

Notes:

- 1

One traffic signal controller operates the signal systems at the intersections of:
 - Koko Head Avenue with Pahoa Avenue
 - Koko Head Avenue with H-1 Exit 26A
- 2

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.
- 3

Deliver salvaged equipment to C&C of Honolulu, Dept. of Transportation Services, Traffic Signal & Technology baseyard at 999 Makolu Street (ph: 768-5323).
- 4

Existing HECO meter, signal power source to remain.
- 5

Existing traffic signal standard to remain.
- 6

Existing pullbox to remain.
- 7

Existing traffic signal duct to remain.
- 8

Existing loop detector to remain.
- 9

Existing cabinet for traffic camera system to remain.
- 10

Existing duct for traffic camera system to remain.
- 11

Existing traffic camera mounted on highway light standard to remain.
- 12

Existing traffic signal system within City right-of-way 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. Remove entire ductline and concrete encasement within State right-of-way.
- D4

Remove traffic signal cables. Abandon ductline and concrete encasement within State right-of-way. Fill conduits with lean concrete.
- D5

Remove traffic signal cables. The Contractor shall verify conduit material. Abandon asbetos-cement conduits in place and fill with lean concrete. Steel ducts may be demolished and removed to facilitate construction.
- D6

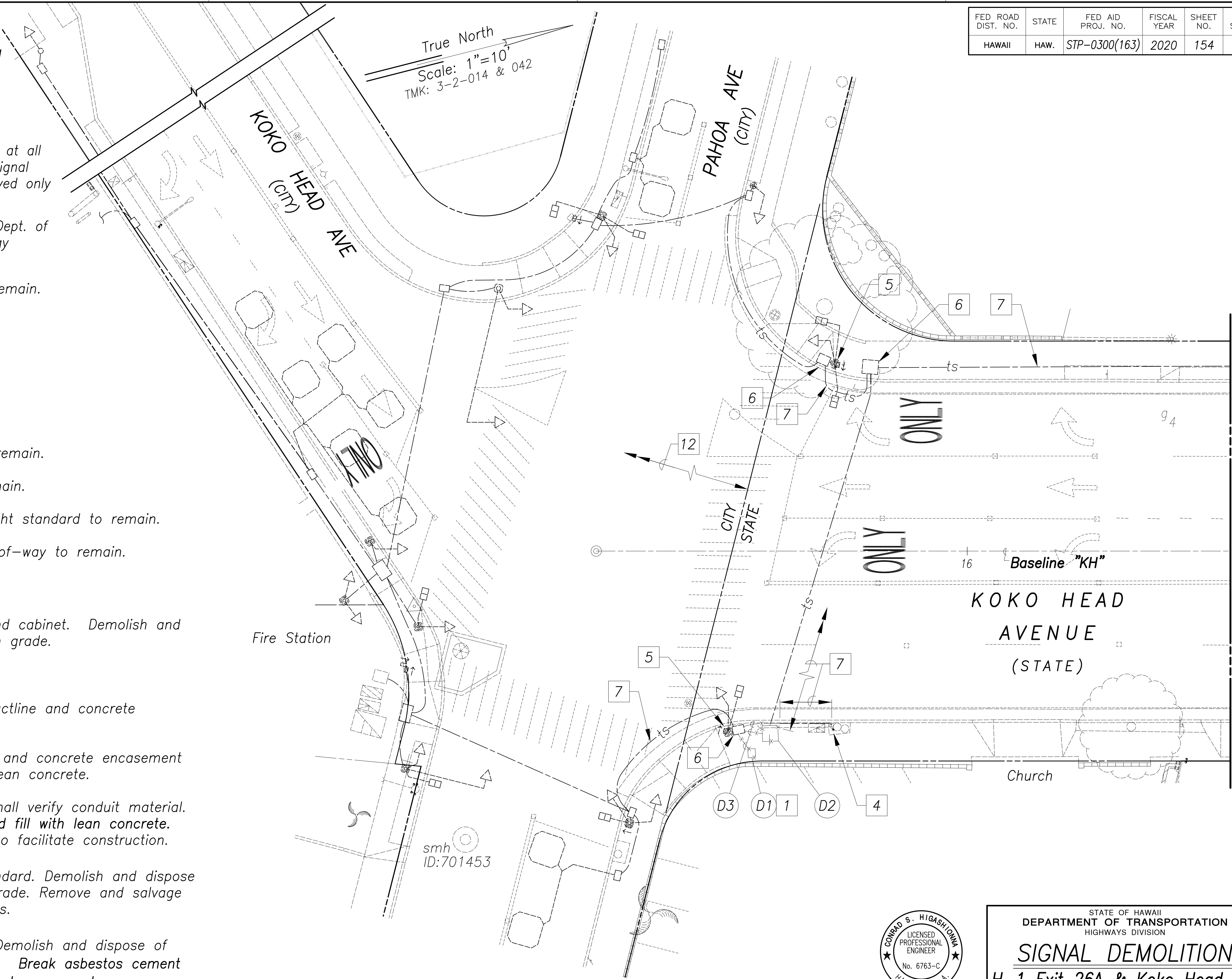
Remove and salvage existing traffic signal standard. Demolish and dispose of concrete foundation two feet below finish grade. Remove and salvage traffic signal heads and pedestrian signal heads.
- D7

Remove and salvage traffic signal standard. Demolish and dispose of concrete foundation 4" below with finish grade. Break asbestos cement ducts 4" below with finish grade and plug with lean concrete.
- D8

Remove and salvage cabinet. Demolish and dispose of concrete foundation.
- D9

Abandon vehicle detectors in place.

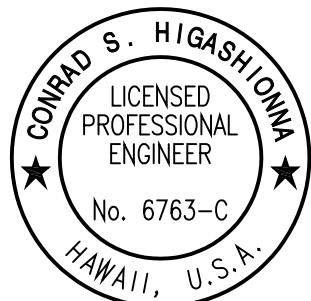
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	154	284



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

Aug 28, 2020-13:30m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\154 Signal Demolition H 1.dwg

Approved By:
Chief, Traffic Signals & Technology, DTS
Date



License Expiration Date 04-30-22
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

SIGNAL DEMOLITION
H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

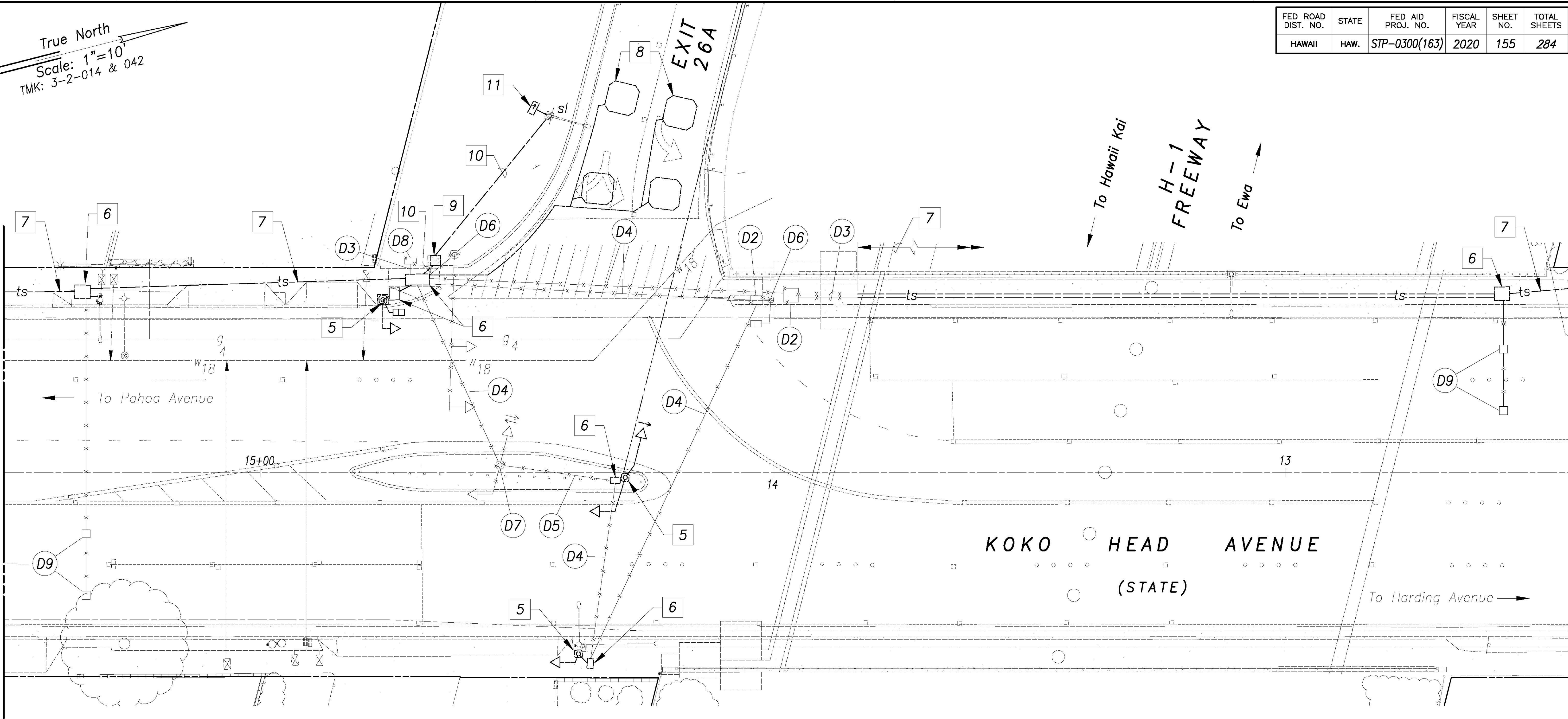
Scale: 1"=10' Date: July 2020

SHEET No. TS-59 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	155	284

True North
Scale: 1"=10'
TMK: 3-2-014 & 042

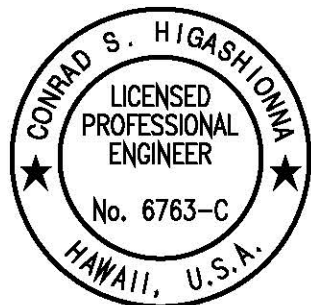
Match Line
Sta. 15+65 See Sheet 154



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

Sep 17, 2020-13:27pm
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\155 Signal Demolition H 2 Addendum.dwg

Approved By: _____
Chief, Traffic Signals & Technology, DTS
Date _____



License Expiration Date 04-30-22
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

9/16/20
The existing pavement markings were shown incorrectly. Pavement markings revised to show correct existing condition.

DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNAL DEMOLITION H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)
Scale: 1"=10' Date: July 2020
SHEET No. TS-60 OF 113 SHEETS

Notes and New Signal Work Callouts for Intersection of Pahoa Ave & Koko Head Ave ONLY:

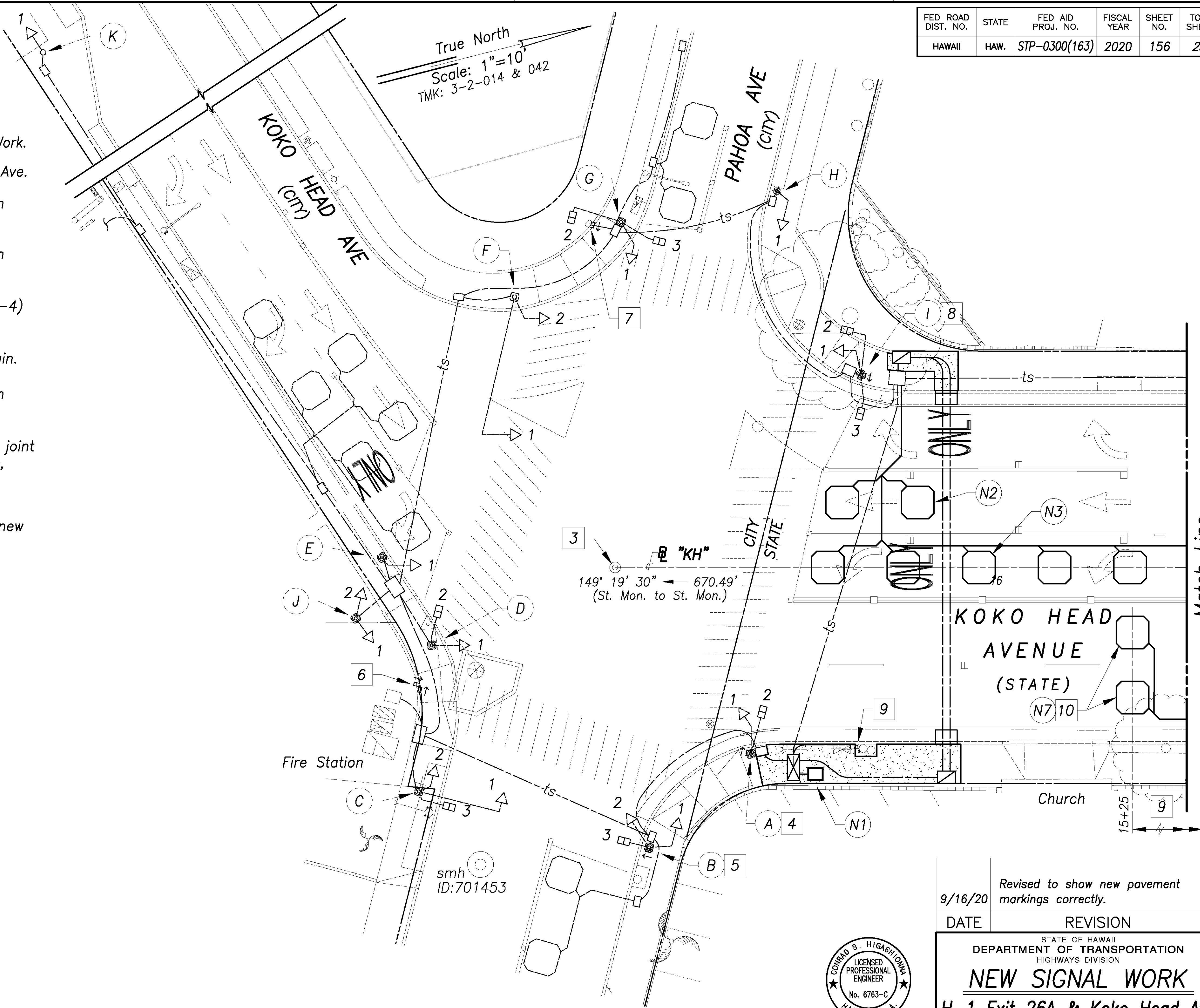
Notes:

- 1
- Tie-down of traffic signal controller and standards is to center of cabinet and vertical pole, respectively.
- 2
- For location of traffic signal pullboxes, see New Duct Line Work.
- 3
- Street Monument 16+70.49 @ "KH" = 42+50.91 Pahoa Ave.
- 4
- Existing traffic signal standard and pedestrian push button (ppb-1) to remain.
- 5
- Existing traffic signal standard and pedestrian push button (ppb-2) to remain.
- 6
- Existing pedestrian push button pedestal (ppb-3 and ppb-4) to remain.
- 7
- Existing pedestrian push button pedestal (ppb-5) to remain.
- 8
- Existing traffic signal standard and pedestrian push button (ppb-8) to remain.
- 9
- Existing power source. Existing HECO meter mounted on joint pole. The Contractor shall brace poles near new ductline, pullbox or controller during construction operations.
- 10
- New loop detectors for intersection of Exit 26A and Koko Head Ave. Loops located 75' from new stop line. See new signal work callout on sheet 157.
- 11
- See sheet 162 for new signal work schedules.

New Signal Work Callouts:

- N1
- Install Controller Assembly with Software 16+34 @ "KH" (38.13' Rt.)
- N2
- Install Loop Detector Sensing Unit (6 Ft. x 6 Ft.) 2 Loops centered in lane
- N3
- Install Loop Detector Sensing Unit (6 Ft. x 6 Ft.) 6 Loops centered in lane

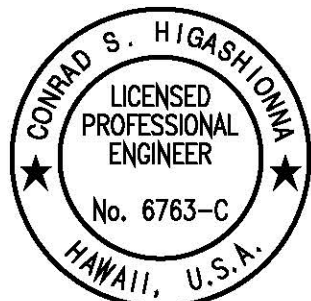
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	156	284



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

Sep 17, 2020-13:56pm
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\156 Signal Plan H-1 Addendum.dwg

Approved By: _____
Chief, Traffic Signals & Technology, DTS Date _____



License Expiration Date 04-30-22
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

9/16/20 Revised to show new pavement markings correctly.

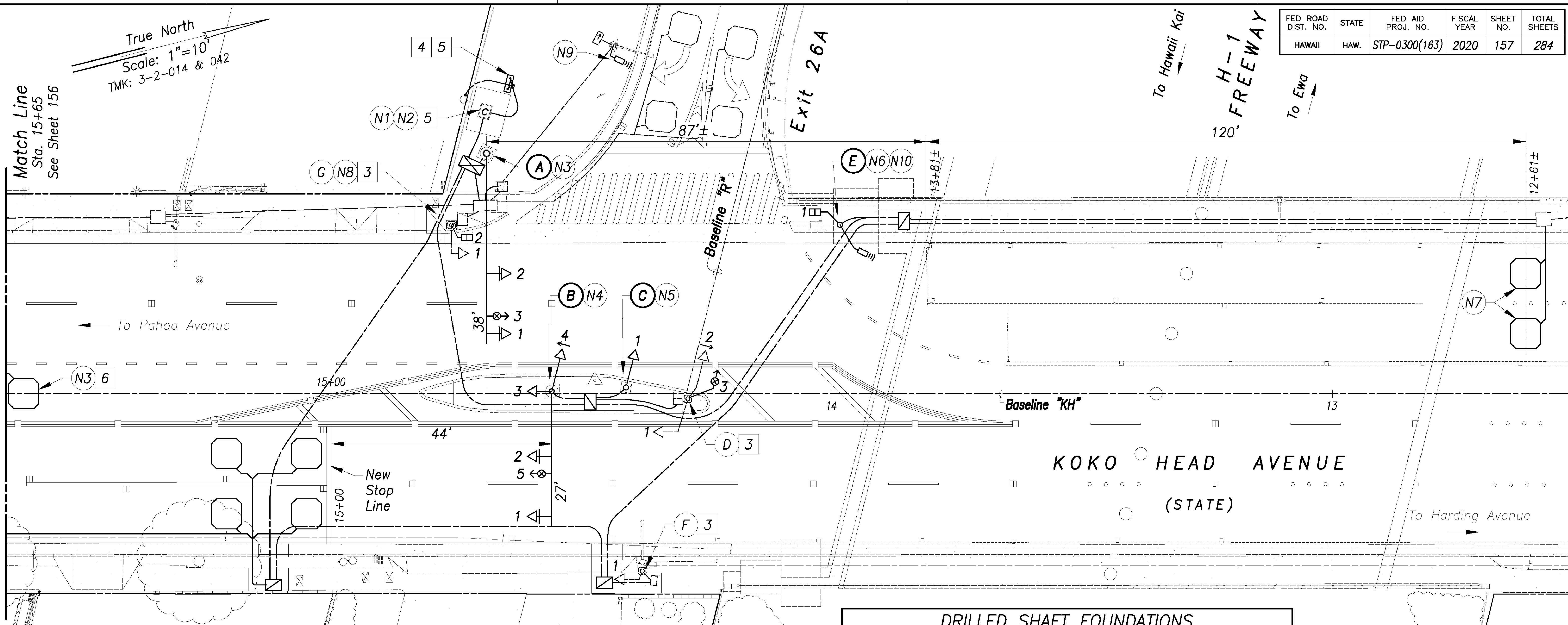
DATE REVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
NEW SIGNAL WORK
H-1 Exit 26A & Koko Head Ave
*Traffic Signal Modernization,
Oahu, Phase 1*
Federal-Aid Project No. STP-0300(163)
Scale: 1"=10' Date: July 2020
SHEET No. TS-61 OF 113 SHEETS

Match Line
Sta. 15+65 See Sheet 157

See 17, 2020-1430m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\157 Signal Plan H.2 Addendum.dwg

SURVEY PLANNED BY	DATE
DRAWN BY	*****
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
NOTE BOOK	
No.	



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	157	284

Notes and New Duct Line Work Callouts for Intersection of Pahoa Ave & Koko Head Ave ONLY:

- New Signal Work Callouts:**
- N1 Install Controller Assembly with Software 14+69.35 @ "KH" (56.40' Rt.)
 - N2 Install concrete pad for controller. See sheet 156 for details.
 - N3 Install Type II Traffic Signal Standard with 38-foot mast arm and drilled shaft foundation. 14+69.05 @ "KH" (48' Rt.)
 - N4 Install Type II Traffic Signal Standard with 27-foot mast arm and drilled shaft foundation. 14+56 @ "KH" (0.50' Rt.)
 - N5 Install Type I Traffic Signal Standard, 10-foot height, with foundation. 14+41.18 @ "KH" (1.25' Rt.)
 - N6 Install Type I Traffic Signal Standard, 8-foot height, with foundation and pedestrian push button (PPB-2). 13+98.43 @ "KH" (33.73' Rt.)
 - N7 Install Loop Detector Sensing Unit (6 Ft. x 6 Ft.) 1 Loops centered in lane

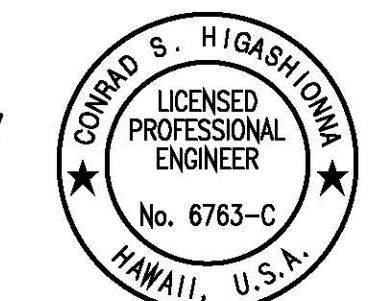
- N8 Install pedestrian push button PPB-1, ADA compliant, mounted on existing traffic signal standard.
- N9 Install temporary Approach-Only Microwave Vehicle Detector on existing traffic signal standard.
- N10 Install permanent Approach-Only Microwave Vehicle Detector on existing traffic signal standard.

- Notes:**
- 1 Tie-down of traffic signal controller and standards is to center of cabinet and vertical pole, respectively.
 - 2 For location of traffic signal pullboxes, see New Duct Line Work.
 - 3 Existing traffic signal standard to remain.
 - 4 New power source. HECO meter, see drawings E-16 thru E-19.
 - 5 The Contractor shall restore existing landscaping and irrigation system affected by construction work to equal or better condition. The restoration work shall be incidental to the various contract items.

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	38	30	11
Ⓐ	Stiff Clays	Level	27	30	7
Ⓑ	Stiff Clays	Level	27	30	7
Drilled shaft foundations shall be constructed per 2008 Standard Plans TE-33A.1 & TE-33A.2 – above ground water table.					
No boring for soils data conducted for this site.					

- 6 New loop detectors for intersection of Pahoa Ave and Koko Head Ave. See new signal work callout on sheet 156.
- 7 See sheet 163 for new signal work schedules.

Approved By: _____
Chief, Traffic Signals & Technology, DTS Date _____



License Expiration Date 04-30-22
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

9/16/20

Revised to show new pavement markings correctly.

DATE	REVISION

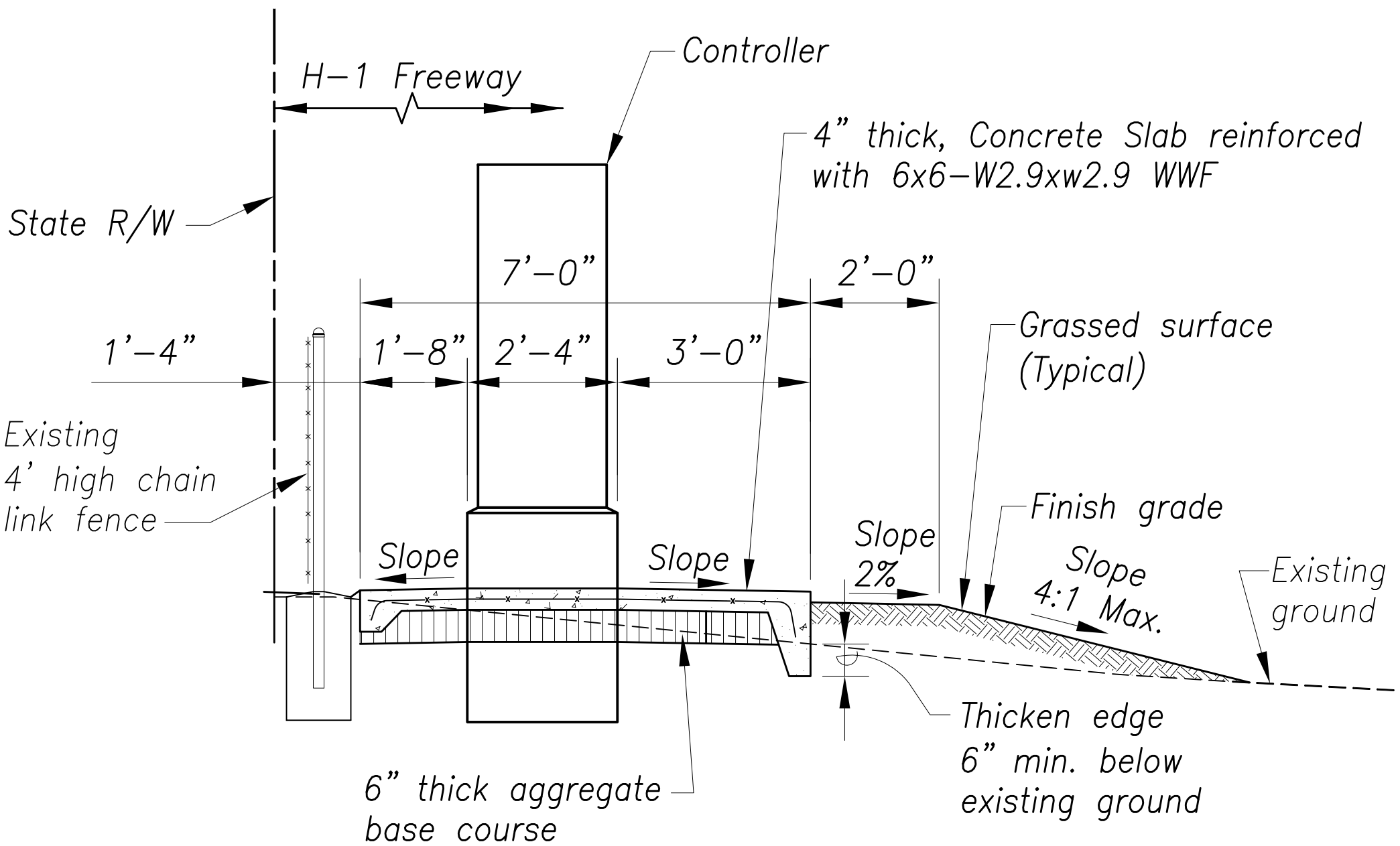
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW SIGNAL WORK
H-1 Exit 26A & Koko Head Ave
*Traffic Signal Modernization,
Oahu, Phase 1*
Federal-Aid Project No. STP-0300(163)
Scale: 1"=10' Date: July 2020
SHEET No. TS-62 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	158	284

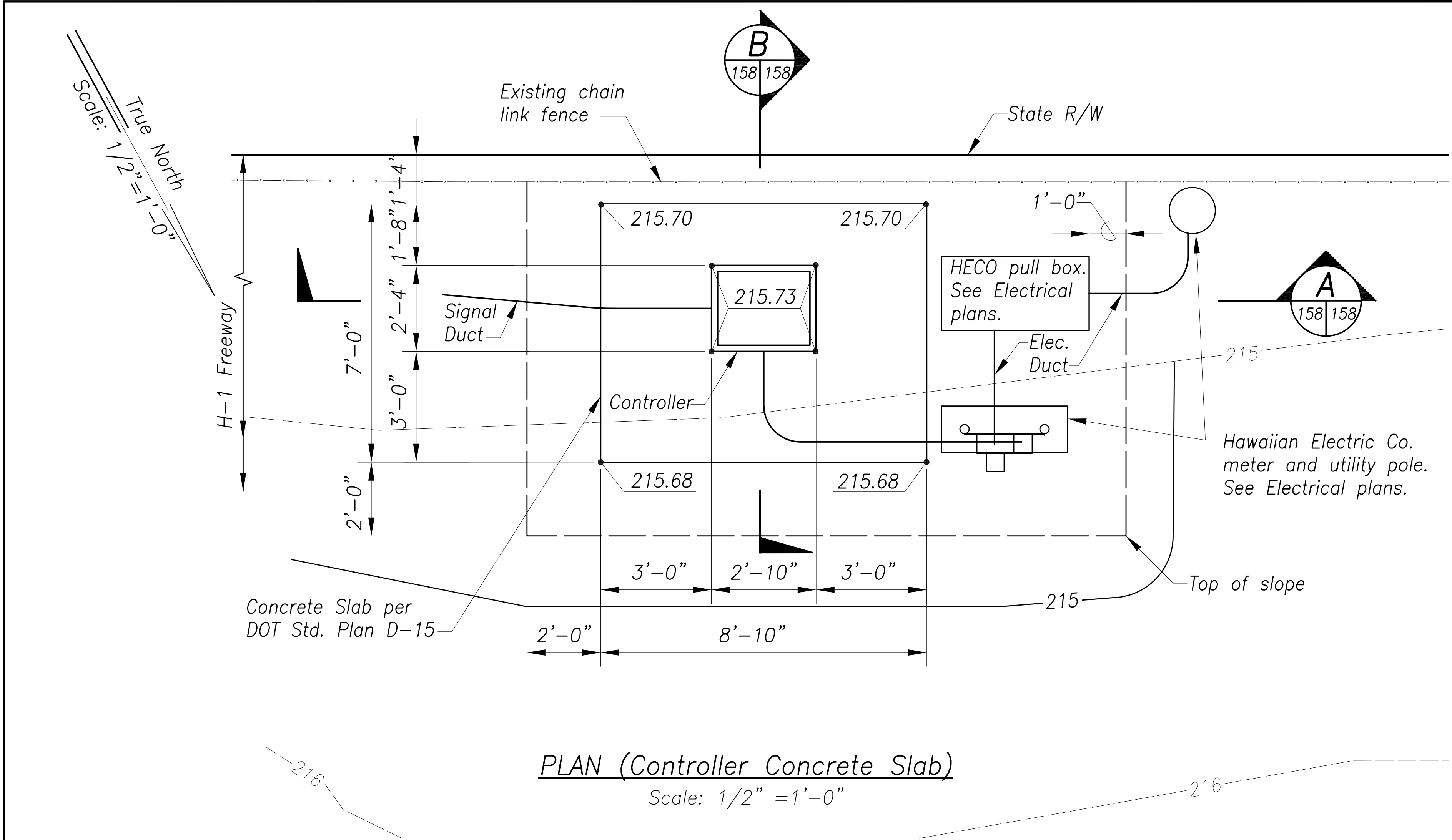
Legend

- 215.70 Finish Elevation
- 215— Finish Contour Elevation
- 215-- Existing Contour Elevation



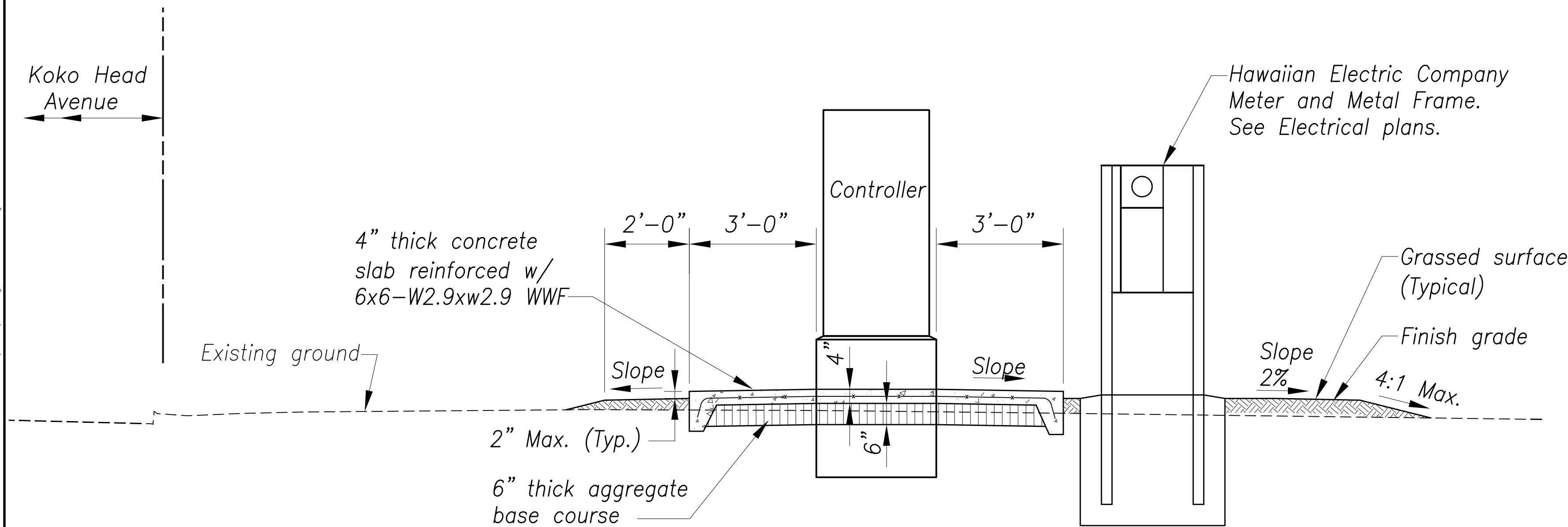
SECTION B

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



PLAN (Controller Concrete Slab)

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



SECTION A

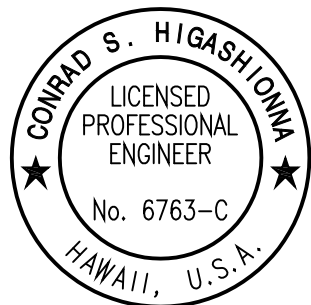
Scale: 1/2" = 1'-0"

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

Aug 28, 2020-13:30m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\158 Signal Plan H 3.dwg

Approved By: _____ Date: _____

Chief, Traffic Signals & Technology, DTS



License Expiration Date: 04-30-22

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

SIGNAL PLAN

H-1 Exit 26A & Koko Head Ave
Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)
Scale: 1/2"=1'-0" Date: July 2020
SHEET No. TS-63 OF 113 SHEETS

Notes and New Duct Line Work Callouts for Intersection of Pahoa Ave & Koko Head Ave ONLY:

Notes:

- 1

Tie-down of pullboxes is to center of box.
- 2

Existing pullbox PB-2 to remain.
- 3

Existing pullbox PB-3 to remain.
- 4

Existing pullbox PB-4 to remain.
- 5

Existing pullbox PB-5 to remain.
- 6

Existing pullbox PB-6 to remain.
- 7

Existing pullbox PB-7 to remain.
- 8

Existing pullbox PB-8 to remain.
- 9

Existing pullbox PB-9 to remain.
- 10

Existing pullbox PB-10 to remain.
- 11

Existing pullbox PB-13 to remain.
- 12

Existing pullbox PB-14 to remain.
- 13

Existing pullbox PB-15 to remain.
- 14

Existing pullbox PB-16 to remain.
- 15

Existing pullbox for Fire Department warning flasher to remain.
- 16

Existing duct and cables for Fire Department warning flashers to remain.
- 17

Existing stub-out to fire station.
- 18

The existing Fire Department warning flasher system shall remain in operation at all times. The Contractor shall not damage warning system conduits and cables resident in traffic signal pullboxes.
- 19

Existing power source, HECO meter mounted on joint pole. The Contractor shall brace poles near new ductline, pullbox or controller, as required. See HECO Note 6 – Pole Bracing on drawing E-2.
- 20

See sheet 162 for new duct line work schedules.
- 21

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.
- 22

Prior to construction, the Contractor shall verify existing cables can be removed from conduits to remain and inform the Engineer. This work shall be incidental to the various contract items. Existing Type 2 detector cables and Type 5 signal-drop cables within traffic signal standards and pedestrian push button pedestals shall remain up to the pull boxes. Splice existing cables to new within pullboxes.

New Duct Line Work Callouts:

- N1

Install Type C Pullbox PB-1. 16+37.59 @ "KH" (36.90' Lt.)
- N2

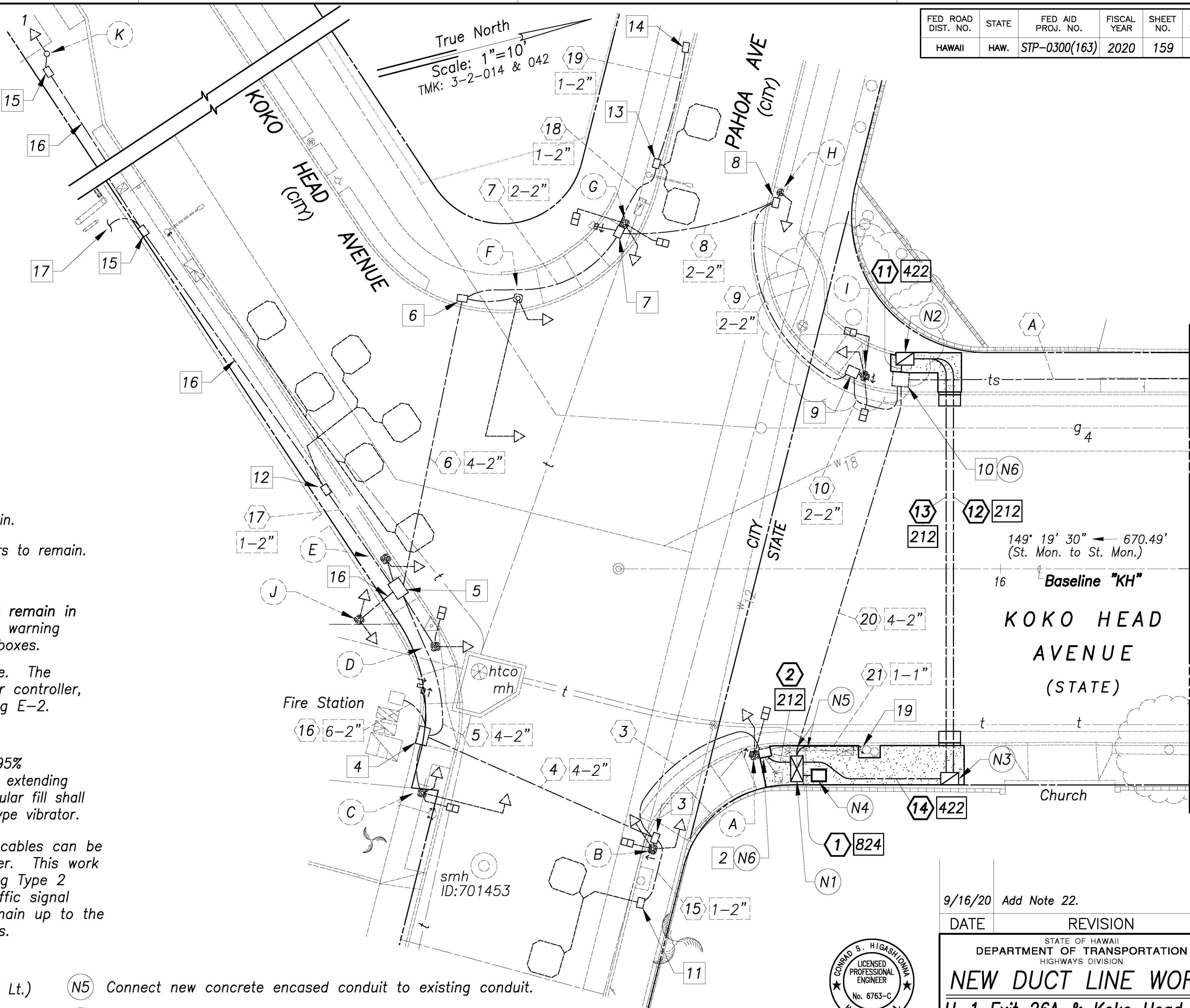
Install Type B Pullbox PB-11. 16+17.62 @ "KH" (38.77' Rt.)
- N3

Install Type B Pullbox PB-12. 16+09.36 @ "KH" (38.74' Lt.)
- N4

New traffic signal controller. 16+34.03 @ "KH" (38.13' Lt.)
- N5

Connect new concrete encased conduit to existing conduit.
- N6

Connect new conduits to existing pullboxes. The Contractor shall drill thru existing pull box wall and patch hole with non-shrink grout. Cut abandoned ducts at inside face of pullbox. Remove unneeded traffic signal cables.

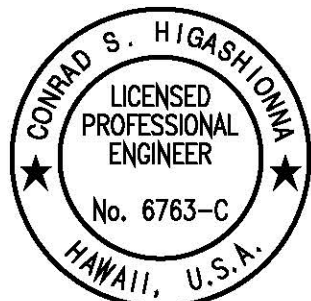


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	159	284

SURVEY PLANNED BY	DATE
DRAWN BY	*****
CHECKED BY	
DESIGNED BY	
QUANTITIES BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

See 17, 2020-12-28m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations\PAEHV\159 Duct Plan H 1.dwg

Approved By: _____
Chief, Traffic Signals & Technology, DTS Date _____



License Expiration Date 04-30-22
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

9/16/20 Add Note 22.

DATE REVISION

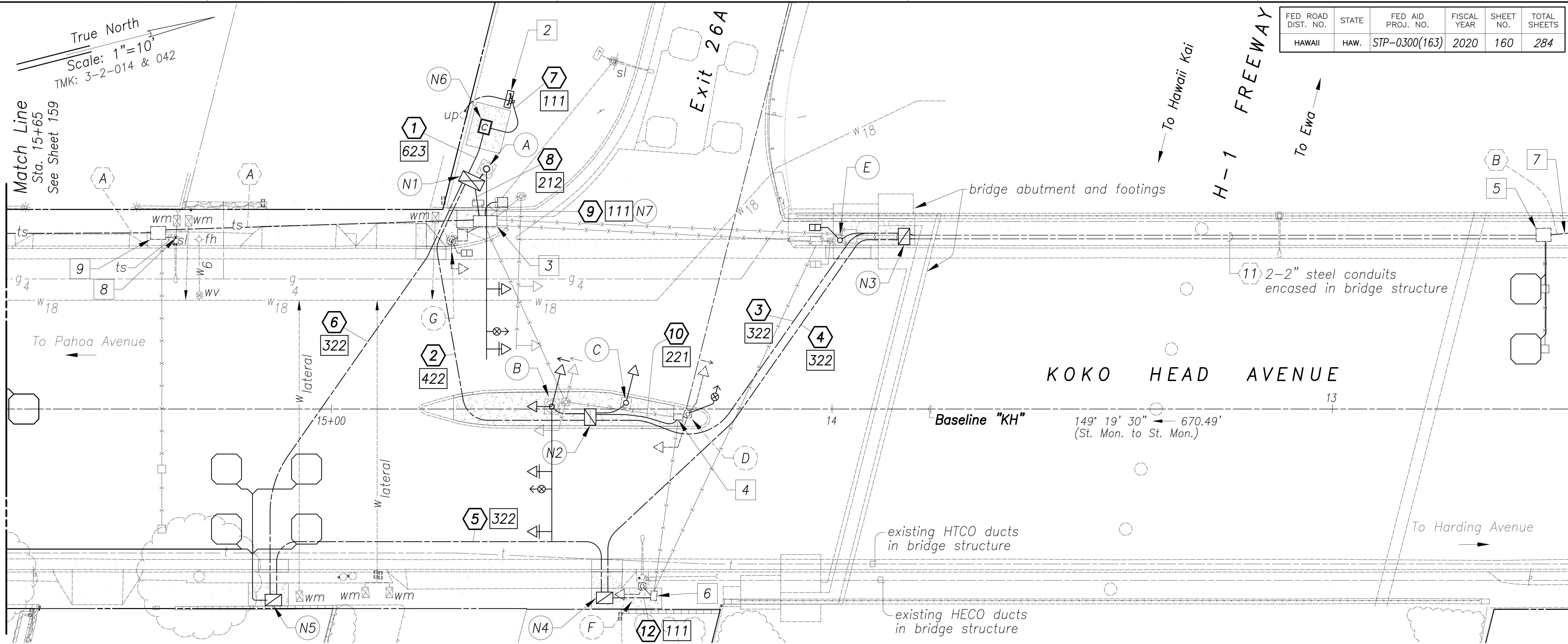
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION
NEW DUCT LINE WORK
H-1 Exit 26A & Koko Head Ave
<i>Traffic Signal Modernization, Oahu, Phase 1</i>
<i>Federal-Aid Project No. STP-0300(163)</i>
Scale: 1"=10' Date: July 2020
SHEET No. TS-64 OF 113 SHEETS

ADD. 159

Match Line
Sta. 15+65 See Sheet 160

Aug 28, 2020-13:00m
N:\QAQ\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\160 Duct Plan H 2.dwg

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



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	160	284

Notes and New Duct Line Work Callouts for Intersection of Pahoa Ave & Koko Head Ave ONLY:

Notes:

- 1 Tie-down of pullboxes is to center of box.
- 2 New HECO meter. For details, see drawings E-16 thru E-19.
- 3 Existing pullbox PB-6 to remain.
- 4 Existing pullbox PB-7 to remain.
- 5 Existing pullbox PB-8 to remain.
- 6 Existing pullbox PB-9 to remain.
- 7 See Inter-Connect Plan on sheet 161 for continuation.
- 8 Existing HECO meter to remain.
- 9 Existing traffic signal pullbox to remain.
- 10 See sheet 163 for new duct line work schedules.
- 11 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.

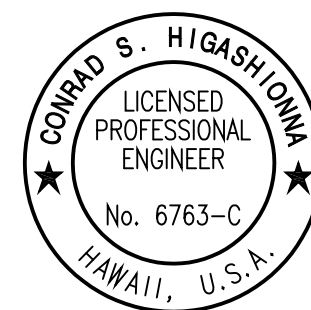
New Duct Line Work Callouts:

- (N1) Install Type C Pullbox PB-1. 14+72.02 @ "KH" (45.60' Rt.)
- (N2) Install Type B Pullbox PB-2. 14+48.34 @ "KH" (1.59' Lt.)
- (N3) Install Type B Pullbox PB-3. 13+85.62 @ "KH" (34.50' Rt.)
- (N4) Install Type B Pullbox PB-4. 14+45.54 @ "KH" (37.80' Rt.)
- (N5) Install Type B Pullbox PB-5. 15+11.65 @ "KH" (38.19' Rt.)
- (N6) New traffic signal controller. 14+69.35 @ "KH" (56.40' Rt.)
- (N7) Drill and patch concrete foundation for traffic camera cabinet. Install 2-inch PVC Schedule 40 conduit between existing pullbox PB-6 and cabinet. Coordinate work with City Dept. of Transportation Services. The Contractor shall adjust duct alignment as needed and shall not damage existing conduits or cables to cabinet.

Approved By:

Chief, Traffic Signals & Technology, DTS

Date



License Expiration Date: 04-30-22
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

NEW DUCT LINE WORK

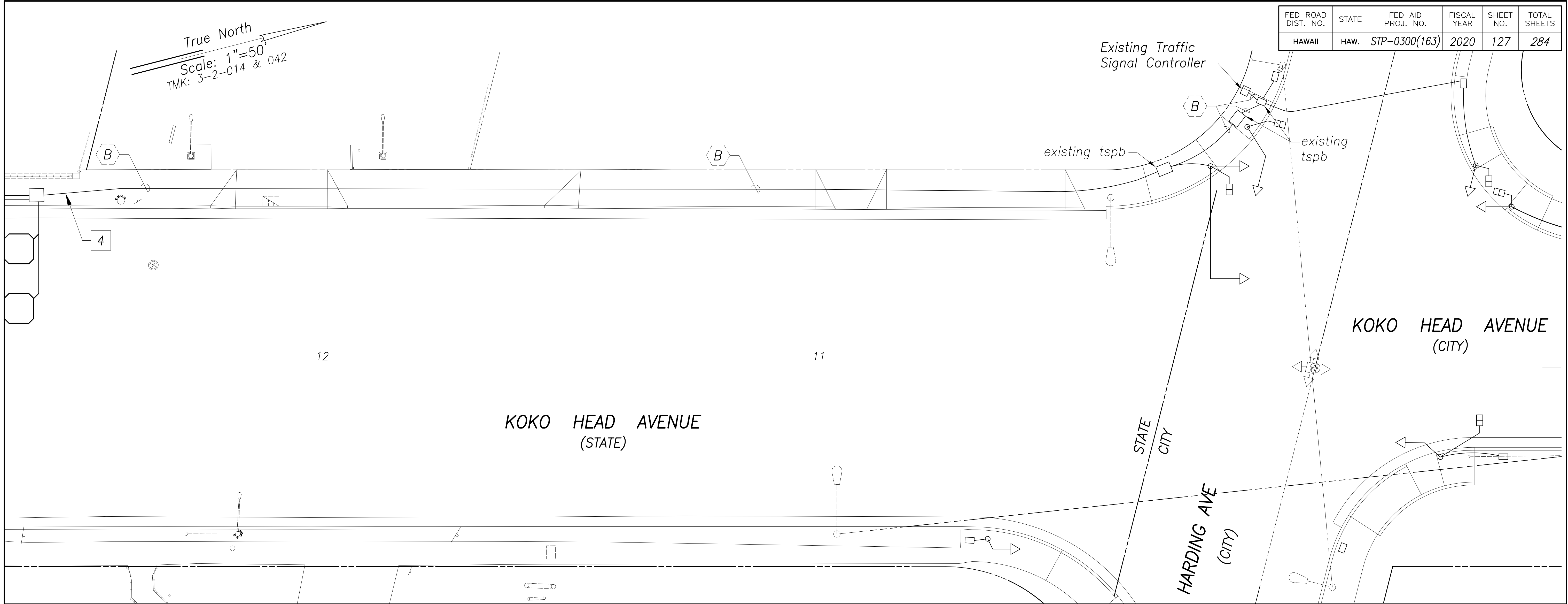
H-1 Exit 26A & Koko Head Ave

*Traffic Signal Modernization,
Oahu, Phase 1*

Federal-Aid Project No. STP-0300(163)

Scale: 1"=10' Date: July 2020

SHEET No. TS-65 OF 113 SHEETS



FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	127	284

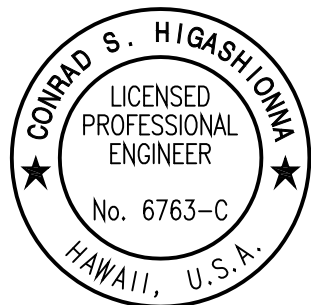
Notes:

- 1 Prior to construction, the Contractor shall verify the existing inter-connect cable can be removed from existing conduits between the two controllers at the intersections of Koko Head Avenue with Pahoa Avenue and Koko Head Avenue with Harding Avenue. The Contractor shall notify the Engineer of findings. This work shall be incidental to the various contract items.
- 2 The Contractor shall remove sediment and debris collecting in existing pull boxes and ducts for installing inter-connect cable.
- 3 The Contractor shall not splice Type 3 inter-connect cables between controllers.
- 4 See New Duct Line Work on sheet 160 for continuation.

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

Aug 28, 2020-13:30m
N:\CAG\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\161 Interconnect Plan H 3.dwg

Approved By: _____
Chief, Traffic Signals & Technology, DTS
Date _____



License Expiration Date 04-30-22
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

INTER-CONNECT PLAN
H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: 1"=10' Date: July 2020

SHEET No. TS-66 OF 113 SHEETS

SURVEY PLOTTED BY

DRAWN BY

DESIGNED BY

QUANTITIES BY

CHECKED BY

DATE

ORIGINAL PLAN

NOTE BOOK

No.

Aug 28, 2020--13:00m
N:\CAG\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\162 Conduit Cable Table H 1.dwg

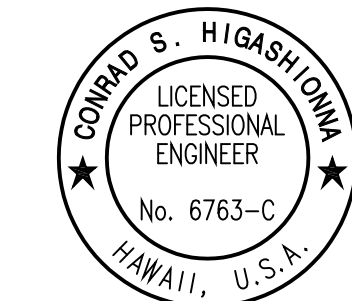
CONDUIT-CABLE SCHEDULE at Intersection of Pahoa Ave with Koko Head Ave									
	FROM	TO	CONDUIT	CABLE		FROM	TO	CONDUIT	CABLE
	CONTR.	PB-1	New 8-2" Sch. 40 Concrete Encased	1-Type 1, Ground Wire 1-Type 1, Ground Wire 4-Type 2 1-Type 3 1-Type 6 3-Spare		PB-11	PB-12	New 2-2" Sch. 40 Concrete Encased	2-Spare
	PB-1	exist. PB-2	New 2-2" Sch. 40 Concrete Encased	1-Type 1, Ground Wire 4-Type 2		PB-12	PB-1	New 4-2" Sch. 40 Concrete Encased	1-Type 1, Ground Wire 3-Type 2 2-Spare
				1-Type 2		exist. PB-3	exist. PB-13	existing 1-2"	1-Type 2
				4-Type 2		exist. PB-4	exist. contr. pad	existing 6-2"	6-Spare
	exist. PB-2	exist. PB-3	existing 2-2"	1-Type 1, Ground Wire 4-Type 2		exist. PB-5	exist. PB-14	existing 1-2"	1-Type 2
	exist. PB-3	exist. PB-4	existing 4-2"	1-Type 1, Ground Wire 3-Type 2 2-Spare		exist. PB-7	exist. PB-15	existing 1-2"	1-Type 2
	exist. PB-4	exist. PB-5	existing 4-2"	1-Type 1, Ground Wire 2-Type 2 2-Spare		exist. PB-15	exist. PB-16	existing 1-2"	1-Spare
				1-Type 2 2-Spare		exist. PB-10	PB-1	existing 2-2"	1-Type 3 1-Spare
	exist. PB-5	exist. PB-6	existing 4-2"	1-Type 1, Ground Wire 1-Type 2 2-Spare		exist. HECO meter	PB-1	existing 1-1"	1-Type 6
	exist. PB-6	exist. PB-7	existing 2-2"	1-Type 1, Ground Wire 1-Type 2		exist. PB-10	***	existing 2-2"	1-Type 3 1-Spare
	exist. PB-7	exist. PB-8	existing 2-2"	1-Type 1, Ground Wire 1-Type 2	*** To the new controller at the intersection of H-1 Exit 26A and Koko Head Avenue.				
	exist. PB-8	exist. PB-9	existing 2-2"	1-Type 1, Ground Wire 1-Type 2					
	exist. PB-9	exist. PB-10	existing 2-2"	1-Type 1, Ground Wire 2-Type 2					
	exist. PB-10	PB-11	New 4-2" Sch. 40 Concrete Encased	1-Type 1, Ground Wire 3-Type 2 2-Spare					
	PB-11	PB-12	New 2-2" Sch. 40 Concrete Encased	1-Type 1, Ground Wire 3-Type 2					

SIGNAL HEAD SCHEDULE at Intersection of Pahoa Ave with Koko Head Ave	
Head Type	Pole Letter - Signal Head Number
<div><div><div>R</div><div>Y</div><div>G</div><div>←</div></div>Green Arrow</div>	D-1* E-1*
<div><div><div>R</div><div>Y</div><div>G</div></div></div>	A-1* F-1* B-1* F-2* B-2* G-1* C-1* H-1* C-2* I-1*
<div><div><div>Hand icon</div><div>88</div></div></div>	A-2* G-2* B-3* G-3* C-3* I-2* D-2* I-3*
<div><div><div>Y</div></div>Flasher</div>	J-1* J-2* K-1*
* Existing signal head to remain	

Approved By:

Chief, Traffic Signals & Technology, DTS

Date



License Expiration Date 04-30-22
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

NEW WORK SCHEDULES
H-1 Exit 26A & Koko Head Ave

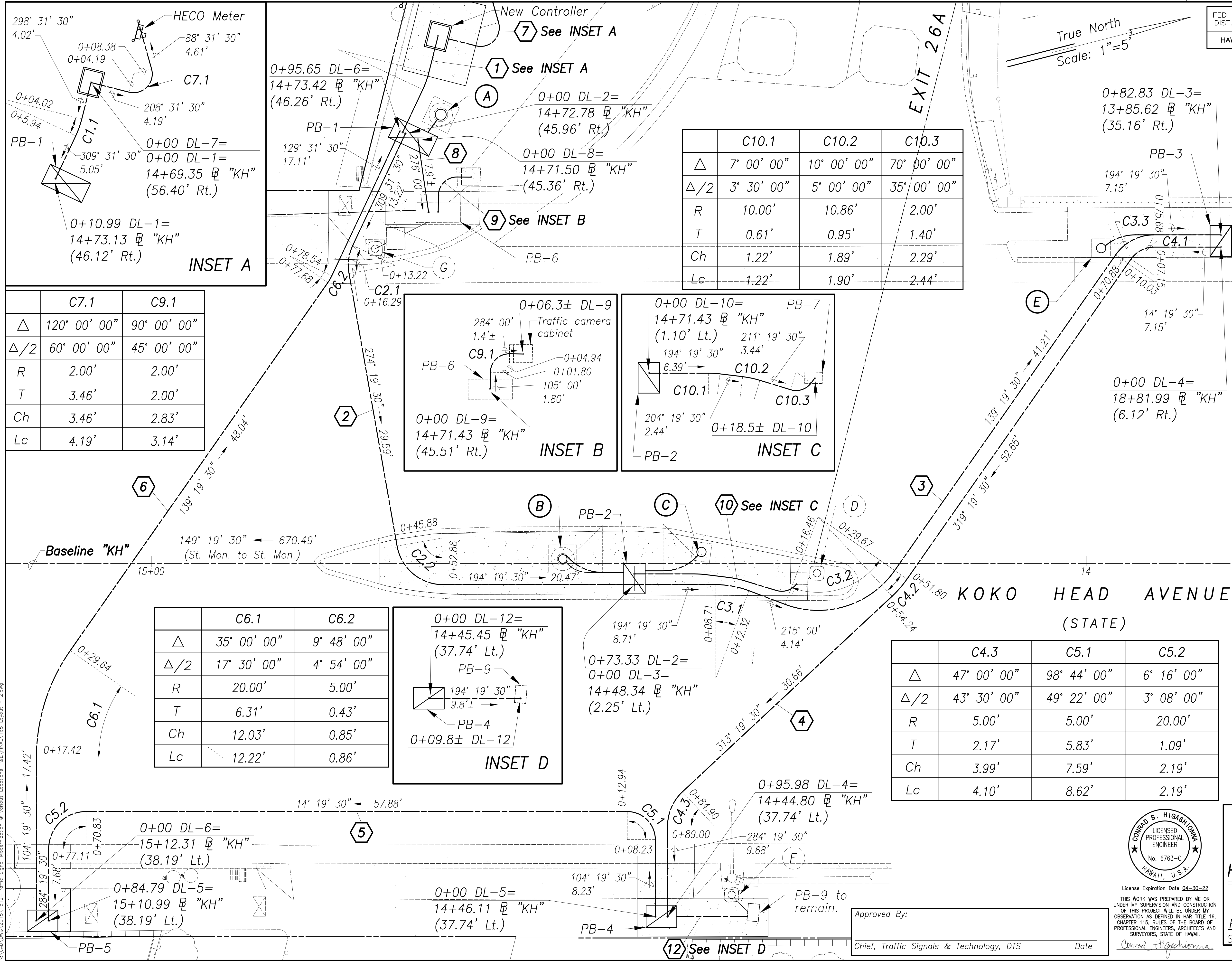
Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: Date: July 2020

SHEET No. TS-67 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	162	284

PEDESTRIAN PUSH BUTTON SCHEDULE	
Description	Pole or Pedestal PPB-#
	existing PPB-1
	existing pedestal PPB-3
	existing pedestal PPB-5
	existing PPB-2
	existing pedestal PPB-4
	existing PPB-6

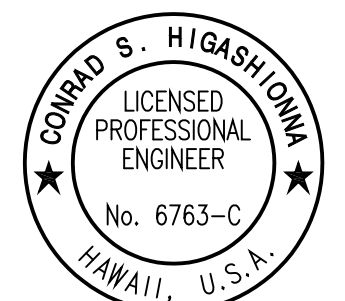


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	165	284

Duct Line Curve Data		
	C1.1	C2.1
Δ	11° 00' 00"	35° 12' 00"
Δ/2	5° 30' 00"	17° 36' 00"
R	10.00'	5.00'
T	0.96'	1.59'
Ch	1.92'	3.02'
Lc	1.92'	3.07'
	C2.2	C3.1
Δ	80° 00' 00"	20° 40' 30"
Δ/2	40° 00' 00"	10° 20' 15"
R	5.00'	10.00'
T	4.20'	1.82'
Ch	6.43'	3.59'
Lc	6.98'	3.61'
	C3.2	C3.3
Δ	75° 40' 20"	55° 00' 00"
Δ/2	37° 50' 10"	27° 30' 00"
R	10.00'	5.00'
T	7.77'	2.60'
Ch	12.27'	4.62'
Lc	13.21'	4.80'
	C4.1	C4.2
Δ	55° 00' 00"	12° 00' 00"
Δ/2	27° 30' 00"	6° 00' 00"
R	3.00'	11.61'
T	1.56'	1.22'
Ch	2.77'	2.43'
Lc	2.88'	2.43'

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

Aug 28, 2020 - 4:33pm
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\165 Layout H 2.dwg



License Expiration Date: 04-30-22
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.

Approved By: _____
Chief, Traffic Signals & Technology, DTS
Date: _____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LAYOUT PLAN

H-1 Exit 26A & Koko Head Ave

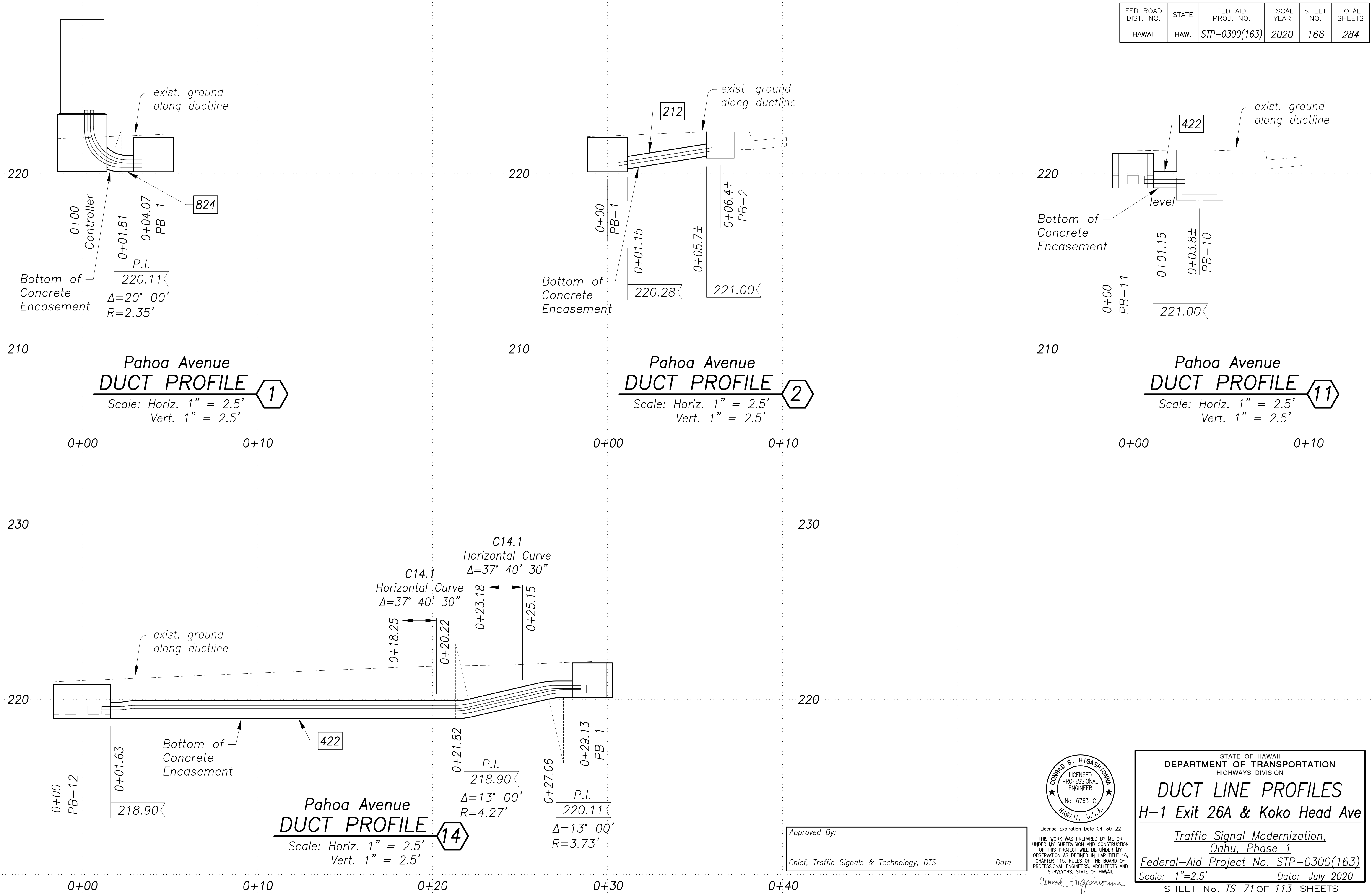
Traffic Signal Modernization,
Oahu, Phase 1

Federal-Aid Project No. STP-0300(163)

Scale: 1"=5' Date: July 2020

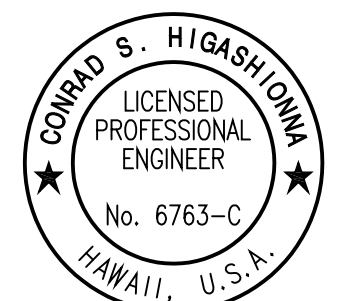
SHEET No. TS-70 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	166	284



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
No.	

Aug 28, 2020-13:30m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\166 Duct Line Profile P-01 & 02 & 11 & 14.dwg



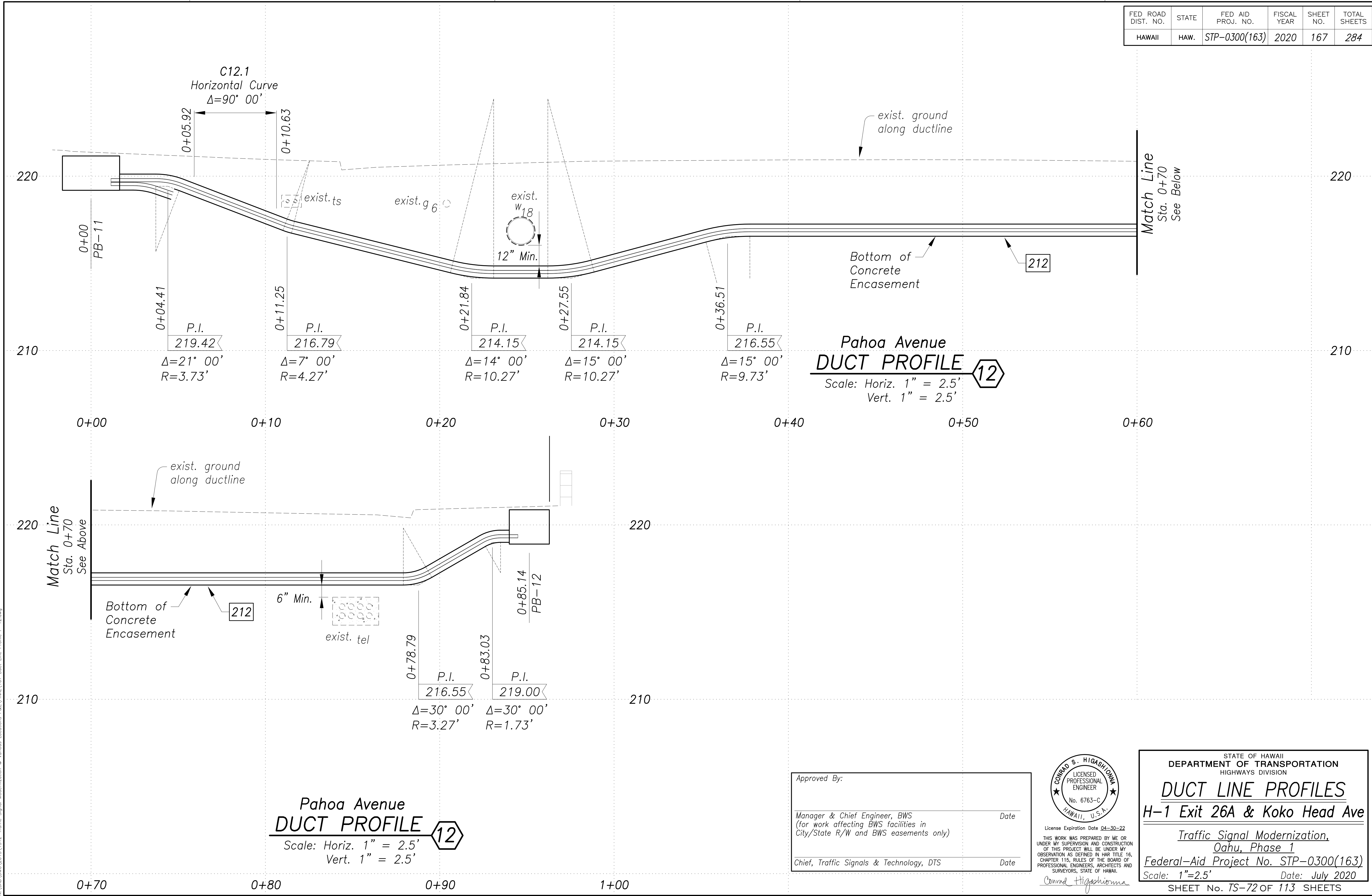
Approved By: _____
Chief, Traffic Signals & Technology, DTS
Date: _____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)
Scale: 1"=2.5' Date: July 2020
SHEET No. TS-71 OF 113 SHEETS

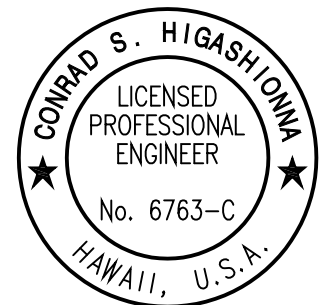
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	167	284



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

Aug 28, 2020-13:30m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\167 Duct Line Profile P-12.dwg

Approved By:	Date
Manager & Chief Engineer, BWS (for work affecting BWS facilities in City/State R/W and BWS easements only)	
Chief, Traffic Signals & Technology, DTS	Date



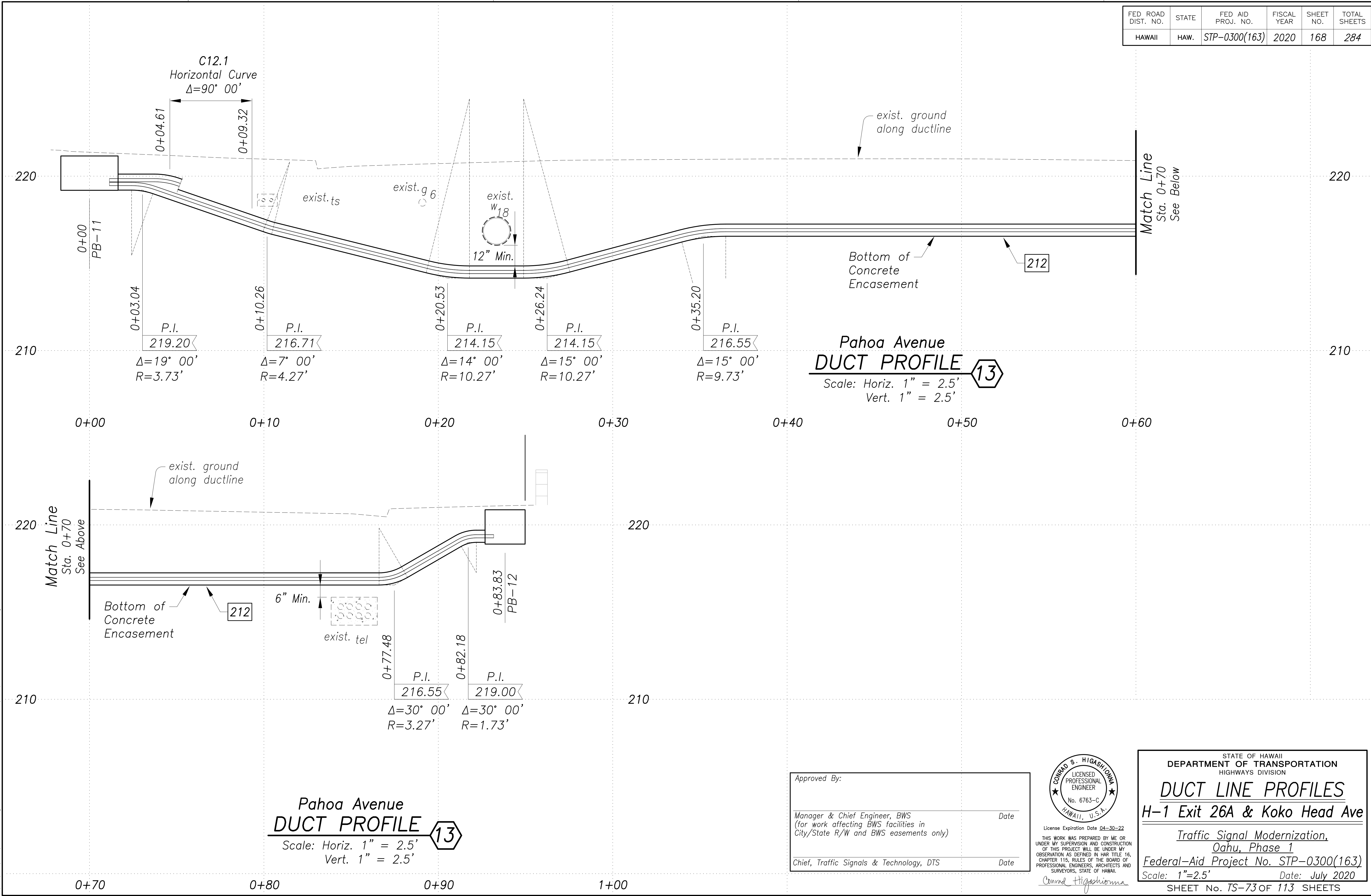
License Expiration Date: 04-30-22
THIS WORK WAS PREPARED BY ME OR
UNDER MY SUPERVISION AND CONSTRUCTION
OF THIS PROJECT WILL BE UNDER MY
OBSERVATION AS DEFINED IN HAWAII TITLE 16,
CHAPTER 115, RULES OF THE BOARD OF
PROFESSIONAL ENGINEERS, ARCHITECTS AND
SURVEYORS, STATE OF HAWAII.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)
Scale: 1"=2.5' Date: July 2020
SHEET No. TS-72 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	168	284

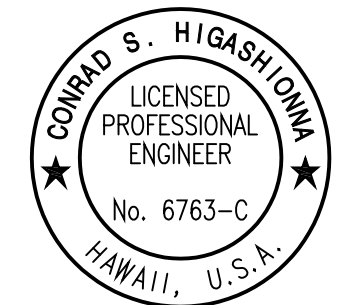


SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

Aug 28, 2020-4:33pm
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\168 Duct Line Profile P-13.dwg

Pahoa Avenue DUCT PROFILE
Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

Approved By:	Date
Manager & Chief Engineer, BWS (for work affecting BWS facilities in City/State R/W and BWS easements only)	
Chief, Traffic Signals & Technology, DTS	Date



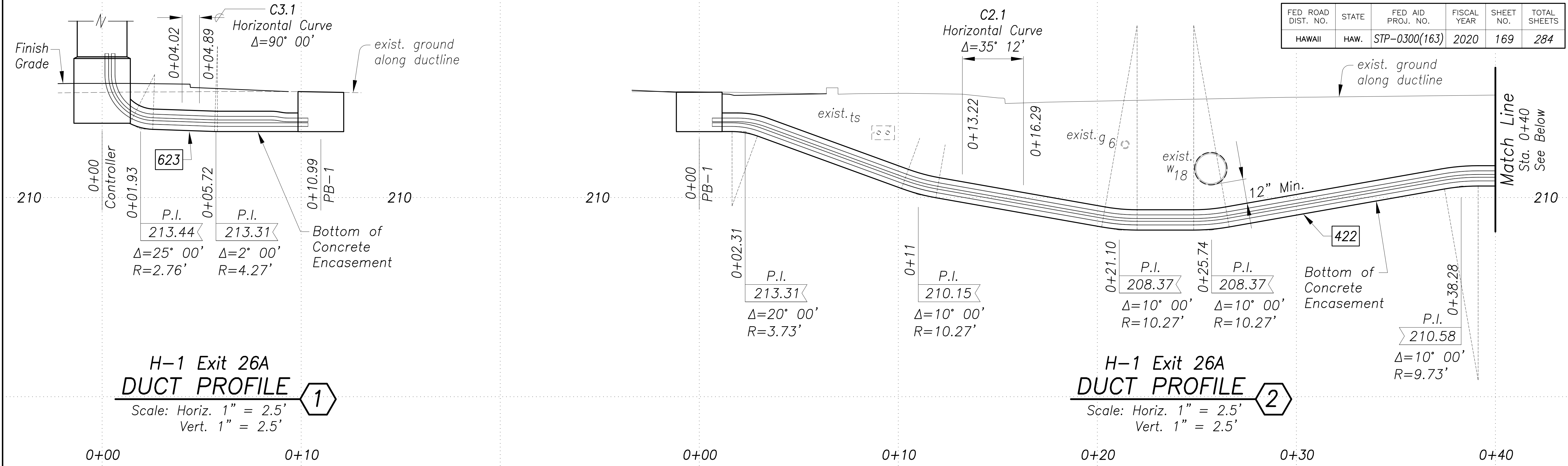
License Expiration Date: 04-30-22
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAWAII TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)
Scale: 1"=2.5' Date: July 2020
SHEET No. TS-73 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	169	284

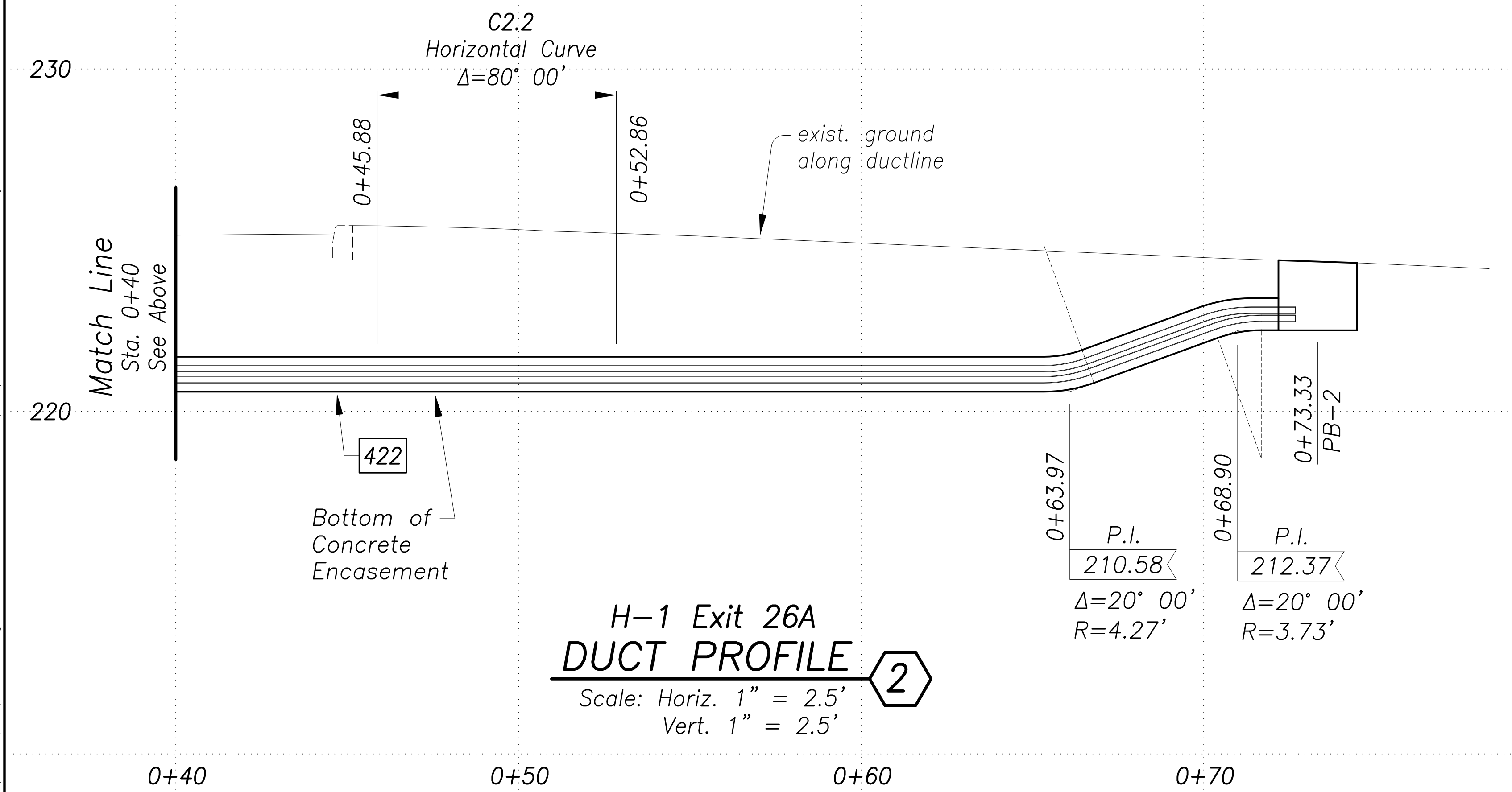


H-1 Exit 26A
DUCT PROFILE

Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

H-1 Exit 26A
DUCT PROFILE

Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'



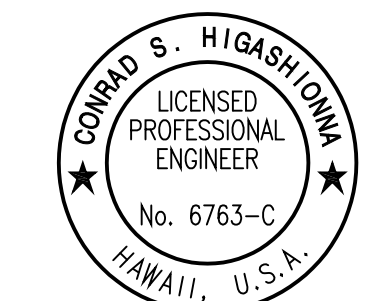
H-1 Exit 26A
DUCT PROFILE

Scale: Horiz. 1" = 2.5'
Vert. 1" = 2.5'

Approved By:

Manager & Chief Engineer, BWS
(for work affecting BWS facilities in
City/State R/W and BWS easements only)

Chief, Traffic Signals & Technology, DTS



License Expiration Date: 04-30-22

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.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES

H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization,
Oahu, Phase 1

Federal-Aid Project No. STP-0300(163)

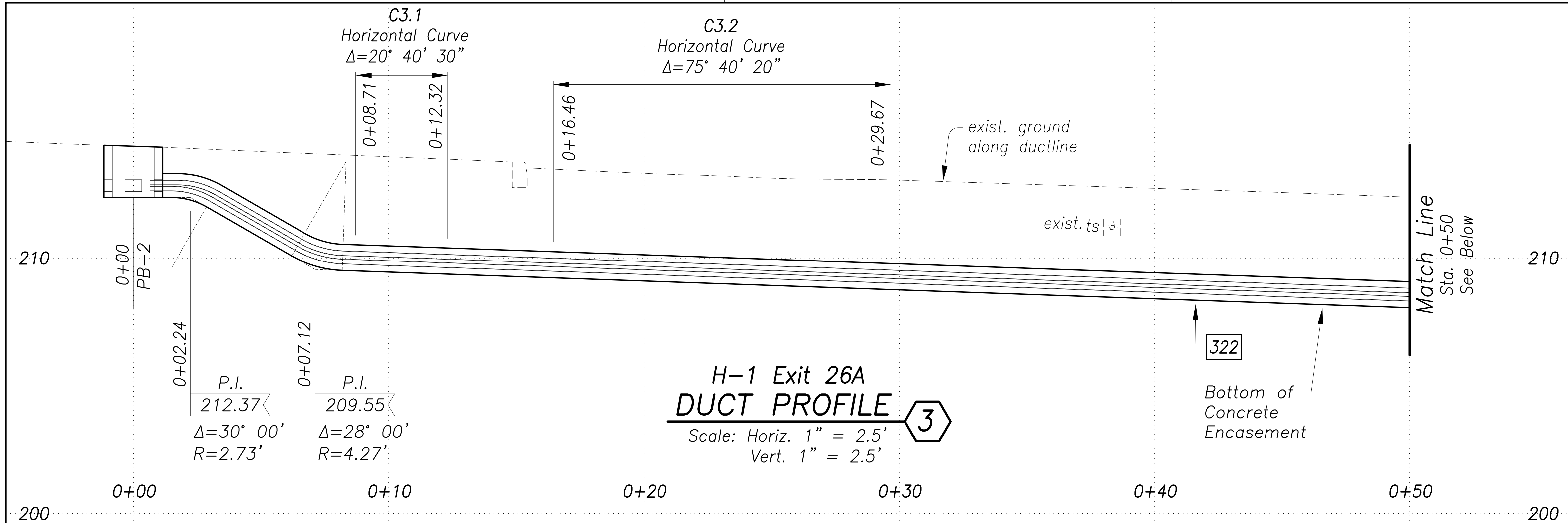
Scale: 1"=2.5' Date: July 2020

SHEET No. TS-74 OF 113 SHEETS

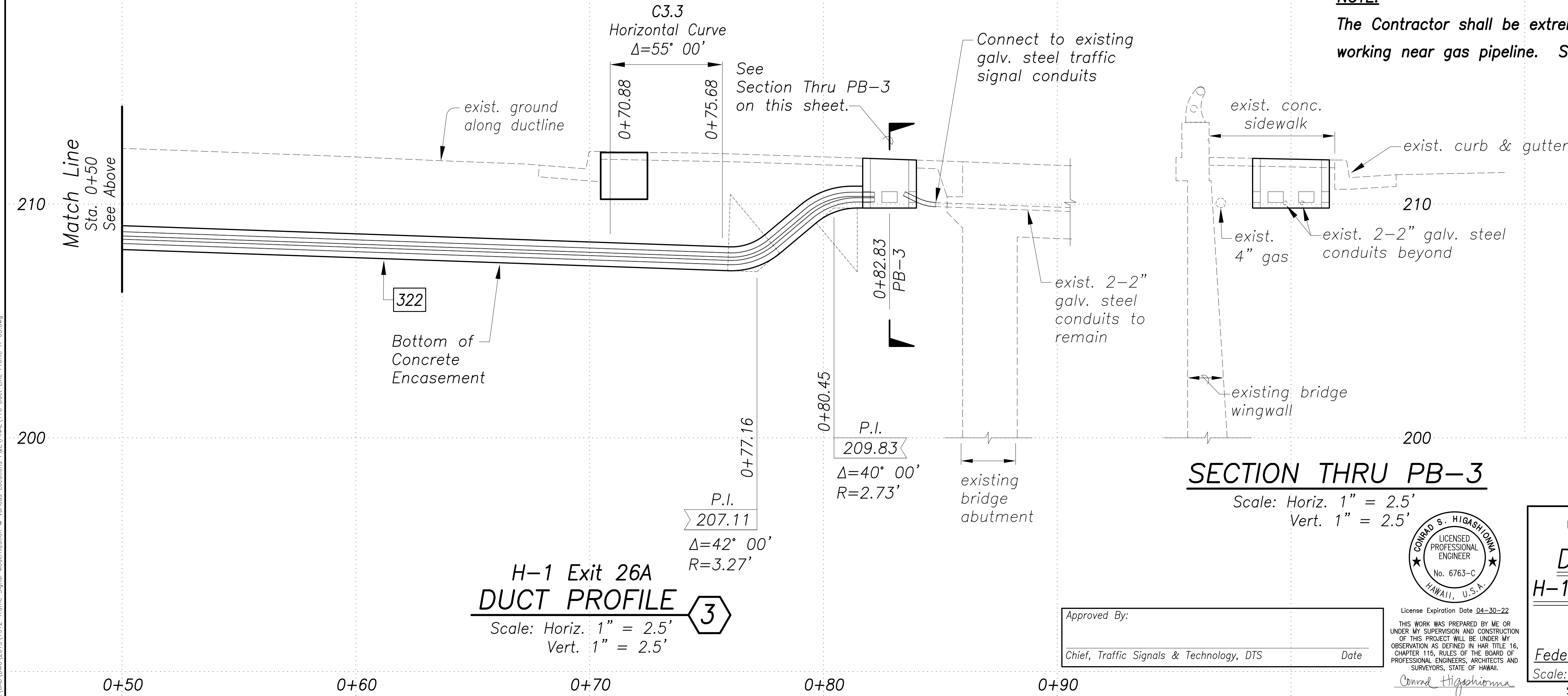
SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

Aug 28, 2020-1:33pm
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\169 Duct Line Profile H-01 & H-02.dwg

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	170	284

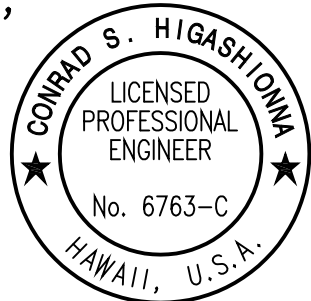


NOTE:
The Contractor shall be extremely careful when working near gas pipeline. See GAS notes.



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

Aug 28, 2020-13:30m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\170 Duct Line Profile H-03.dwg



License Expiration Date 04-30-22
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAW. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.

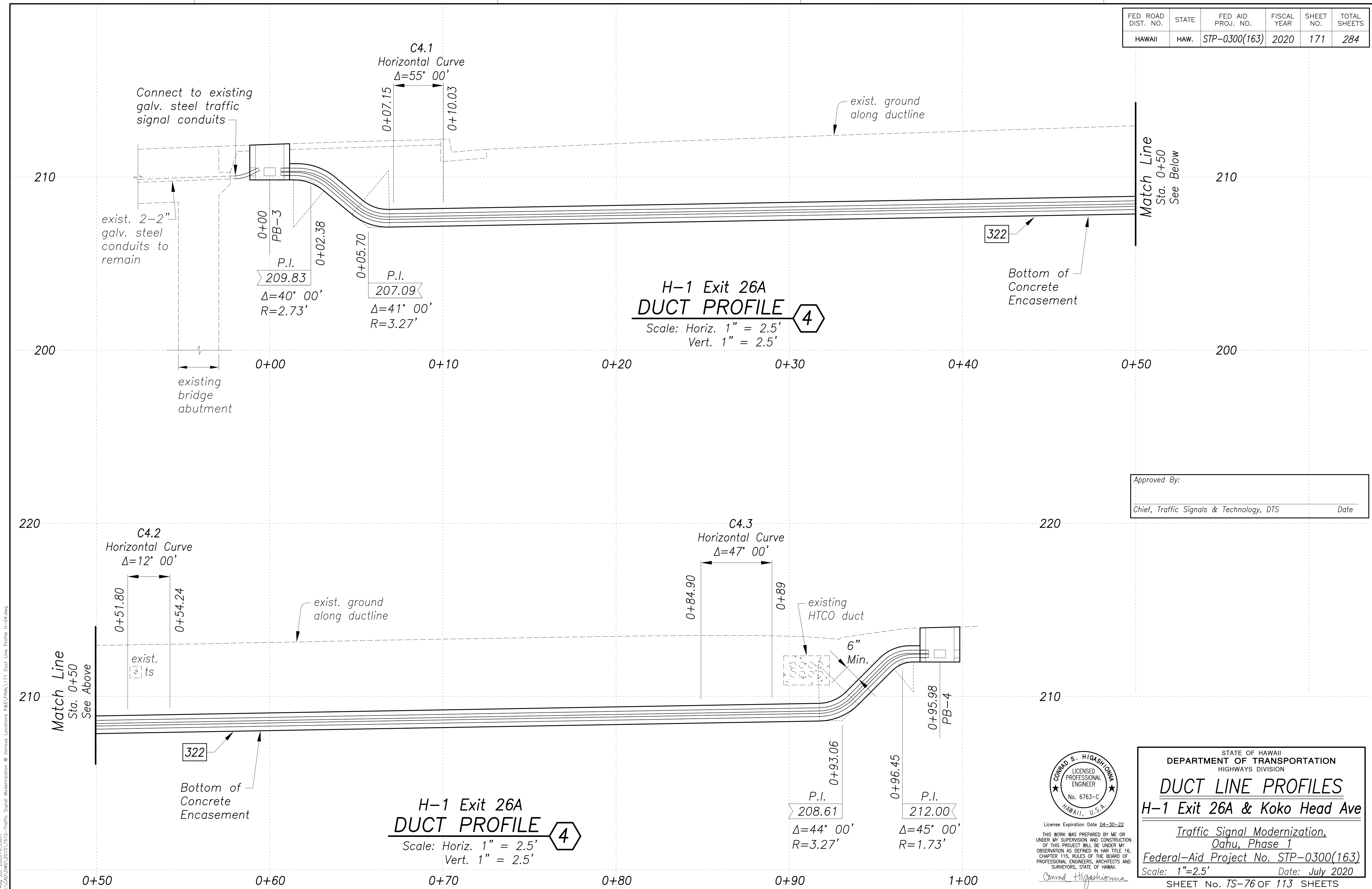
Conrad Higashimura

Approved By: _____
Chief, Traffic Signals & Technology, DTS Date _____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave
Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)
Scale: 1"=2.5' Date: July 2020
SHEET No. TS-75 OF 113 SHEETS

170

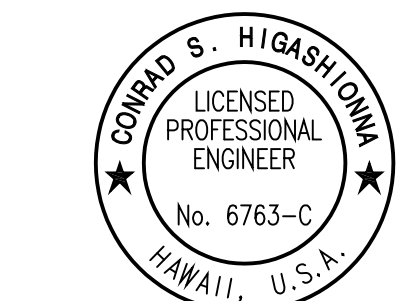
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	171	284



Approved By: _____
Chief, Traffic Signals & Technology, DTS Date: _____

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

Aug 28, 2020-13:30m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\171 Duct Line Profile H-04.dwg



License Expiration Date: 04-30-22
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAW. TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
Conrad Higashi

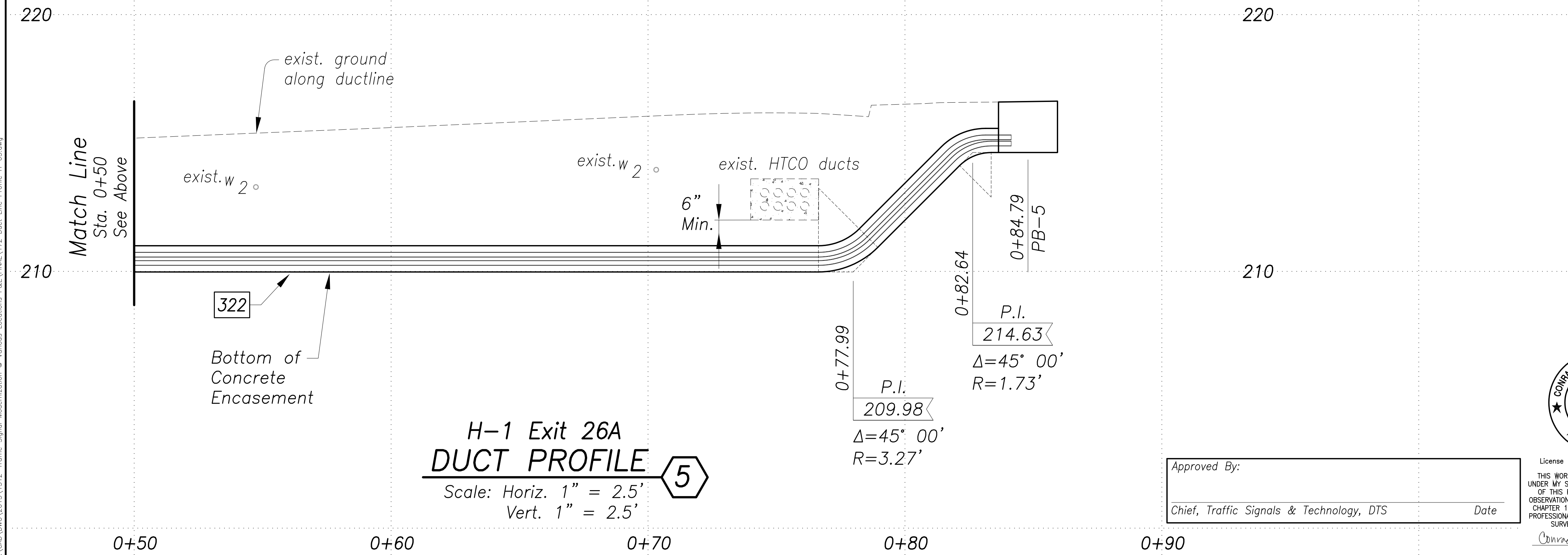
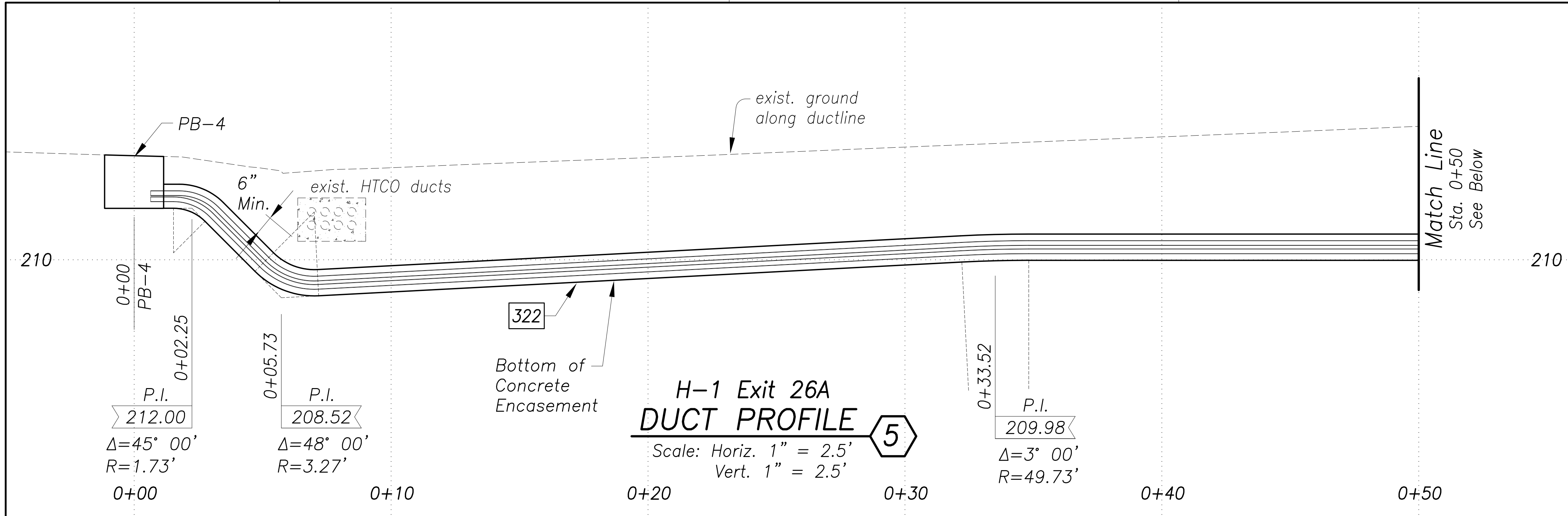
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)
Scale: 1"=2.5' Date: July 2020

SHEET No. TS-76 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	172	284

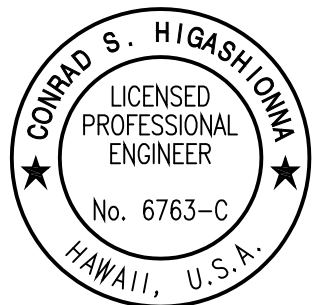


SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	

ORIGINAL PLAN	No.
NOTE BOOK	
CHECKED BY	

Aug 28, 2020-1:33pm
N:\GAG\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\172 Duct Line Profile H-05.dwg

Approved By: _____
Chief, Traffic Signals & Technology, DTS
Date: _____



License Expiration Date: 04-30-22
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

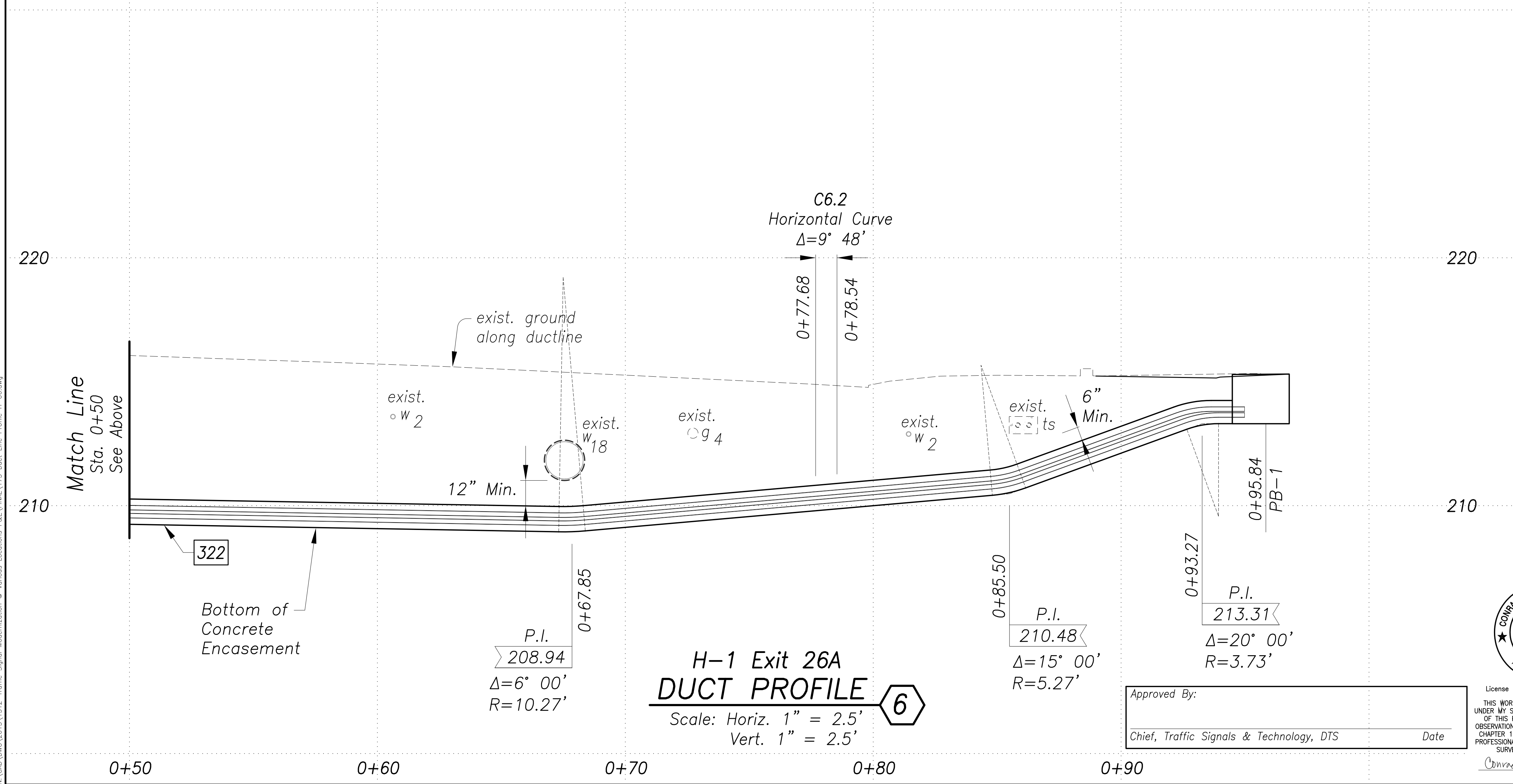
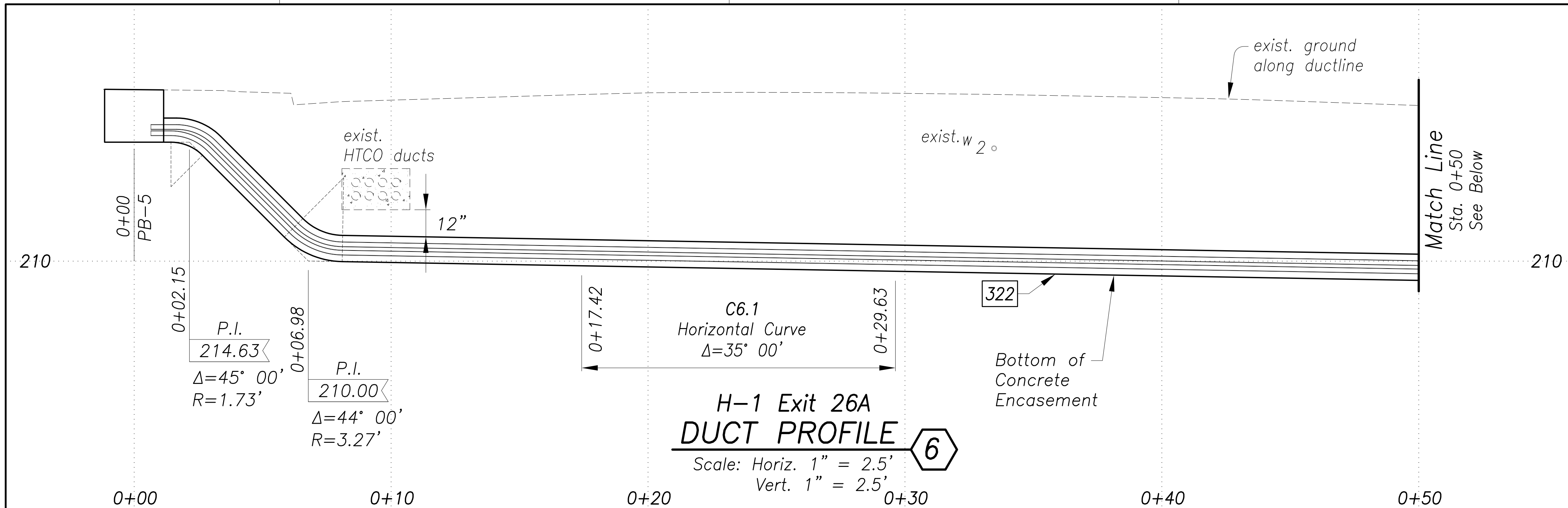
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)
Scale: 1"=2.5' Date: July 2020

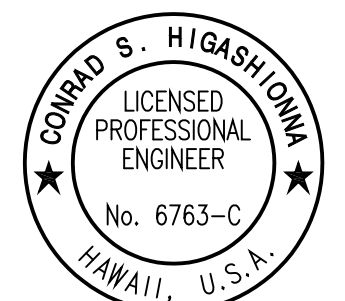
SHEET No. TS-77 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	173	284



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

Aug 28, 2020-13:00m
 N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\173 Duct Line Profile H-06.dwg



License Expiration Date: 04-30-22
 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

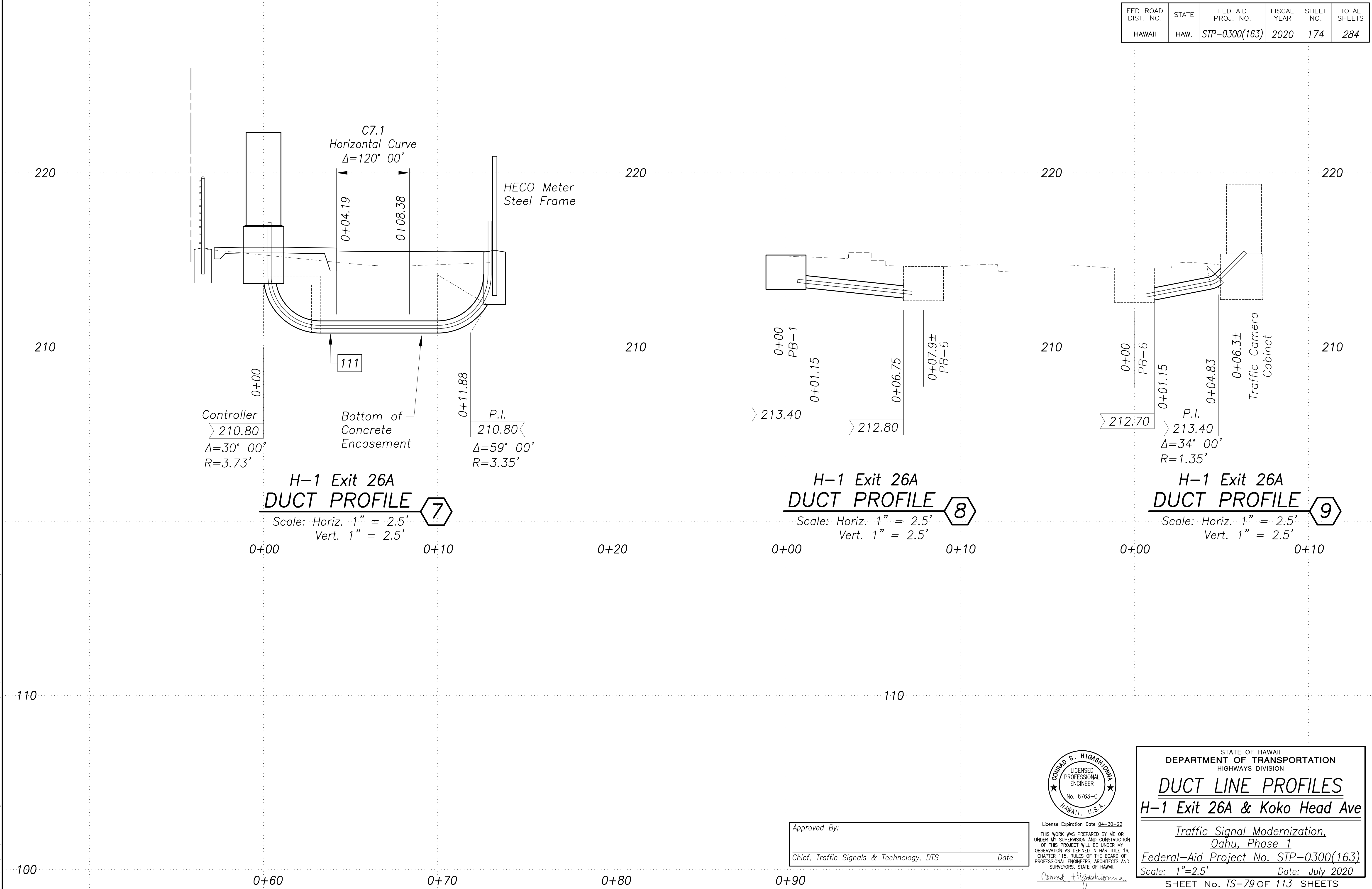
Approved By: _____ Date: _____
 Chief, Traffic Signals & Technology, DTS

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization,
 Oahu, Phase 1
 Federal-Aid Project No. STP-0300(163)
 Scale: 1"=2.5' Date: July 2020
 SHEET No. TS-78 OF 113 SHEETS

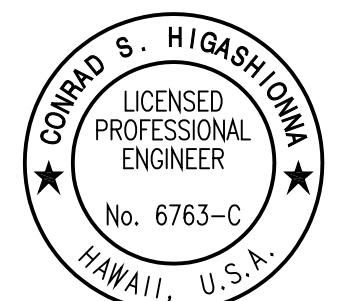
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	174	284



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

Aug 28, 2020-8:30am
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\174 Duct Line Profile H-07 & 08 & 09.dwg

Approved By: _____
Chief, Traffic Signals & Technology, DTS
Date: _____



License Expiration Date 04-30-22
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.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES

H-1 Exit 26A & Koko Head Ave

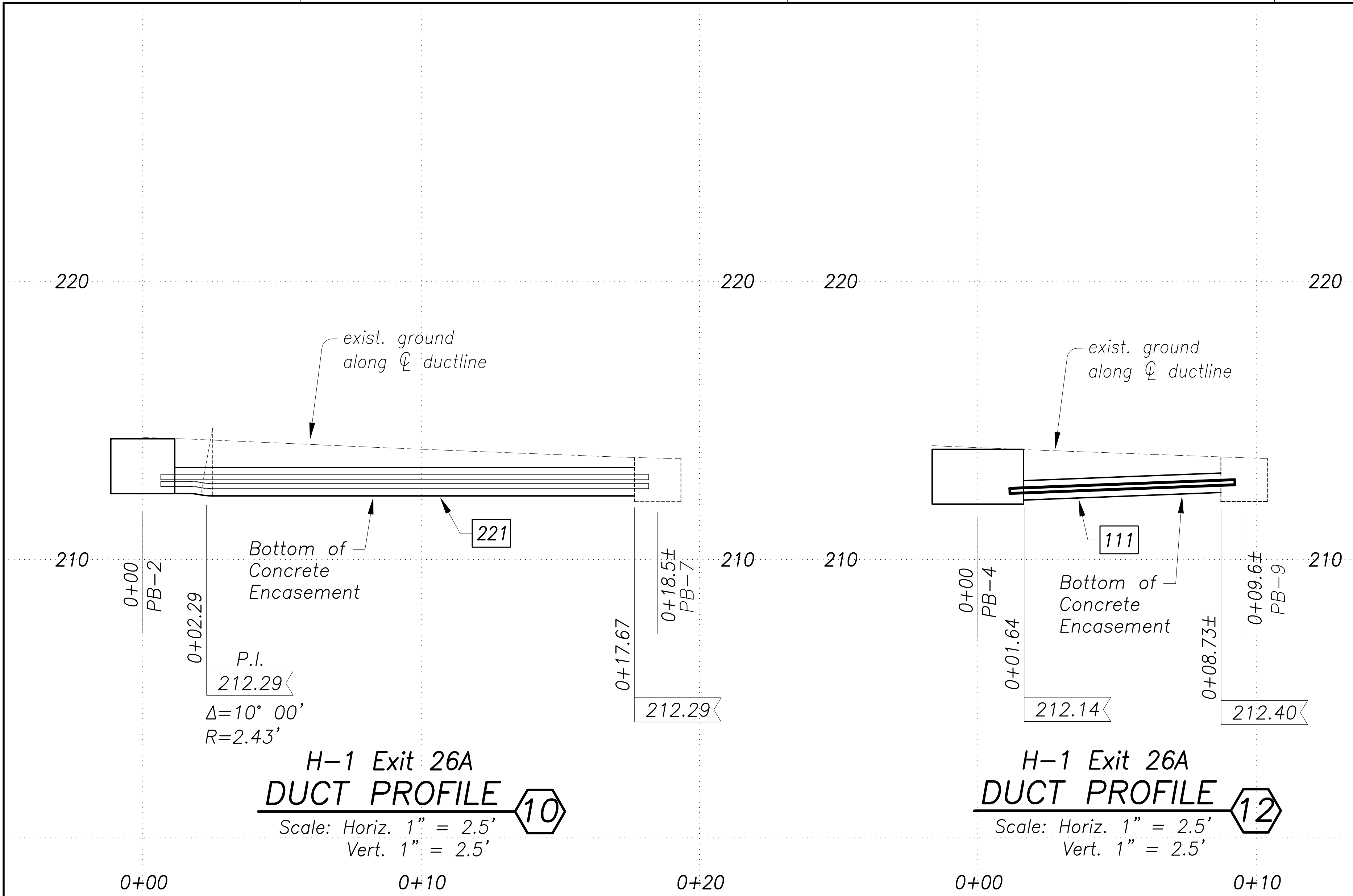
Traffic Signal Modernization,
Oahu, Phase 1

Federal-Aid Project No. STP-0300(163)

Scale: 1"=2.5' Date: July 2020

SHEET No. TS-79 OF 113 SHEETS

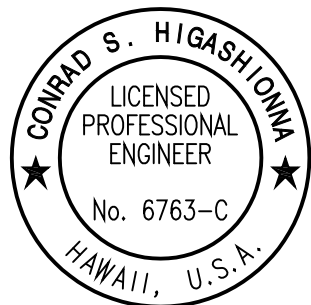
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)	2020	175	284



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

Aug 28, 2020-8:34am
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\175 Duct Line Profile H-10 & 12.dwg

Approved By: _____
Chief, Traffic Signals & Technology, DTS
Date: _____



License Expiration Date 04-30-22
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

DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave

Traffic Signal Modernization,
Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)

Scale: 1"=2.5' Date: July 2020

SHEET No. TS-80 OF 113 SHEETS