

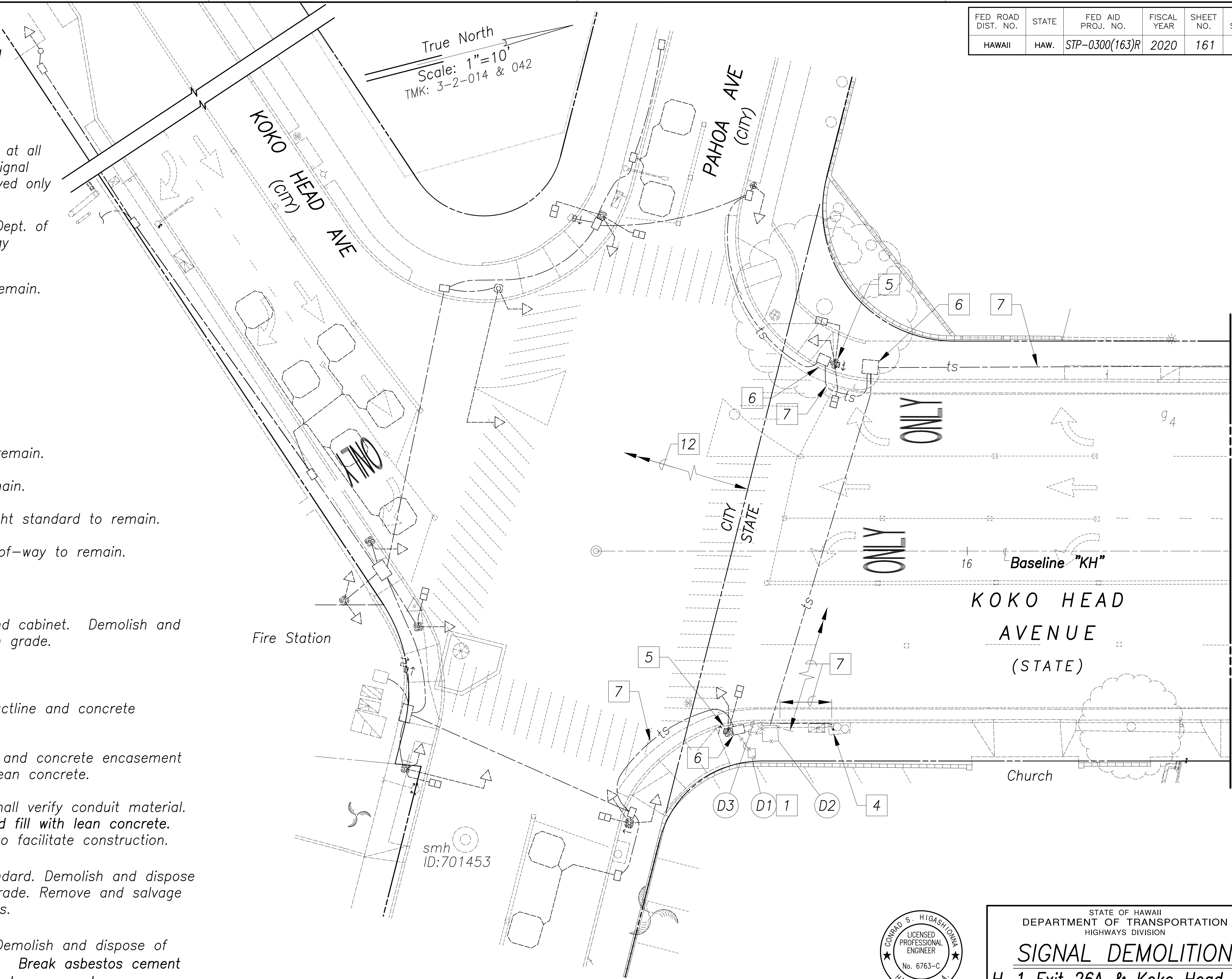
Notes:

- 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 asbestos-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)R	2020	161	291



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

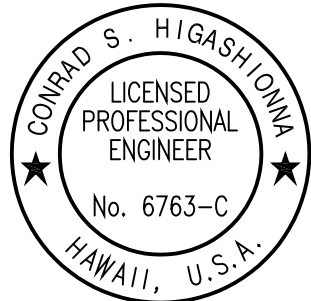
New 18, 2020-11-18m
N:\CADD\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\161 Signal Demolition H 1.dwg

GRAPHIC SCALES

SCALE 1"=10' 10' 5' 0 10' 20'

Approved By: _____ Date _____

Chief, Traffic Signals & Technology, DTS



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Conrad Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNAL DEMOLITION

H-1 Exit 26A & Koko Head Ave

ADDITIVE ALTERNATE #3

Traffic Signal Modernization, Oahu, Phase 1

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

Scale: 1"=10' Date: Oct. 2020

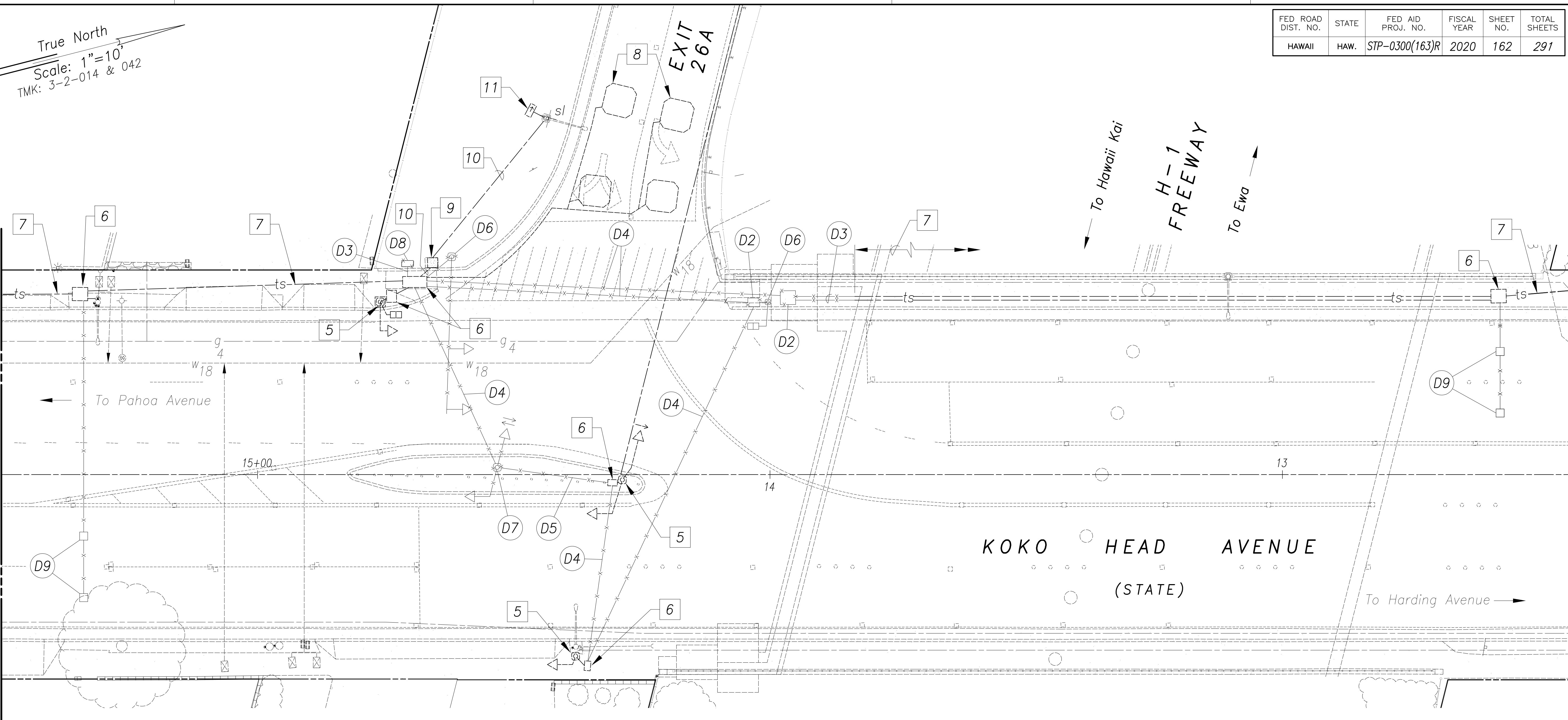
SHEET No. TS-59 OF 113 SHEETS

Match Line
Sta. 15+50 See Sheet 162

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

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	162	291

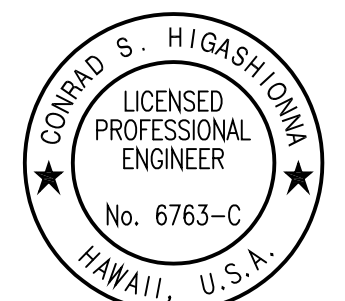
Match Line
Sta. 15+65 See Sheet 161



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

New 18, 2020-11-18m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\162 Signal Demolition H 2.dwg

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



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Conrad Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNAL DEMOLITION
H-1 Exit 26A & Koko Head Ave
ADDITIVE ALTERNATE #3
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R
Scale: 1"=10' Date: Oct. 2020
SHEET No. TS-60 OF 113 SHEETS

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

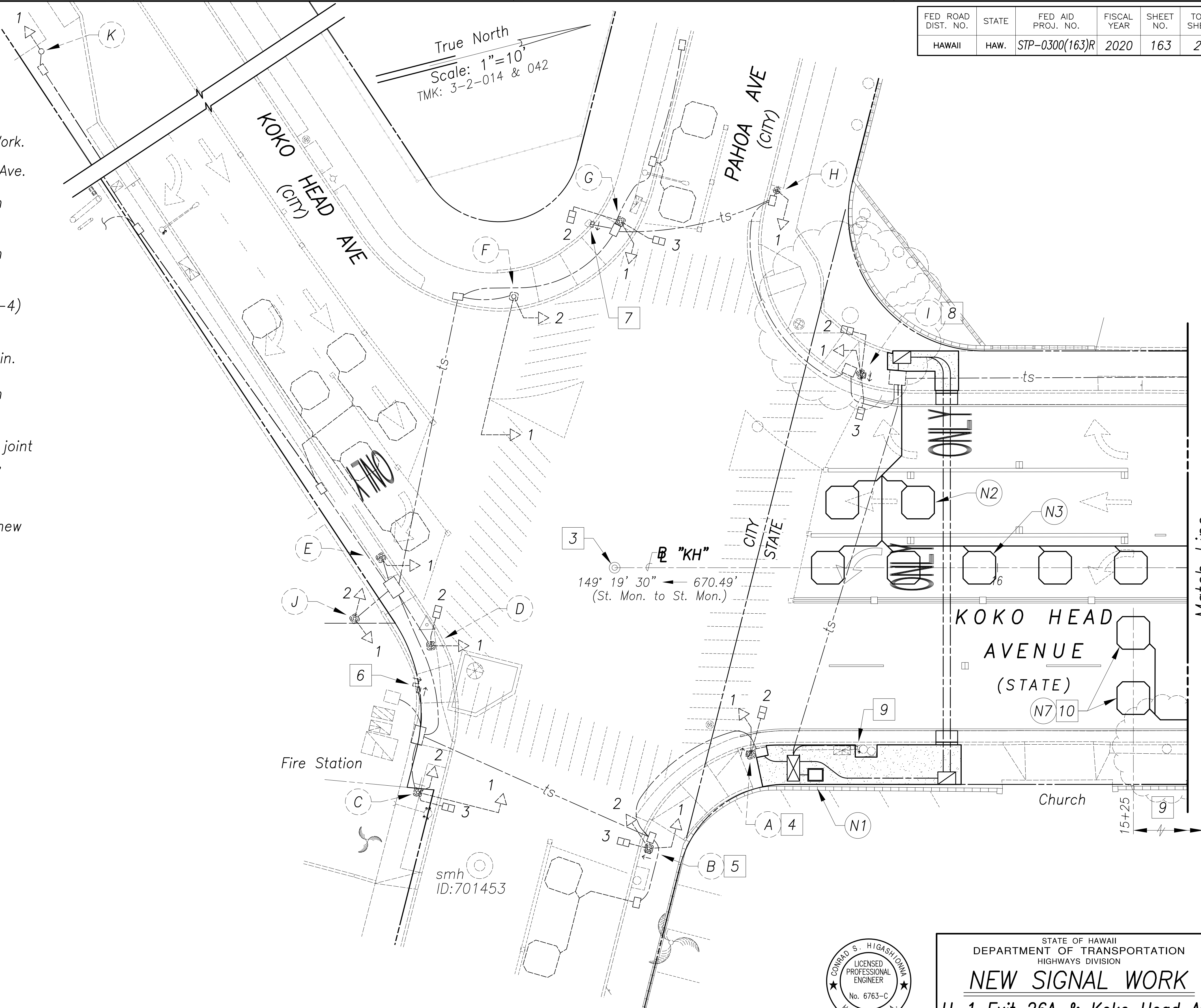
Notes:

- 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 164.
- 11
- See sheet 169 for new signal work schedules.

New Signal Work Callouts:

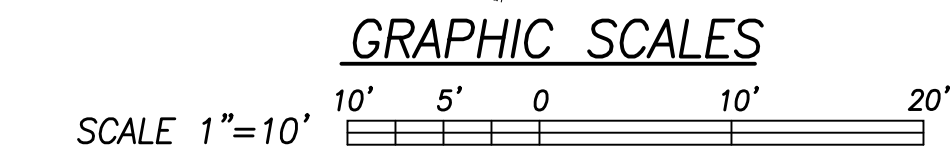
- N1
- Install Controller Assembly with Software 16+34 @ "KH" (38.13' Rt.)
- N2
- Install Loop Detector Sensing Unit (6 Ft. x 6 Ft.) 2 Loops centered in lane
- N3
- Install Loop Detector Sensing Unit (6 Ft. x 6 Ft.) 6 Loops centered in lane

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	163	291



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QUANTITIES BY	
CHECKED BY	
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NOTE BOOK	
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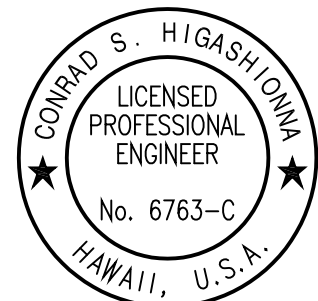
New 18, 2020-11-10m
N:\CADD\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\163 Signal Plan H 1.dwg



Approved By:

Chief, Traffic Signals & Technology, DTS

Date



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Conrad Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW SIGNAL WORK

H-1 Exit 26A & Koko Head Ave

ADDITIVE ALTERNATE #3

Traffic Signal Modernization, Oahu, Phase 1

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

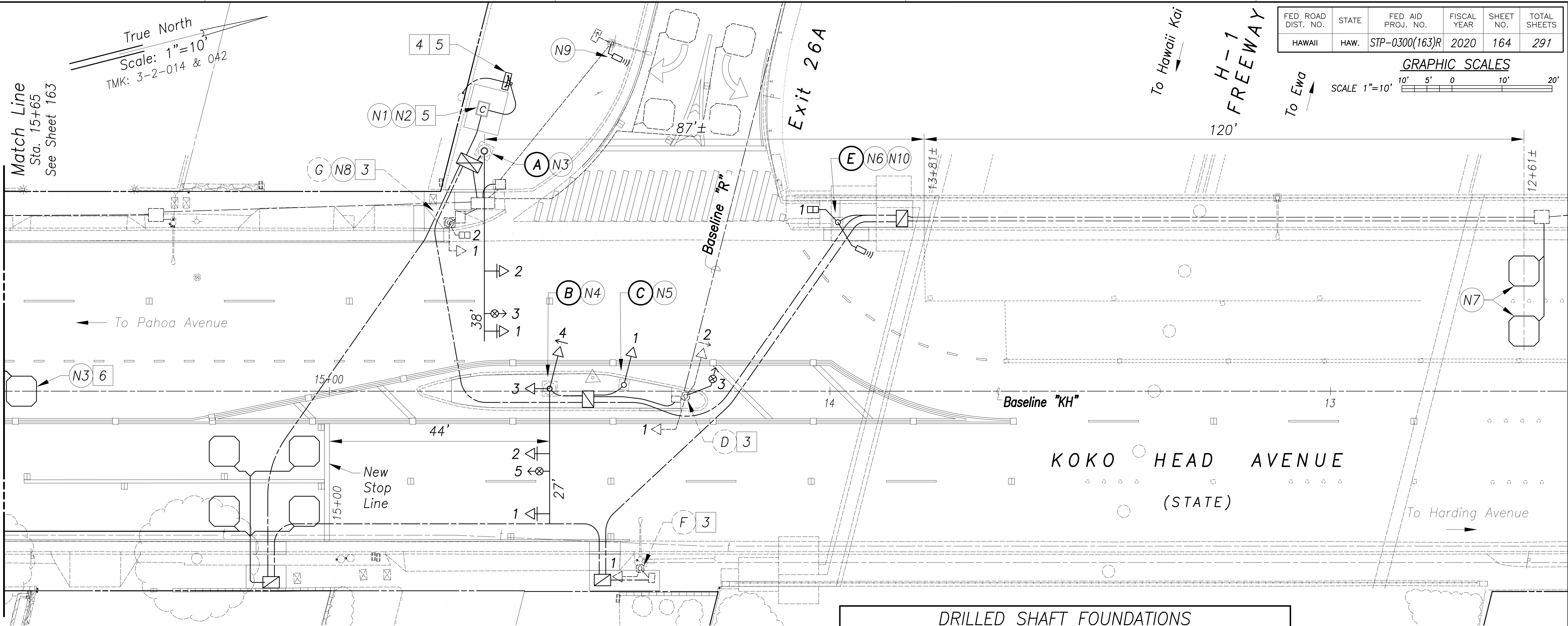
Scale: 1"=10' Date: Oct. 2020

SHEET No. TS-61 OF 113 SHEETS

Match Line
Sta. 15+65 See Sheet 164

New 18, 2020-Exit26m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\164 Signal Plan H 2.dwg

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



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)
(A)	Stiff Clays	Level	38	30	11
(B)	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.

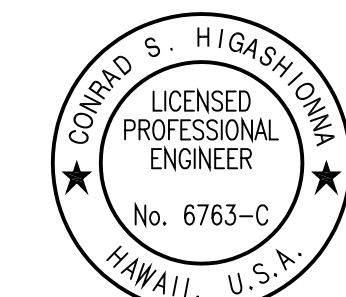
No boring for soils data conducted for this site.

- 6 New loop detectors for intersection of Pahoa Ave and Koko Head Ave. See new signal work callout on sheet 163.
- 7 See sheet 170 for new signal work schedules.

Approved By:

Chief, Traffic Signals & Technology, DTS

Date



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Conrad Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW SIGNAL WORK

H-1 Exit 26A & Koko Head Ave

ADDITIVE ALTERNATE #3

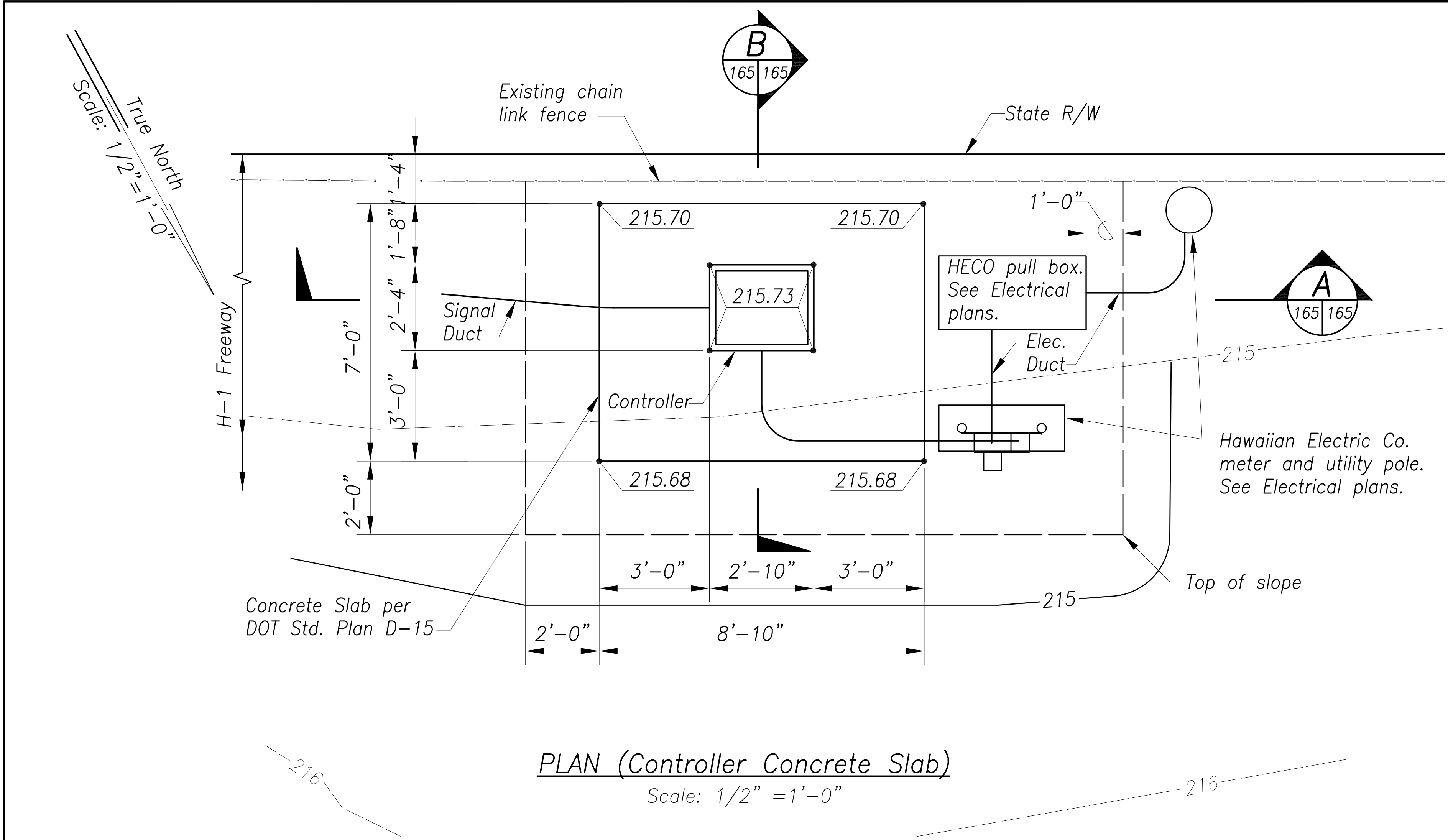
Traffic Signal Modernization, Oahu, Phase 1

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

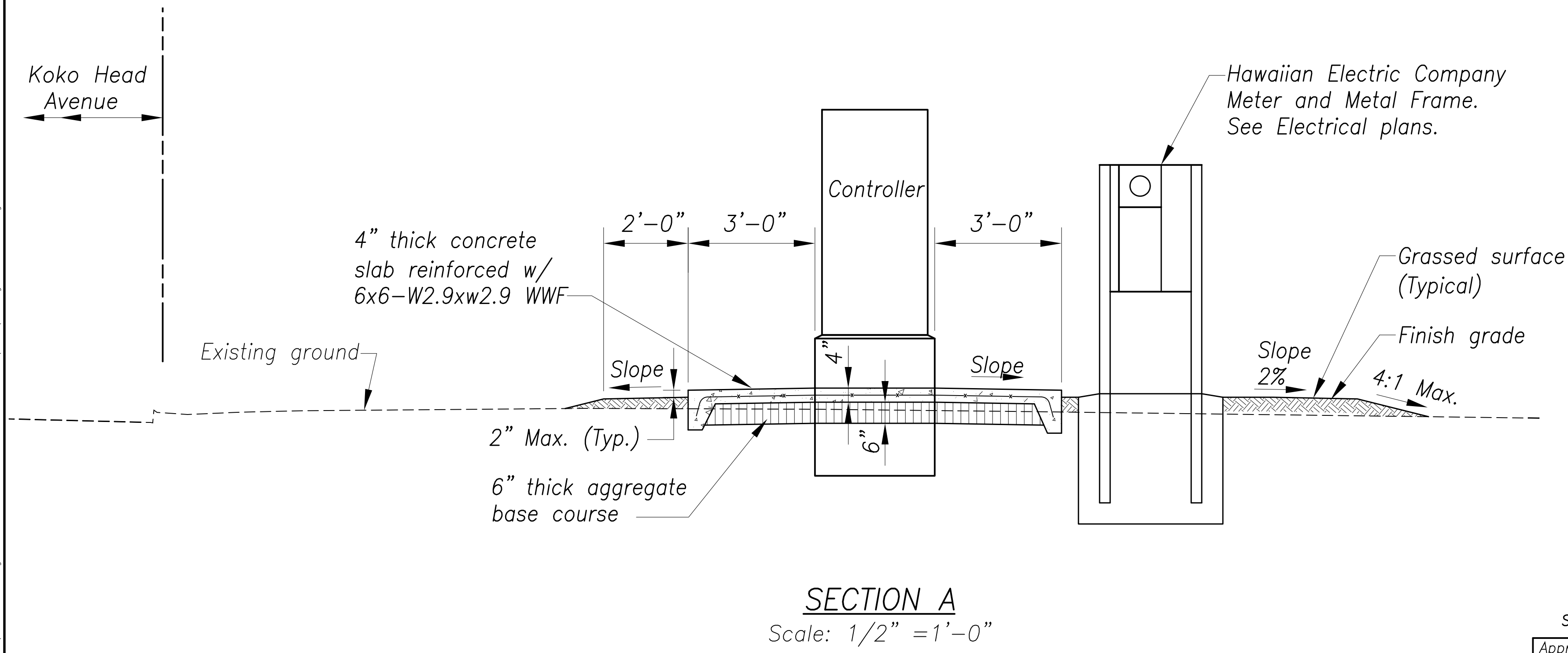
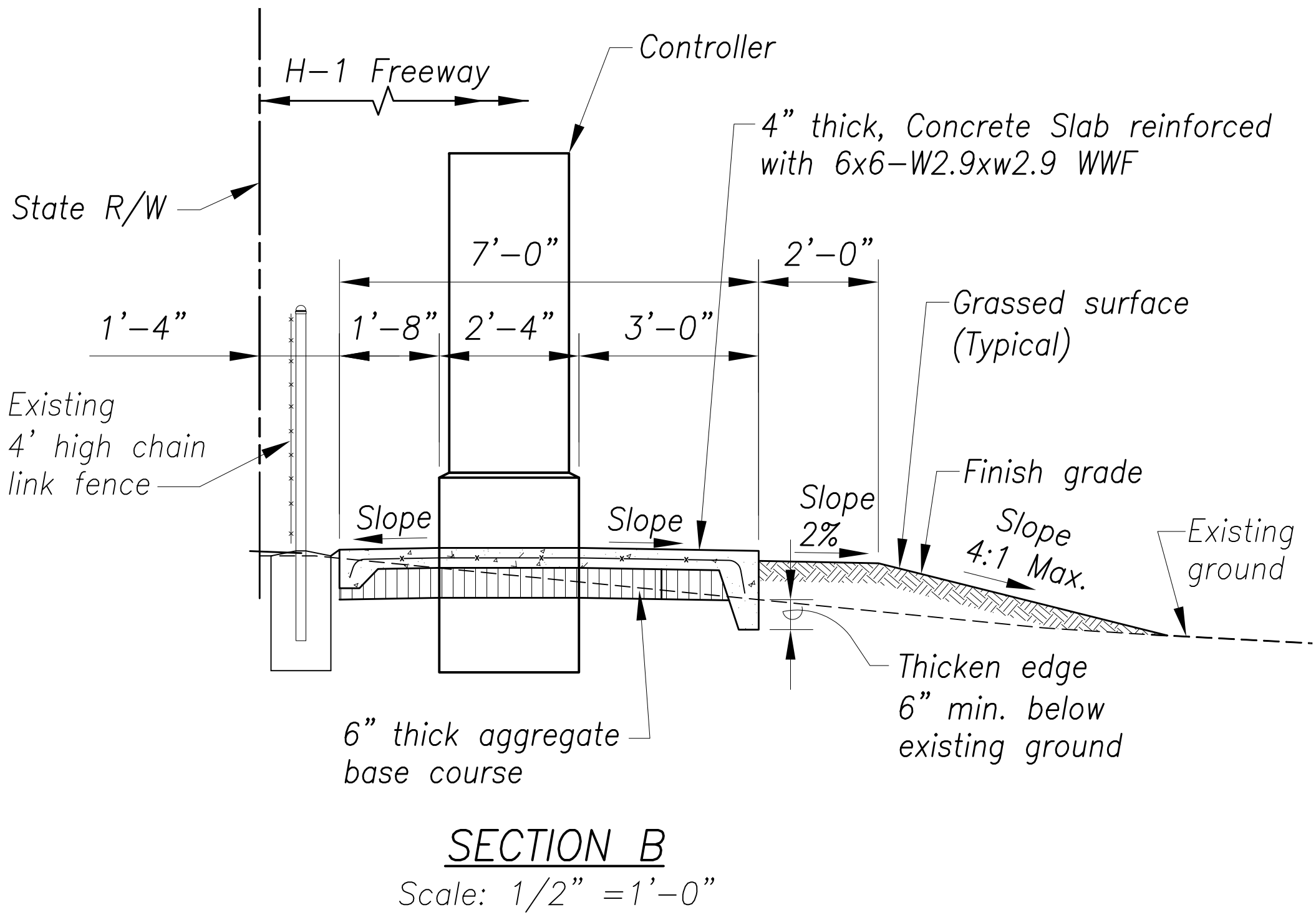
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SHEET No. TS-62 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	165	291



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



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

New 18, 2020-12-20am
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\165 Signal Plan H.3.dwg

GRAPHIC SCALES

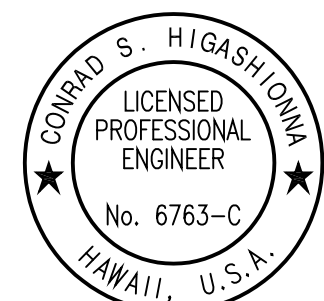
SCALE 1/2"=1'

2' 1' 0' 2' 4'

Approved By:

Chief, Traffic Signals & Technology, DTS

Date



License Expiration Date 04-30-22

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Conrad Higashi

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

SIGNAL PLAN

H-1 Exit 26A & Koko Head Ave

ADDITIVE ALTERNATE #3

Traffic Signal Modernization, Oahu, Phase 1

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

Scale: 1/2"=1'-0" Date: Oct. 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

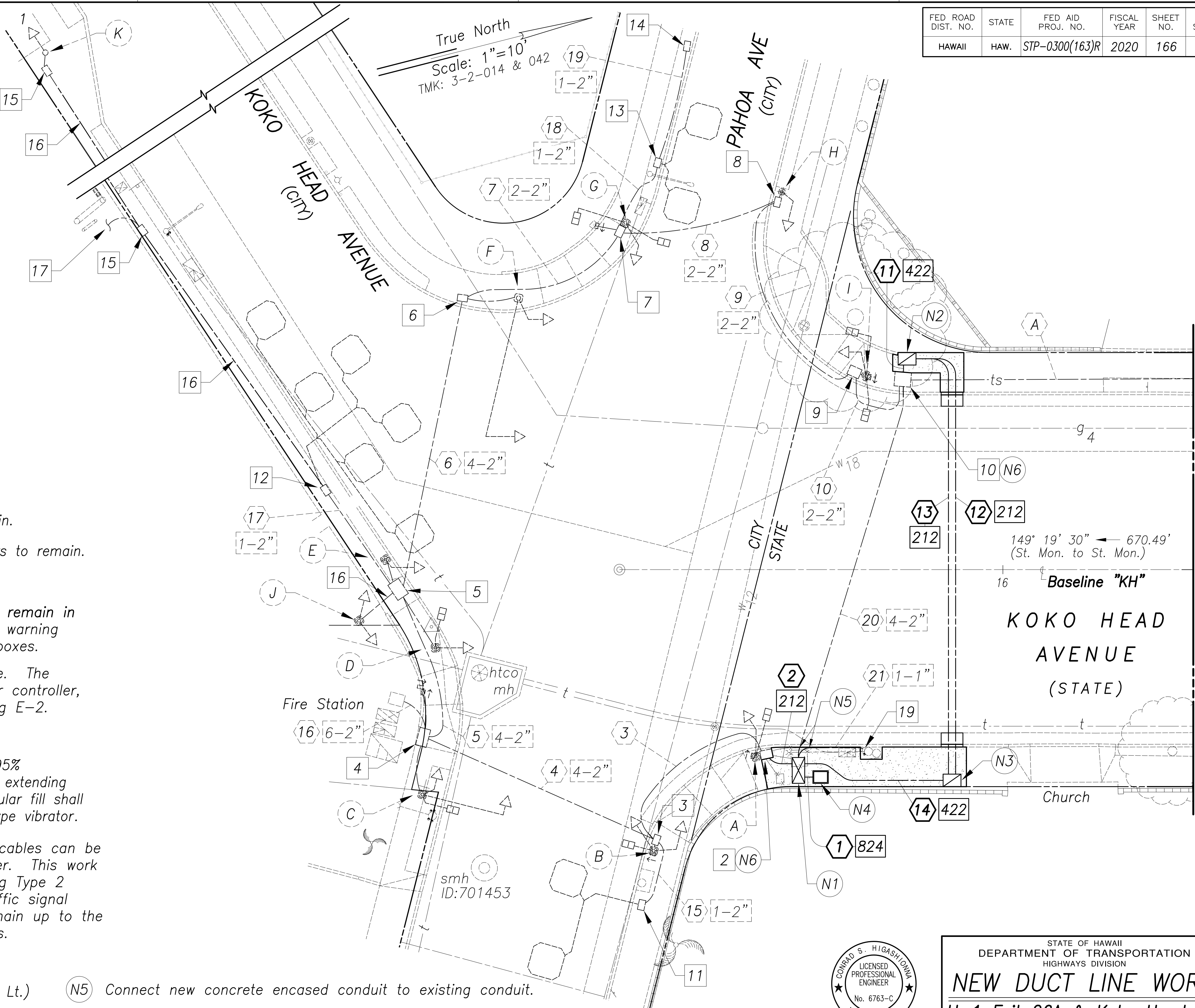
Install Type B Pullbox PB-11. 16+17.62 @ "KH" (38.77' Rt.)
- N3

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)R	2020	166	291

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NOTE BOOK	
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New 18, 2020-12-20am
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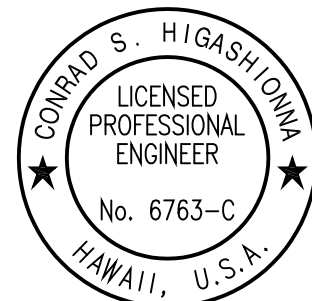
GRAPHIC SCALES

SCALE 1"=10' 10' 5' 0' 10' 20'

Approved By:

Chief, Traffic Signals & Technology, DTS

Date



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Conrad Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW DUCT LINE WORK

H-1 Exit 26A & Koko Head Ave

ADDITIVE ALTERNATE #3

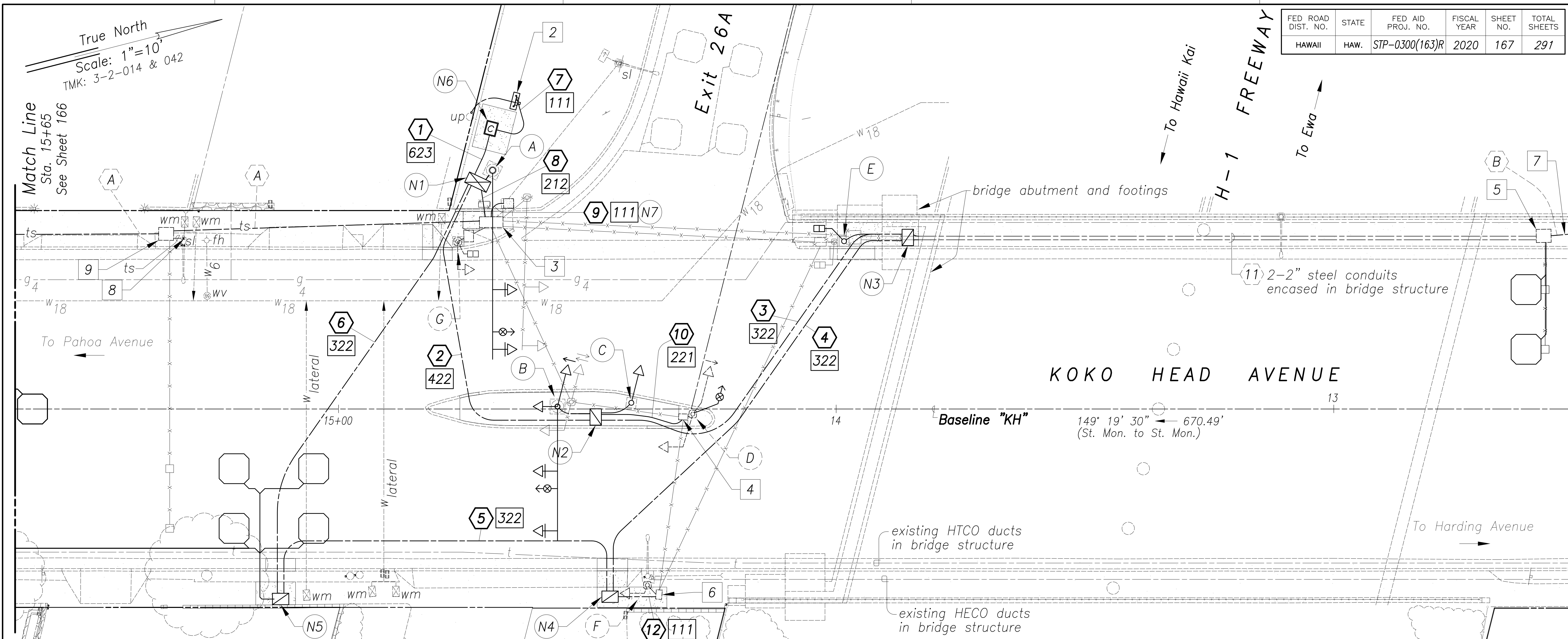
Traffic Signal Modernization, Oahu, Phase 1

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

Scale: 1"=10' Date: Oct. 2020

SHEET No. TS-64 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	167	291



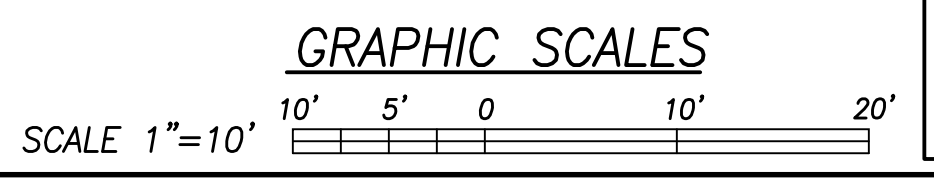
Notes and New Duct Line Work Callouts for Intersection of Pahoa Ave & Koko Head Ave ONLY:

Notes:

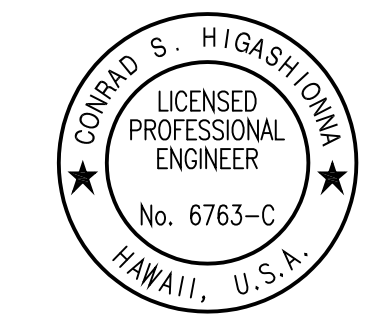
- 1 Tie-down of pullboxes is to center of box.
- 2 New HECO meter. For details, see drawings E-16 thru E-19.
- 3 Existing pullbox PB-6 to remain.
- 4 Existing pullbox PB-7 to remain.
- 5 Existing pullbox PB-8 to remain.
- 6 Existing pullbox PB-9 to remain.
- 7 See Inter-Connect Plan on sheet 161 for 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 _____



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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW DUCT LINE WORK

H-1 Exit 26A & Koko Head Ave

ADDITIVE ALTERNATE #3

Traffic Signal Modernization, Oahu, Phase 1

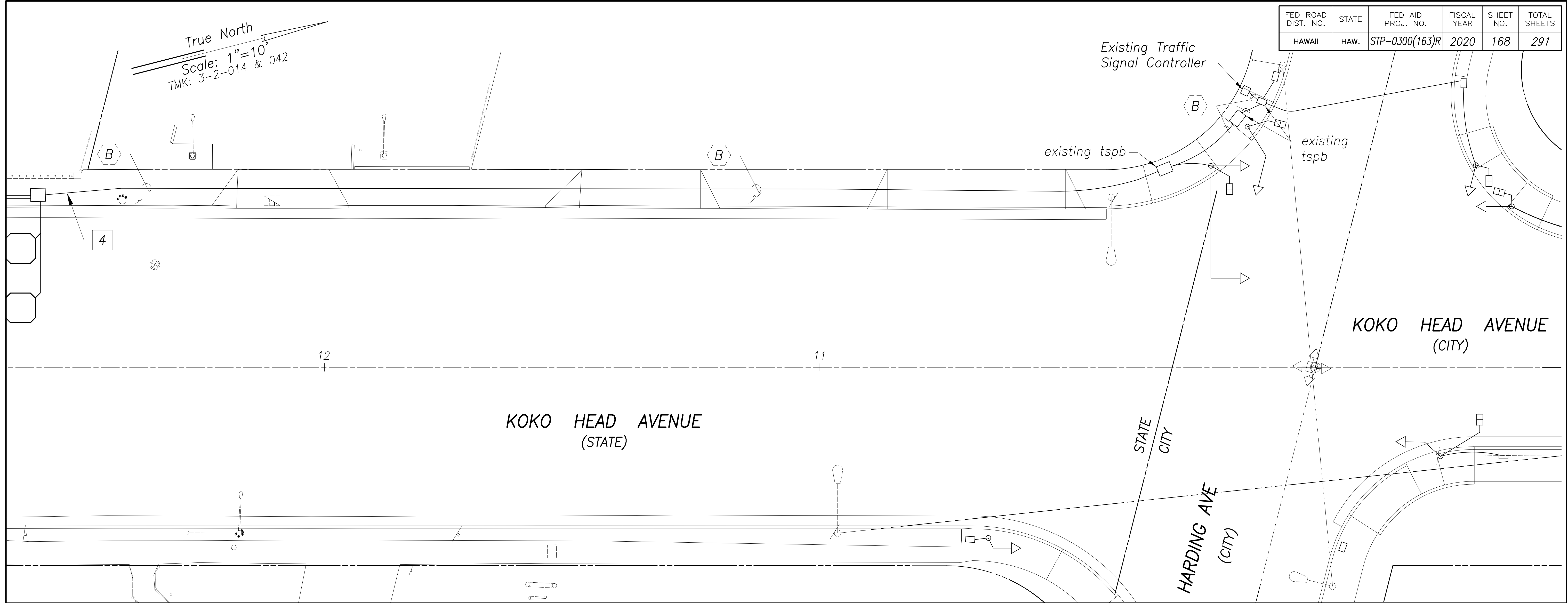
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=10' Date: Oct. 2020

SHEET No. TS-65 OF 113 SHEETS

SURVEY PLOTTED BY	DATE
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New 18, 2020-10-20am
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	168	291

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 167 for continuation.

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DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
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New 18, 2020-10-20am
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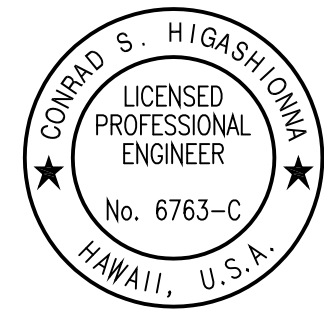
GRAPHIC SCALES

SCALE 1"=10'

10' 5' 0 10' 20'

Approved By: _____ Date _____

Chief, Traffic Signals & Technology, DTS



License Expiration Date 04-30-22

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Conrad Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

INTER-CONNECT PLAN

H-1 Exit 26A & Koko Head Ave

ADDITIVE ALTERNATE #3

Traffic Signal Modernization, Oahu, Phase 1

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

Scale: 1"=10' Date: Oct. 2020

SHEET No. TS-66 OF 113 SHEETS

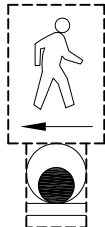
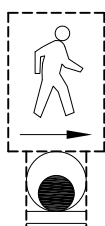
ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
NOTE BOOK	DRAWN BY _____	_____
	TRACED BY _____	_____
	DESIGNED BY _____	_____
	QUANTITIES BY _____	_____
No. _____	CHECKED BY _____	_____

Nov 18, 2020-5:20am
 H:\CAD\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\169 Conduit Cable Table H 1.dwg

SIGNAL HEAD SCHEDULE
at Intersection of
Pahoa Ave with Koko Head Ave

Approved By: _____

Chief, Traffic Signals & Technology, DTS _____ Date _____

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

License Expiration Date 04-30-22

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Conrad Higashionna

169

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

Nov 18, 2020-5:20am
 H:\CAD\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\170 Conduit Cable Table H 2.dwg

Approved By: _____

Chief, Traffic Signals & Technology, DTS _____ Date _____



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CHAPTER 115, RULES OF THE BOARD OF
PROFESSIONAL ENGINEERS, ARCHITECTS AND
SURVEYORS, STATE OF HAWAII.

Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

NEW WORK SCHEDULES

H-1 Exit 26A & Koko Head Ave

ADDITIVE ALTERNATE #3

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

Scale: _____ Date: Oct. 2020

SHEET No. TS-68 OF 113 SHEETS

True North
Scale: 1"=5'
TMK: 3-2-014 & 042

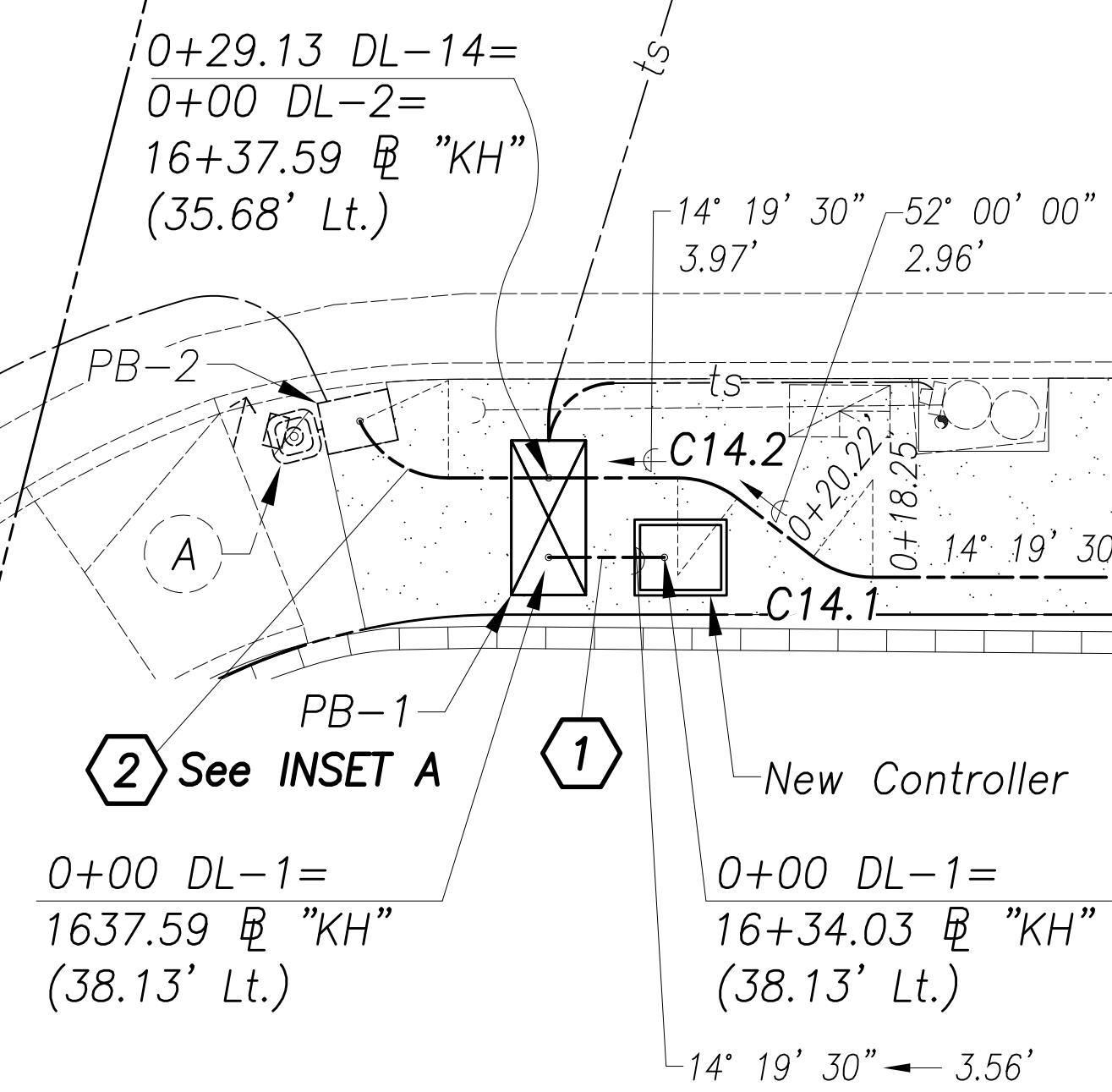
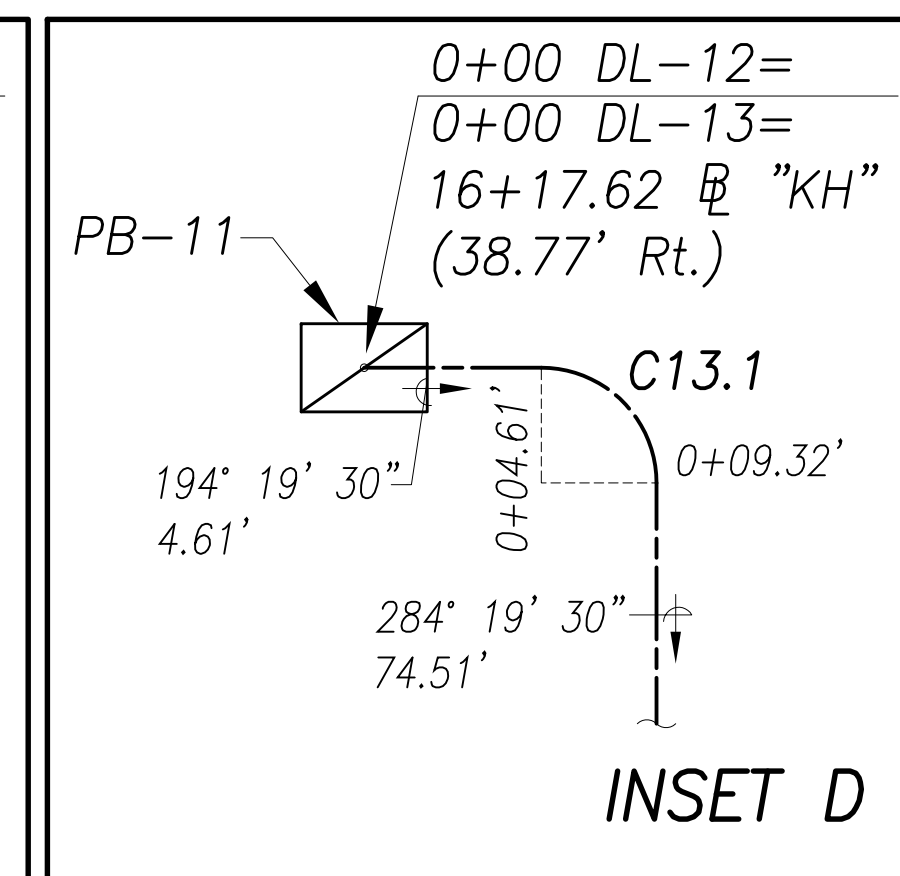
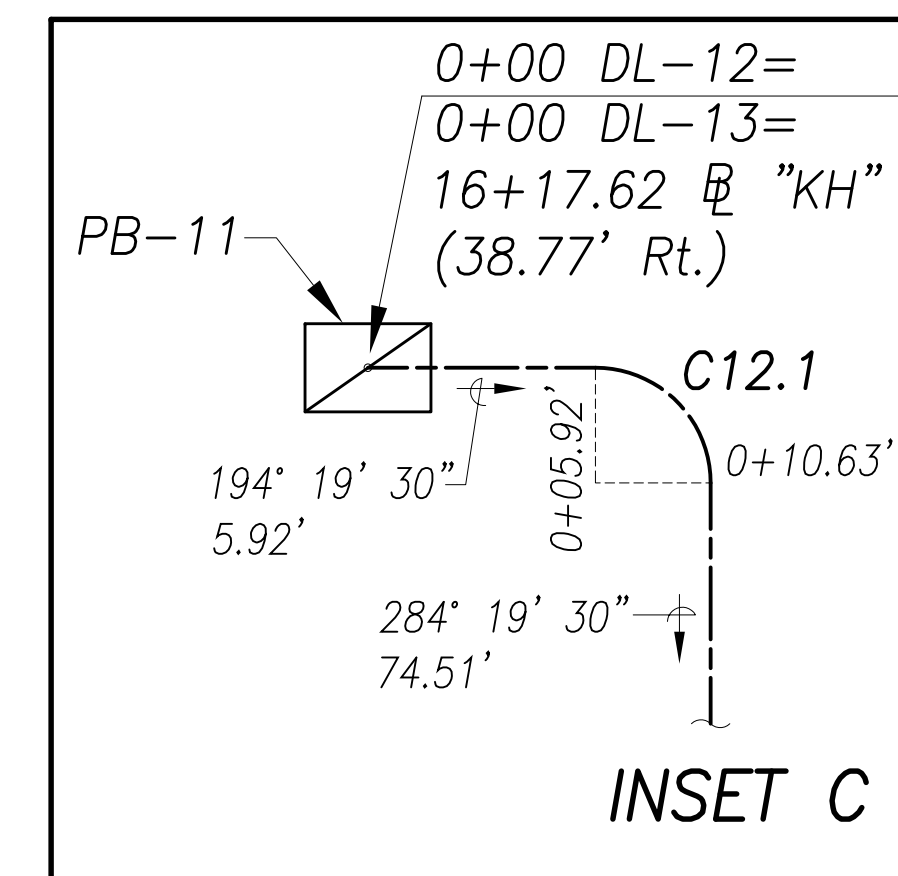
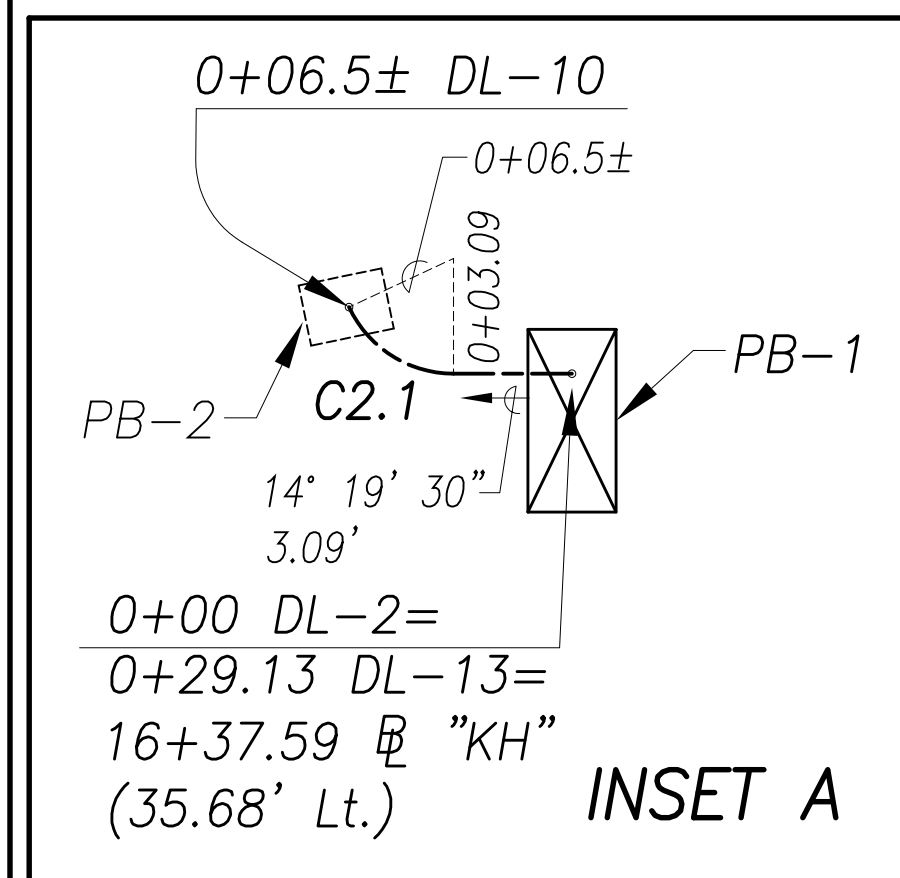
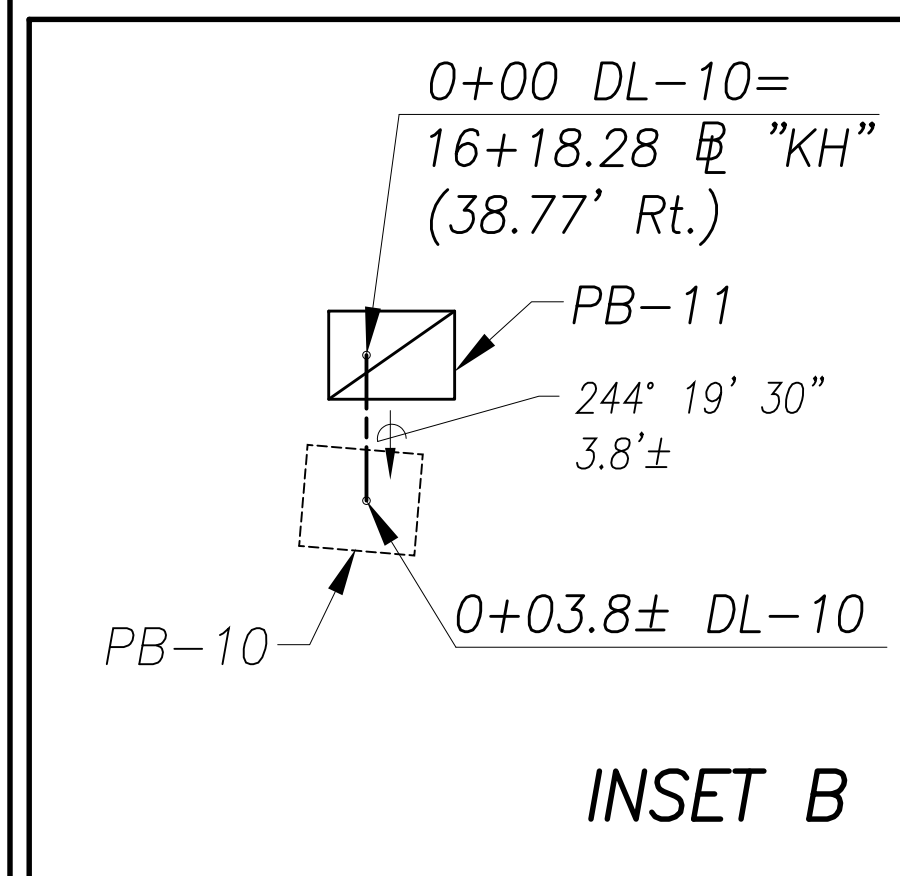
PAHOA AVENUE
(CITY)

CITY
STATE

KOKO HEAD AVENUE
(STATE)

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	171	291

Duct Line Curve Data		
	C2.1	C12.1
Δ	65° 00' 00"	90° 00' 00"
$\Delta/2$	32° 30' 00"	45° 00' 00"
R	3.00'	3.00'
T	1.91'	3.00'
Ch	3.22'	4.24'
Lc	3.40'	4.71'
	C13.1	C14.1
Δ	90° 00' 00"	37° 40' 30"
$\Delta/2$	45° 00' 00"	18° 50' 45"
R	3.00'	3.00'
T	3.00'	1.02'
Ch	4.24'	1.94'
Lc	4.71'	1.97'
	C14.2	
Δ	37° 40' 30"	
$\Delta/2$	18° 50' 45"	
R	3.00'	
T	1.02'	
Ch	1.94'	
Lc	1.97'	



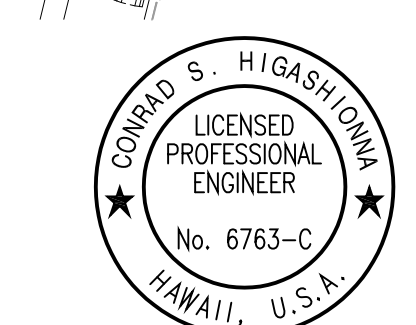
GRAPHIC SCALES

SCALE 1"=5'

5' 0 5' 10'

Approved By: _____ Date _____

Chief, Traffic Signals & Technology, DTS



License Expiration Date 04-30-22

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Conrad Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LAYOUT PLAN

H-1 Exit 26A & Koko Head Ave

ADDITIVE ALTERNATE #3

Traffic Signal Modernization, Oahu, Phase 1

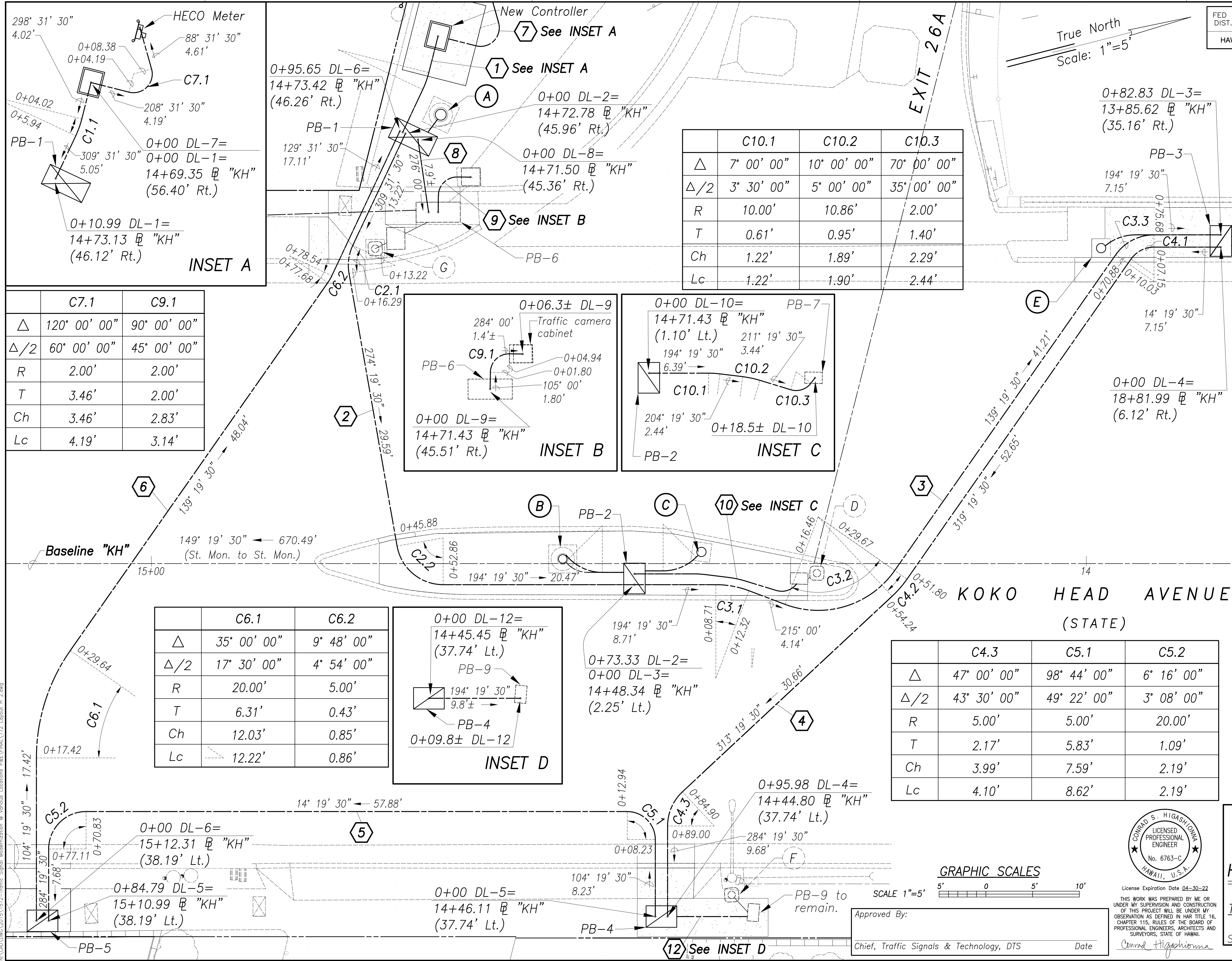
Federal-Aid Project No. STP-0300(163)R

Scale: 1"=5' Date: Oct. 2020

SHEET No. TS-69 OF 113 SHEETS

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

New 18, 2020-10-20am
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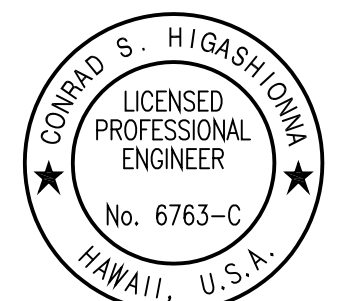


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	172	291

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	
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

New 18, 2020-5:30pm
N:\CADD\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\172 Layout H 2.dwg



License Expiration Date: 04-30-22
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Conrad Higashimura

GRAPHIC SCALES
SCALE 1"=5'
5' 0 5' 10'
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

ADDITIVE ALTERNATE #3

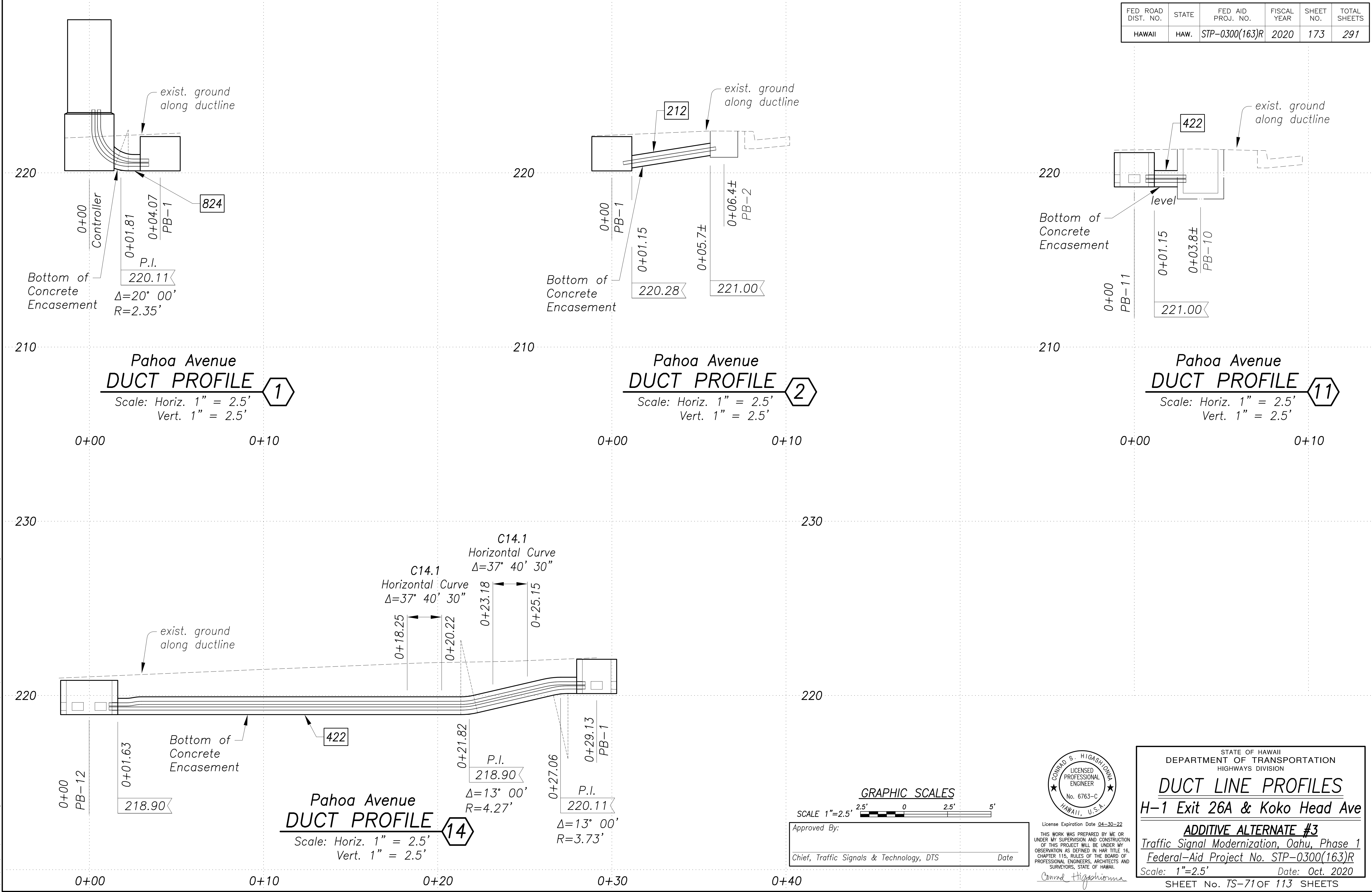
Traffic Signal Modernization, Oahu, Phase 1

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

Scale: 1"=5' Date: Oct. 2020

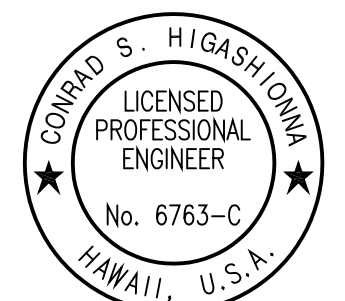
SHEET No. TS-70 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	173	291



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

New 18, 2020-10-20m
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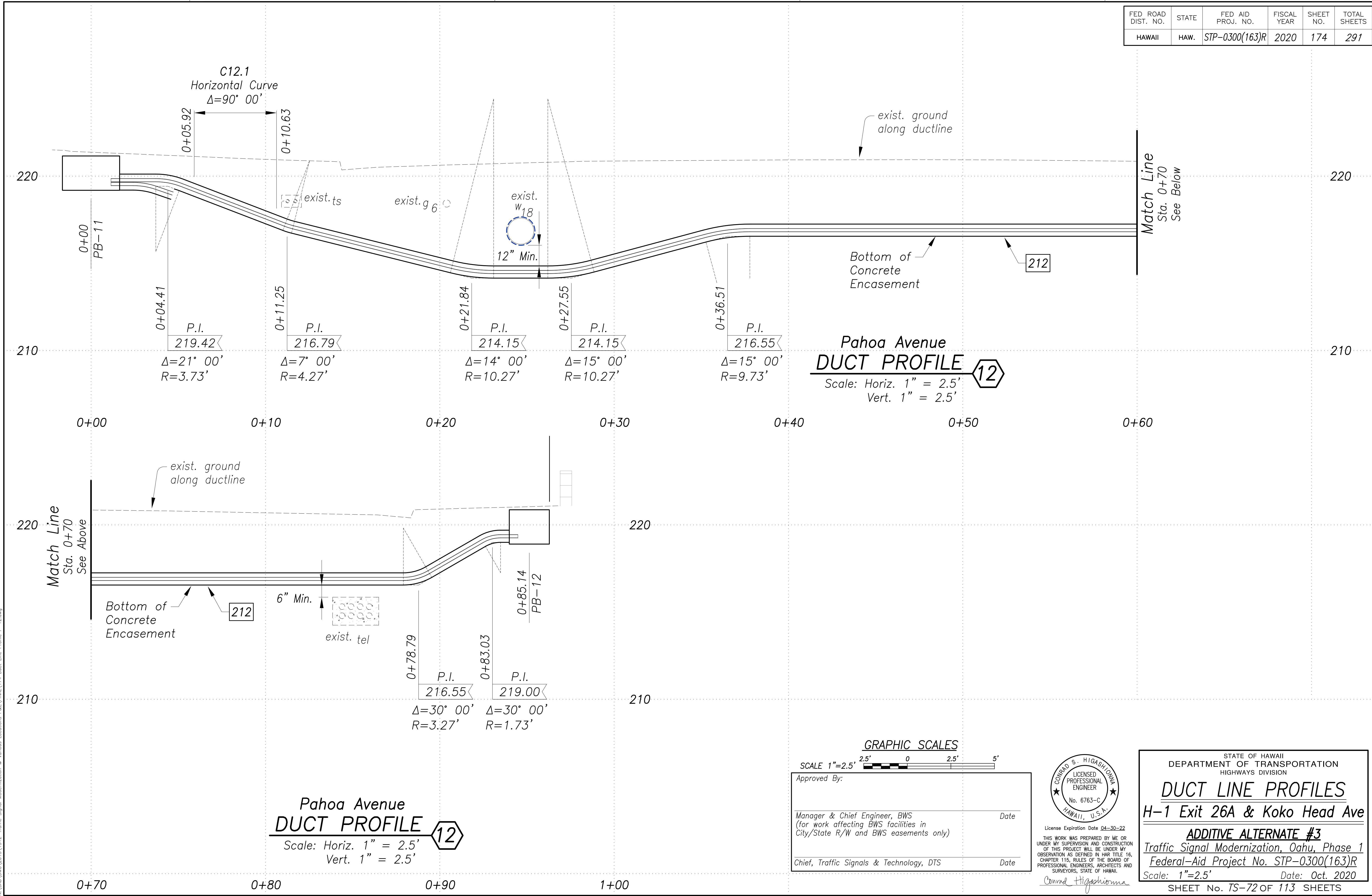
STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave
ADDITIVE ALTERNATE #3
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R
Scale: 1"=2.5' Date: Oct. 2020
SHEET No. TS-71 OF 113 SHEETS

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Conrad Higashimura

GRAPHIC SCALES
SCALE 1"=2.5'

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

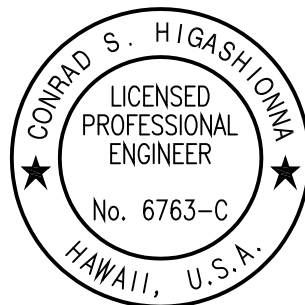
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	174	291



SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	

ORIGINAL PLAN	No.
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	

New 18, 2020-12-20m
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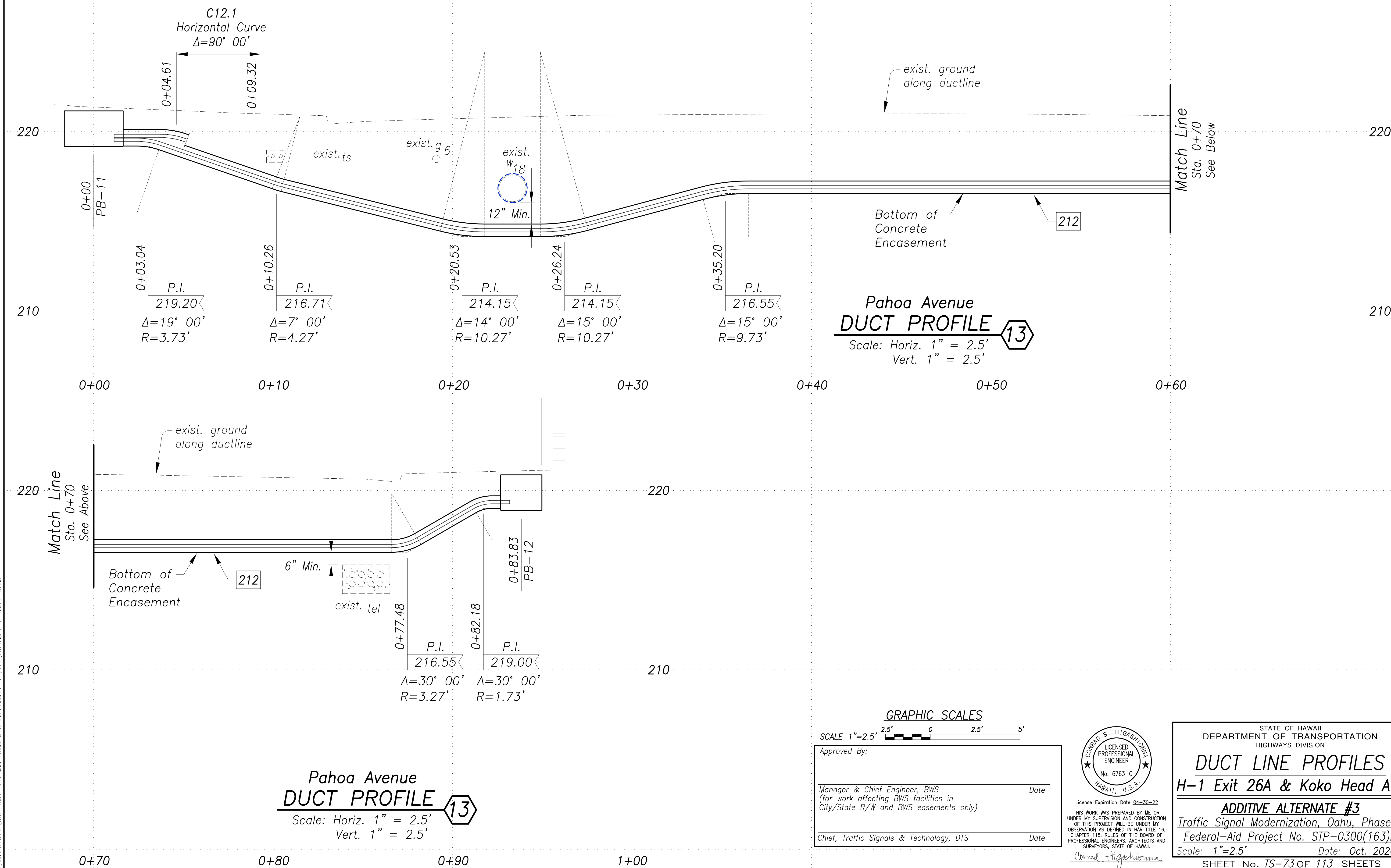
License Expiration Date: 04-30-22
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Conrad Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

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

ADDITIVE ALTERNATE #3
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R
Scale: 1"=2.5' Date: Oct. 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)R	2020	175	291



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

Nov 18, 2020-5:21am
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Conrad Higashionna

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES

H-1 Exit 26A & Koko Head Ave

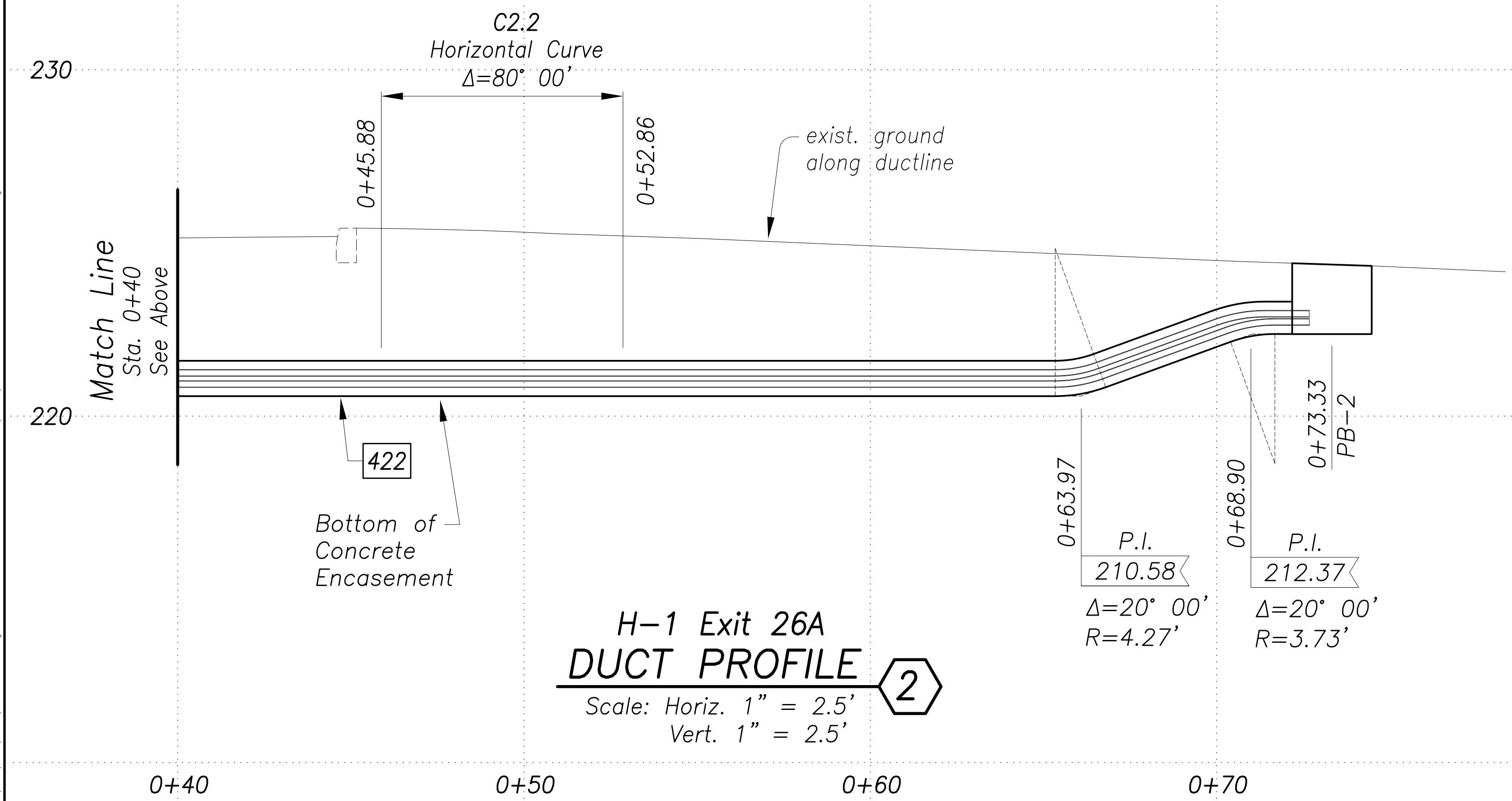
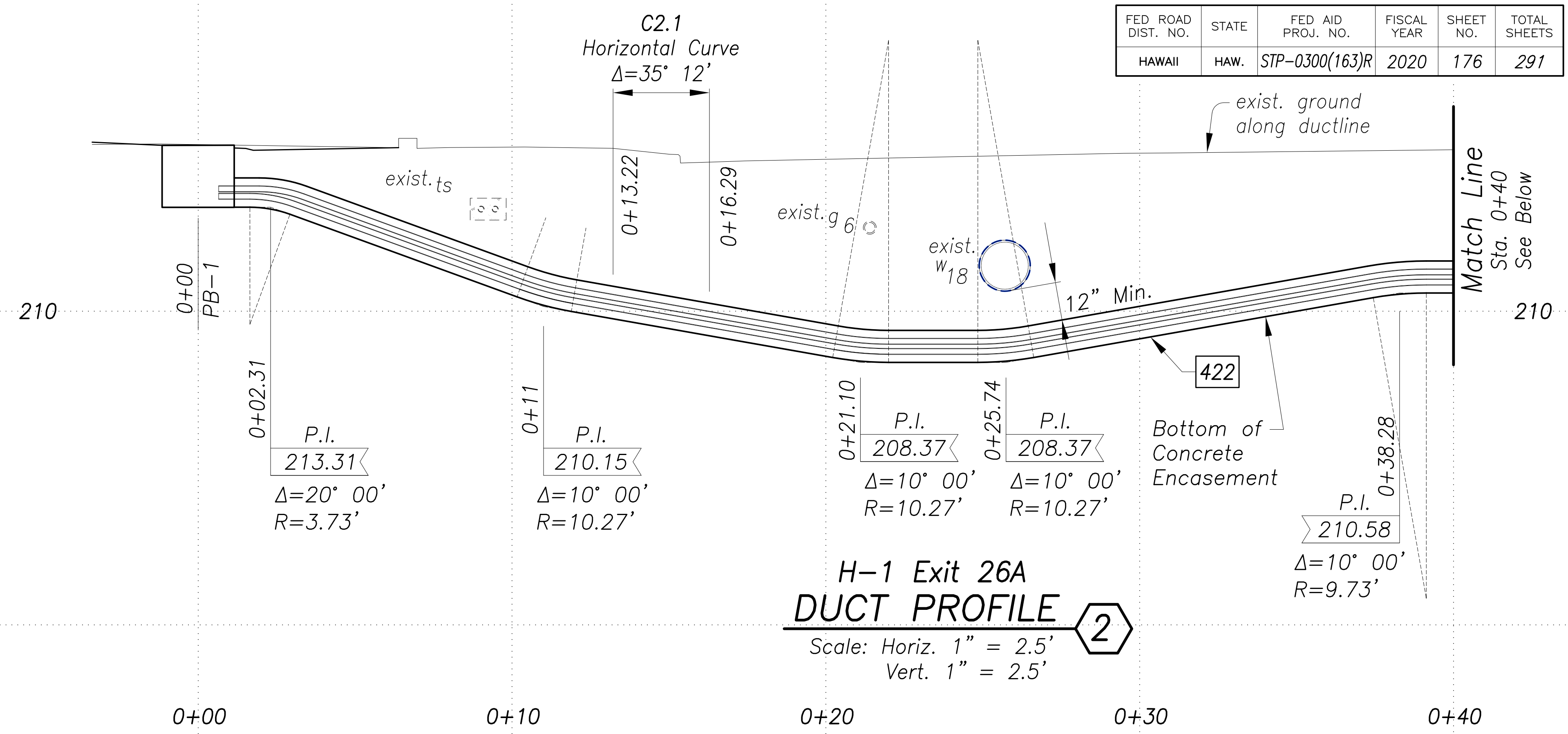
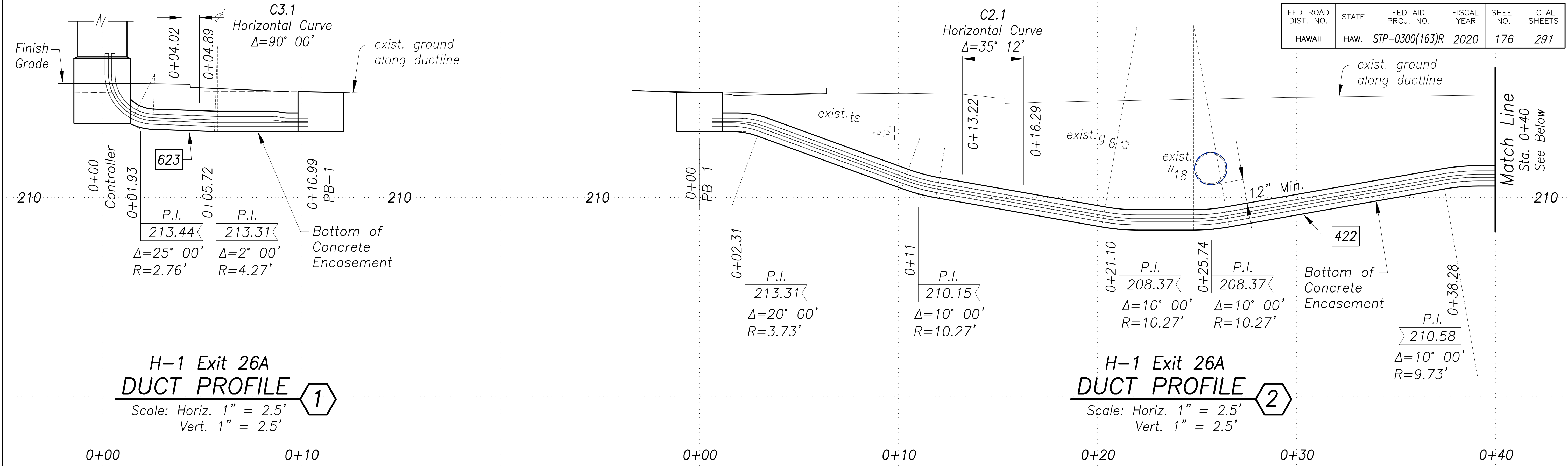
ADDITIVE ALTERNATE #3

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

Scale: 1"=2.5' Date: Oct. 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)R	2020	176	291



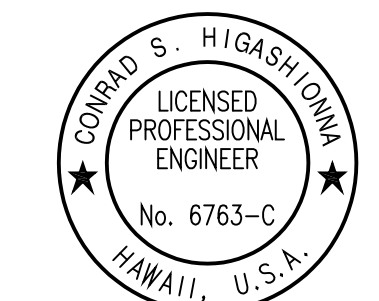
GRAPHIC SCALES

SCALE 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 _____



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES

H-1 Exit 26A & Koko Head Ave

ADDITIVE ALTERNATE #3

Traffic Signal Modernization, Oahu, Phase 1

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

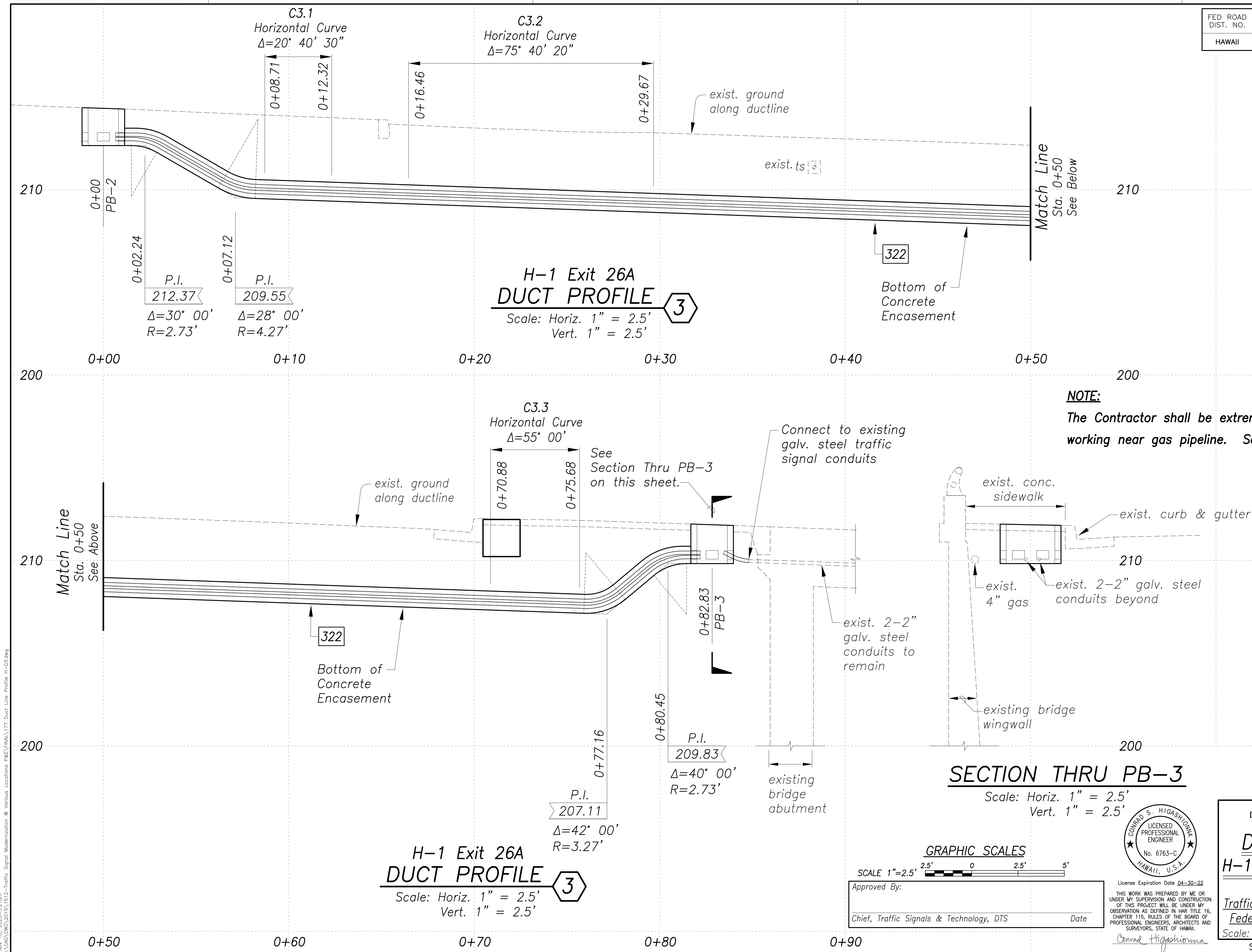
Scale: 1"=2.5' Date: Oct. 2020

SHEET No. TS-74 OF 113 SHEETS

SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
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New 18_2020-12-31.mxd
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	177	291



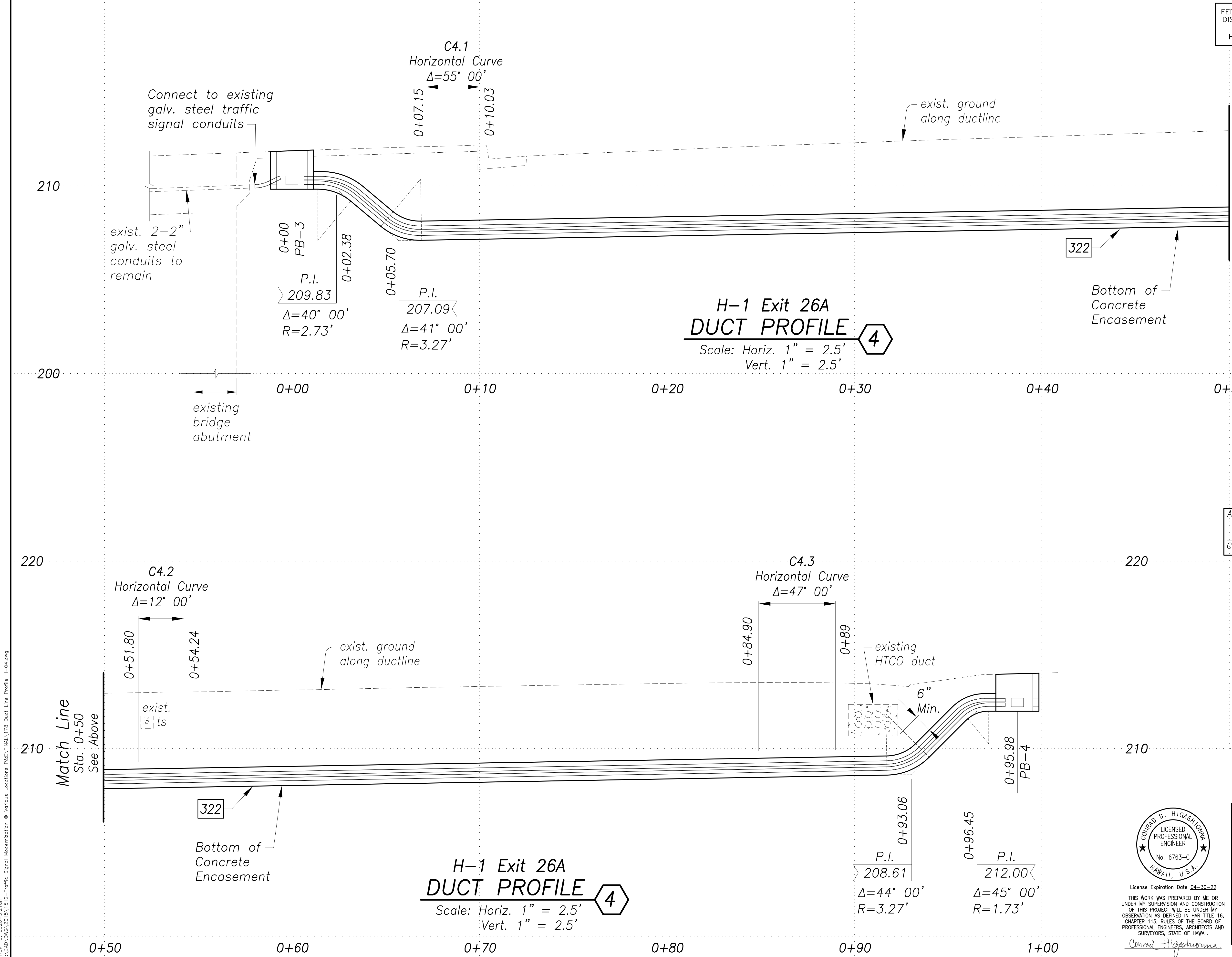
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DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

New 18, 2020-10-20
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave
ADDITIVE ALTERNATE #3
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R
Scale: 1"=2.5' Date: Oct. 2020
SHEET No. TS-75 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	178	291



GRAPHIC SCALES

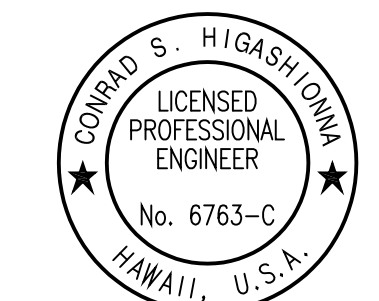
SCALE 1"=2.5'

Approved By: _____ Date: _____

Chief, Traffic Signals & Technology, DTS

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

New 18, 2020-03-20m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\178 Duct Line Profile H-04.dwg



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Conrad Higashi

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES

H-1 Exit 26A & Koko Head Ave

ADDITIVE ALTERNATE #3

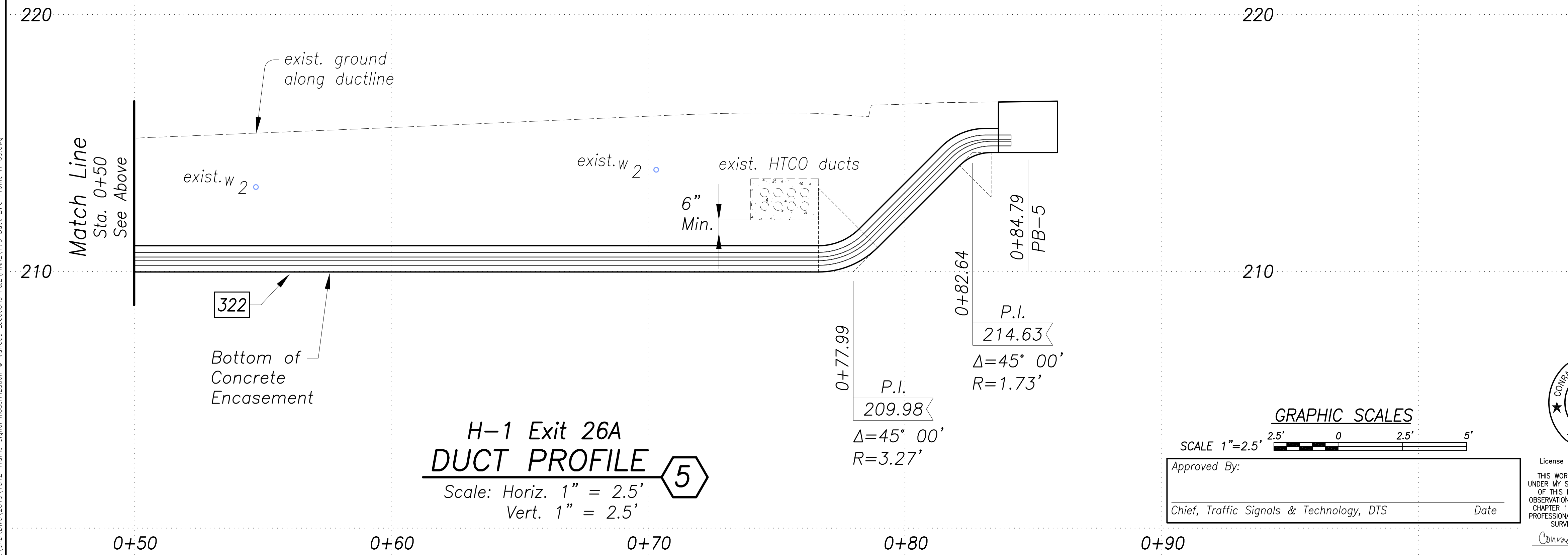
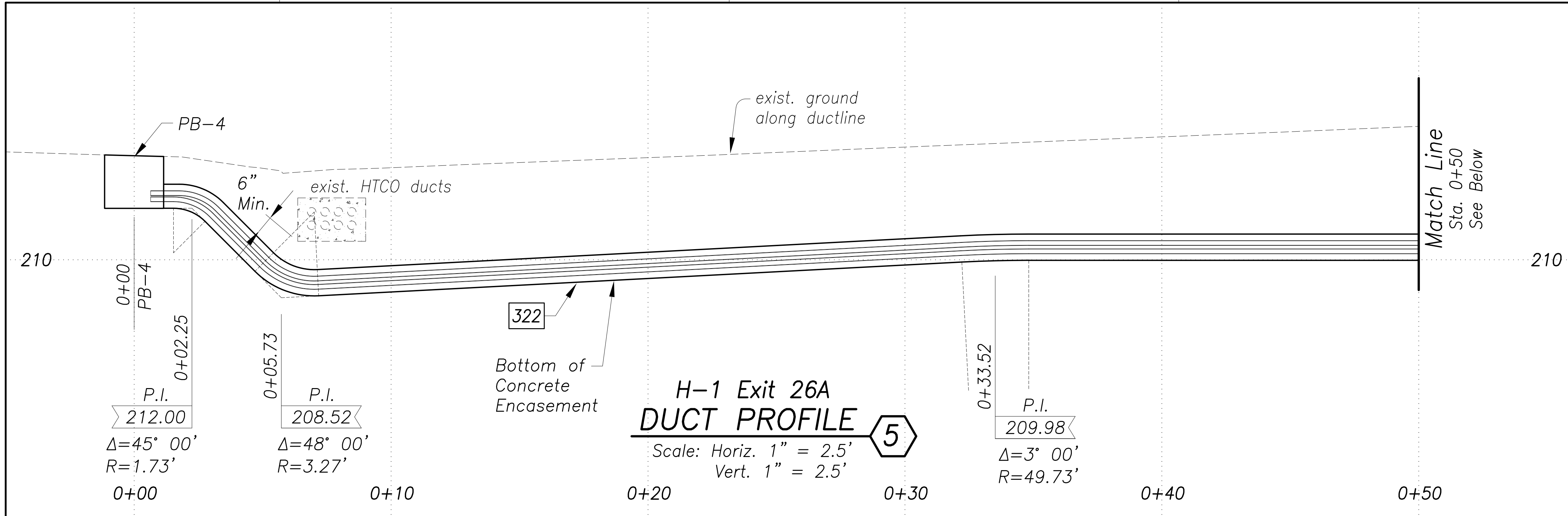
Traffic Signal Modernization, Oahu, Phase 1

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

Scale: 1"=2.5' Date: Oct. 2020

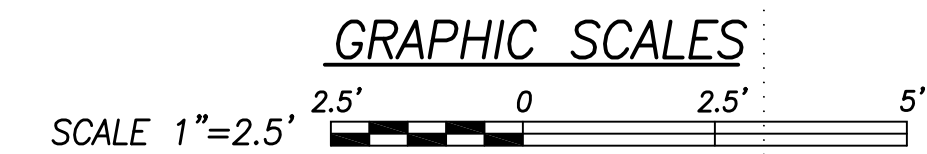
SHEET No. TS-76 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	179	291

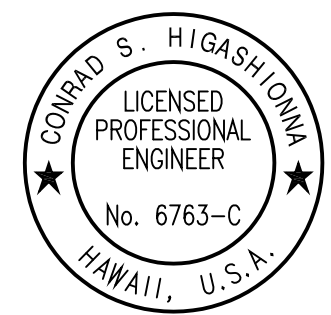


SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
QUANTITIES BY	
CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

New 18, 2020-12-31am
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Approved By: _____ Date: _____
Chief, Traffic Signals & Technology, DTS

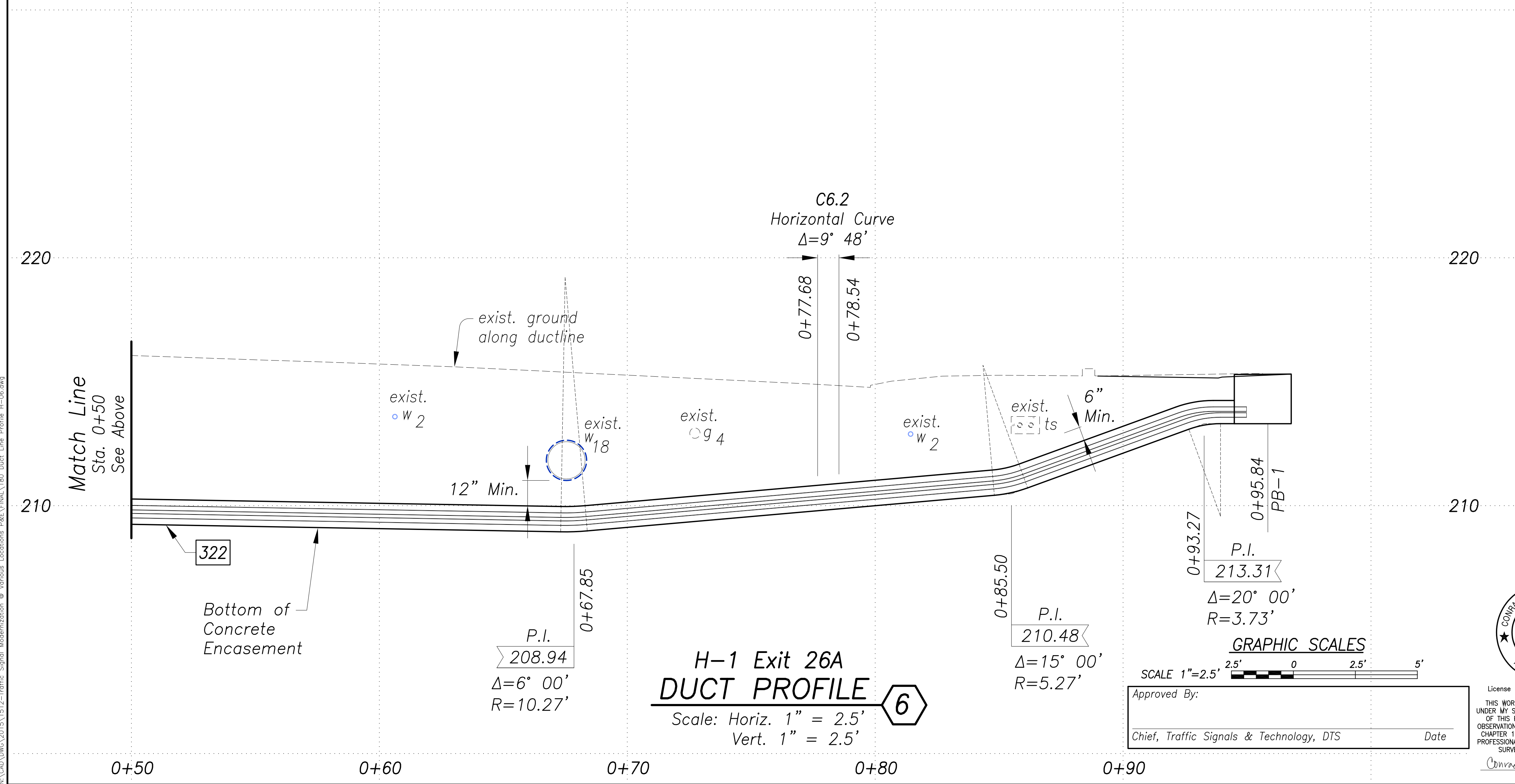
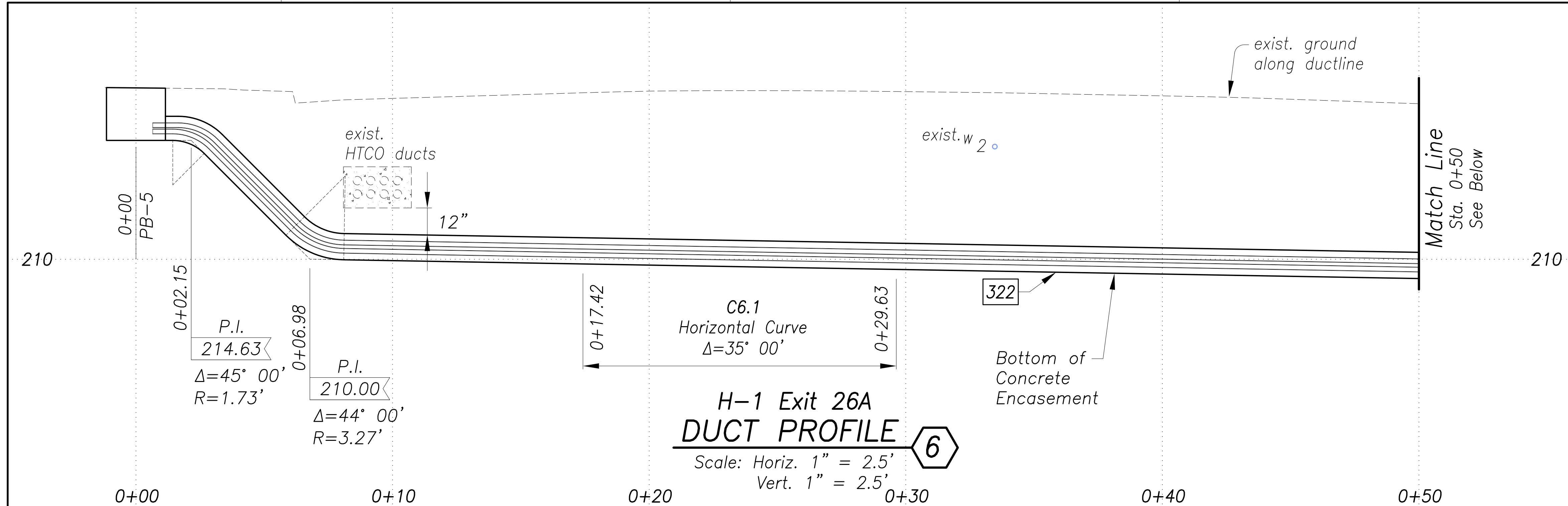


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Conrad Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

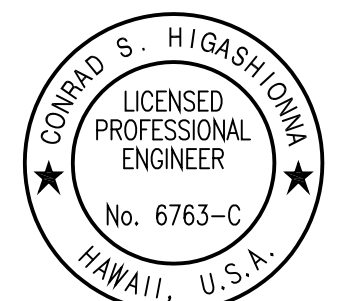
DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave
ADDITIVE ALTERNATE #3
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R
Scale: 1"=2.5' Date: Oct. 2020
SHEET No. TS-77 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	180	291



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

New 18, 2020-10-21
 N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\180 Duct Line Profile H-06.dwg



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

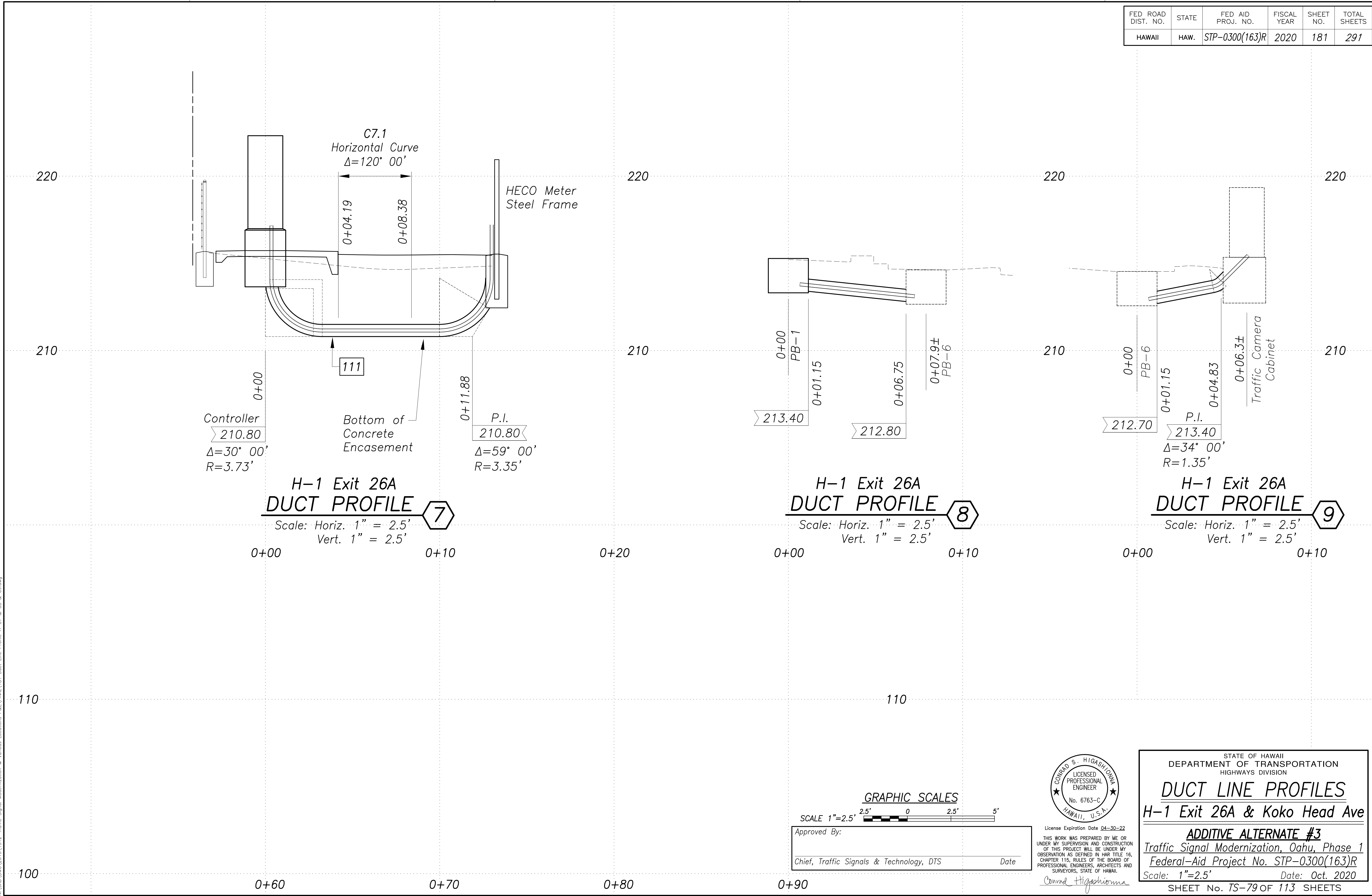
License Expiration Date: 04-30-22
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 Conrad Higashimura

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

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

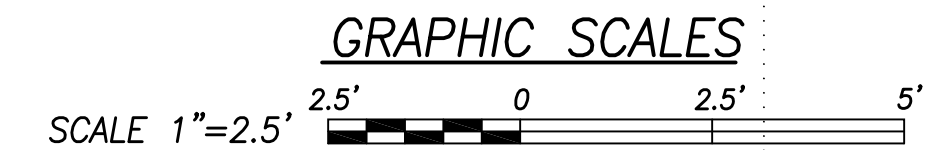
ADDITIVE ALTERNATE #3
 Traffic Signal Modernization, Oahu, Phase 1
 Federal-Aid Project No. STP-0300(163)R
 Scale: 1"=2.5' Date: Oct. 2020
 SHEET No. TS-78 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	181	291

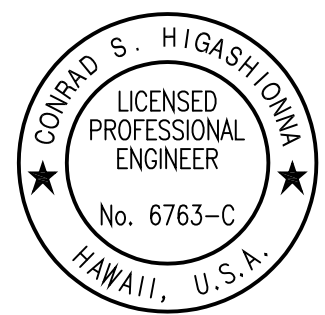


ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
NOTE BOOK	DRAWN BY	
No.	DESIGNED BY	
	CHECKED BY	

New 18_2020-2310m
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\181 Duct Line Profile H-07 & 08 & 09.dwg



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

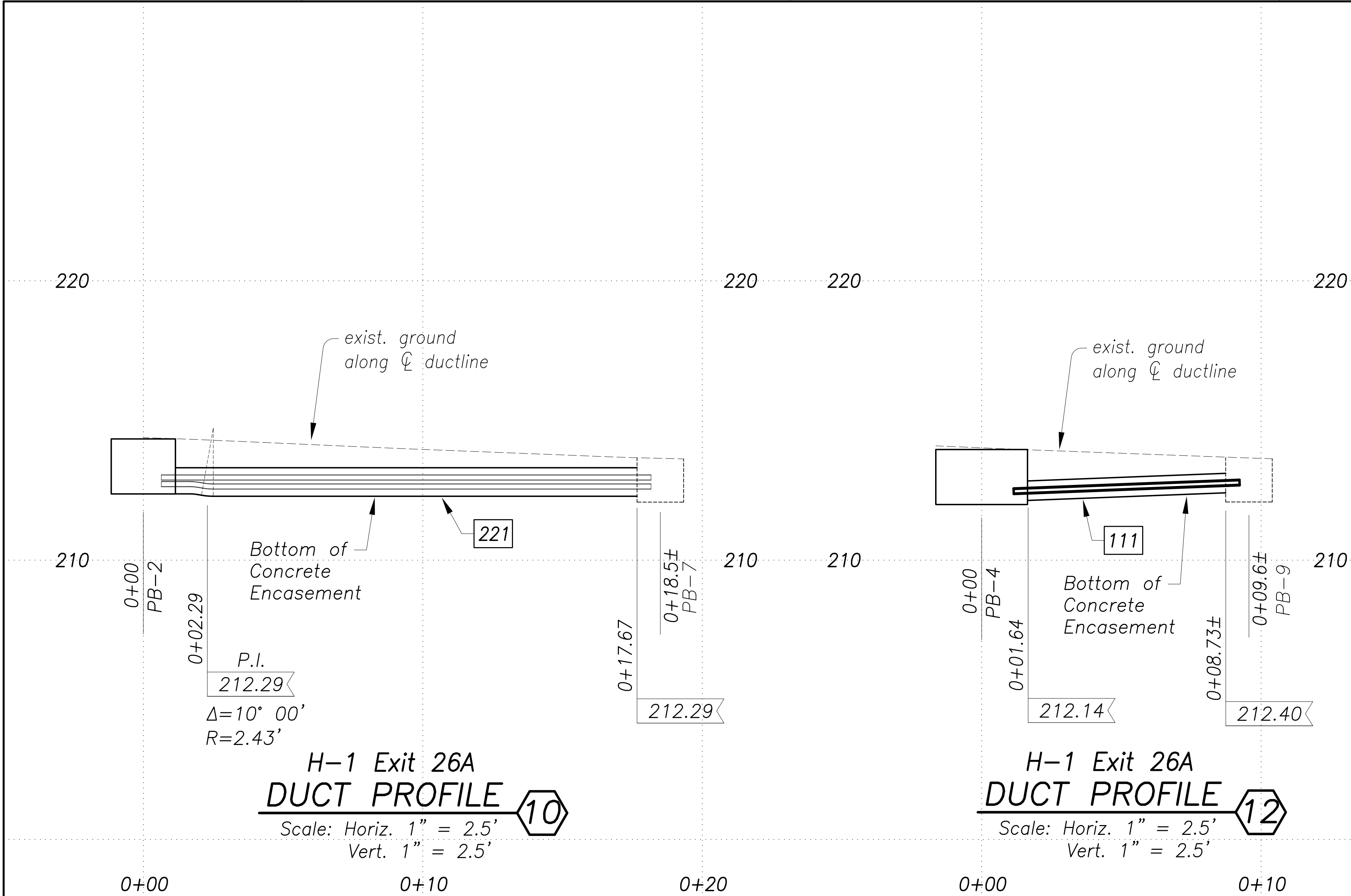


License Expiration Date 04-30-22
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION AS DEFINED IN HAWAII TITLE 16, CHAPTER 115, RULES OF THE BOARD OF PROFESSIONAL ENGINEERS, ARCHITECTS AND SURVEYORS, STATE OF HAWAII.
Conrad Higashimura

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

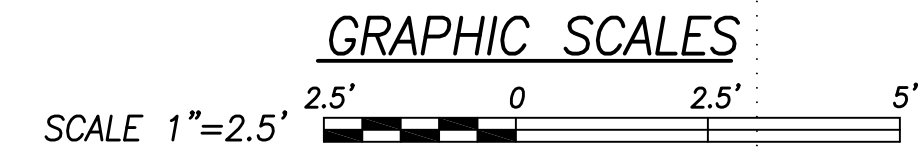
DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave
ADDITIVE ALTERNATE #3
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R
Scale: 1"=2.5' Date: Oct. 2020
SHEET No. TS-79 OF 113 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0300(163)R	2020	182	291

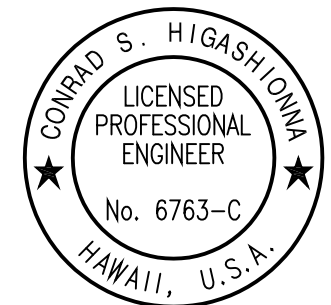


SURVEY PLOTTED BY	DATE
DRAWN BY	
DESIGNED BY	
CHECKED BY	
NOTE BOOK	
No.	

New 18, 2020-10-20
N:\CAO\DWG\2015\1512-Traffic Signal Modernization @ Various Locations P&E\FINAL\182 Duct Line Profile H-10 & 12.dwg



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Chief, Traffic Signals & Technology, DTS
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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DUCT LINE PROFILES
H-1 Exit 26A & Koko Head Ave
ADDITIVE ALTERNATE #3
Traffic Signal Modernization, Oahu, Phase 1
Federal-Aid Project No. STP-0300(163)R
Scale: 1"=2.5' Date: Oct. 2020
SHEET No. TS-80 OF 113 SHEETS