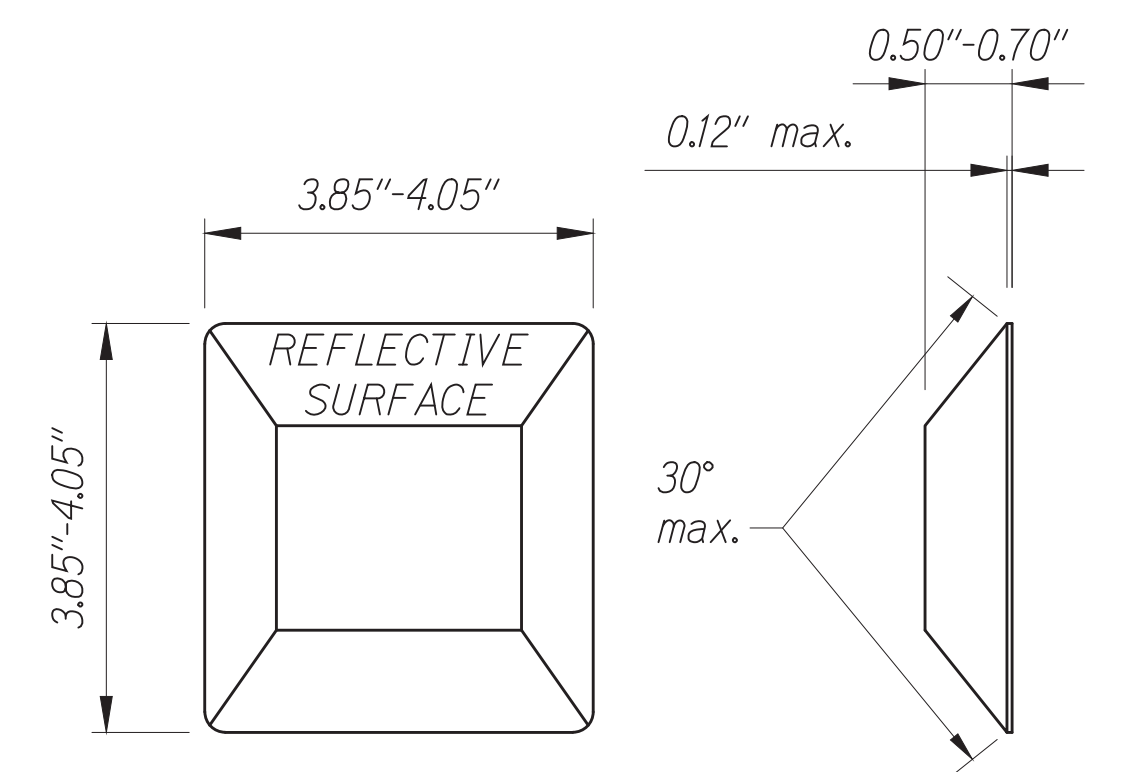
**TYPE "DB"**  
**TWO-WAY BLUE REFLECTIVE MARKER**



**TYPE "C"**  
**RED-CLEAR REFLECTIVE MARKER**

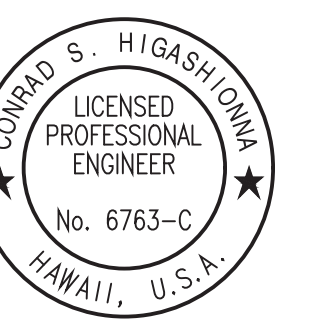


**TYPE "D"**  
**TWO-WAY YELLOW REFLECTIVE MARKER**



**TYPE "H"**  
**ONE-WAY YELLOW REFLECTIVE MARKER**

**STANDARD RAISED PAVEMENT MARKERS**  
 No Scale



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APPROVED BY: \_\_\_\_\_ Date: \_\_\_\_\_  
Chief, Traffic Review Branch, DPW

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**SIGNING & PAVEMENT MARKING**

TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

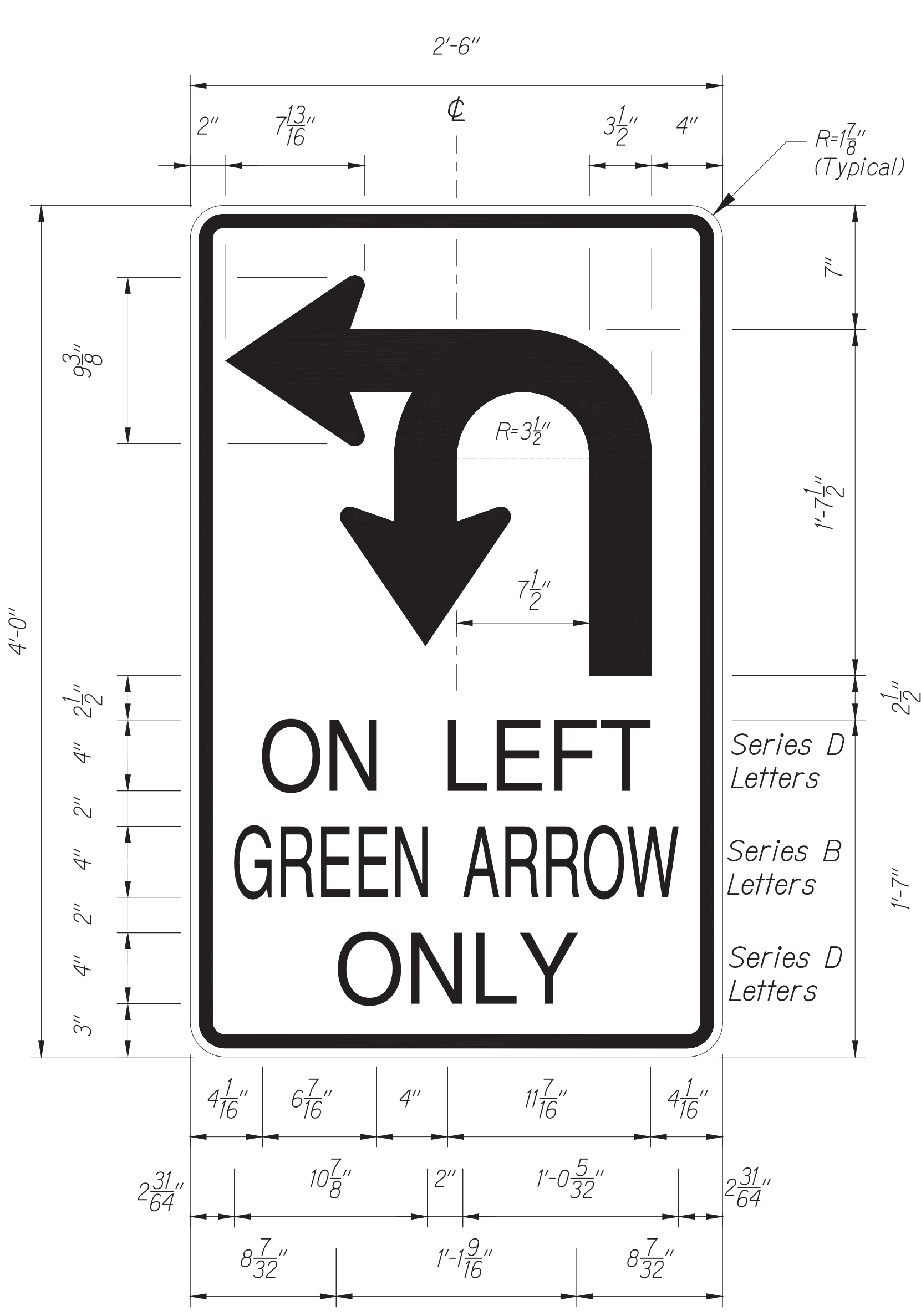
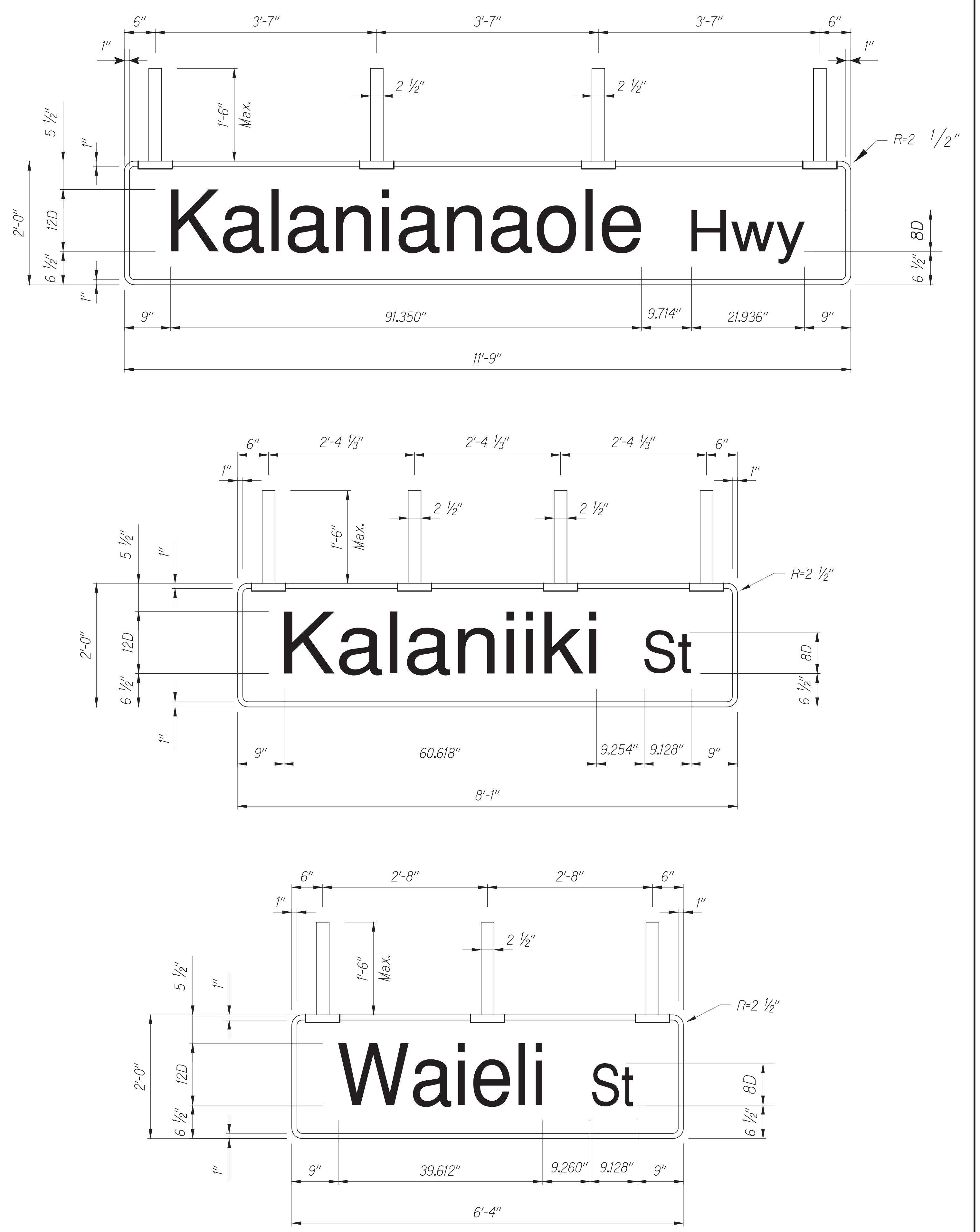
Scale: As noted Date: August 2024

SHEET No. 12 OF 13 SHEETS

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

Oct 10, 2024 - 1:57pm  
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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	77	149



DETAIL MODIFIED R17-1 SIGN  
Scale: 1"=6"

DATE	BY

ORIGINAL PLAN	NO.

Oct 10, 2024 - 11:57am  
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CONRAD S. HIGASHIDOMA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6763-C  
 HAWAII, U.S.A.  
 License Expiration Date 04-30-24  
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 Conrad Higashidoma

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**SIGNING & PAVEMENT MARKING**  
 TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024

SHEET No. 13 OF 13 SHEETS

## TRAFFIC SIGNAL LEGEND

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	78	149

Demolition	Existing	New	Description
			Traffic Signal Controller Cabinet
			Type II Traffic Signal Standard with Mast Arm, Traffic Signal Heads, Pedestrian Heads, EVP Optical Receiver, and Vehicle Detector (Video and Radar).
			Type I Traffic Signal Standard and Traffic Signal Heads
			12" RYG Traffic Signal Head
			12" RYG→ Traffic Signal Head (with Green Arrow)
			12" Programmable Visibility Traffic Signal Head
			Signal Head w/ Back Plate w/ Retroreflective Borders
			Pedestrian Signal Head
			Pedestrian Push Button # I.D. Number
			EVP Optical Receiver
			Traffic Signal Pull Box (Metal Cover)
			Traffic Signal Pull Box (Metal Cover with label "Traffic Signal")
			Type A Pull Box (Polymer Concrete Cover) & I.D. Number
			Type B Pull Box (Polymer Concrete Cover) & I.D. Number
			Type C Pull Box (Polymer Concrete Cover) & I.D. Number
			Special Type C Pull Box (see Structural plans) & I.D. Number
<b>Traffic Signal Ducts</b>			
Conduit size No. of Conduits	No. of Columns No. of Rows No. of 2" Conduits	No. of Columns No. of Rows No. of 2" Conduits	"R" indicates reinforced concrete duct section.
			Loop Detectors Sensing Unit

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

Oct. 10, 2024 - 1:57pm  
C:\Users\higashidoma\Documents\2024\2024 STP Phase 2A\EMMA\078 T-01 Signal Legend.dwg

License Expiration Date 04-30-24

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*Conrad Higashidoma*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

### TRAFFIC SIGNAL SYSTEM

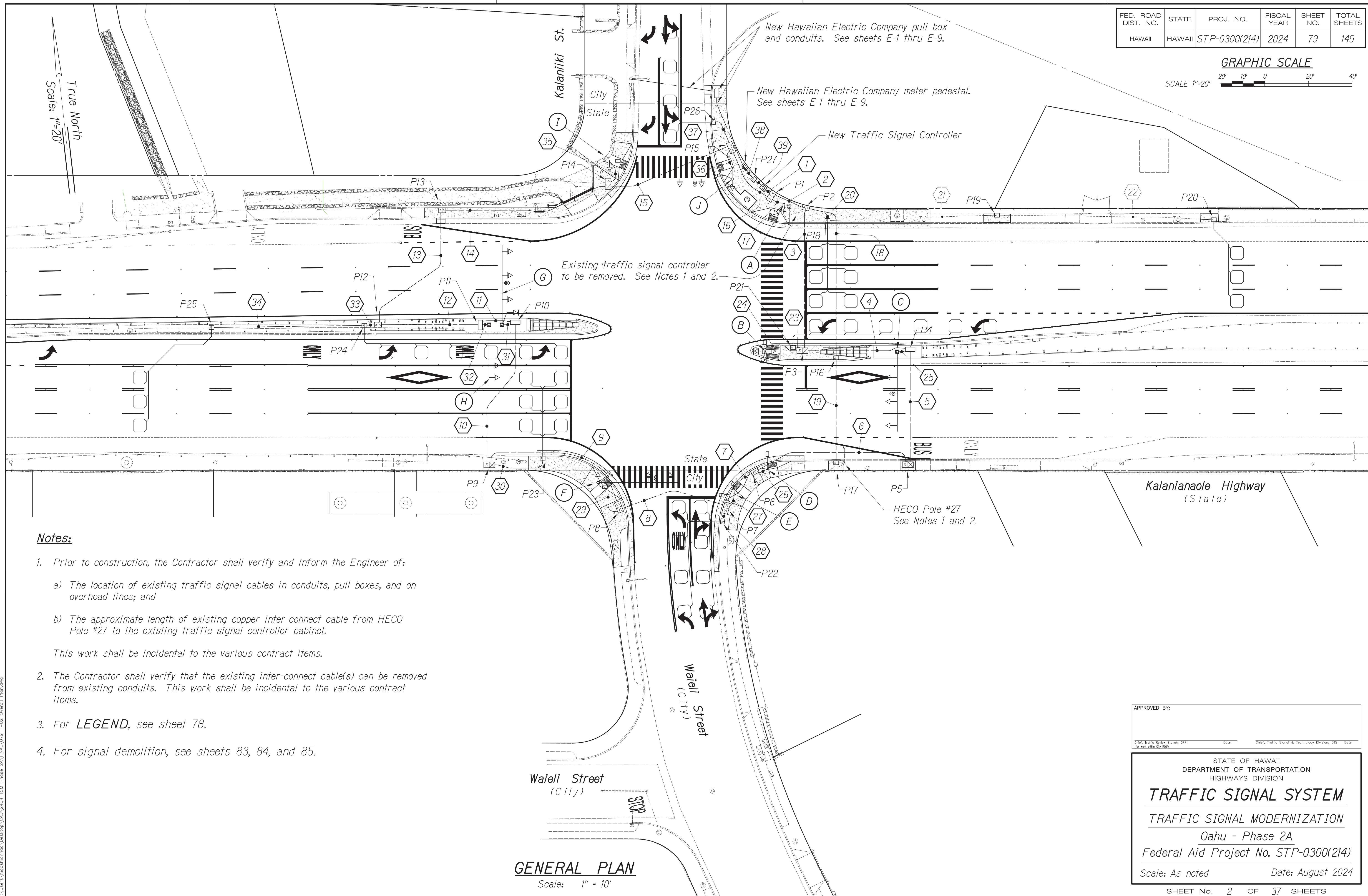
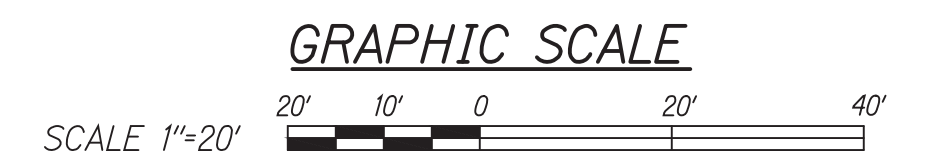
#### TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

SHEET No. 1 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	79	149



**Notes:**

- Prior to construction, the Contractor shall verify and inform the Engineer of:
  - The location of existing traffic signal cables in conduits, pull boxes, and on overhead lines; and
  - The approximate length of existing copper inter-connect cable from HECO Pole #27 to the existing traffic signal controller cabinet.

This work shall be incidental to the various contract items.
- The Contractor shall verify that the existing inter-connect cable(s) can be removed from existing conduits. This work shall be incidental to the various contract items.
- For **LEGEND**, see sheet 78.
- For signal demolition, see sheets 83, 84, and 85.

DATE	BY

Oct 10, 2024 - 1:57pm  
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**GENERAL PLAN**  
 Scale: 1" = 10'

APPROVED BY: \_\_\_\_\_  
 Date: \_\_\_\_\_  
Chief, Traffic Signal & Technology Division, DHS

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
 TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 2 OF 37 SHEETS



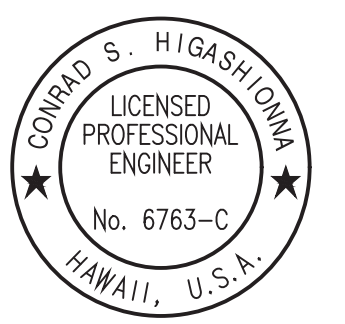
**TRAFFIC SIGNAL NOTES**

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	80	149

1. The locations of the traffic signal standards, pedestrian push buttons, traffic controller, pull boxes, conduits and loop detectors shall be staked out in the field by the Contractor and approval of the locations shall be obtained from the Engineer prior to construction and installation.
2. Any required splicing shall be done in the pull boxes.
3. Furnishing and installing controller barriers, risers on poles and conduit stub outs (pull boxes to the edge of pavement) will not be paid for separately but shall be considered incidental to the various contract items.
4. A solid #8 bare copper wire shall be pulled with the traffic signal control cable for equipment ground. Cost shall be incidental to the installation of the control cable.
5. All traffic signal controller equipment shall be completely wired in the cabinet and shall control traffic signals as called for on the plans.
6. The Contractor shall install the meter socket breaker as shown in the electrical drawings.
7. The loop amplifier units furnished for this project shall be capable of operating the loop detector configurations shown on the plans. Cost for the loop amplifier shall be incidental to the installation of the loop detector.
8. Should any defect be encountered during the controller warranty period, the manufacturer will be notified and he shall promptly correct such defect. Service call (by factory qualified representative) during the warranty period for repairs or other maintenance shall be answered within 24 hours and shall be done at no expense whatsoever to the State. All repairs shall be done as soon as possible.
9. Existing traffic signal standards to be replaced shall be removed together with its respective footing. The Contractor may elect to remove only the top portion of the footing and shall ensure that the remaining footing is 2 feet below the existing or finish ground. Costs shall be considered incidental to the various contract items.
10. The existing traffic signal and CCTV systems shall remain in operation until the new traffic signal system is put into service. The Contractor shall arrange his work accordingly and shall provide temporary relocations and wiring, as necessary. Payment shall be considered incidental to the various contract items.
11. The Contractor shall clean and/or repair the existing traffic signal pull boxes to be used prior to installing conduits and cables. This work will not be paid for separately but shall be considered incidental to the various contract items.
12. The Contractor shall clean all existing conduits prior to pulling cables. This work will not be paid for separately but shall be considered incidental to the various contract items.
13. The existing controller foundations and pull boxes not to be incorporated in the final signal system shall be removed in accordance with Section 202, "Removal of Structures and Obstruction" of the Standard Specifications. Pavement shall be constructed to match surrounding pavement.
14. The Contractor shall maintain a 36" clearance between the control duct line and loop detectors.
15. Restoration of existing pavements and improvements unavoidably damaged shall be incidental to the various contract items. Restoration shall be to the original or better condition.
16. Removing and disposing of existing power source equipment (i.e. meter, conduits, cables, etc.) shall not be paid for separately but considered incidental to the various contract items.
17. The Contractor shall verify and remove existing traffic signal heads, standards, foundations, pedestrian pushbuttons, pull box frame and covers, cables, and appurtenances, etc. which are called for removal in the plans, abandoned, or not incorporated into the new traffic signal system. The Engineer shall determine the salvageable equipment. All salvageable equipment shall become the property of the City Department of Transportation Services and the un-salvageable equipment shall become the property of the Contractor for proper disposal. Removing and salvaging existing traffic signal equipment shall not be paid for separately but considered incidental to the various contract items.
18. The Contractor shall notify the Traffic Signal and Technology Division, Department of Transportation Services, three (3) days prior to commencing work of the Traffic Signal and CCTV system [Phone: (808) 768-8388].
19. Concrete encased conduits and Type 2 cables between the pedestrian push button and pull box shall be furnished and installed in sufficient numbers and lengths, as required. Cost shall be incidental to the installation of pedestrian push buttons.
20. Concrete encased conduits and signal drop cables between traffic signal standards and pull boxes shall be furnished and installed in sufficient numbers and lengths, as required. Cost shall be incidental to traffic signal foundation.
21. The Contractor shall verify all work in the field prior to submitting of bid, ordering of materials, fabrication of brackets, etc.
22. The Contractor shall not construct conduits, pull boxes, traffic signal standard foundations, etc. outside of State or County right-of-way unless shown otherwise on the plans.
23. Existing conduits not incorporated into the new traffic signal system shall be plugged with concrete and abandoned in place. This work shall be incidental to the various contract items.
24. The Contractor shall use a 5-foot length to transition from normal duct section to fit conduits within pullbox knockout unless otherwise noted. All conduits shall enter pullbox through knockouts.
25. The Contractor shall remove all temporary microwave detectors not incorporated in the final signal system after the new signal system is operational and prior to final acceptance unless otherwise notified by the State. Temporary microwave detectors shall be salvaged and delivered to the City and County Department of Transportation Services.
26. The Contractor shall provide 3'-0" minimum cover over top of concrete jacket for traffic signal ducts installed within the traveled way and shoulders, unless otherwise called for on the plans.
27. For new Type I Traffic Signal Standards, the Contractor shall provide new Type I Signal Standard and new footing per structural plans. The Contractor shall provide new traffic signal heads, pedestrian signal heads, ADA compliant pedestrian push button, and necessary new mounting equipment and accessories as required and as shown on the plans. The Contractor shall provide 2-inch Schedule 40 conduits concrete encased with cables required for traffic and pedestrian signal heads and pedestrian push buttons.
28. For new Type II Traffic Signal Standards, the Contractor shall provide new Type II Signal Standard and new drilled shaft foundation per structural plans. The Contractor shall provide new traffic signal heads, pedestrian signal heads, ADA compliant pedestrian push button, and necessary new mounting equipment and accessories as required and as shown on the plans. The Contractor shall provide 2-inch Schedule 40 conduits concrete encased with cables for traffic signal heads, pedestrian signal heads, pedestrian push buttons, and Opticom detector.
29. The Contractor shall ensure that traffic signal standards are designed and manufactured to be compatible with the drilled shaft design to avoid bolt circle-cage conflicts.
30. Existing traffic signal pullboxes, street light pullboxes, and traffic signal standards to remain shall be adjusted to finish grade. The cost shall be incidental to the various contract items.
31. Existing traffic signal systems shall remain operational at all times during construction; the Contractor shall provide temporary equipment or power as needed to facilitate construction. The cost shall be incidental to the various contract items.
32. Precast pull boxes shall be set on six (6) inches of level, 95% compacted crushed rock fill, 3/4 inch to one (1) inch size, extending twelve (12) inches beyond the pull box on each side. Granular fill shall be compacted by a minimum of four passes with a plate type vibrator.

ORIGINAL PLAN	DATE
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DESIGNED BY	
CHECKED BY	
DATE	

Oct 10, 2024 - 1:57pm  
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*Conrad Higashimura*

APPROVED BY:	
Chief, Civil Engineering Branch, DPP (for construction in City ROW only)	Date
Chief, Traffic Review Branch, DPP (for use within City ROW)	Date
Chief, Traffic Signal & Technology Division, DTS	Date

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	81	149

**DESIGN REQUIREMENTS FOR TRAFFIC SIGNAL STANDARDS:**

Manufacturer designed traffic signal standards and mast arms being furnished for this project shall conform with the new design requirements noted below:

New traffic signal standards shall use the **AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 1st Edition (2015)**, including all subsequent interim revisions and editions as its design reference.

Changes to the Design Criteria for Bridges and Structures dated August 8, 2014 include:

1. 7th Paragraph on pages 5 - 6 shall now read:

"AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, 1st Edition (2015) including all subsequent interim revisions and editions. This shall govern design of structural supports for highway signs, luminaires, and traffic signals. This shall also govern of other support structures such as for variable message signs, traffic management cameras, transmission lines other than overhead electrical lines and communication equipment including those attached to bridge structures except as modified herein. Supports for overhead electrical supply and communication lines, at a minimum, shall be analyzed and designed in accordance with the National Electrical Safety Code per the Hawaii Administrative Rules (HAR), Chapter 6-73, Installation, Operation and Maintenance of Overhead and Underground Electrical Supply and Communication Lines."

2. Section 4.0 on pages 14-16 shall be replaced with the following:

**"4.0 MODIFICATIONS TO AASHTO LRFD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS"**

**4.01 Wind Load** [Article 3.8]. For all State roadways other than those with a functional classification of local roads, all structural supports for highway signs, luminaires, and traffic signals are to be designed for a mean recurrence interval of 1700 years. Local roads under State jurisdiction shall be designed for a minimum recurrence interval of 700 years. Roadside sign supports located where failure would not impact the travel way can be designed for a 10-year mean recurrence interval. For unusual or differing exposure conditions [Article 3.8.3], the basic wind speed should be increased using rational procedures and sound engineering judgement. The wind maps for Effective Wind Speed, Topographic Effects and Exposure Category included in the State Building Code (HAR, Chapter 3-180) should be used for guidance.

**4.02 Height and Exposure Factor,  $K_z$**  [Article 3.8.4]. For support structures on bridges, the height and exposure factor shall be determined based on the maximum height they are above the surrounding ground. For severe exposure conditions such as along the coastline, the factor shall be increased based on the latest ASCE Standard ASCE/SEI 7 Minimum Design Loads for Buildings and Other Structures. The wind maps for Effective Wind Speed, Topographic Effects and Exposure Category included in the State Building Code (HAR, Chapter 3-180) should also be used for guidance. If height and exposure factors are not considered, then the consultants shall provide reason(s) for not considering in the structural calculations for the project.

**4.03 Minimum Anchor Bolts** [Article 5.16]. Cantilevered traffic signal structures with mast arms greater than 40 feet and other cantilevered support structures with design life of 50 year or more shall have base plate connections with a minimum of six (6) anchor bolts. A minimum of four (4) anchor bolts shall be provided for all other base plate connections.

**4.04 Use of Grout** [Article 5.16]. Grout shall not be used under base plates for all support structures except for ordinary street light poles unless approved by the Bridge Design Engineer. Anchor bolts with leveling nuts shall be designed to transfer all loads from the structure to its base support. See Figure C5.16-1 Typical Double-Nut Connection.

A wire cloth screen shall be specified to be placed vertically between the base plate and the top of the foundation and wrapped horizontally around the base plate with a three (3) inch minimum lap. The wire cloth shall be galvanized steel standard grade plain weave 2x2 mesh 0.063-inch diameter wires. Secure the wire cloth at the lapped ends with stainless steel wire ties (minimum of 2). Loop the wire ties and twist tie them securely. Also, alternate means of protecting the underside of the base plate from debris, birds, bees, and other nesting animals may be proposed for consideration. In any case, the fabricator needs to be aware that the fabrication documents need to account for the wire cloth mesh.

**4.05 Plumbness of Anchor Bolts** [Article 5.16]. The designer shall include this provision of the design specification in the construction plans and/or specifications.

Anchor bolts shall be installed with misalignments of less than 1:40 from vertical. After installation, firm contact shall exist between the anchor bolt nuts, washers, and base plate on any anchor bolt installed in a misaligned position.

**4.06 Fatigue Importance Factors** [Article 11.6] noted in Table 11.6-1 for overhead sign and traffic signal structures shall be based on Fatigue Category I.

Support structures other than noted in Table 11.6-1 with round cross sections under 50 feet, roadside sign structures, and temporary structures do not need to be designed for fatigue.

Support structures 50 feet or more in height shall be designed for fatigue and be based on Fatigue Category I.

**4.07 Galloping** [Article 11.7.1.1]. Provisions shall be made to install effective vibration mitigation devices on overhead cantilevered sign and traffic signal support structures unless they are designed for galloping-induced cyclic loads. With approval from Hawaii Department of Transportation, mitigation devices may be installed after construction if vibration due galloping is identified. Responsible party for the mitigation devices shall be determined during design and included in the construction documents.

**4.08 Natural Wind Gust** [Article 11.7.1.2]. Overhead sign, traffic signal, and high-level support structures shall be designed to resist an equivalent static natural wind gust pressure. For unusual or differing exposure conditions, the equivalent static natural wind gust pressure should be increased using references noted in the specifications.

**4.09 Truck-Induced Gust** [Article 11.7.1.3]. Overhead sign and traffic signal support structures shall be designed to resist an equivalent static truck gust pressure range based on a truck speed of 20 mph over the posted speed."

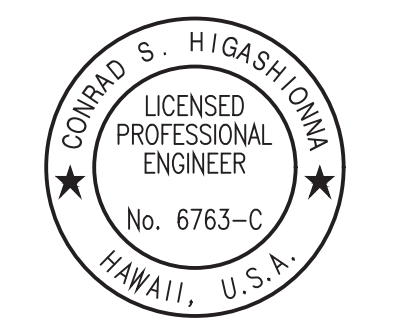
**4.10 Square or Rectangular Steel Post Sections** [Sections 5 and 11]. Not applicable

**4.11 Traffic Signs on Light Poles and Traffic Signals.** Not applicable.

**4.12 Standard Plans.** Not applicable.

ORIGINAL PLAN	DATE
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 Conrad Higashimura

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**

**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	82	149

HAWAIIAN TELCOM NOTES

1. The Contractor shall procure and pay for all licenses and permits and shall give all notices necessary and incident to the due and lawful prosecution of the work.
2. The Contractor shall obtain an excavation permit and toning request from Hawaiian Telcom's Excavation Permit Section, located at 1177 Bishop Street, two weeks prior to the start of construction. Hours of business are 8:00 a.m. to 11:00 a.m. and 12:00 p.m. to 3:00 p.m. Monday through Friday, except holidays.
3. Prior to the excavation of the ductline, the contractor shall request Hawaiian Telcom to locate existing ductline wherever required. For underground cable locating and marking, five (5) working days advance notice is required. Three (3) working days advance notice is required for any inspection by a designated representative.
4. The locations of existing utilities are approximate only. The Contractor shall exercise extreme caution and shall maintain proper clearances whenever construction crosses or is in close proximity of Hawaiian Telcom facilities. The Contractor shall verify their locations and shall be liable for any damages to Hawaiian Telcom facilities. Any damages shall be reported immediately to Hawaiian Telcom's repair section at #611 (24 hours) or to the excavation permit section at (808) 546-7746 (normal working hours, Monday through Friday, except holidays). As a result of his operations, adjustments to the new ductline alignment, if required, shall be made to provide required clearances.
5. The Contractor shall take necessary precaution not to damage existing cables or ducts. A Hawaiian Telcom inspector or designated representative is required to be at any job site wherever there will be a breakage into or entry into any structure that contain Hawaiian Telcom facilities. Temporary cable and duct supports shall be provided wherever necessary.
6. The Contractor shall notify Hawaiian Telcom's inspector or designated representative a minimum of 72 hours prior to excavation, bracing, or backfilling of Hawaiian Telcom's structures or facilities.
7. All applicable construction work shall be done in accordance with the "Hawaiian Telcom Standard Specifications for Placing Telephone Systems" dated January 2007. All subsequent amendments and additions, and all other pertinent standards for telephone construction. Contractor shall familiarize his personnel by obtaining applicable specifications.
8. When excavation is adjacent to or beneath Hawaiian Telcom's existing structures or facilities, the Contractor shall:
  - a. Sheet and/or brace the excavation to prevent slides, cave-ins, or settlements to ensure no movement to Hawaiian Telcom's structures or facilities.
  - b. Protect existing structures and/or facilities with beams, struts, or underpinning while excavating beneath them to ensure no movement to Hawaiian Telcom's structures or facilities.
9. The Contractor shall brace all poles or light standards near the new ductline, manhole, or handhole during his operations.
10. The Contractor shall saw-cut A.C. pavement and concrete gutter wherever new manholes, handholes, or ductlines are to be placed and shall restore to existing condition or better.

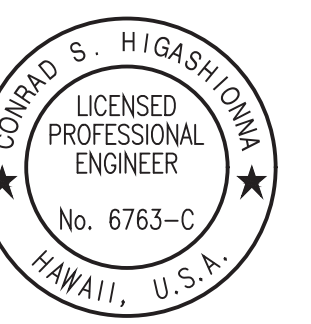
11. The Contractor shall comply with the policy adopted by the Department of Public Works, City and County of Honolulu, concerning the replacement of concrete sidewalks after excavation work.
12. The underground pipes, cables, or ductlines known to exist by the engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
13. Wherever connections to existing utilities are shown on the plans, the Contractor shall expose the existing lines prior to excavation of the main trenches to verify their locations and depths.
14. The Contractor, at his own expense, shall keep the project and surrounding area free from dust nuisance. The cost for supplementary measures, which will be required by the City and County, shall be borne by the Contractor.
15. The Contractor shall notify Hawaiian Telcom's inspector 24 hours prior to the pouring of concrete or backfilling.

HAWAIIAN ELECTRIC COMPANY NOTES

1. Hawaiian Electric Company notes apply to new traffic signal system construction. For HECO notes, see electrical plans drawings E-2 thru E-4.

ORIGINAL PLAN	DATE
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DESIGNED BY _____	_____
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*Conrad Higashidoma*

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	84	149

**GRAPHIC SCALES**

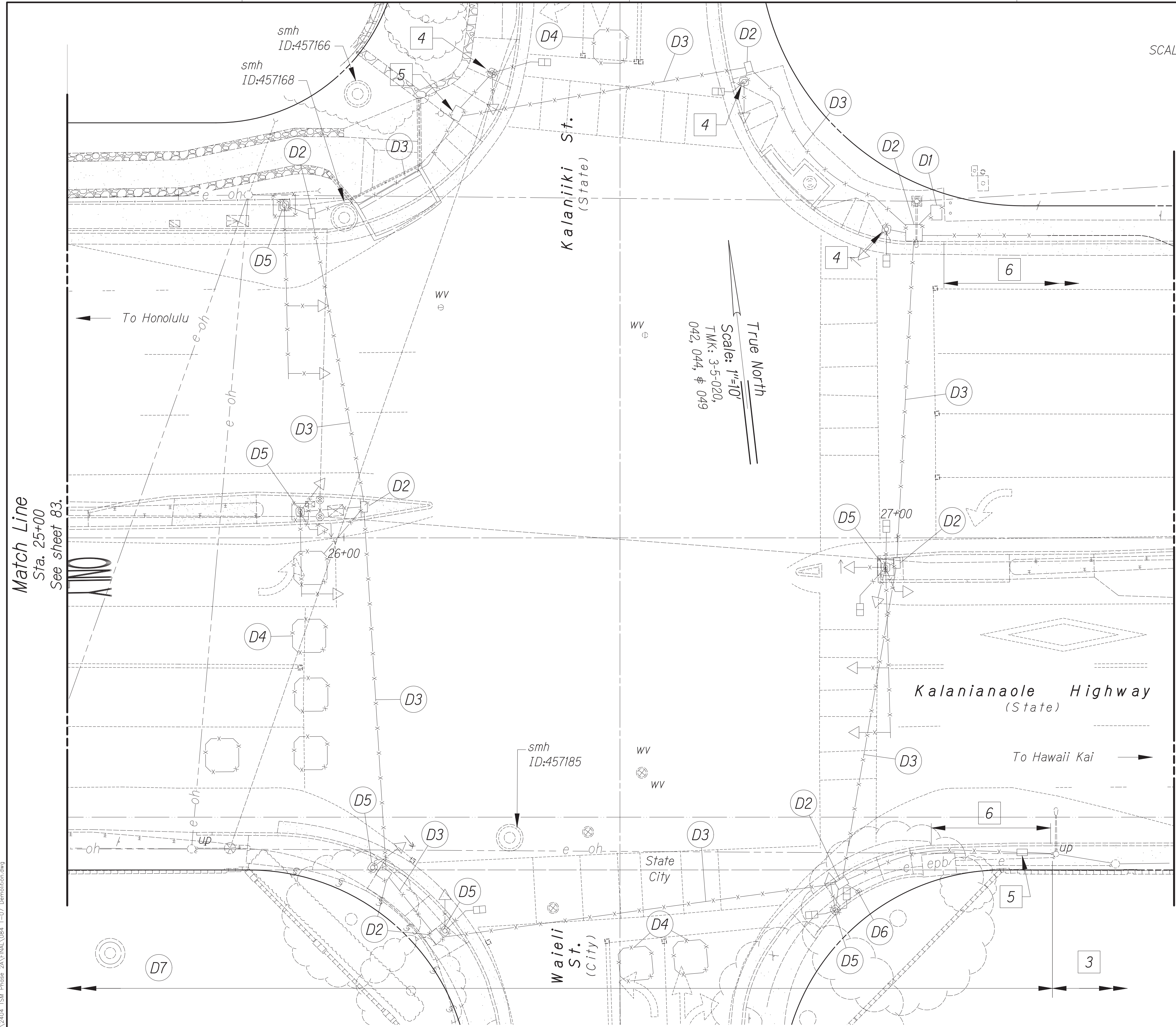


**Notes:**

- 1 The traffic signal system shall remain operational at all times during construction. Existing poles, traffic signal lights, and pedestrian signal heads may be removed only after new equipment is operational.
- 2 Deliver salvaged equipment to C&C of Honolulu, Dept. of Transportation Services, Traffic Signal & Technology baseyard at 999 Makolu Street (ph: 768-5323).
- 3 Overhead Type 3 interconnect cable to remain.
- 4 Existing traffic signal standard to remain.
- 5 Existing pullbox to remain.
- 6 Existing ductline to remain.

**Demolition Callouts:**

- D1 Remove and salvage traffic signal controller and cabinet. Demolish and dispose of concrete base one foot below finish grade.
- D2 Demolish and dispose of traffic signal pullbox.
- D3 Remove traffic signal cables. Abandon ductline in place. Fill ducts with lean concrete.
- D4 Abandon vehicle detectors in place.
- D5 Remove and salvage existing traffic signal standard. Demolish and dispose of concrete foundation two feet below finish grade. Remove and salvage traffic signal heads and pedestrian signal heads.
- D6 Remove and salvage pedestrian push button. Demolish and dispose of concrete foundation.
- D7 Remove overhead Type 2 detector lead-in cable. Overhead Type 3 interconnect cable to remain.

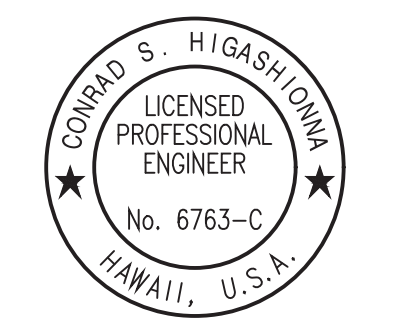


**DEMOLITION PLAN**

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 Conrad Higashioma

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024  
 SHEET No. 7 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	85	149

**GRAPHIC SCALES**

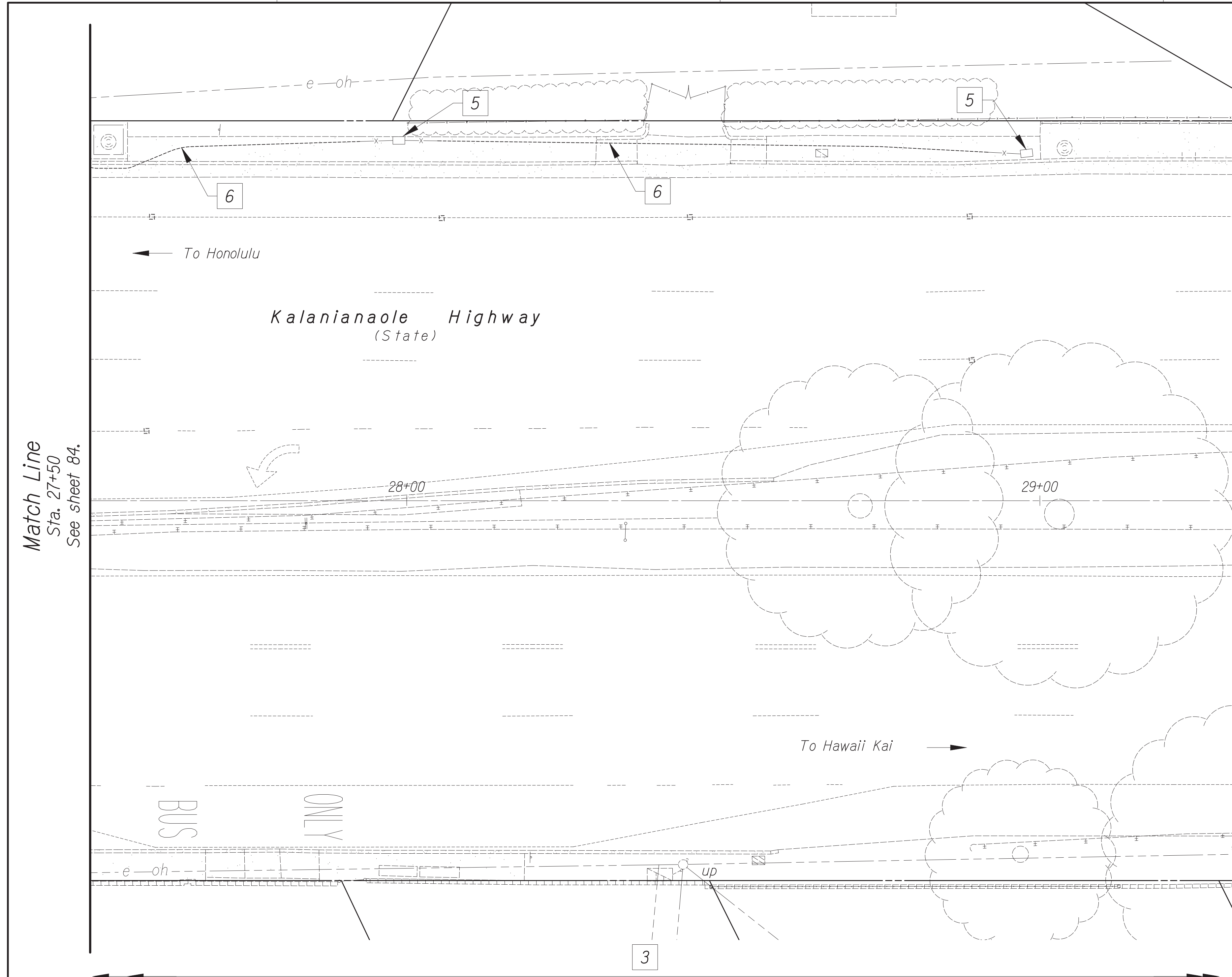


**Notes:**

- 1 The traffic signal system shall remain operational at all times during construction. Existing poles, traffic signal lights, and pedestrian signal heads may be removed only after new equipment is operational.
- 2 Deliver salvaged equipment to C&C of Honolulu, Dept. of Transportation Services, Traffic Signal & Technology baseyard at 999 Makolu Street (ph: 768-5323).
- 3 Overhead Type 3 interconnect cable to remain.
- 4 Existing traffic signal standard to remain.
- 5 Existing pullbox to remain.
- 6 Existing ductline to remain.

**Demolition Callouts:**

- D1 Remove and salvage traffic signal controller and cabinet. Demolish and dispose of concrete base one foot below finish grade.
- D2 Demolish and dispose of traffic signal pullbox.
- D3 Remove traffic signal cables. Abandon ductline in place. Fill ducts with lean concrete.
- D4 Abandon vehicle detectors in place.
- D5 Remove and salvage existing traffic signal standard. Demolish and dispose of concrete foundation two feet below finish grade. Remove and salvage traffic signal heads and pedestrian signal heads.
- D6 Remove and salvage pedestrian push button. Demolish and dispose of concrete foundation.
- D7 Remove overhead Type 2 detector lead-in cable. Overhead Type 3 interconnect cable to remain.



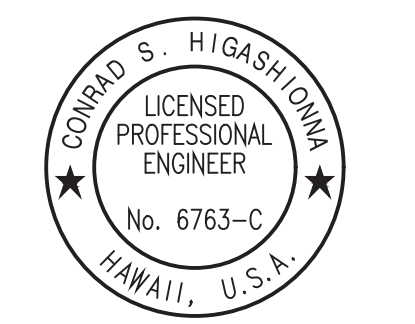
True North  
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042, 044, & 049

Match Line  
Sta. 27+50  
See sheet 84.

ORIGINAL PLAN	DATE
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QUANTITIES BY	
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**DEMOLITION PLAN**  
Scale: 1" = 10'



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Conrad Higashiomura

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 8 OF 37 SHEETS



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	87	149

**GRAPHIC SCALES**

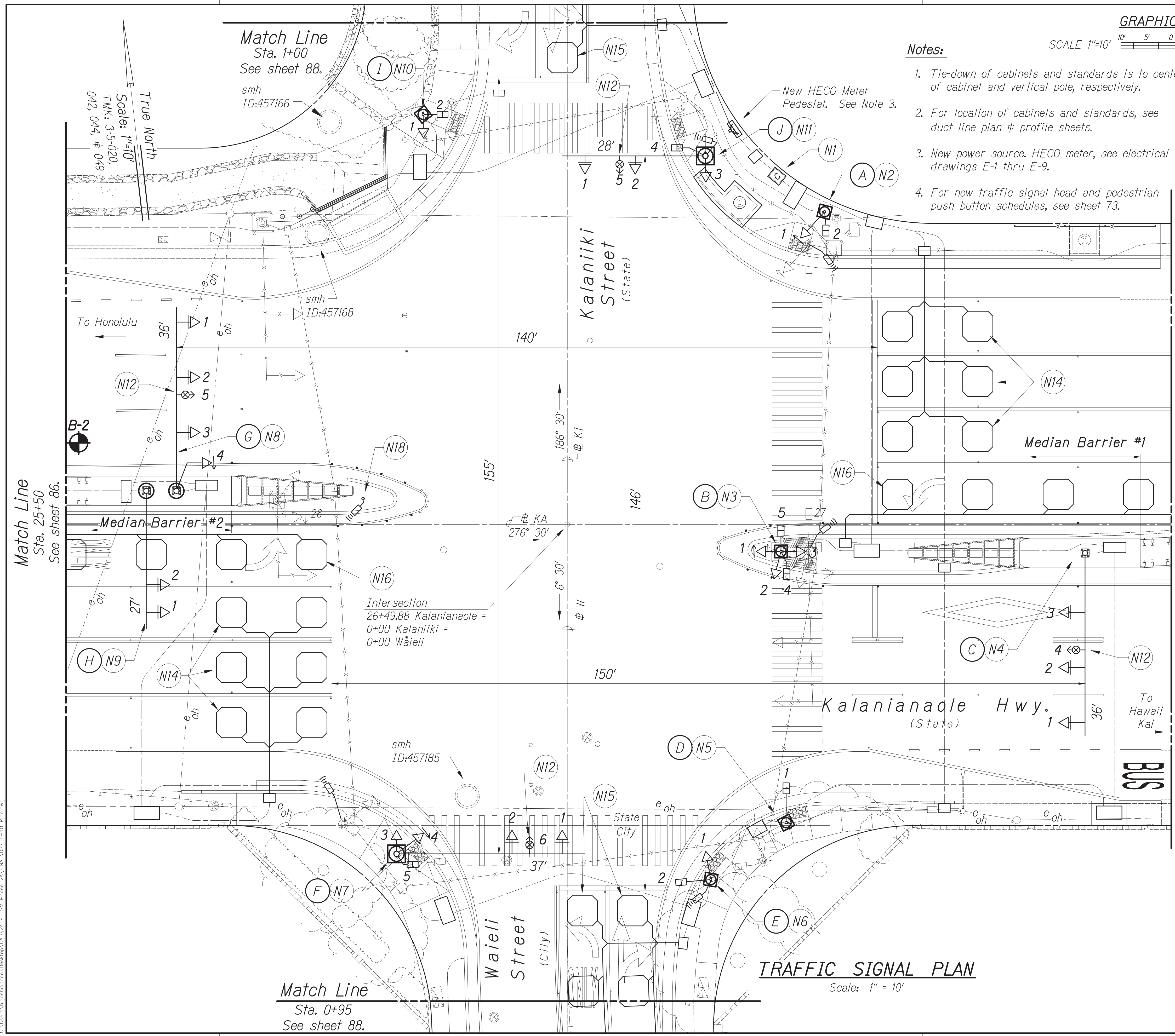


**Notes:**

1. Tie-down of cabinets and standards is to center of cabinet and vertical pole, respectively.
2. For location of cabinets and standards, see duct line plan & profile sheets.
3. New power source. HECO meter, see electrical drawings E-1 thru E-9.
4. For new traffic signal head and pedestrian push button schedules, see sheet 73.

**New Work Callouts:**

- (N1) Install Controller Assembly with Software.
- (N2) Install Type I Traffic Signal Standard, 10-foot height, with drilled shaft foundation and pedestrian push button (B1).
- (N3) Install Type I Traffic Signal Standard, 10-foot height, with drilled shaft foundation and pedestrian push button (B2).
- (N4) Install Type II Traffic Signal Standard with 36-foot mast arm. **Mount standard on Median Barrier #1.**
- (N5) Install Type I Traffic Signal Standard, 8-foot height, with drilled shaft foundation and two pedestrian push buttons (B3 and B4).
- (N6) Install Type I Traffic Signal Standard, 10-foot height, with drilled shaft foundation and pedestrian push button (B5).
- (N7) Install Type II Traffic Signal Standard with 37-foot mast arm & drilled shaft foundation and pedestrian push button (B6).
- (N8) Install Type II Traffic Signal Standard with 36-foot mast arm & drilled shaft foundation **thru Median Barrier #2.**
- (N9) Install Type II Traffic Signal Standard with 27-foot mast arm & drilled shaft foundation **thru Median Barrier #2.**
- (N10) Install Type I Traffic Signal Standard, 10-foot height, with drilled shaft foundation and pedestrian push button (B7).
- (N11) Install Type II Traffic Signal Standard with 28-foot mast arm and drilled shaft foundation and pedestrian push button (B8).
- (N12) Install Emergency Vehicle Detection unit.
- (N13) Install Loop Detector Sensing Unit (6 ft. x 6 ft.) One Loop centered in lane.
- (N14) Install Loop Detector Sensing Unit (6 ft. x 6 ft.) Two Loops centered in lane.
- (N15) Install Loop Detector Sensing Unit (6 ft. x 6 ft.) Four Loops centered in lane.
- (N16) Install Loop Detector Sensing Unit (6 ft. x 6 ft.) Six Loops centered in lane.
- (N17) Install temporary Approach-Only Microwave Vehicle Detector on new or existing traffic signal standard or temporary post.



**TRAFFIC SIGNAL PLAN**

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APPROVED BY: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

SHEET No. 10 OF 37 SHEETS

CONRAD S. HIGASHI, D.M.A.  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6763-C  
 HAWAII, U.S.A.

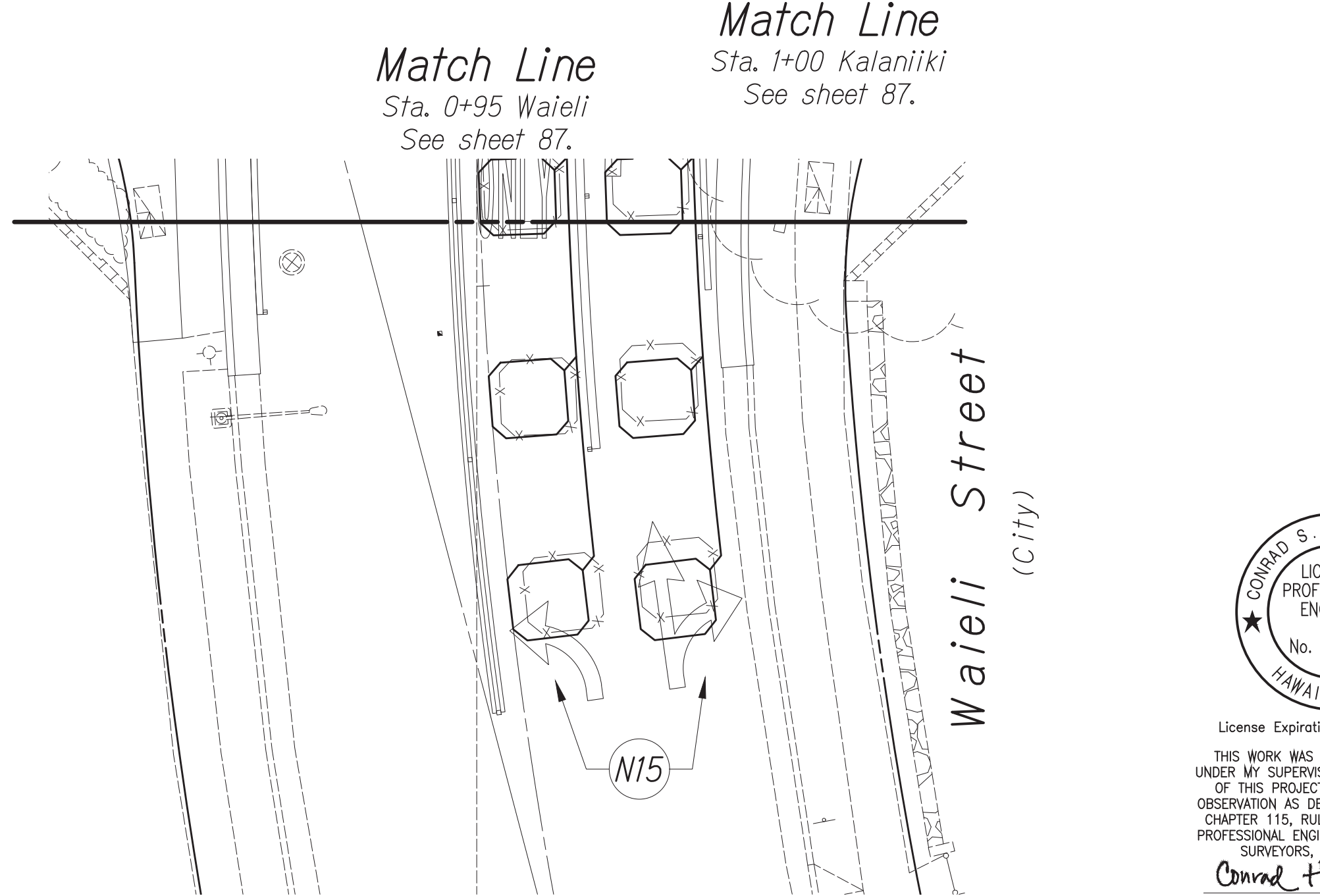
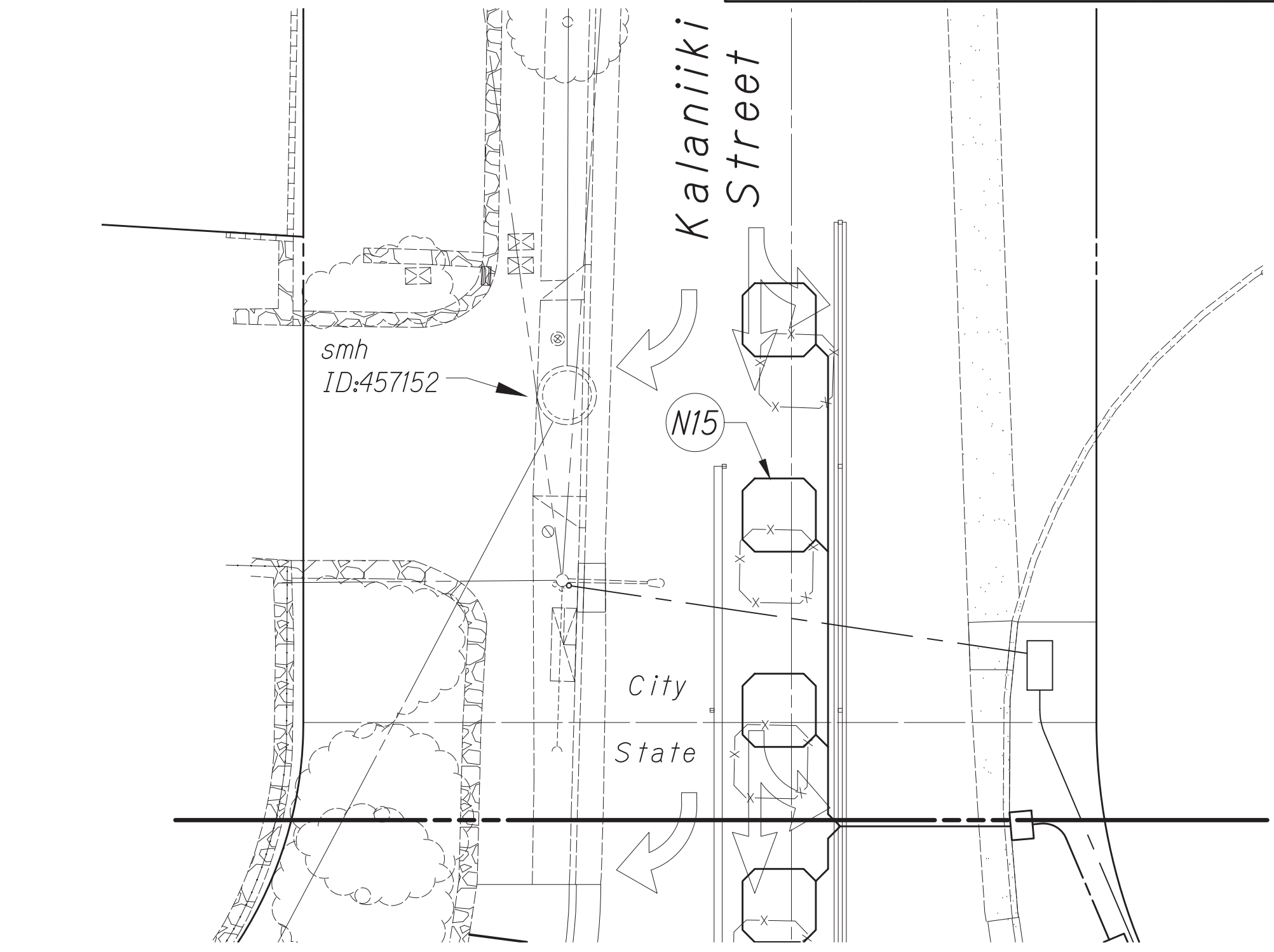
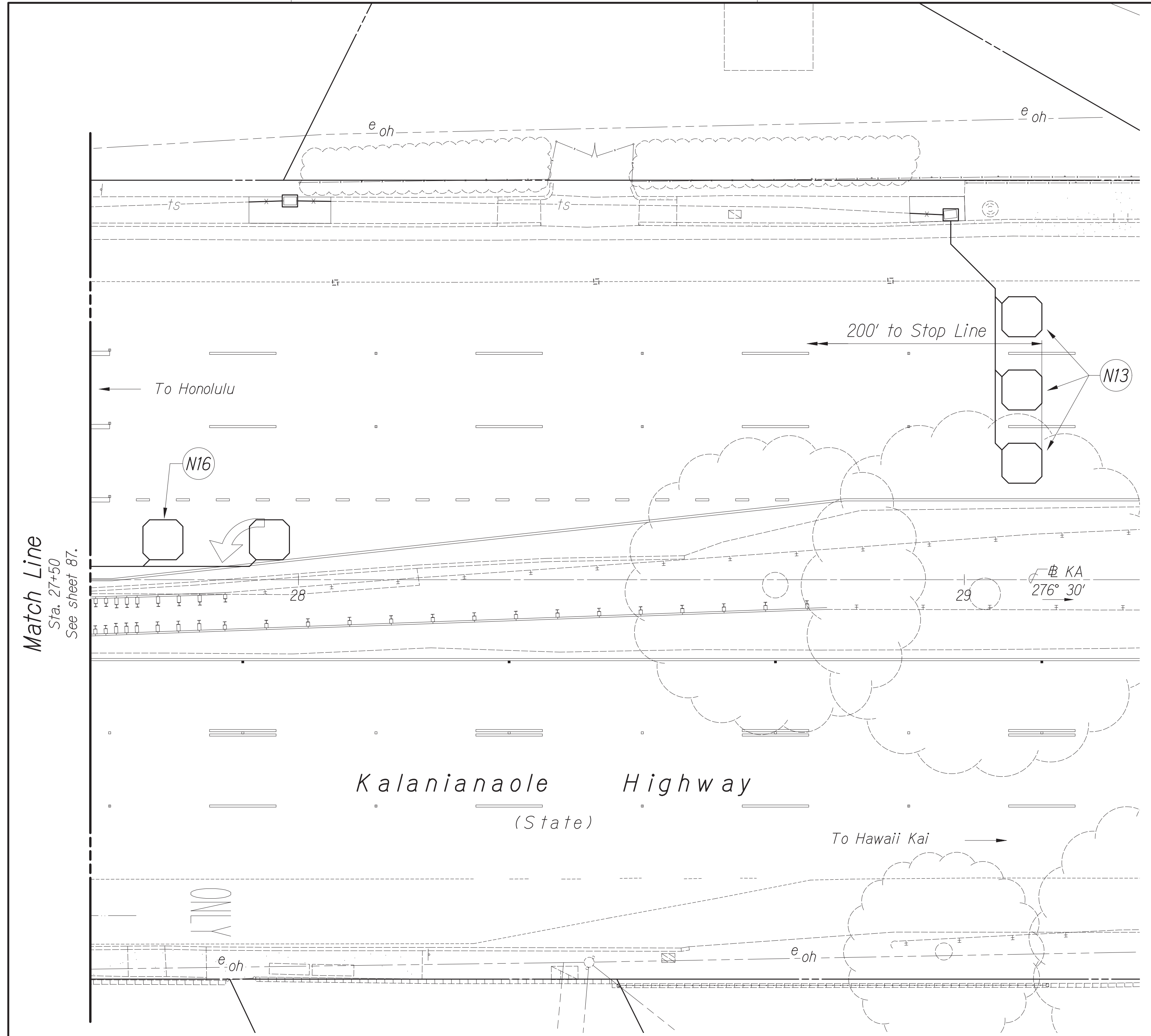
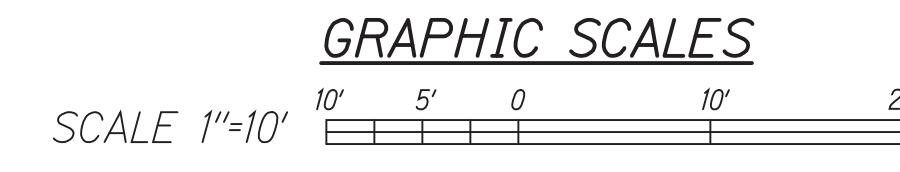
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Conrad Higashima



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	88	149



True North  
Scale: 1"=10'  
T.M.K.: 3-5-020,  
042, 044, φ 049

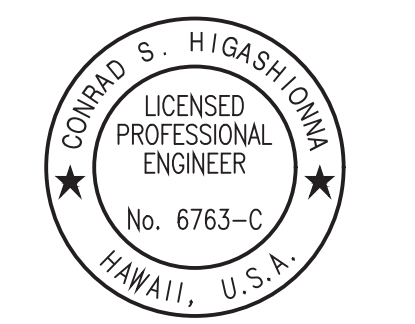
- New Work Callouts:**
- N13 Install Loop Detector Sensing Unit (6 ft. x 6 ft.) One Loop centered in lane.
  - N15 Install Loop Detector Sensing Unit (6 ft. x 6 ft.) Four Loops centered in lane.
  - N16 Install Loop Detector Sensing Unit (6 ft. x 6 ft.) Six Loops centered in lane.

**TRAFFIC SIGNAL PLAN**  
Scale: 1" = 10'

DATE	BY

ORIGINAL PLAN No.	NOTE BOOK No.

Oct 10, 2024 - 1:58pm  
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Conrad Higashimura

APPROVED BY:	
Chief, Traffic Review Branch, DDP	Date
Chief, Traffic Signal & Technology Division, DTS	Date

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

SHEET No. 11 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	89	149

### MEDIAN BARRIER FOUNDATION for Type II Traffic Signal Standard

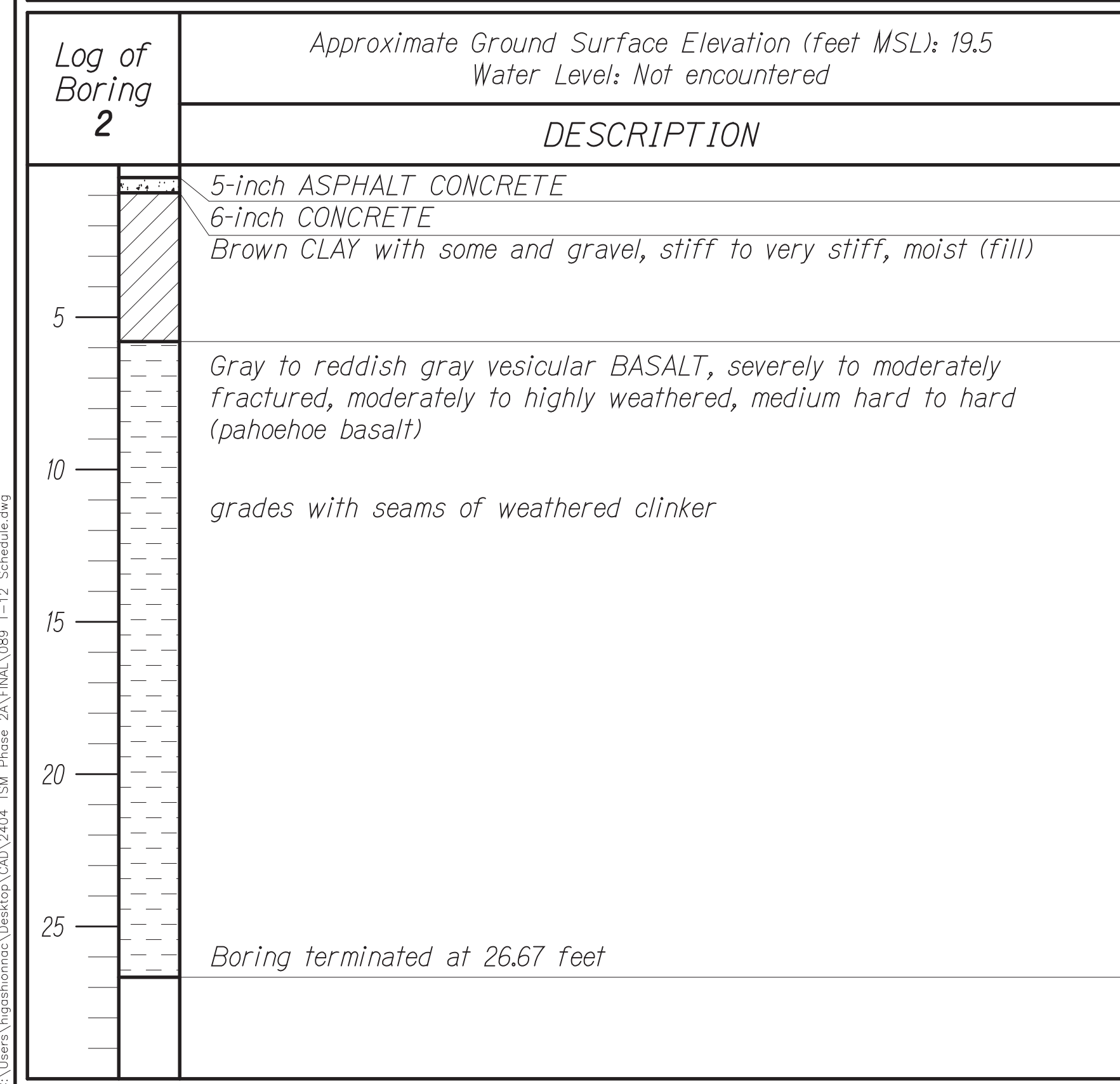
Soil Type	Grade	Mast Arm Length (feet)	Foundation Length x Width (feet)	Depth above & below finish grade (feet)
Stiff Clays	Level	38	22' x 5.875'	2.67' above 3' below

See structural plan sheets S-1 thru S-7 for details of Median Barrier Foundation for Pole C. Foundation for Pole C shall be paid for under Proposal Item No. 606.0300 - Median Barrier.

### DRILLED SHAFT FOUNDATIONS for Type II Traffic Signal Standards

Soil Type	Grade	Mast Arm Length (feet)	Drilled Shaft Diameter (inches)	Drilled Shaft Length (feet)
Stiff Clays	Level	35	42	11
Stiff Clays	Level	38	42	11
Stiff Clays	Level	27	42	11
Stiff Clays	Level	27	42	11

See structural plan sheets S-1 thru S-7 for details of drilled shaft foundations. Drilled shaft foundations for Poles G and H shall be paid for under Section 511 - Drilled Shafts.



### SIGNAL HEAD SCHEDULE

Head Type and Description	Pole Letter - Signal Head Number
Red Ball	B-2 F-3
Yellow Ball	B-3 G-1*
Green Ball	C-1* G-2*
	C-2* G-3*
	C-3* I-1
	E-1 J-1*
	F-1* J-2*
	F-2* J-3
12" RYG Traffic Signal Head	
Red Ball	
Yellow Arrow (Left)	A-1
Green Arrow (Left)	F-4
12" R ←← Traffic Signal Head	
Red Ball	
Yellow Arrow (Left)	B-1
Green Arrow (Left)	G-4
12" R ←← Programmed Visibility Traffic Signal Head	
Red Ball	
Yellow Ball	H-1*
Green Arrow (Thru)	H-2*
12" RY ↑ Programmed Visibility Traffic Signal Head	
Countdown Pedestrian Signal Head	A-2 E-2 B-4 F-5 B-5 I-2 D-1 J-4

\* Install Backplate with Retroreflective Borders

### PEDESTRIAN PUSH BUTTON SCHEDULE

Description	Pole B#
	(A) B1
	(D) B4
	(I) B7
	(J) B8
	(D) B3
	(E) B5
	(F) B6
	(B) B2

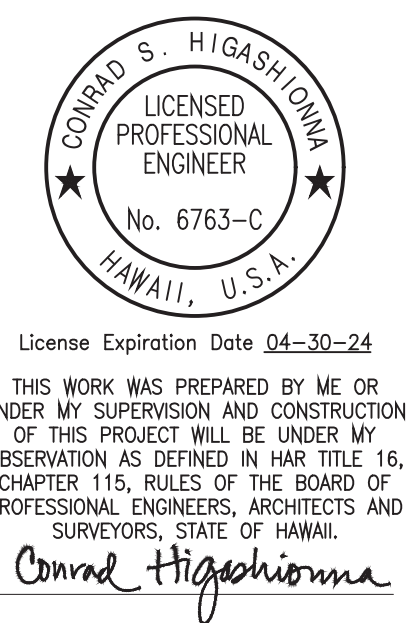
Pedestrian push buttons shall be ADA compliant.

### OPTICOM SCHEDULE

Mounting Type	Pole Letter - Opticom Number
	C-4 G-5
Mast Arm, One-Way	F-6 J-5

DATE	
DESIGNED BY	
CHECKED BY	
DATE	
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CHECKED BY	
DATE	
DESIGNED BY	
CHECKED BY	

Oct 10, 2024 - 1:58pm  
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APPROVED BY: \_\_\_\_\_

Chief, Traffic Review Branch, DTP \_\_\_\_\_ Date \_\_\_\_\_ Chief, Traffic Signal & Technology Division, DTS \_\_\_\_\_ Date \_\_\_\_\_

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

## TRAFFIC SIGNAL SYSTEM

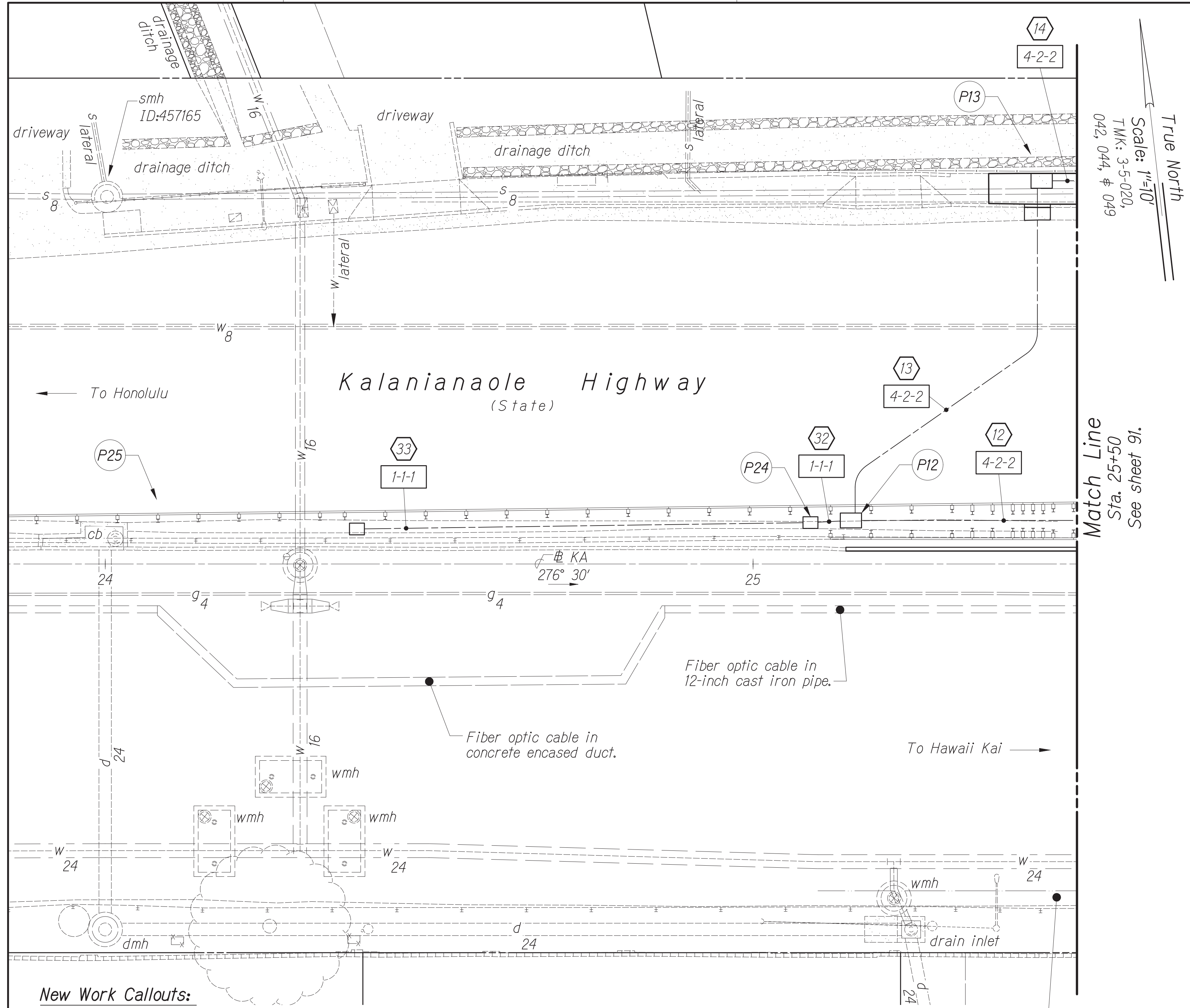
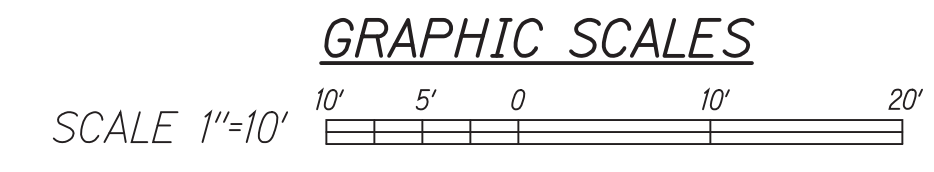
### TRAFFIC SIGNAL MODERNIZATION

Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 12 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	90	149



- New Work Callouts:**
- P12 Pull Box #12, Type "B" pull box.
  - P13 Pull Box #13, Type "B" pull box.
  - P24 Pull Box #24, Type "A" pull box.
  - P25 Pull Box #25, Type "A" pull box.

**DUCT LINE & PULL BOX PLAN**  
Scale: 1" = 10'

DATE	BY

Oct 10, 2024 - 1:58pm  
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CONRAD S. HIGASHIDOM  
LICENSED PROFESSIONAL ENGINEER  
No. 6763-C  
HAWAII, U.S.A.

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*Conrad Higashidom*

APPROVED BY:

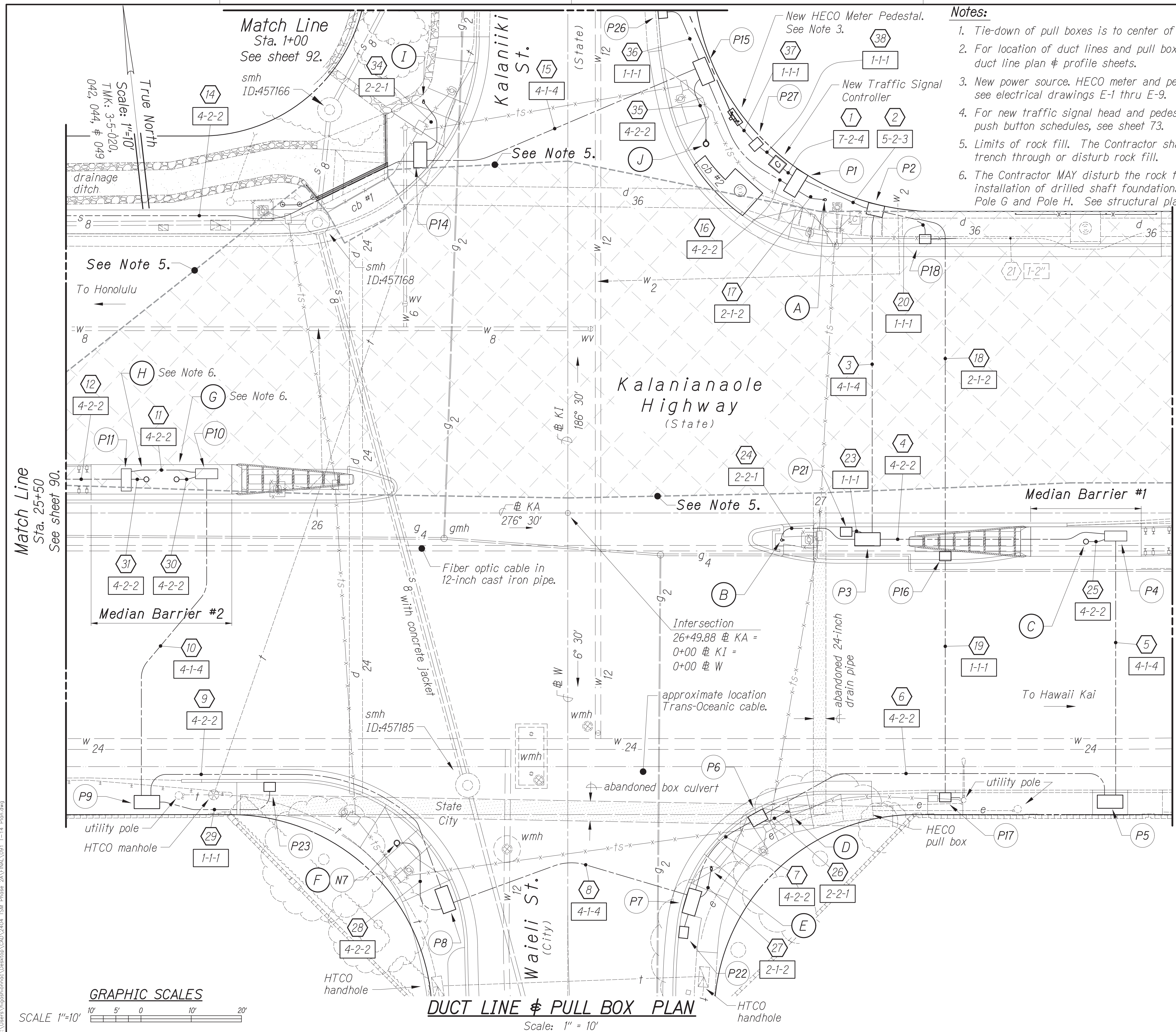
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

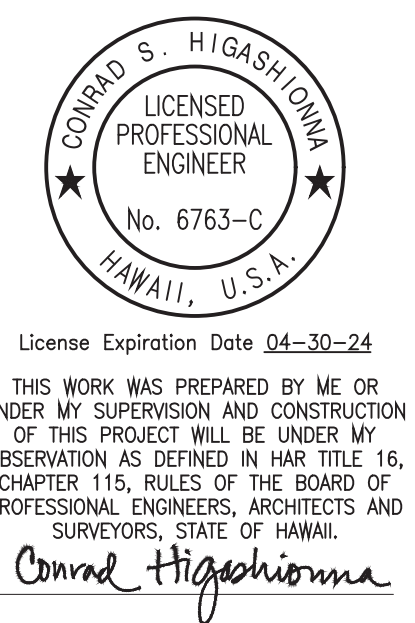
SHEET No. 13 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	91	149



- Notes:**
1. Tie-down of pull boxes is to center of box.
  2. For location of duct lines and pull boxes, see duct line plan & profile sheets.
  3. New power source. HECO meter and pedestal, see electrical drawings E-1 thru E-9.
  4. For new traffic signal head and pedestrian push button schedules, see sheet 73.
  5. Limits of rock fill. The Contractor shall NOT trench through or disturb rock fill.
  6. The Contractor MAY disturb the rock fill for installation of drilled shaft foundations for Pole G and Pole H. See structural plans.

- New Work Callouts:**
- P1 Pull Box #1, Special Type "C" pull box.
  - P2 Pull Box #2, Type "B" pull box.
  - P3 Pull Box #3, Special Type "C" pull box.
  - P4 Pull Box #4, see structural plan sheets S-1 thru S-7. The cost for P4 shall be incidental to Median Barrier #1.
  - P5 Pull Box #5, Special Type "C" pull box.
  - P6 Pull Box #6, Type "B" pull box.
  - P7 Pull Box #7, Special Type "C" pull box.
  - P8 Pull Box #8, Special Type "C" pull box.
  - P9 Pull Box #9, Special Type "C" pull box.
  - P10 Pull Box #10, see structural plan sheets S-1 thru S-7. The cost for P10 shall be incidental to Median Barrier #2.
  - P11 Pull Box #11, see structural plan sheets S-1 thru S-7. The cost for P11 shall be incidental to Median Barrier #2.
  - P14 Pull Box #14, Special Type "C" pull box.
  - P15 Pull Box #15, Special Type "C" pull box.
  - P16 Pull Box #16, Type "A" pull box.
  - P17 Pull Box #17, Type "A" pull box.
  - P18 Pull Box #18, Type "A" pull box. Intercept existing traffic signal duct line. Connect existing conduit to new conduit. Connect new conduit to new pull box at knockout. The estimated length of new duct line for connection is five (5) linear feet. A duct line profile is not provided for this connection. The Contractor shall construct connection to fit existing conditions.
  - P21 Pull Box #21, Type "A" pull box.
  - P22 Pull Box #22, Type "A" pull box.
  - P23 Pull Box #23, Type "A" pull box.
  - P26 Pull Box #26, Type "A" pull box.
  - P27 Pull Box #27, Type "A" pull box.



APPROVED BY: \_\_\_\_\_

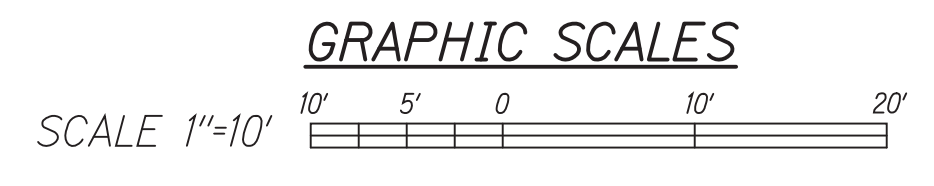
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

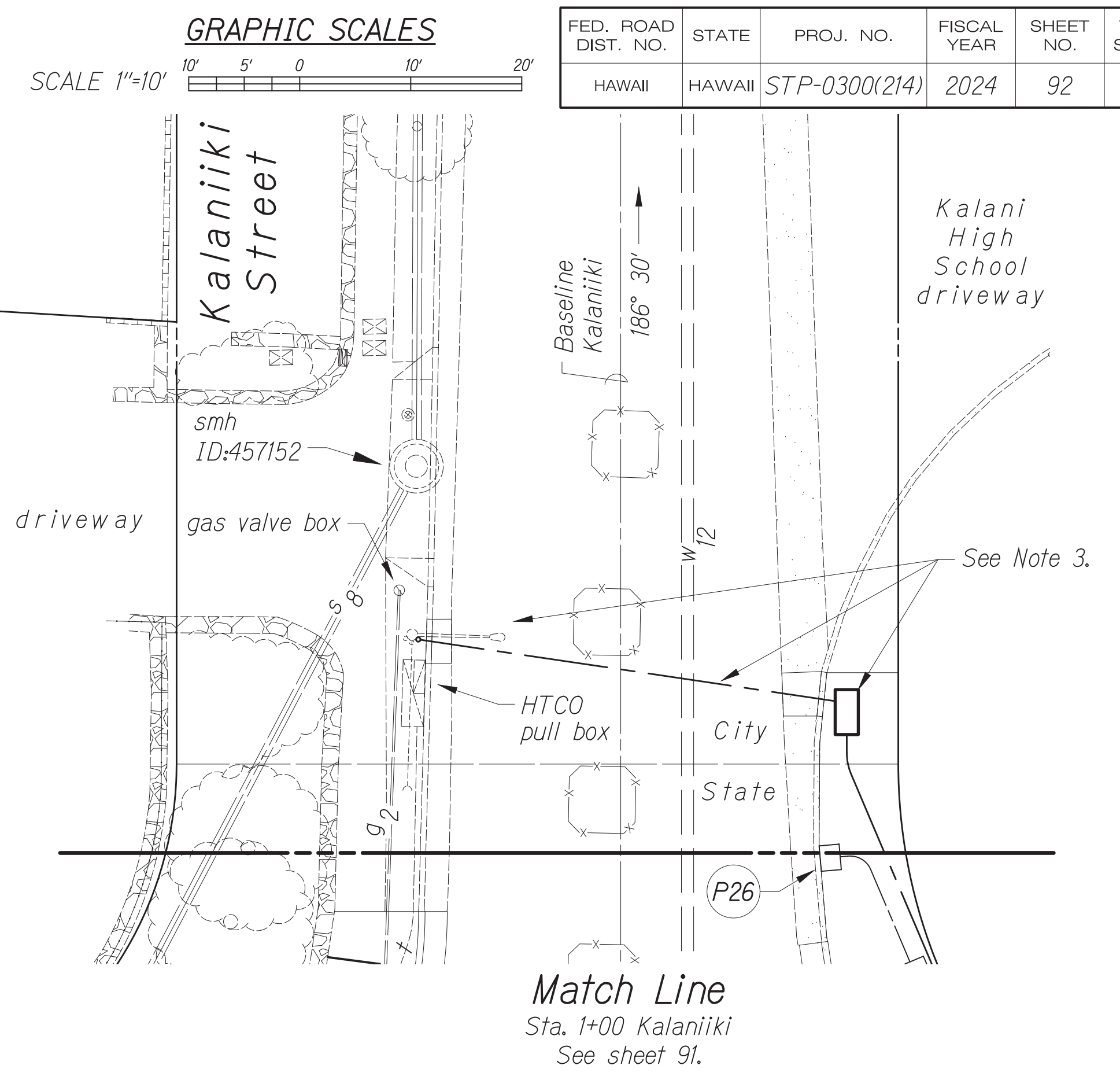
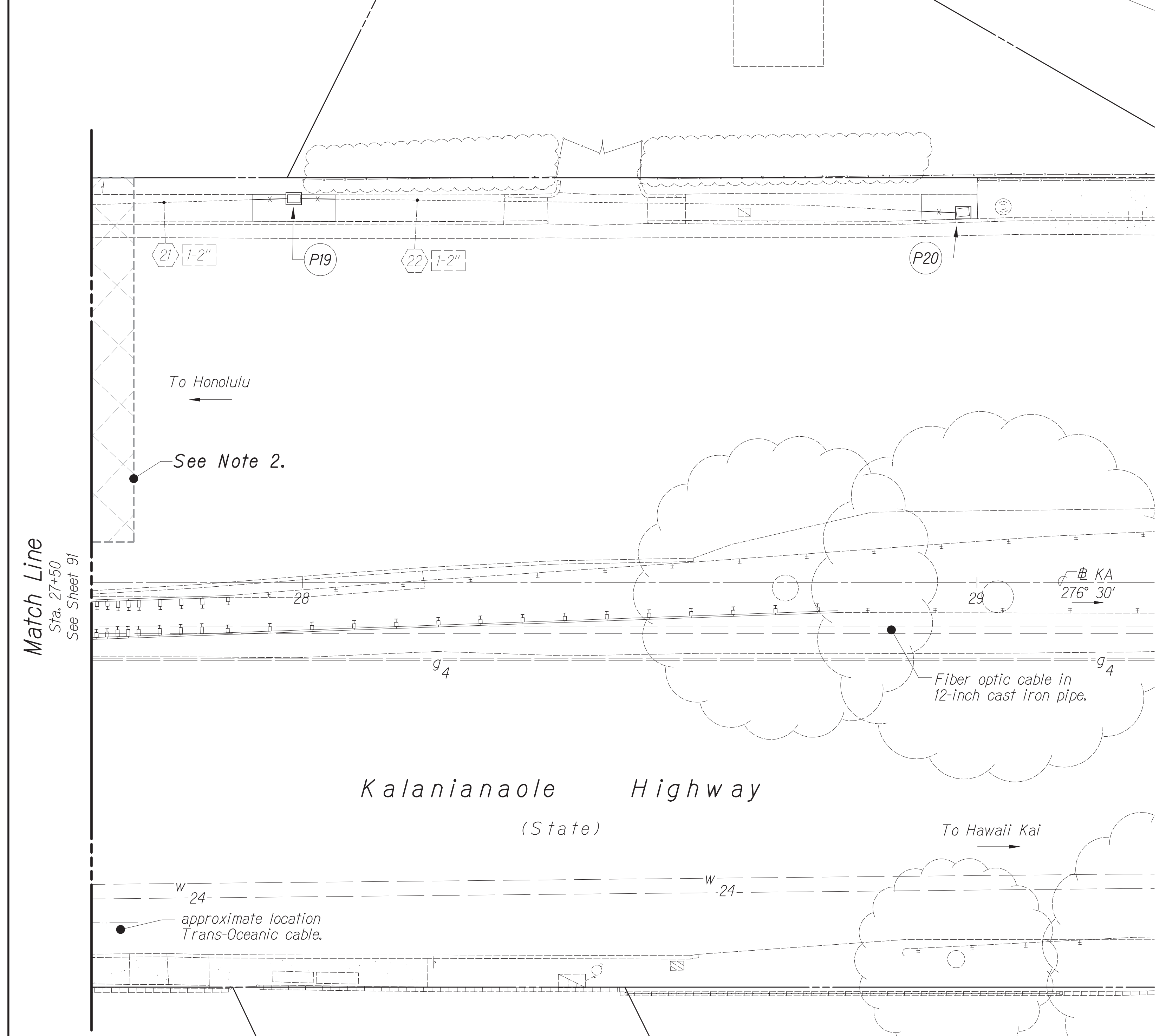
SHEET No. 14 OF 37 SHEETS

SURVEY PLOTTED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
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 NOTE BOOK NO. \_\_\_\_\_  
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**DUCT LINE & PULL BOX PLAN**  
Scale: 1" = 10'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	92	149



True North  
Scale: 1"=10'  
T.M.K.: 3-5-020,  
042, 044, φ 049

**New Work Callouts:**

- P19 Pull Box #19, Type "A" pull box. Intercept existing traffic signal duct lines. Connect existing conduits to new conduits. Connect new conduits to new pull box at knockout. The estimated length of new duct line for each connection is five (5) linear feet. Duct line profiles are not provided for these connections. The Contractor shall construct connections to fit existing conditions.
- P20 Pull Box #20, Type "A" pull box. Intercept existing traffic signal duct line. Connect existing conduit to new conduit. Connect new conduit to new pull box at knockout. The estimated length of new duct line for connection is five (5) linear feet. A duct line profile is not provided for this connection. The Contractor shall construct connection to fit existing conditions.

**Notes:**

1. Tie-down of pull boxes is to center of box.
2. Limits of rock fill. The Contractor shall NOT trench through or disturb rock fill.
3. New power source. HECO riser, pull box, and duct, see electrical drawings E-1 thru E-9.

**DUCT LINE & PULL BOX PLAN**  
Scale: 1" = 10'

DATE	BY

Oct 10, 2024 - 1:58pm  
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CONRAD S. HIGASHIMURA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6763-C  
 HAWAII, U.S.A.  
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 Conrad Higashimura

APPROVED BY:

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024  
 SHEET No. 15 OF 37 SHEETS

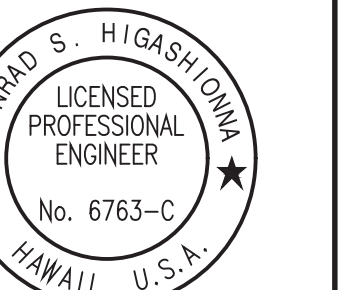
CONDUIT-CABLE SCHEDULE

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	93	149

From	To	Conduit Size	Cable Type	Cable Quantity	From	To	Conduit Size	Cable Type	Cable Quantity	From	To	Conduit Size	Cable Type	Cable Quantity	From	To	Conduit Size	Cable Type	Cable Quantity													
1	Traffic Signal Controller	P1	2"	Type 1, Ground Wire	1	9	P8	P9	2"	Type 1, Ground Wire	1	19	P16	P17	2"	Type 3 (existing)	1	31	P11	H	2"	Type 5	2									
			2"	Type 1, Ground Wire	1				2"	Spare (pull cord)	1				2"	Type 2	1				2"	Spare (pull cord)	1									
			2"	Type 2	6				2"	Spare (pull cord)	1				21	P18	P19				2"	Type 2	1	2"	Spare (pull cord)	1						
			2"	Type 2	6				2"	Spare (pull cord)	1				22	P19	P20				2"	Type 2	1	2"	Spare (pull cord)	1						
			2"	Type 3 (existing)	1				10	P9	P10				2"	Type 1, Ground Wire	1				23	P3	P21	2"	Type 2	1	32	P12	P24	2"	Type 2	2
			2"	Type 7	4										2"	Type 2	1				24	P3	B	2"	Type 2	1	33	P24	P25	2"	Type 2	1
			2"	Spare (pull cord)	1										2"	Spare (pull cord)	1				2"	Type 5	5	34	P14	I	2"	Type 2	1			
2	P1	P2	2"	Type 1, Ground Wire	1	11	P10	P11	2"	Type 1, Ground Wire	1	25	P4	C	2"	Type 5	3	35	P15	H	2"	Type 2	1									
			2"	Type 2	6				2"	Type 2	1				2"	Type 7	1				2"	Type 5	4									
			2"	Type 3 (existing)	1				2"	Type 7	1				2"	Spare (pull cord)	1				2"	Type 7	1									
			2"	Type 7	2				2"	Spare (pull cord)	1				2"	Spare (pull cord)	1				2"	Spare (pull cord)	1									
3	P2	P3	2"	Type 1, Ground Wire	1	12	P11	P12	2"	Type 1, Ground Wire	1	26	P6	D	2"	Type 2	1	36	P15	P26	2"	Type 2	1									
			2"	Type 2	4				2"	Type 2	1				2"	Type 5	1				37	New HECO Meter	P27	2"	Type 6	1						
			2"	Type 7	2				2"	Type 7	1				2"	Type 2	1				2"	Type 5	2	38	P27	Traffic Signal Controller	2"	Type 6	1			
			2"	Spare (pull cord)	1				2"	Spare (pull cord)	1				2"	Type 2	1				2"	Type 5	1									
4	P3	P4	2"	Type 1, Ground Wire	1	13	P12	P13	2"	Type 1, Ground Wire	1	28	P8	F	2"	Type 2	5	30	P10	G	2"	Type 7	1									
			2"	Type 2	3				2"	Type 5	5				2"	Spare (pull cord)	1															
			2"	Type 7	2				2"	Type 7	1				2"	Type 2	1															
			2"	Spare (pull cord)	1				2"	Spare (pull cord)	1				2"	Type 5	4															
5	P4	P5	2"	Type 1, Ground Wire	1	14	P13	P14	2"	Type 1, Ground Wire	1	29	P9	P23	2"	Type 2	1	30	P10	G	2"	Type 7	1									
			2"	Type 2	3				2"	Type 5	1				2"	Type 5	4															
			2"	Type 7	1				2"	Type 7	1				2"	Type 7	1															
			2"	Spare (pull cord)	1				2"	Spare (pull cord)	1				2"	Spare (pull cord)	1															
6	P5	P6	2"	Type 1, Ground Wire	1	15	P14	P15	2"	Type 1, Ground Wire	1	29	P9	P23	2"	Type 2	1	30	P10	G	2"	Type 7	1									
			2"	Type 2	3				2"	Type 5	1				2"	Type 5	4															
			2"	Type 7	1				2"	Type 7	1				2"	Type 7	1															
			2"	Spare (pull cord)	1				2"	Spare (pull cord)	1				2"	Spare (pull cord)	1															
7	P6	P7	2"	Type 1, Ground Wire	1	16	P15	P16	2"	Type 1, Ground Wire	1	29	P9	P23	2"	Type 2	1	30	P10	G	2"	Type 7	1									
			2"	Type 2	2				2"	Type 5	5				2"	Type 5	4															
			2"	Type 7	1				2"	Type 7	1				2"	Type 7	1															
			2"	Spare (pull cord)	1				2"	Spare (pull cord)	1				2"	Spare (pull cord)	1															
8	P7	P8	2"	Type 1, Ground Wire	1	17	P1	A	2"	Type 1, Ground Wire	1	29	P9	P23	2"	Type 2	1	30	P10	G	2"	Type 7	1									
			2"	Type 2	1				2"	Type 5	2				2"	Type 5	4															
			2"	Type 7	1				2"	Type 7	1				2"	Type 7	1															
			2"	Spare (pull cord)	1				2"	Spare (pull cord)	1				2"	Spare (pull cord)	1															
9	P1	P16	2"	Type 1, Ground Wire	1	18	P1	P16	2"	Type 1, Ground Wire	1	29	P9	P23	2"	Type 3 (existing)	1	30	P10	G	2"	Type 3 (existing)	1									
			2"	Spare (pull cord)	1				2"	Spare (pull cord)	1				2"	Spare (pull cord)	1															

Cable Notes

- Type 1 Signal-loop cable for load circuits from cabinet looped to field pull boxes. Polyethylene insulated, stranded, 14 AWG copper; 26 conductor cable; polyethylene jacketed; color-coded; IMSA Specification No. 20-1 certified.
- Type 2 Home-run cable tie-in loop detector stubs or pedestrian push button to the cabinet. Polyethylene insulated, stranded-tinned-copper 14 AWG; two conductor cable; polyethylene jacketed; 600 volts rated; IMSA Specification No. 50-2 certified.
- Type 3 Existing inter-connect cable tie-in one signalized intersection to another.
- Type 4 Detector-loop sensor cable: Stranded No. 12, single conductor to IMSA Spec 51-5.
- Type 5 Signal-Drop Cable: Stranded No. 14, 4 Conductors.
- Type 6 Electric Service Cable: Solid, No. 6, 3 Conductors; No. 8, 1 Ground.
- Type 7 Optical Cable: Stranded, No. 20, 3 Conductors; No. 20, 1 Ground.



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Conrad Higashimura

APPROVED BY:	DATE:
Chief, Traffic Review Branch, DTP	Date
Chief, Traffic Signal & Technology Division, DTS	Date

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

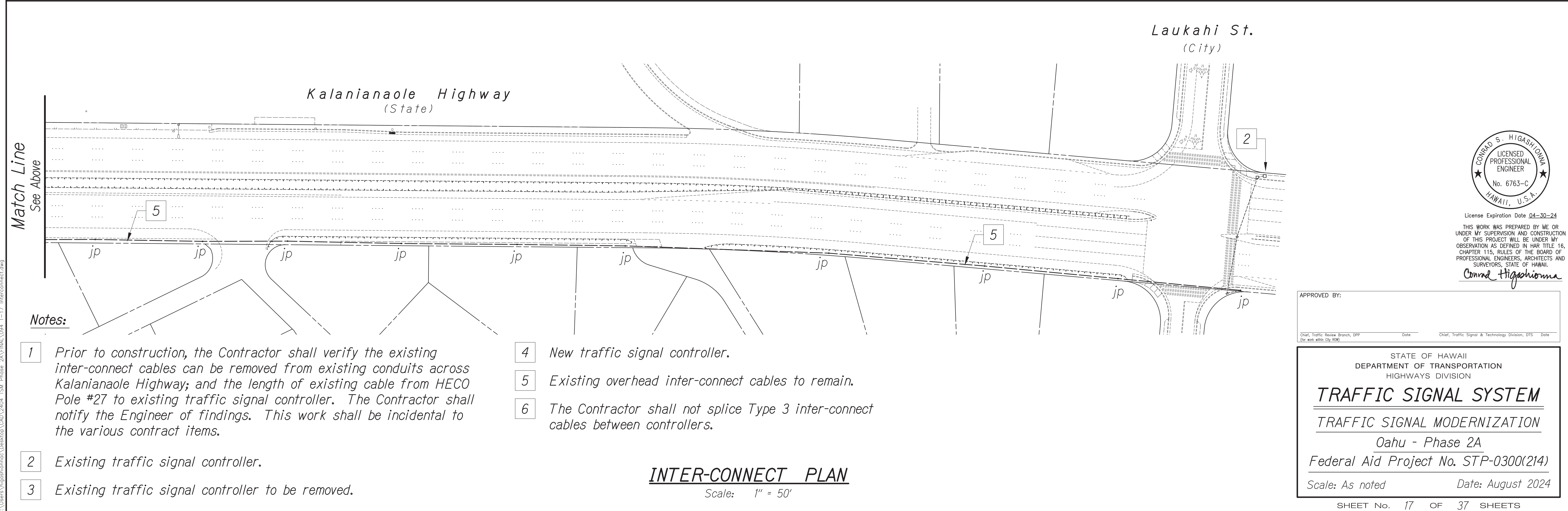
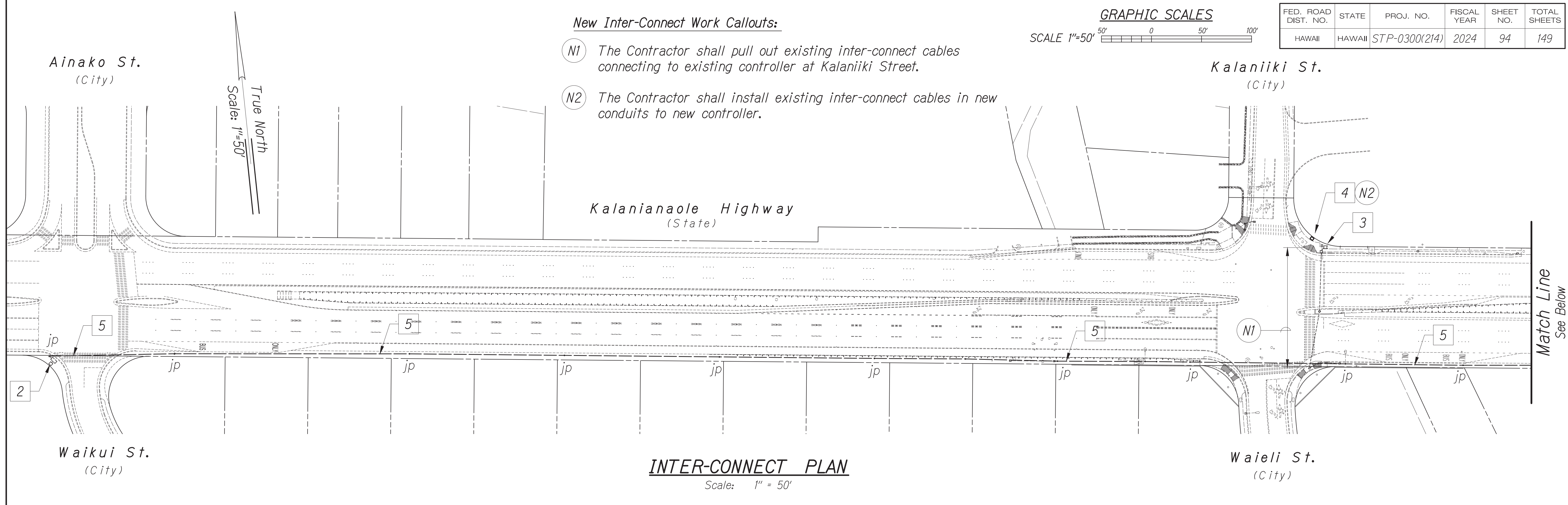
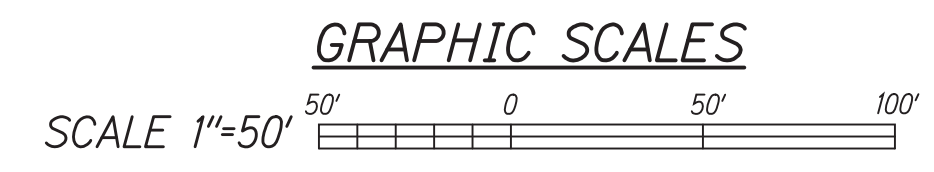
**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

DATE	BY
DESIGNED BY	DATE
TRACED BY	DATE
QUANTITIES BY	DATE
CHECKED BY	DATE

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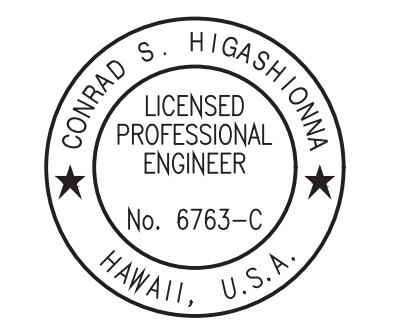
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	94	149



DATE	BY

SURVEY PLOTTED BY \_\_\_\_\_  
 TRACED BY \_\_\_\_\_  
 DESIGNED BY \_\_\_\_\_  
 QUANTITIES BY \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 No. \_\_\_\_\_

Oct 10, 2024 - 1:58pm  
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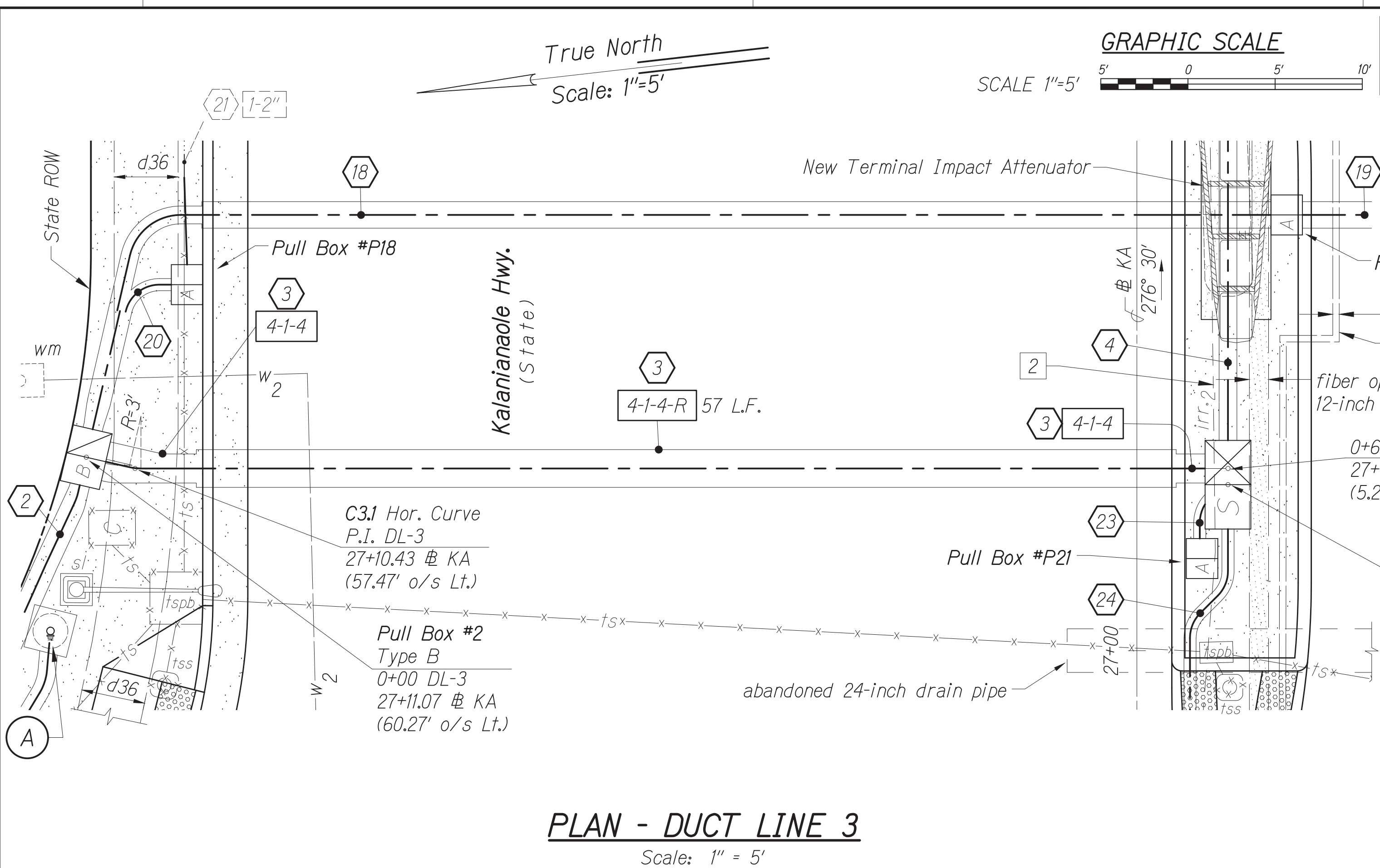
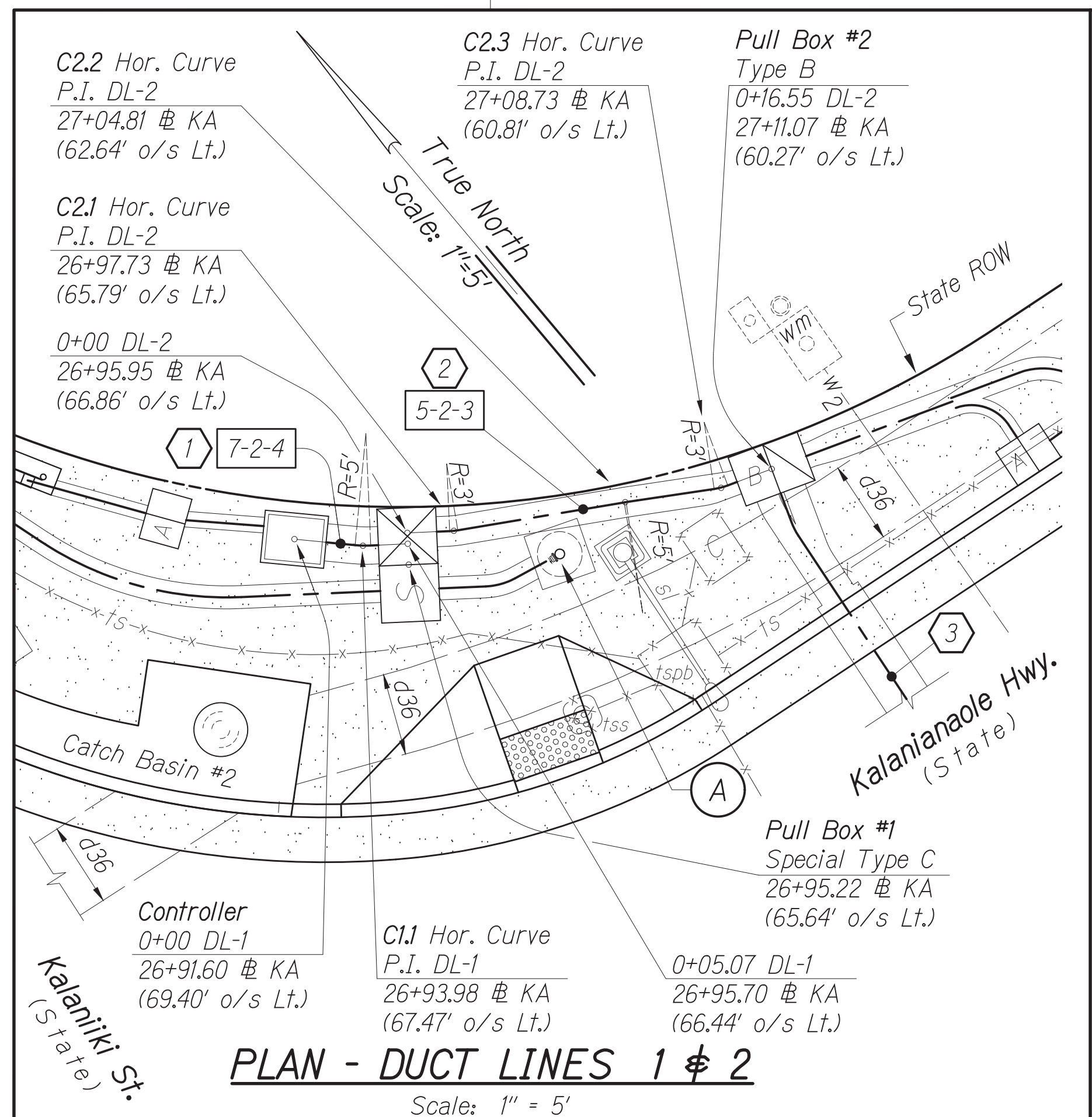
License Expiration Date 04-30-24  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.  
 Conrad Higashidoma

APPROVED BY: \_\_\_\_\_

Chief, Traffic Review Branch, DTP \_\_\_\_\_ Date \_\_\_\_\_  
 Chief, Traffic Signal & Technology Division, DTS \_\_\_\_\_ Date \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024  
 SHEET No. 17 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	95	149



- Notes:**
- The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
  - Approximate location of existing irrigation main. The Contractor shall relocate and repair existing irrigation system, as needed, to facilitate construction. This work shall be paid for via force account under Proposal Item No. 644.0100 - Repair of Existing Sprinkler Systems.

Station	C1.1 Horizontal Curve $\Delta=8^{\circ}00'$	C2.1 Horiz. Curve $\Delta=7^{\circ}00'$	C2.2 Horiz. Curve $\Delta=1^{\circ}00'$	C2.3 Horiz. Curve $\Delta=12^{\circ}00'$
0+00	Controller	#P1	#P1	#P2
0+05.07	#P1			
0+16.55				#P2
0+02.24				
0+04.93				
0+10.29				
0+14.24				
P.I. 15.34	P.I. 15.34	P.I. 13.79	P.I. 13.79	P.I. 13.00
$\Delta=31^{\circ}35'$ $R=2.76'$	$\Delta=30^{\circ}00'$ $R=2.73'$	$\Delta=30^{\circ}00'$ $R=3.27'$	$\Delta=20^{\circ}00'$ $R=2.73'$	$\Delta=25^{\circ}00'$ $R=2.37'$
0+01.83	0+02.24	0+04.93	0+10.29	0+01.70
1	2	3	3	3
7-2-4	5-2-3			

Station	C3.1 Hor. Curve $\Delta=13^{\circ}00'$	0+65.52 #P3
0+00	#P2	#P3
0+01.70		
0+03.28		
0+09.69		
P.I. 15.53	P.I. 16.27	P.I. 13.00
$\Delta=25^{\circ}00'$ $R=2.37'$	$\Delta=50^{\circ}00'$ $R=1.73'$	$\Delta=25^{\circ}00'$ $R=5.52'$
0+01.70	0+03.28	0+09.69
3	3	3
4-1-4	4-1-4-R 57 L.F.	4-1-4

Station	Profile - Duct Line 1	Profile - Duct Line 2
0+00		
0+10		

Station	Profile - Duct Line 3
0+00	
0+50	

**CONRAD S. HIGASHIYAMA**  
LICENSED PROFESSIONAL ENGINEER  
No. 6763-C  
HAWAII, U.S.A.  
License Expiration Date 04-30-26

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

*Conrad Higashiyama*

APPROVED BY: \_\_\_\_\_

Manager and Chief Engineer, BMS  
(for work affecting BMS facilities in City/State 1/2W and BMS assessments only)

Chief, Traffic Review Branch, BPP  
(for work affecting City BMS)

Chief, Traffic Signal & Technology Division, BMS

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 18 OF 37 SHEETS

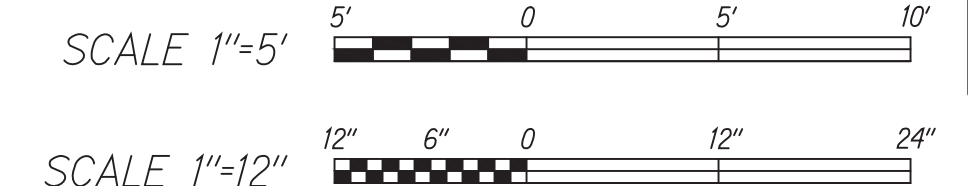
DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
QUANTITIES BY	_____
TRACED BY	_____
PLOTTED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

City ID: 2024-1358pm  
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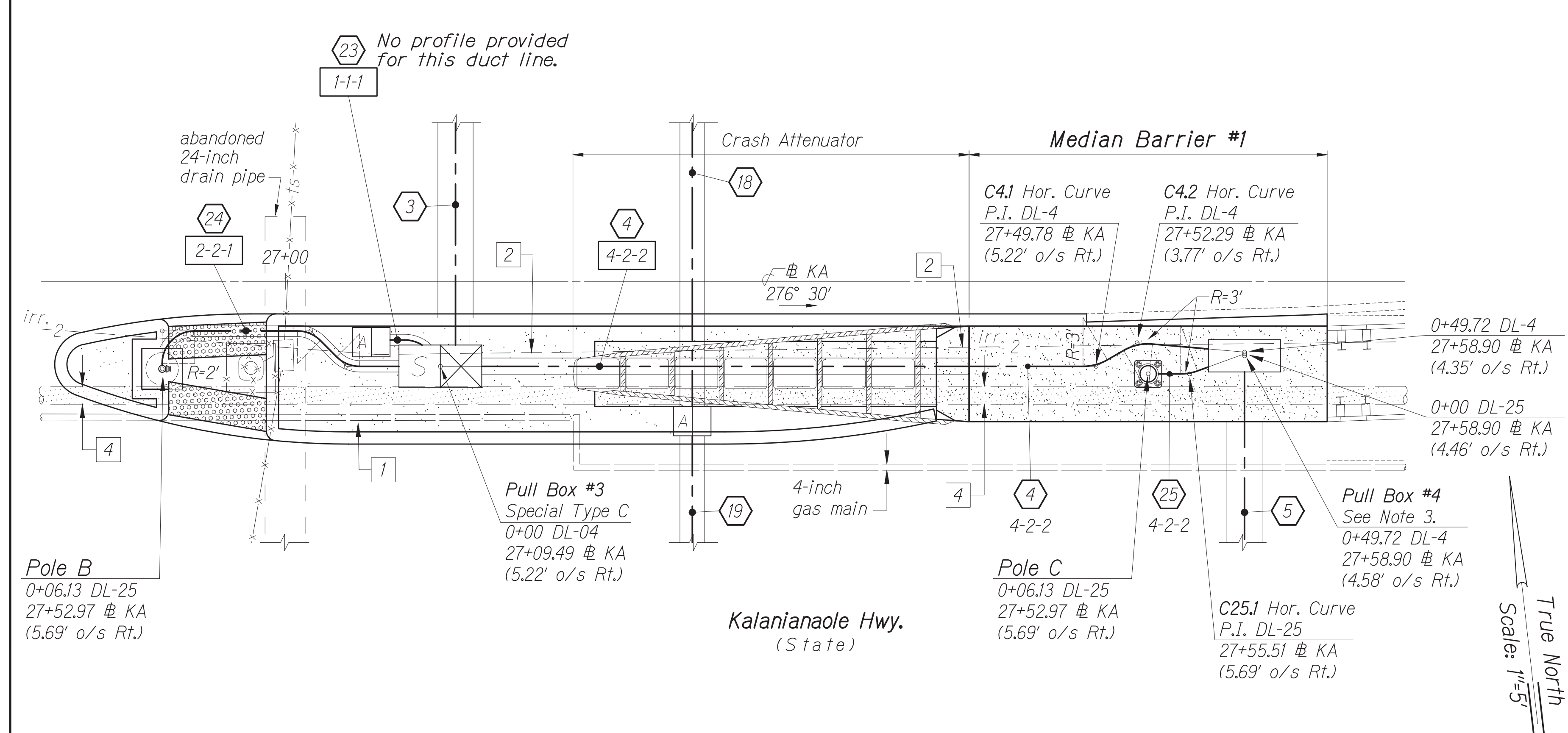
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	96	149

**GRAPHIC SCALES**



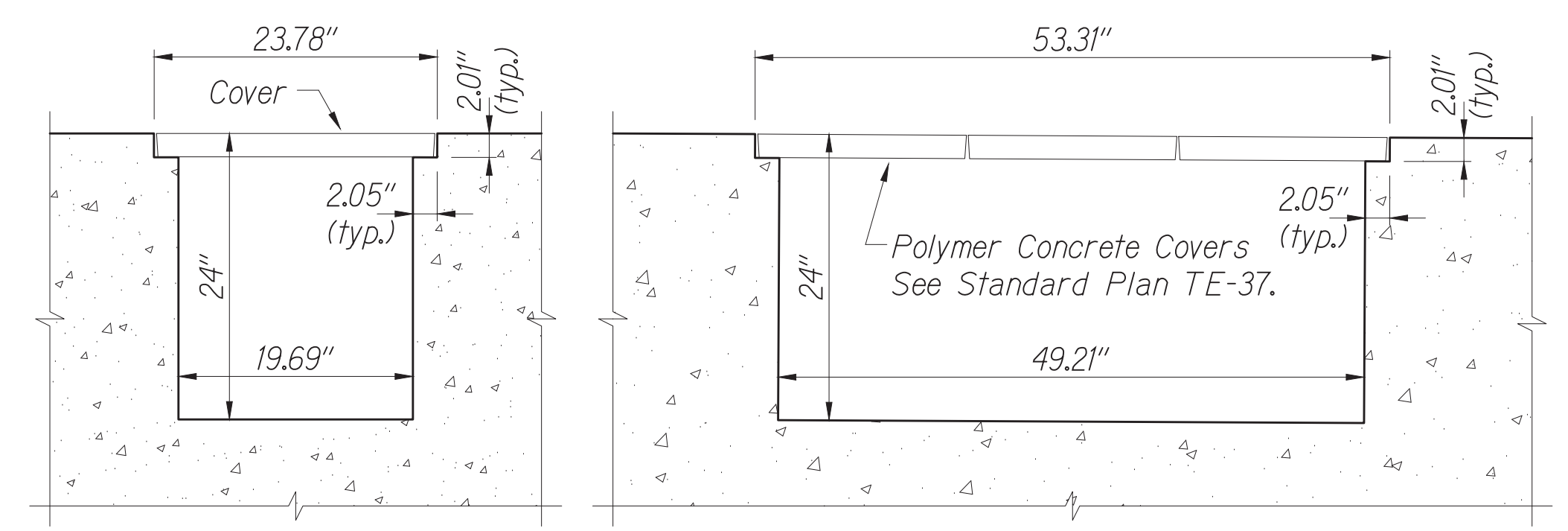
**Notes:**

- The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
- Approximate location of existing irrigation main. The Contractor shall relocate and repair existing irrigation system, as needed, to facilitate construction. This work shall be paid for via force account under Proposal Item No. 644.0100 - Repair of Existing Sprinkler Systems.
- The following work shall be incidental to Proposal Item No. 606.0300 - Median Barrier:
  - Furnishing and installing traffic signal conduits within Median Barrier #1.
  - Constructing Pull Box #4 within Median Barrier #1 including furnishing and installing Polymer Concrete Covers per Standard Plan TE-37.
- Prior to construction of traffic signal duct lines, foundation for Pole B, crash attenuator, and Median Barrier #1, the Contractor shall verify location of existing fiber optic cable within 12-inch cast iron pipe. The Contractor shall inform the Engineer of any conflicts with new improvements.



**PLAN - DUCT LINES 4 & 23 & 24 & 25**

Scale: 1" = 5'

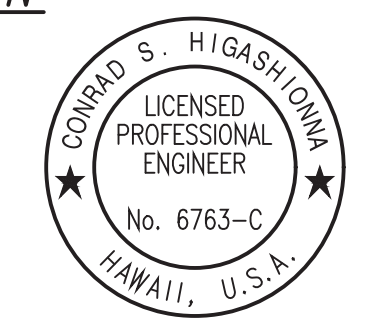


**TRANSVERSE SECTION**

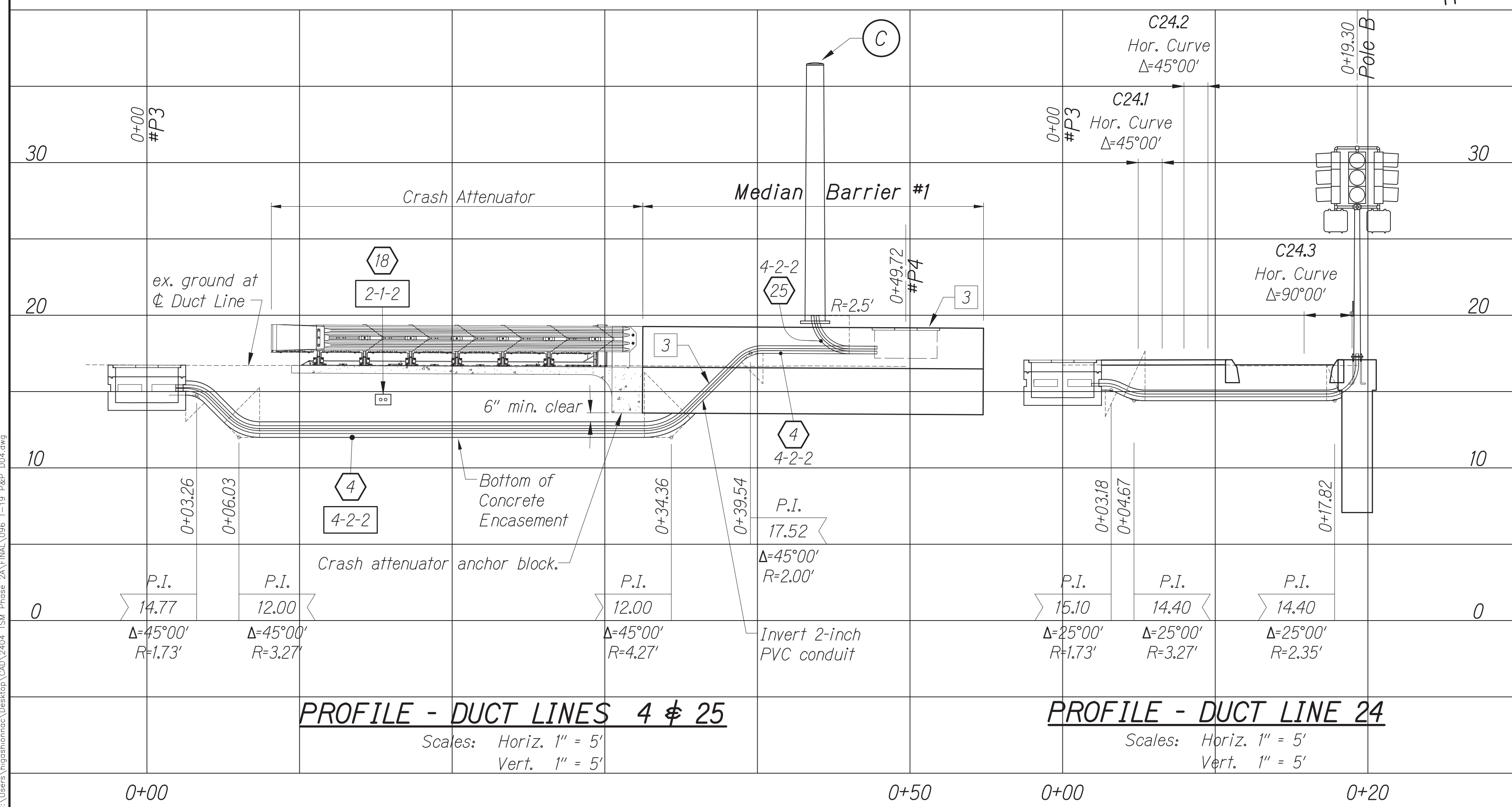
**LONGITUDINAL SECTION**

**PULL BOX #4 & #10 & #11 - INTERIOR DIMENSIONS**

Scale: 1" = 12"



License Expiration Date 04-30-26  
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 Conrad Higashimura



**PROFILE - DUCT LINES 4 & 25**

Scales: Horiz. 1" = 5'  
 Vert. 1" = 5'

**PROFILE - DUCT LINE 24**

Scales: Horiz. 1" = 5'  
 Vert. 1" = 5'

DATE	BY

APPROVED BY: \_\_\_\_\_

Manager and Chief Engineer, BMS (for work affecting BMS facilities in City/State 1/4W and BMS assessments only) Date: \_\_\_\_\_

Chief, Traffic Review Branch, BPP Date: \_\_\_\_\_ Chief, Traffic Signal & Technology Division, BMS Date: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

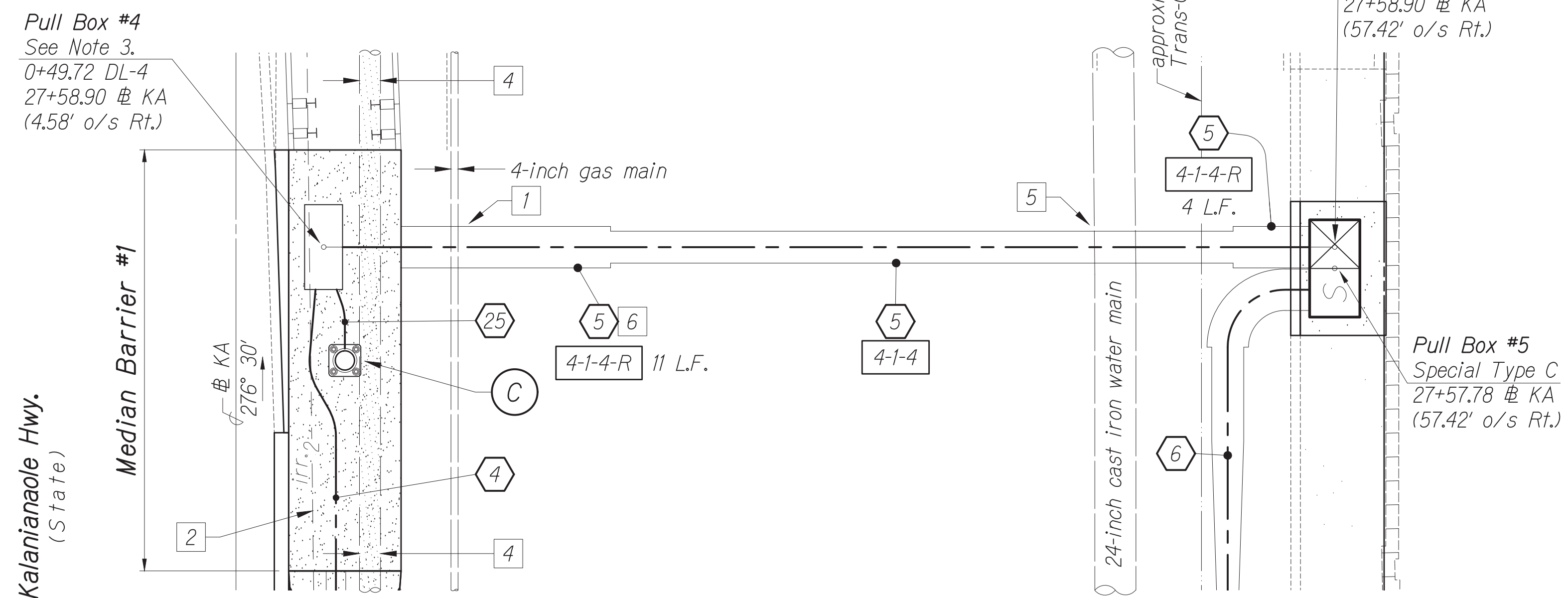
Scale: As noted Date: August 2024

SHEET No. 19 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	97	149

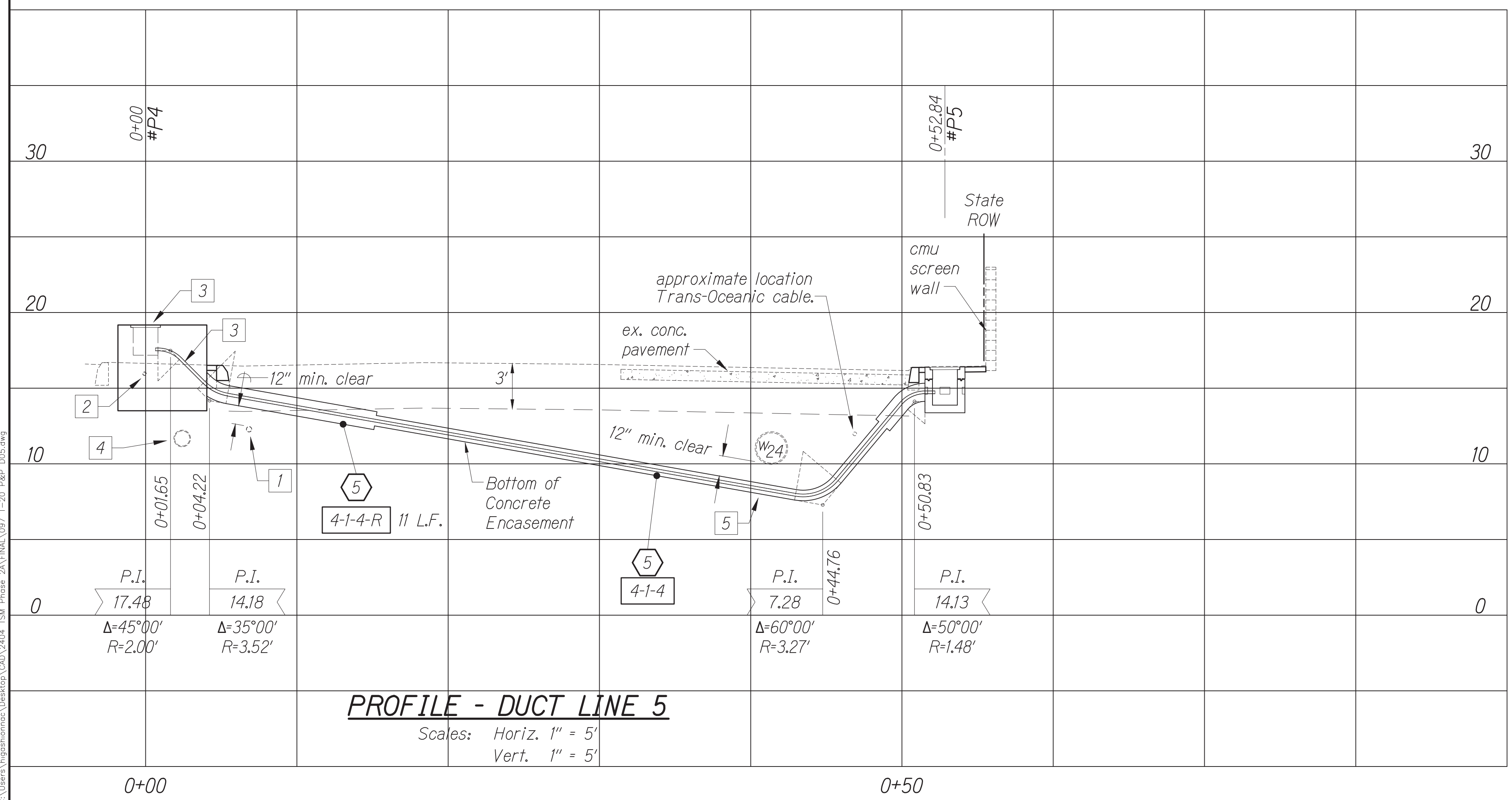
True North  
Scale: 1"=5'

GRAPHIC SCALES  
SCALE 1"=5'

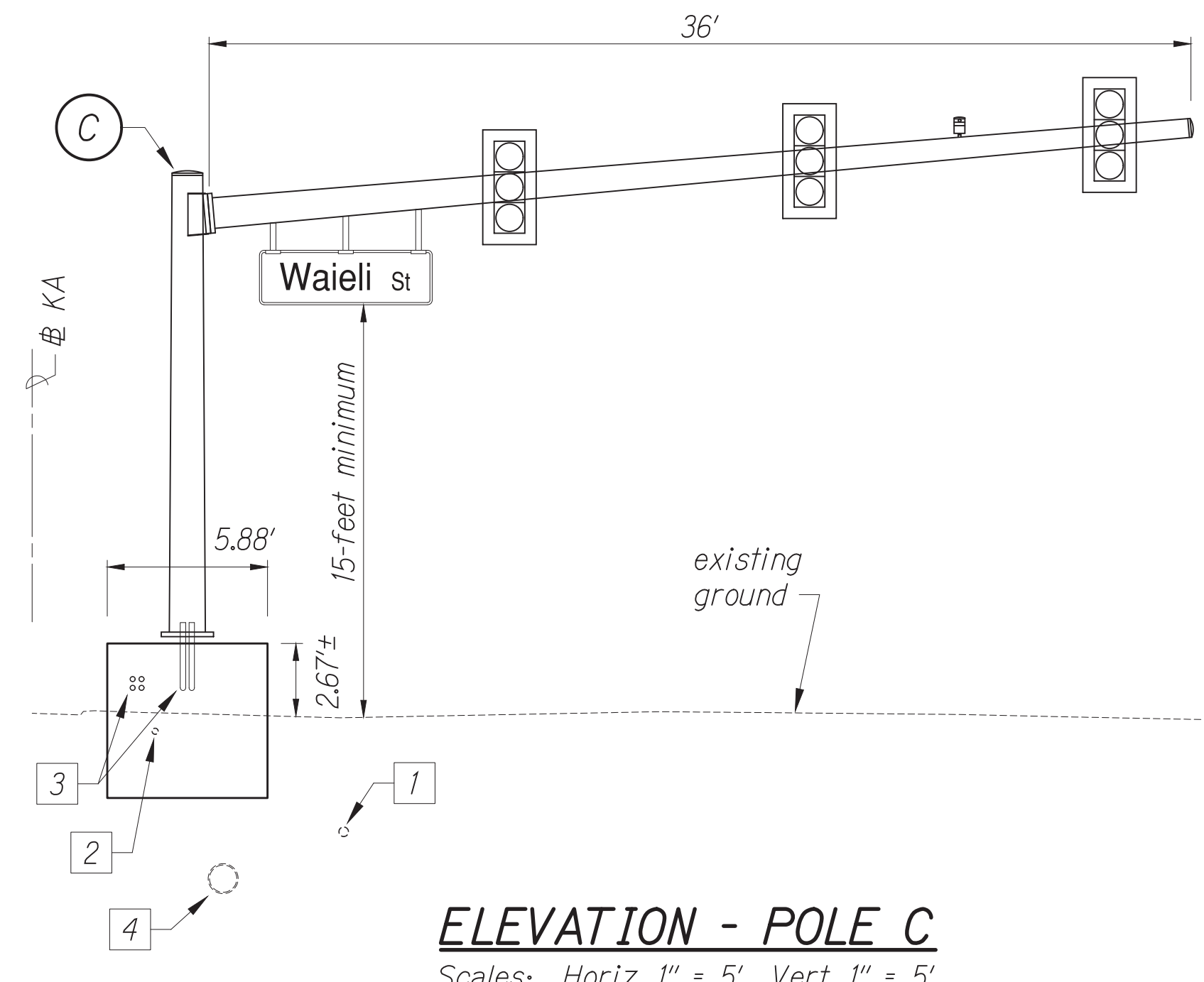


- Notes:**
- The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
  - Approximate location of existing irrigation main. The Contractor shall relocate and repair existing irrigation system, as needed, to facilitate construction. This work shall be paid for via force account under Proposal Item No. 644.0100 - Repair of Existing Sprinkler Systems.
  - The following work shall be incidental to Proposal Item No. 606.0300 - Median Barrier:
    - Furnishing and installing traffic signal conduits within Median Barrier #1.
    - Constructing Pull Box #4 within Median Barrier #1 including furnishing and installing Polymer Concrete Covers per Standard Plan TE-37.
  - Prior to construction of traffic signal duct lines, foundation for Pole B, crash attenuator, and Median Barrier #1, the Contractor shall verify location of existing fiber optic cable within 12-inch cast iron pipe. The Contractor shall inform the Engineer of any conflicts with new improvements. This work shall be paid for via force account under Proposal Item No. 623.0100 - Verify Location of Existing Underground Utilities.
  - The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes #32 and #33. The Contractor shall pay for all costs to comply with Water Notes #32 and #33.
  - The Contractor shall install Curb, Type "2D" to fit over reinforced concrete encasement traffic signal ducts. For details, see sheet 62.

**PLAN - DUCT LINE 5**  
Scale: 1" = 5'



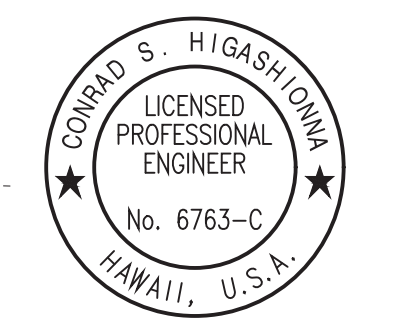
**PROFILE - DUCT LINE 5**  
Scales: Horiz. 1" = 5'  
Vert. 1" = 5'



**ELEVATION - POLE C**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'

DATE	BY

Oct 10, 2024 - 2:00pm  
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 Conrad Higashidom

APPROVED BY:

Manager and Chief Engineer, BMS  
(for work affecting BMS facilities in City/State 1/2W and BMS assessments only)

Chief, Traffic Review Branch, BPP  
(for work affecting City BMS)

Chief, Traffic Signal & Technology Division, BMS

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 20 OF 37 SHEETS

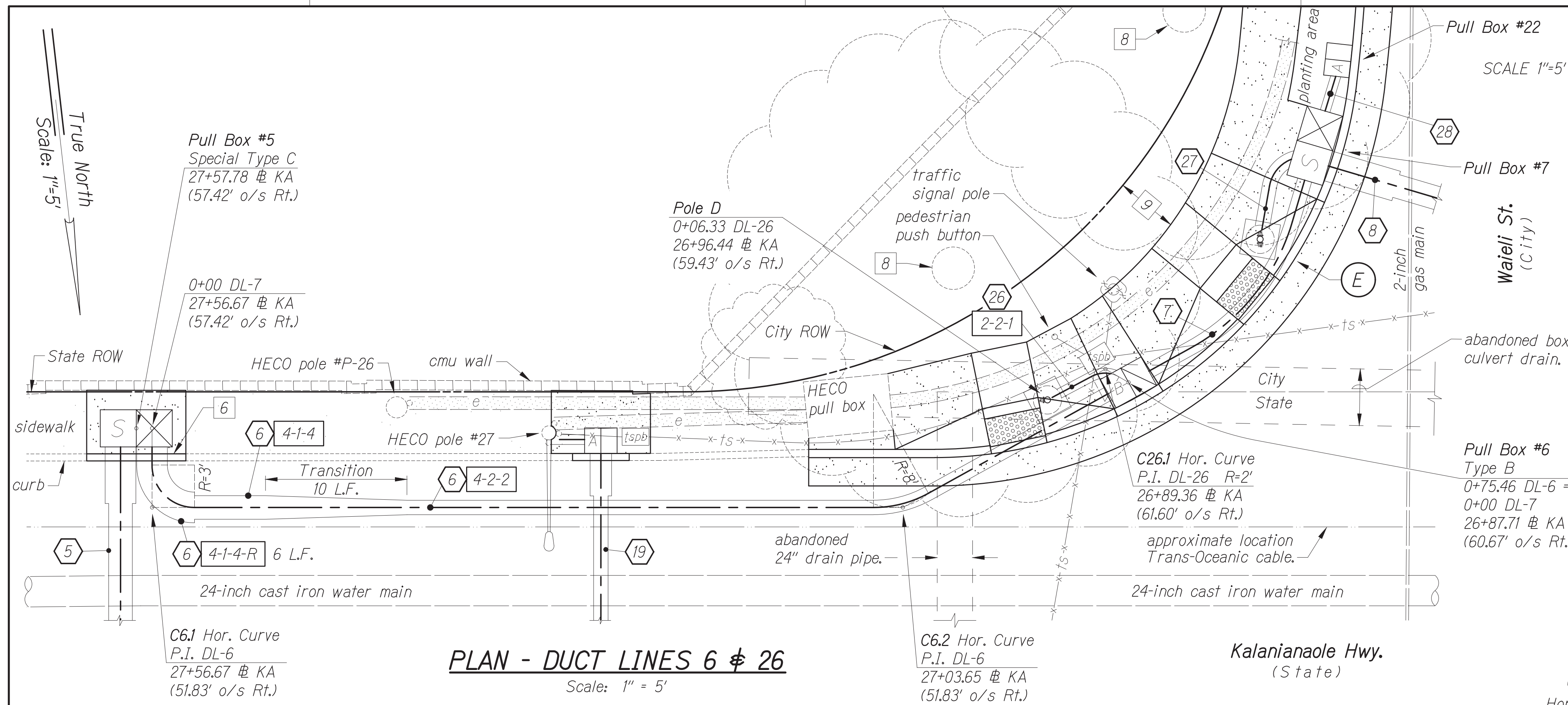
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	98	149

**GRAPHIC SCALES**

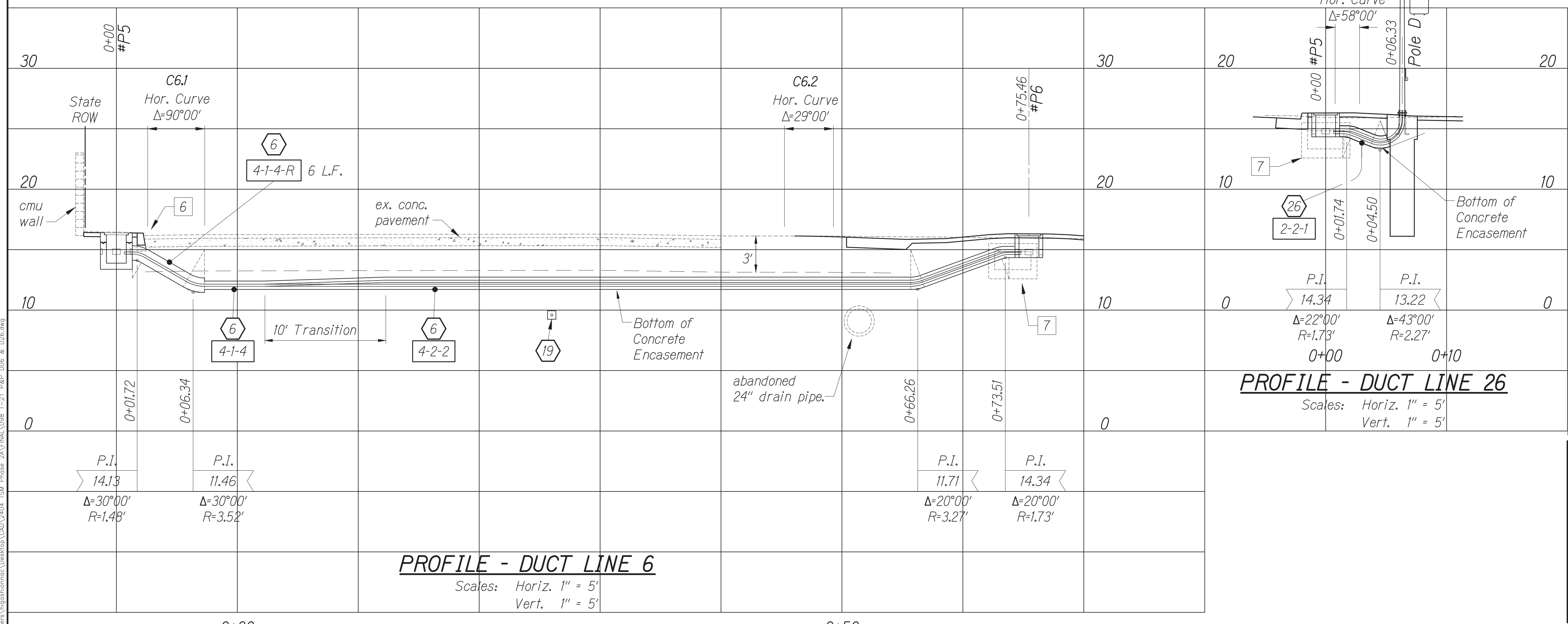


**Notes:**

- 6 The Contractor shall install Curb, Type "2D" to fit over reinforced concrete encasement traffic signal ducts. For details, see sheet 62.
- 7 The Contractor shall remove a portion of the existing abandoned box culvert to facilitate construction. The Contractor shall seal the abandoned box culvert per Section 202 - Removal of Structures and Obstructions. The Contractor shall inform the Engineer prior to removal and sealing of abandoned box culvert.
- 8 The Contractor shall protect tree from damage. In the event tree roots are uncovered during construction operations, the Contractor shall suspend work affecting the roots; obtain recommendations to minimize tree damage from an ISA Certified Arborist; and submit recommendations to the Engineer for review. The Contractor shall receive approval from Engineer, prior to restarting construction work affecting tree roots.
- 9 The Contractor shall restore landscaping and irrigation system affected by construction to equal or better condition.



**PLAN - DUCT LINES 6 & 26**  
Scale: 1" = 5'

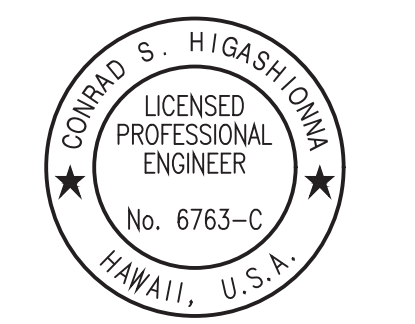


**PROFILE - DUCT LINE 6**  
Scales: Horiz. 1" = 5'  
Vert. 1" = 5'

**PROFILE - DUCT LINE 26**  
Scales: Horiz. 1" = 5'  
Vert. 1" = 5'

DATE	BY

Oct 10, 2024 - 2:00pm  
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Conrad Higashimura

APPROVED BY: \_\_\_\_\_  
 Manager and Chief Engineer, BMS  
 (for work affecting BMS facilities in City/State 1/2W and BMS assessments only)  
 Chief, Traffic Signal & Technology Division, BMS  
 (for work affecting City BMS)

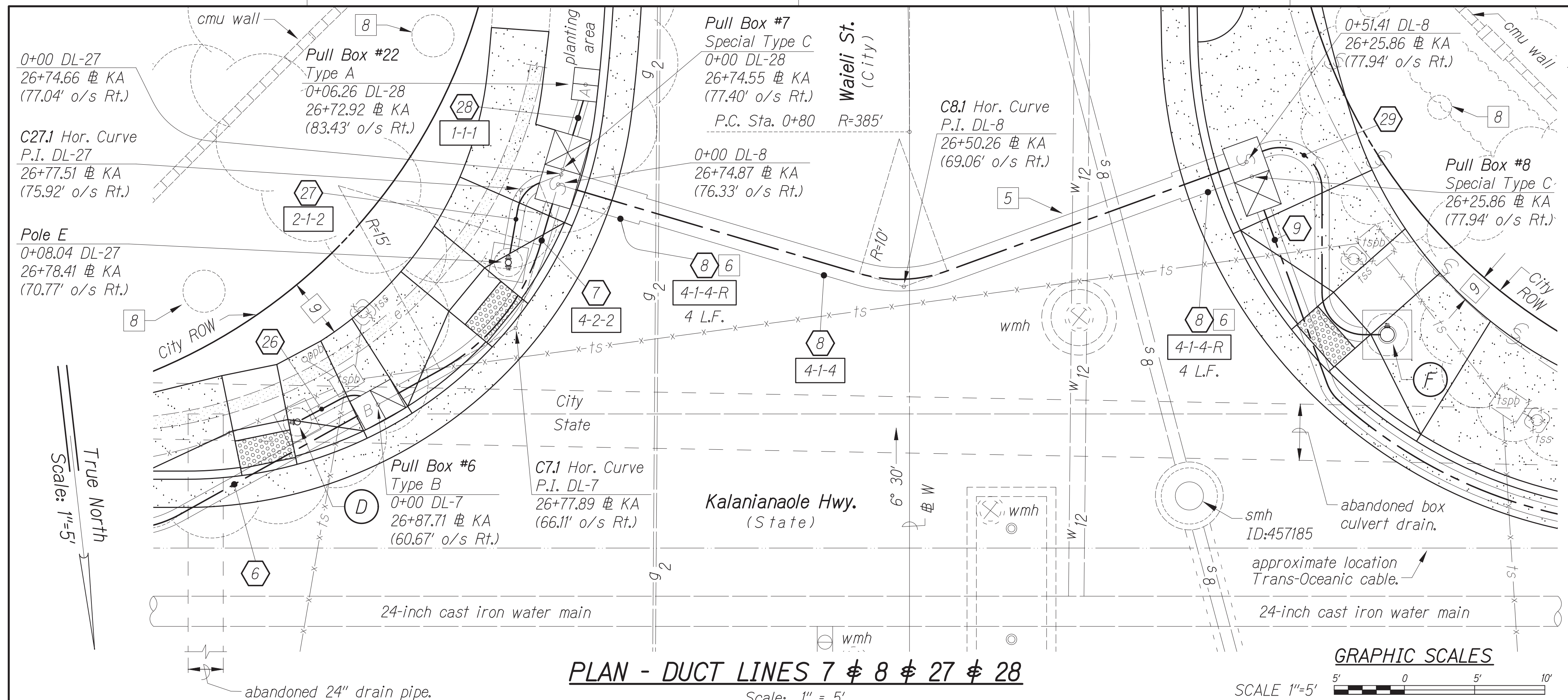
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
 TRAFFIC SIGNAL MODERNIZATION  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

SHEET No. 21 OF 37 SHEETS

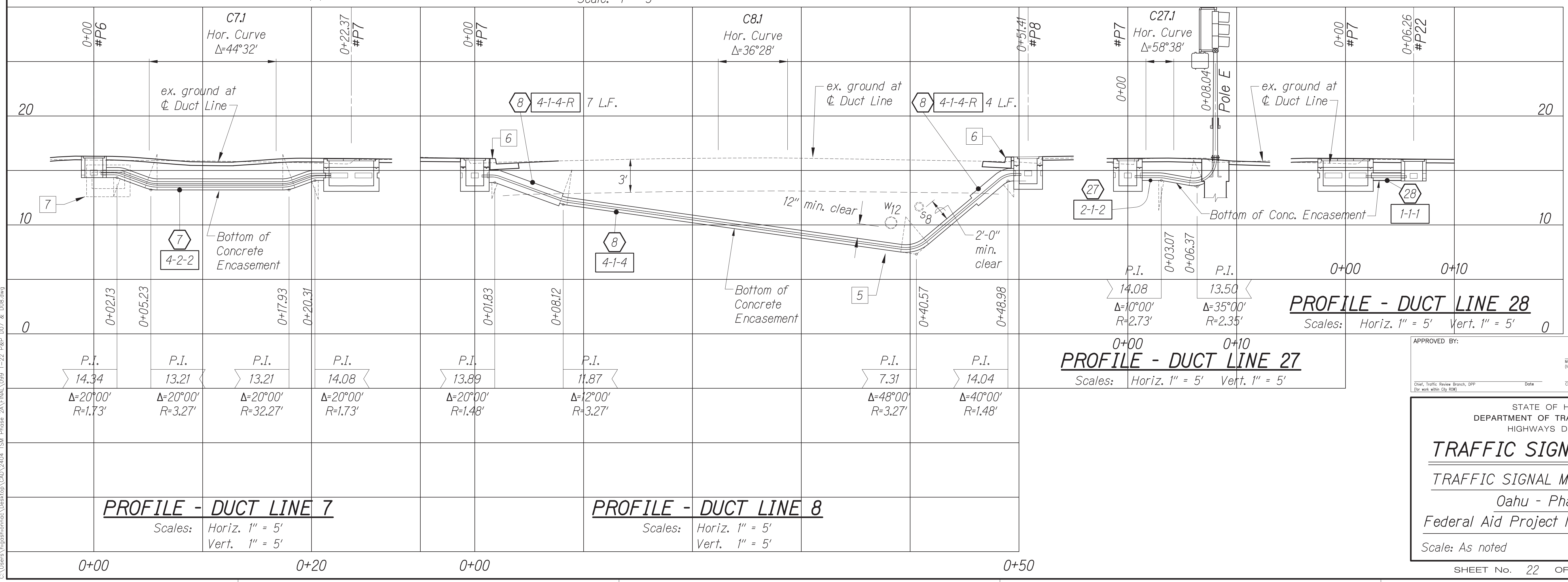
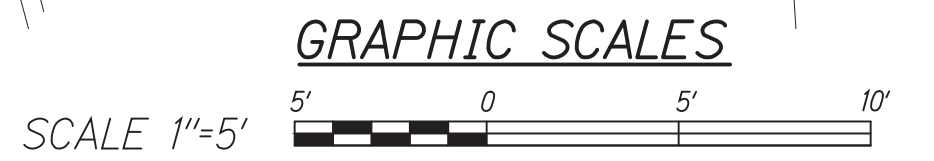
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	99	149



**Notes:**

- 5 The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes #32 and #33. The Contractor shall pay for all costs to comply with Water Notes #32 and #33.
- 6 The Contractor shall install Curb and Gutter, Type 2DG to fit over reinforced concrete encasement traffic signal ducts. For details, see sheet 62.
- 7 The Contractor shall remove a portion of the existing abandoned box culvert to facilitate construction. The Contractor shall seal the abandoned box culvert per Section 202 - Removal of Structures and Obstructions. The Contractor shall inform the Engineer prior to removal and sealing of abandoned box culvert.
- 8 The Contractor shall protect tree from damage. In the event tree roots are uncovered during construction operations, the Contractor shall suspend work affecting the roots; obtain recommendations to minimize tree damage from an ISA Certified Arborist; and submit recommendations to the Engineer for review. The Contractor shall receive approval from Engineer, prior to restarting construction work affecting tree roots.
- 9 The Contractor shall restore landscaping and irrigation system affected by construction to equal or better condition.

**PLAN - DUCT LINES 7 & 8 & 27 & 28**  
Scale: 1" = 5'



**PROFILE - DUCT LINE 28**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'

**PROFILE - DUCT LINE 27**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'

**PROFILE - DUCT LINE 7**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'

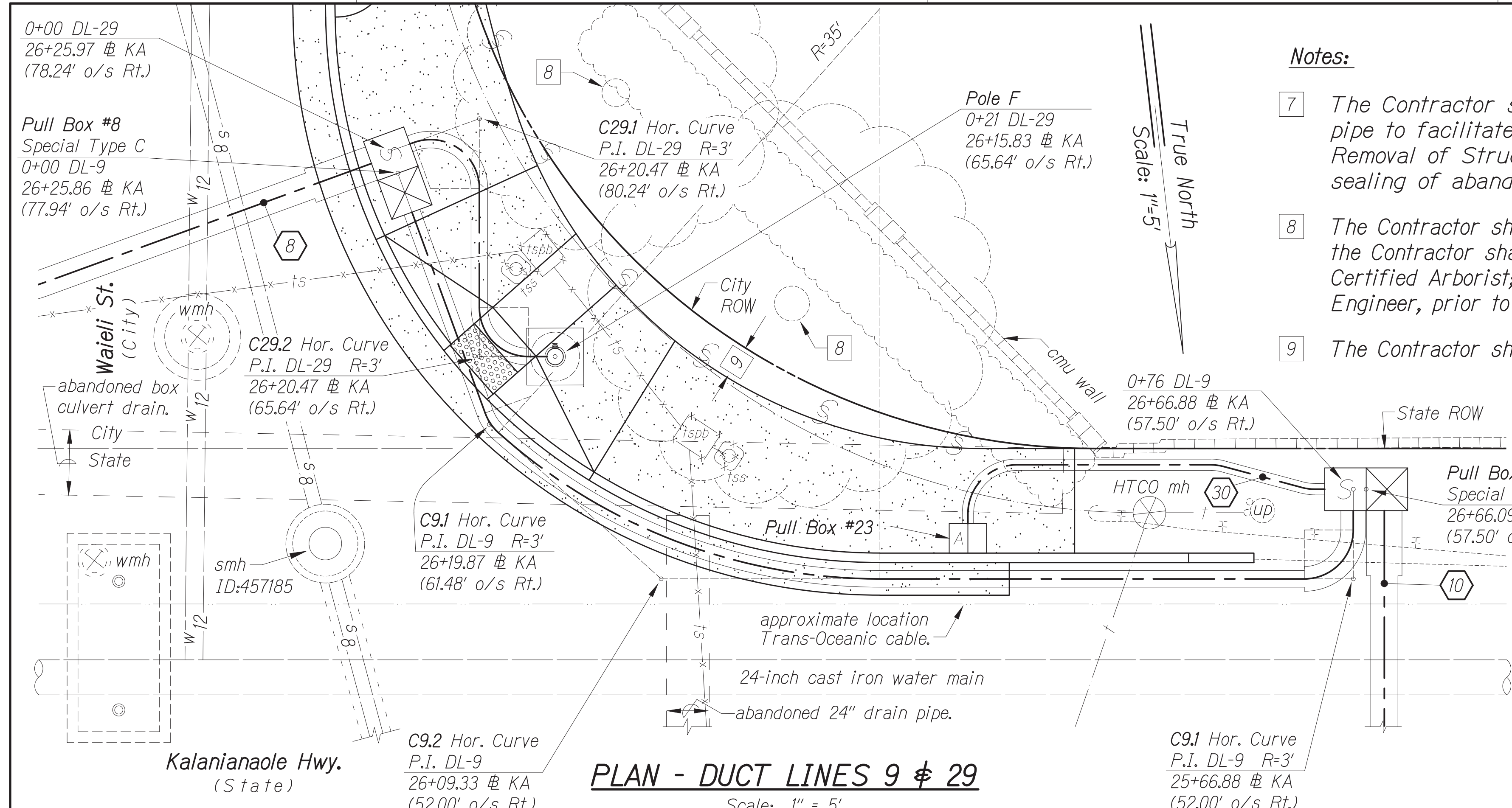
**PROFILE - DUCT LINE 8**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'

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

Oct 10, 2024 - 2:00pm  
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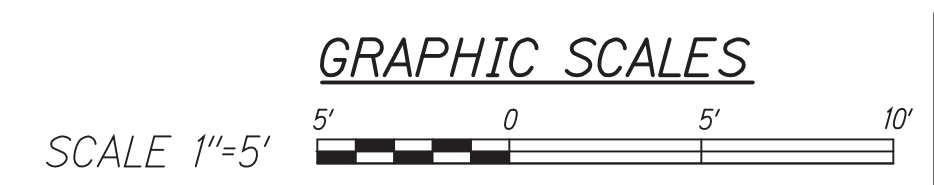
CONRAD S. HIGASHIMURA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6763-C  
 HAWAII, U.S.A.  
 License Expiration Date 04-30-26  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAWAII TITLE 15, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.  
 Conrad Higashimura

APPROVED BY: \_\_\_\_\_ Date: \_\_\_\_\_  
 Manager and Chief Engineer, BMS (for work affecting BMS facilities in City/State 1/2W and BMS assessments only)  
 Chief, Traffic Review Branch, BPP Date: \_\_\_\_\_ Chief, Traffic Signal & Technology Division, BMS Date: \_\_\_\_\_  
 STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024  
 SHEET No. 22 OF 37 SHEETS

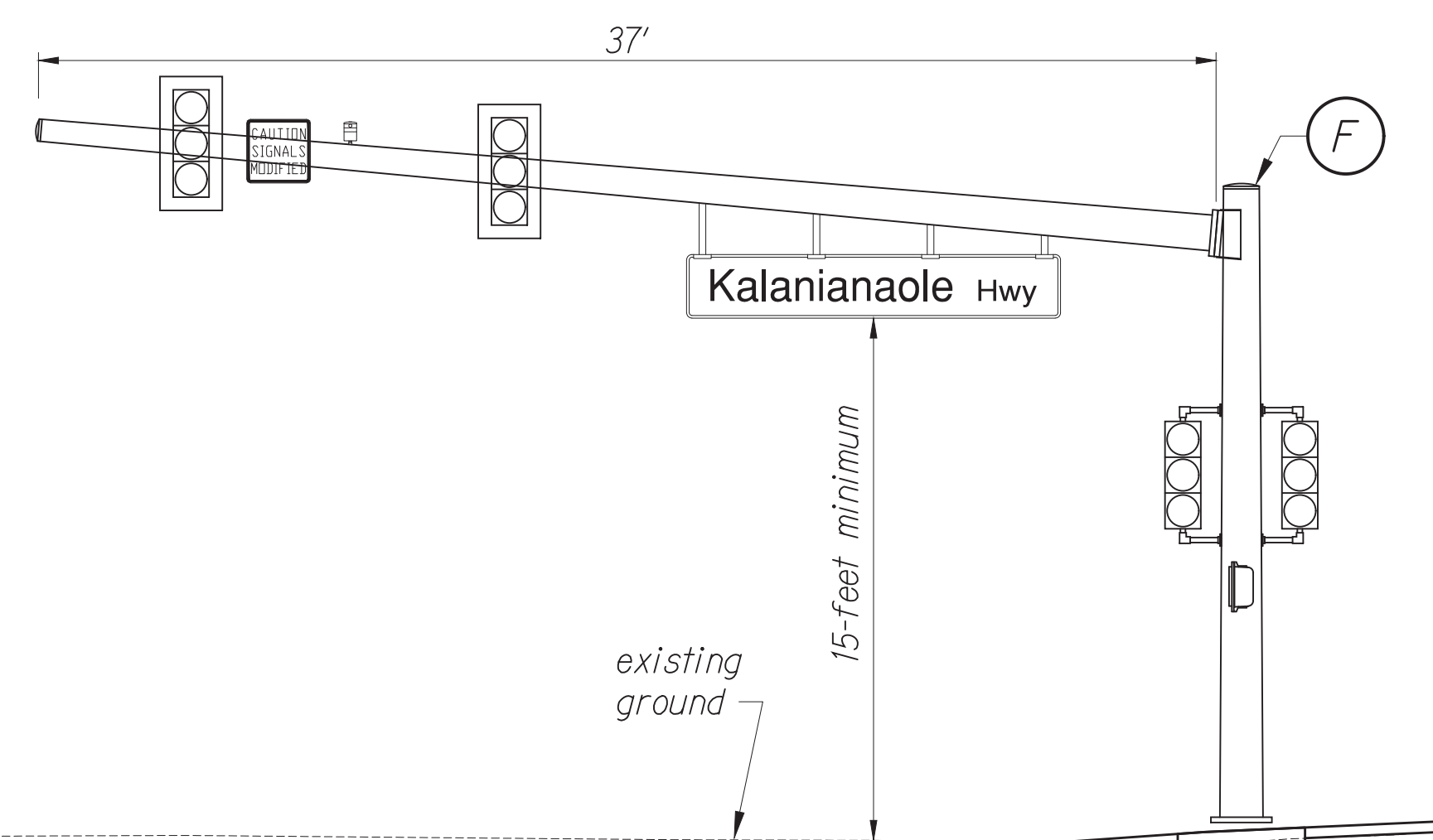


**PLAN - DUCT LINES 9 & 29**  
Scale: 1" = 5'

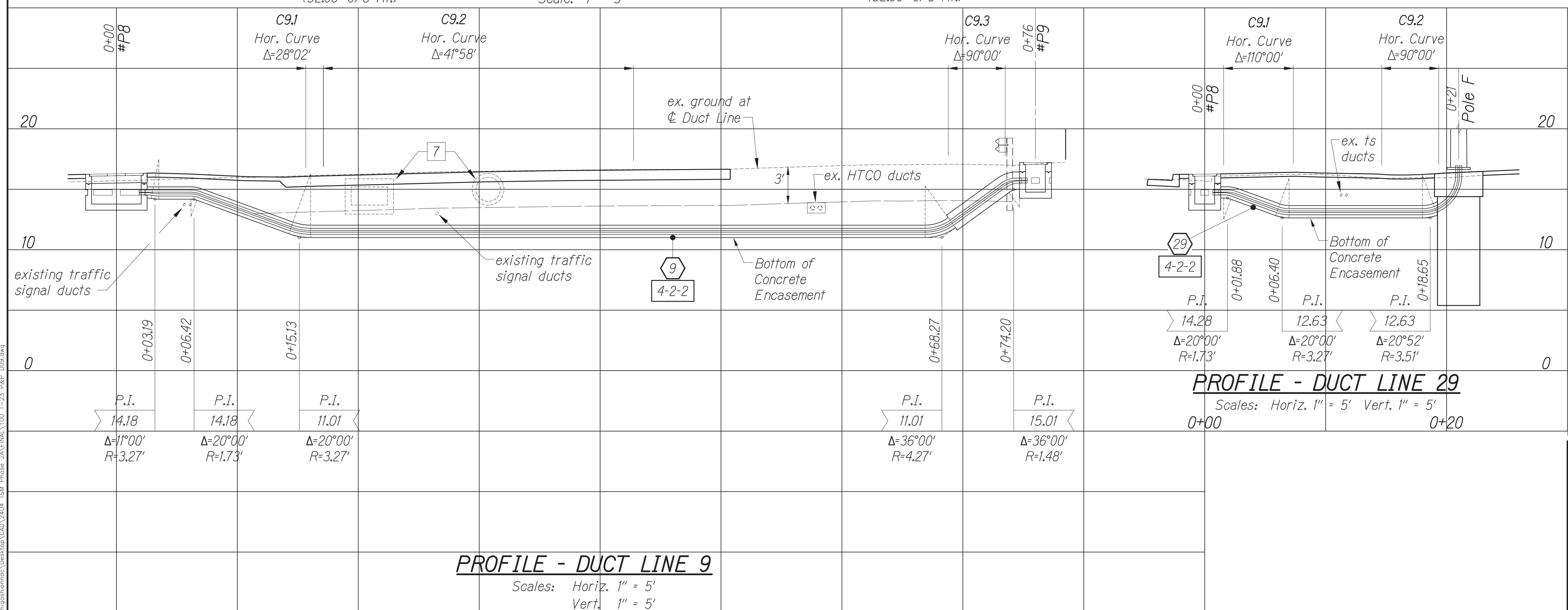
- Notes:**
- 7 The Contractor shall remove a portion of the existing abandoned box culvert and abandoned 24-inch drain pipe to facilitate construction. The Contractor shall seal the abandoned box culvert/pipe per Section 202 - Removal of Structures and Obstructions. The Contractor shall inform the Engineer prior to removal and sealing of abandoned box culvert/pipe.
  - 8 The Contractor shall protect tree from damage. In the event tree roots are uncovered during construction operations, the Contractor shall suspend work affecting the roots; obtain recommendations to minimize tree damage from an ISA Certified Arborist; and submit recommendations to the Engineer for review. The Contractor shall receive approval from Engineer, prior to restarting construction work affecting tree roots.
  - 9 The Contractor shall restore landscaping and irrigation system affected by construction to equal or better condition.



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	100	149



**ELEVATION - POLE F**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'

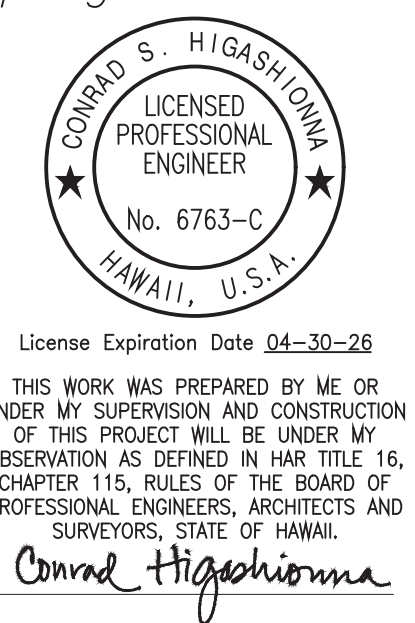


**PROFILE - DUCT LINE 9**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'

**PROFILE - DUCT LINE 29**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'

DATE	BY

Oct. 10, 2024 - 2:00pm  
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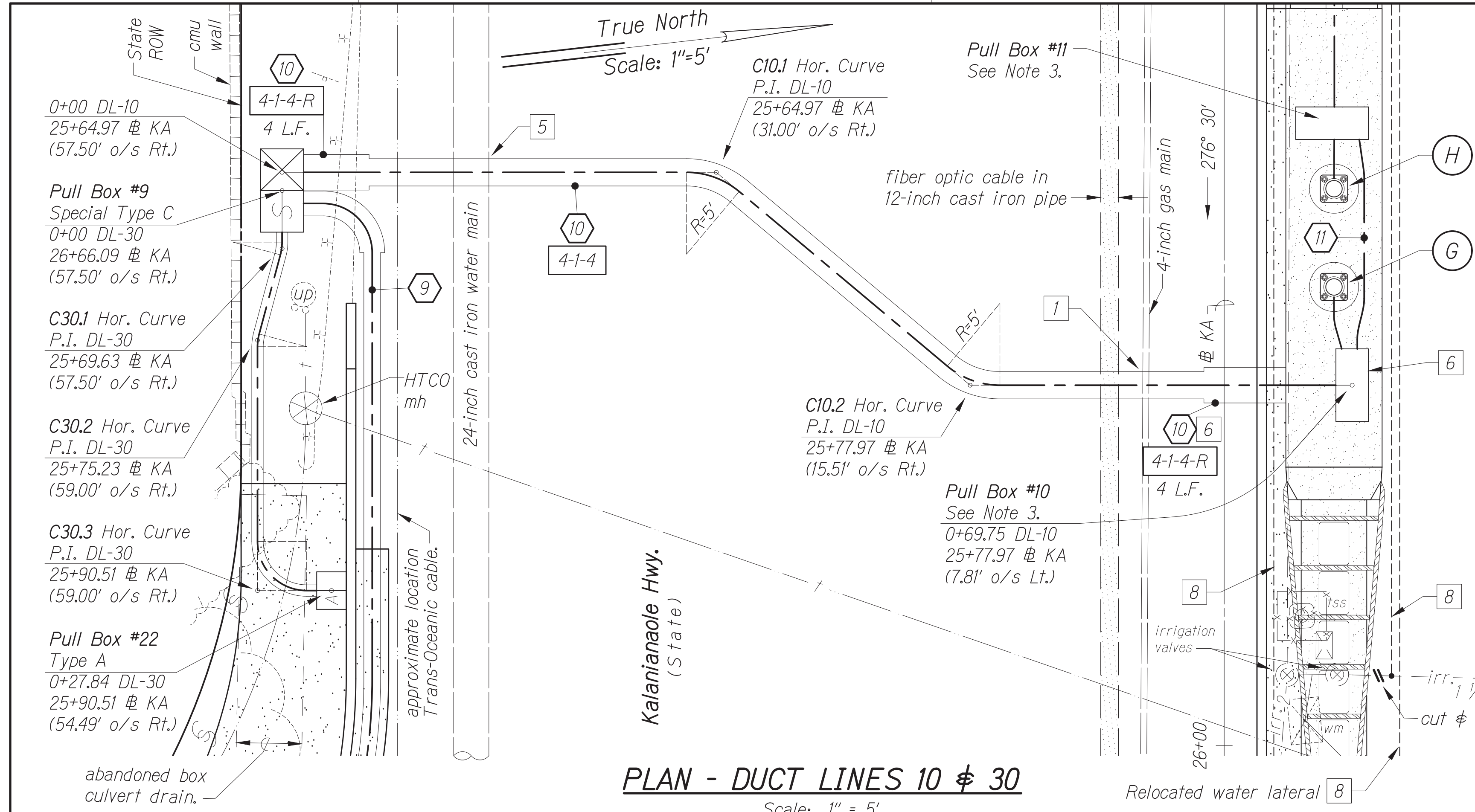


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAWAII TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.  
*Conrad Higashimura*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

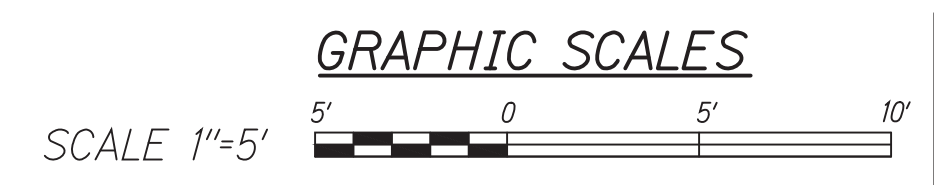
**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024



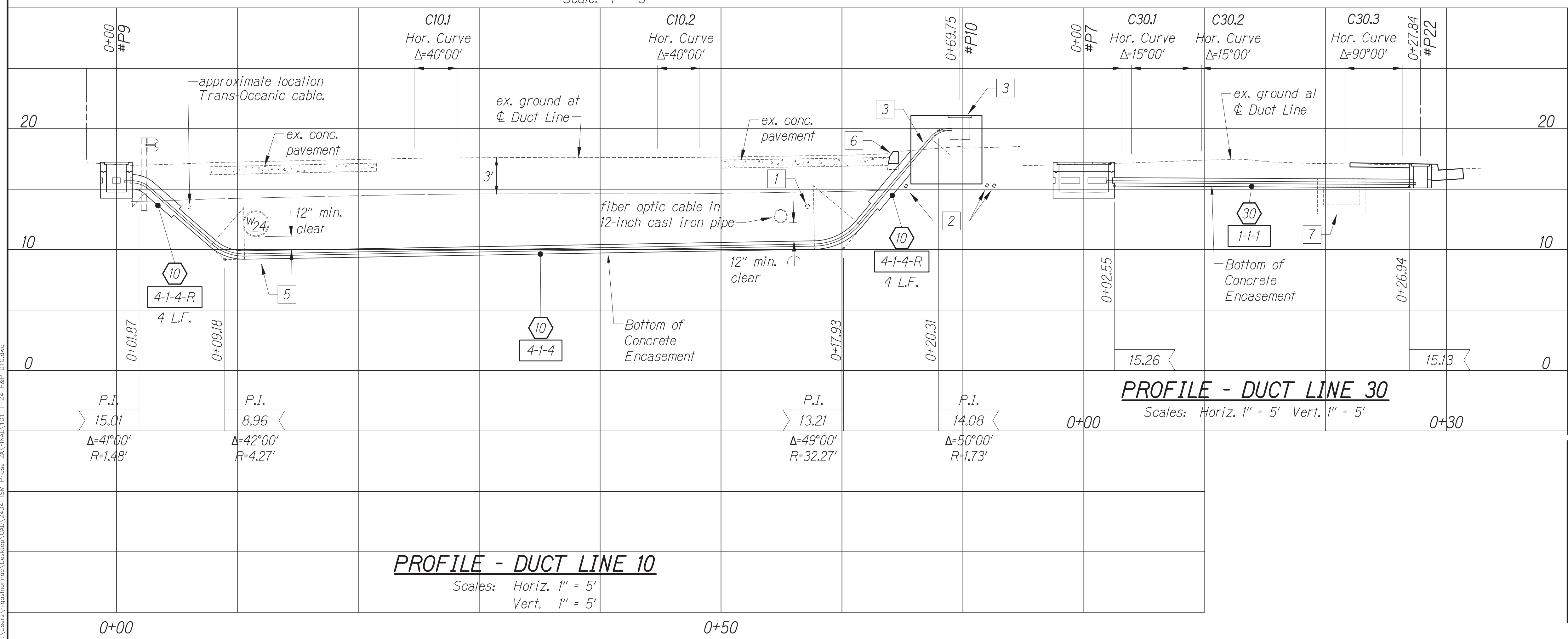
**Notes:**

- 1 The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
- 3 The following work shall be incidental to Proposal Item No. 606.0300 - Median Barrier:
  - a. Furnishing and installing traffic signal conduits within Median Barrier #2.
  - b. Constructing Pull Boxes #10 and #11 within Median Barrier #2 including furnishing and installing Polymer Concrete Covers per Standard Plan TE-37. For pull box dimensions, see sheet 96.
- 5 The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes #32 and #33. The Contractor shall pay for all costs to comply with Water Notes #32 and #33.
- 6 The Contractor shall install Curb, Type 2A to fit over reinforced concrete encasement traffic signal ducts. For details, see sheet 62.
- 7 The Contractor shall remove a portion of the existing abandoned box culvert and abandoned 24-inch drain pipe to facilitate construction. The Contractor shall seal the abandoned box culvert/pipe per Section 202 - Removal of Structures and Obstructions. The Contractor shall inform the Engineer prior to removal and sealing of abandoned box culvert/pipe.
- 8 Relocated water lateral or irrigation main, see Water Meter Relocation plan on sheet 52. The Contractor shall relocate existing irrigation system, as needed, to facilitate construction. This work shall be paid for under Proposal Item No. 624.0100 - Water Meter Relocation.



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	101	149

**PLAN - DUCT LINES 10 & 30**  
Scale: 1" = 5'

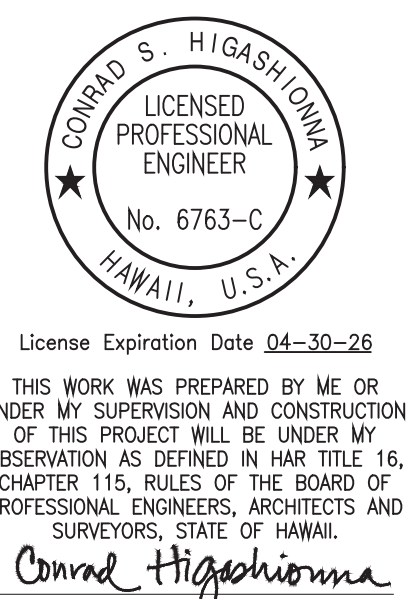


**PROFILE - DUCT LINE 10**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'

**PROFILE - DUCT LINE 30**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'

DATE	BY

Oct. 10, 2024 - 2:25pm  
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APPROVED BY: \_\_\_\_\_  
Manager and Chief Engineer, BMS (for work affecting BMS facilities in City/State 1/2" and BMS assessments only)  
Date: \_\_\_\_\_  
Chief, Traffic Signal & Technology Division, BMS Date: \_\_\_\_\_

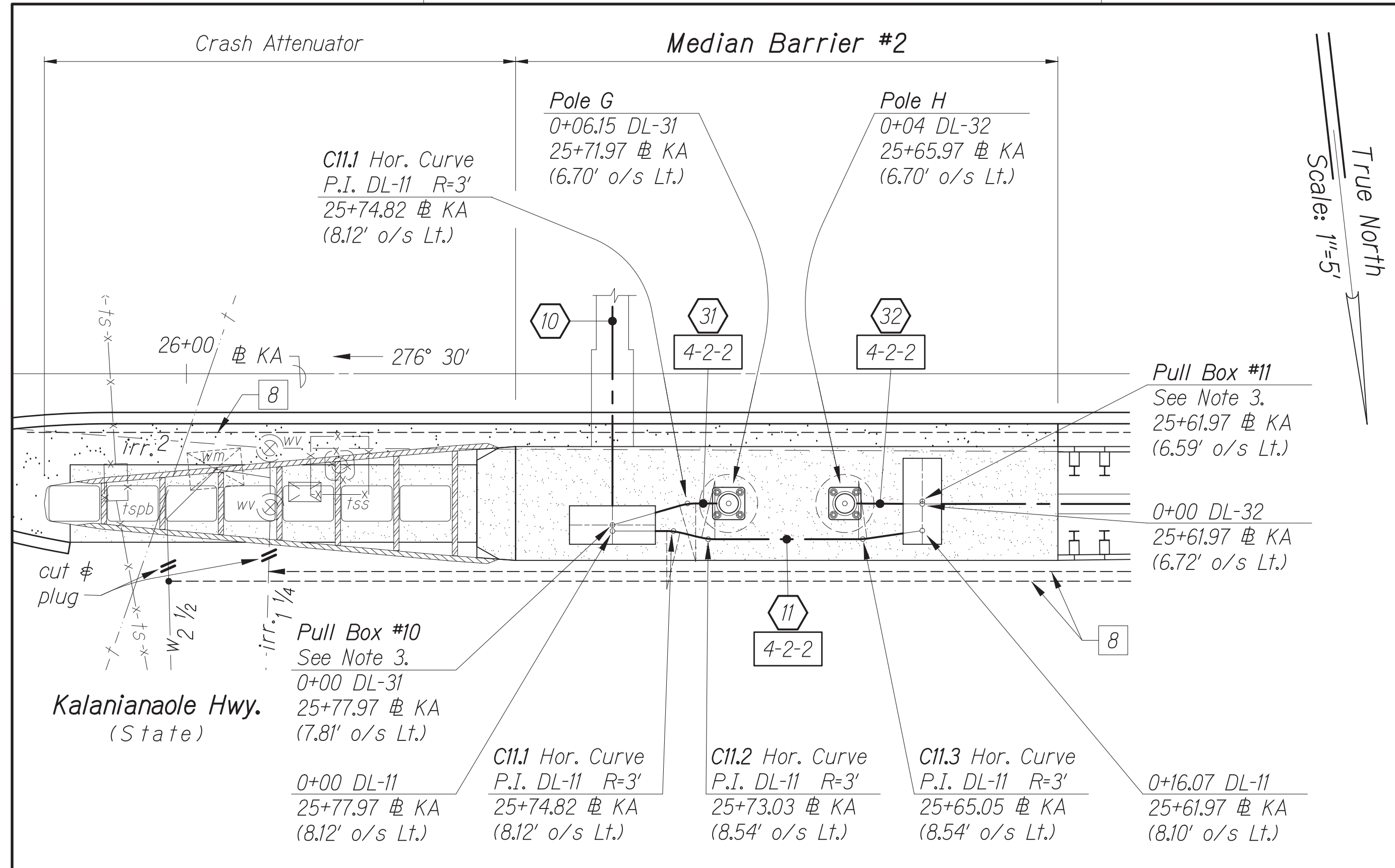
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

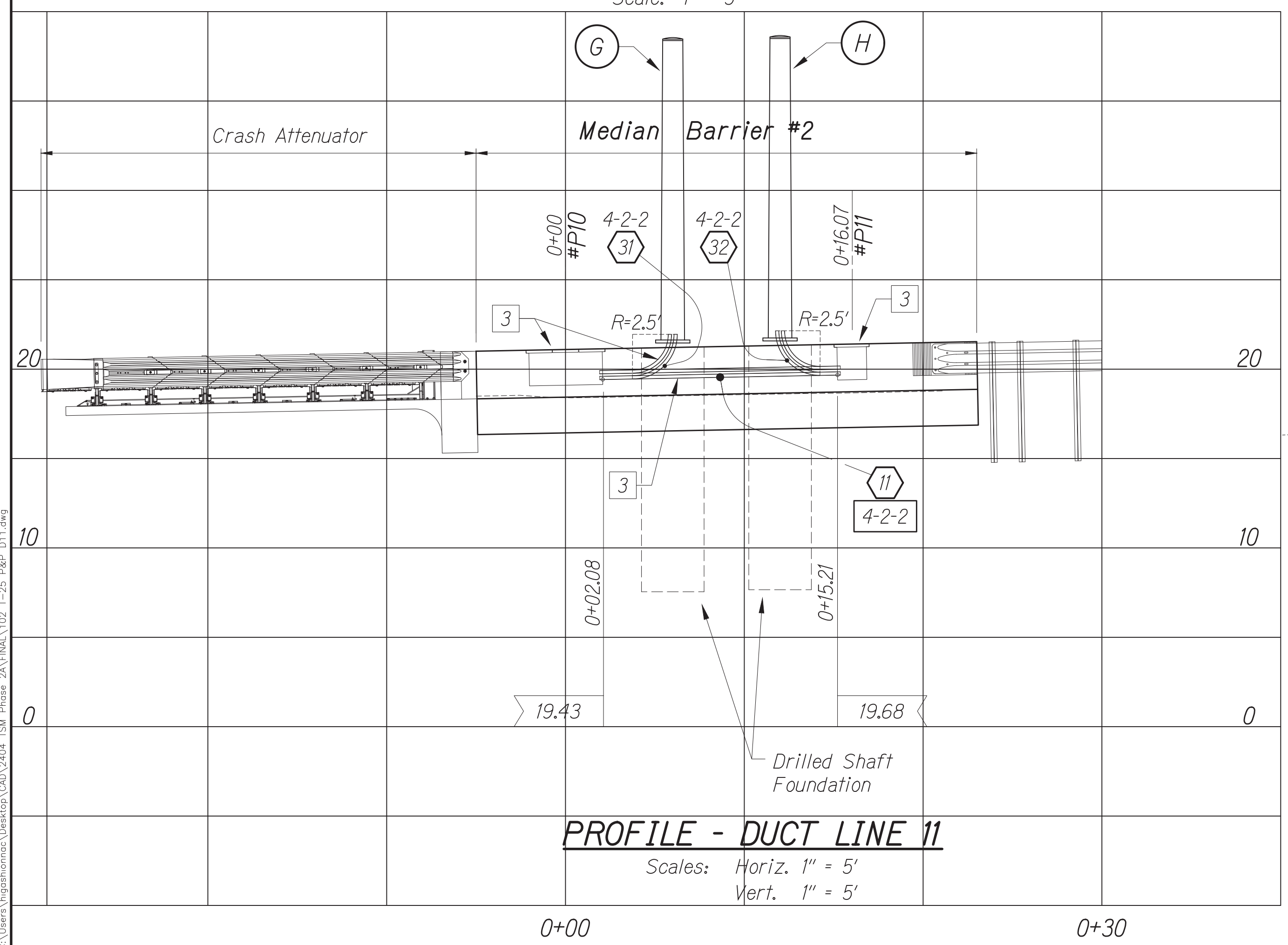
Scale: As noted Date: August 2024

SHEET No. 24 OF 37 SHEETS

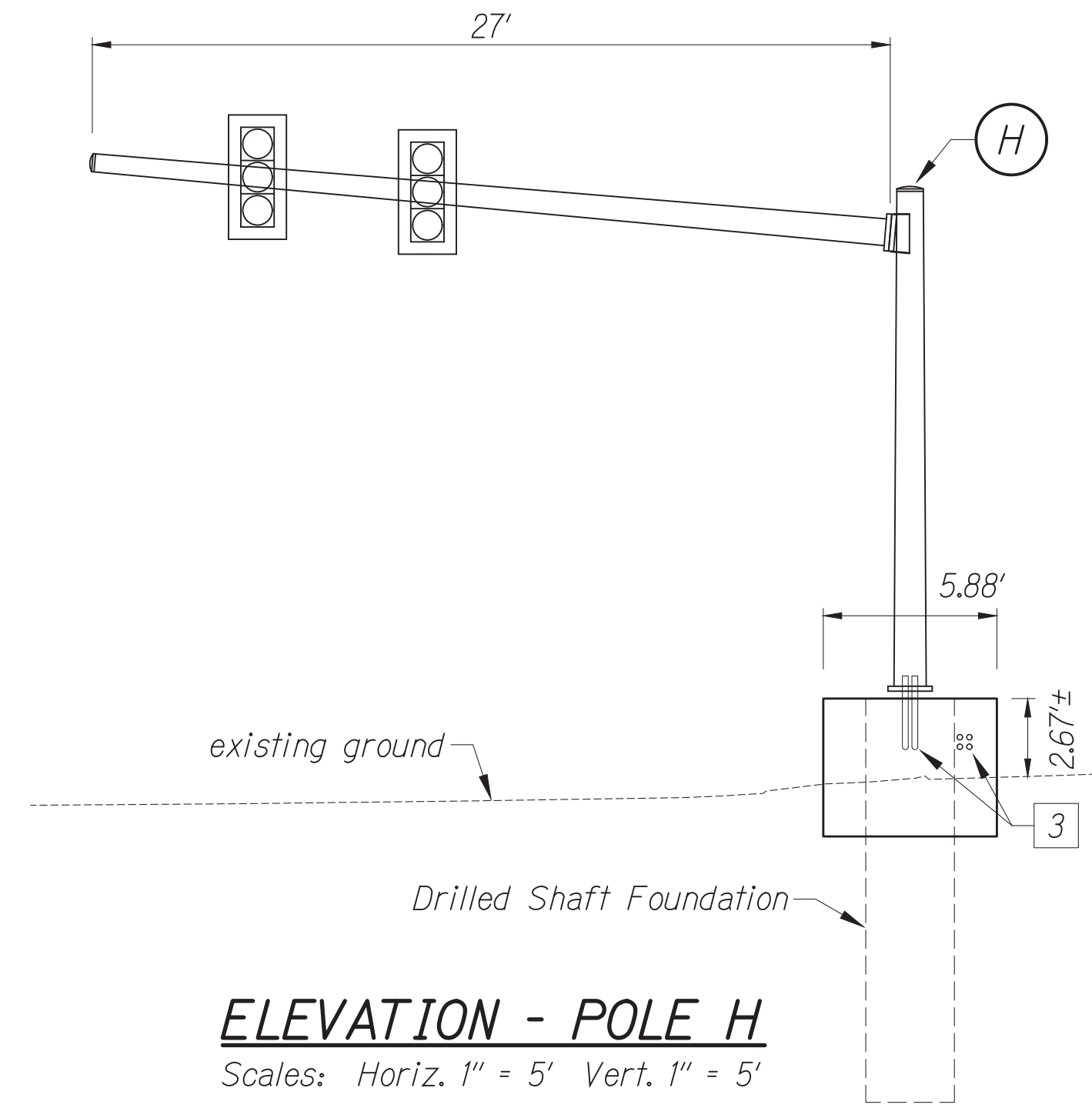
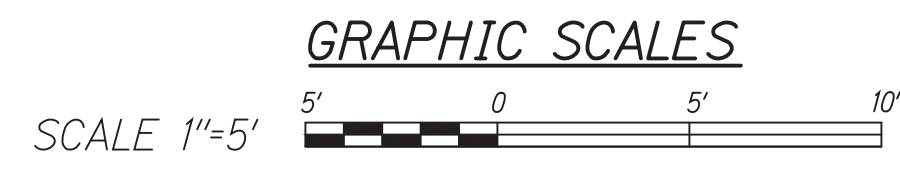
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	102	149



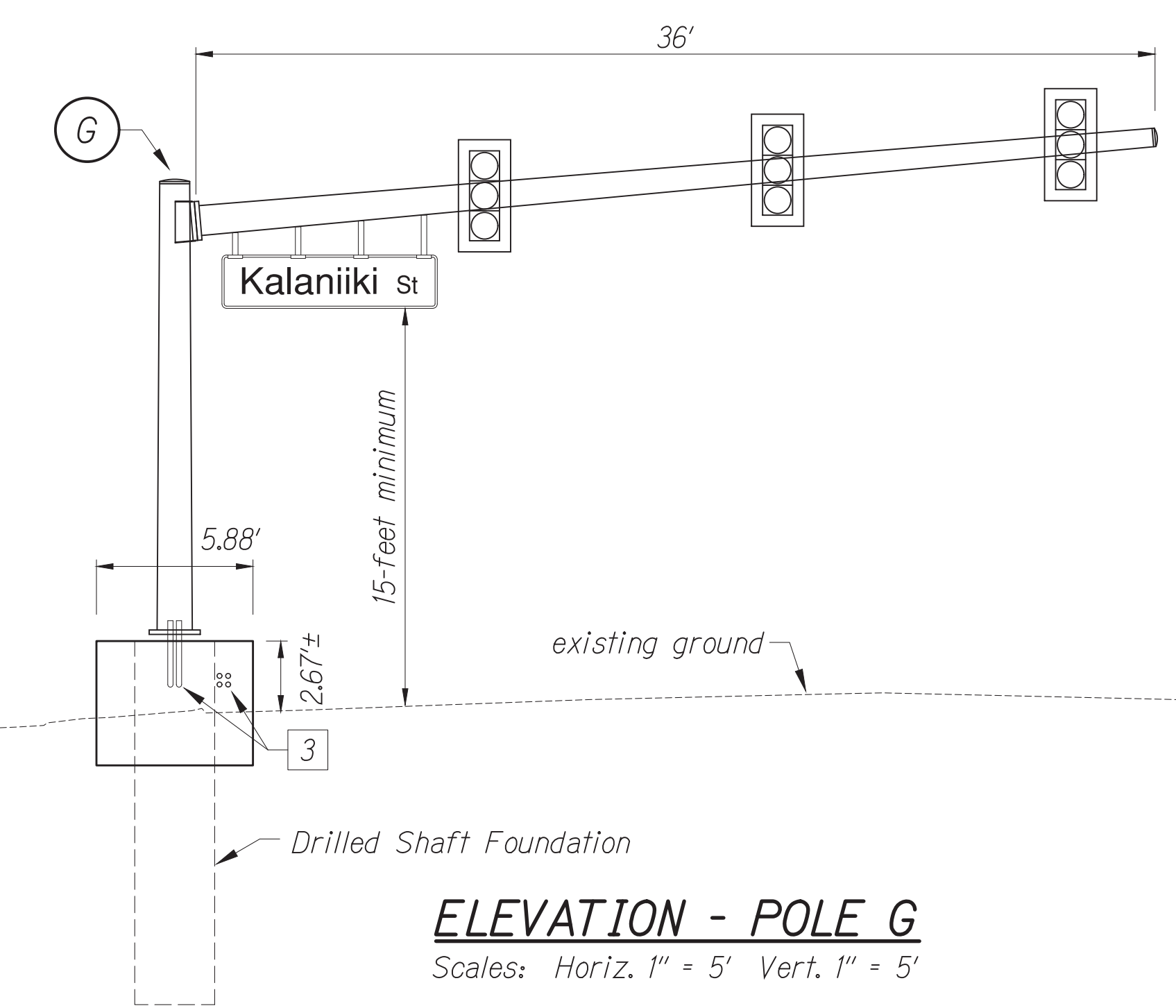
**PLAN - DUCT LINES 11 & 31 & 32**  
Scale: 1" = 5'



**PROFILE - DUCT LINE 11**  
Scales: Horiz. 1" = 5'  
Vert. 1" = 5'



**ELEVATION - POLE H**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'



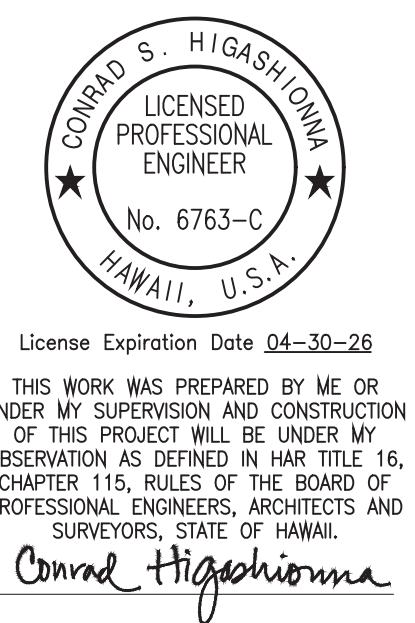
**ELEVATION - POLE G**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'

**Notes:**

- 3 The following work shall be incidental to Proposal Item No. 606.0300 - Median Barrier:
  - a. Furnishing and installing traffic signal conduits within Median Barrier #2.
  - b. Constructing Pull Boxes #10 and #11 within Median Barrier #2 including furnishing and installing Polymer Concrete Covers per Standard Plan TE-37. For pull box dimensions, see sheet 96.
- 8 Relocated water lateral/irrigation main, see Water Meter Relocation plan on sheet 52. The Contractor shall relocate existing irrigation system, as needed, to facilitate construction. This work shall be paid for under Proposal Item No. 634.0100 - Water Meter Relocation.

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

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APPROVED BY: \_\_\_\_\_

Manager and Chief Engineer, BMS  
(for work affecting BMS facilities in City/State 1/2W and BMS assessments only)

Chief, Traffic Review Branch, BPP  
(for work affecting City BMS)

Chief, Traffic Signal & Technology Division, BMS

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

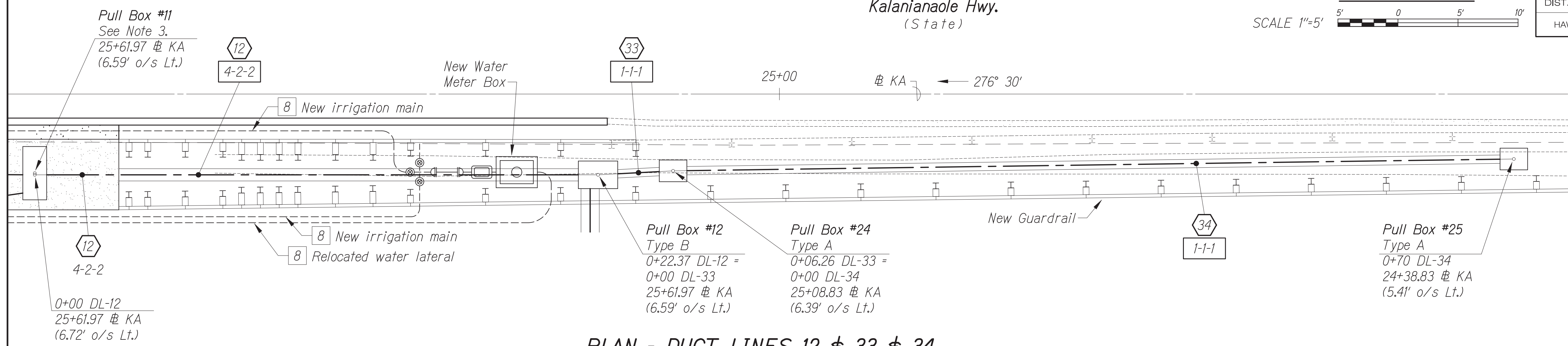
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SHEET No. 25 OF 37 SHEETS

Kalaniana'ole Hwy.  
(State)



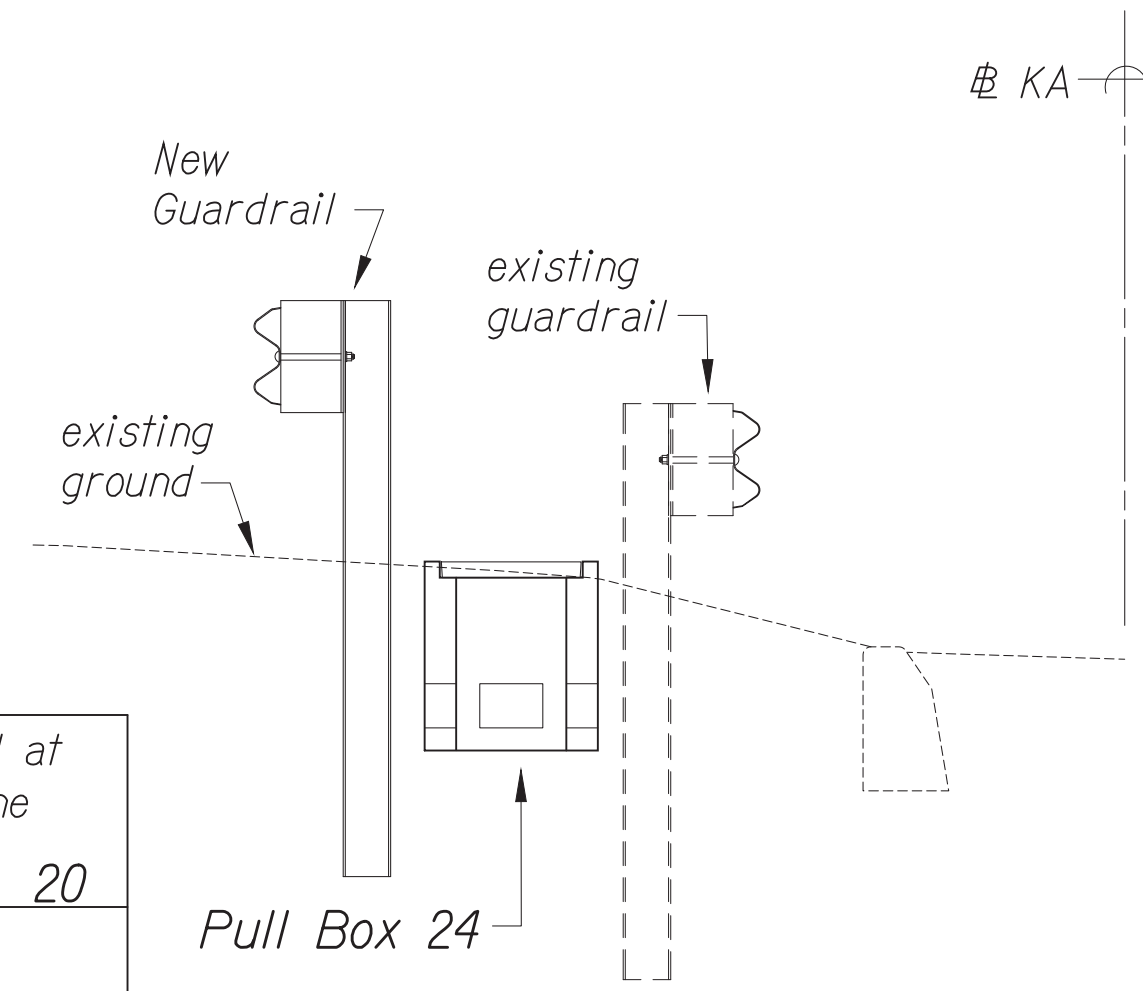
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HAWAII	HAWAII	STP-0300(214)	2024	103	149



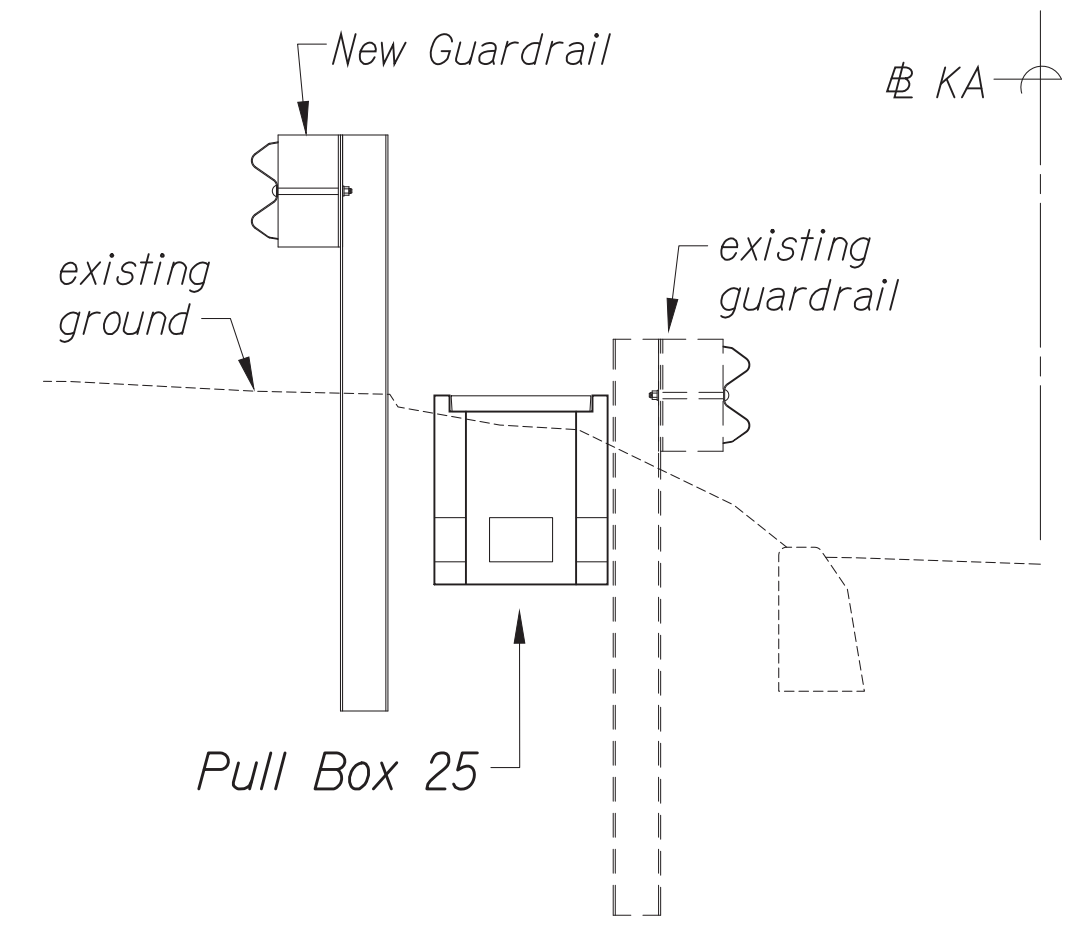
PLAN - DUCT LINES 12, 33, 34  
Scale: 1" = 5'

Notes:

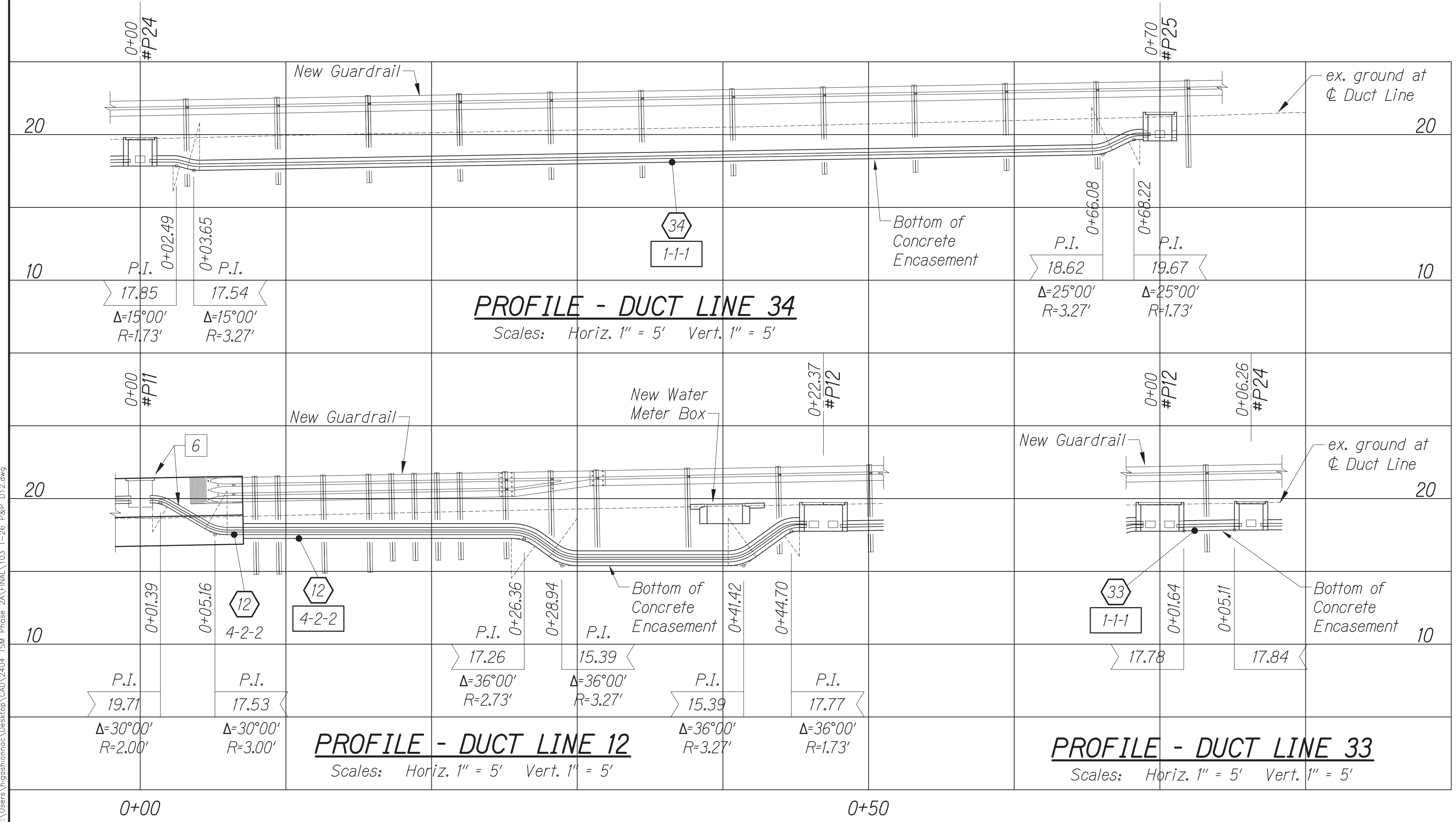
- 3 The following work shall be incidental to Proposal Item No. 606.0300 - Median Barrier:
  - a. Furnishing and installing traffic signal conduits within Median Barrier #2.
  - b. Constructing Pull Boxes #10 and #11 within Median Barrier #2 including furnishing and installing Polymer Concrete Covers per Standard Plan TE-37. For pull box dimensions, see sheet 96.
- 8 Relocated water lateral/irrigation main, see Water Meter Relocation plan on sheet 52. The Contractor shall relocate existing irrigation system, as needed, to facilitate construction. This work shall be paid for under Proposal Item No. 634.0100 - Water Meter Relocation.



TRANSVERSE SECTION AT PULL BOX 24  
Scale: 1" = 2'



TRANSVERSE SECTION AT PULL BOX 25  
Scale: 1" = 2'



DATE	BY

CONRAD S. HIGASHIYAMA  
LICENSED PROFESSIONAL ENGINEER  
No. 6763-C  
HAWAII, U.S.A.  
License Expiration Date 04-30-26

APPROVED BY: \_\_\_\_\_

Manager and Chief Engineer, BMS  
(for work affecting BMS facilities in City/State 1/2 and BMS assessments only)

Chief, Traffic Review Branch, BPP  
(for work affecting City BMS)

Chief, Traffic Signal & Technology Division, BMS

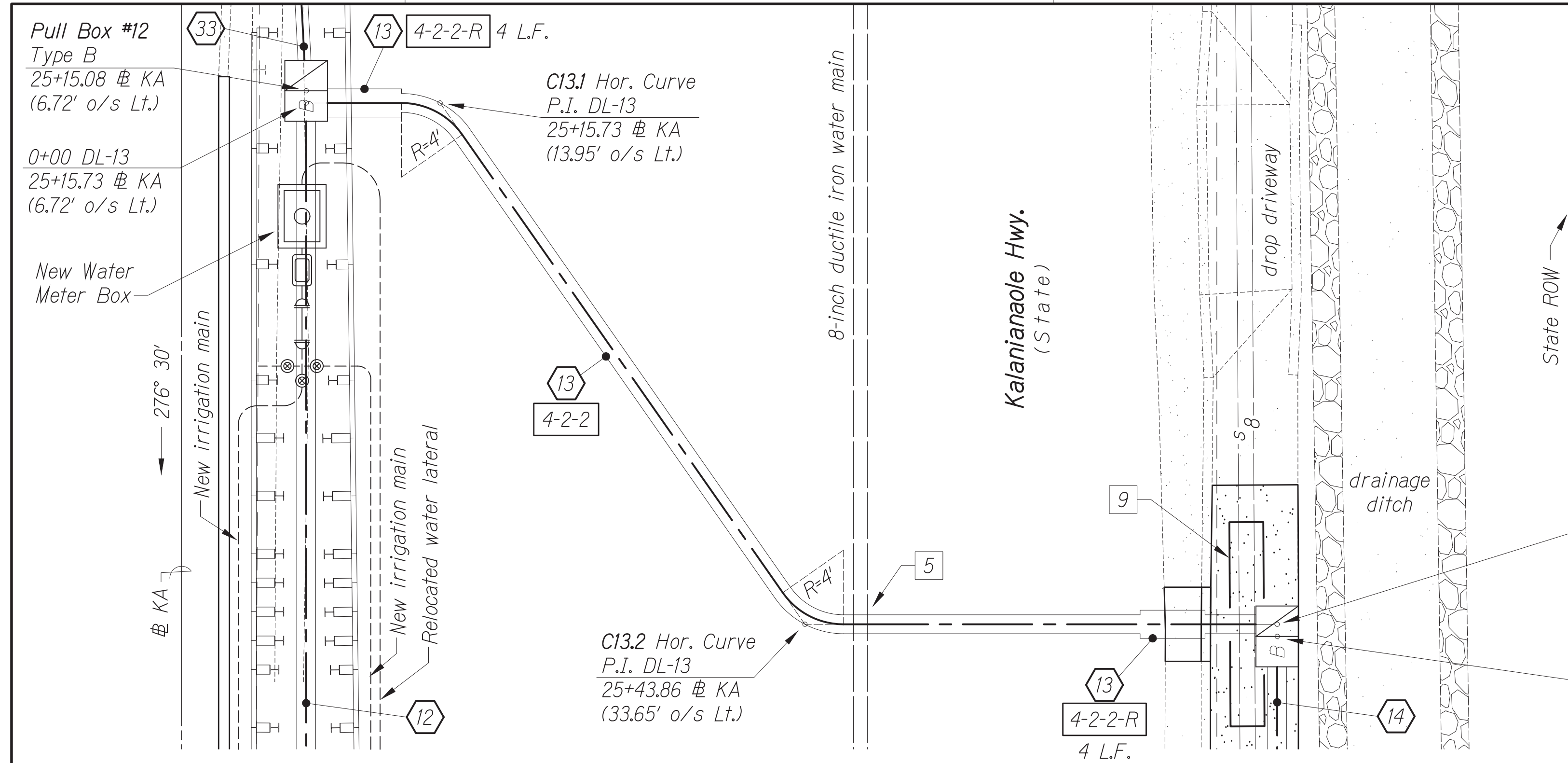
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 26 OF 37 SHEETS

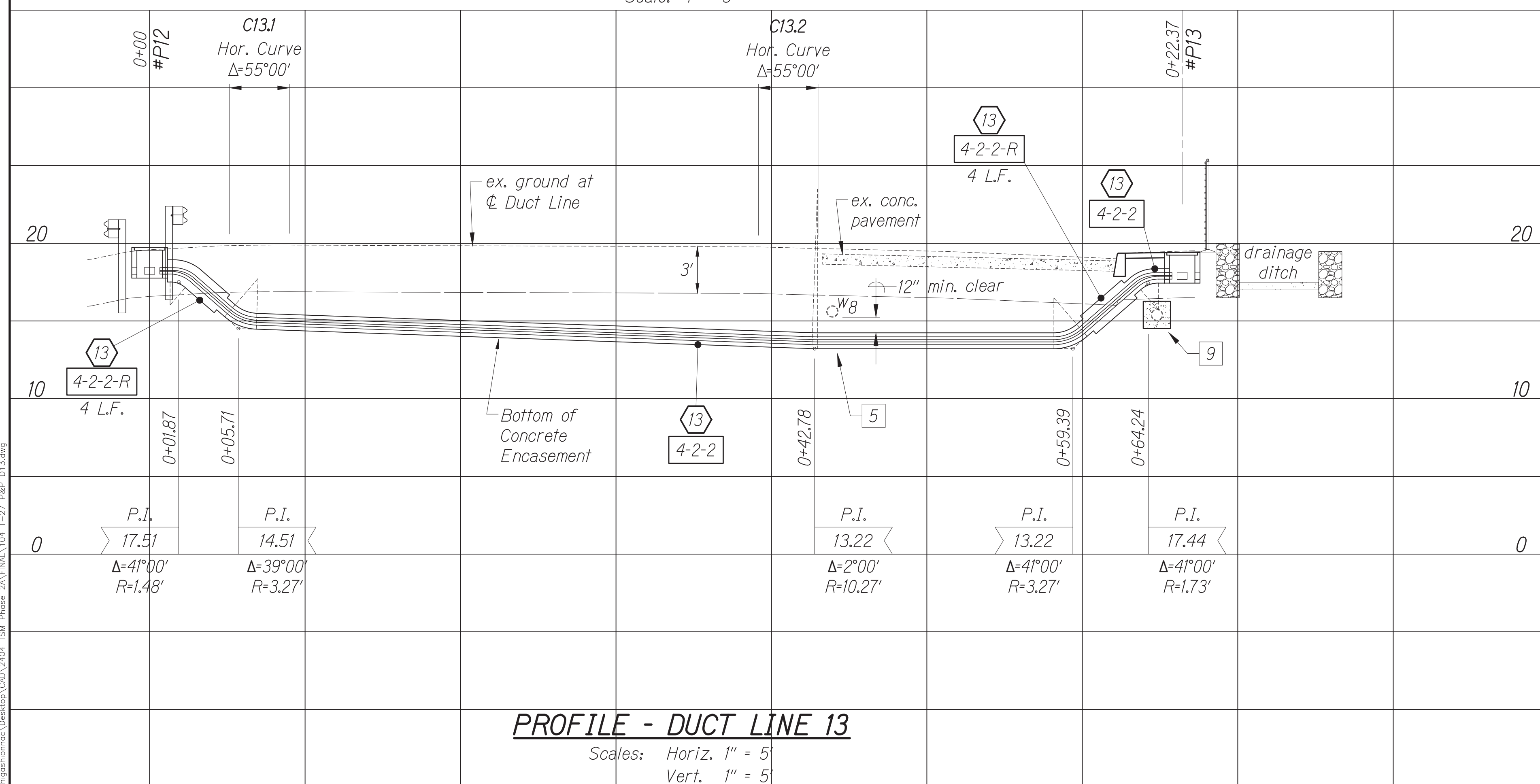




FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	104	149

- Notes:**
- 5 The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes #32 and #33. The Contractor shall pay for all costs to comply with Water Notes #32 and #33.
  - 9 11 L.F., Reinforced Concrete Jacket on 8-inch sewer.

**PLAN - DUCT LINE 13**  
Scale: 1" = 5'



**PROFILE - DUCT LINE 13**  
Scales: Horiz. 1" = 5'  
Vert. 1" = 5'

DATE	BY

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CONRAD S. HIGASHIDOMA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6763-C  
 HAWAII, U.S.A.  
 License Expiration Date 04-30-26  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAWAII TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.  
 Conrad Higashidoma

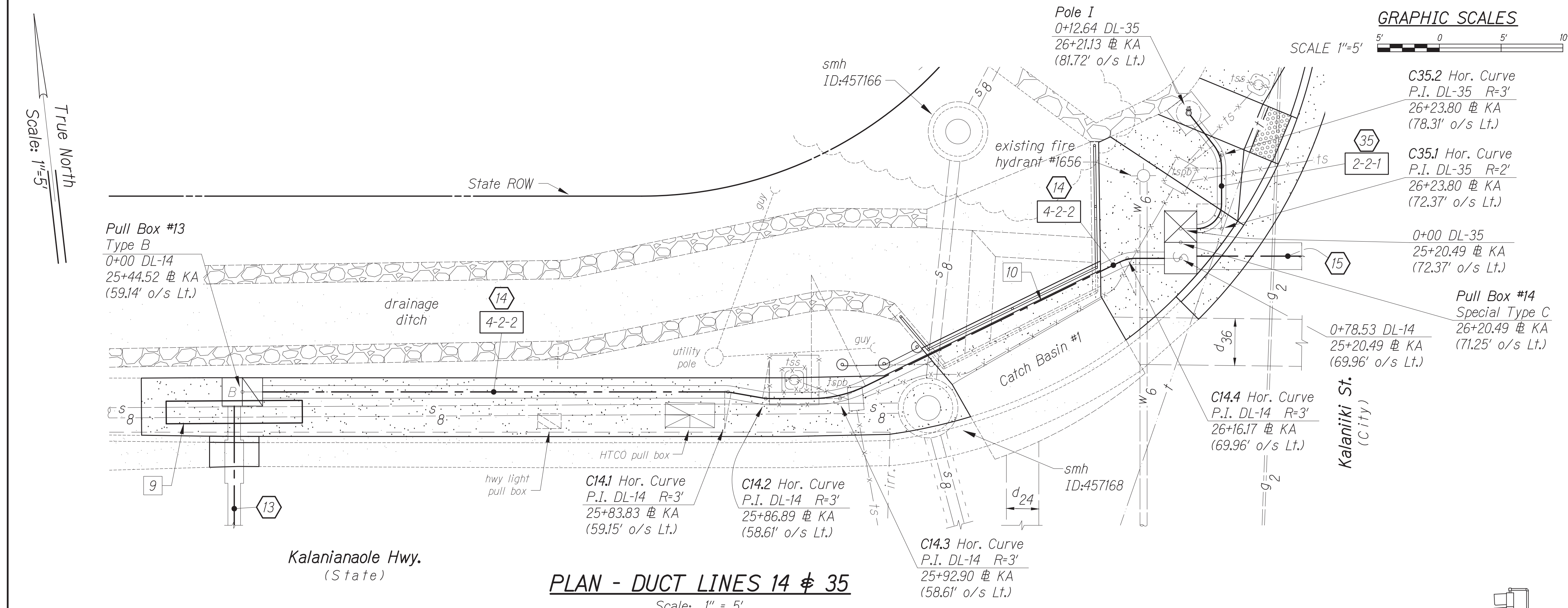
APPROVED BY:

Chief, Traffic Signal & Technology Division, DTS	Date	Manager and Chief Engineer, BMS	Date
Chief, Traffic Review Branch, TRP	Date	Chief, Wastewater Branch, WWP	Date

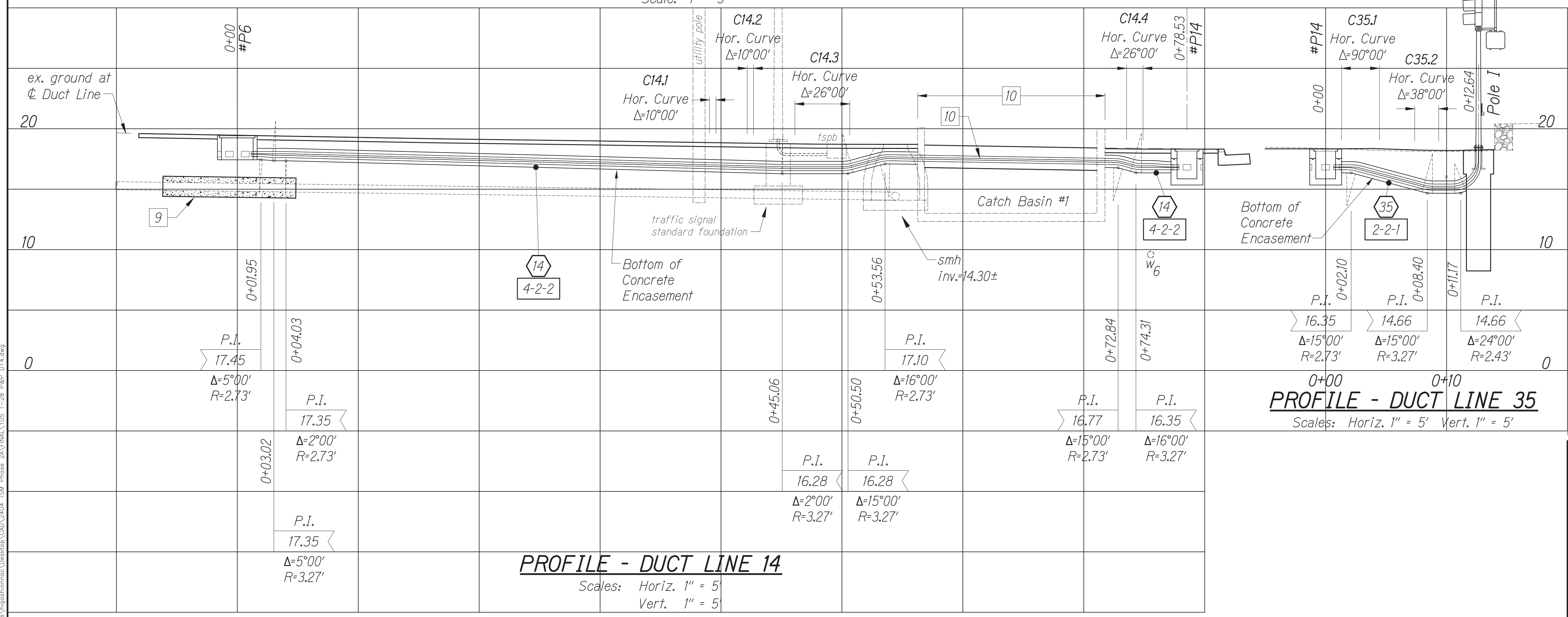
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted      Date: August 2024  
 SHEET No. 27 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	105	149

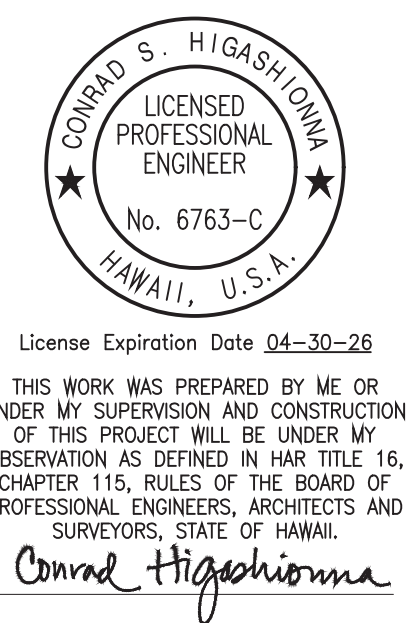
- Notes:**
- 9 11 L.F., Reinforced Concrete Jacket on 8-inch sewer.
  - 10 Furnishing and installing traffic signal conduits within or through Catch Basin No. 1 shall be incidental to Proposal Item No. 604.0100 - Catch Basin No. 1. See structural drawings for details.



**PLAN - DUCT LINES 14 & 35**  
Scale: 1" = 5'



**PROFILE - DUCT LINE 14**  
Scales: Horiz. 1" = 5' Vert. 1" = 5'



APPROVED BY:

Chief, Traffic Signal & Technology Division, DIS Date

Chief, Traffic Review Branch, DPP Date

Chief, Wastewater Branch, DPP Date

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 28 OF 37 SHEETS

DATE	BY

ORIGINAL PLAN

NOTE BOOK

No.  

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CHECKED BY

TRAFFIC SIGNAL & TECHNOLOGY DIVISION

DESIGNED BY

QUANTITIES BY

CHECKED BY

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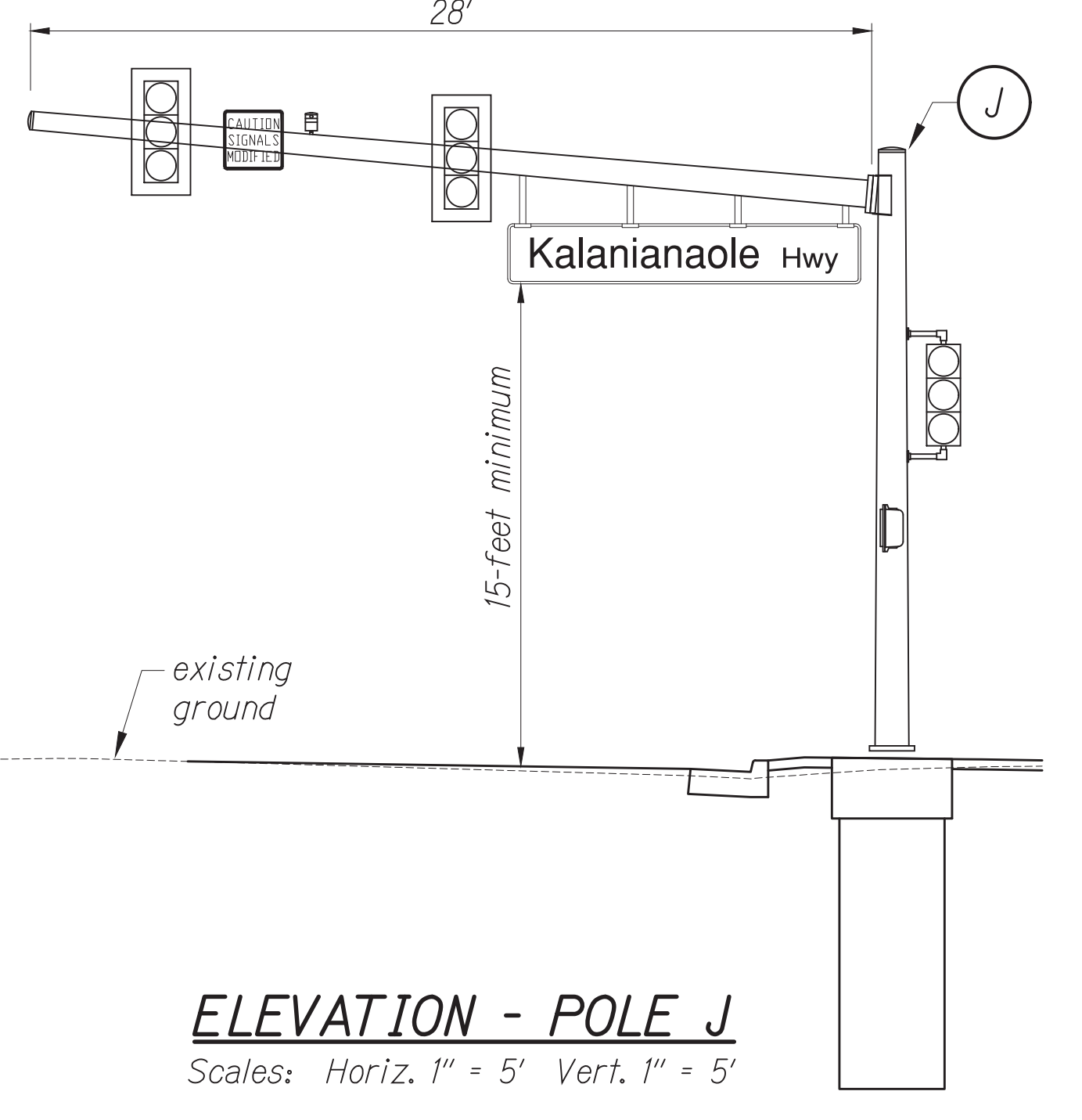
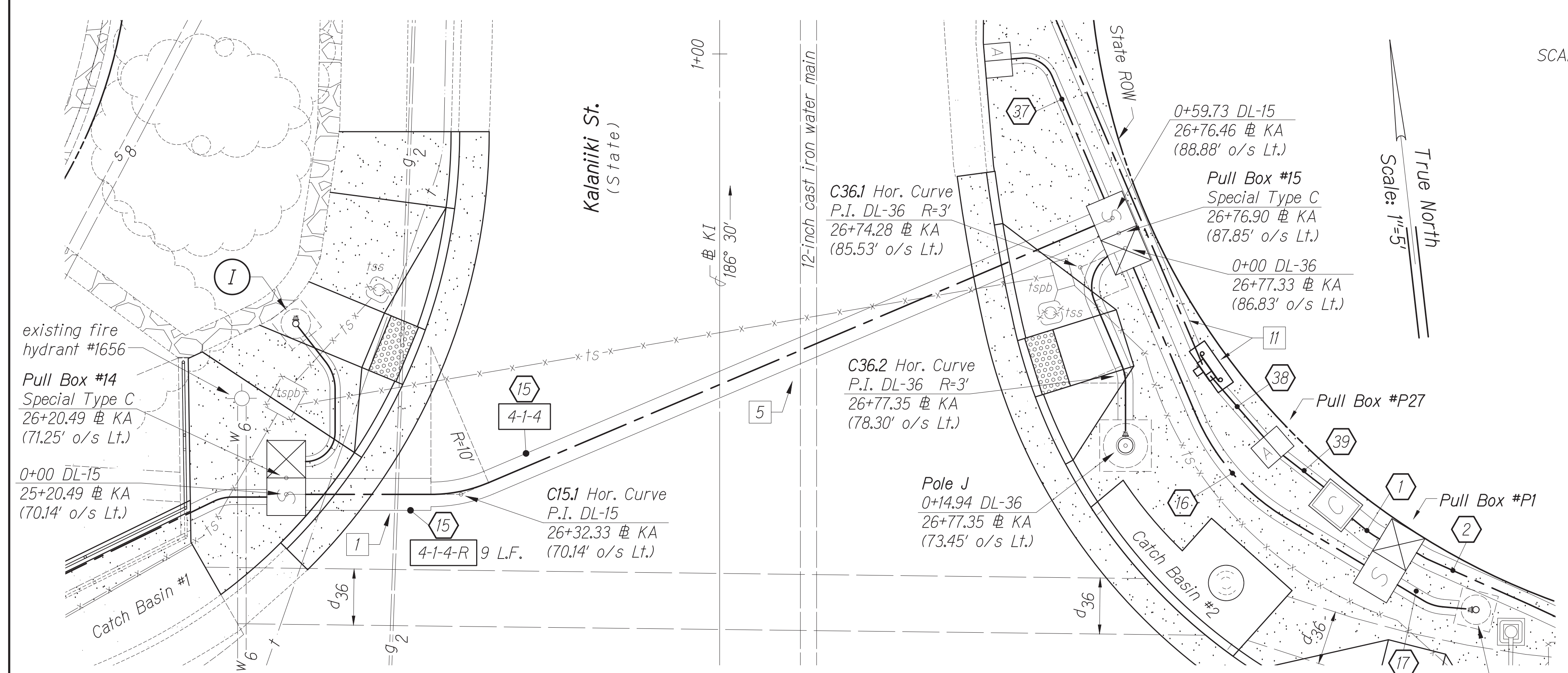
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	106	149

**GRAPHIC SCALES**

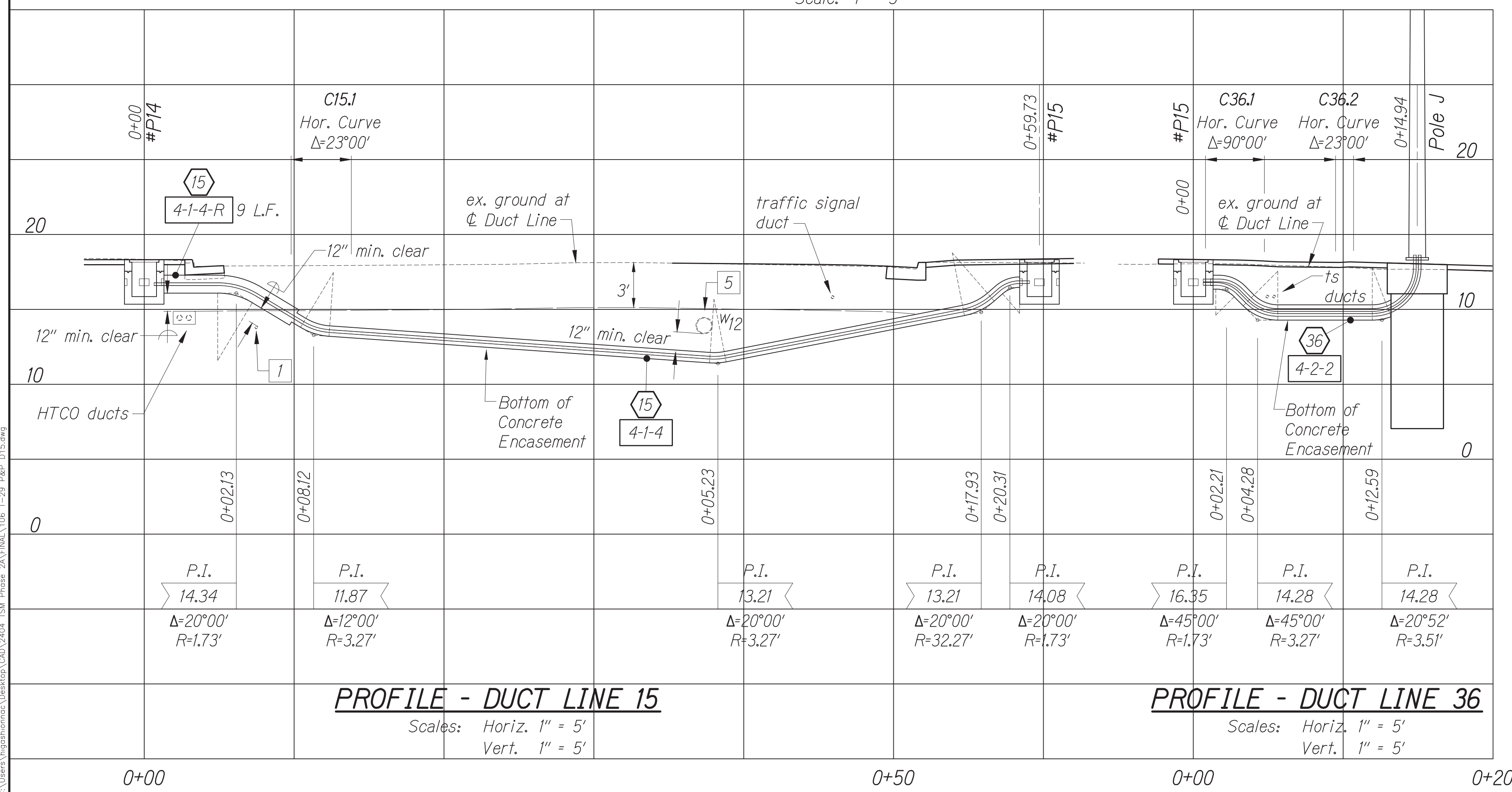


**Notes:**

- 1 The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
- 5 The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes #32 and #33. The Contractor shall pay for all costs to comply with Water Notes #32 and #33.
- 6 The Contractor shall install Curb and Gutter, Type 2DG to fit over reinforced concrete encasement traffic signal ducts. For details, see sheet 62.
- 11 New power source. HECO meter pedestal and duct line. See electrical drawings E-1 thru E-9.



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**Conrad Higashimura**



DATE	BY

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APPROVED BY:

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024  
 SHEET No. 29 OF 37 SHEETS

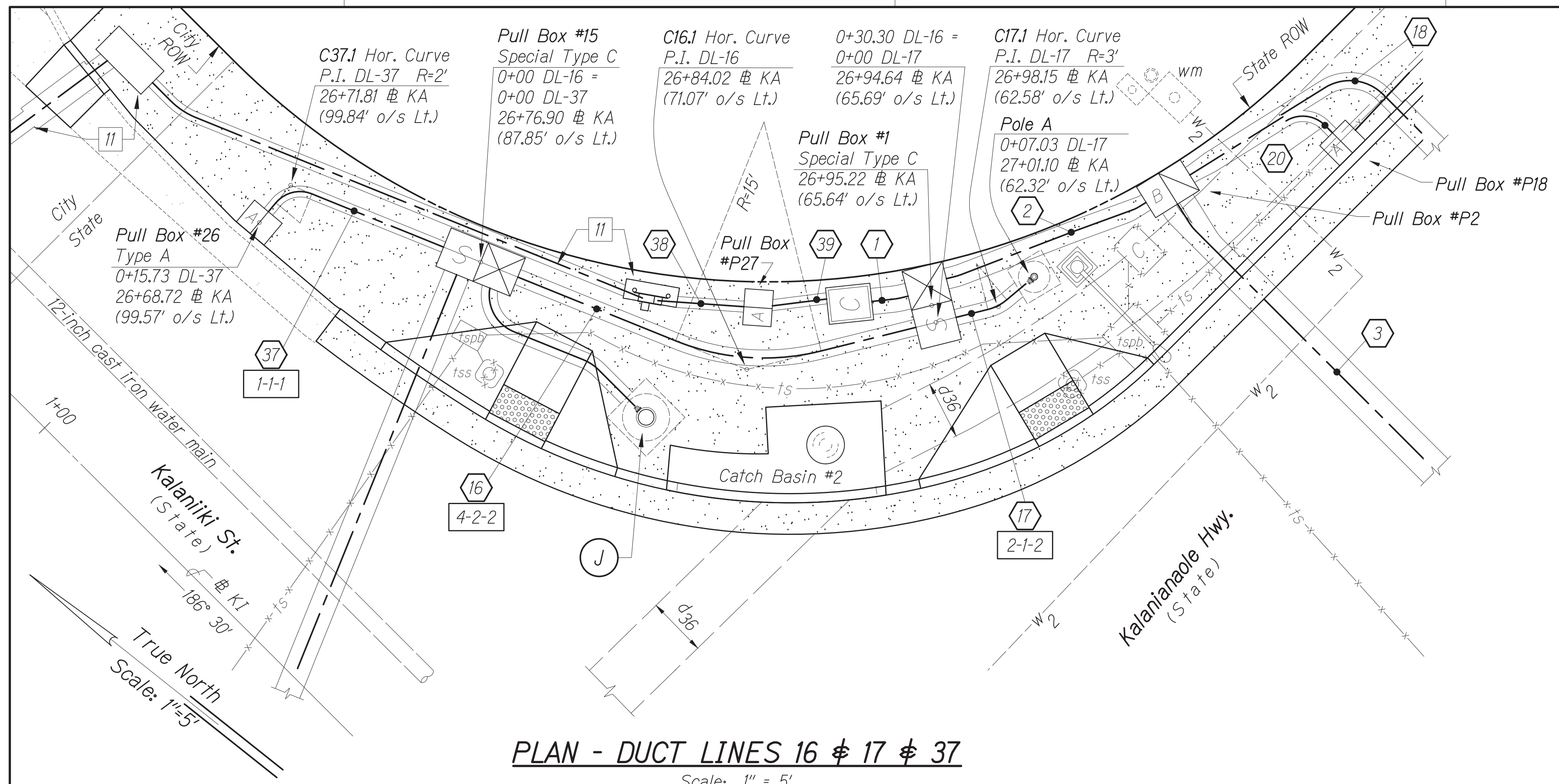
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	107	149

**GRAPHIC SCALES**

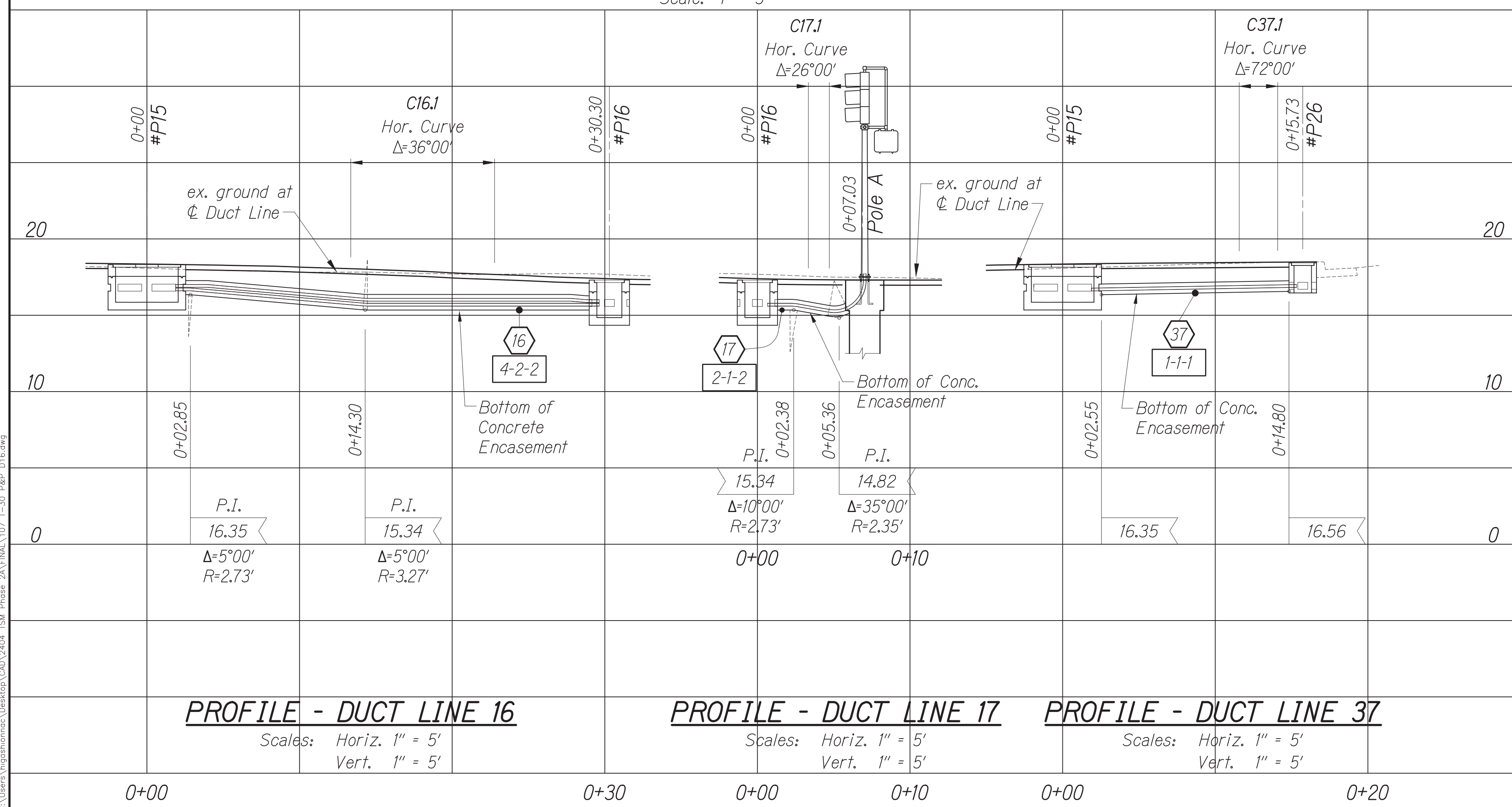


**Notes:**

- 11 New power source. HECO meter pedestal, pull box, and duct line. See electrical drawings E-1 thru E-9.



**PLAN - DUCT LINES 16  $\phi$  17  $\phi$  37**  
Scale: 1" = 5'



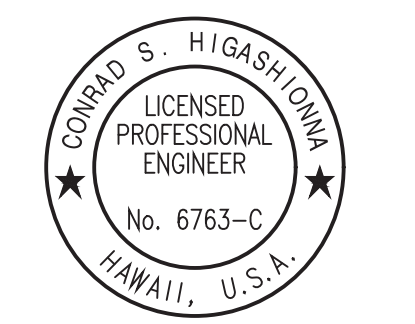
**PROFILE - DUCT LINE 16**  
Scales: Horiz. 1" = 5'  
Vert. 1" = 5'

**PROFILE - DUCT LINE 17**  
Scales: Horiz. 1" = 5'  
Vert. 1" = 5'

**PROFILE - DUCT LINE 37**  
Scales: Horiz. 1" = 5'  
Vert. 1" = 5'

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*Conrad Higashimura*

APPROVED BY: \_\_\_\_\_ Date: \_\_\_\_\_  
Chief, Traffic Review Branch, JRP \_\_\_\_\_ Date: \_\_\_\_\_  
Chief, Traffic Signal & Technology Division, GIS \_\_\_\_\_ Date: \_\_\_\_\_

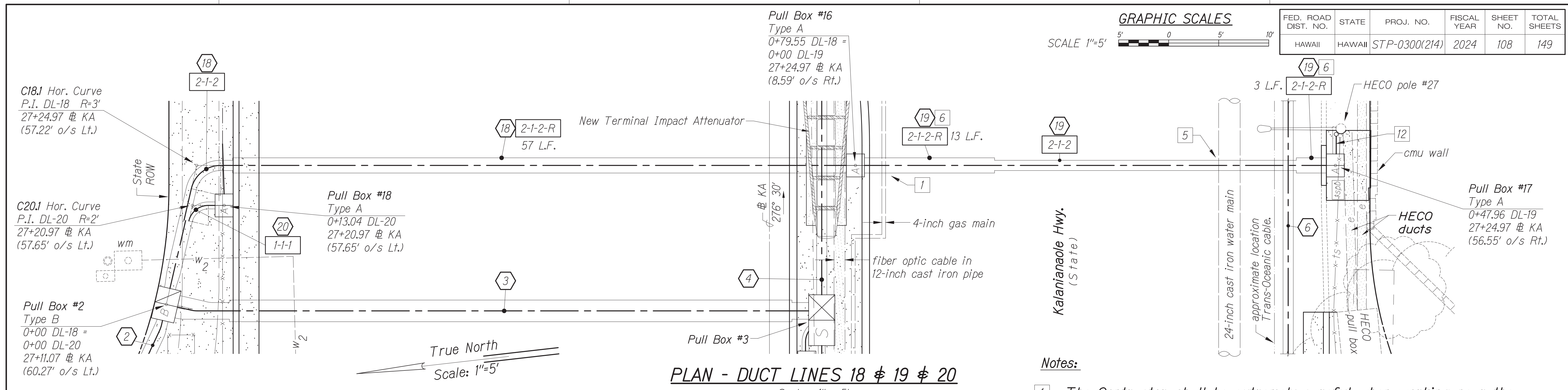
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

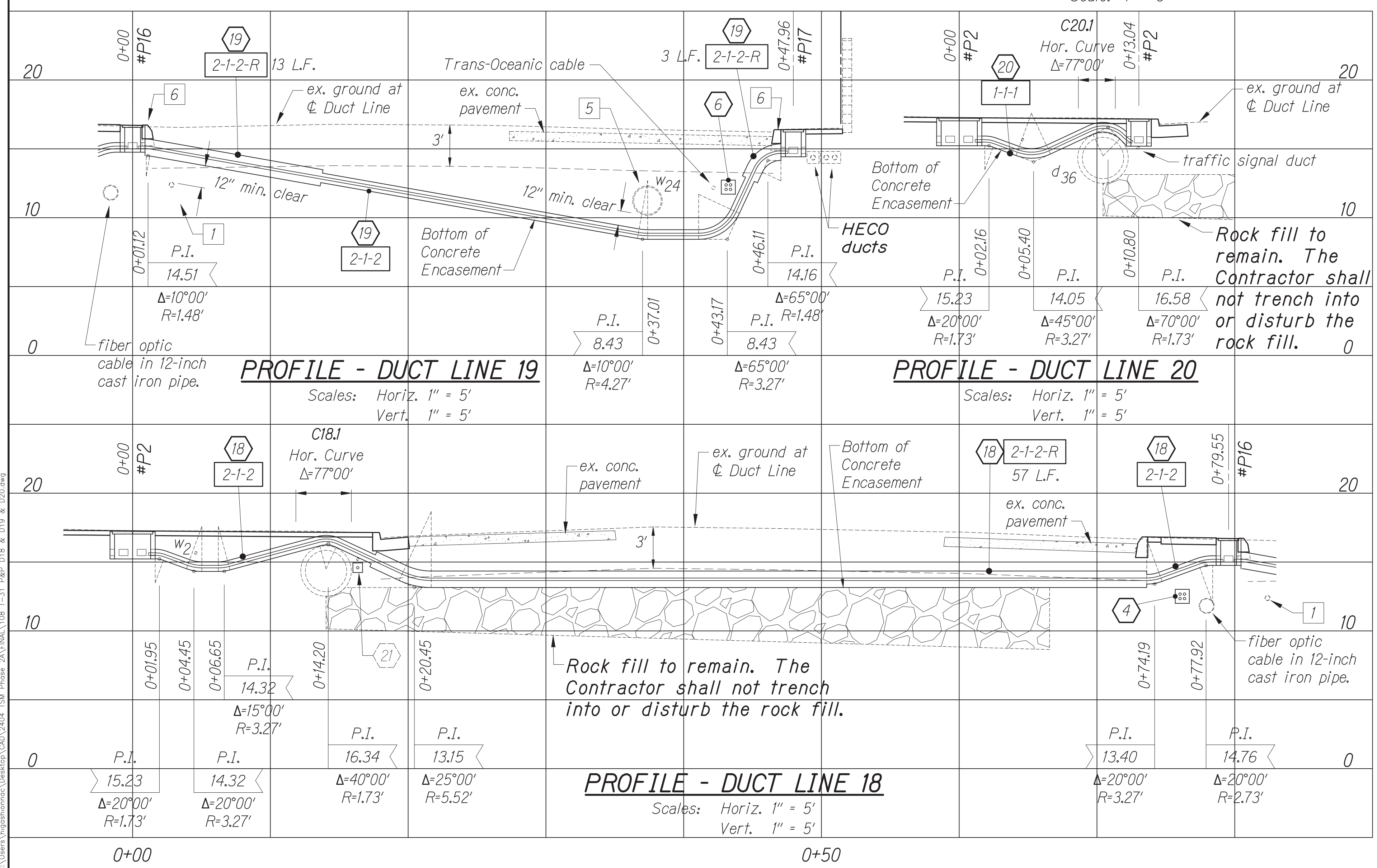
SHEET No. 30 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	108	149



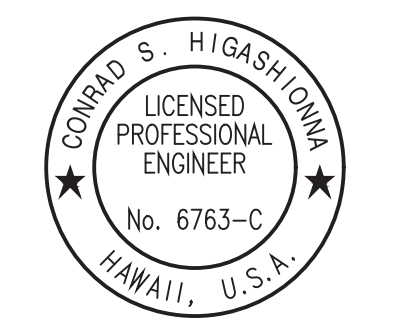
**Notes:**

- 1 The Contractor shall be extremely careful when working near the gas pipeline. See GAS notes.
- 5 The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes #32 and #33. The Contractor shall pay for all costs to comply with Water Notes #32 and #33.
- 6 The Contractor shall install Curb, Type 2A or Curb, Type 2D to fit over reinforced concrete encasement traffic signal ducts. For details, see sheet 62.
- 12 The Contractor shall furnish and install an inter-connect riser between Pull Box #17 and HECO pole #27. This work shall be incidental to the various contract items.



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 Conrad Higashimura

APPROVED BY: \_\_\_\_\_

Manager and Chief Engineer, BMS (for work affecting BMS facilities in City/State 1/2W and BMS assessments only) Date: \_\_\_\_\_

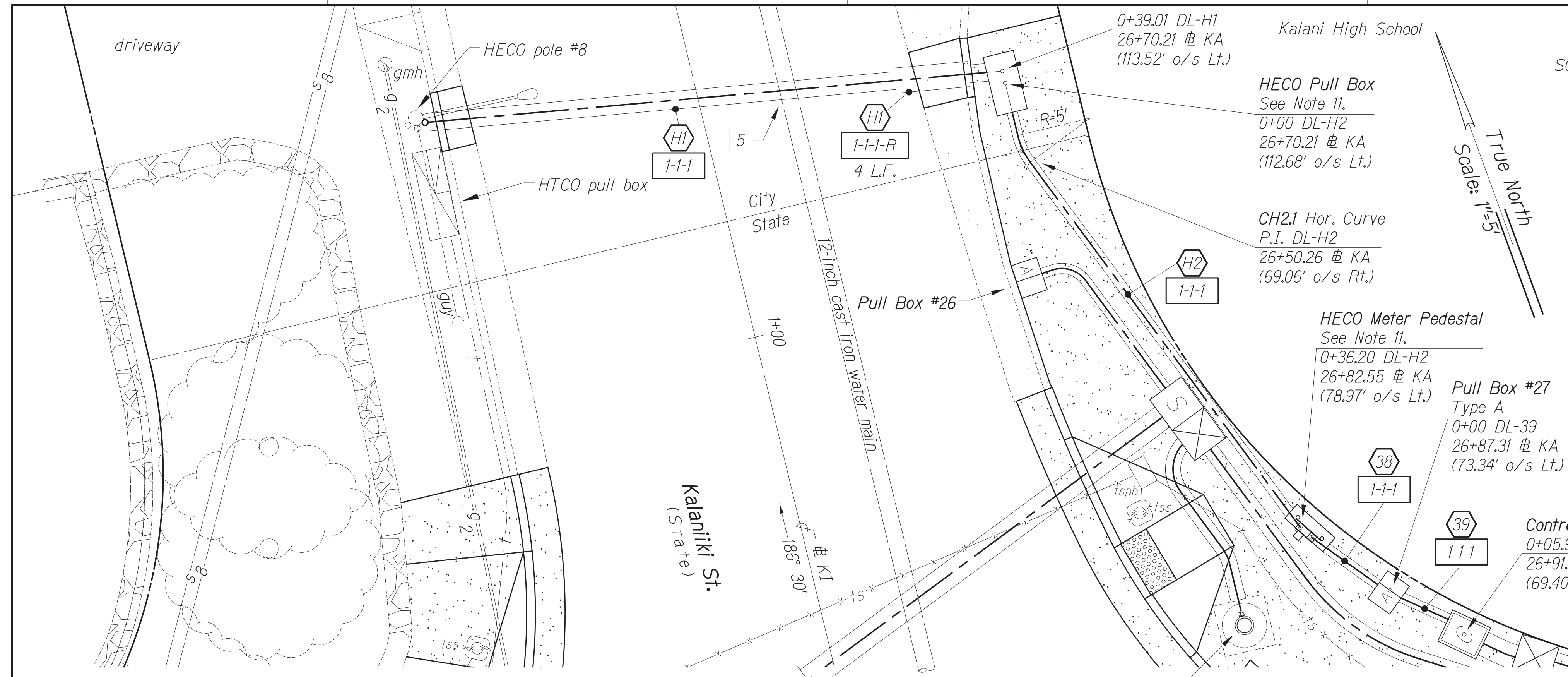
Chief, Traffic Review Division, BPP Date: \_\_\_\_\_ Chief, Traffic Signal & Technology Division, DTS Date: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 31 OF 37 SHEETS



**GRAPHIC SCALES**



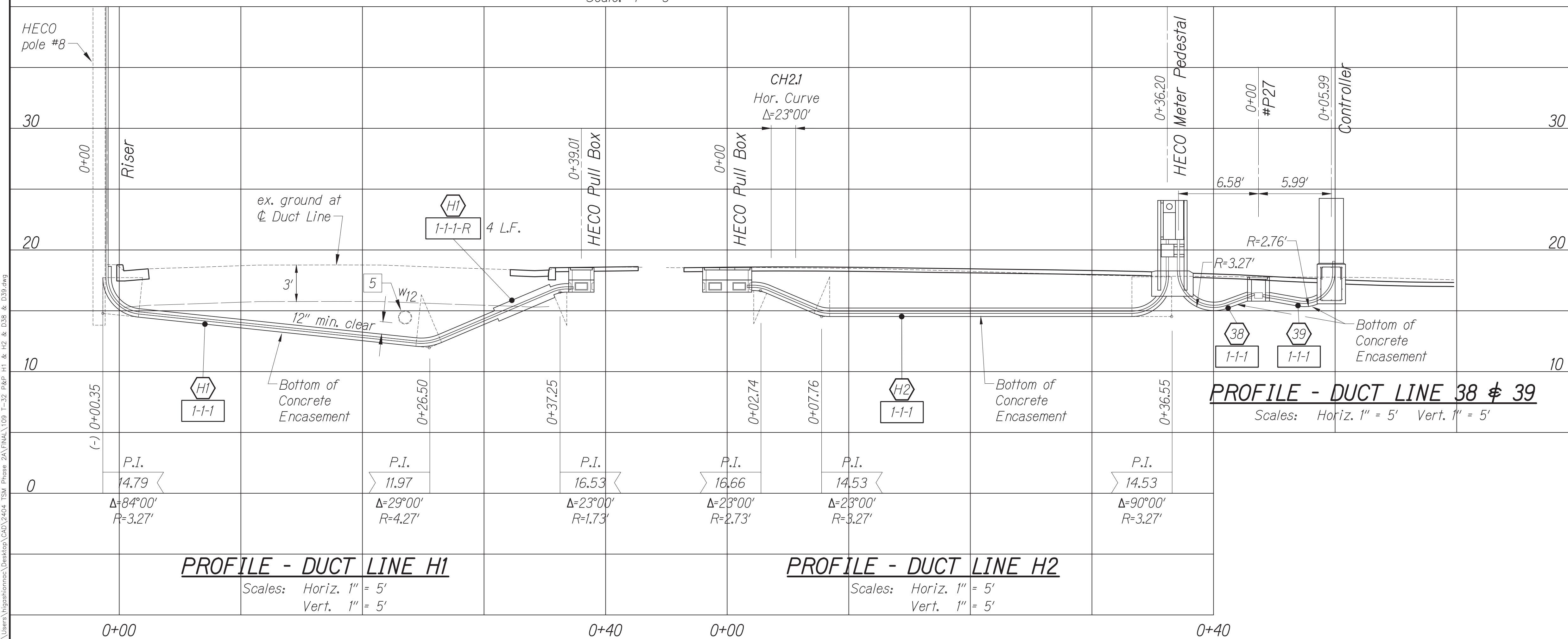
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	109	149

**Notes:**

- 5 The Contractor shall construct the new traffic signal duct line crossing the existing cast iron water main in compliance with Water Notes #32 and #33. The Contractor shall pay for all costs to comply with Water Notes #32 and #33.
- 6 The Contractor shall install Curb and Gutter, Type 2DG to fit over reinforced concrete encasement traffic signal ducts. For details, see sheet 62.
- 11 New power source. HECO meter pedestal and duct line. See electrical drawings E-1 thru E-9.

**PLAN - DUCT LINE H1 # H2 # 38 # 39**

Scale: 1" = 5'



**PROFILE - DUCT LINE 38 # 39**

Scales: Horiz. 1" = 5' Vert. 1" = 5'

**PROFILE - DUCT LINE H1**

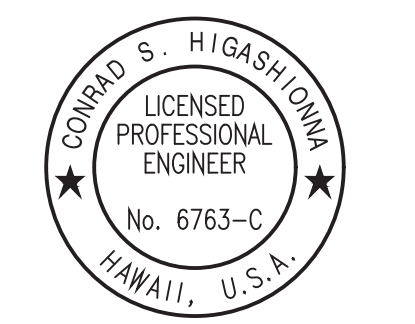
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**PROFILE - DUCT LINE H2**

Scales: Horiz. 1" = 5' Vert. 1" = 5'

DATE	BY

SURVEY PLOTTED BY: DATE  
 TRACED BY: DATE  
 DESIGNED BY: DATE  
 QUANTITIES BY: DATE  
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 ORIGINAL PLAN NO.  
 NOTE BOOK NO.  
 Oct 10, 2024 - 2:25pm  
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 Conrad Higashi

APPROVED BY: \_\_\_\_\_  
 Manager and Chief Engineer, BMS (for work affecting BMS facilities in City/State 1/2W and BMS assessments only)  
 Chief, Traffic Review Branch, BPP (for work affecting City BMS)  
 Chief, Traffic Signal & Technology Division, BMS

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

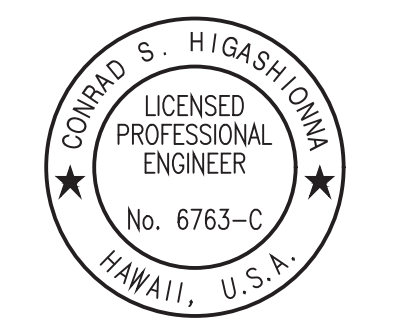
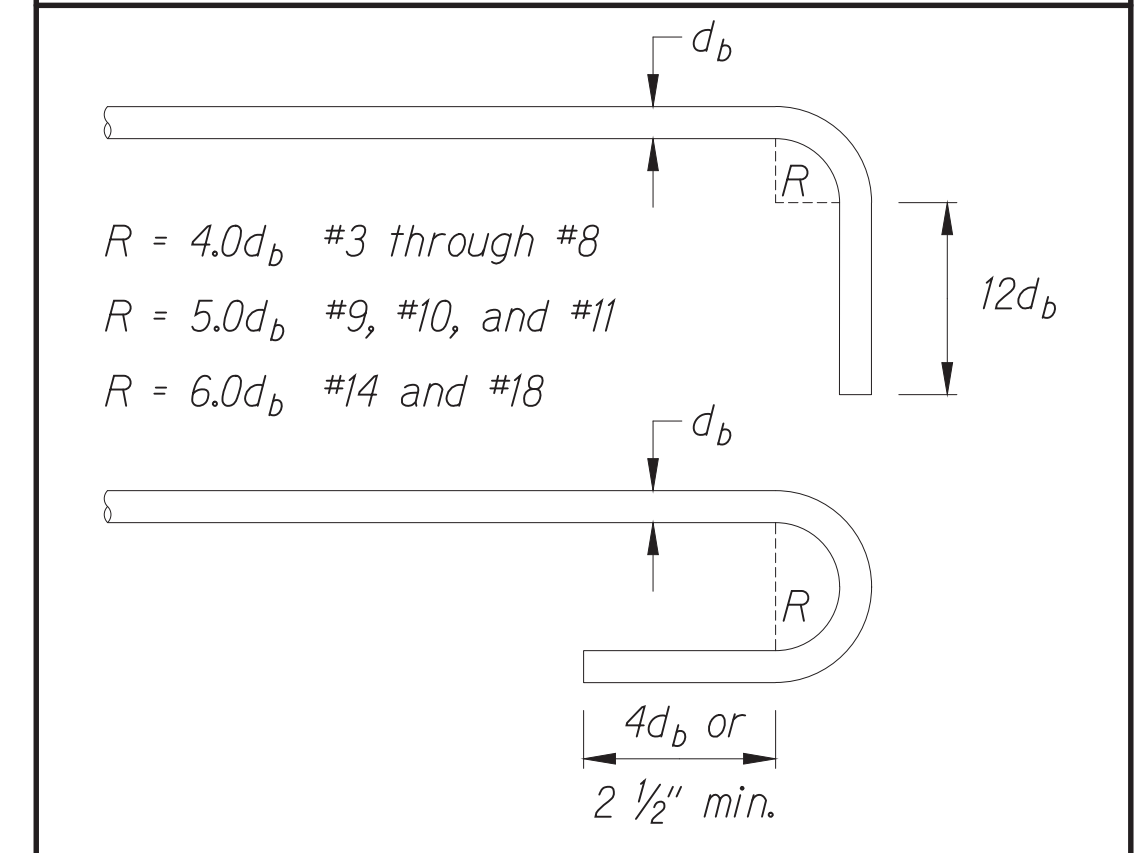
SHEET No. 32 OF 37 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	110	149

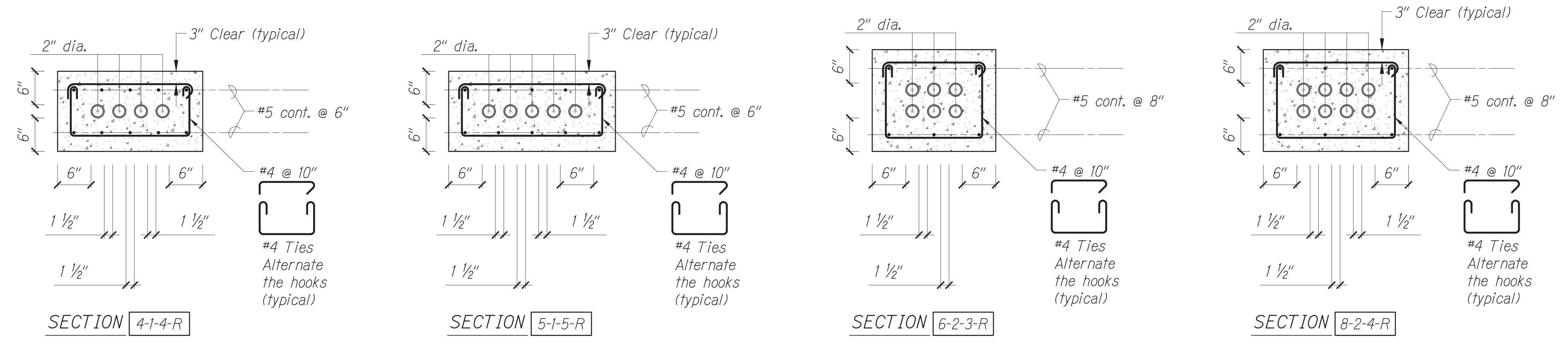
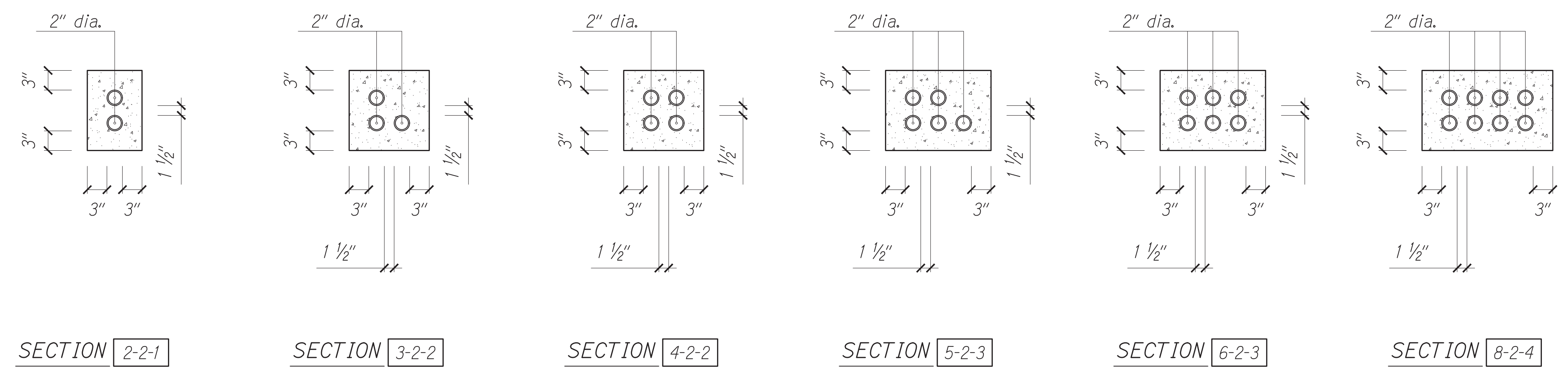
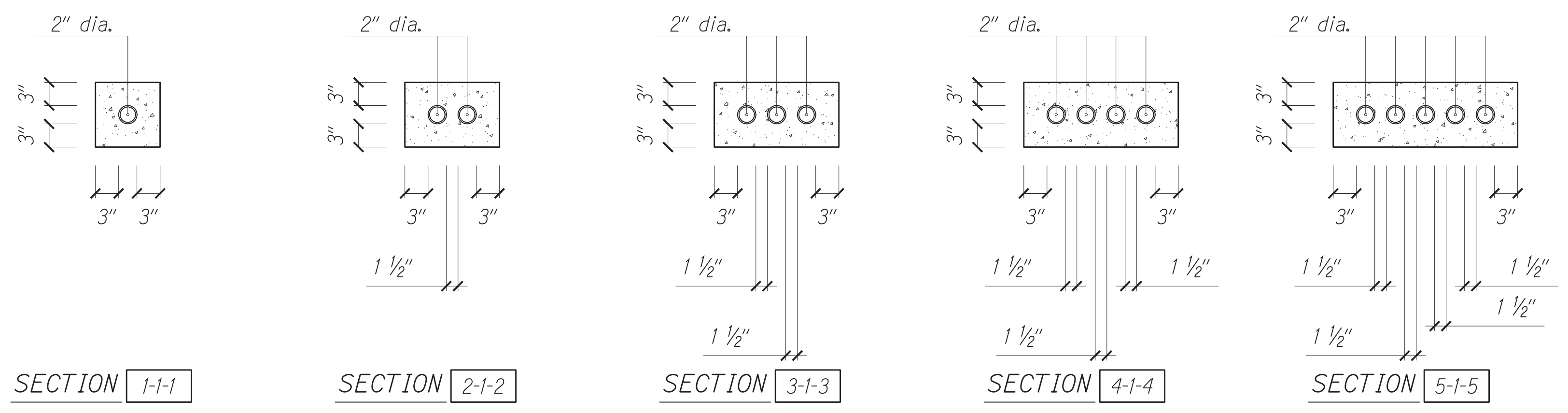
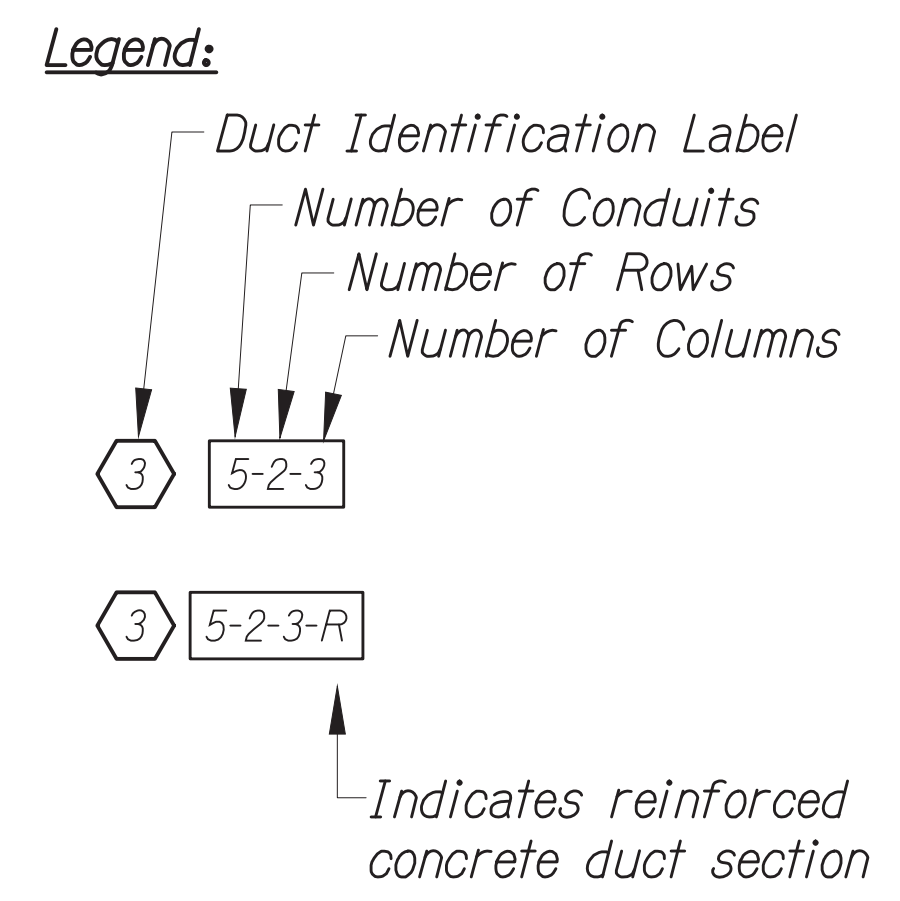
Minimum Diameters of Bend	
Bar Size and Use	Minimum Diameter
No. 3 through No. 5 - General	6.0d <sub>b</sub>
No. 3 through No. 5 - Stirrups and Ties	4.0d <sub>b</sub>
No. 6 through No. 8 - General	6.0d <sub>b</sub>
No. 9, No. 10, and No. 11	8.0d <sub>b</sub>
No. 14 and No. 18	10.0d <sub>b</sub>

**Notes:**

- The diameter of a bar bend, measured on the inside of the bar, shall not be less than that specified in Table Minimum Diameters of Bend.
- The inside diameter of bend for stirrups and ties in plain or deformed welded wire reinforcement shall not be less than 4.0d<sub>b</sub> for deformed wire larger than D6 and 2.0d<sub>b</sub> for all other wire sizes. Bends with inside diameters of less than 8.0d<sub>b</sub> shall not be located less than 4.0d<sub>b</sub> from the nearest welded intersection.



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 Conrad Higashimura



**TRAFFIC SIGNAL DUCT SECTIONS**  
 No Scale

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Oct 10, 2024 - 2:02pm  
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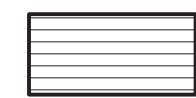
STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

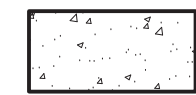
Scale: As noted Date: August 2024

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	111	149

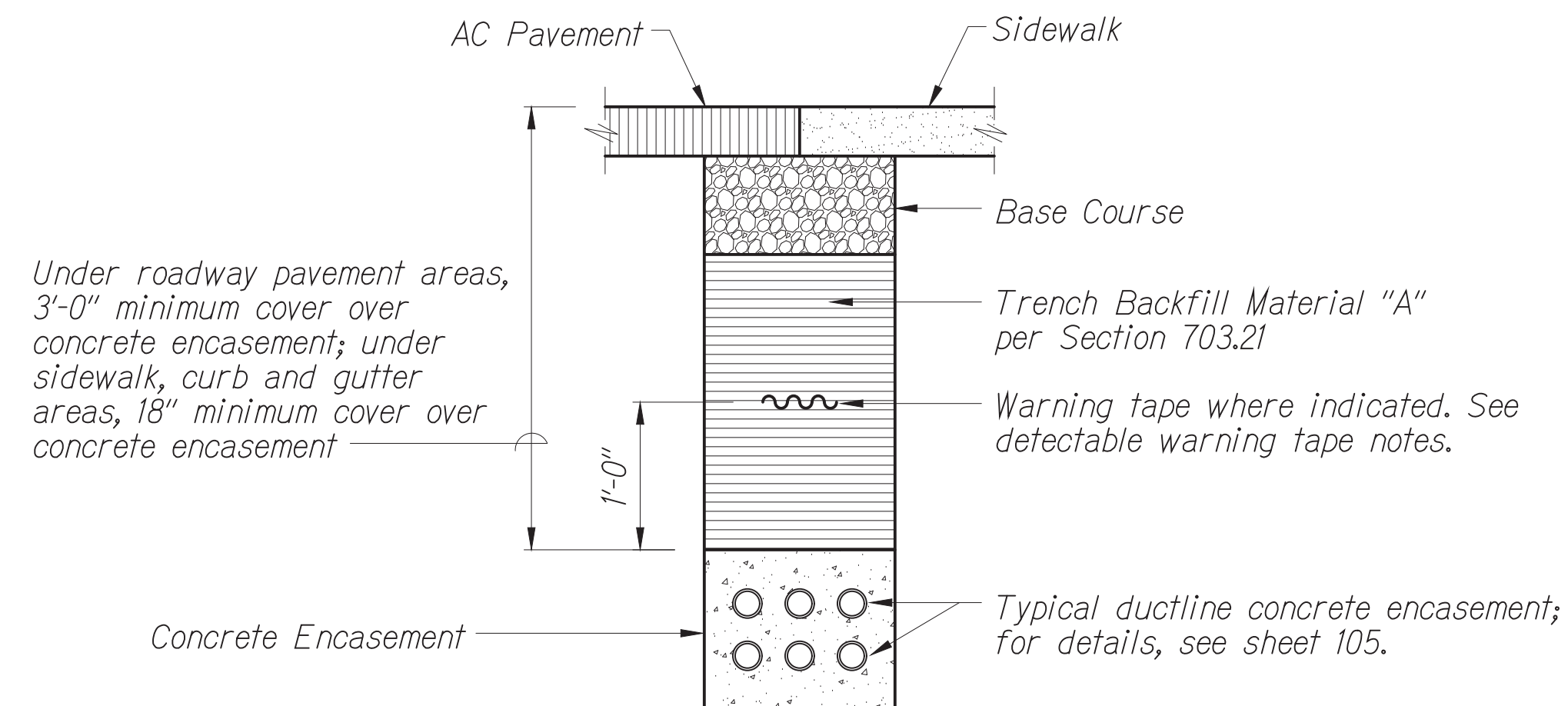
**Legend**



**Trench Backfill Material "A"**  
When tested according to AASHTO T 176, the Sand Equivalent value shall be 20 or greater.



**Concrete Encasement**  
3" encasement 3000 psi compressive strength at 28 Days.



**TYPICAL TRENCH RESTORATION DETAILS**

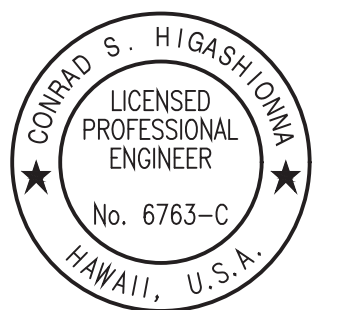
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**Trench Restoration Notes:**

1. If trench is located an unpaved area, the Contractor shall replace A.C. base course and A.C. pavement with Type "A" backfill material.
2. The metal detectable red plastic warning tape shall be a minimum five (5) mils thick and 4 inches wide with a continuous metallic backing and corrosion resistant one (1) mil thick foil core. For the State DOT traffic signal and highway lighting ducts, the message on the tape shall read: "CAUTION - STATE TRAFFIC SIGNAL AND/OR HWY. LIGHTING BURIED BELOW." The warning tape message lettering shall be 1.5-inch tall Series "C" block lettering. The message shall be repeated with a 4.25-inch spacing between end of message and start of next repeat. The tape shall be incidental to the duct line cost.
3. The Contractor may begin backfilling the conduit trench when the concrete reaches 3000 psi compressive strength after 3 days.
4. Maximum four (4) conduits per row for multiple conduit duct section, except as indicated on plans.
5. After installing all the traffic signal cables, the Contractor shall duct seal all conduits in the pullboxes, traffic signal standards, and traffic signal controller cabinet foundation. The duct seal material shall be approved by the traffic signal inspector/Engineer and shall not be paid for separately but considered incidental to the concrete encased conduits.
6. For concrete sidewalk, curb & gutter, P.C.C. pavement, and asphalt pavement restoration over trench excavation, see details on sheets 53, 54, 55, and 56.

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

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*Conrad Higashidoma*

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

***TRAFFIC SIGNAL SYSTEM***

***TRAFFIC SIGNAL MODERNIZATION***

*Oahu - Phase 2A*

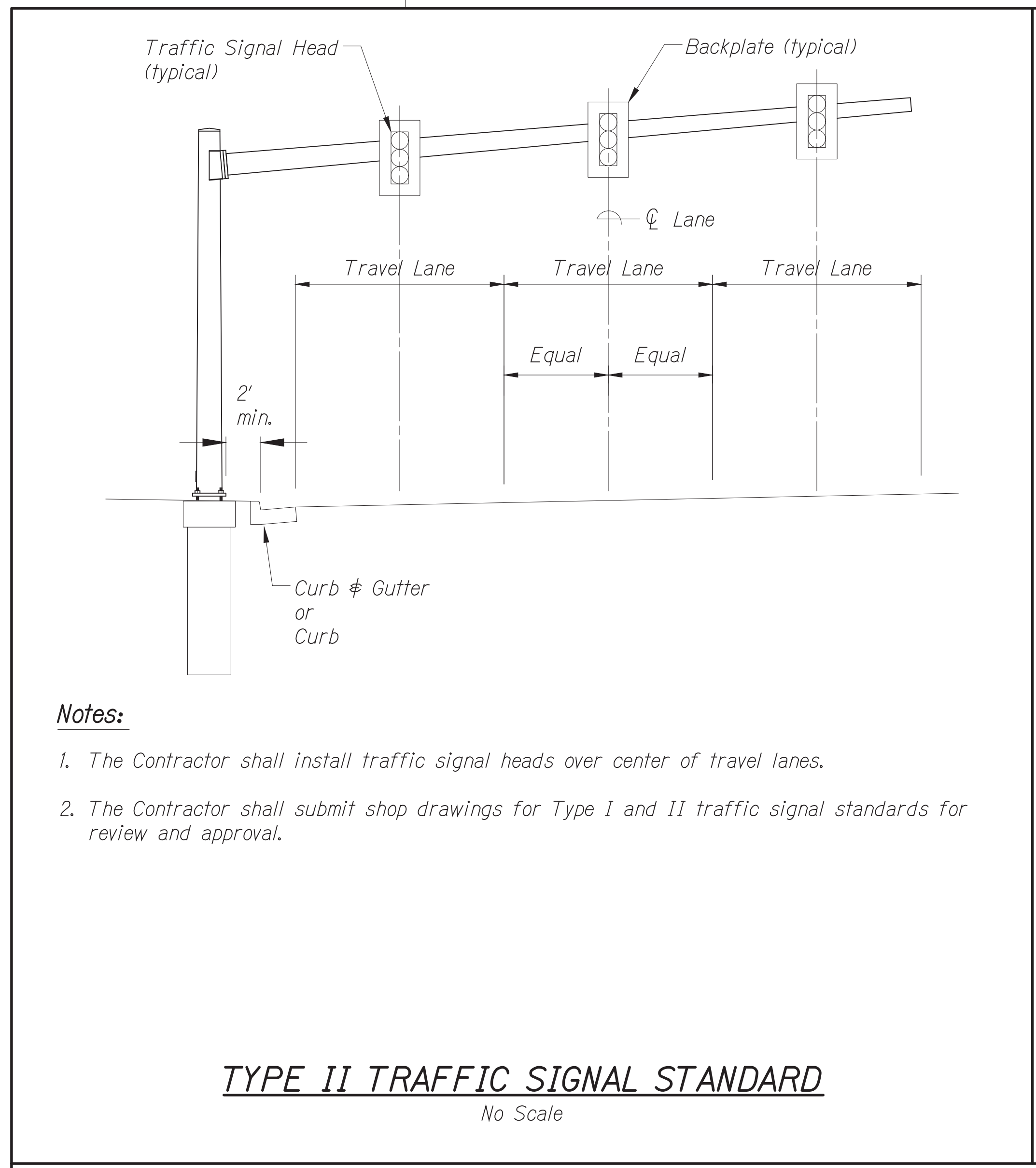
*Federal Aid Project No. STP-0300(214)*

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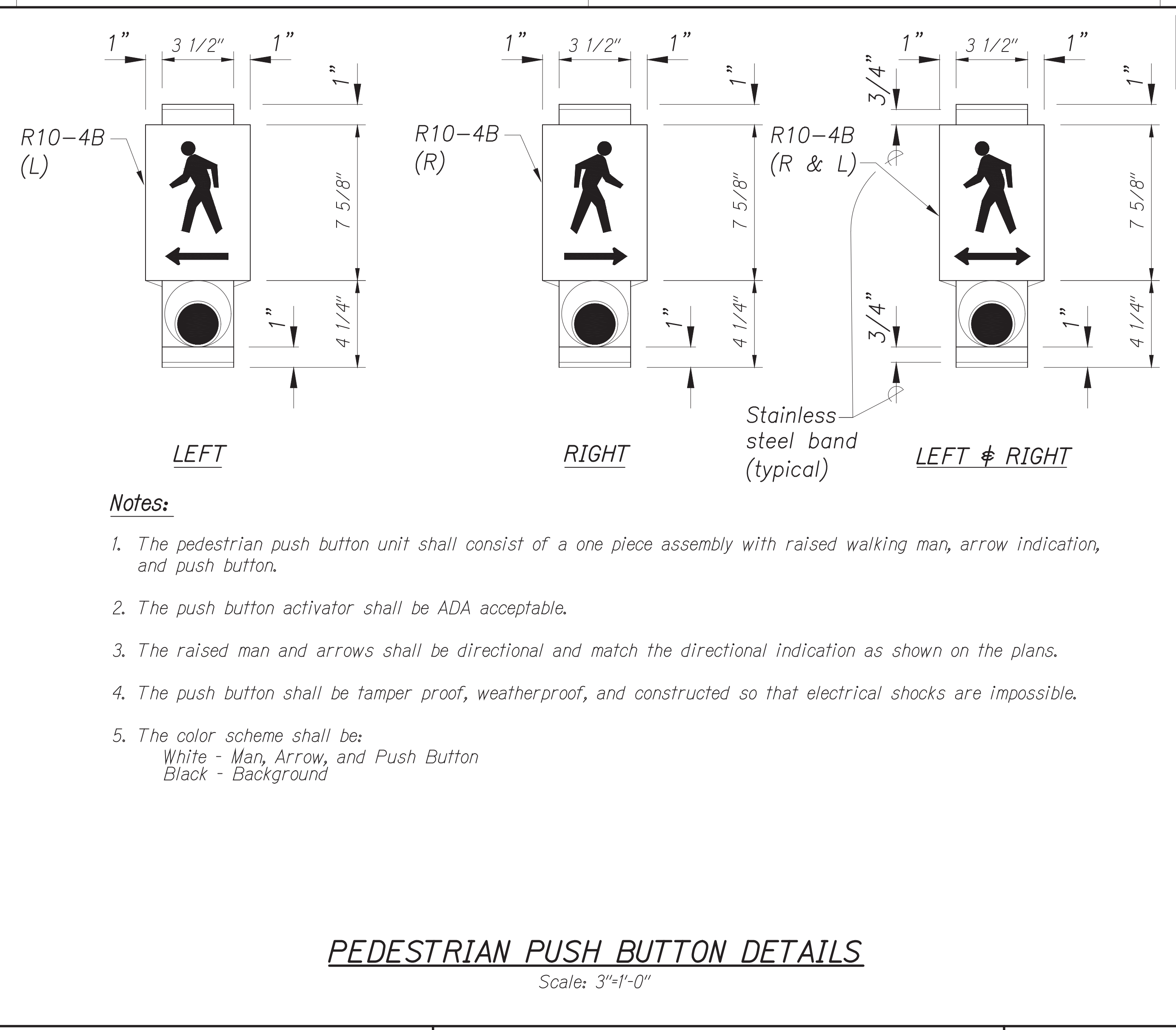
SHEET No. 34 OF 37 SHEETS



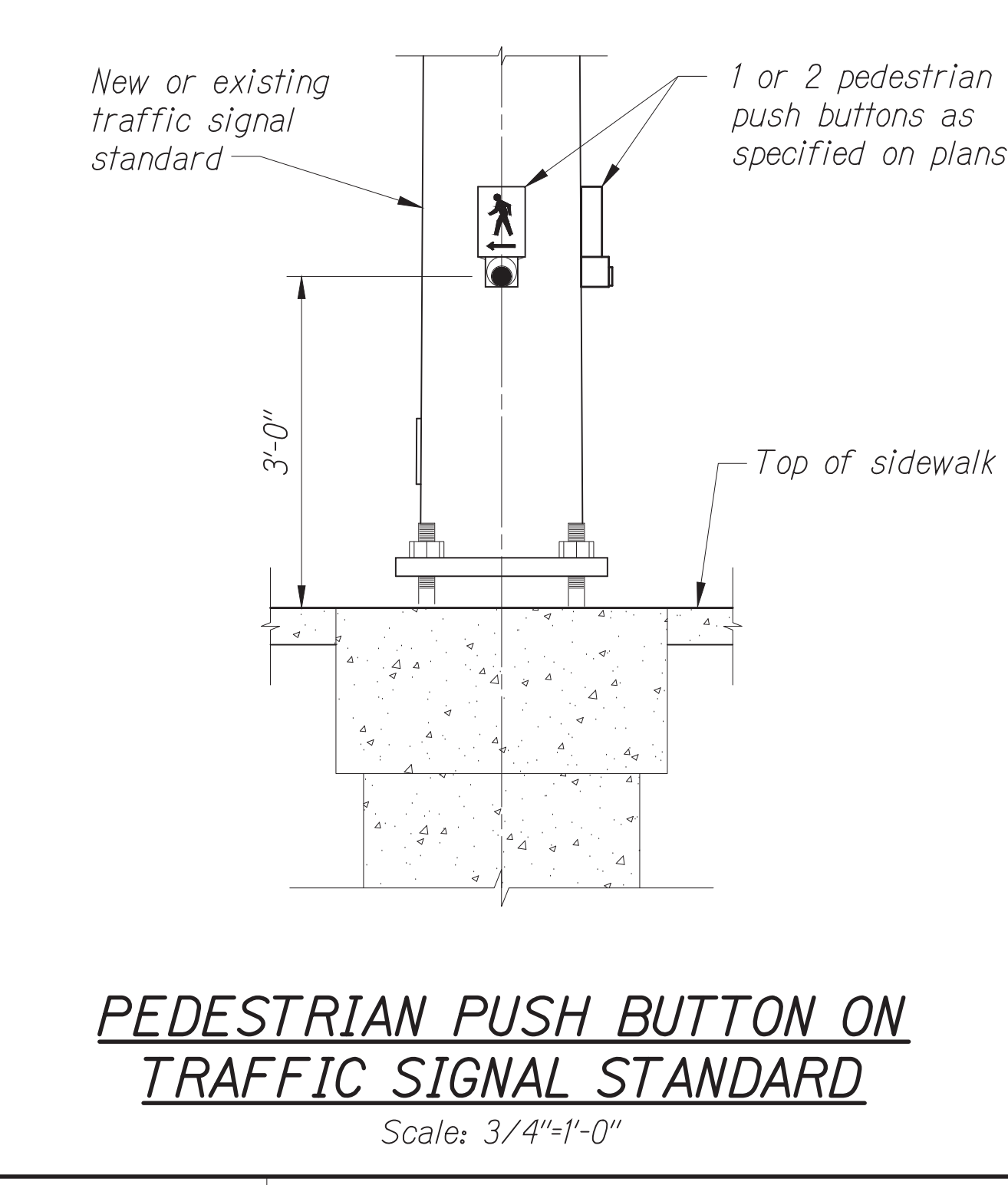
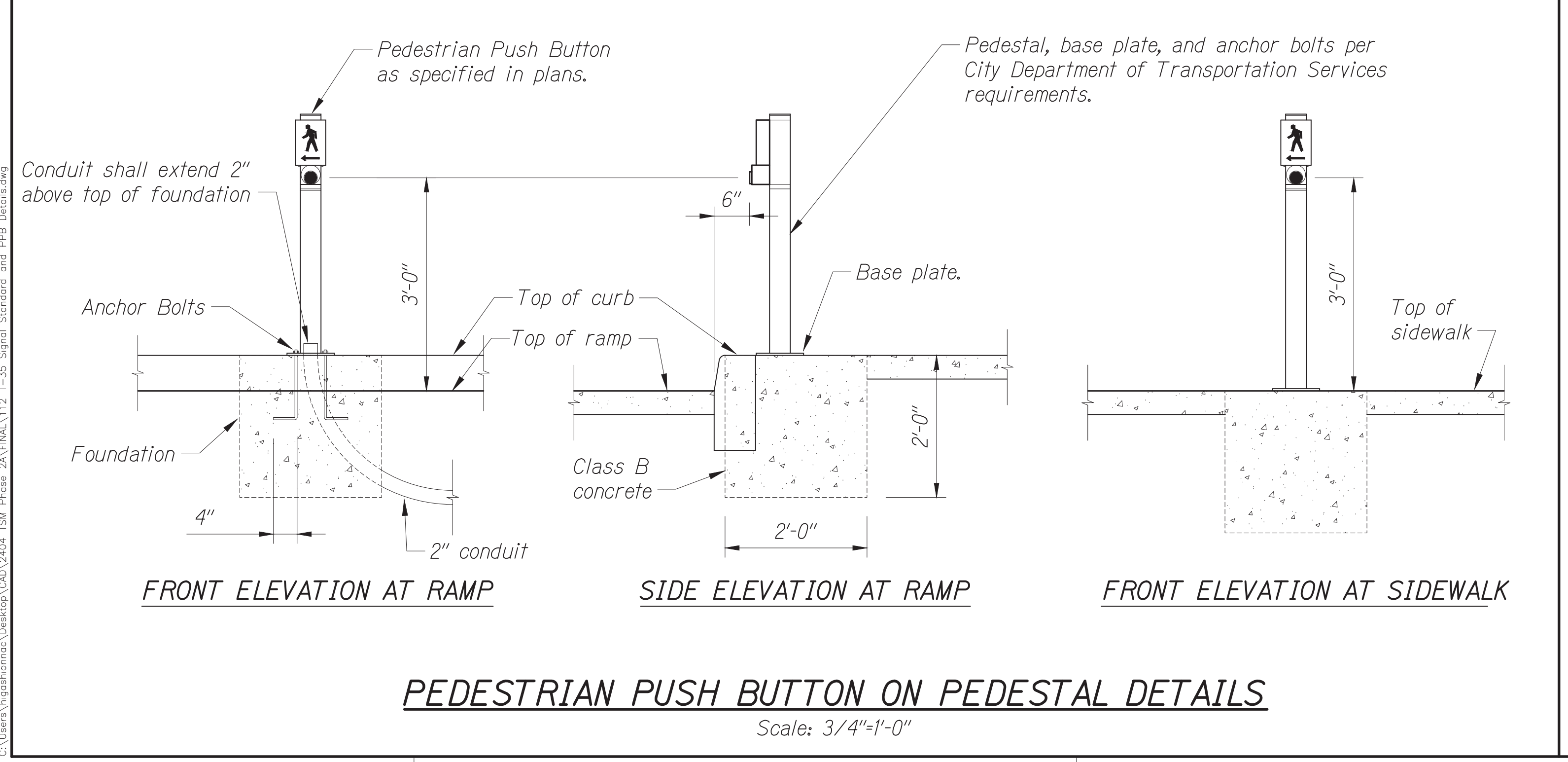
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	112	149



- Notes:**
- The Contractor shall install traffic signal heads over center of travel lanes.
  - The Contractor shall submit shop drawings for Type I and II traffic signal standards for review and approval.



- Notes:**
- The pedestrian push button unit shall consist of a one piece assembly with raised walking man, arrow indication, and push button.
  - The push button activator shall be ADA acceptable.
  - The raised man and arrows shall be directional and match the directional indication as shown on the plans.
  - The push button shall be tamper proof, weatherproof, and constructed so that electrical shocks are impossible.
  - The color scheme shall be:  
White - Man, Arrow, and Push Button  
Black - Background



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STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**

**TRAFFIC SIGNAL MODERNIZATION**

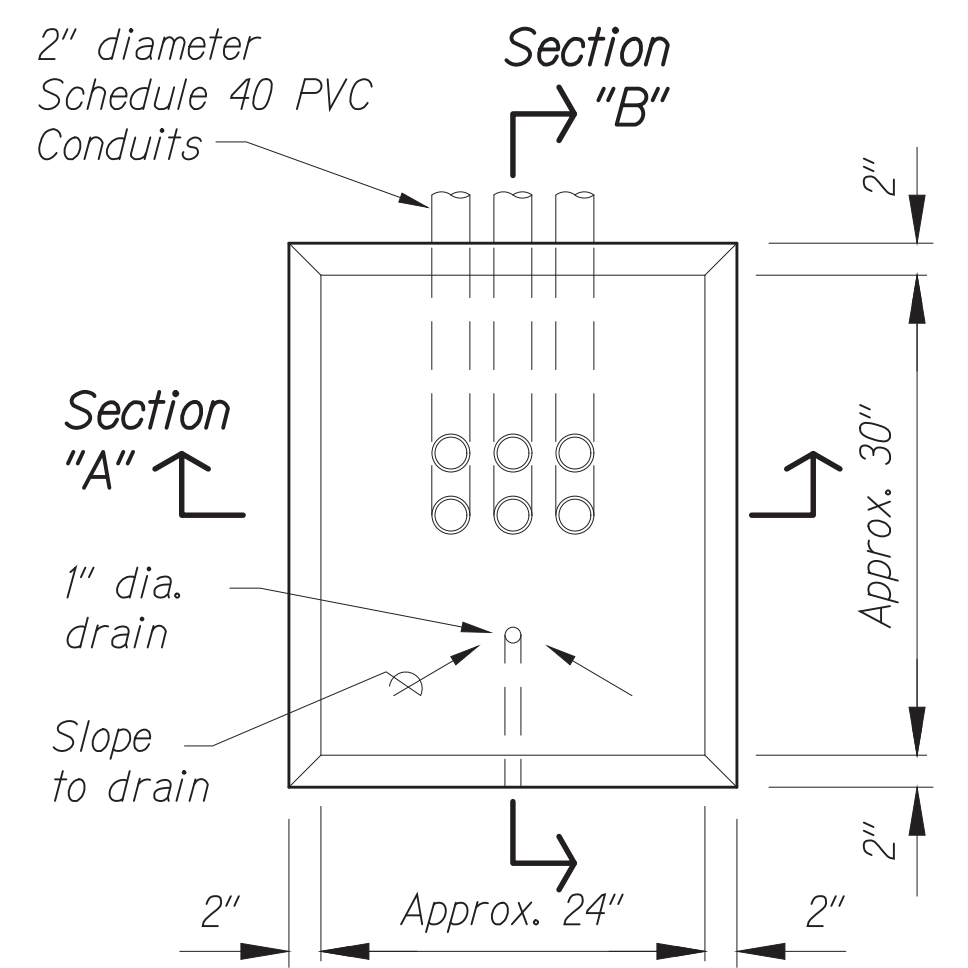
Oahu - Phase 2A

Federal Aid Project No. STP-0300(214)

Scale: As noted      Date: August 2024

SHEET No. 35 OF 37 SHEETS

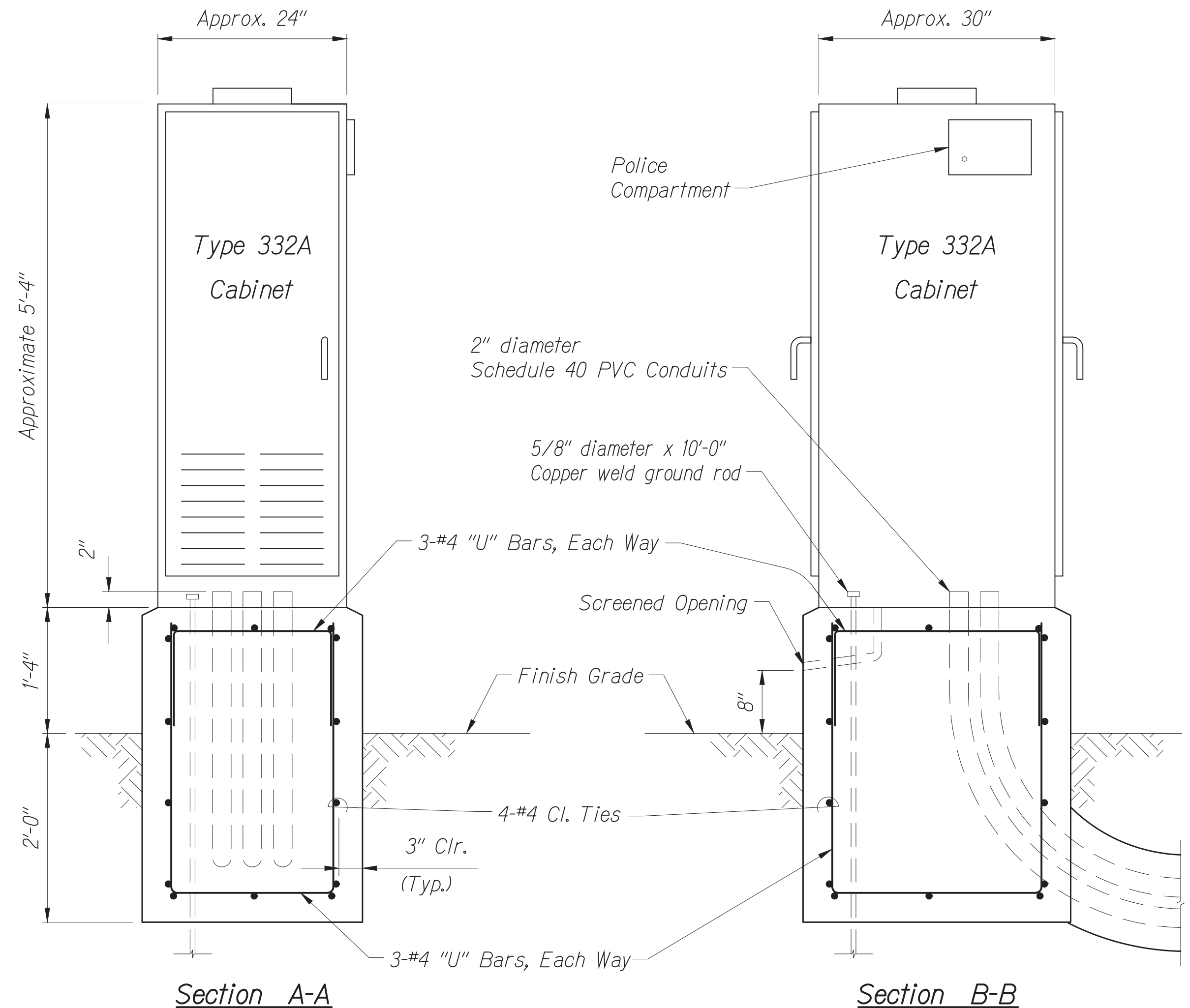
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	113	149



**Notes:**

1. Concrete shall be Class "B".
2. Dimensions shall be altered to suit controller cabinet actually furnished.
3. Conduits, bends, and drain are incidental to concrete base.
4. Refer to cabinet manufacturer's specifications for details of anchor bolts and base settings.
5. All exposed surfaces of concrete base shall be given a Class 2, rubbed finish.
6. All conduits shall be PVC.
7. The Contractor shall provide a switch/jack and 15-foot switch cord assembly for each Police Compartment. The cost shall not be paid for separately, but shall be considered incidental to the controller.

**PLAN**

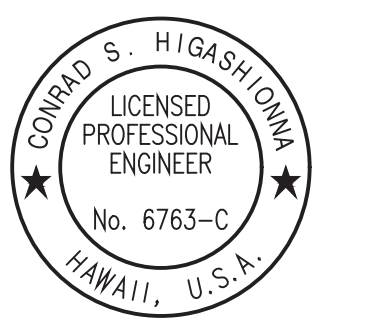


**CONTROLLER CABINET & FOUNDATION DETAIL**

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DATE	
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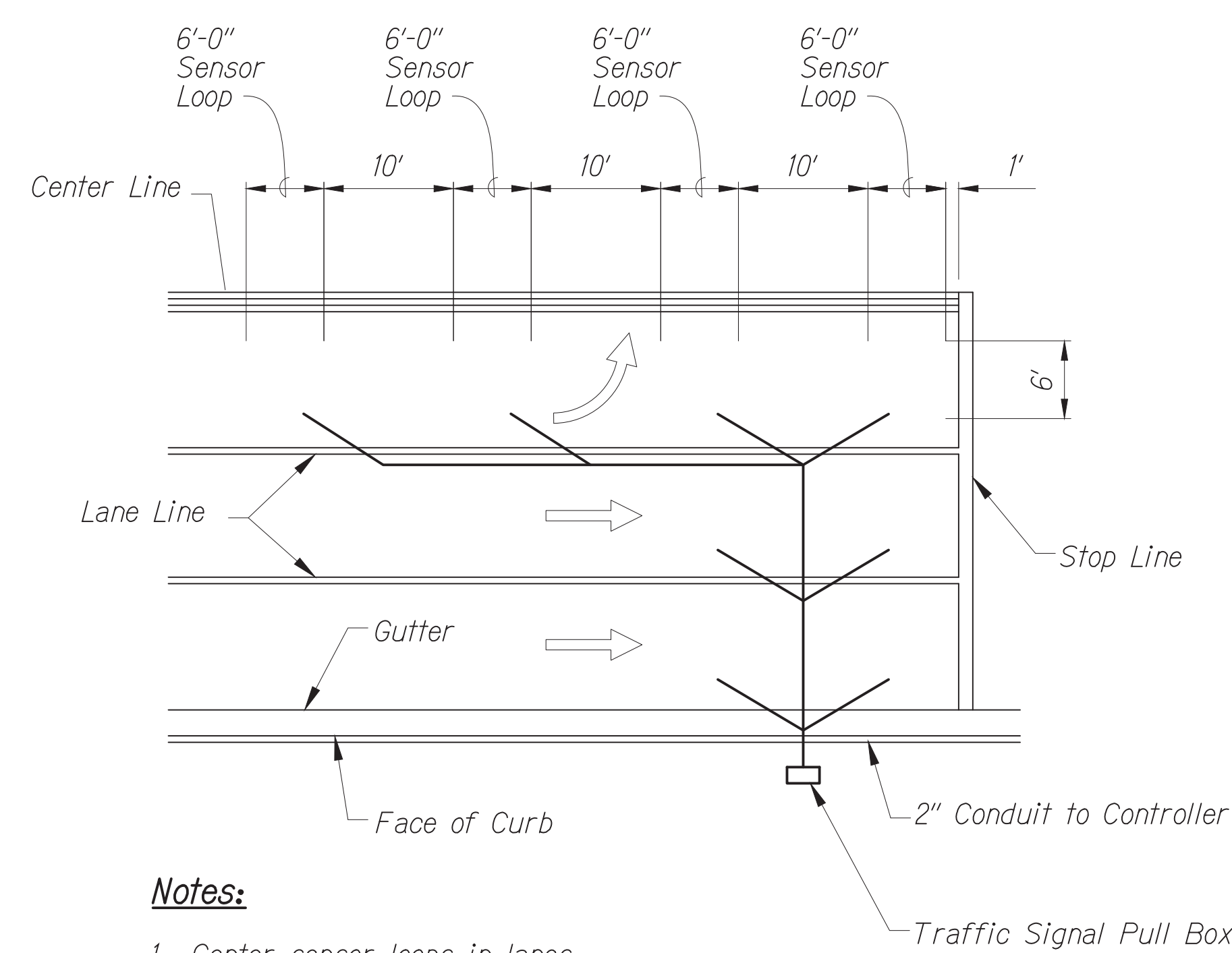
License Expiration Date 04-30-24  
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 Conrad Higashiyama

APPROVED BY: \_\_\_\_\_  
 Date: \_\_\_\_\_  
 Chief, Traffic Review Branch, DHP  
 Chief, Traffic Signal & Technology Division, DTS

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024

SHEET No. 36 OF 37 SHEETS

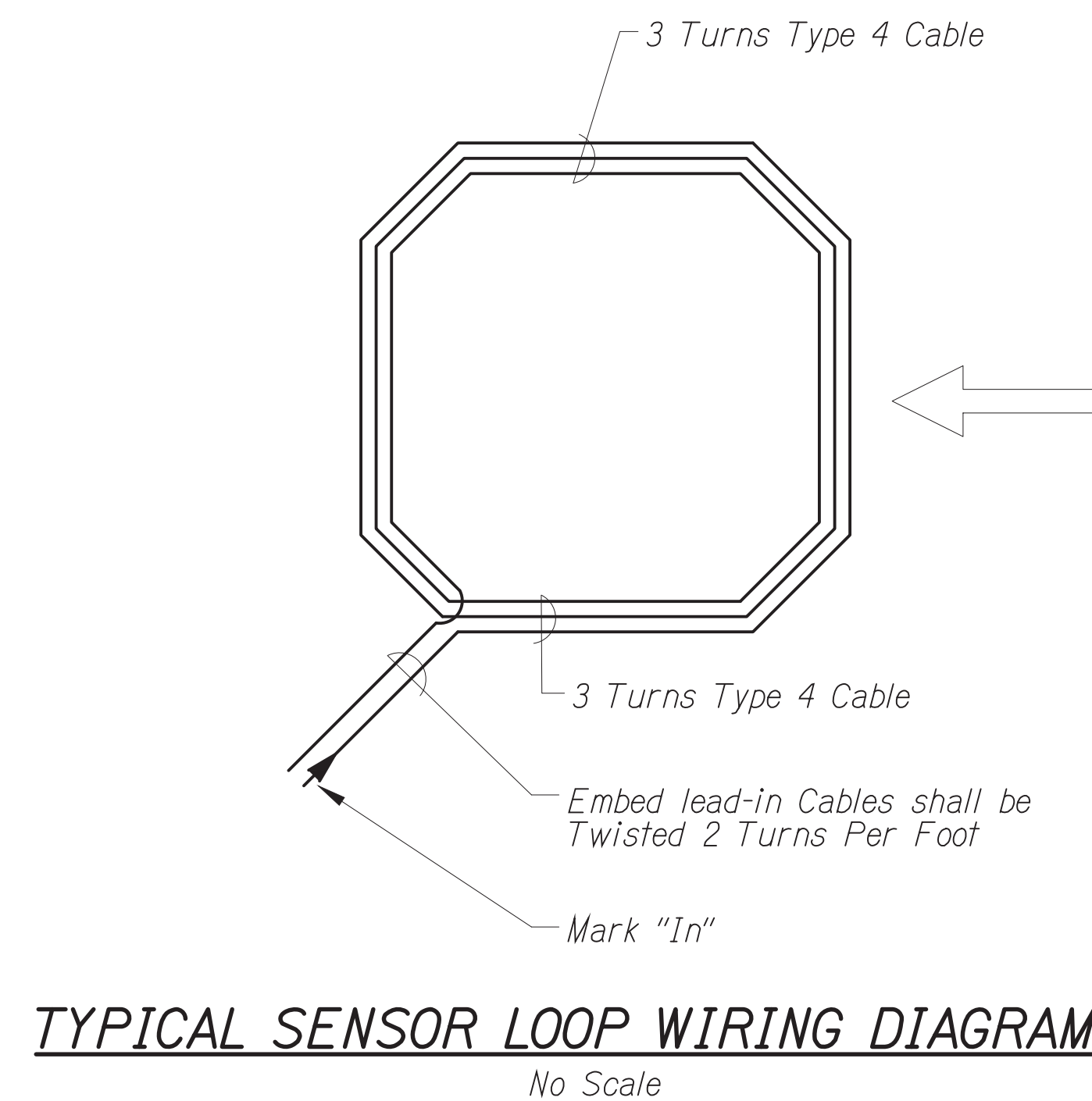
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HAWAII	HAWAII	STP-0300(214)	2024	114	149



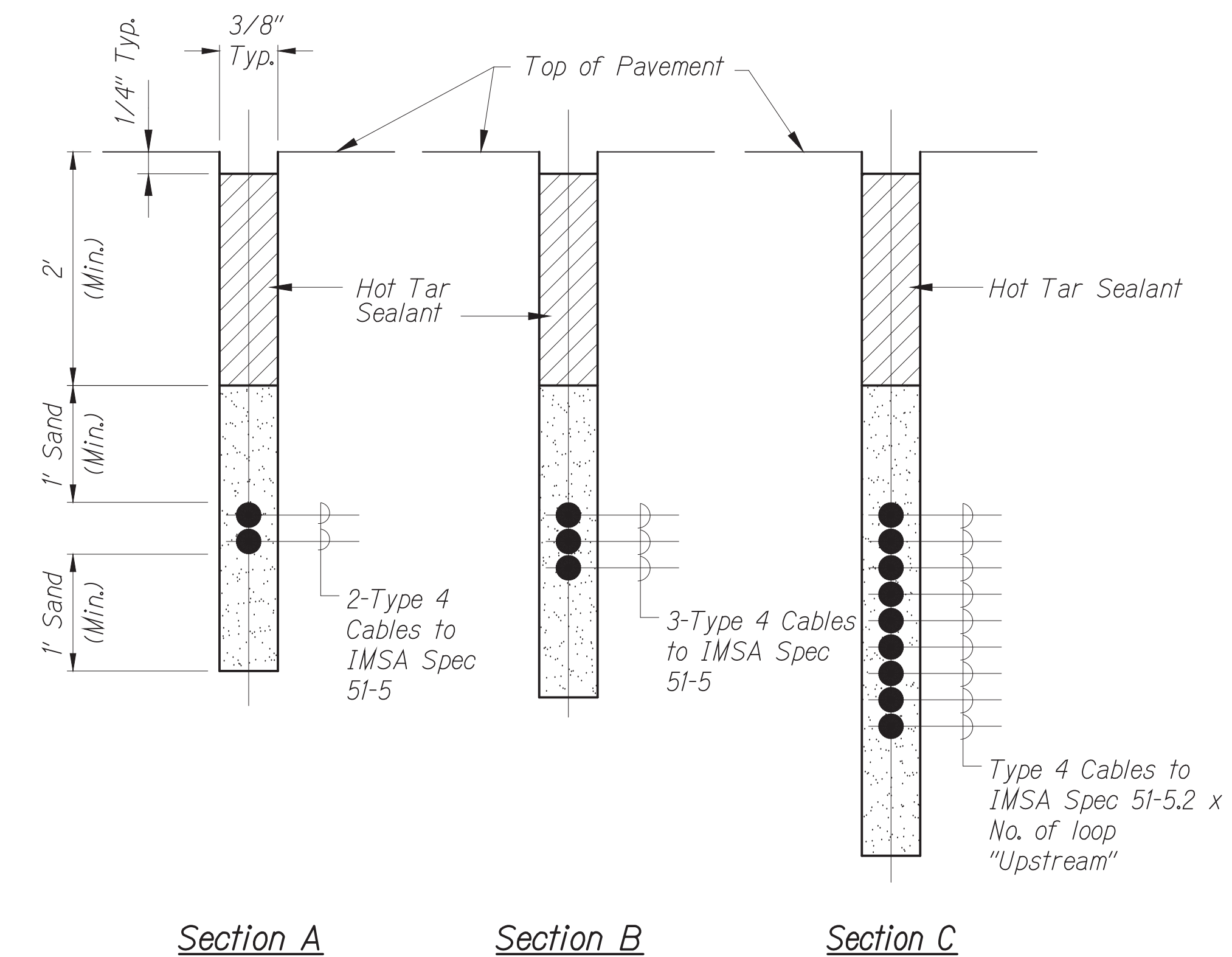
**Notes:**

1. Center sensor loops in lanes.
2. Collector cables shall be twisted 2 turns per foot.
3. Number of loops and location vary, see project plans.
4. Number and locations of collector sawcuts may be varied in the field to suit.

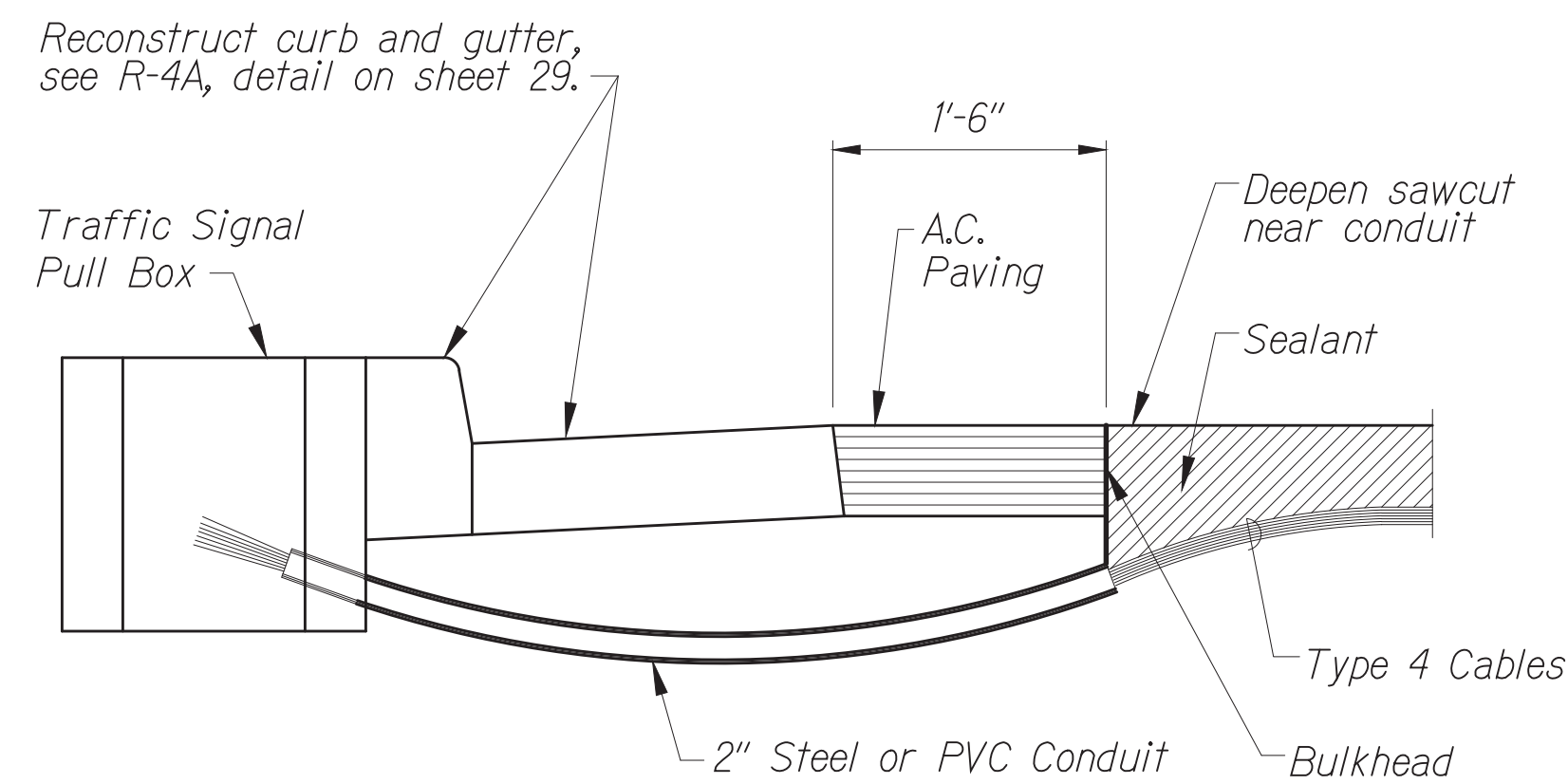
**TYPICAL SENSOR LOOP LAYOUT**  
No Scale



**TYPICAL SENSOR LOOP WIRING DIAGRAM**  
No Scale



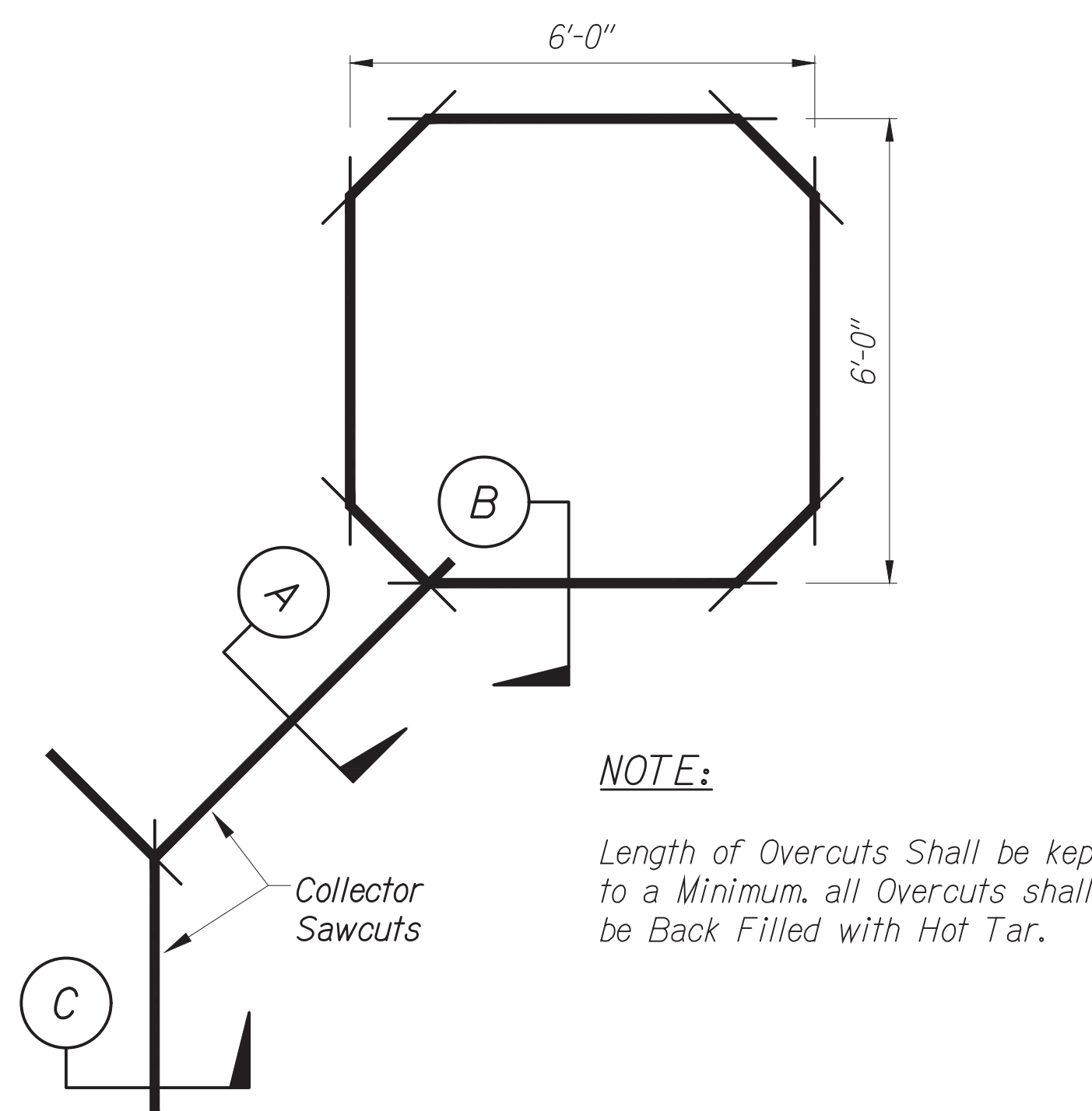
**TYPICAL SECTION THROUGH SENSOR LOOP**  
No Scale



**Notes on Construction at End of Sawcut**

1. Seal roadway end of conduit after installation of conductors.
2. Install bulkhead across conduit trench.
3. Place hot tar or approved sealant in sawcut.
4. Backfill over conduit with new asphalt concrete.
5. Reconstruct curb and gutter, as required, see Detail R-4A on sheet 29.

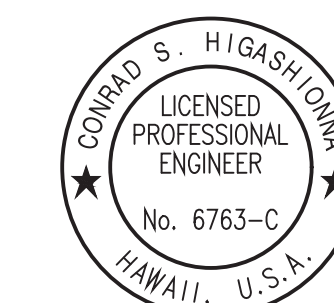
**DETAIL OF SENSOR LOOP INSTALLATION AT EDGE OF ROADWAY**  
No Scale



**NOTE:**

Length of Overcuts shall be kept to a Minimum. all Overcuts shall be Back Filled with Hot Tar.

**TYPICAL SENSOR LOOP SAWCUT DETAIL**  
No Scale



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*Conrad Higashinoma*

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC SIGNAL SYSTEM**  
**TRAFFIC SIGNAL MODERNIZATION**  
Oahu - Phase 2A  
Federal Aid Project No. STP-0300(214)  
Scale: As noted Date: August 2024

SHEET No. 37 OF 37 SHEETS

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(214)	2024	115	149

GENERAL NOTES

1. All materials shall conform to the drawings, Hawaii Standard Specifications for Road and Bridge Construction (2005 Edition).
2. The Contractor shall verify the location of all existing underground utility lines and notify the respective owners before commencing with work. See Civil drawings for additional information. Immediately notify the Engineer of any conflicts.
3. The Contractor shall provide all measures necessary to protect the structure during construction. Such measures shall include, but not be limited to, bracing, shoring for loads due to construction equipment, winds, seismic, etc.
4. The Contractor shall be solely responsible for all excavation and dewatering procedures including lagging, shoring and protection of streets and utilities, including treatment and discharge of pumped water.
5. The Contractor shall be solely responsible for coordinating the work of all trades and shall check all dimensions. All discrepancies shall be called to the attention of the Engineer and be resolved before proceeding with the work.
6. Shop drawings required by the standard specifications and special provisions shall be submitted to the Engineer for review prior to fabrication or ordering of materials. Shop drawings shall not be reproduction of contract drawings.
7. Notes and details on drawings shall take precedence over General Notes unless stricter requirements are noted in General Notes. Special provisions shall take precedence over Standard Specifications.
8. Except as otherwise noted, all vertical dimensions are measured plumb.
9. Design Criteria for Traffic Signal Pole With Mast Arm Foundation:
  - A. Codes:
    - AASHTO LRFD Specifications for Structural Supports for Highway Signs, Luminaries and Traffic Signals, 1st Edition, 2015 with all subsequent interim revisions

*Design Criteria for Bridges and Structures, January 8, 2018 State of Hawaii Department of Transportation Highways Division, with all subsequent memorandum changes.*
  - B. Wind:
    - Basic Wind Speed = 140 MPH
    - Gust Effect Factor = 1.3
    - MRI = 1700 Years
    - Posted Speed Limit = 35 MPH (Max)
    - Vehicular Collision Design Force per AASHTO Test Level TL-4:  $F_t = 54$  kips over 3.5 LF
  - C. Grout shall not be used under base plates for all Traffic Signal Poles. Pole manufacturer shall design anchor bolts with leveling nuts to transfer all loads from pole structure to concrete foundation.

- D. Soil Design Data For Deep Foundations:
  1. Traffic Signal Pole Foundation Design is based on a geotechnical investigation report by Geolabs, Inc. "Traffic Signal Modernization Project Kalaniana'ole Highway and Kalaniki Street Intersection, Honolulu, Oahu Hawaii", dated June 13, 2024.
    - a. Anticipated subsurface soil condition at site consists of near surface fills over clayey residual and saprolitic soils.
    - b. Bottom of foundations assumed to occur above groundwater table.
  2. Assumed cohesionless soil angle of internal friction = 35°
10. Design Criteria for Catch Basins:
  - A. Codes:
    - ASHTO LRFD Bridge Design Specifications, 8th Edition, 2017.
  - B. Design Live Loads = HL-93 (16 kip wheel load)

CONCRETE

1. Schedule of Structural Concrete 28-Day strength and water cement ratio:
 

Drilled Shafts, Pile Caps and Concrete Median Barriers	= 5,500 psi (W/C = 0.40)
Catch Basin	= 4,000 psi

Maximum Nominal Size of Coarse Aggregate = 3/4"
2. Concrete mix design shall be submitted to the Engineer for review.
3. Minimum clear cover of concrete over outer reinforcing bars or ties shall be as follows, unless otherwise noted. See Standard Specification Table 602.03-2 for additional information.
 

Pile Caps and Drilled Shafts	= 3"
Concrete cast directly against Earth	= 3"
All other concrete	= 2"
4. Concrete admixtures containing chloride salts shall not be used.
5. All roughened surfaces in concrete shall be made with a minimum amplitude of 1/4".
6. Unless otherwise noted on drawings, all exterior corners and re-entrant angles 90 degrees or less in concrete work shall be chamfered 3/4"x3/4".

REINFORCING STEEL

1. Reinforcing steel bars shall be AASHTO M31 (ASTM A615) Grade 60, unless otherwise noted. Dimensions refer to the centerline of reinforcing steel unless otherwise noted on the plans. All reinforcing shall be incidental to concrete.
2. Reinforcing steel bars shall be uncoated, unless otherwise noted.

3. Splices in reinforcing steel shall not be permitted.
4. All reinforcing steel bars, anchor bolts, dowels and other embedded items shall be securely tied in place before concrete pour.
5. All reinforcing steel bar bends shall be made cold.
6. Welding of reinforcing steel shall not be permitted.

INSPECTION REQUIREMENTS

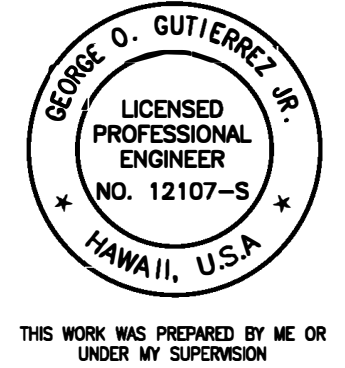
1. All special inspections shall be done per 2018 International Building Code special inspection provisions of section 1704 for governing portions of structural work shown in the structural drawings.
2. Special inspection does not relieve the general contractor of his responsibilities to complete the project in accordance with the plans and specifications and to provide safety on the job site.
3. Owner shall hire and pay for special inspection services. Contractor shall hire and pay for third party testing services.
4. The work items that will require inspection by the special inspector shall be, but not be limited to, the following items:
  - A. Reinforcing steel
  - B. Cast-in-Place Concrete Placement
  - C. Cast-in Anchor bolts

Contractor shall notify the engineer at least 72 hours prior to the above inspections.

ABBREVIATIONS

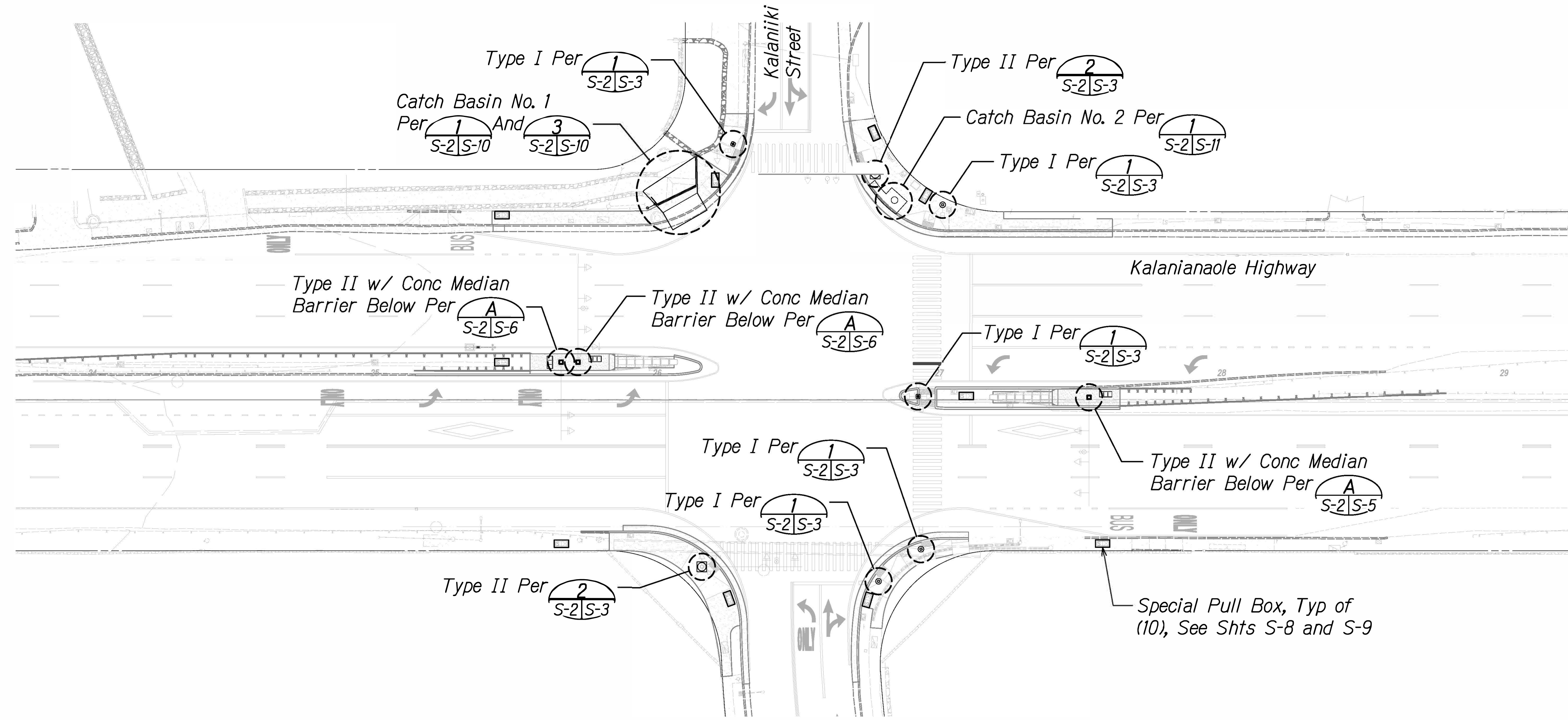
CL	Centerline	O.C.	On Center
Clr	Clear	Pl	Plate
Conc	Concrete	Reinf	Reinforcing
Const	Construction	Sht	Sheet
Cont	Continuous	Sq	Square
Dia	Diameter	Stl	Steel
Dwgs	Drawings	T&B	Top and Bottom
(E)	Existing	TS	Traffic Signal
Ea	Each	Typ	Typical
Elec	Electrical	UON	Unless Otherwise Noted
EQ	Equal	Vert	Vertical
E.W.	Each Way	W/	With
Ft	Foot/Feet		
Galv	Galvanized		
Horiz	Horizontal		
Jt	Joint		
Manuf	Manufacturer		
Max	Maximum		
Min	Minimum		
MPH	Miles Per Hour		
(N)	New		

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DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
<b>STRUCTURAL GENERAL NOTES</b>	
<b>Kalaniana'ole Highway &amp; Kalaniki Street</b>	
Traffic Signal Modernization, Oahu, -Phase 2A Federal-Aid Project No. STP-0300 (214)	
Scale: As Shown	Date: August 2024
SHEET No. S-1 OF S-13 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(214)	2024	116	149



**SITE PLAN**  
Not To Scale

**Legend**

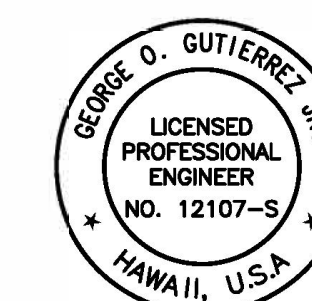
Special Pull Box

**TRAFFIC SIGNAL POLE FOUNDATION**

- Anchor bolts designed by pole manufacturer shall be ASTM F1554, refer to pole manufacturer's shop drawings for number, grade and diameter. Provide a top hex nut, bottom leveling nut, and 2 hardened flat washers for each bolt at base plate. Bolts, nuts, and washers shall be hot dip galvanized after fabrication.
- Anchor bolt embedment length shall be determined by pole manufacturer. Contractor shall coordinate this with their pole manufacturer.
- Contractor shall use rigid templates to install anchor bolts (see Special Provisions). Anchor bolts shall be vertical.
- Anchor bolts shall be installed with misalignments of less than 1:40 from vertical. After installation, firm contact shall exist between the anchor bolt, nuts, washers, and base plate on any anchor bolt installed in a misaligned position.
- Excavation and backfill shall be considered incidental to the cost of the traffic signal foundation. If sides of pile cap are formed, backfill material around pile cap shall be granular fill compacted to 95% compaction (see specs Section 204).
- Provide 2x2 galvanized steel mesh with 0.063" diameter wires.
- A portion of the project is underlain by rock fill materials. The contractor shall exercise care when drilling through the anticipated rock fill materials so as not to disturb the adjacent utilities and pavement. Use of a temporary casing may be required in the upper portion of the borehole within the rock fill materials and soft soils. If undermining occurs below the adjacent asphalt pavement during drilling, CLSM or concrete backfill shall be placed in the annular area between the casing and the sides of the borehole. The casing will become permanent and the upper portion of the casing that extends into the pile cap shall be removed.

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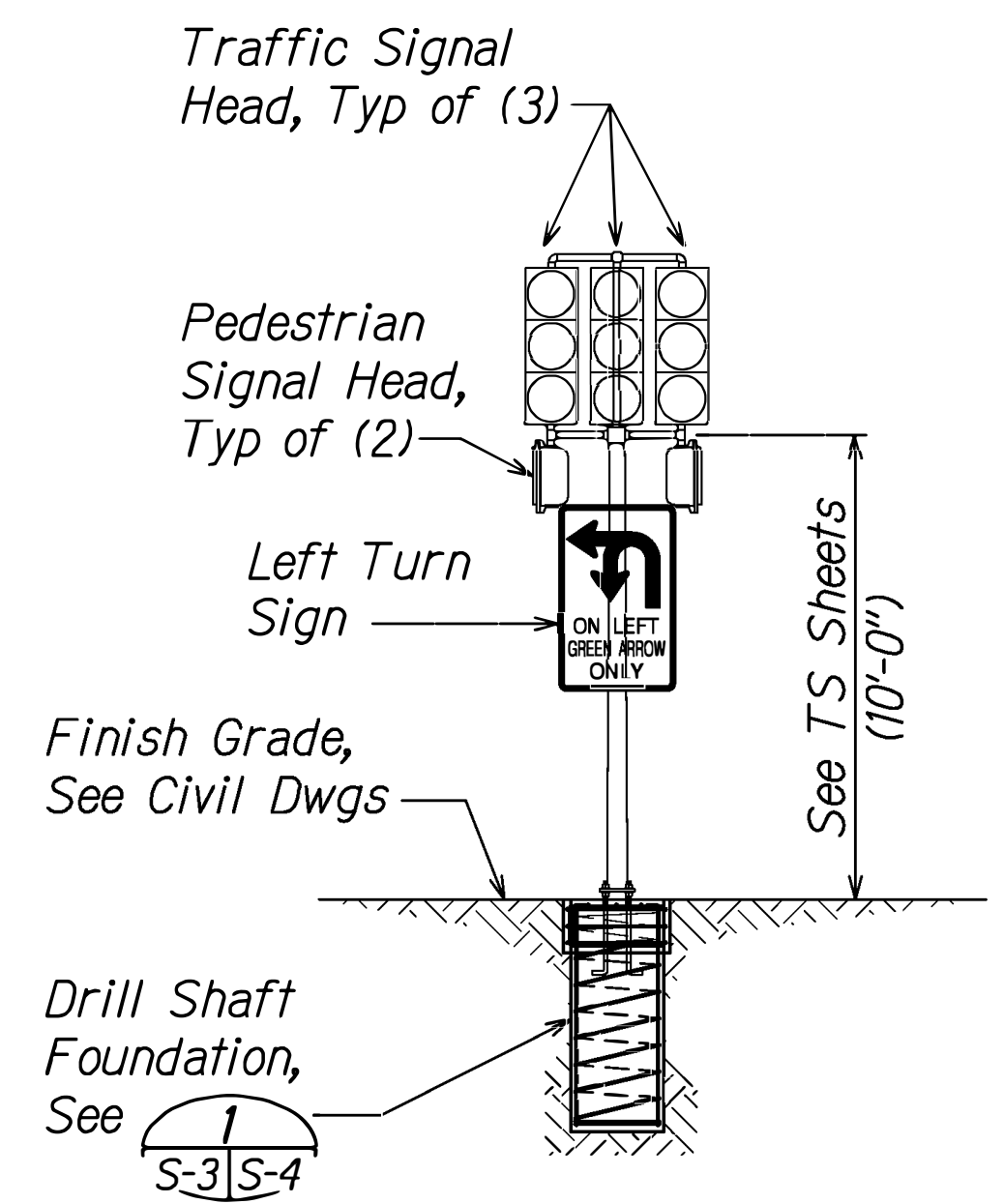
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 © 2014 by U.S. Dept. of Transportation, Federal Highway Administration, Washington, DC 20591



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION  
 Signature: *George O. Gutierrez* Expiration Date: 4-30-2028  
 of License

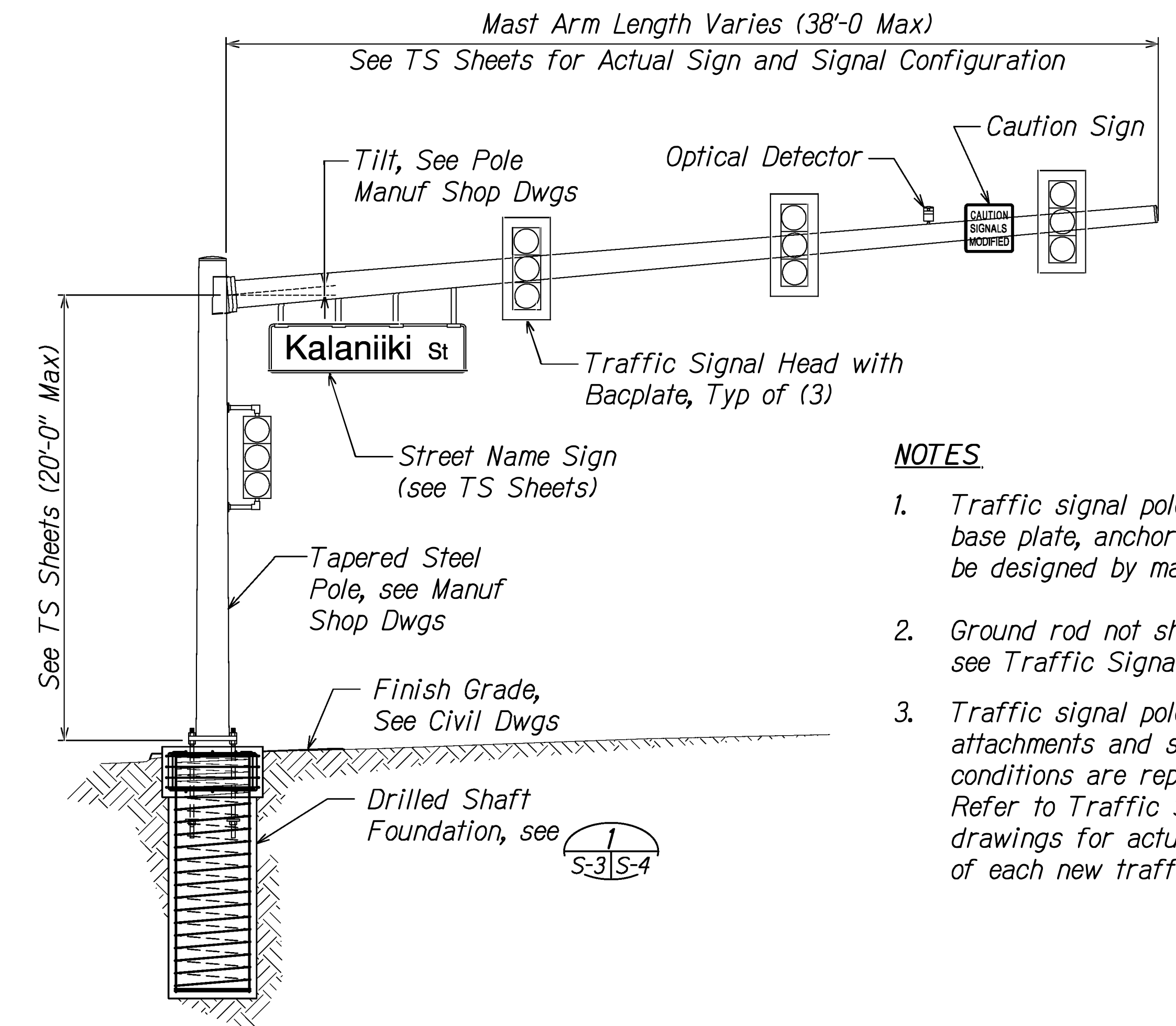
DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
	<b>TRAFFIC SIGNAL POLE FOUNDATION NOTES</b>
	<b>Kalaniana'ole Highway &amp; Kalaniki Street</b>
	Traffic Signal Modernization, Oahu, -Phase 2A Federal-Aid Project No. STP-0300 (214)
	Scale: As Shown Date: August 2024
	SHEET No. S-2 OF S-13 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(214)	2024	117	149



- NOTES**
1. Refer to general notes on sheet S-1 and S-2 for additional information.
  2. Refer to traffic signal drawings for dimensions, locations poles and existing information not shown on structural drawings.
  3. Refer to electrical drawings for locations of all pipes, conduits, equipment, etc
  4. Contractor shall field verify all existing dimensions and any discrepancies shall be brought to the attention of the Contracting Officer prior to fabrication.

**1** TYPE I - TRAFFIC SIGNAL POLE  
 Scale: 1/4" = 1'-0"

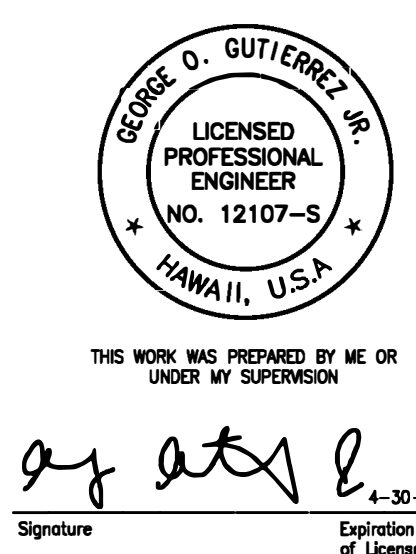
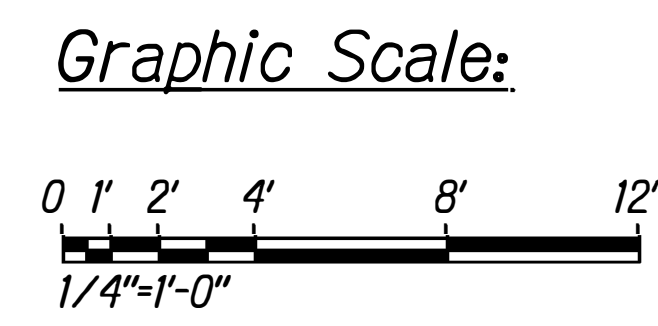


- NOTES**
1. Traffic signal pole, mast arm, base plate, anchor bolts, etc. to be designed by manufacturer.
  2. Ground rod not shown for clarity, see Traffic Signal drawings.
  3. Traffic signal pole and mast arm attachments and surrounding conditions are representative. Refer to Traffic Signal and Civil drawings for actual conditions of each new traffic signal pole.

**2** TYPE II - TRAFFIC SIGNAL POLE WITH MAST ARM  
 Scale: 1/4" = 1'-0"

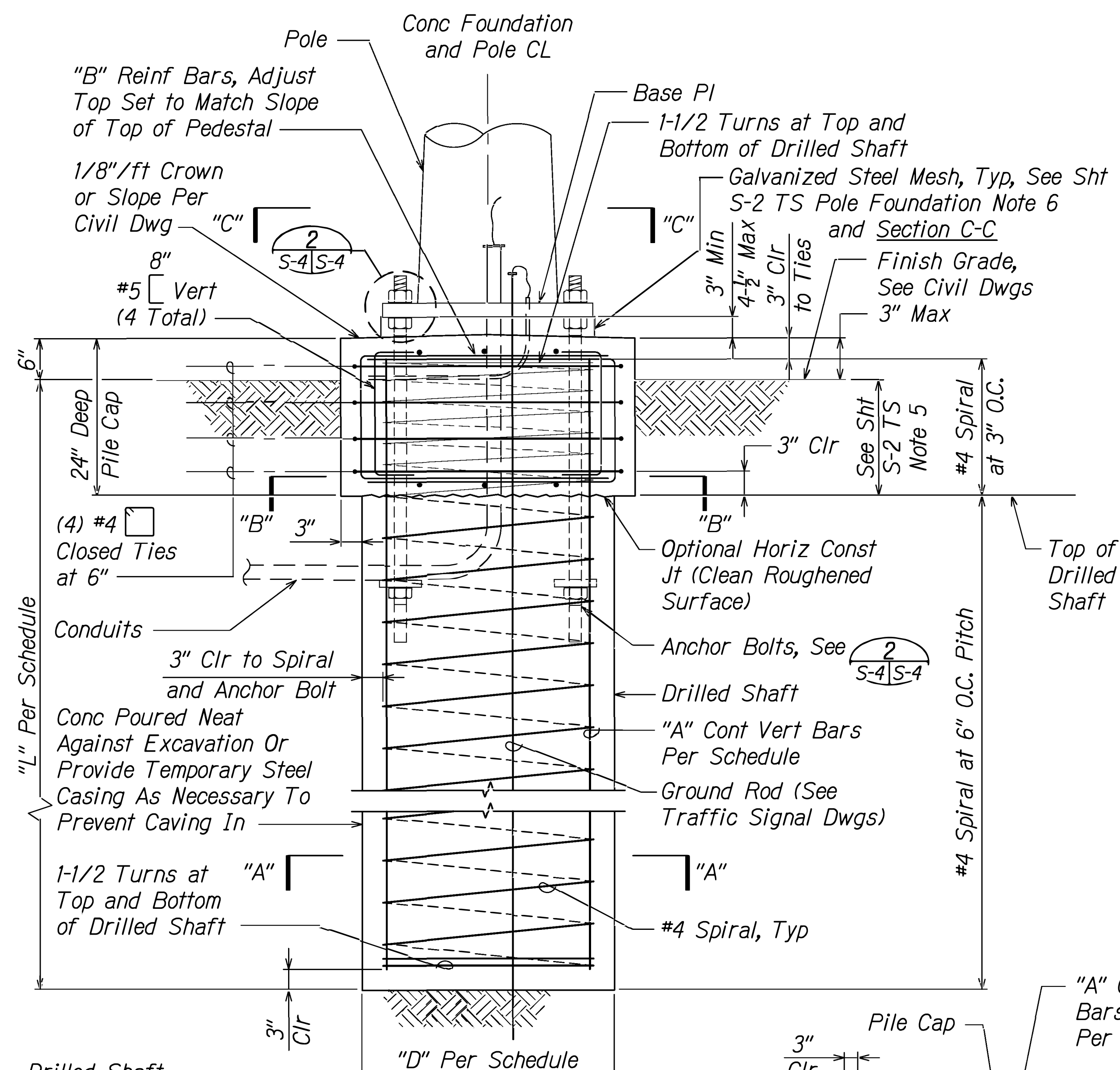
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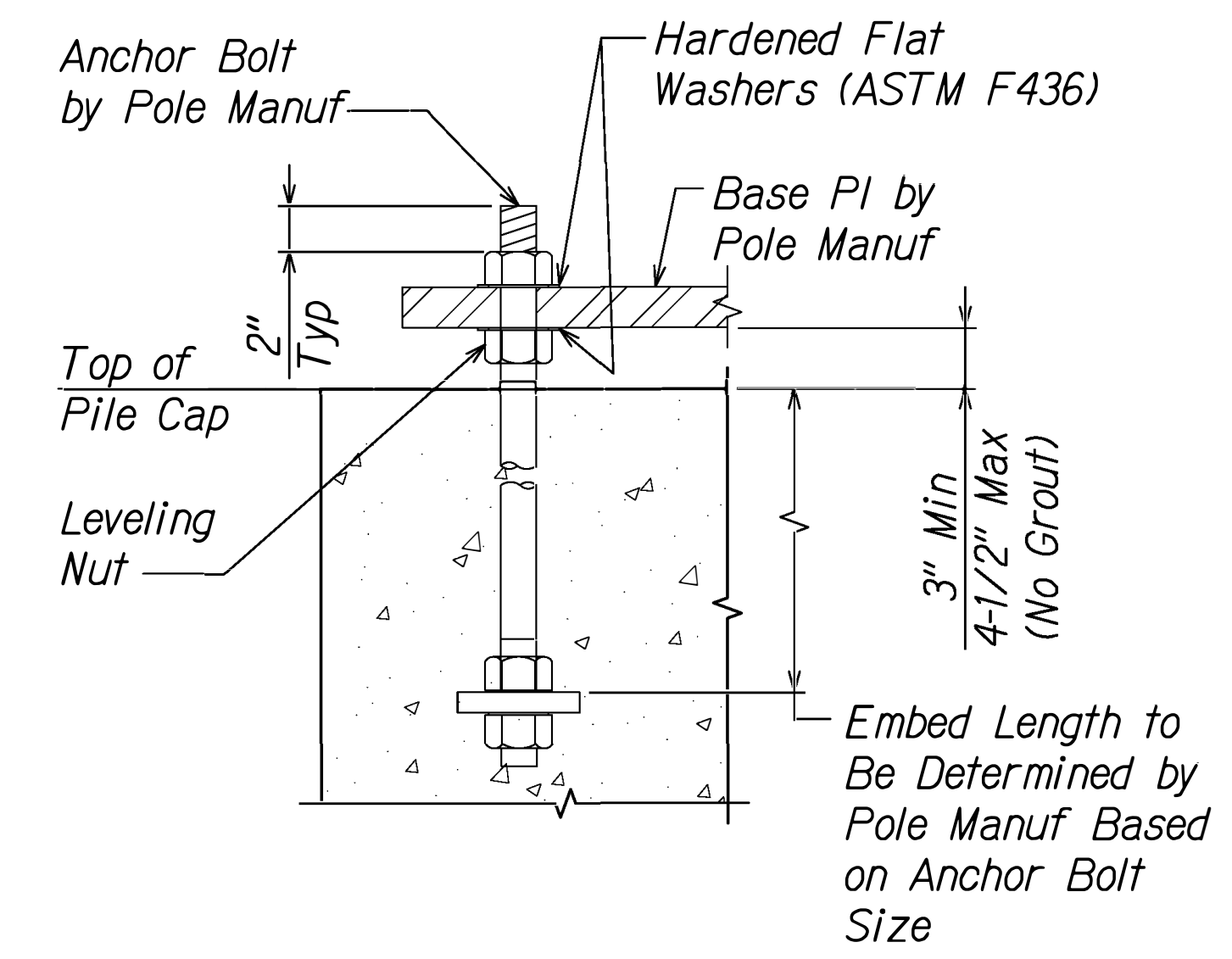


DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
	<b>TRAFFIC SIGNAL POLE DETAIL</b>
	<b>Kalaniana'ole Highway &amp; Kalaniiki Street</b>
	Traffic Signal Modernization, Oahu, -Phase 2A Federal-Aid Project No. STP-0300 (214)
	Scale: As Shown Date: August 2024
	SHEET No. S-3 OF S-13 SHEETS

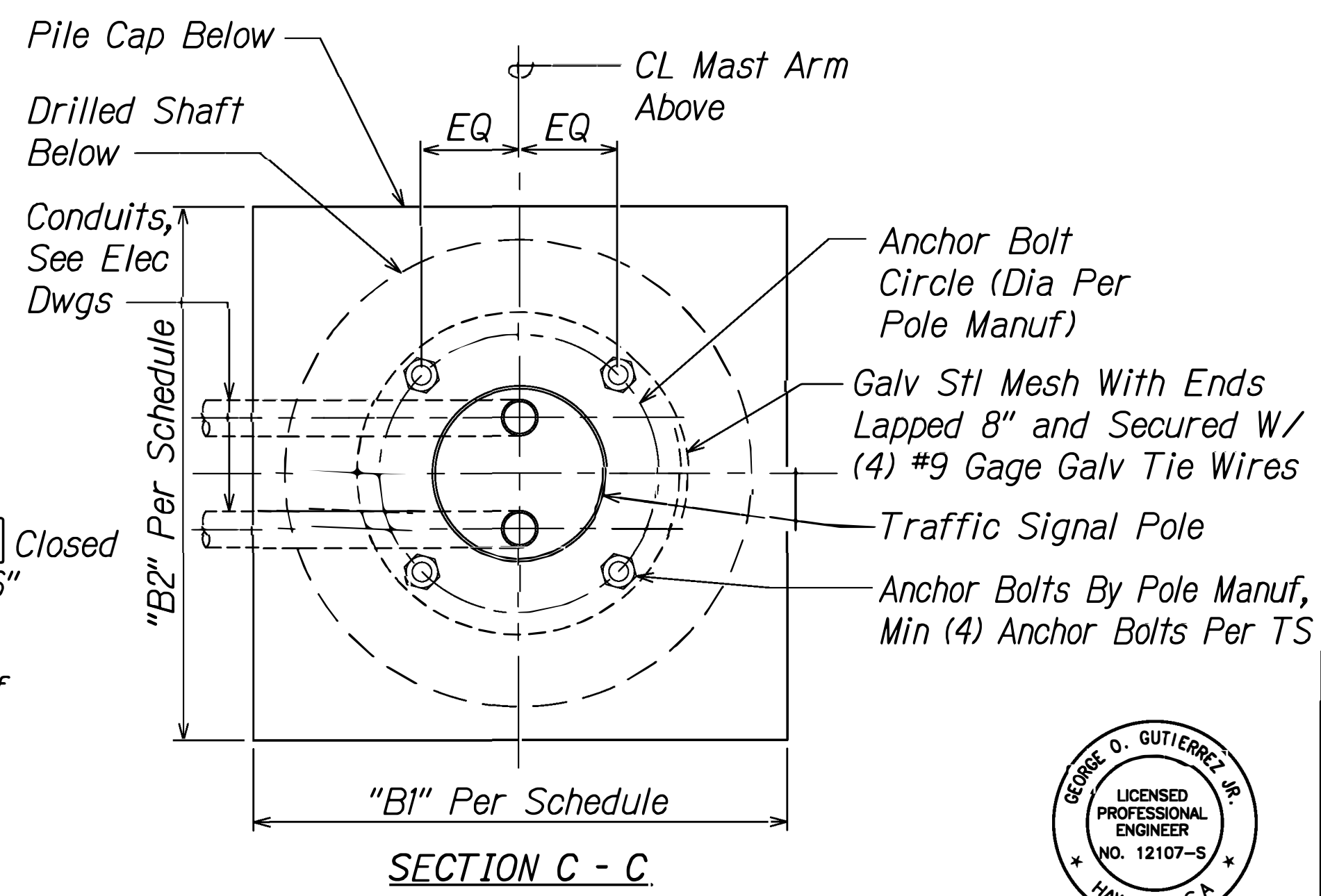
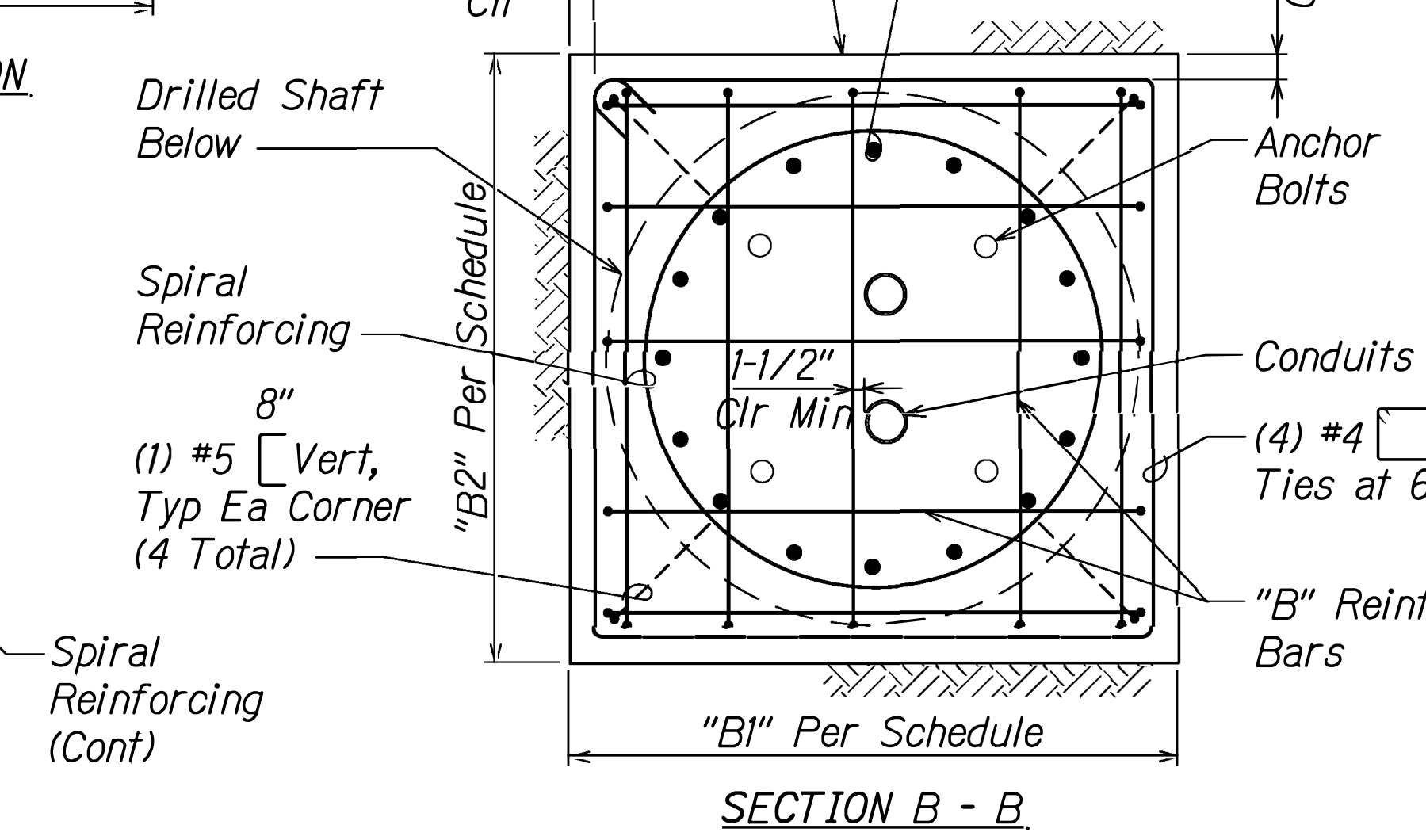
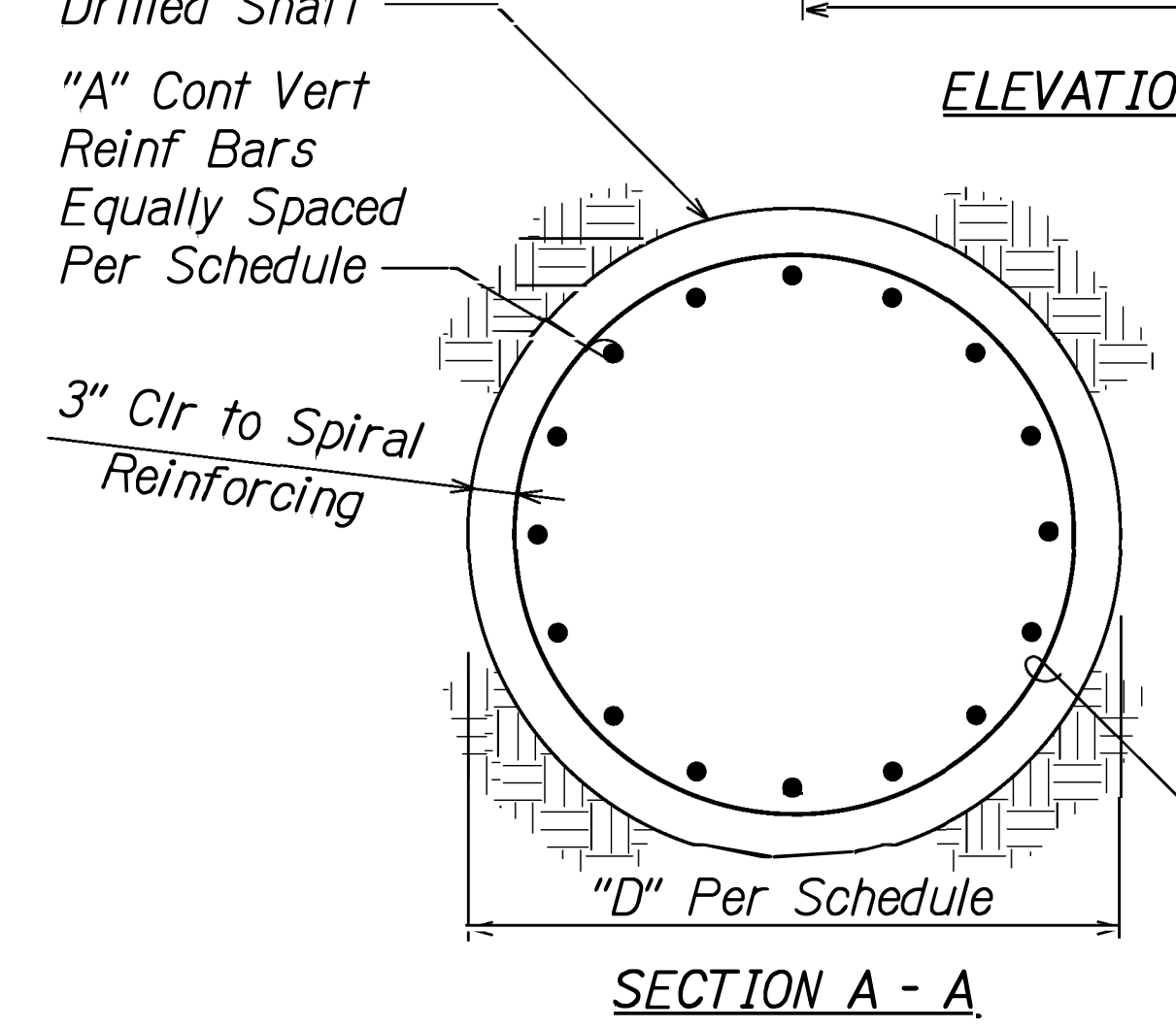
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(214)	2024	118	149



TYPE	DRILLED SHAFT DIMENSIONS		PILE CAP DIMENSIONS		DRILLED SHAFT REINF	
	LENGTH "L"	DIAMETER "D"	WIDTH 1 "B1"	WIDTH 2 "B2"	"A" BARS	"B" BARS
I	10'-0"	2'-0"	2'-6"	2'-6"	(6) #8	(3) SETS #5 E.W.
II	11'-0"	3'-6"	4'-0"	4'-0"	(14) #8	(5) SETS #5 E.W.



**2** ANCHOR BOLT DETAIL  
S-4 | S-4 Not To Scale



**1** DETAIL - TYPICAL DRILLED SHAFT FOUNDATION FOR TRAFFIC SIGNAL POLE  
S-3 | S-4 Not To Scale

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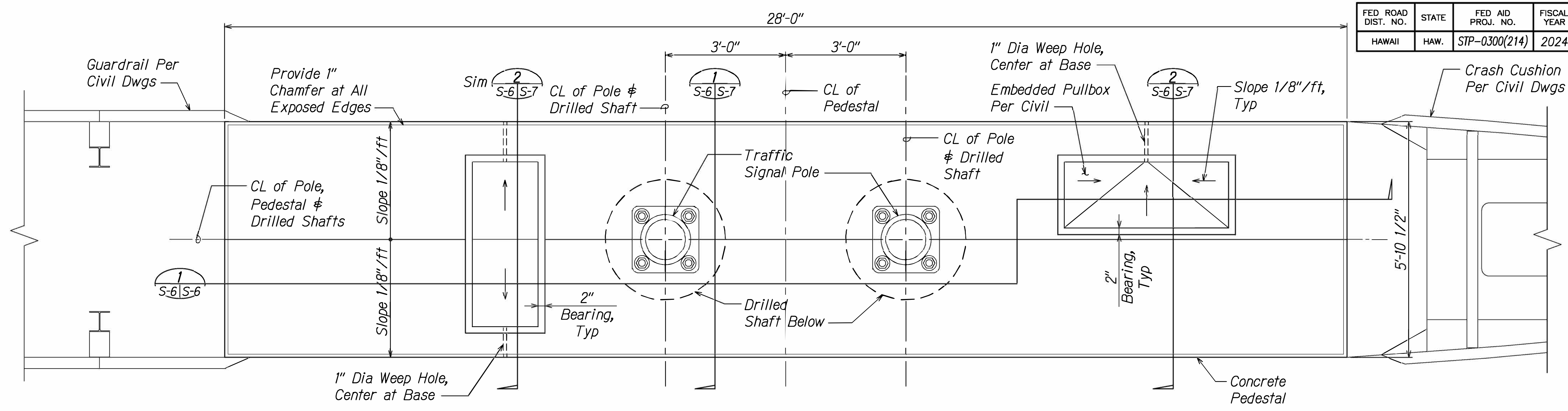
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION  
Signature: *George D. Gutierrez*  
Expiration Date of License: 12-30-2028

DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <b>FOUNDATION DETAILS</b> Kalani'ana'ole Highway & Kalani'iki Street
Traffic Signal Modernization, Oahu - Phase 2A Federal-Aid Project No. STP-0300 (214) Scale: As Shown Date: August 2024	
SHEET No. S-4 OF S-13 SHEETS	

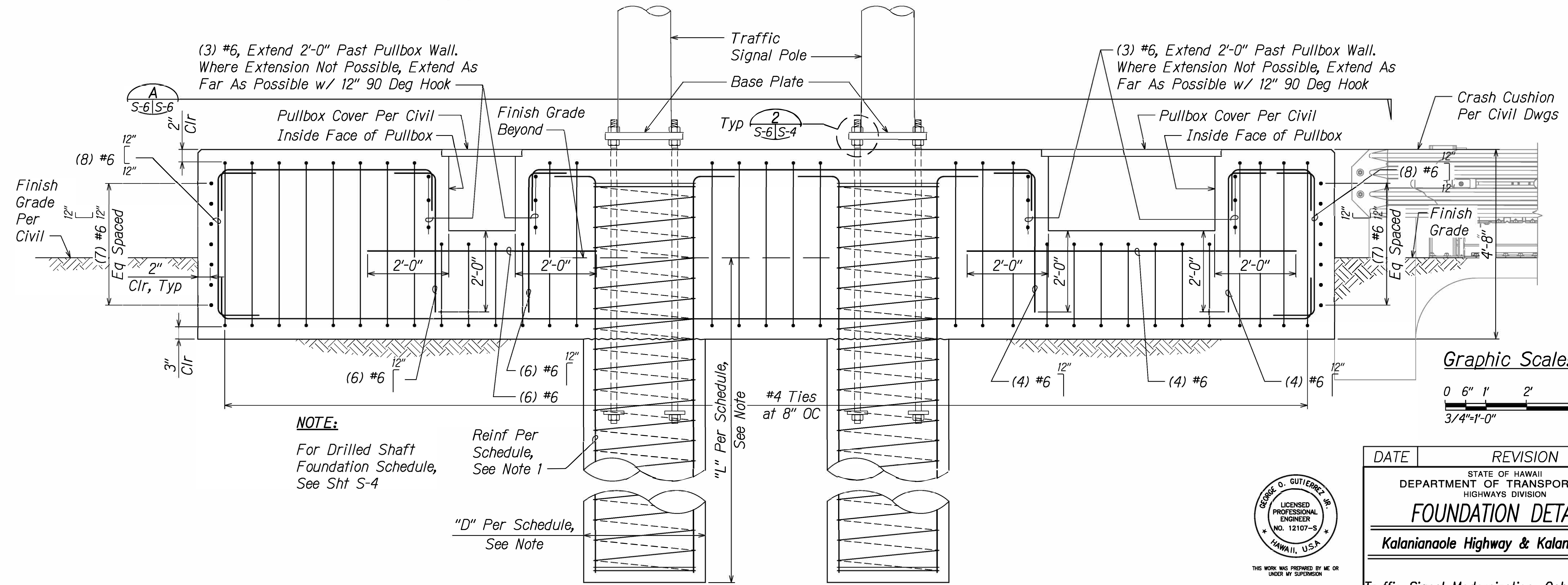




FED ROAD DIST. NO.	STATE	FED AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(214)	2024	120	149



**A PLAN - TRAFFIC SIGNAL POLE G & H MEDIAN BARRIER FOUNDATION**  
 S-2/S-6 SCALE: 3/4" = 1'-0"

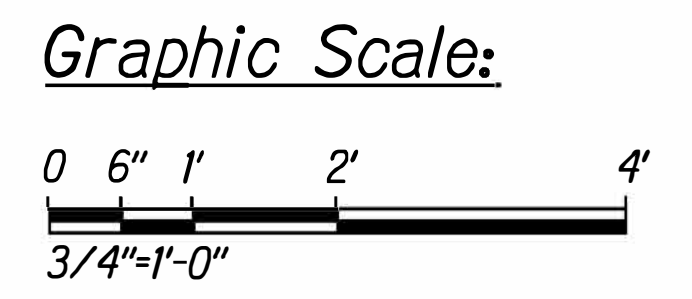


**NOTE:**  
 For Drilled Shaft Foundation Schedule, See Sht S-4

Reinf Per Schedule, See Note 1

"D" Per Schedule, See Note

**1 SECTION - THROUGH MEDIAN BARRIER**  
 S-6/S-6 SCALE: 3/4" = 1'-0"



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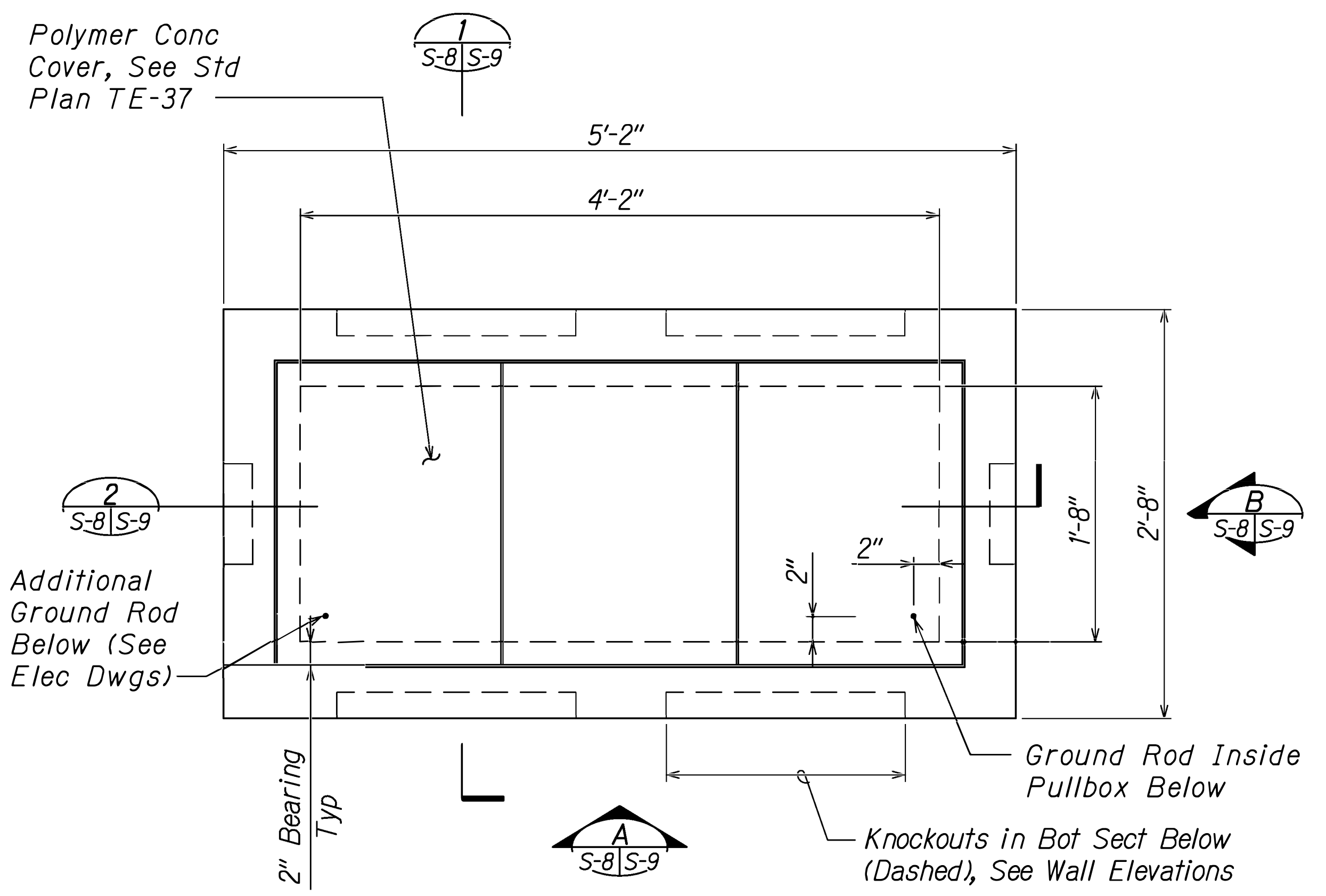


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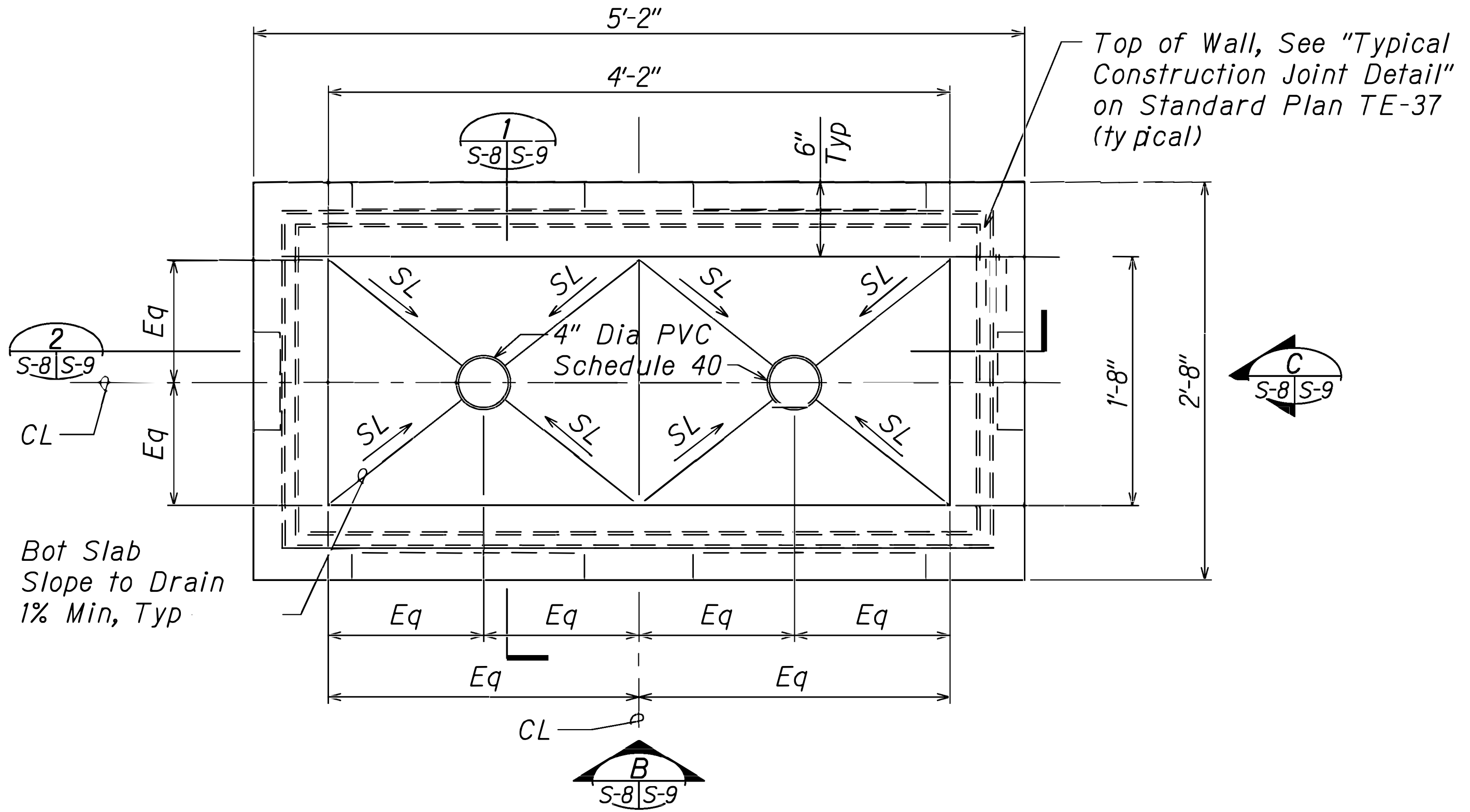
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	<b>FOUNDATION DETAILS</b>
	Kalaniana'ole Highway & Kalaniki Street
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	Scale: As Shown Date: August 2024
	SHEET No. S-6 OF S-13 SHEETS



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HAWAII	HAW.	STP-0300(214)	2024	122	149

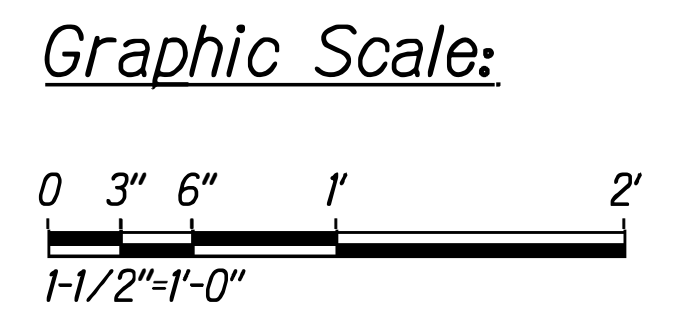


**A** PLAN - SPECIAL TRAFFIC SIGNAL PULLBOX (TOP SECTION) SCALE: 1-1/2" = 1'-0"



**B** PLAN - SPECIAL PULLBOX BOTTOM SECTION SCALE: 1-1/2" = 1'-0"

- Notes:**
- Unless otherwise noted, see General Notes on Standard Plan TE-37, State of Hawaii Department of Transportation Highways Division.
  - Concrete cover over reinforcing steel: 1-1/2" (min), UON.
  - Design Live Load:  
Pullbox located in raised sidewalks: 16,000 lbs concentrated load.
  - Design soil bearing pressure: 1,500 psf (allowable)
  - All precast concrete 5,000 psi at 28 days with 3/4" max aggregate.
  - All reinforcing steel: ASTM A615, Grade 60.
  - For dimensions not shown, see sheet S-9.
  - For Installation of ground rods, refer to Elec Dwgs.



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No.	

See: 05\_1024\_214\_1011.dwg, 05\_1024\_214\_1012.dwg, 05\_1024\_214\_1013.dwg, 05\_1024\_214\_1014.dwg, 05\_1024\_214\_1015.dwg, 05\_1024\_214\_1016.dwg, 05\_1024\_214\_1017.dwg, 05\_1024\_214\_1018.dwg, 05\_1024\_214\_1019.dwg, 05\_1024\_214\_1020.dwg, 05\_1024\_214\_1021.dwg, 05\_1024\_214\_1022.dwg, 05\_1024\_214\_1023.dwg, 05\_1024\_214\_1024.dwg, 05\_1024\_214\_1025.dwg, 05\_1024\_214\_1026.dwg, 05\_1024\_214\_1027.dwg, 05\_1024\_214\_1028.dwg, 05\_1024\_214\_1029.dwg, 05\_1024\_214\_1030.dwg, 05\_1024\_214\_1031.dwg, 05\_1024\_214\_1032.dwg, 05\_1024\_214\_1033.dwg, 05\_1024\_214\_1034.dwg, 05\_1024\_214\_1035.dwg, 05\_1024\_214\_1036.dwg, 05\_1024\_214\_1037.dwg, 05\_1024\_214\_1038.dwg, 05\_1024\_214\_1039.dwg, 05\_1024\_214\_1040.dwg, 05\_1024\_214\_1041.dwg, 05\_1024\_214\_1042.dwg, 05\_1024\_214\_1043.dwg, 05\_1024\_214\_1044.dwg, 05\_1024\_214\_1045.dwg, 05\_1024\_214\_1046.dwg, 05\_1024\_214\_1047.dwg, 05\_1024\_214\_1048.dwg, 05\_1024\_214\_1049.dwg, 05\_1024\_214\_1050.dwg, 05\_1024\_214\_1051.dwg, 05\_1024\_214\_1052.dwg, 05\_1024\_214\_1053.dwg, 05\_1024\_214\_1054.dwg, 05\_1024\_214\_1055.dwg, 05\_1024\_214\_1056.dwg, 05\_1024\_214\_1057.dwg, 05\_1024\_214\_1058.dwg, 05\_1024\_214\_1059.dwg, 05\_1024\_214\_1060.dwg, 05\_1024\_214\_1061.dwg, 05\_1024\_214\_1062.dwg, 05\_1024\_214\_1063.dwg, 05\_1024\_214\_1064.dwg, 05\_1024\_214\_1065.dwg, 05\_1024\_214\_1066.dwg, 05\_1024\_214\_1067.dwg, 05\_1024\_214\_1068.dwg, 05\_1024\_214\_1069.dwg, 05\_1024\_214\_1070.dwg, 05\_1024\_214\_1071.dwg, 05\_1024\_214\_1072.dwg, 05\_1024\_214\_1073.dwg, 05\_1024\_214\_1074.dwg, 05\_1024\_214\_1075.dwg, 05\_1024\_214\_1076.dwg, 05\_1024\_214\_1077.dwg, 05\_1024\_214\_1078.dwg, 05\_1024\_214\_1079.dwg, 05\_1024\_214\_1080.dwg, 05\_1024\_214\_1081.dwg, 05\_1024\_214\_1082.dwg, 05\_1024\_214\_1083.dwg, 05\_1024\_214\_1084.dwg, 05\_1024\_214\_1085.dwg, 05\_1024\_214\_1086.dwg, 05\_1024\_214\_1087.dwg, 05\_1024\_214\_1088.dwg, 05\_1024\_214\_1089.dwg, 05\_1024\_214\_1090.dwg, 05\_1024\_214\_1091.dwg, 05\_1024\_214\_1092.dwg, 05\_1024\_214\_1093.dwg, 05\_1024\_214\_1094.dwg, 05\_1024\_214\_1095.dwg, 05\_1024\_214\_1096.dwg, 05\_1024\_214\_1097.dwg, 05\_1024\_214\_1098.dwg, 05\_1024\_214\_1099.dwg, 05\_1024\_214\_1100.dwg

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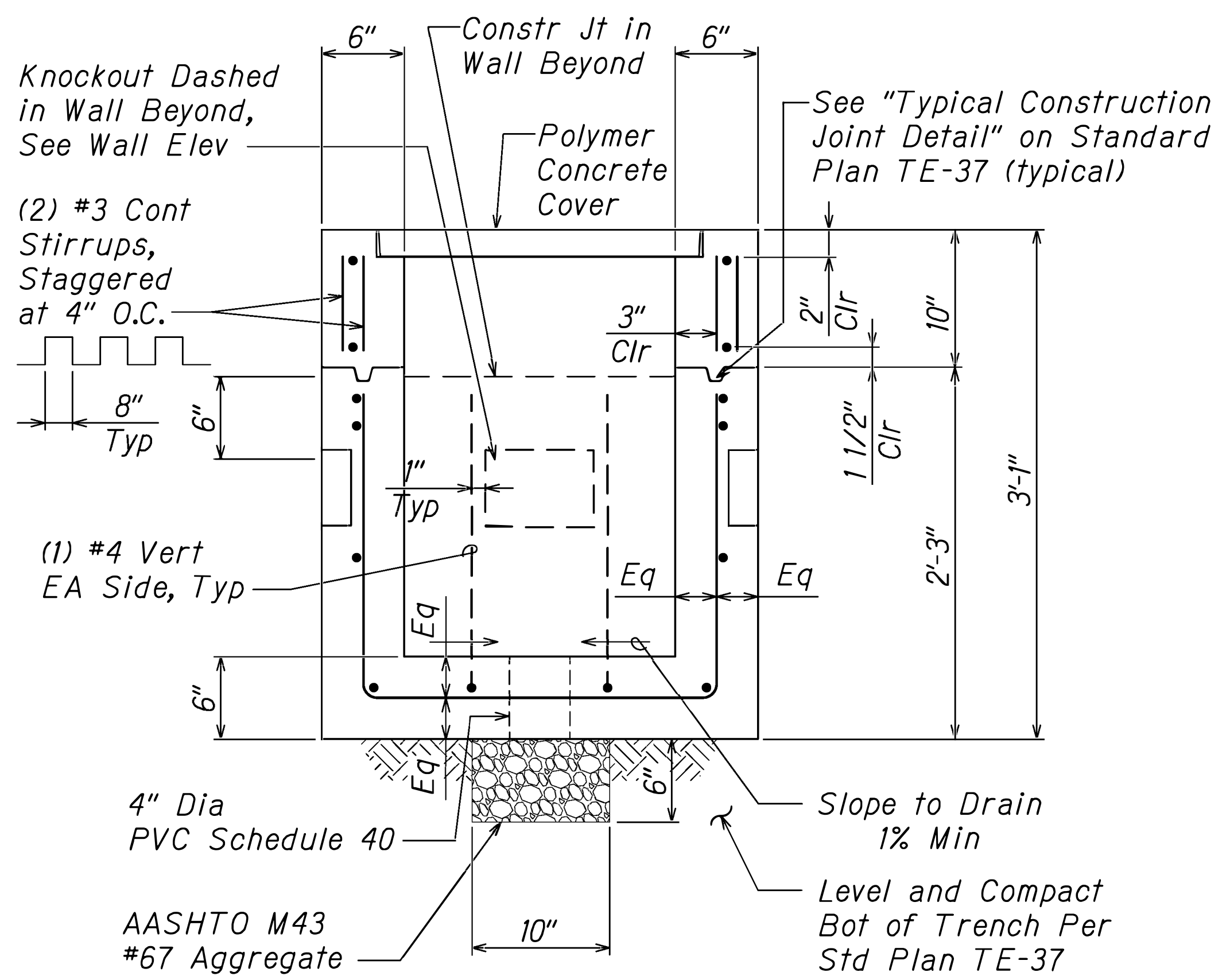
**GEORGE O. GUTIERREZ JR.**  
LICENSED PROFESSIONAL ENGINEER  
NO. 12107-S  
HAWAII, U.S.A.

*og atj*  
Signature

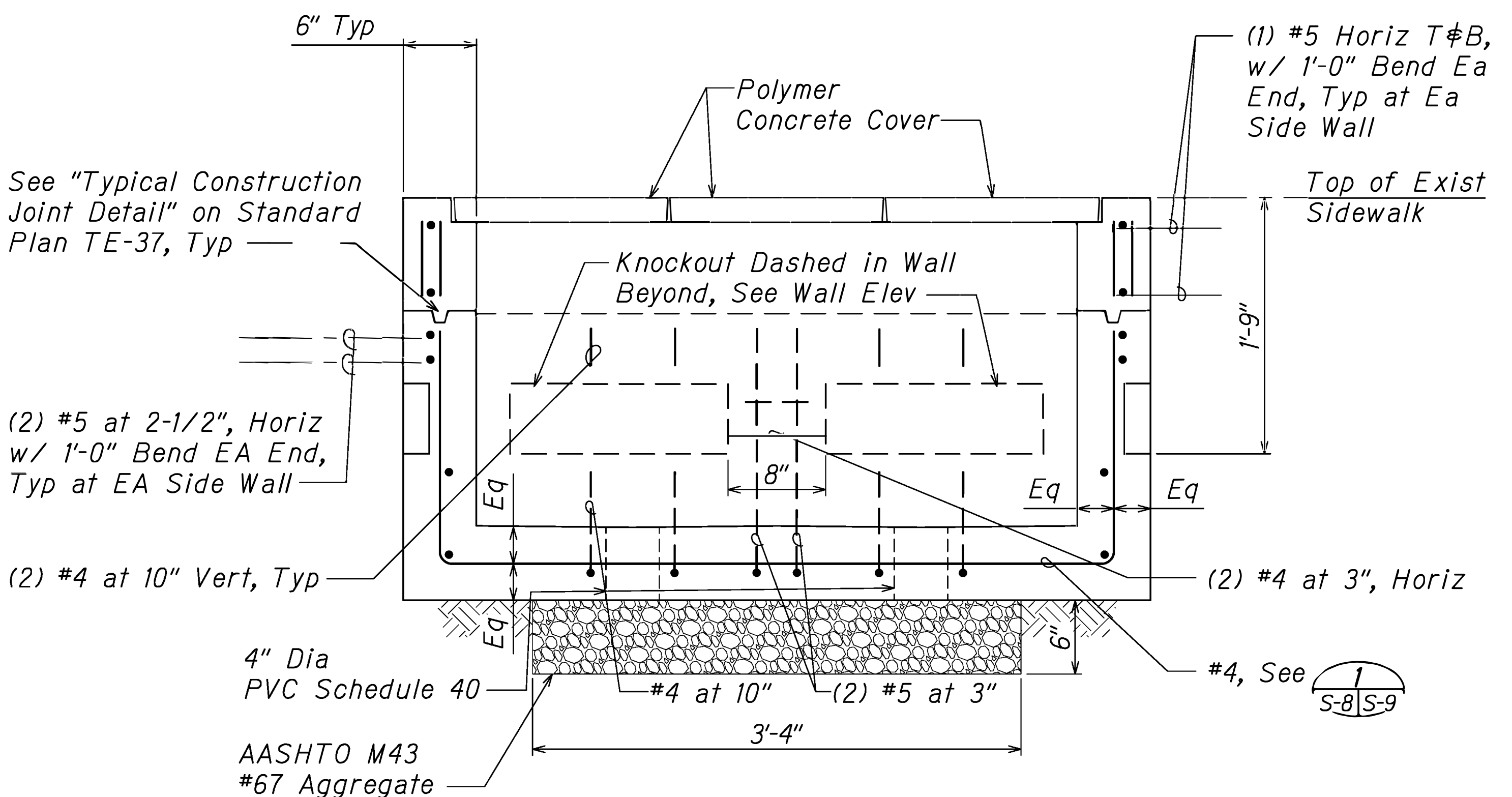
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Expiration Date of License

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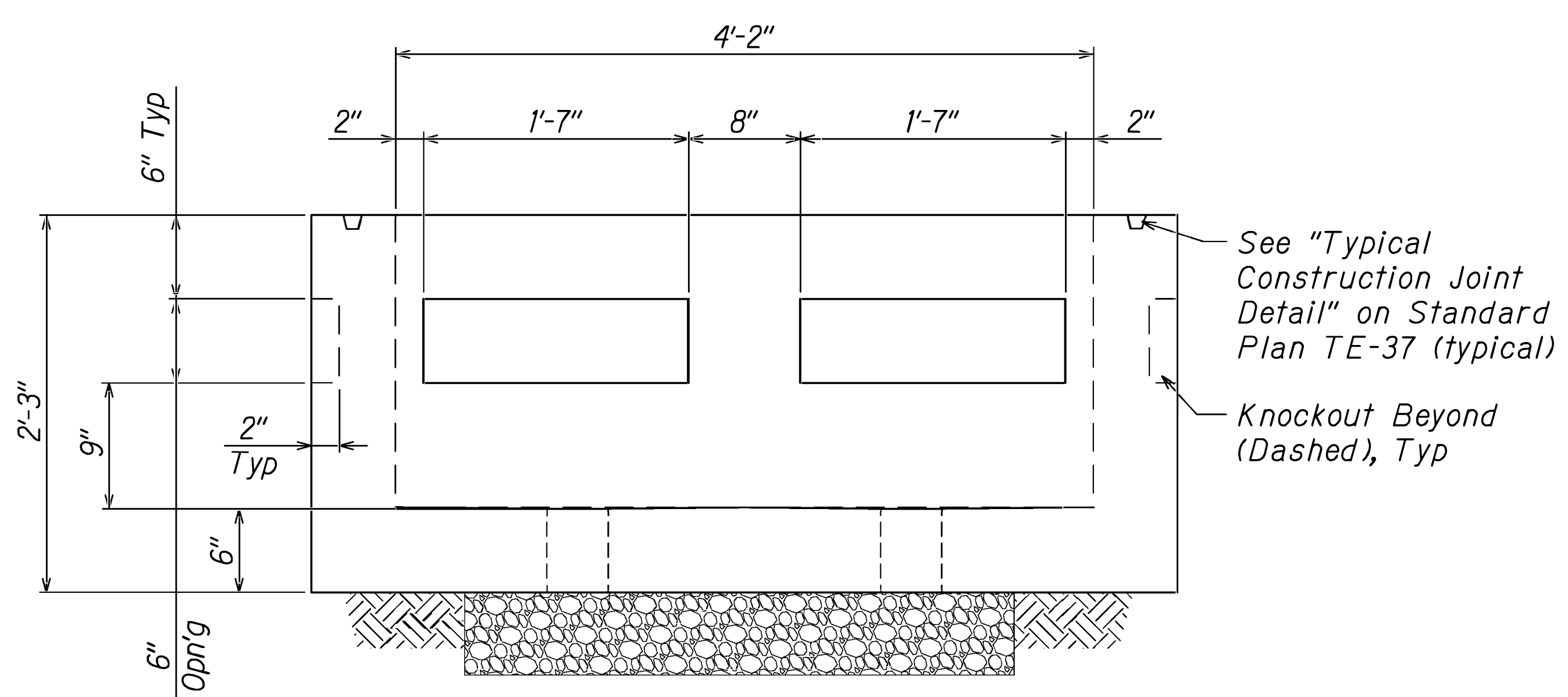
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HAWAII	HAW.	STP-0300(214)	2024	123	149



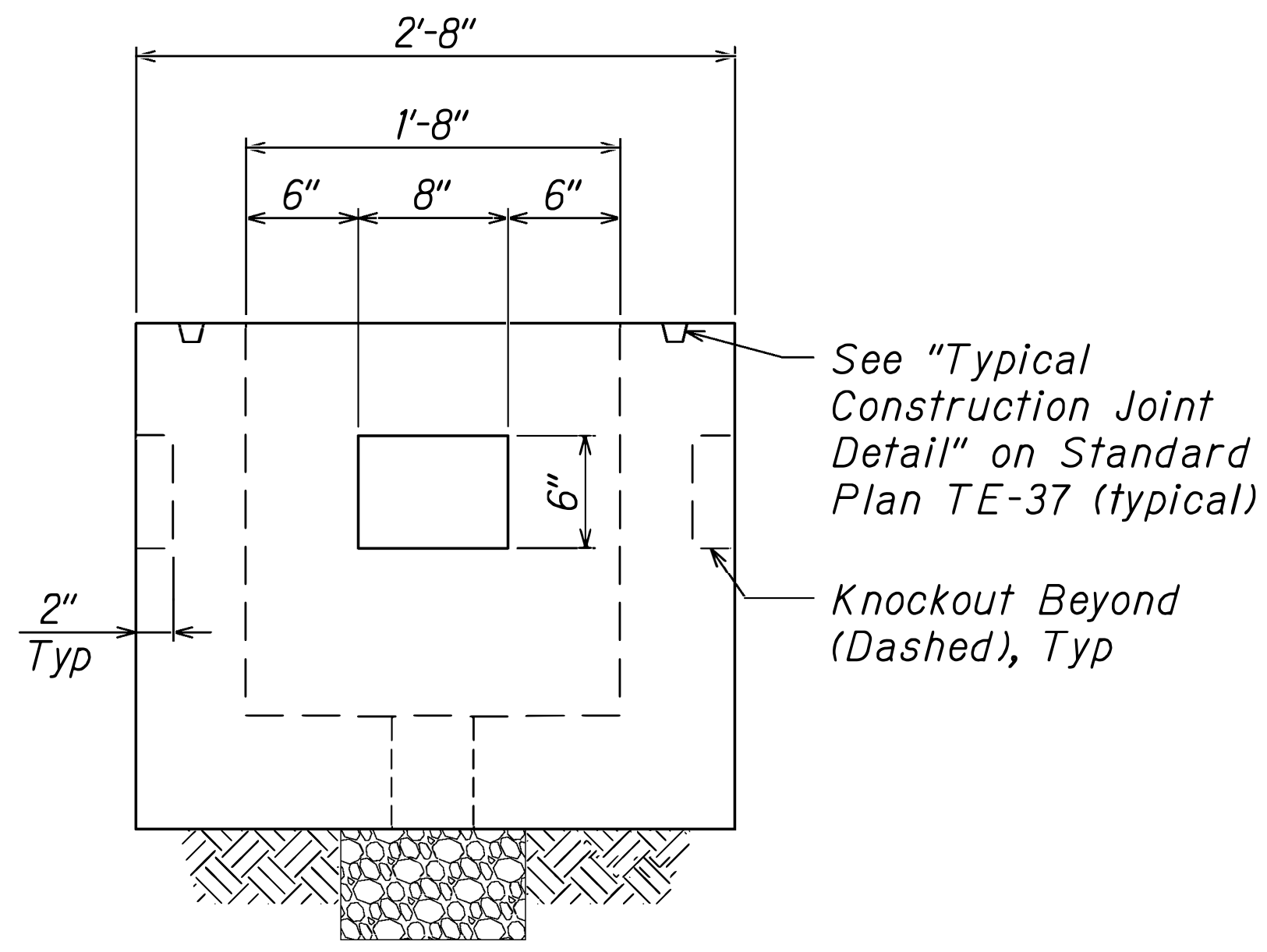
**1 SECTION**  
S-8|S-9 SCALE: 1-1/2" = 1'-0"



**2 SECTION**  
S-8|S-9 SCALE: 1-1/2" = 1'-0"

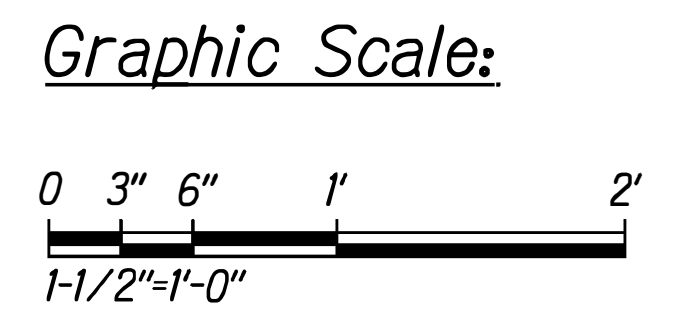


**A ELEVATION - BOTH LONG SIDES**  
S-8|S-9 (BOTTOM SECTION) SCALE: 1-1/2" = 1'-0"



**B ELEVATION - BOTH SHORT SIDES**  
S-8|S-9 (BOTTOM SECTION) SCALE: 1-1/2" = 1'-0"

Notes:  
1. For info not shown, see sheet S-5.



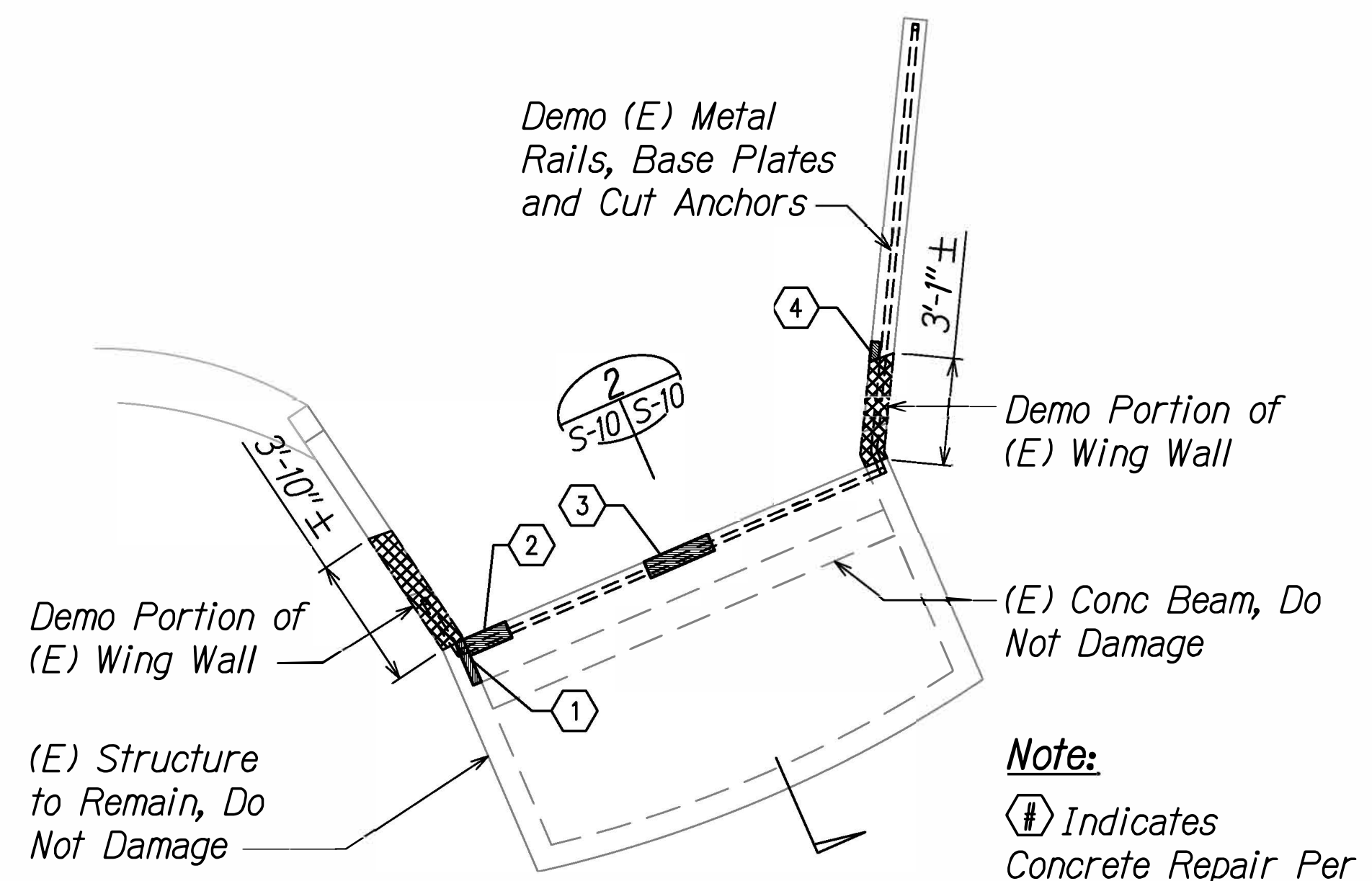
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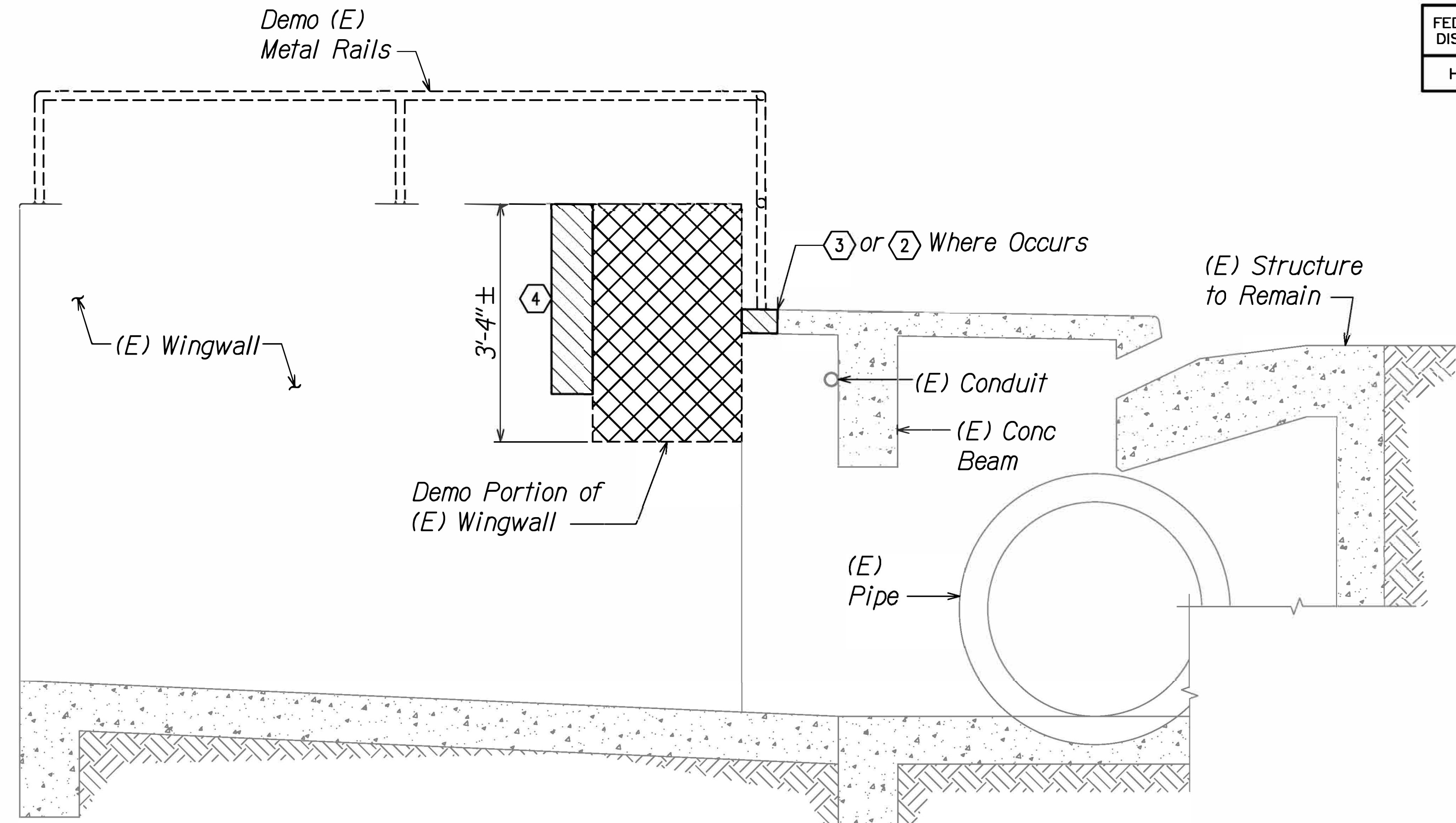
Signature: *George O. Gutierrez, Jr.*  
Exp. Date: 4-30-2028  
Date of License: August 2024

DATE	REVISION
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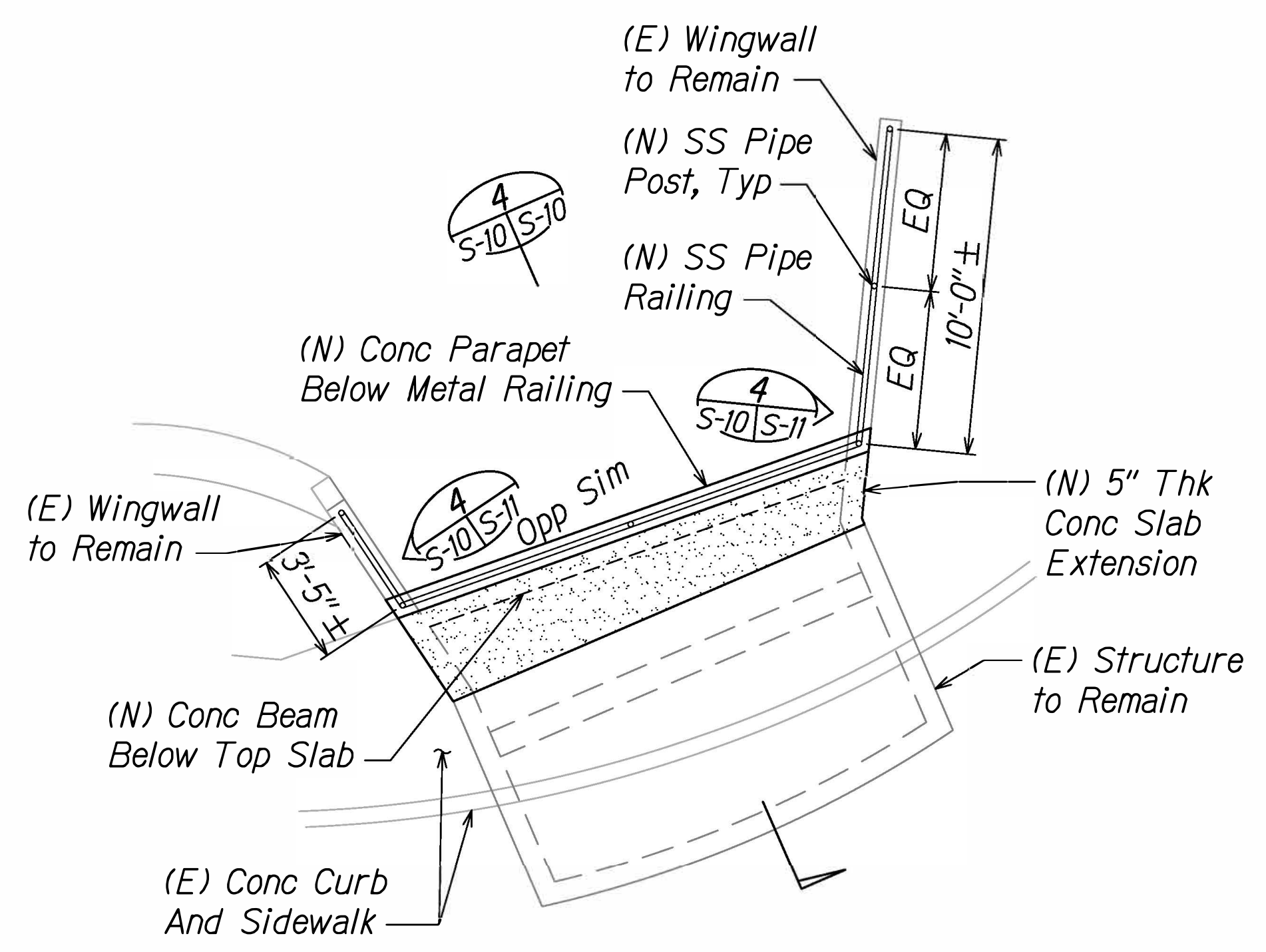
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HAWAII	HAW.	STP-0300(214)	2024	124	149



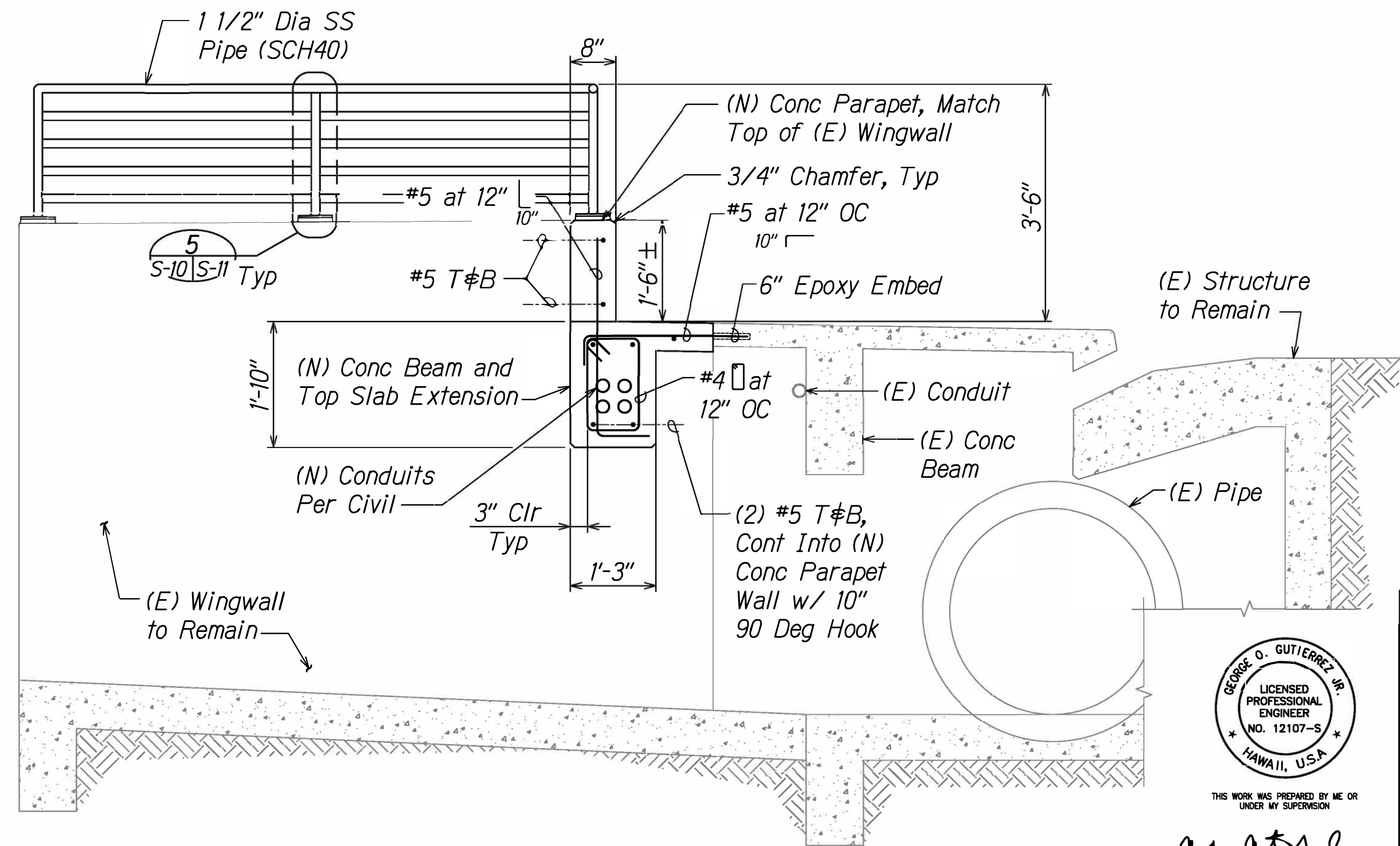
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S-2 | S-10  
**DEMOLITION PLAN - CATCH BASIN NO. 1**  
SCALE: 1/4" = 1'-0"  
NORTH



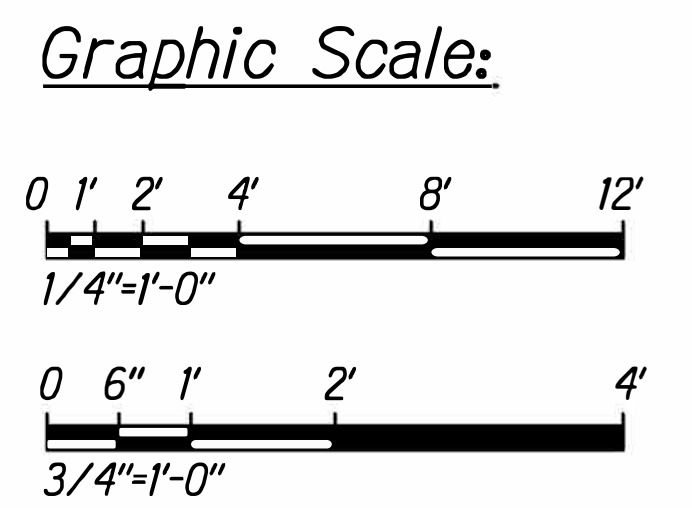
**2**  
S-10 | S-10  
**DEMOLITION SECTION - CATCH BASIN NO. 1**  
SCALE: 3/4" = 1'-0"



**3**  
S-2 | S-10  
**PLAN - CATCH BASIN NO. 1**  
SCALE: 1/4" = 1'-0"  
NORTH



**4**  
S-10 | S-10  
**SECTION - CATCH BASIN NO. 1**  
SCALE: 3/4" = 1'-0"



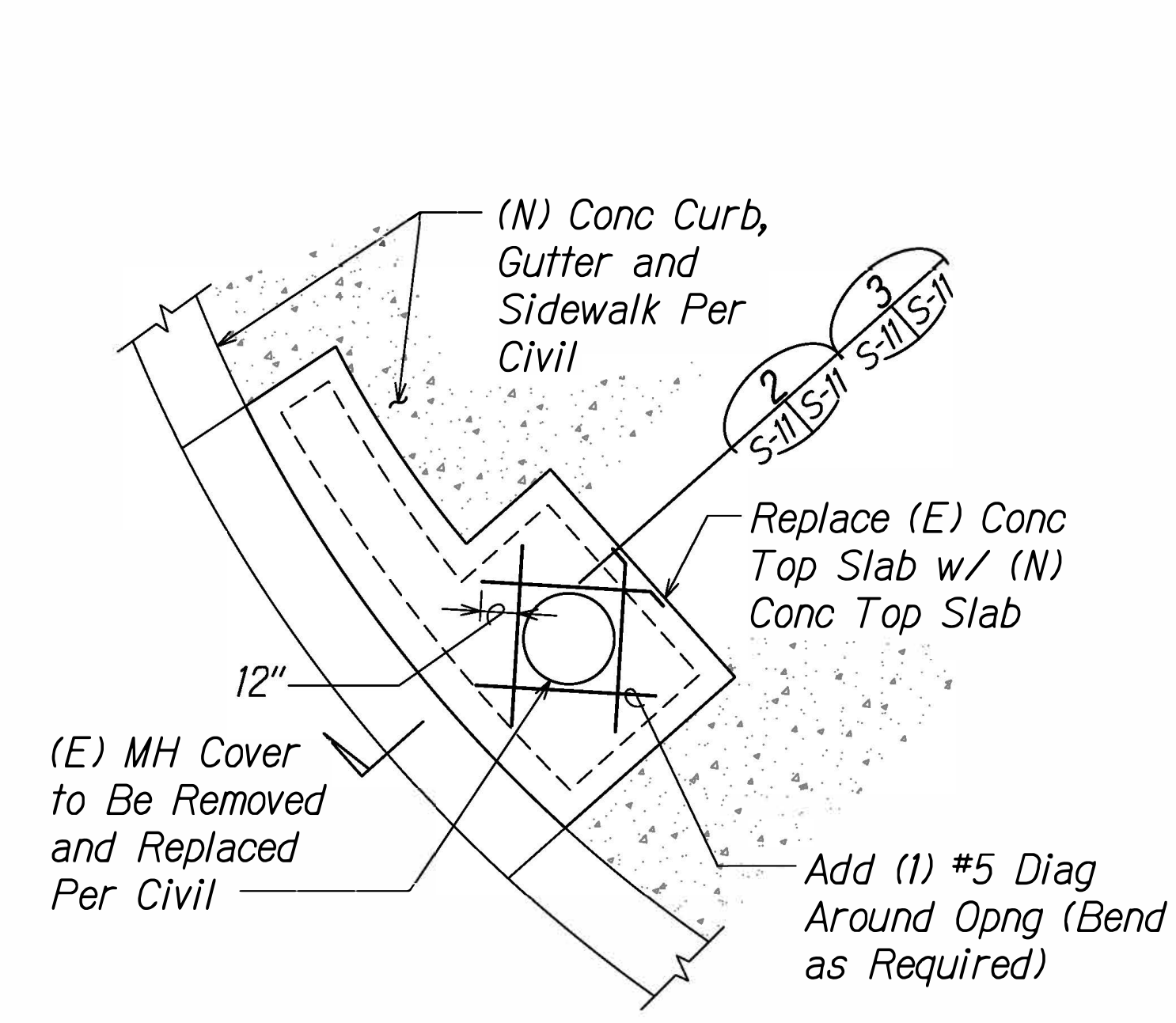
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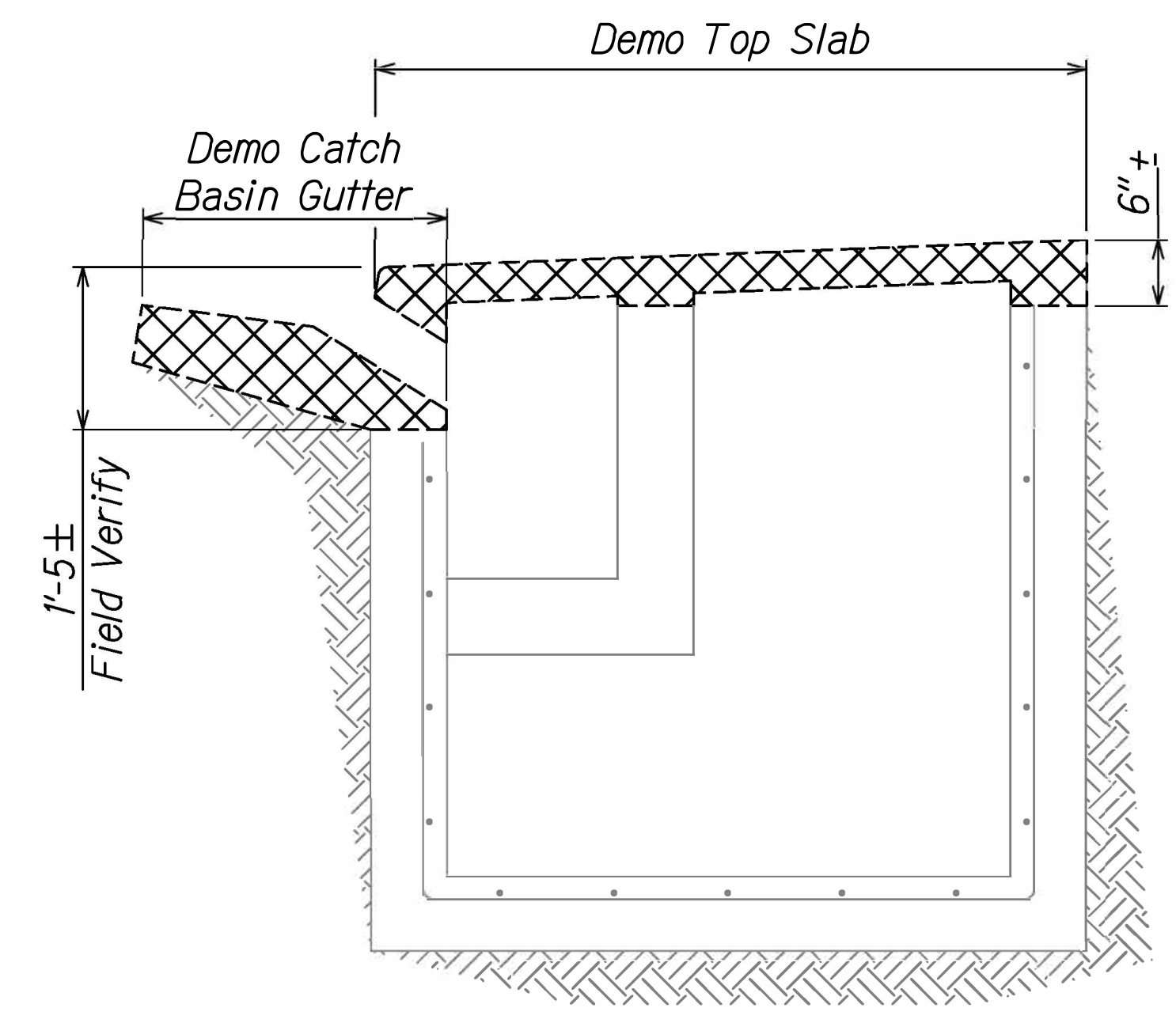
Signature: *George O. Gutierrez*  
Expiration Date: 4-30-2028

DATE	REVISION
	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <b>CATCH BASIN DETAILS</b> Kalaniana'ole Highway & Kalaniki Street Traffic Signal Modernization, Oahu - Phase 2A Federal-Aid Project No. STP-0300 (214) Scale: As Shown Date: August 2024 SHEET No. S-10 OF S-13 SHEETS

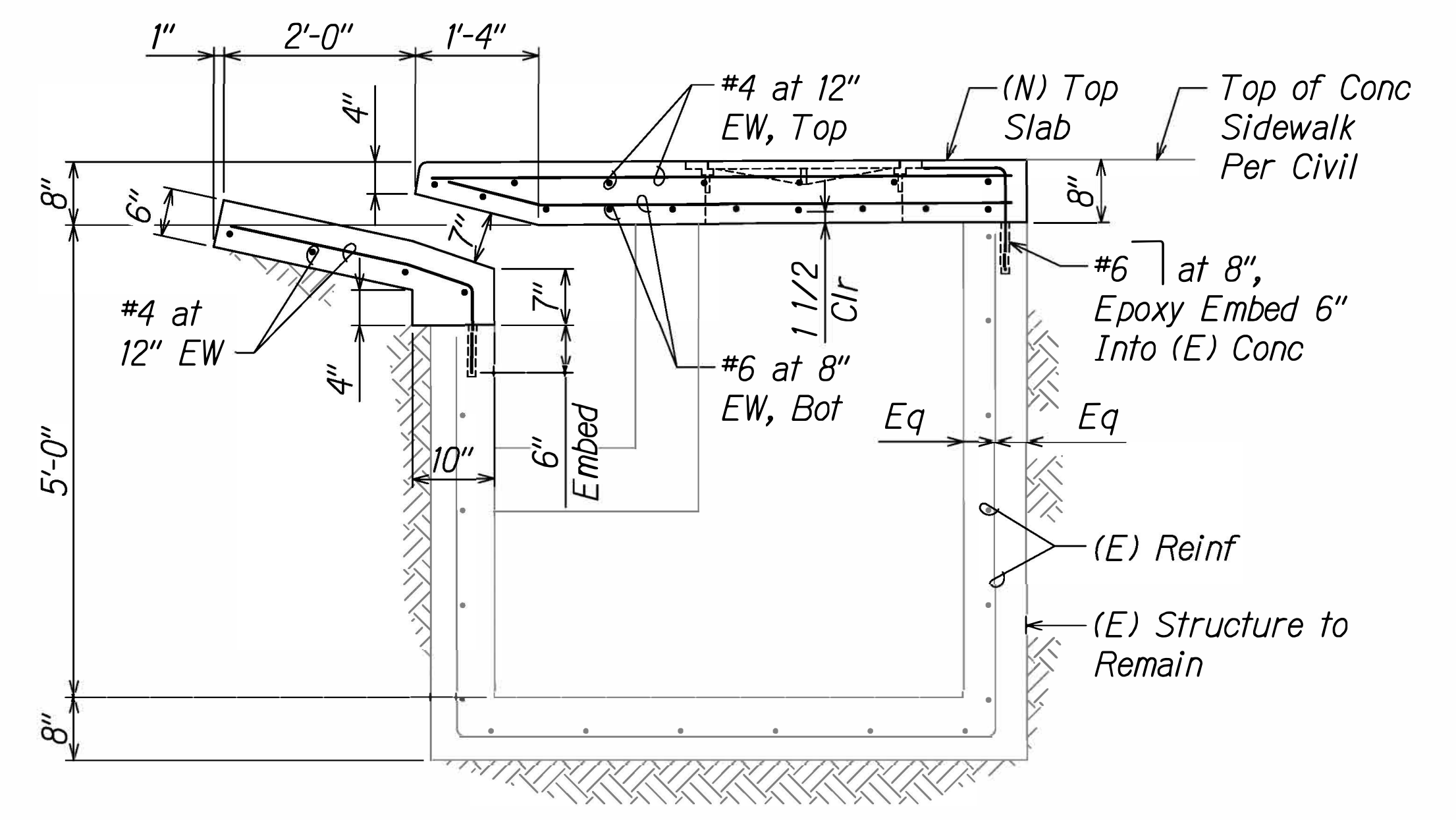
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HAWAII	HAW.	STP-0300(214)	2024	125	149



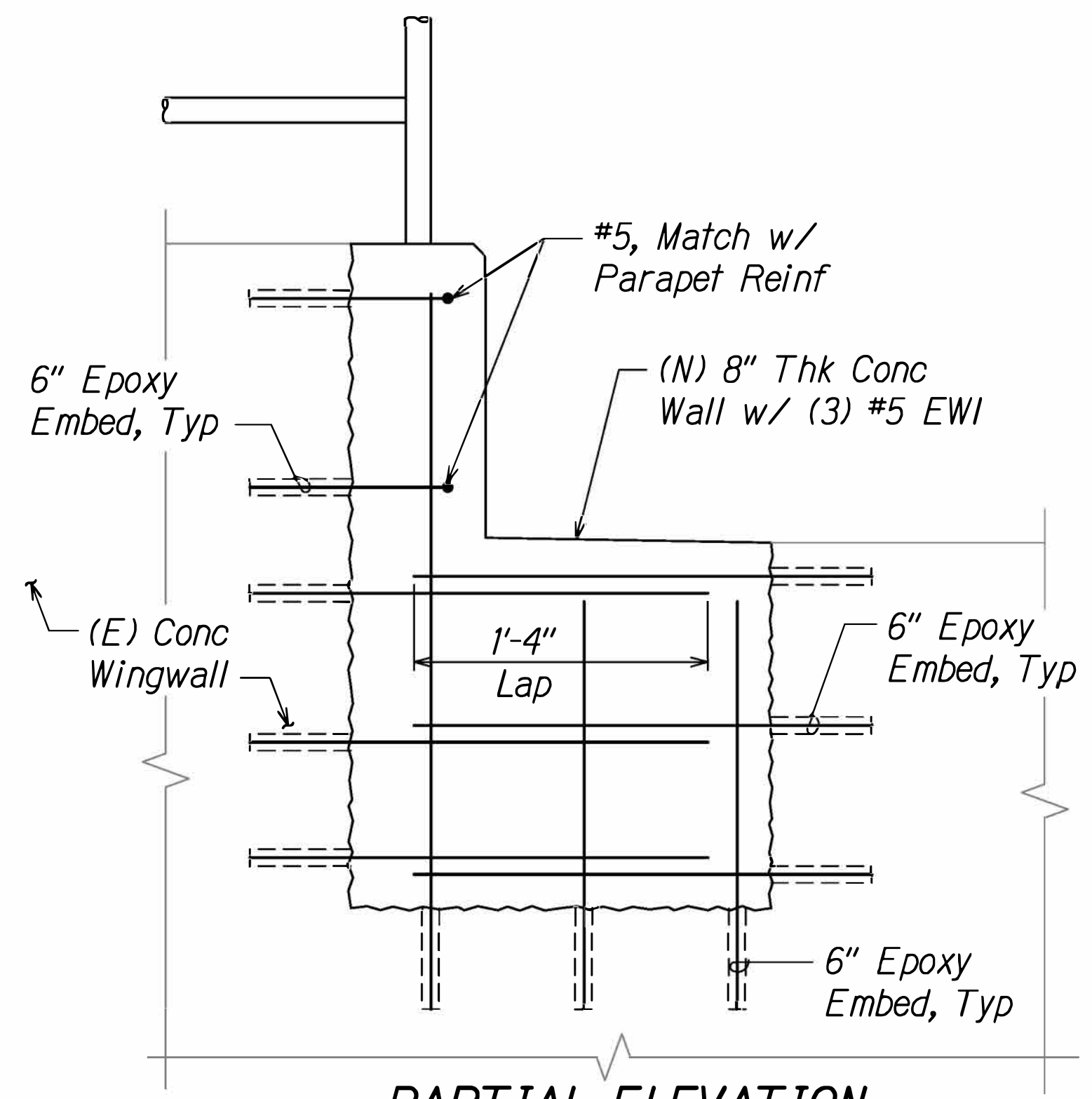
**1** PLAN - CATCH BASIN NO. 2  
 S-2 | S-11 SCALE: 1/4" = 1'-0"



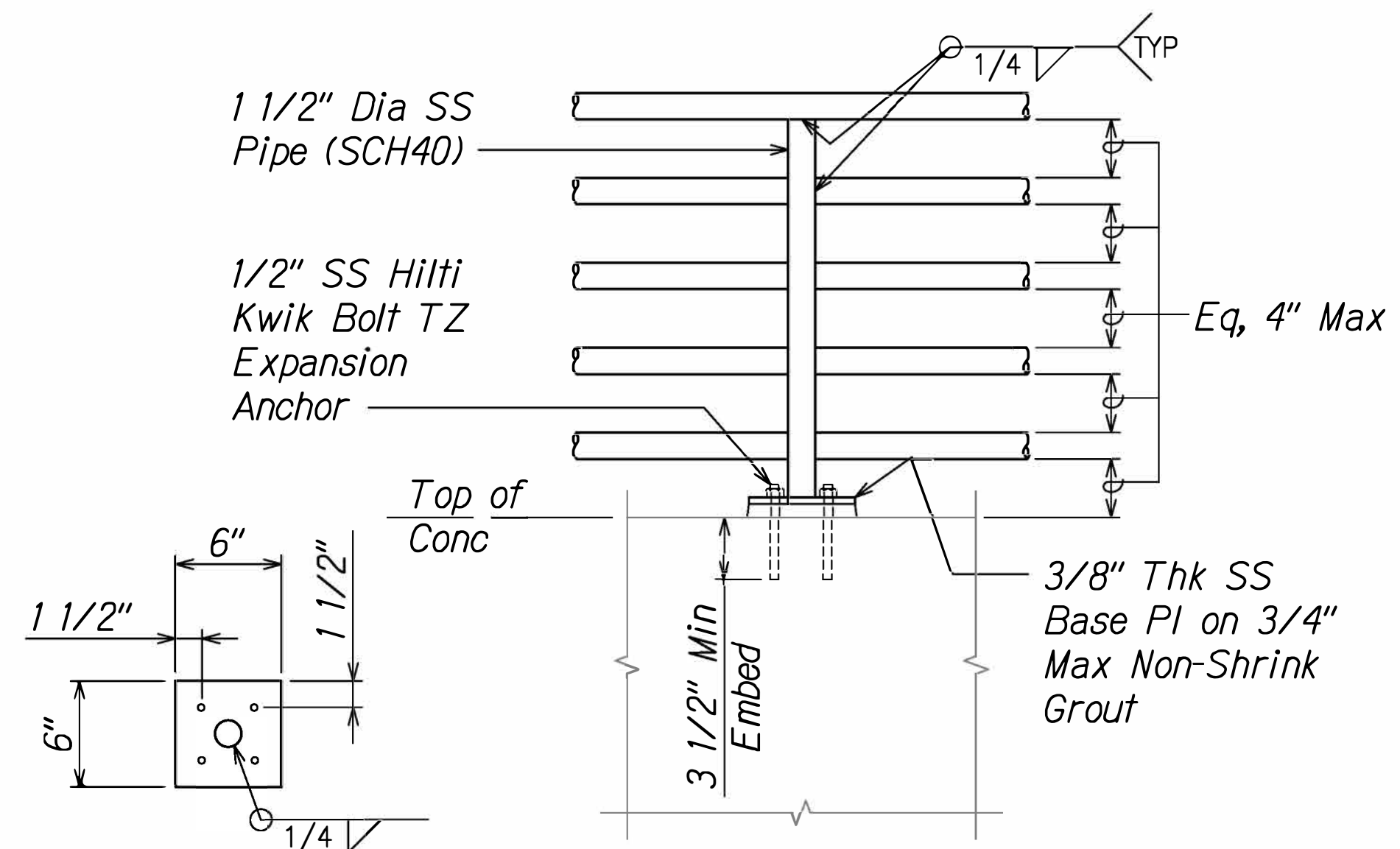
**2** DEMOLITION SECTION - CATCH BASIN NO. 2  
 S-11 | S-12 SCALE: 3/4" = 1'-0"



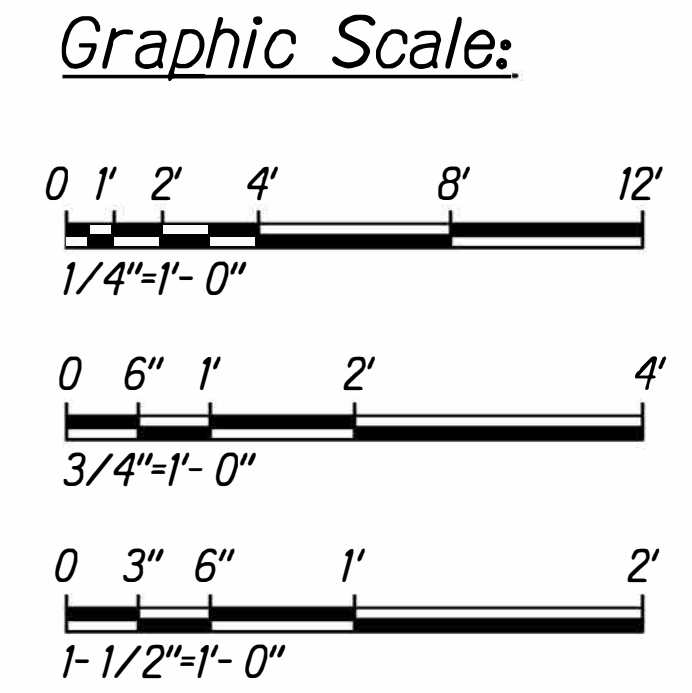
**3** SECTION - CATCH BASIN NO. 2  
 S-11 | S-13 SCALE: 3/4" = 1'-0"



**4** PARTIAL ELEVATION - CATCH BASIN NO. 1  
 S-10 | S-11 SCALE: 1-1/2" = 1'-0"



**5** RAILING DETAIL  
 S-10 | S-12 SCALE: 1-1/2" = 1'-0"



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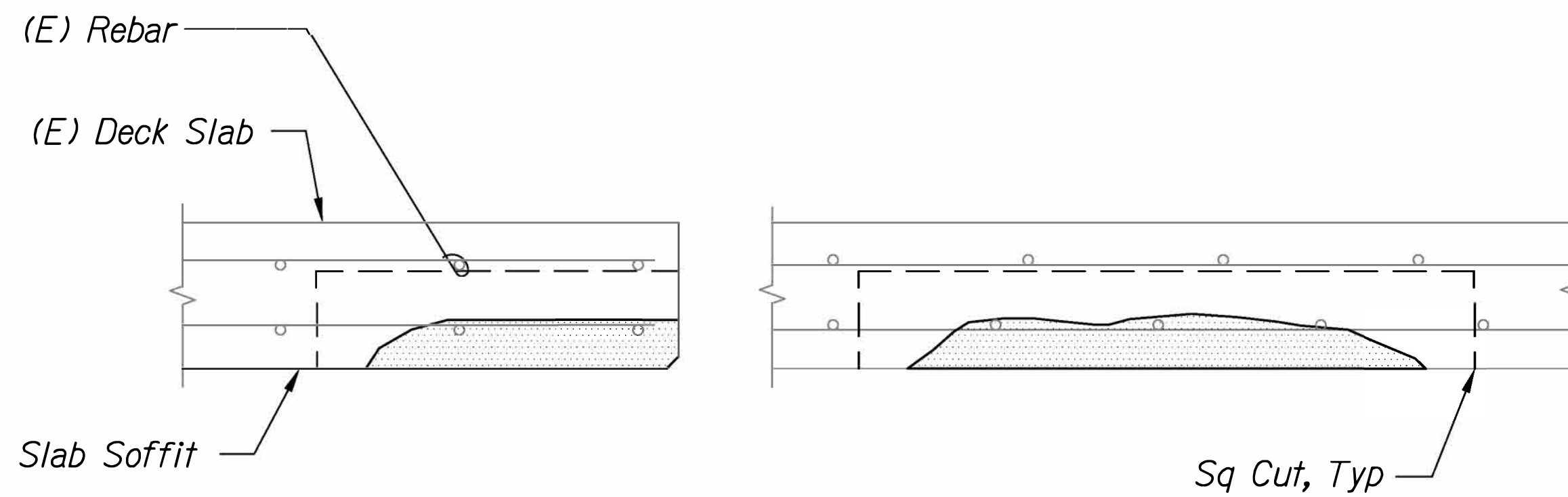
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(214)	2024	126	149

**Concrete Repair Material:**

1. Surface repair mortar shall be a factory blended surface repair material combined with a polymer type admixture used for repairs where forming is not required and for areas less than 2 square feet.
2. Polymer modified concrete shall be a mixture of cement, fine aggregate, coarse aggregate, polymer type admixture, super-plasticizing admixture, corrosion inhibitor admixture and water. It shall be used for repairs where forming is required.
3. Polymer modified mortar shall be a mixture of cement, fine aggregate, polymer type admixture, corrosion inhibitor admixture and water. It shall be used for repairs where forming is required.
4. Unless otherwise indicated, admixtures shall be used at the contractor's option subject to approval of the contracting officer.
5. Use of calcium chloride in any concrete is prohibited.

Concrete Repair Schedule	
Repair Number	Repair Area
①	
②	
③	
④	



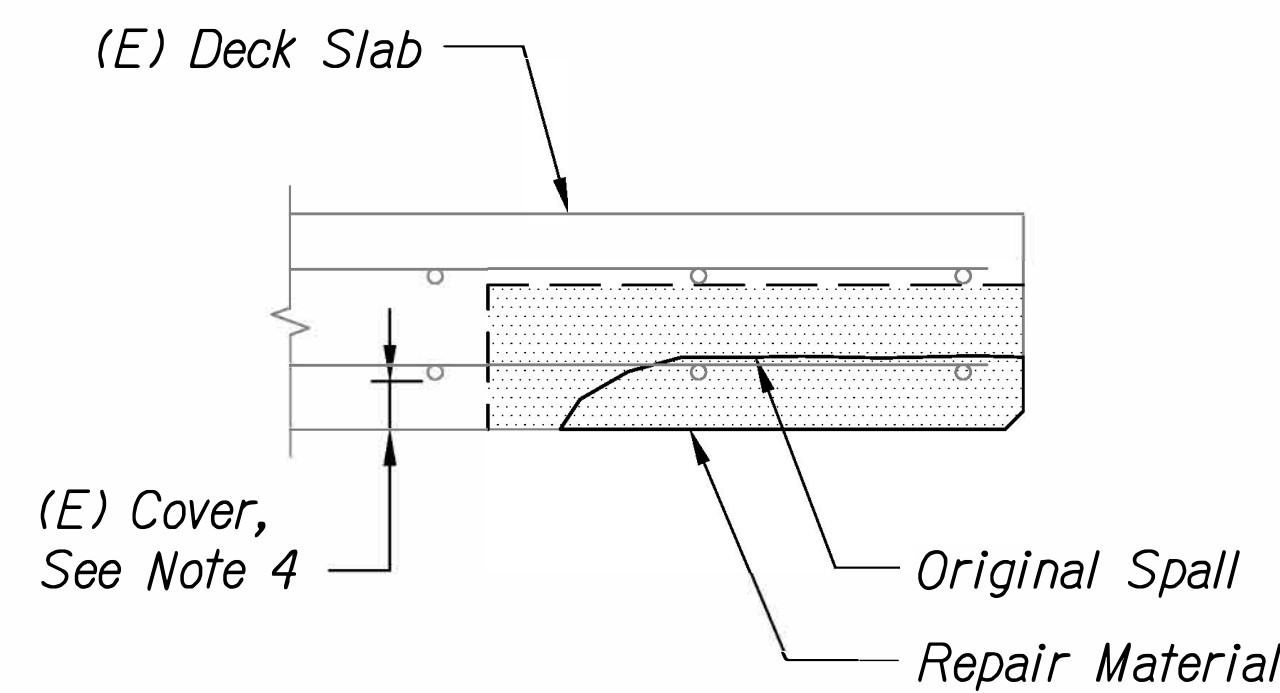
**EXISTING SECTION**

**ELEVATION**

**Notes:**

1. Spalls and delamination are called out as "spalls" since the repairs are the same.
2. See concrete repair details on sht S-13.

**1 SLAB EDGE SPALL - EXISTING CONDITION**  
S-12 | S-12 NOT TO SCALE



**Notes:**

1. See concrete repair notes and details on sht S-13.
2. Replace corroded rebars where required per Table 1 on sht S-13.
3. See  $\frac{1}{S-12 | S-12}$  for existing condition.
4. Where the existing rebar cover is less than 2", galvanized rebar shall be used. see specs for additional info.

**2 SLAB EDGE SREPAIR DETAIL**  
S-12 | S-12 NOT TO SCALE

**Graphic Scale:**



DATE	_____
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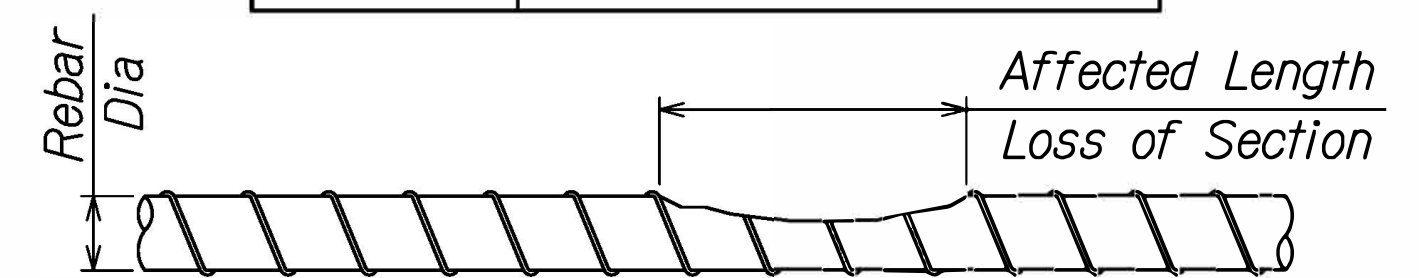
Signature: *George O. Gutierrez*  
 Expiration Date: 4-30-2026

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	STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <b>CATCH BASIN DETAILS</b> Kalaniana'ole Highway & Kalaniki Street
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	SHEET No. S-12 OF S-13 SHEETS

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HAWAII	HAW.	STP-0300(214)	2024	127	149

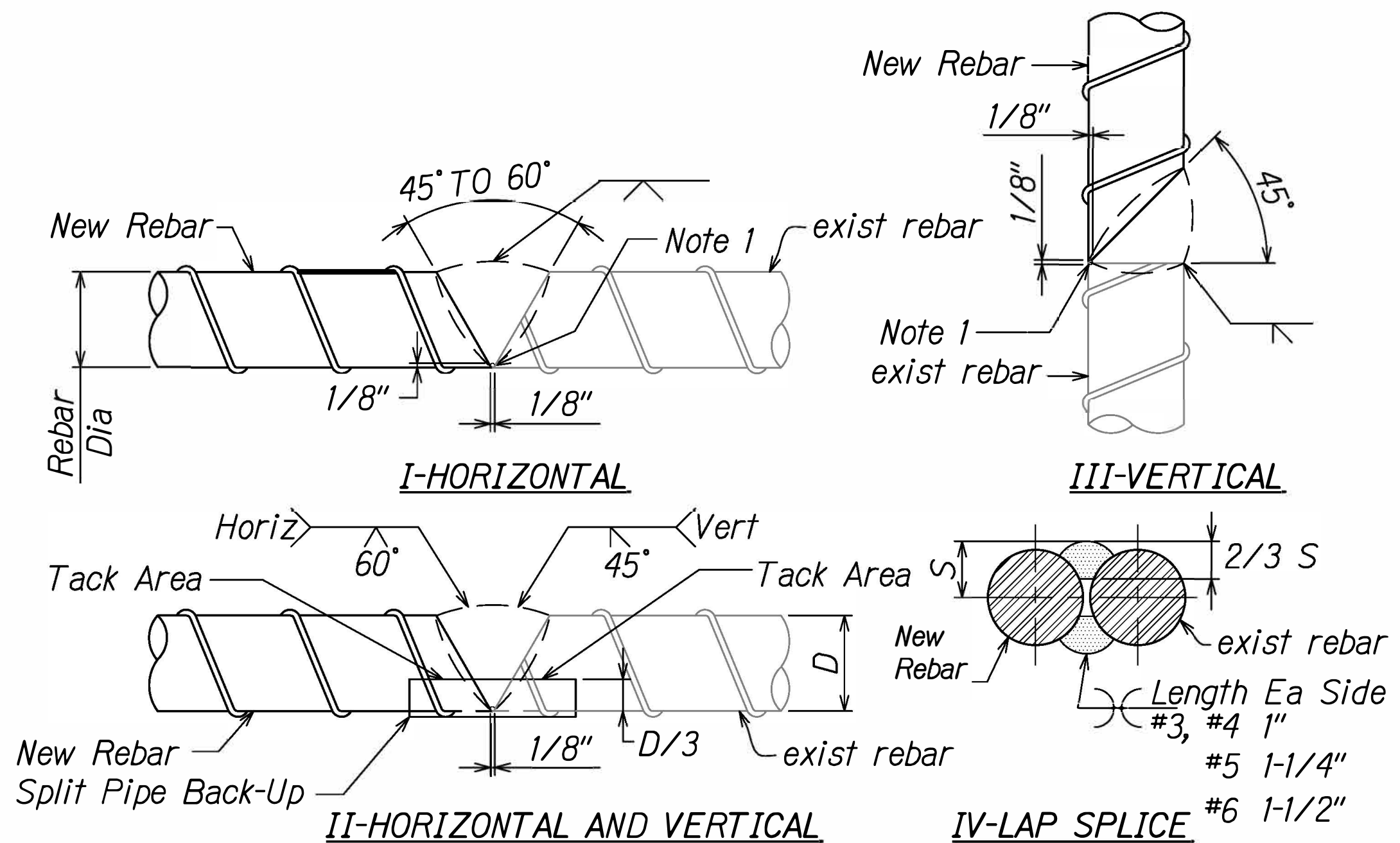
Table 1: Minimum Rebar Diameter at Section Loss

Rebar Size	Minimum Acceptable Diameter at Section Loss
#3	5/16"
#4	7/16"
#5	1/2"
#6	5/8"
#7	3/4"
#8	13/16"
#9	15/16"
#10	1-1/16"



- Notes:
1. Remove heavy corrosion and scale from rebars using hand tools (eg: wire brush) or other approved methods.
  2. If rebar diameter after cleaning is less than that shown in the Table I above, repair rebar per 2 S-13/S-13.

1 REBAR CLEANING & LOSS OF SECTION  
S-13/S-13 NOT TO SCALE

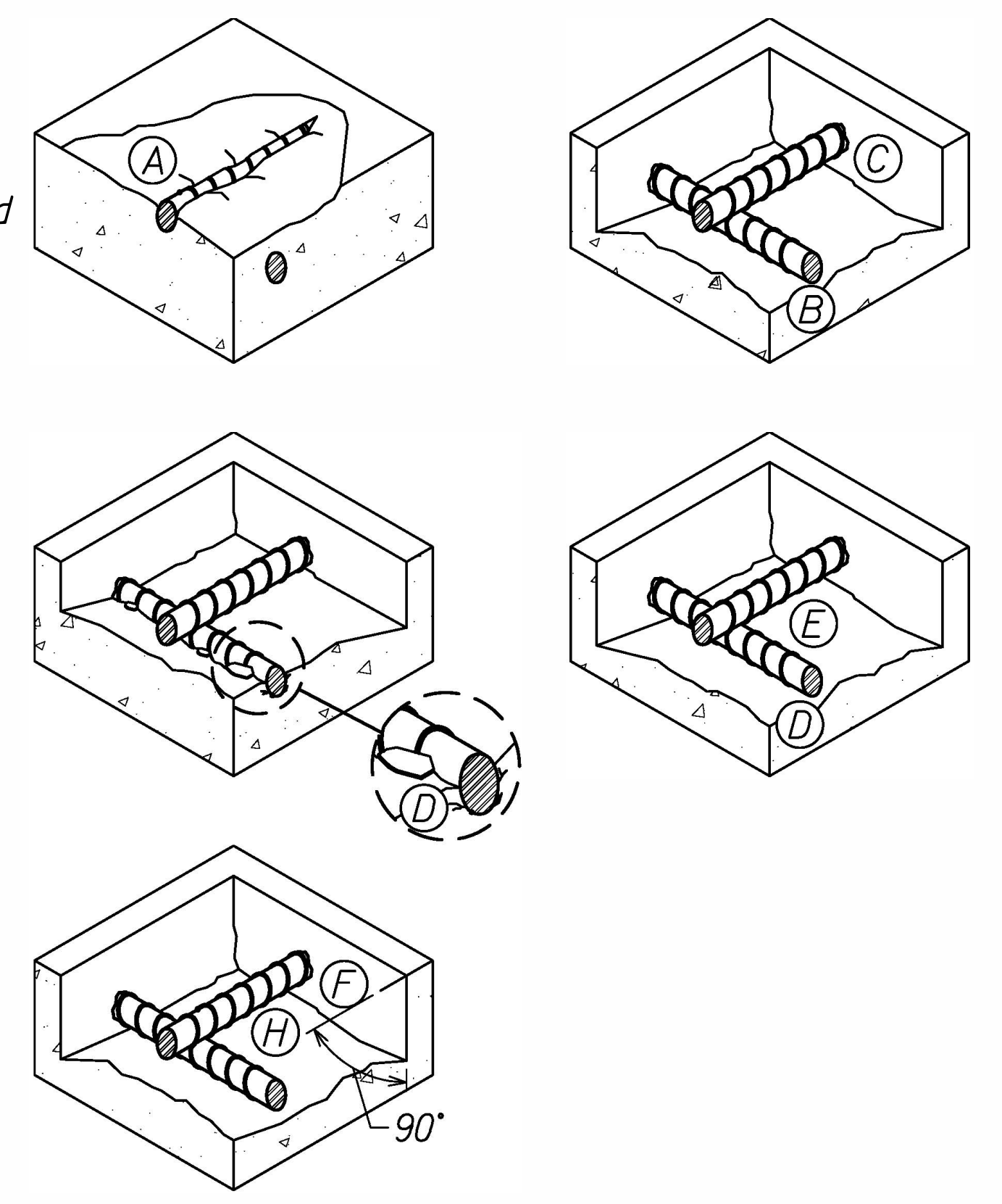


- Notes:
1. Chip, grind or gouge to sound metal before welding other side.
  2. Detail I and III for No. 9 and Larger. Detail II for No. 8 and smaller. Detail IV for No. 6 and smaller.
  3. E70 electrode for GR40, E90 electrode for GR60.
  4. See AWS D1.4 for welding process and other details.

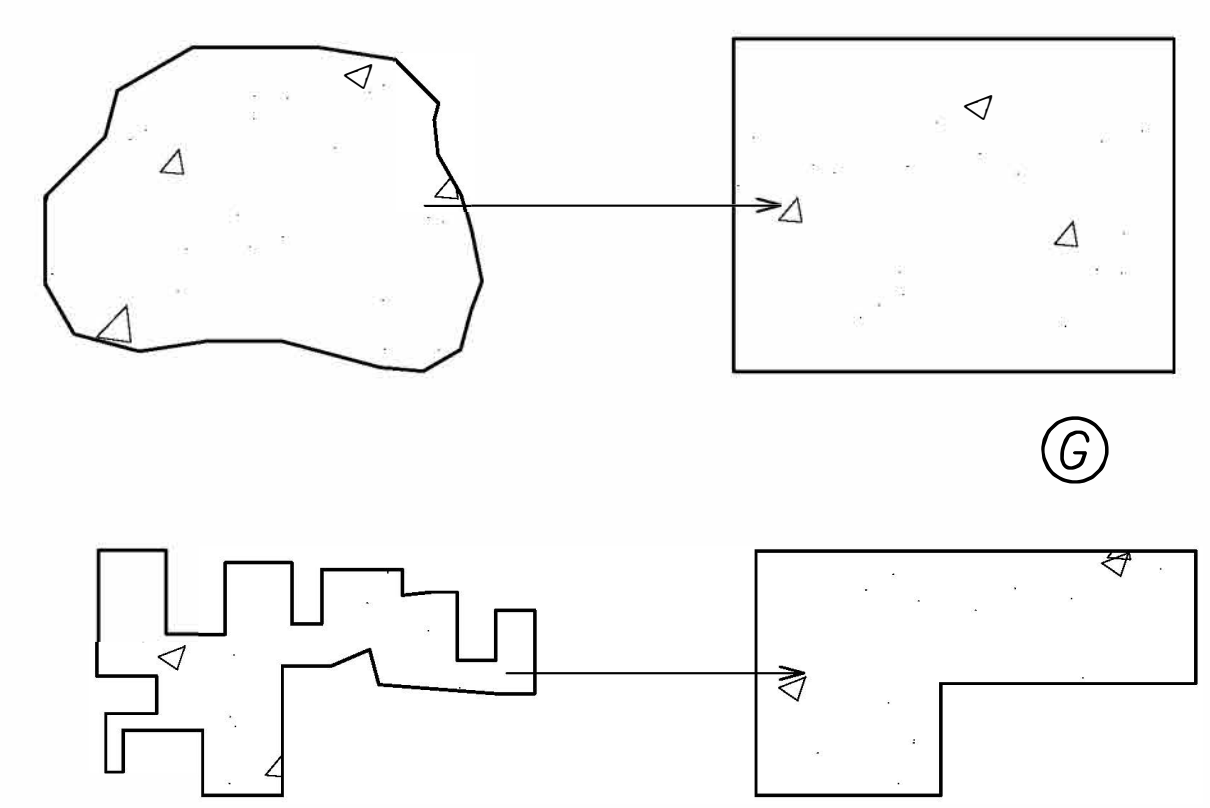
2 REBAR WELD SPLICE DETAIL  
S-13/S-13 NOT TO SCALE

CONCRETE REPAIR NOTES

1. Refer to plan on sheet S-11 and repair schedule on sheet S-12 for approximate size and location of each required repair.
2. Spalls and Delaminations are indicated as "Spalls" since the repairs are the same.
3. Concrete repair shall be in conformance with the "Concrete Repair Manual", 2nd edition, International Concrete Repair Institute unless otherwise indicated.
4. Cleaning and repair of reinforcing steel, see 1 S-13/S-13 and 2 S-13/S-13.
5. Exposing and under cutting of reinforcing steel:
  - (A) Hammer sounding to locate extent of delaminated areas. If concrete sounds "hollow" or is cracked, remove deteriorated concrete. Use chipping hammer less than 30# or other contracting officer approved methods to remove loose or delaminated concrete surrounding corroded reinforcing steel. Do not damage sound concrete.
  - (B) Once initial removals are made, proceed with the undercutting of all exposed corroded bars. Undercutting shall provide clearance for under bar cleaning and full bar circumference bonding to surrounding concrete, and to secure the repair structurally. Provide minimum 3/4" clearance between exposed rebars and surrounding concrete or 1/4" larger than the largest aggregate in repair material, whichever is greater.
  - (C) Concrete removals shall extend along the bars to locations along the bar free of bond inhibiting corrosion, and where the bar is well bonded to surrounding concrete.
  - (D) If non-corroded reinforcing steel is exposed during the undercutting process, care shall be taken not to damage the bar's bond to surrounding concrete. If bond between bar and concrete is broken, undercutting of the bar shall be required.
  - (E) Any reinforcement which is loose shall be secured in place by tying to other secured bars or by other approved methods.
6. Edge and surface conditioning of concrete:
  - (F) At edge locations, provide right angle cuts to the concrete surface with a sawcut 1/2" or less as required to avoid cutting reinforcing steel. Do not feather edge.
  - (G) Repair configurations should be kept as simple as possible, preferably with squared corners.
  - (H) After removals and edge conditioning are complete, existing concrete surface shall be clean, roughened, and surface saturated dry prior to receiving patch material. Remove bond inhibiting materials (dirt, concrete slurry, loosely bonded aggregates) using hand tools (eg: wire brush) or other contracting officer approved methods. Blasting using abrasive media or water is not allowed. Check the concrete surfaces after cleaning to insure that surface is free from additional loose aggregate, or that additional delamination are not present. Apply concrete bond coat before application of patching material per manufacturer recommendations.
7. See notes on sheet S-1 for additional information.



BOUNDARY OF SPALL OR DELAMINATED CONCRETE RECOMMENDED LAYOUT



SURFACE PREPARATION OF SPALLED CONCRETE AND CORRODED BARS

3 S-13/S-13 NOT TO SCALE



Signature: *Genaro O. Gutierrez*  
Expiration Date: 4-30-2028

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	Traffic Signal Modernization, Oahu, -Phase 2A Federal-Aid Project No. STP-0300 (214) Scale: As Shown Date: August 2024
	SHEET No. S-13 OF S-13 SHEETS

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CHECKED BY	
NOTE BOOK No.	

No. 05, 0766, 0818, 0820, 0821, 0822, 0823, 0824, 0825, 0826, 0827, 0828, 0829, 0830, 0831, 0832, 0833, 0834, 0835, 0836, 0837, 0838, 0839, 0840, 0841, 0842, 0843, 0844, 0845, 0846, 0847, 0848, 0849, 0850, 0851, 0852, 0853, 0854, 0855, 0856, 0857, 0858, 0859, 0860, 0861, 0862, 0863, 0864, 0865, 0866, 0867, 0868, 0869, 0870, 0871, 0872, 0873, 0874, 0875, 0876, 0877, 0878, 0879, 0880, 0881, 0882, 0883, 0884, 0885, 0886, 0887, 0888, 0889, 0890, 0891, 0892, 0893, 0894, 0895, 0896, 0897, 0898, 0899, 0900, 0901, 0902, 0903, 0904, 0905, 0906, 0907, 0908, 0909, 0910, 0911, 0912, 0913, 0914, 0915, 0916, 0917, 0918, 0919, 0920, 0921, 0922, 0923, 0924, 0925, 0926, 0927, 0928, 0929, 0930, 0931, 0932, 0933, 0934, 0935, 0936, 0937, 0938, 0939, 0940, 0941, 0942, 0943, 0944, 0945, 0946, 0947, 0948, 0949, 0950, 0951, 0952, 0953, 0954, 0955, 0956, 0957, 0958, 0959, 0960, 0961, 0962, 0963, 0964, 0965, 0966, 0967, 0968, 0969, 0970, 0971, 0972, 0973, 0974, 0975, 0976, 0977, 0978, 0979, 0980, 0981, 0982, 0983, 0984, 0985, 0986, 0987, 0988, 0989, 0990, 0991, 0992, 0993, 0994, 0995, 0996, 0997, 0998, 0999, 1000

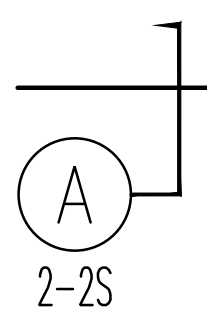


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	128	149

### GENERAL CONSTRUCTION NOTES

- Contractor Shall Coordinate All Work With Heco.
- Provide Polyolefin 200lb Test Pullcord In All Empty Conduits, Unless Otherwise Noted.
- All Electrical Equipment Enclosures And Equipment Mounting Hardware For Outdoor Installation Shall Be Type 316 Stainless Steel, Unless Otherwise Noted.

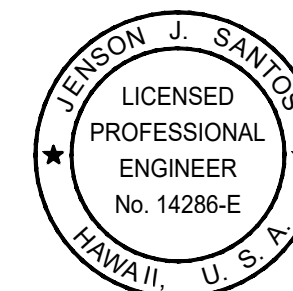
### ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
— · — · —	New Underground Electric Ductline
— e — oh —	Existing Utility Overhead Lines
— E — OH —	New Utility Overhead Lines
▭	2' X 4' Pullbox
1 →	Denotes Indicator, Denotes See Box Note 1
	Electric / Signal Ductline with Designators; Items in Circle Indicates Duct Section Type, with Duct Complements noted Below (Type "A" Duct with 2-2"S Ducts Indicated); (E=Electric, T=Telephone, V=CATV, L=Roadway Lighting, S=Traffic Signal), See Sheet E-5 for Duct Section Details

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

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Ronald H. Santos & Associates, Inc.  
Electrical Engineers



This work was prepared by me or under my supervisions and construction of this project will be under my observation.  
Exp. 04-30-26

*Jenson J. Santos*  
Signature 2024.09.10

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

### GENERAL NOTES AND ELECTRICAL SYMBOLS

*Traffic Signal Modernization, Oahu - Phase 2A*  
Federal-Aid Project No. STP-0300(214)

Scale: As Noted Date: May 2024

SHEET No. E-1 OF 9 SHEETS

Hawaiian Electric Company (HECO) Notes:  
Rev. 08/04/21

Contractor Must Excavate an Area More than 12 Inches Deep by 12 Inches Wide, and Closer Than 10 Feet From a Utility Pole or its Anchor System, Except When Excavating for Risers in a Single Trench Not Wider Than 12 Inches and Not Deeper Than 3 Feet, Contractor Will Be Responsible for Protecting, Supporting, Securing and Taking All Precautions to Prevent Damage to or Leaning Of Existing Poles. Before Commencing Such Excavation, Contractor Must Notify Hawaiian Electric Which May Lead to Implementing Pole Bracing Requirements. Hawaiian Electric Requires A Minimum of Ten (10) Working Days to Conduct the Review of Contractor's Submittal. Contractor Shall Submit Its Bracing Calculations and Drawings, Prepared and Stamped By A Licensed Structural Engineer, to Hawaiian Electric's Customer Relations (808-543-7070) For Review. Contractor Shall Be Responsible For the Design, Installation, and Removal of the Temporary Pole Bracing System, As Well As All Costs Incurred By Hawaiian Electric To Review Contractor's Drawings And To Repair Or Straighten Poles Impacted By Contractor's Activities, Including Response and Restoration Costs Incurred By Hawaiian Electric Arising Out of or Related to Outages Caused By Contractor's Failure to Meet the Foregoing Requirements. Hawaiian Electric's Receipt of Pole Bracing Calculation or Drawing Submittals of Any Contractor, Including Work Procedure, Shall Not Relieve Contractor From Any Liability Resulting From Contractor's Excavation Near or Around Hawaiian Electric's Utility Poles.

b. Hawaiian Electric May Provide to the Customer Information Related to Pole Bracing, Including Calculations and Other Basic Engineering. However, Hawaiian Electric Provides this Information for Informational Purposes Only and Does Not Warrant Any of the Information Provided to Customer. Hawaiian Electric Hereby Disclaims Any Liability Associated with the Customer's Use of Information Provided to the Customer from Hawaiian Electric. It is the Customer's Duty to Obtain Engineering from Its Own Engineer or Contractor In Order to Brace Poles and the Use of Hawaiian Electric's Information Does Not Excuse the Customer From Performing Its Own Evaluation of the Bracing Needs. Should the Customer Install Bracing at Any Pole Location, Customer Shall Defend, Indemnify and Hold Harmless Hawaiian Electric from Any Third Party Claims Associated with the Customer's Bracing of a Pole. Should the Work Customer Perform at or Near the Pole Location Compromise the Pole or Its Surroundings in Any Way, Customer Shall Restore or Replace the Pole so that it is No Longer Compromised.

7. Underground Lines

The Contractor Shall Exercise Extreme Caution Whenever Construction Crosses or is in Close Proximity of Underground Lines. Hawaiian Electric's Existing Electrical Cables are Energized and Will Remain Energized During Construction. Only Hawaiian Electric Personnel are to Break into Existing Hawaiian Electric Facilities, Handle These Cables, and Erect Temporary Guards to Protect These Cables from Damage. The Cost of Hawaiian Electric's Assistance in Providing Proper Support and Protection of its Underground Lines Will Be Charged to the Contractor. For Assistance/Coordination in Providing Proper Support and Protection of these Lines, the Contractor Shall Call Hawaiian Electric's Customer Relations at 808-543-7070 a Minimum of Ten (10) Working Days in Advance.

Special Precautions are Required When Excavating Near Hawaiian Electric's 138kV or 46kV Underground Lines (See Hawaiian Electric Instructions to Consultants/Contractors on "Excavation Near Hawaiian Electric's Underground 138kV and/or 46kV Lines" for Detailed Requirements).

For Verification of Underground Lines, the Contractor Shall Call the Hawaii One Call Center at 866-423-7287 Minimum of Five (5) Working Days in Advance.

8. Underground Fuel Pipelines

The Contractor Shall Exercise Extreme Caution Whenever Construction Crosses or is in Close Proximity of Hawaiian Electric's Underground Fuel Oil Pipelines. Special Precautions are Required When Excavating Near Hawaiian Electric's Underground Fuel Oil Pipelines (See Hawaiian Electric's Specific Fuel Pipeline "Guidelines" to Consultants/Contractors on Excavation Near Hawaiian Electric's Underground Fuel Pipelines for Detailed Requirements).

9. Excavations

When Trench Excavation is Adjacent to or Beneath Hawaiian Electric's Existing Structures or Facilities, the Contractor is Responsible for:

- a) Arranging for Hawaiian Electric Standby Personnel to Observe Work at Contractor's Cost.
- b) Sheeting, Bracing, or Otherwise Supporting the Excavation and Stabilizing the Existing Ground to Render it Safe and Secure and to Prevent Possible Slides, Cave-Ins, and Settlements.
- c) Properly Supporting Existing Structures or Facilities with Beams, Struts, Under-Pinnings, or Other Necessary Methods to Fully Protect it from Damage.
- d) Backfilling with Proper Backfill Material Including Special Thermal Backfill where Existing (Refer to Engineering Division for Thermal Backfill Specifications).

10. Relocation of Hawaiian Electric Facilities

Any Work Required to Relocate or Modify Hawaiian Electric Facilities Shall Be Done by Hawaiian Electric, or by the Contractor Under Hawaiian Electric's Supervision. The Contractor Shall Be Responsible for All Coordination, and Shall Provide Necessary Support for Hawaiian Electric's Work, Which May Include, but not be Limited to, Staking of Pole/Anchor Locations, Identifying Right of Way and Property Lines, Excavation and Backfill, Permits and Traffic Control, Barricading, and Restoration of Pavement, Sidewalks, and Other Facilities.

All Costs Associated with Any Relocation or Modification (Either Temporary or Permanent) for the Convenience of the Contractor, or to Enable the Contractor to Perform His Work in a Safe and Expeditious Manner in Fulfilling His Contract Obligations Shall Be Borne by the Contractor.

11. Conflicts

Any Redesign or Relocation of Hawaiian Electric's Facilities Not Shown on the Plans May Be Cause for Lengthy Delays. The Contractor Acknowledges that Hawaiian Electric is Not Responsible for Any Delay or Damage that May Arise as a Result of Any Conflicts Discovered or Identified with Respect to the Location or Construction of Hawaiian Electric's Electrical Facilities in the Field, Regardless of Whether the Contractor has Met the Requested Minimum Advance Notices. In Order to Minimize Any Delay or Impact Arising from Such Conflicts, Hawaiian Electric Should Be Notified Immediately Upon Discovery or Identification of Such Conflict.

12. Damage to Hawaiian Electric Facilities

The Contractor Shall Be Responsible for the Protection of All Hawaiian Electric Surface and Subsurface Utilities and Shall Be Responsible for Any Damages to Hawaiian Electric's Facilities as a Result of His Operations. The Contractor Shall Immediately Report Such Damages or Any Hazardous Conditions Related to Hawaiian Electric's Lines to Hawaiian Electric's Trouble Dispatcher at 808-548-7961. Repair Work Shall Be Done by Hawaiian Electric or by the Contractor Under Hawaiian Electric's Supervision. Costs for Damages to Hawaiian Electric's Facilities Shall Be Borne by the Contractor.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	129	149

1. Location of Hawaiian Electric Facilities

The Location of Hawaiian Electric's Overhead and Underground Facilities Shown on the Plans are from Existing Records with Varying Degrees of Accuracy and are Not Guaranteed as Shown. The Contractor Shall Verify in the Field the Locations of the Facilities and Shall Exercise Proper Care in Excavating and Working in the Area. Wherever Connections of New Utilities to Existing Utilities and Utility Crossings are Shown, the Contractor Shall Expose the Existing Lines at the Proposed Connections and Crossings to Verify the Depths Prior to Excavation for the New Lines. The Contractor Shall Be Responsible for Any Damages to Hawaiian Electric's Facilities Whether Shown or Not Shown on the Plans.

2. Compliance with Hawaii Occupational Safety and Health Laws

The Contractor Shall Comply with the State of Hawaii's Occupational Safety and Health Laws and Regulations, Including Without Limitation, Those Related to Working on or Near Exposed or Energized Electrical Lines and Equipment.

3. Excavation Clearance

The Contractor Shall Obtain an Excavation Clearance from Hawaiian Electric's Planning and Design Section of the Transmission & Distribution Engineering Department (808-543-5654) Located at 820 Ward Avenue, 4th Floor, a Minimum of Ten (10) Working Days Prior to Starting Construction.

4. Caution!!! Electrical Hazard!!!

Existing Hawaiian Electric Overhead and Underground Lines are Energized and Will Remain Energized During Construction Unless Prior Special Arrangements Have Been Made with Hawaiian Electric. Only Hawaiian Electric Personnel are to Handle These Energized Lines and Erect Temporary Guards to Protect These Lines from Damage. The Contractor Shall Work Cautiously at All Times to Avoid Accidents and Damage to Existing Hawaiian Electric Facilities, Which Can Result in Electrocutation.

5. Overhead Lines

State Law (OSHA) Requires that a Worker and the Longest Object He or She may Contact Cannot Come Closer Than a Specified Minimum Radial Clearance When Working Close to or Under Any Overhead Lines. It is the Contractor's Responsibility to be Informed of and Comply with the Law.

At Any Time Should the Contractor Anticipate that His Work will Result in the Need to Encroach within the Minimum Required Clearance as Stated in the Law, the Contractor Shall Notify Hawaiian Electric at Least Three (3) Months Prior to the Planned Encroachment so that, if Feasible, the Necessary Protections (E.G. Relocate or De-Energize Hawaiian Electric Lines) Can Be Investigated. Hawaiian Electric May Also Be Able to Blanket its Distribution (12kV and Below) Lines to Provide a Visual Aid in Preventing Accidental Contact. Hawaiian Electric's Cost of Safeguarding or Identifying its Lines will be Charged to the Contractor.

Contact Hawaiian Electric's Customer Relations at 808-543-7070 for Assistance in Identifying and Safeguarding Overhead Power Lines.

6. Pole Bracing

a. Contractor Shall Not Excavate within 10 Feet of Hawaiian Electric's Utility Poles or Any Anchor System Supporting the Utility Pole. If

FILED: May 14, 2024, 10:21 AM, HONOLULU, HAWAII, ELECTRIC COMPANY, INC., ENGINEER, 14286-E, STP-0300(214) SHEET 129 OF 149

ORIGINAL PLAN	DATE
NO. _____	_____
NO. _____	_____
NO. _____	_____

DRAWING REVIEW

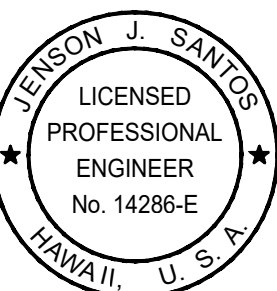
Reviewed for Hawaiian Electric Company Facilities Only

Req# \_\_\_\_\_ By \_\_\_\_\_ Date \_\_\_\_\_

Customer Installations Department  
Hawaiian Electric

Hawaiian Electric's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project including revisions made beyond the reviewed date.

Ronald K. S. Ho & Associates, Inc.  
Electrical Engineers



This work was prepared by me or under my supervision and construction of this project will be under my observation.  
Exp. 04-30-26

*Jenson Santos*  
Signature

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

HECO UTILITY NOTES I

Traffic Signal Modernization, Oahu - Phase 2A  
Federal-Aid Project No. STP-0300(214)

Scale: As Noted Date: May 2024

SHEET No. E-2 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	130	149

Hawaiian Electric Company (HECO) Notes: (Continued)  
Rev. 08/04/21

Additional Notes when Work Involves Construction of Hawaiian Electric Facilities

In Case of Damage or Suspected Damage to Hawaiian Electric's Fuel Pipeline, The Contractor Shall Immediately Notify Hawaiian Electric's Security Command Center at 808-543-7685 (a 24-Hour Number) so Hawaiian Electric Personnel Can Secure the Damaged Section and Report any Oil Spills to the Proper Authorities. All Costs Associated with the Damage, Repair, and Oil Spill Cleanup Shall Be Borne by the Contractor.

16. Schedule

Contractor Shall Furnish his Construction Schedule Six (6) Months Prior to Starting Work on Hawaiian Electric Facilities. Contractor Shall Give Hawaiian Electric, in Writing, Three (3) Months Notice to Proceed with Hawaiian Electric's Portion of Work.

13. Hawaiian Electric Stand-By Personnel

The Contractor May Request Hawaiian Electric to Provide an Inspector to Stand-By During Construction near Hawaiian Electric's Facilities. The Cost of Such Inspection Will Be Charged to the Contractor.

17. Authority

All Construction, Restoration Work, and Inspection Shall Be Subject to Whichever Governmental Agency Has Authority Over the Work.

The Contractor Shall Call Hawaiian Electric's Customer Relations at 808-543-7070 a Minimum of Three (3) Months in Advance to Arrange for Hawaiian Electric Stand-By Personnel.

18. Specifications

Construction of Hawaiian Electric's Underground Facilities Shall Be Constructed in Accordance with the Latest Revisions of Hawaiian Electric Specifications CS7001, CS7003, CS7202, CS9301, and CS9401 and Applicable Hawaiian Electric Standards.

14. Clearances

The Following Clearances Shall Be Maintained Between Hawaiian Electric's Ductline and All Adjacent Structures (Charted and Uncharted) in the Trench: (See Table)

19. Construction

Contractor Shall Furnish All Labor, Materials, Equipment, and Services to Properly Perform and Fully Complete All Work Shown on the Contract, Drawings, and Specifications. All Materials Shall Be New and Manufactured in the United States of America. All Manhole, Handhole, and Ductline Installations Shall Be Inspected and Approved By Hawaiian Electric Prior to Excavation and Prior to Placing Concrete. Contractor Shall Notify Hawaiian Electric's Inspection Group at 808-543-2567 at Least Five (5) Working Days Prior to Installing Facilities or Placing Concrete.

The Contractor Shall Notify the Construction Manager of Hawaiian Electric of Any Heat Sources (Power Cable Duct Bank, Steamline, Etc.) Encountered that are Not Properly Identified on the Drawing.

15. Indemnity

The Contractor Shall Indemnify, Defend and Hold Harmless Hawaiian Electric from and Against All Losses, Damages, Claims, and Actions, Including But Not Limited to Reasonable Attorney's Fees and Costs Based Upon or Arising Out of Damage to Property or Injuries to Persons, or Other Tortious Acts Caused or Contributed to by Contractor or Anyone Acting Under its Direction or Control or on its Behalf; Provided Contractor's Indemnity Shall Not Be Applicable to Any Liability Based Upon the Sole Negligence of Hawaiian Electric.

Contractor to Coordinate Work to Break into Hawaiian Electric's Existing Electrical Facilities with Hawaiian Electric's Inspection Group at 808-543-2567 at Least Ten (10) Working Days in Advance.

20. Stakeout

The Contractor Shall Arrange for Toneouts of All Underground Facilities and Shall Stakeout All Proposed Hawaiian Electric Facilities within the Project Area so as to Not Conflict with Any Utility (Existing or Proposed) and Any Proposed Construction or Improvement Work for Verification by Hawaiian Electric Before Proceeding with Hawaiian Electric Work.

21. Ductlines

All Ductline Installations Shall Be PVC Schedule 40 Encased in Concrete, Unless Otherwise Noted. All Completed Ductlines Shall Be Mandrel Tested by the Contractor in the Presence of Hawaiian Electric's Inspector Using Hawaiian Electric's Standard Practice. The Contractor Shall Install 1800# Tensile Strength Muletape Pull Line in All Completed Ductlines After Mandrel Testing is Complete.

22. Joint Pole Removal

The Last Joint Pole Occupant of the Poles Shall Remove the Poles.

23. As-Built Plans

The Contractor Shall Provide Hawaiian Electric with a Set of Electronic and Hard Copy Plans of Each Sheet Showing the Offsets, Stationing, and Vertical Elevation of the Duct Line(s) Constructed.

DRAWING REVIEW

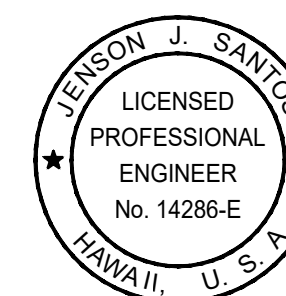
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Req# \_\_\_\_\_ By \_\_\_\_\_ Date \_\_\_\_\_

Customer Installations Department  
Hawaiian Electric

Hawaiian Electric's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project including revisions made beyond the reviewed date.

Ronald H. Santos, Inc.  
Electrical Engineers



This work was prepared by me or under my supervision and construction of this project will be under my observation.  
Exp. 04-30-26

Signature: *Ronald H. Santos*  
2024.09.10

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**HECO UTILITY NOTES II**

Traffic Signal Modernization, Oahu - Phase 2A  
Federal-Aid Project No. STP-0300(214)

Scale: As Noted Date: May 2024

SHEET No. E-3 OF 9 SHEETS

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

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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	131	149

Guidelines for Minimum Horizontal (parallel) Clearances Between Hawaiian Electric and Other Underground Utilities				
Underground Utility	Hawaiian Electric Direct Buried Cable	Hawaiian Electric Direct Buried in Conduit (No Concrete Encasement)	Hawaiian Electric 3" (Minimum) Concrete Encasement	Applicable Notes:
Hawaiian Electric DB Conduits	12"	3"	0"	
Hawaiian Electric 3" Encasement	0"	0"	0"	
Telephone/CATV DB	12"	12"	6"	
Telephone/CATV DB Ducts	12"	12"	6"	
Telephone/CATV 3" Encasement	0"	0"	0"	5
Traffic Signal	12"	12"	12"	
Water DB (BWS Owned)	36"	36"	36"	1, 4
Customer Owned Water Service Laterals	12"	12"	12"	
Water (Concrete Jacketed) (BWS Owned)	36"	36"	36"	1, 4
Gas DB	12"	12"	12"	1
Gas (Concrete Jacketed)	12"	12"	12"	1
Sewer DB	36"	36"	36"	1, 2
Sewer (Concrete Jacketed)	36"	36"	36"	1, 2
Drain	12"	12"	12"	1
Fuel Pipelines				3

**Notes:**

- Where Space is Available, Parallel Clearance to Other Utilities, or Foreign Structures Other Than Communication or Traffic Signal Shall Be 36"
- If 36" Clearance Cannot Be Met:
  - If Clearance is Less Than 12", Jacket Sewer Line with Reinforced Concrete (Per HECO's Std. 30-1030) for a Distance of 5' Plus Pipe Diameter.
  - If Clearance is Between 12" and 36", Jacket Sewer Line with Plain Concrete.
- All Fuel Pipeline Crossings Shall Be Reviewed and Approved by the Company That Owns and Maintains it.
- 5 Feet Clear to Water Mains 16" or Larger.
- For Situations with 0" Minimum Separation, a 6" Separation is Recommended.
- Clearances Measured from Outer Edges or Diameters of Utilities. Whenever Concrete Jackets are Involved, Clearances Shall Be Total Clear Distance Between the Concrete Jacket and Utility Concerned.

Guidelines for Minimum Vertical (Crossing) Clearances Hawaiian Electric and Other Underground Utilities				
Underground Utility	Hawaiian Electric Direct Buried Cable	Hawaiian Electric Direct Buried In Conduit (No Concrete Encasement)	Hawaiian Electric 3" (Minimum) Concrete Encasement	Applicable Notes:
Hawaiian Electric DB Conduits	6"	3"	0"	
Hawaiian Electric 3" Encasement	0"	0"	0"	
Telephone/CATV DB	12"	12"	6"	
Telephone/CATV DB Ducts	12"	12"	6"	
Telephone/CATV 3" Encasement	0"	0"	0"	3
Traffic Signal	12"	12"	6"	
Water DB (BWS Owned)	12"	12"	12"	5
Customer Owned Water Service Laterals	6"	6"	6"	
Water (Concrete Jacketed) (BWS Owned)	12"	12"	12"	5
Gas DB	12"	12"	12"	
Gas (Concrete Jacketed)	12"	12"	12"	
Sewer DB	24"	24"	24"	1
Sewer (Concrete Jacketed)	24"	24"	24"	1
Drain	12"	12"	6"	
Fuel Pipelines				2

**Notes:**

- If Clearance Cannot be Met:
  - If Clearance is Less Than 12", Jacket Sewer Line with Reinforced Concrete (Per HECO's Std. 30-1030) for a Distance of 5' Plus Pipe Diameter.
  - If Clearance is Between 12" and 24", Jacket Sewer Line with Plain Concrete.
- All Fuel Pipeline Crossings Shall Be Reviewed and Approved by the Company That Owns and Maintains it.
- For Situations with 0" Minimum Separation, a 6" Separation is Recommended.
- Clearances Measured from Outer Edges or Diameters of Utilities. Whenever Concrete Jackets are Involved, Clearances Shall Be Total Clear Distance Between the Concrete Jacket and Utility Concerned.
- 36" Clearance is Required for Trenchless Installation Work.

ORIGINAL PLAN NO.	DATE
NO. 1	
NO. 2	
NO. 3	
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NO. 6	
NO. 7	
NO. 8	
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NO. 10	

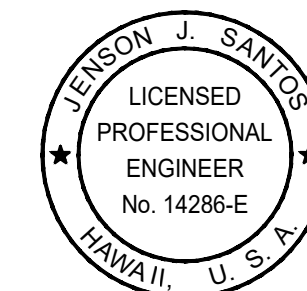
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**DRAWING REVIEW**

Reviewed for Hawaiian Electric Company Facilities Only  
 Req# \_\_\_\_\_ By \_\_\_\_\_ Date \_\_\_\_\_  
 Customer Installations Department  
 Hawaiian Electric

Hawaiian Electric's review of these drawings shall in no way relieve the Customer, its Consultant, its Contractor or anyone acting on the Customer's behalf from the responsibility for engineering, design, materials and any other liability associated with this project including revisions made beyond the reviewed date.

Ronald H. Santos & Associates, Inc.  
 Electrical Engineers



This work was prepared by me or under my supervision and construction of this project will be under my observation.  
 Exp. 04-30-26  
 Signature: *Jason J. Santos*  
 2024.09.10

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

## HECO UTILITY NOTES III

Traffic Signal Modernization, Oahu - Phase 2A  
 Federal-Aid Project No. STP-0300(214)

Scale: As Noted Date: May 2024

SHEET No. E-4 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	132	149

**DUCT SECTION BACKFILL NOTES:**

Type "A" Backfill – Earth & Gravel. Rock Size To Be 1" Max. & The Mixture To Contain Not More Than 50% By Volume Of Rock Particles. 95% Compaction.

Type "B" Backfill – Earth & Gravel. Mixture Must Pass A 1/2" Mesh Screen & Contain Not More Than 20% By Volume Of Rock Particles. 95% Compaction.

Note – If Normal Material At Bottom Of Trench Is Not Type "B", An Additional 3" Shall Be Excavated & Type "b" Backfill Provided.

Concrete – 3" Encasement, 3000 Psi Compressive Strength @ 28 Days.

Designation Descriptions

Elec = Utility Co. Primary Or Secondary Electric  
 Tel = Utility Co. Telephone  
 Pwr = Primary Or Secondary Electric  
 Ctl = Control  
 Sig = Instrumentation Or Antenna Cable

Minimum "x" Dimension  
Duct Separation Requirements

Elec – Elec = 1 1/2"

Elec – Tel = 3"

Tel – Tel = 1 1/2"

Elec – Ctl/sig = 3"

Tel – Ctl/sig = 1 1/2"

Pwr – Ctl/sig = 3"

Elec – Pwr = 1 1/2"

Tel – Pwr = 3"

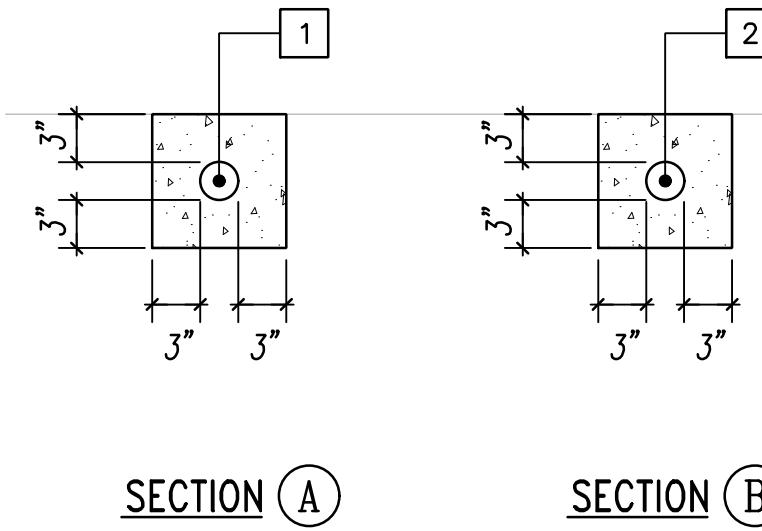
Pwr – Pwr = 1 1/2"

Ctl/sig – Ctl/sig = 1 1/2"

Minimum Of 3" Concrete Encasement Around Ductbank

**Where Electrical Ductline Crosses Water Lines, Provide The Following:**

1. 12" Minimum Separation Between Ductlines And Water Line.
2. Where Duct Lines Cross Under Water Mains, CLSM Shall Be Installed Around Water Main See Water Note 36 on Sheet 14

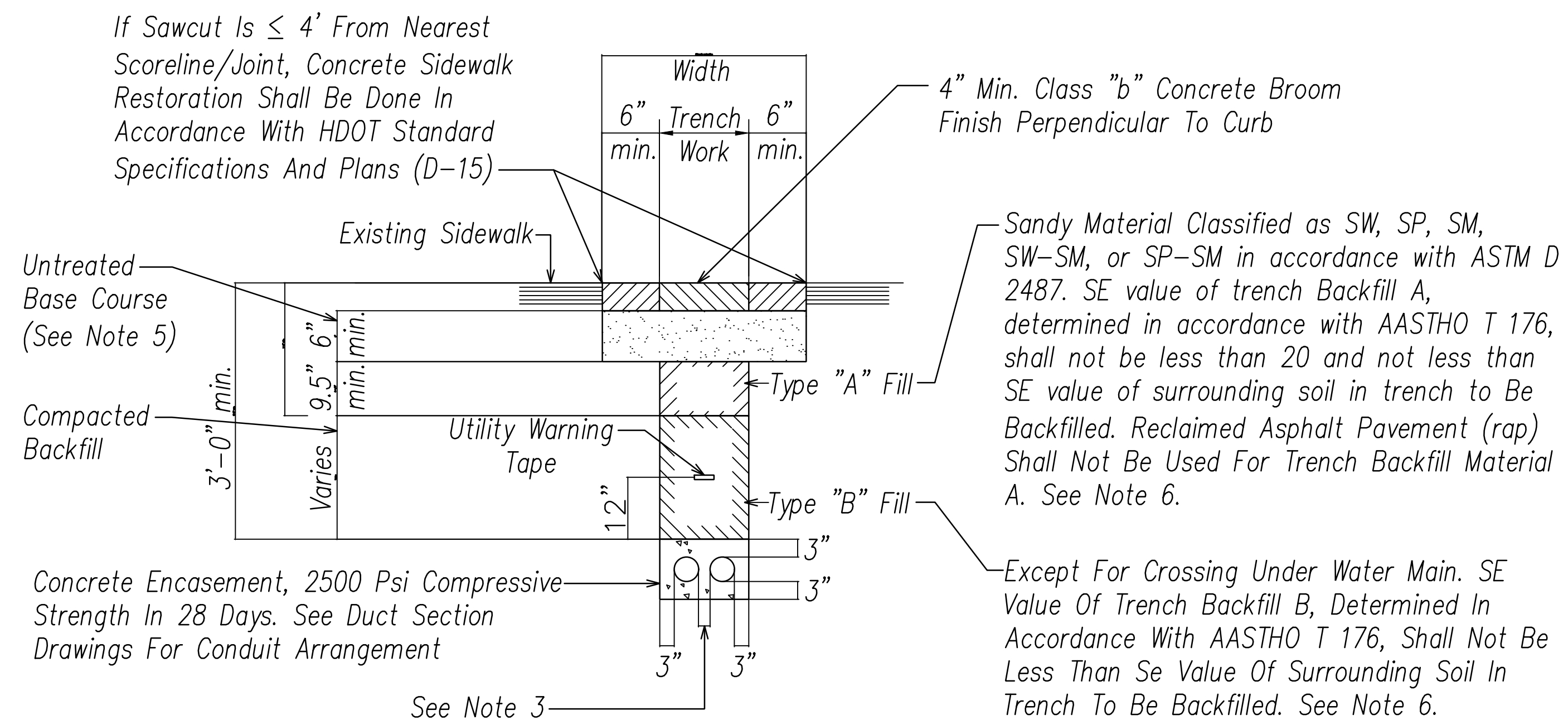


No.	Duct Size	Wire Size	Destination Or Use
1	2"	See One-line Diagram	Secondary Service Cables
2	2"	Pc	Electrical Conduit Stub Out

*Notes:*

1. All Concrete Encased Ducts Shall Be Schedule 40 Pvc.
2. All Direct Buried Ducts Shall Be Schedule 80 Pvc.
3. Pc Indicates Provide Pullcord.

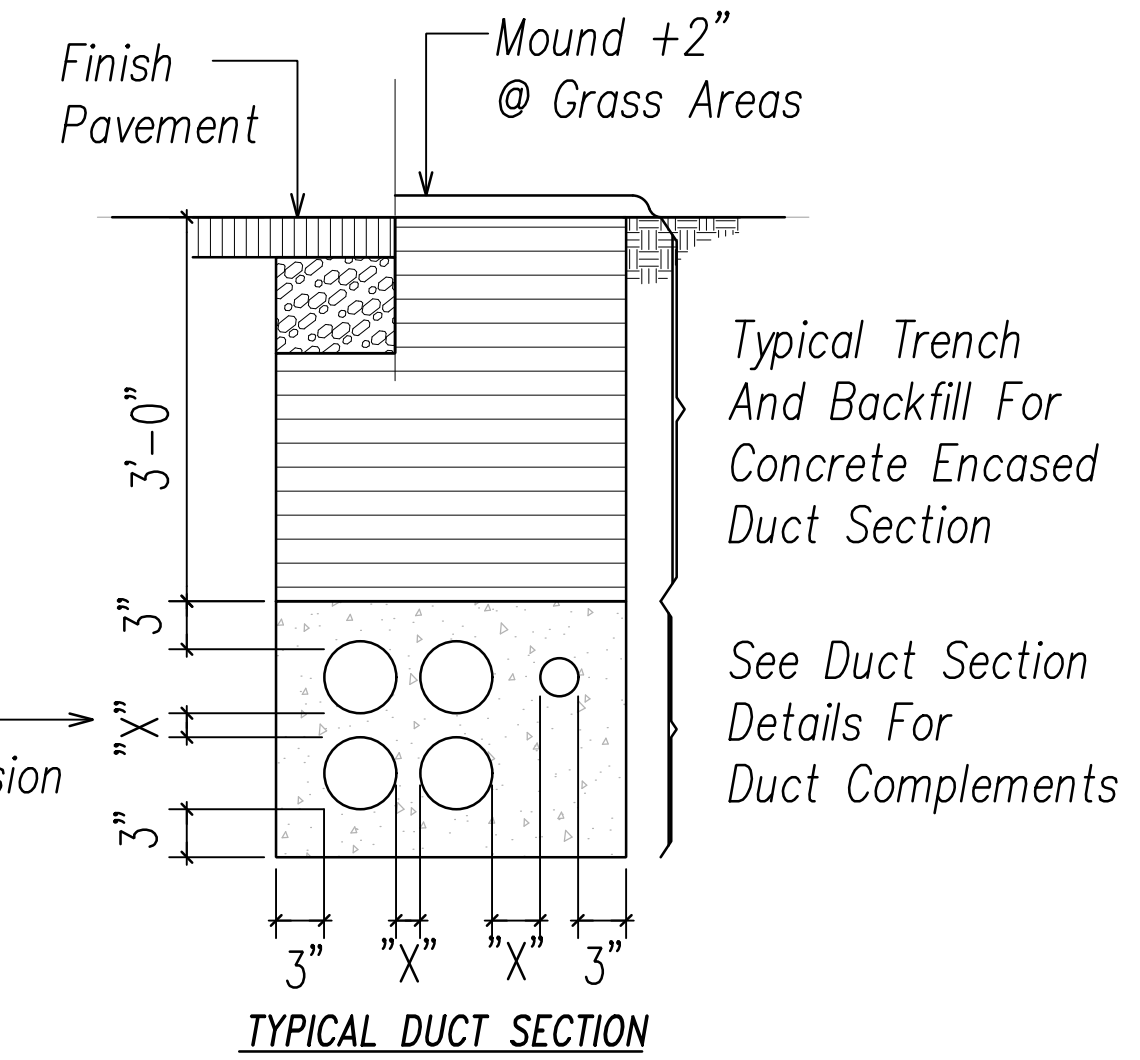
Duct Section Details And Requirements  
 NOT TO SCALE



Notes:

1. Concrete Sidewalk to match existing thicknesses, or minimum thickness shown, whichever is greater, for reinforcement detail at handhole. See HDOT Standard Specifications and Plans (D-15).
2. Electrical and communication ducts similar.
3. Provide 2" Separation between ducts of same system and 3" between ducts of different systems. Provide 6" separation between HECO ducts and other systems.
4. See Duct Section Details for conduit arrangement.
5. Compact to 95% relative compaction.
6. Compact to 90% Relative Compaction.

Typical Concrete And Backfill Restoration Detail



See Note At Left For Minimum Dimension Requirements (Typ)

APPROVED BY \_\_\_\_\_ DATE \_\_\_\_\_

CHIEF, CIVIL ENGINEERING BRANCH  
 DEPT. OF PLANNING & PERMITTING  
 CITY & COUNTY OF HONOLULU  
 (For work in City ROW only)

MANAGER AND CHIEF ENGINEER  
 BOARD OF WATER SUPPLY

Ronald H. Santos, Inc.  
 Electrical Engineers

LICENSED PROFESSIONAL ENGINEER  
 No. 14286-E  
 HAWAII, U.S.A.

This work was prepared by me or under my supervisions and construction of this project will be under my observation.  
 Exp. 04-30-26

*Junius Kato*  
 Signature 2024.09.10

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**DUCT SECTION DETAILS AND REQUIREMENTS**

*Traffic Signal Modernization, Oahu - Phase 2A*  
 Federal-Aid Project No. STP-0300(214)

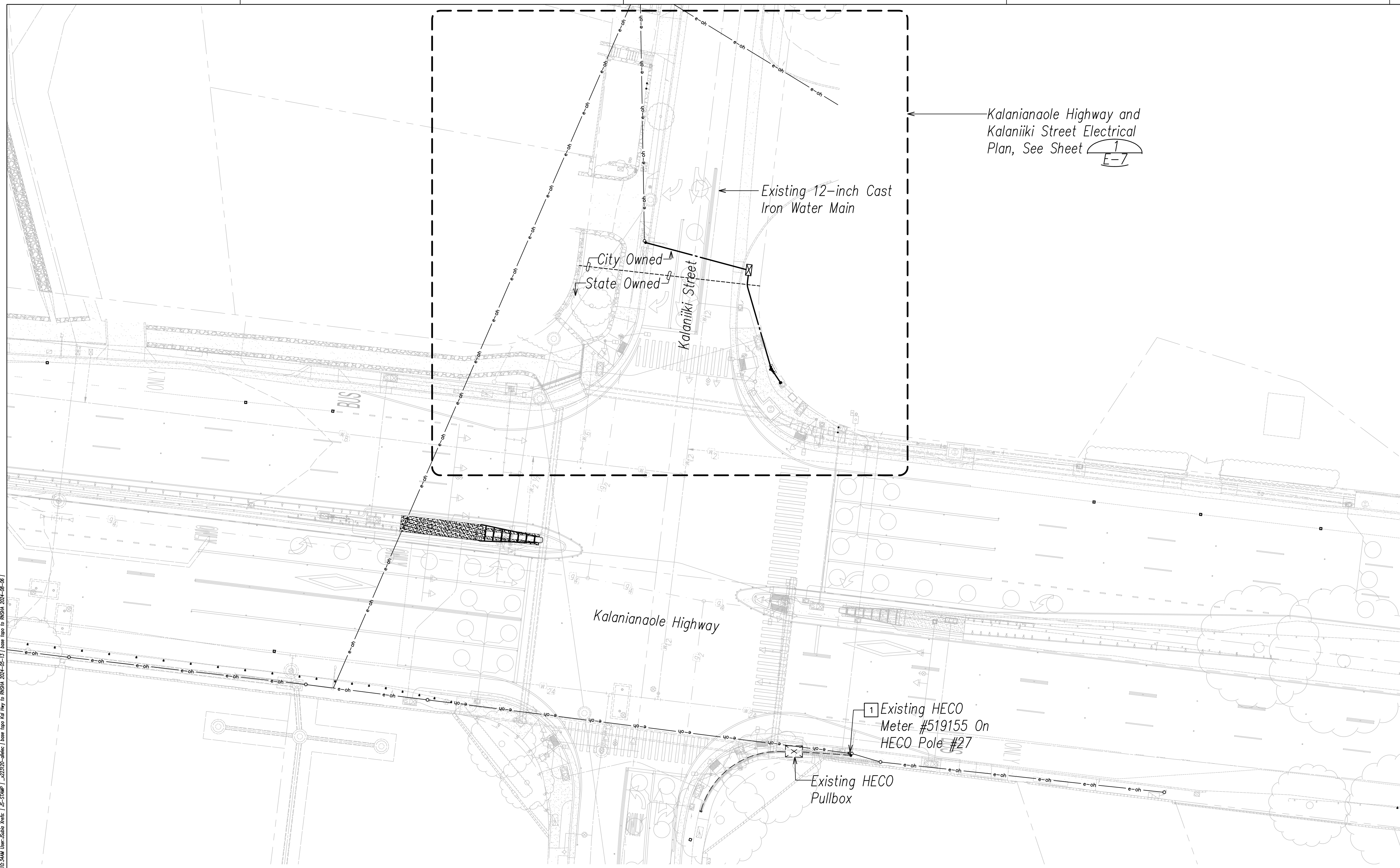
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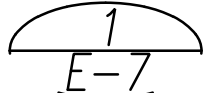
SHEET No. E-5 OF 9 SHEETS

ORIGINAL PLAN	DATE

SURVEY PLOTTED BY \_\_\_\_\_ DATE \_\_\_\_\_  
 DESIGNED BY \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 QUANTITIES BY \_\_\_\_\_  
 No. \_\_\_\_\_  
 ORIGINAL PLAN \_\_\_\_\_  
 NOTE BOOK \_\_\_\_\_  
 No. \_\_\_\_\_  
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	133	149



Kalaniana'ole Highway and Kalaniiki Street Electrical Plan, See Sheet 

Existing 12-inch Cast Iron Water Main

City Owned  
State Owned

Kalaniiki Street

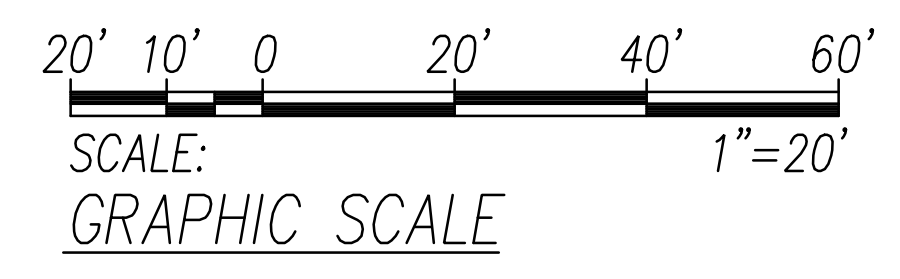
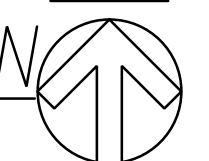
Kalaniana'ole Highway

Existing HECO Meter #519155 On HECO Pole #27

Existing HECO Pullbox

KALANIANA'OLE HIGHWAY OVERALL ELECTRICAL SITE PLAN  
SCALE: 1"=20'

NORTH



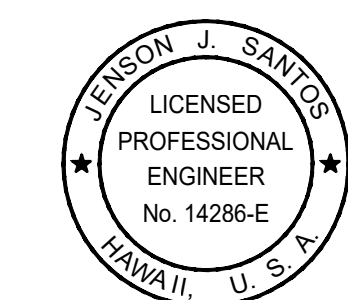
NOTES:

- 1 Existing Meter #519155 To Be Relocated Across The Street And Placed With New Traffic Signal Electrical Equipment

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

File: C:\Users\jguy\OneDrive\Documents\Projects\2024\09\10\_KAHW\10\_KAHW\_Overall\_Electrical\_Site\_Plan.dwg, Plot Date: 2024/09/10, Plot Scale: 1/4"=20', Plot Size: 11.00 x 17.00, Plot Orientation: Landscape, Plot Path: C:\Users\jguy\OneDrive\Documents\Projects\2024\09\10\_KAHW\10\_KAHW\_Overall\_Electrical\_Site\_Plan.dwg, Plot Date: 2024/09/10, Plot Scale: 1/4"=20', Plot Size: 11.00 x 17.00, Plot Orientation: Landscape, Plot Path: C:\Users\jguy\OneDrive\Documents\Projects\2024\09\10\_KAHW\10\_KAHW\_Overall\_Electrical\_Site\_Plan.dwg

Ronald H. Santos & Associates, Inc.  
Electrical Engineers



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Exp. 04-30-26

*Ronson Santos*  
Signature 2024.09.10

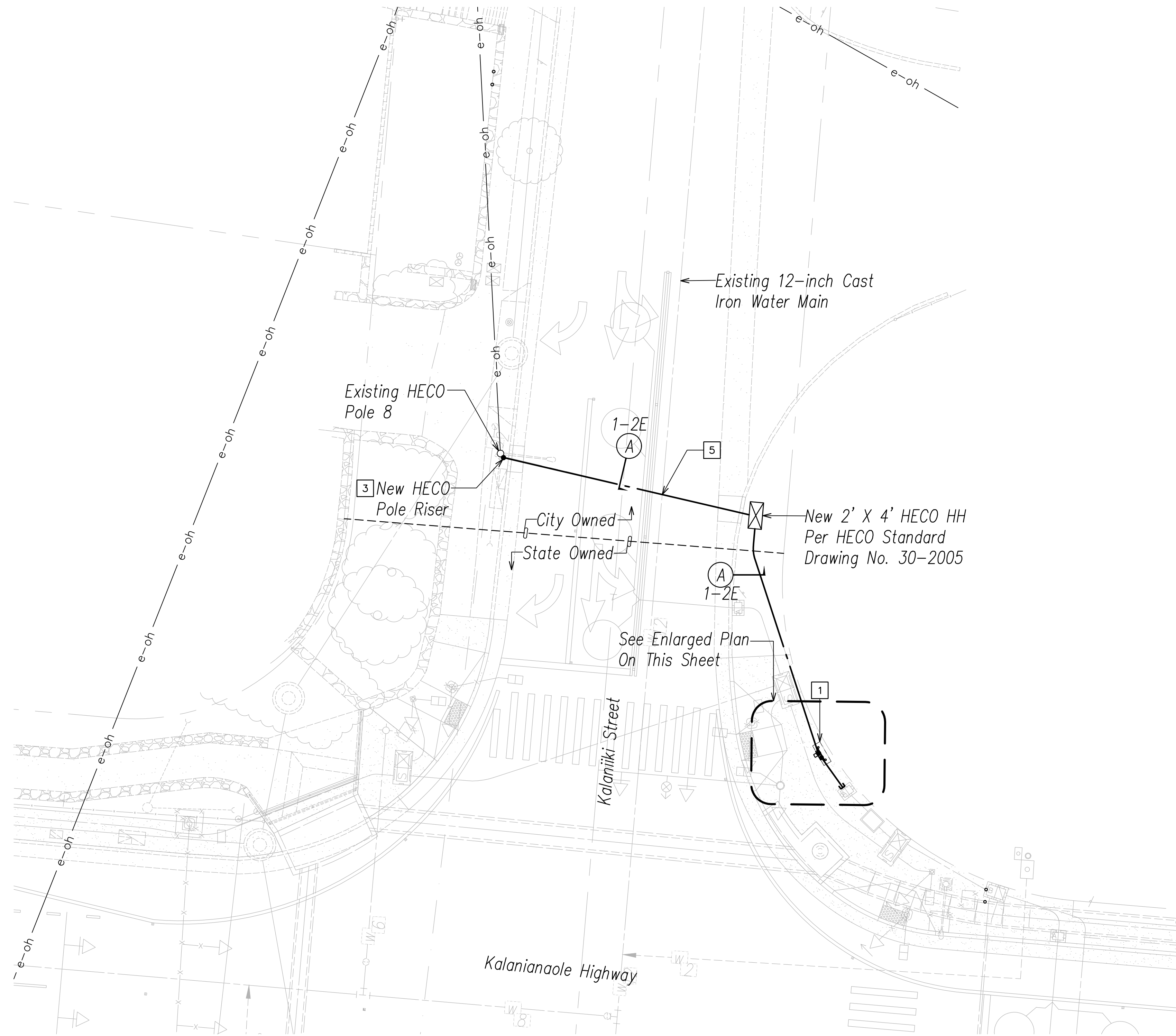
STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**OVERALL ELECTRICAL SITE PLAN**  
**KALANIANA'OLE HIGHWAY**

Traffic Signal Modernization, Oahu - Phase 2A  
Federal-Aid Project No. STP-0300(214)

Scale: As Noted Date: May 2024  
SHEET No. E-6 OF 9 SHEETS

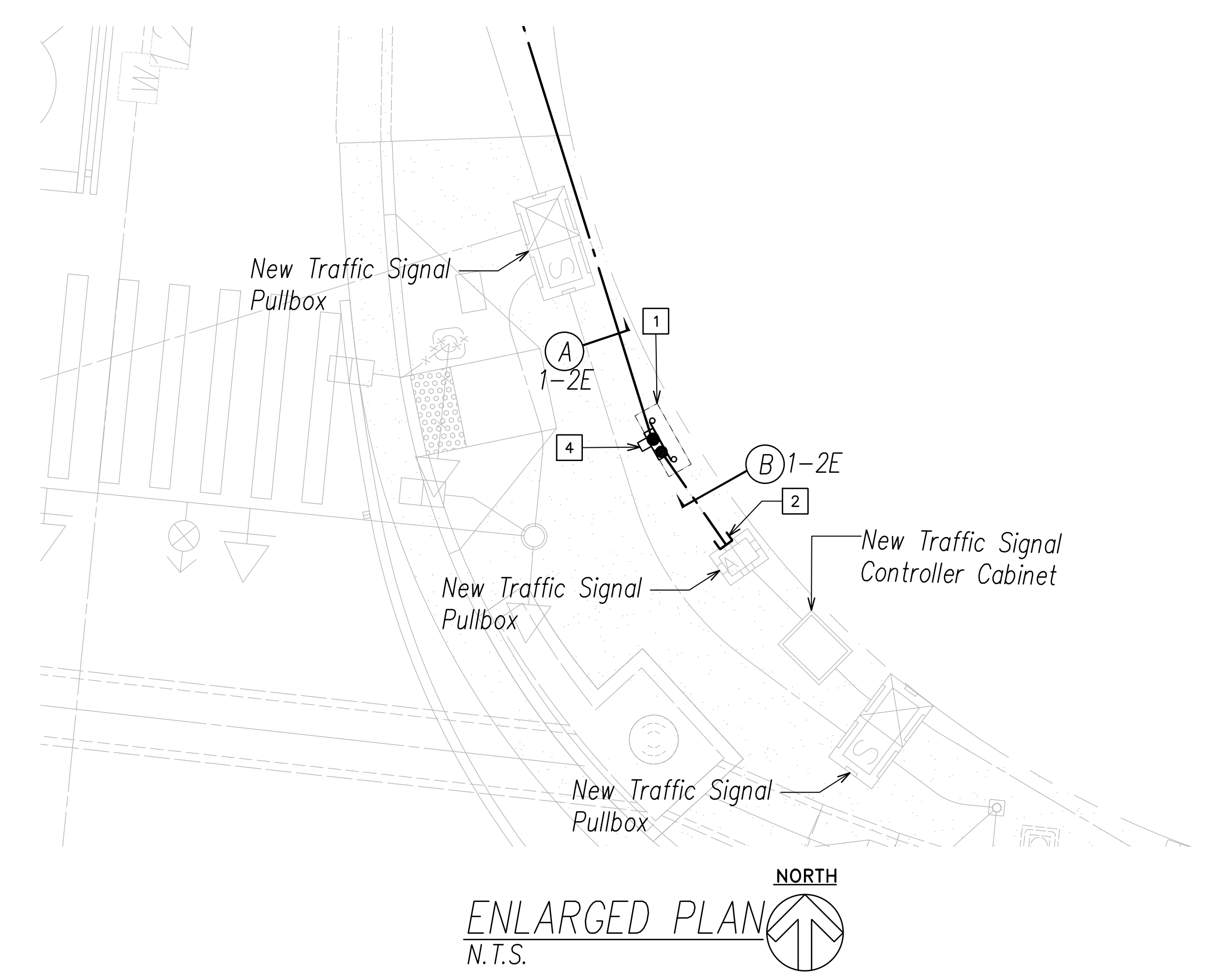
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	134	149



**KALANIANA'OLE HIGHWAY & KALANIKI STREET ELECTRICAL PLAN**  
 SCALE: 1"=10'

**NOTES:**

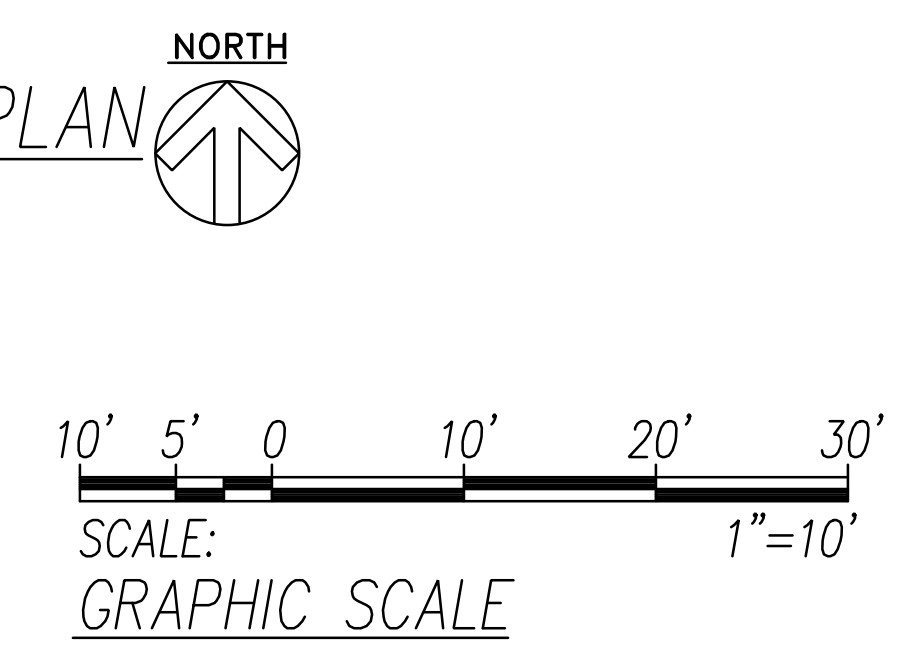
- 1 New Traffic Signal Electrical Equipment, See Detail On Sheet E-8
- 2 Duct Run And Riser Location To Be Determined By HECO Underground Inspector.
- 3 Provide A Riser Stub 12" Minimum up Existing HECO Pole 8.
- 4 Relocated HECO Meter #519155
- 5 New HECO Ductline to Cross Under Existing 12-inch Water Line. See Ductline Profile on Civil Drawing Sheet 109.



**ENLARGED PLAN**  
 N.T.S.

ORIGINAL PLAN No.	DATE
REVISION	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

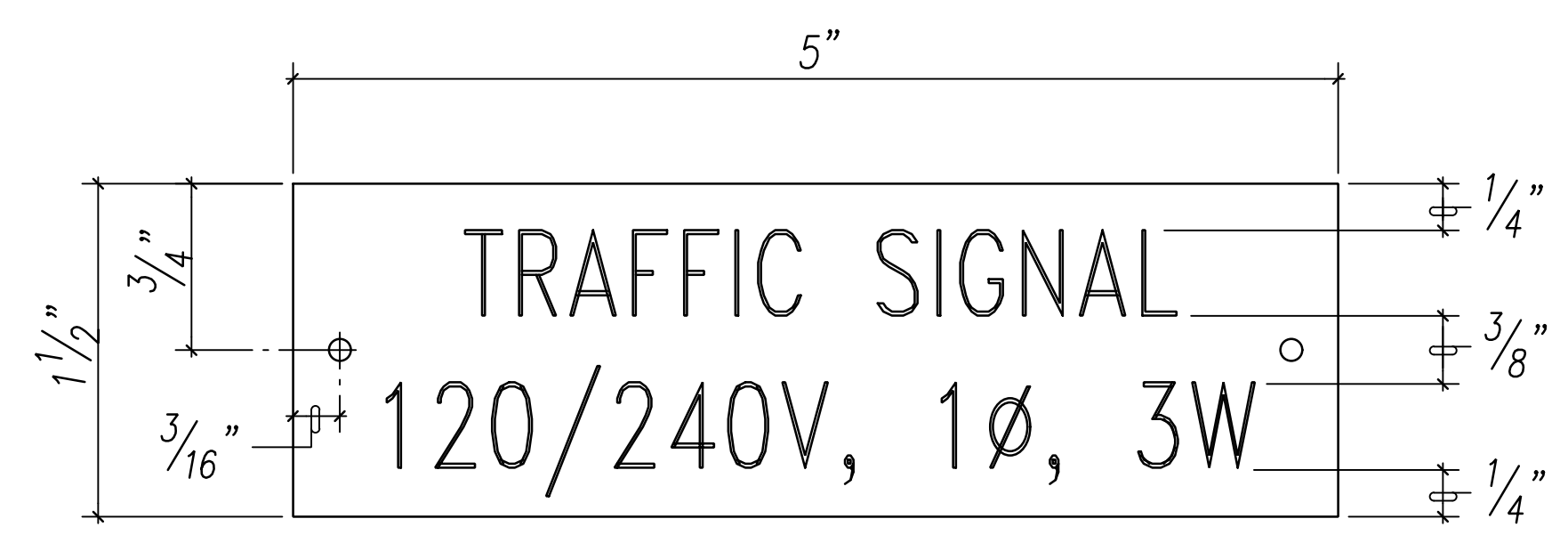
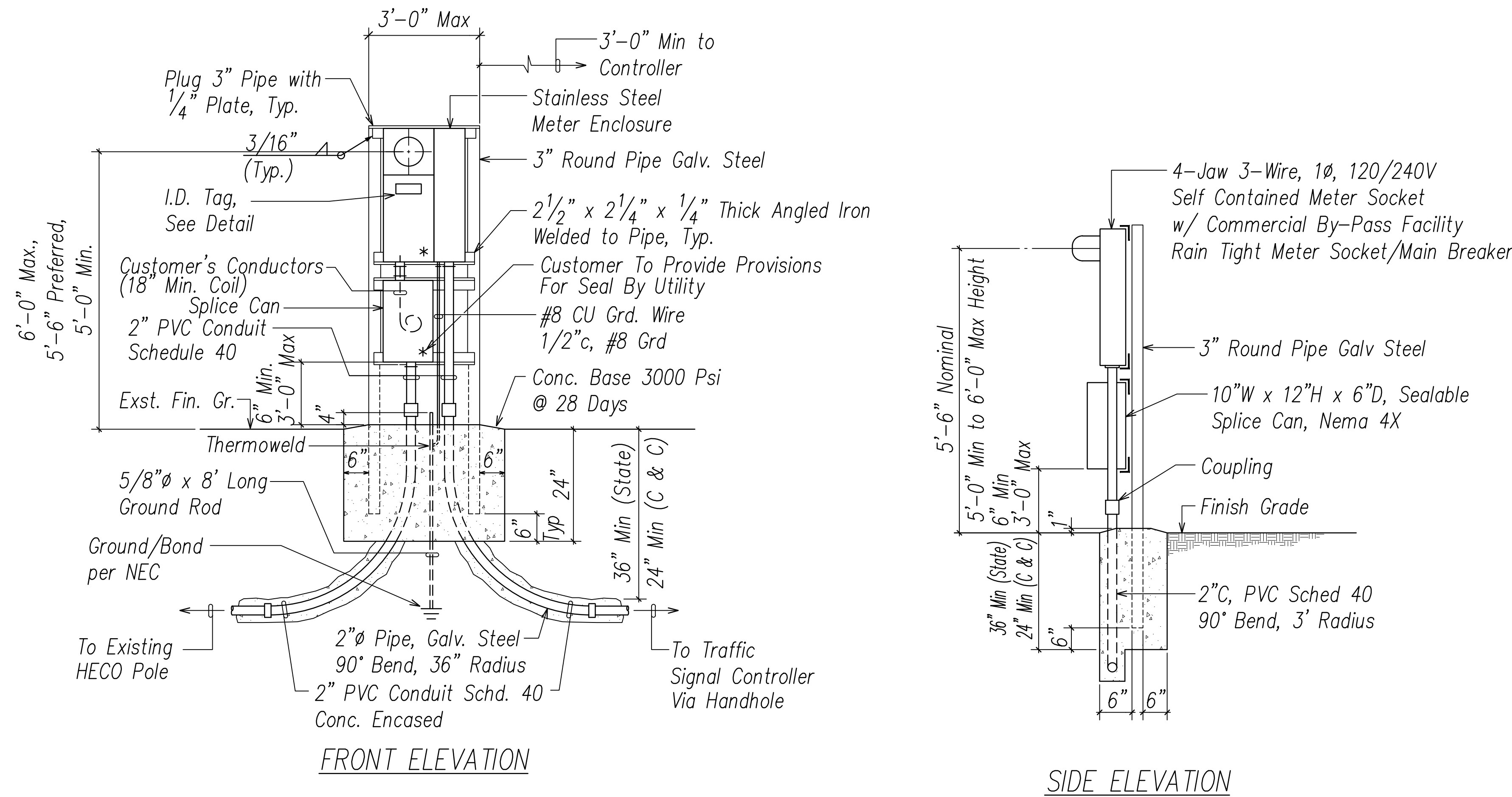
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Ronald H. Santos, Inc.  
 Electrical Engineers  
**ROSEMON J. SANTOS**  
 LICENSED PROFESSIONAL ENGINEER  
 No. 14286-E  
 HAWAII, U.S.A.  
 This work was prepared by me or under my supervisions and construction of this project will be under my observation.  
 Exp. 04-30-26  
*Juanita Santos*  
 Signature 2024.09.10

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**ELECTRICAL PLAN**  
**KALANIANA'OLE HWY & KALANIKI ST**  
*Traffic Signal Modernization, Oahu - Phase 2A*  
 Federal-Aid Project No. STP-0300(214)  
 Scale: As Noted Date: May 2024  
 SHEET No. E-7 OF 9 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(213)	2024	135	149



- NOTES:**
1. Use 2 ply plastic - black, white
  2. Traffic signal letters shall be 3/8" high, 1/16" stroke, (white in color)
  3. 120/240V, 1Ø, 3W letters and numbers shall be 1/4" high and engraved 1/32" wide (white in color)
  4. Attach to meter enclosure with No. 7 stainless steel drive screws.

METER SOCKET I.D. TAG DETAIL  
NOT TO SCALE

TYPICAL TRAFFIC SIGNAL METER INSTALLATION ON STEEL FRAME  
NOT TO SCALE

ORIGINAL PLAN	DATE
NO. _____	_____
DESIGNED BY _____	CHECKED BY _____
QUANTITIES BY _____	

File: C:\Users\jguy\OneDrive\Documents\Projects\2024\2024-09-10\11:13AM\TrafficSignalMeter.dwg, Plot Date: 2024/09/10 11:13AM, User: jguy, Plotter: HP DesignJet 5000, Plot Size: A, Scale: 1:1, Sheet: 1 of 1

Ronald H. Santos & Associates, Inc.  
Electrical Engineers

LICENSED PROFESSIONAL ENGINEER  
No. 14286-E  
HAWAII, U.S.A.

This work was prepared by me or under my supervision and construction of this project will be under my observation.  
Exp. 04-30-26

*Ronald H. Santos*  
Signature 2024.09.10

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**SERVICE EQUIPMENT DETAILS**

*Traffic Signal Modernization, Oahu - Phase 2A*  
Federal-Aid Project No. STP-0300(214)

Scale: As Noted Date: May 2024

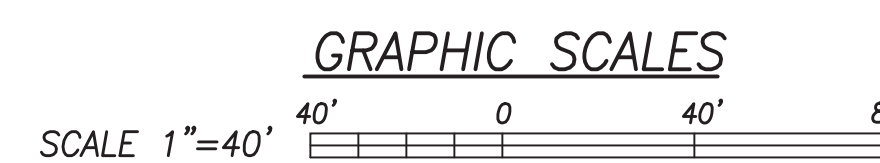
SHEET No. E-8 OF 9 SHEETS



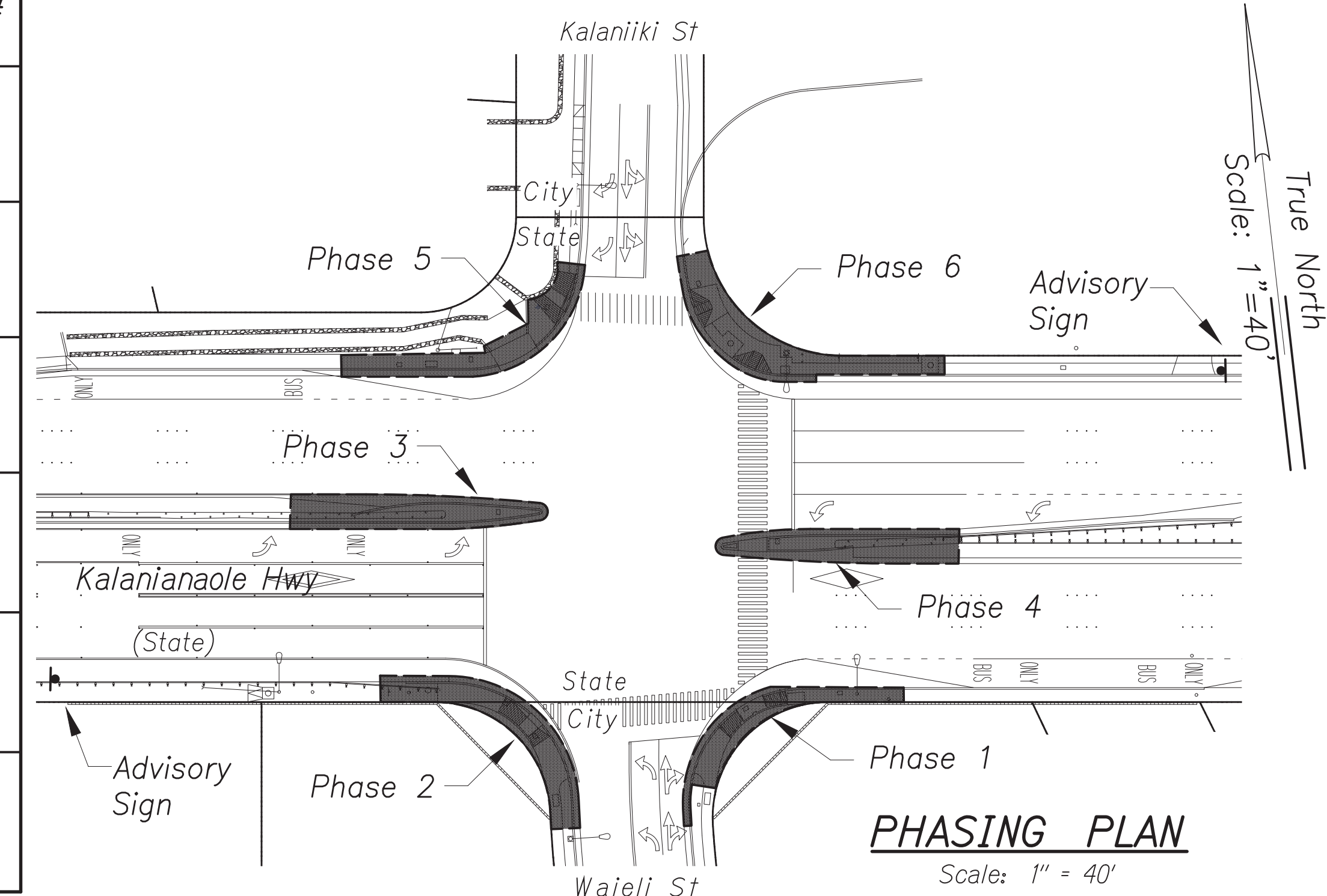


DESCRIPTION OF WORK IN TRAFFIC CONTROL PLAN WORK AREAS

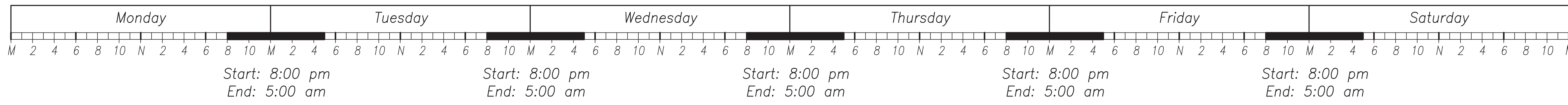
Phase	Work Description	Days of the Week	Lane Closure Hours	Approximate Working Days Duration	Traffic Control Plan/ Detour	Sheet #
1	Install temporary erosion and sediment control measures. Demolish concrete walkway, curb ramps, curb, and gutter at corner. Construct traffic signal equipment, curb, gutter, curb ramps, and sidewalk.	M-F	See Table 2 below	15	1 & 2 1	138 139
2	Demolish sidewalk, curb, and gutter at corner. Construct traffic signal equipment, curb, gutter, and sidewalk.	M-F	See Table 2 below	15	1 & 2 2	138 140
3	Demolish curb and remove existing impact attenuator along median. Construct traffic signal equipment, curb, and new impact attenuator.	M-F	See Table 2 below	20	3 & Detour A	141/142 & 148/149
4	Demolish curb and remove existing impact attenuator along median. Construct traffic signal equipment, curb, and new impact attenuator.	M-F	See Table 2 below	20	4 & Detour A	143/144 & 148/149
5	Demolish concrete sidewalk, curb, and gutter. Construct traffic signal equipment, curb, gutter, curb ramp, and sidewalk.	M-F	See Table 2 below	15	5 5 & 6	145 147
6	Demolish concrete sidewalk, curb, and gutter. Construct traffic signal equipment, curb, gutter, and sidewalk.	M-F	See Table 2 below	15	6 5 & 6	146 147



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	137	149



LANE CLOSURE - Hours of Operation



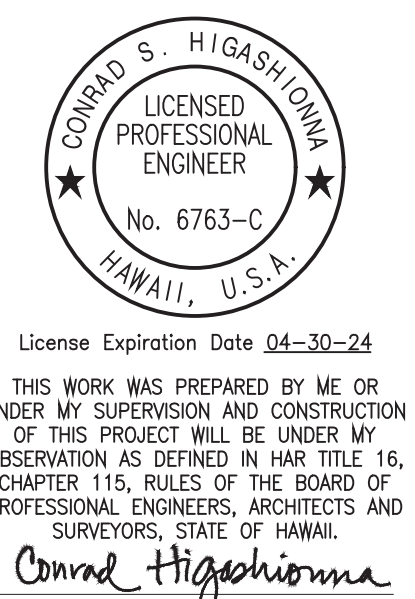
Legend: M Midnight N Noon Lane closure hours

CONSTRUCTION PHASING NOTES:

- The Contractor shall install two (2) advisory signs (as specified in Subsection 645.03(G) Advisory Signs) at the locations shown in the Phasing Plan on this sheet. The Contractor shall make advisory signs as needed to facilitate construction. The final location of all advisory signs shall be designated by the Engineer. The advisory signs shall include a phone number, starting date and hours of construction in sign message. This work shall be incidental to traffic control lump sum and will not be paid for separately.
- The Contractor shall provide three (3) mobile variable message boards for the duration of the project starting one week prior to start of construction to inform the public of lane closures. The location of all message boards shall be designated by the Engineer. Message boards shall be incidental to traffic control lump sum and will not be paid for separately.
- Highway drainage shall be maintained at all times during construction. This work shall be incidental to the contract items.
- During construction, the Contractor shall escort pedestrians through construction work area with police men or with other personnel approved by the Engineer.
- During NON-construction periods, the Contractor shall render the work area safe for pedestrians and provide ADA accessible routes through the work area. This work shall be incidental to the contract items.
- The Contractor shall provide suitable impact attenuators prior to removing existing impact attenuators in the medians for Phases 3 and 4. The Contractor shall provide temporary striping and signing as needed. The Contractor shall submit a plan for approval prior to construction. This work shall be incidental to the contract items.
- If not shown in the project plans, the Contractor shall provide any traffic control plan that is needed to accomplish the work. Submit traffic control plans for review and approval. This work shall be considered incidental to lump sum pay item 645.1000 and shall not be paid for separately.
- If the traffic control plan or any traffic control device is not installed per manufacturer's recommendation, plan, or specification, or is deemed unsafe, work may be shut down at no additional cost/time and payment withheld. Lane closures that are unauthorized or not on the approved lane closure schedule will not be allowed and shall be subject to rental fees in accordance with Specification Section 108.09.
- The Contractor shall implement the following conservation measures:
  - Fully shield all outdoor lights so the bulb can only be seen from below bulb height and only use when necessary.
  - Install automatic motion sensor switch and timer controls on all outdoor lights or turn off lights when human activity is not occurring in the lighted area.
  - Nighttime construction shall not occur during the seabird fledging period between September 15 and December 15.

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

Oct 10, 2024 - 2:02pm  
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APPROVED BY: \_\_\_\_\_  
 Date: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC CONTROL PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

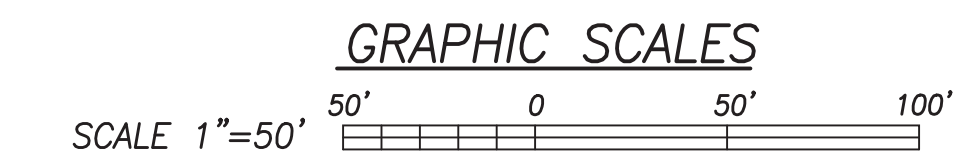
Scale: As noted Date: August 2024

SHEET No. 1 OF 13 SHEETS



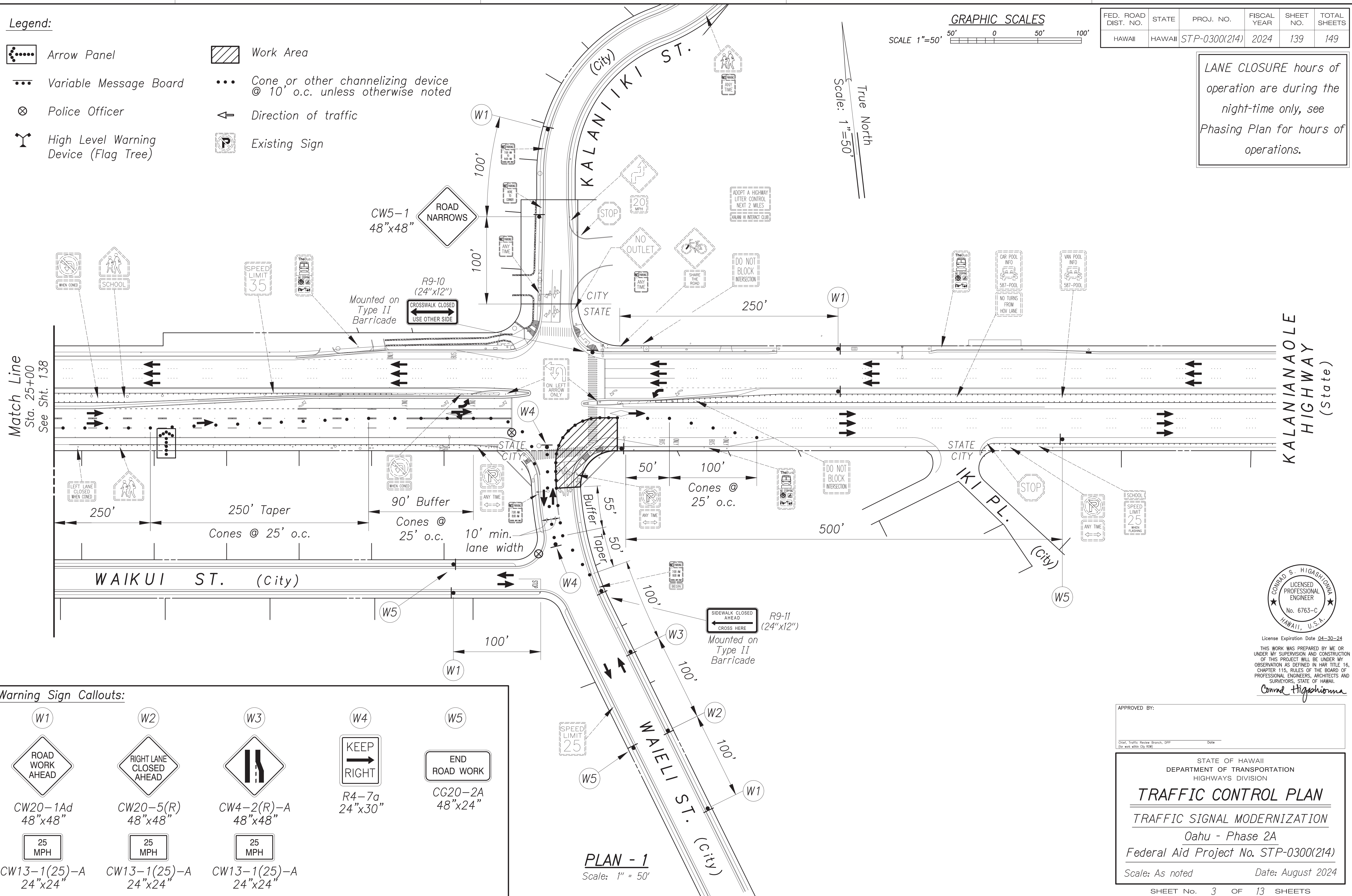
**Legend:**

- Arrow Panel
- Variable Message Board
- Police Officer
- High Level Warning Device (Flag Tree)
- Work Area
- Cone or other channelizing device @ 10' o.c. unless otherwise noted
- Direction of traffic
- Existing Sign



FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	139	149

LANE CLOSURE hours of operation are during the night-time only, see Phasing Plan for hours of operations.



**Warning Sign Callouts:**

 CW20-1Ad 48"x48"	 CW20-5(R) 48"x48"	 CW4-2(R)-A 48"x48"	 R4-7a 24"x30"	 CG20-2A 48"x24"
 CW13-1(25)-A 24"x24"	 CW13-1(25)-A 24"x24"	 CW13-1(25)-A 24"x24"		

DATE	BY

SURVEY PLOTTED BY \_\_\_\_\_  
 DESIGNED BY \_\_\_\_\_  
 QUANTITIES BY \_\_\_\_\_  
 CHECKED BY \_\_\_\_\_  
 ORIGINAL PLAN NO. \_\_\_\_\_  
 NOTE BOOK NO. \_\_\_\_\_

CONRAD S. HIGASHIMURA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6763-C  
 HAWAII, U.S.A.  
 License Expiration Date 04-30-24  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.  
 Conrad Higashimura

APPROVED BY: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC CONTROL PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024  
 SHEET No. 3 OF 13 SHEETS

**PLAN - 1**  
Scale: 1" = 50'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	140	149

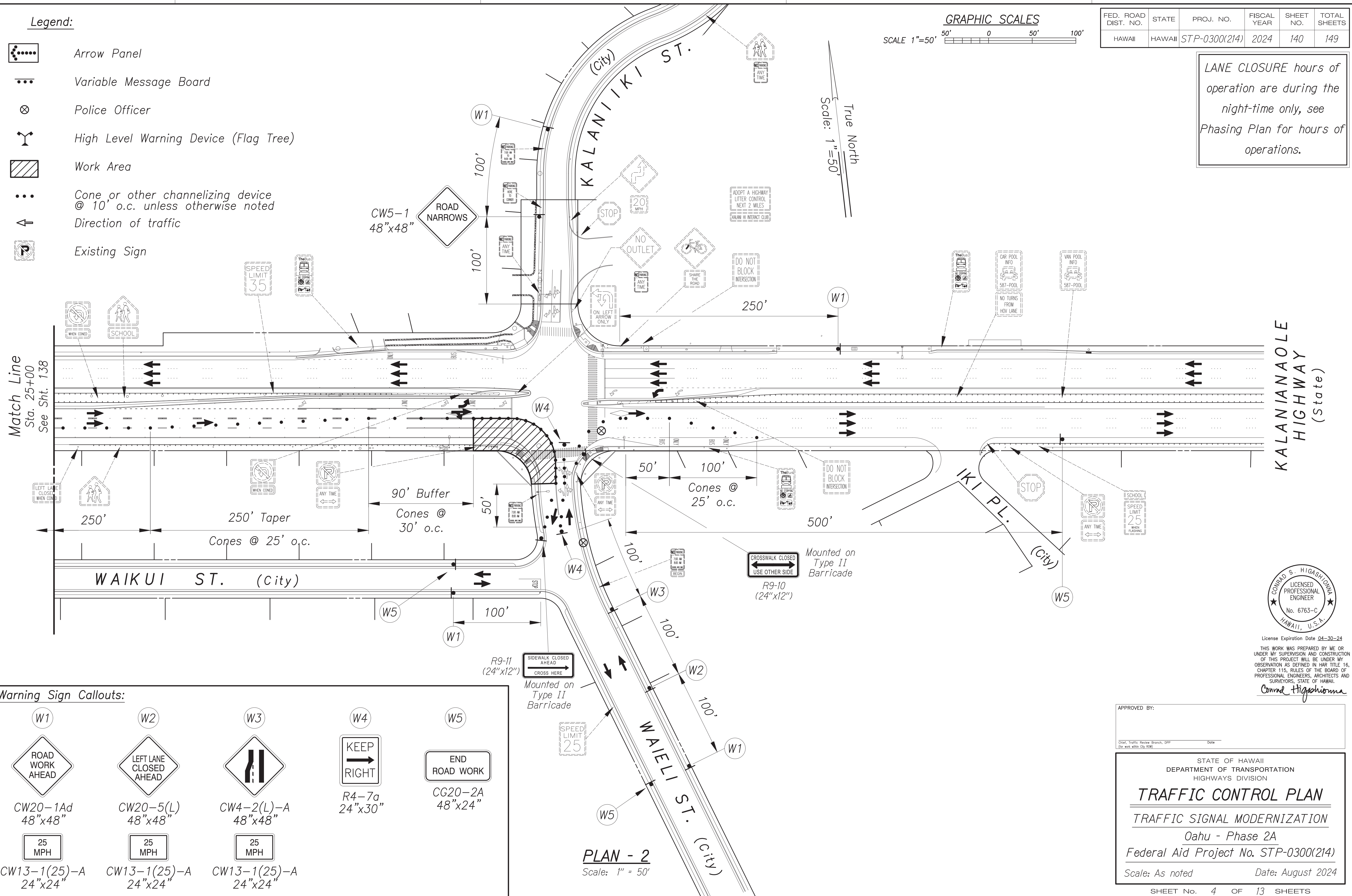
**GRAPHIC SCALES**



LANE CLOSURE hours of operation are during the night-time only, see Phasing Plan for hours of operations.

**Legend:**

- Arrow Panel
- Variable Message Board
- Police Officer
- High Level Warning Device (Flag Tree)
- Work Area
- Cone or other channelizing device @ 10' o.c. unless otherwise noted
- Direction of traffic
- Existing Sign

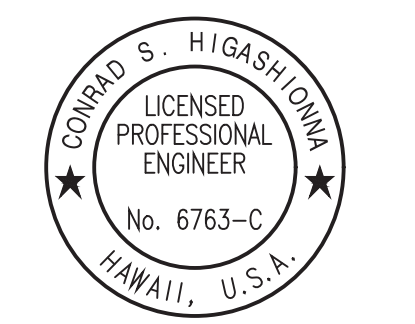


**Warning Sign Callouts:**

 CW20-1Ad 48"x48"	 CW20-5(L) 48"x48"	 CW4-2(L)-A 48"x48"	 R4-7a 24"x30"	 CG20-2A 48"x24"
 CW13-1(25)-A 24"x24"	 CW13-1(25)-A 24"x24"	 CW13-1(25)-A 24"x24"		

DATE	BY

SURVEY PLOTTED BY: \_\_\_\_\_  
 DESIGNED BY: \_\_\_\_\_  
 QUANTITIES BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 ORIGINAL PLAN NO. \_\_\_\_\_  
 NOTE BOOK NO. \_\_\_\_\_



License Expiration Date 04-30-24  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.  
 Conrad Higashimura

APPROVED BY: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

**TRAFFIC CONTROL PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 4 OF 13 SHEETS

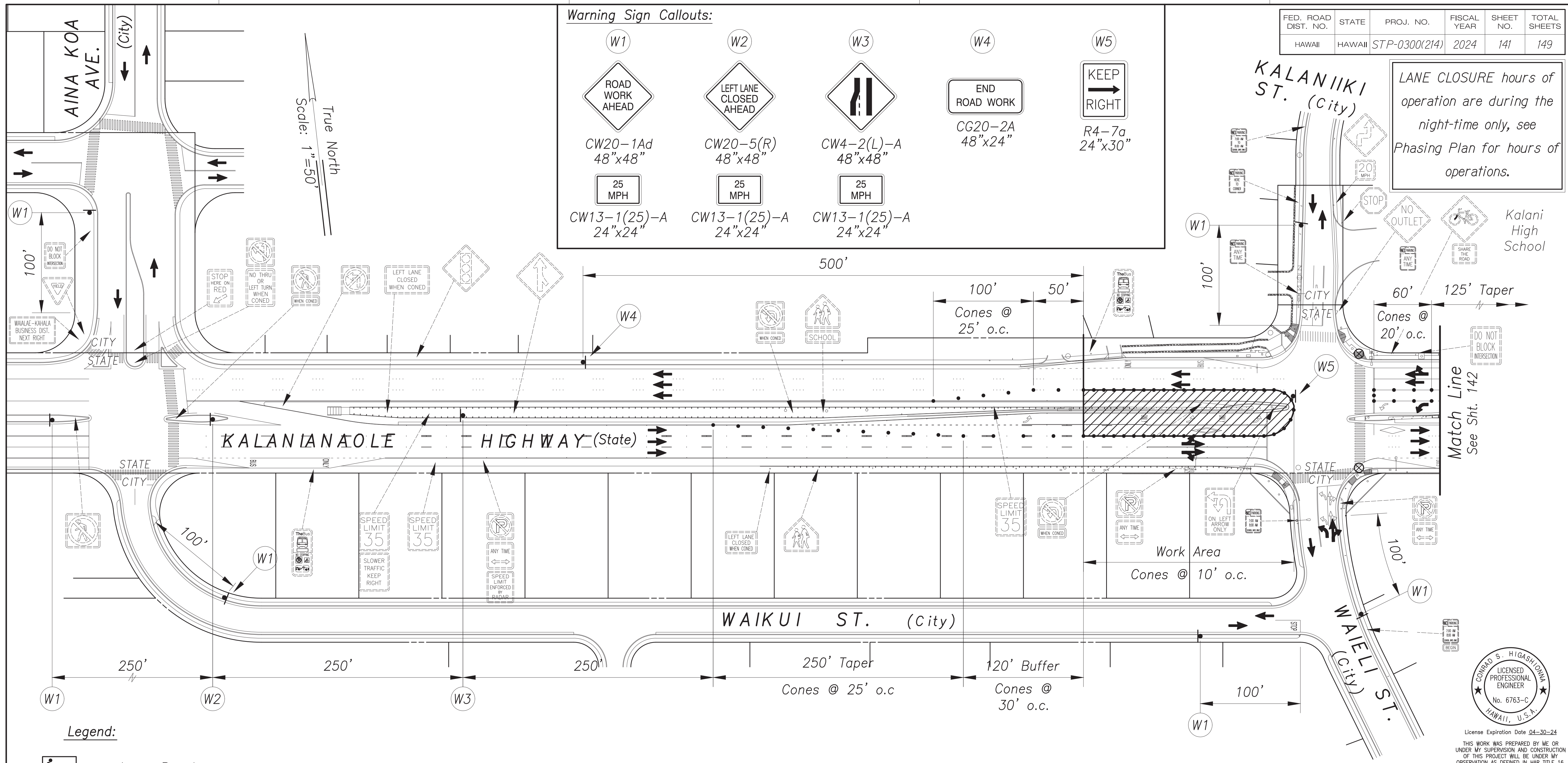
**PLAN - 2**  
 Scale: 1" = 50'

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	141	149

**Warning Sign Callouts:**

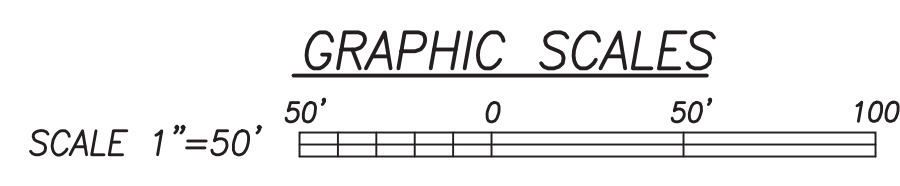
<b>W1</b>  CW20-1Ad 48"x48"  CW13-1(25)-A 24"x24"	<b>W2</b>  CW20-5(R) 48"x48"  CW13-1(25)-A 24"x24"	<b>W3</b>  CW4-2(L)-A 48"x48"  CW13-1(25)-A 24"x24"	<b>W4</b>  CG20-2A 48"x24"	<b>W5</b>  R4-7a 24"x30"
---	--	---	-------------------------------------	-----------------------------------

LANE CLOSURE hours of operation are during the night-time only, see Phasing Plan for hours of operations.



- Legend:**
- Arrow Panel
  - Variable Message Board
  - Police Officer
  - High Level Warning Device (Flag Tree)
  - Work Area
  - Cone or other channelizing device @ 10' o.c. unless otherwise noted
  - Direction of traffic
  - Existing Sign

**PLAN - 3**  
Scale: 1" = 50'



DATE	BY

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

CONRAD S. HIGASHIMURA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6763-C  
 HAWAII, U.S.A.  
 License Expiration Date 04-30-24  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.  
 Conrad Higashimura

APPROVED BY: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC CONTROL PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024  
 SHEET No. 5 OF 13 SHEETS







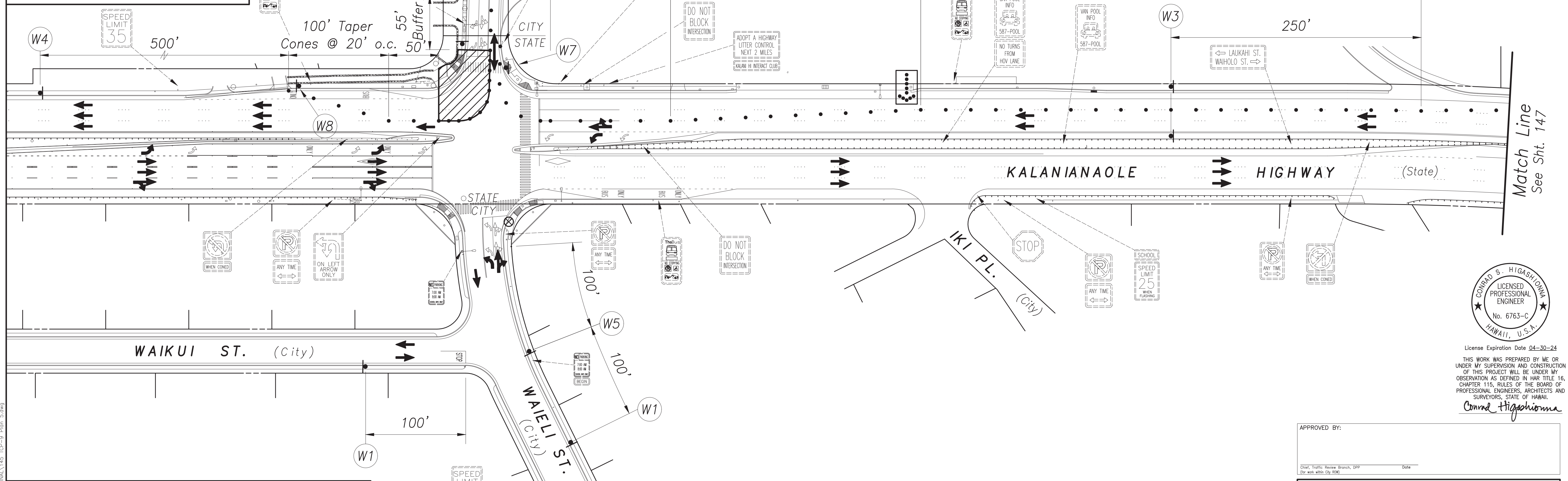


FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	145	149

LANE CLOSURE hours of operation are during the night-time only, see Phasing Plan for hours of operations.

**Warning Sign Callouts:**

<p>W1</p> <p>ROAD WORK AHEAD CW20-1Ad 48"x48"</p>	<p>W2</p> <p>RIGHT TWO LANES CLOSED AHEAD CW20-5 48"x48"</p>	<p>W3</p> <p>NARROW ROAD AHEAD CW4-2(R)-A 48"x48"</p>
<p>25 MPH</p> <p>CW13-1(25)-A 24"x24"</p>	<p>25 MPH</p> <p>CW13-1(25)-A 24"x24"</p>	<p>25 MPH</p> <p>CW13-1(25)-A 24"x24"</p>
<p>W4</p> <p>END ROAD WORK CG20-2A 48"x24"</p>	<p>W5</p> <p>ONE LANE ROAD AHEAD CW20-4 48"x48"</p>	



**Legend:**

- Arrow Panel
- Variable Message Board
- Police Officer
- High Level Warning Device (Flag Tree)
- Work Area
- Cone or other channelizing device @ 10' o.c. unless otherwise noted
- Direction of traffic
- Existing Sign

**GRAPHIC SCALES**  
SCALE 1"=50'

**Warning Sign Callouts:**

<p>W6</p> <p>SIDEWALK CLOSED CW20-7 48"x48"</p>	<p>W7</p> <p>CROSSWALK CLOSED USE OTHER SIDE R9-10 (24"x12") Mounted on Type II Barricade</p>	<p>W8</p> <p>SIDEWALK CLOSED R9-9 48"x24"</p>
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**PLAN - 5**  
Scale: 1" = 50'

DATE	BY

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

Oct 10, 2024 - 2:05pm  
C:\Users\higashi\OneDrive\Desktop\CD\2404\_TSM\_Phase\_2A\FINAL\_145\_TCP-9\_Plan\_5.dwg

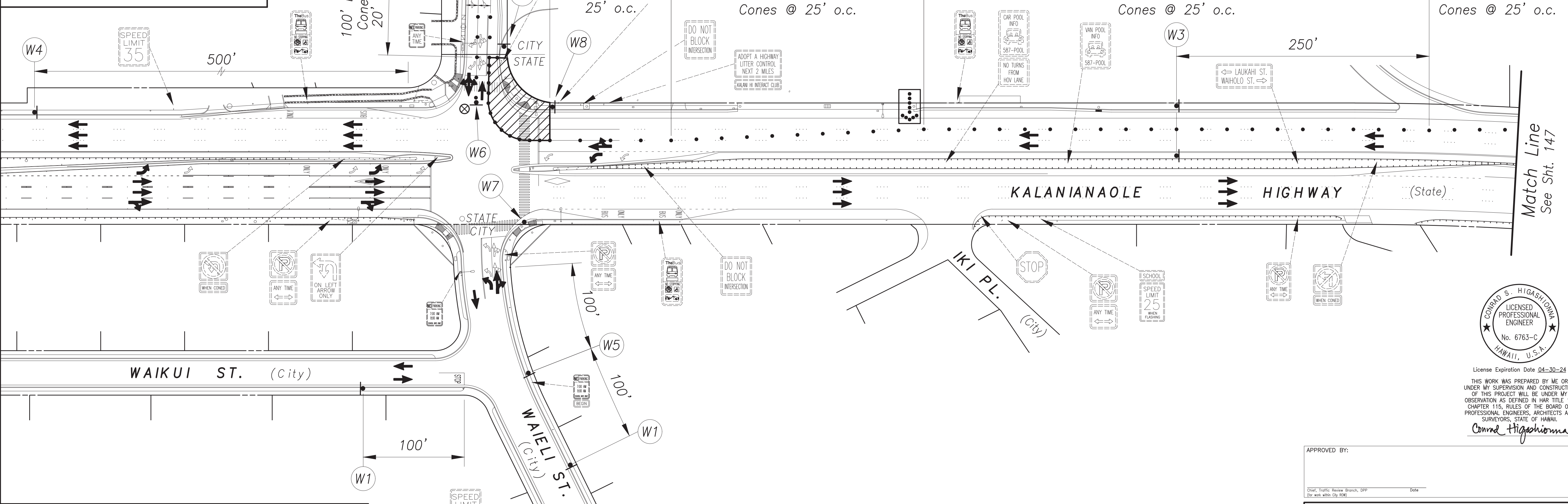
CONRAD S. HIGASHI, D.M.A.  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6763-C  
 HAWAII, U.S.A.  
 License Expiration Date 04-30-24  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN H.A.R. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.  
 Conrad Higashima

APPROVED BY: \_\_\_\_\_ Date: \_\_\_\_\_

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION  
**TRAFFIC CONTROL PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)  
 Scale: As noted Date: August 2024  
 SHEET No. 9 OF 13 SHEETS

Warning Sign Callouts:

<p>W1</p> <p>ROAD WORK AHEAD</p> <p>CW20-1Ad 48"x48"</p> <p>25 MPH</p> <p>CW13-1(25)-A 24"x24"</p>	<p>W2</p> <p>RIGHT TWO LANES CLOSED AHEAD</p> <p>CW20-5 48"x48"</p> <p>25 MPH</p> <p>CW13-1(25)-A 24"x24"</p>	<p>W3</p> <p>NARROW ROAD AHEAD</p> <p>CW4-2(R)-A 48"x48"</p> <p>25 MPH</p> <p>CW13-1(25)-A 24"x24"</p>
<p>W4</p> <p>END ROAD WORK</p> <p>CG20-2A 48"x24"</p>	<p>W5</p> <p>ROAD NARROWS</p> <p>CW5-1 48"x48"</p>	

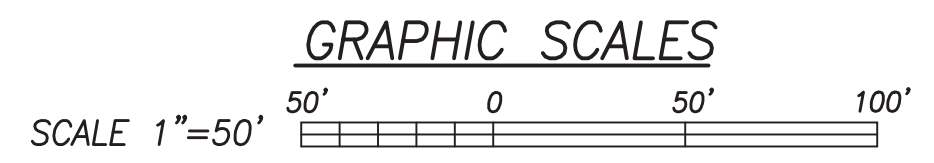


Legend:

- Arrow Panel
- Variable Message Board
- Police Officer
- High Level Warning Device (Flag Tree)
- Work Area
- Cone or other channelizing device @ 10' o.c. unless otherwise noted
- Direction of traffic
- Existing Sign

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	146	149

LANE CLOSURE hours of operation are during the night-time only, see Phasing Plan for hours of operations.



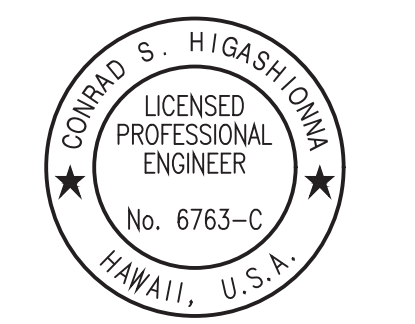
Warning Sign Callouts:

<p>W6</p> <p>KEEP RIGHT</p> <p>R4-7a 24"x30"</p>	<p>W7</p> <p>CROSSWALK CLOSED USE OTHER SIDE</p> <p>R9-10 (24"x12") Mounted on Type II Barricade</p>	<p>W8</p> <p>SIDEWALK CLOSED</p> <p>R9-9 (24"x12") Mounted on Type II Barricade</p>
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PLAN - 6  
Scale: 1" = 50'

DATE	BY

SURVEY PLOTTED BY  
 CHECKED BY  
 TRACED BY  
 DESIGNED BY  
 QUANTITIES BY  
 NOTE BOOK  
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 Conrad Higashimura

APPROVED BY: \_\_\_\_\_  
 Date: \_\_\_\_\_  
Sheet Traffic Review Branch, DHP  
 1/16/2024 10:00 AM

STATE OF HAWAII  
 DEPARTMENT OF TRANSPORTATION  
 HIGHWAYS DIVISION

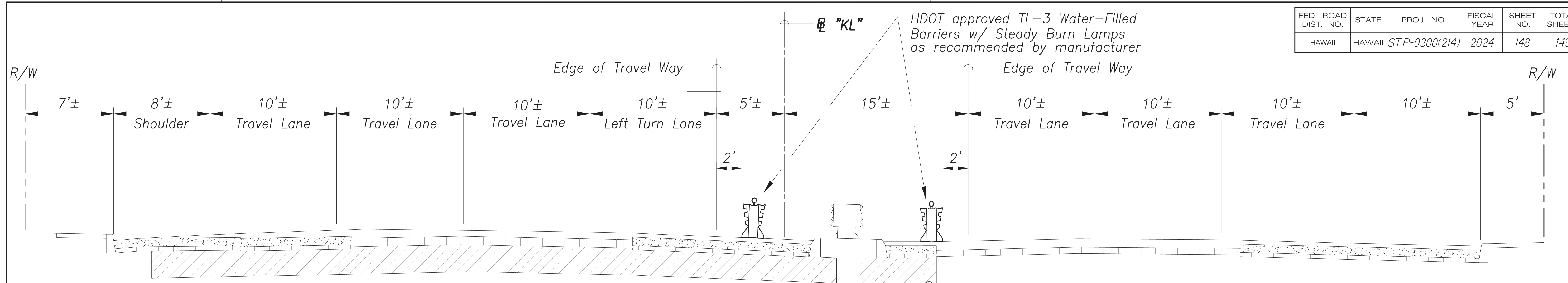
**TRAFFIC CONTROL PLAN**  
**TRAFFIC SIGNAL MODERNIZATION**  
 Oahu - Phase 2A  
 Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

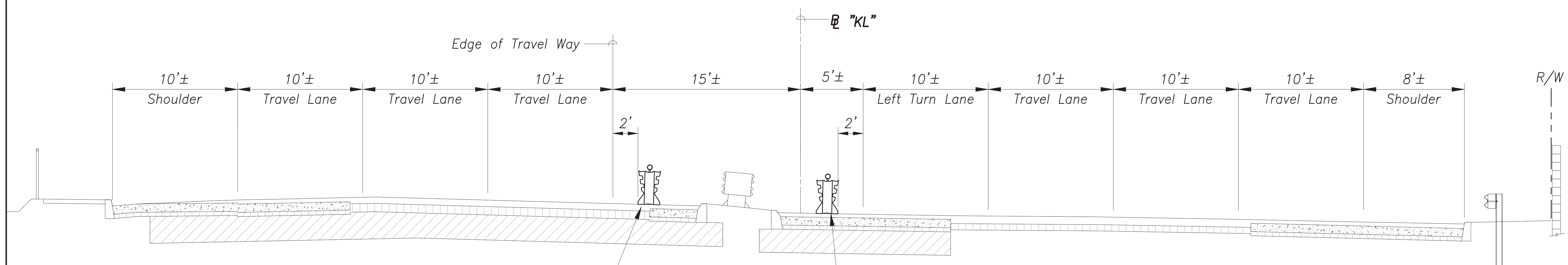




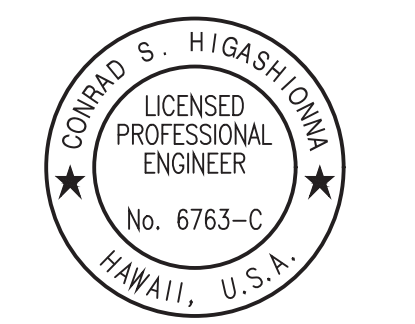
FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	STP-0300(214)	2024	148	149



**SECTION - B**  
Scale: 1" = 4'



**SECTION - A**  
Scale: 1" = 4'



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*Conrad Higashinoma*

ORIGINAL PLAN	DATE
DESIGNED BY	
TRACED BY	
QUANTITIES BY	
CHECKED BY	

Oct 10, 2024 - 2:04pm  
 C:\Users\jgammeter\Desktop\CD\2404 TSM Phase 2A\FINAL\148 TSP-13 Detail A.dwg



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

**TRAFFIC CONTROL PLAN**

**TRAFFIC SIGNAL MODERNIZATION**

Oahu - Phase 2A

Federal Aid Project No. STP-0300(214)

Scale: As noted Date: August 2024

SHEET No. 13 OF 13 SHEETS