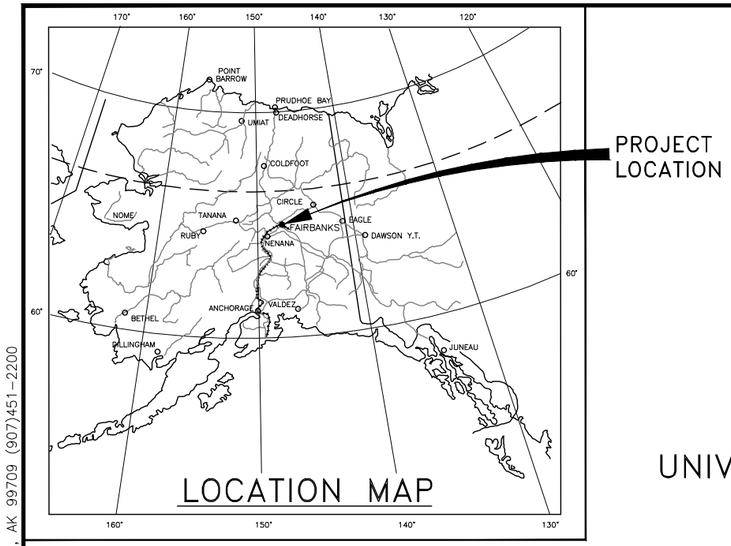
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	A1	231
CDS ROUTE: 175900	MILEPOINT: 3.60	TO	3.92	



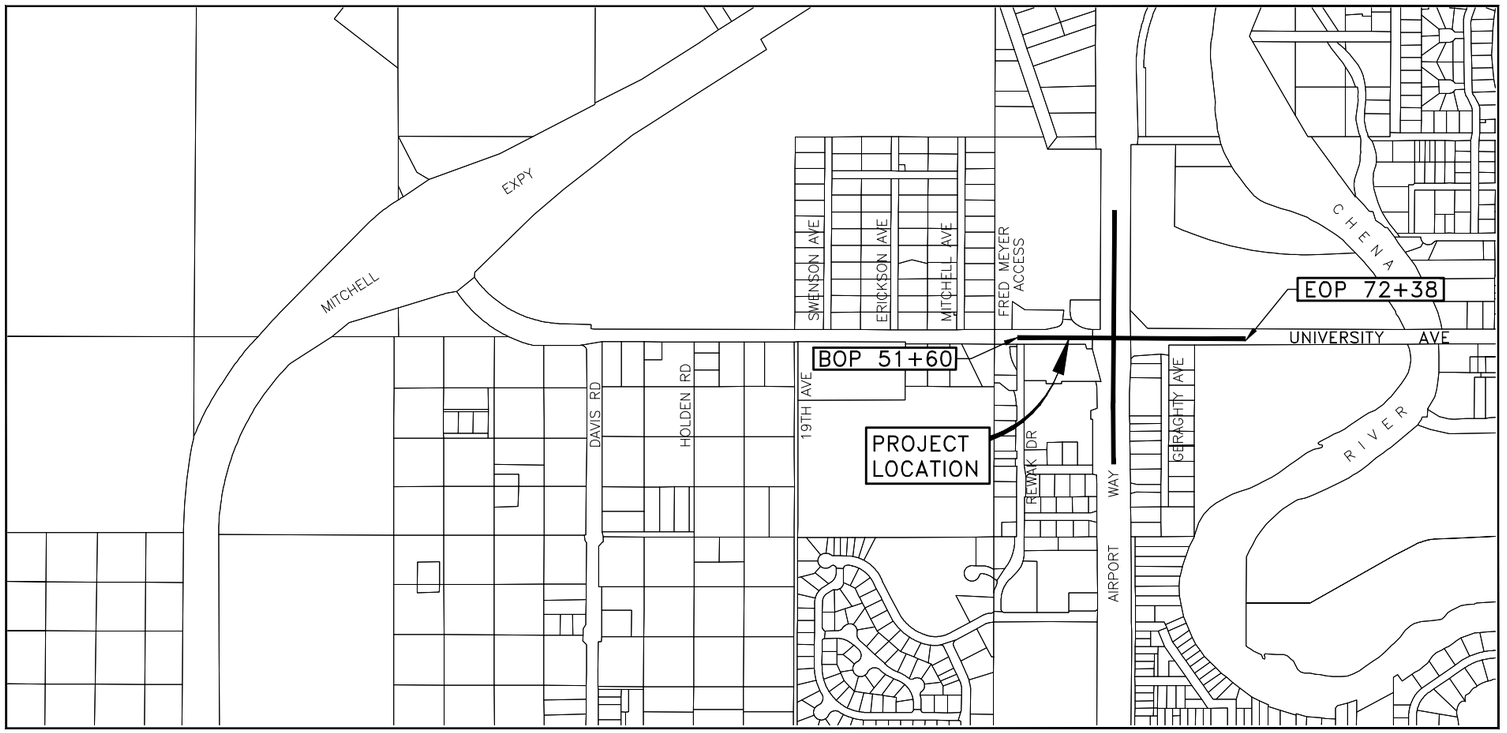
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

PROPOSED HIGHWAY PROJECT
NFHWY00468

UNIVERSITY AVENUE REHABILITATION & WIDENING SEGMENT 2A – DNR/BLM TO REWAK DRIVE

GRADING, DRAINAGE, PAVING, ILLUMINATION & SIGNALIZATION, UTILITIES

INDEX OF SHEETS



VICINITY MAP

NIC

DESIGN DESIGNATIONS

	UNIVERSITY AVE	AIRPORT WAY	GERAGHTY AVE
ADT (2015)	17,750	(2018) 15,084	(2018) 2,500
ADT (2035)	21,660	N/A	(2035) 2,960
DHV (2025)	10%	N/A	N/A
PERCENT TRUCKS (T)	5%	N/A	3%
DIRECTIONAL SPLIT (D)	45/55	N/A	N/A
DESIGN SPEED (V)	40 MPH	45 MPH	30 MPH
DESIGN EAL'S (2035)	1,458,275	N/A	(2038) 141,516

NIC

PROJECT SUMMARY

	UNIVERSITY AVE	AIRPORT WAY	GERAGHTY AVE
WIDTH OF PAVEMENT	57 FT	90 FT	27 FT
LENGTH OF GRADING	0.40 MI	0.33 MI	27 MI
LENGTH OF PAVING	0.40 MI	0.33 MI	27 MI
LENGTH OF PROJECT	0.40 MI	0.33 MI	27 MI

LAUREN LITTLE, P.E., PROJECT MANAGER
HEATHER D. ESTABROOK, P.E., DESIGN ENGINEER

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

APPROVED BY:

DATE 3/23/2020

Sarah E. Schaefer, P.E.
Preconstruction Engineer, Northern Region

ACCEPTED FOR CONSTRUCTION

DATE 3/23/2020

Ryan F. Anderson, P.E.
Regional Director, Northern Region

P:\2011\11147.04FB-UNIV_AVE-SEGMENT_2A\C\C0001cnst11147.04FB-A1 Tue, Mar/03/20 01:10pm
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	A2	A6

	RECOVERED	SET
BLM MONUMENT		
GLO MONUMENT		
USC&GS MONUMENT		
PRIMARY MONUMENT		
CENTERLINE MONUMENT IN CASING		
PRIMARY R.O.W. MONUMENT		
BEARING OBJECT		
MISCELLANEOUS MONUMENT		
LINE OF SIGHT MONUMENT		
CONCRETE R.O.W. MONUMENT		
BENCHMARK		BM
REBAR AND CAP		
REBAR		
IRON PIPE		
PK NAIL		
SPIKE		
HUB AND TACK		

CONSTRUCTION CENTERLINE — 5+00

MICELLANEOUS CENTERLINE — 10+00

STATION EQUATION — "L"48+97.23 POT BK= / "O"48+97.23 PC AHD

PROJECT RIGHT-OF-WAY LINE — R/W

EXISTING RIGHT-OF-WAY LINE

EXISTING PROPERTY LINE

CONTROLLED ACCESS LINE — C/A

EXISTING EASEMENT LINE

PROPOSED EASEMENT LINE

PROPOSED CUT SLOPE LIMIT

PROPOSED FILL SLOPE LIMIT

SECTION LINE

1/4 SECTION LINE

1/16 SECTION LINE

TOWNSHIP & RANGE LINE — T. 2 N. / T. 1 N. ; T. 1 E. ; T. 2 E.

MEANDER LINE — M1 M2 M3

	EXISTING	PROPOSED
SANITARY SEWER (FLOW DIRECTION →)	SS	SS
SANITARY SEWER (FORCE MAIN)	FM	FM
FUEL LINE	O	O
GAS LINE	G	G
WATER LINE	W	W
METER, VALVE, FIRE HYDRANT	W	W
EXISTING STORM DRAIN (FLOW DIRECTION →)	SD	
PROPOSED STORM DRAIN		S-10, SD, S-11, P-10, P-11, MH
FIBER OPTIC LINE	FO	
DIRECT BURIAL TELEPHONE CABLE	T	T
DIRECT BURIAL ELECTRIC CABLE	E	E
ELECTRIC LINE (OVERHEAD)		
POWER POLE LINE		
JOINT USE POWER & TELEPHONE		
TELEPHONE POLE LINE		
POLE ANCHOR		
STUB POLE (POWER OR TELEPHONE)		
TELEPHONE DUCT	T	ACS, T, 1, T
TELEPHONE PEDESTAL		T
BURIED CABLE MARKER		
PIPELINE MARKER OR VALVE		
CATCH BASIN OR DROP INLET		
MANHOLE	MH	SEWER MH; STORM DRAIN MH; COMM MH
SANITARY SEWER CLEAN OUT		C

NOTES:

(1) UTILITIES INSTALLED IN 2019.

	EXISTING	PROPOSED
ROADWAY/PAVEMENT EDGE		
FENCE		
CURB AND GUTTER		
DETECTABLE WARNINGS		
GUARDRAIL		
CULVERT PIPE		
SIGN		
MAILBOX	MB	MB
RAILROAD TRACKS		
RAILROAD DEVICES	CROSS-BUCK, FLASHING LIGHT	CANTILEVER, SWITCH
TREE LINE		
WATER BOUNDARY		
ORDINARY HIGH WATER LINE		
FLOW CENTERLINE		
FLOW DIRECTION		
WETLANDS		
RIPRAP		
EXISTING BUILDINGS	H	H = HOUSE, G = GARAGE, M = MERCHANT/STORE, B = BARN, S = SHED, P = PRIVY, SS = SERVICE STATION, W = WAREHOUSE
POST OR BOLLARD		
WELL OR MONITORING WELL	W	MW
SEPTIC PIPE	S	
FUEL TANK FILL PIPE/VENT	P	
SATELLITE DISH	SAT. DISH	
TEST HOLE	TH	
CONIFER TREE		
DECIDUOUS TREE		
GRAVE		
THERMOSIPHON		
PARKING METER		
VEHICLE PLUG-IN		
DELINEATOR/GUIDE MARKER		

	EXISTING	PROPOSED
JUNCTION BOX, TYPE IA		5
JUNCTION BOX, TYPE II		6
JUNCTION BOX, TYPE III		3
JUNCTION BOX, ABOVE GRADE		7
SIGNAL FACE, VEHICULAR	42	42
SIGNAL FACE, BACKPLATE	42	42
SIGNAL FACE, LEFT TURN, BACKPLATE	43	43
SIGNAL FACE, PEDESTRIAN	60 54	60 54
LOOP DETECTOR	33	73
VIDEO DETECTOR	2	2
RADAR DETECTOR	4	4A
OPTICOM DETECTOR	1	1
PAN, TILT, ZOOM CAMERA	1	1
PEDESTRIAN PUSH BUTTON	1	1
SIGNAL POST W/O MAST ARM		1
SIGNAL POLE W/MAST ARM		1
INTERCONNECT VAULT	I/C	I/C
INTERCONNECT MANHOLE	IC	IC
SIGNAL CONTROLLER		M
LOAD CENTER		
POST MOUNTED TRANSFORMER AND DISCONNECT SWITCH		E
LUMINAIRE		22
RIGID METAL CONDUIT		
TRAFFIC SIGNAL INTERCONNECT		
BORING/ENCASED CONDUITS		

STATE OF ALASKA 49TH — Heather D. Estabrook 2/7/2020 CE-11130 REGISTERED PROFESSIONAL ENGINEER

LEGEND AND NOTES

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	A3	A6

GENERAL NOTES

1. APPROACH LOCATIONS; LENGTHS AND LOCATIONS OF CULVERTS, STORM DRAINS, AND DUCT BANKS SHOWN ON THESE PLANS ARE SUBJECT TO MINOR REVISIONS BY THE ENGINEER. ALL DISTANCES SHOWN IN THE PLAN VIEW ARE HORIZONTAL MEASUREMENTS.
2. CLEARING, GRUBBING AND SEEDING LIMITS SHALL BE AS SHOWN ON THE PLANS AND SHALL BE AS DIRECTED BY THE ENGINEER. RESTORE ALL DISTURBED AREAS DUE TO CONTRACTORS WORK OUTSIDE THE CLEARING AND GRUBBING LIMITS SHOWN ON THE PLANS. PAYMENT FOR THIS WORK SHALL BE SUBSIDIARY TO THE RESPECTIVE BID ITEM.
3. DEWATERING, IF REQUIRED, WILL NOT BE PAID FOR SEPARATELY BUT WILL BE CONSIDERED SUBSIDIARY TO THE RESPECTIVE BID ITEM FOR WHICH THE DEWATERING IS NECESSARY.
4. SAWCUT ALL MATCH LINES WHERE NEW CONSTRUCTION ABUTS EXISTING ASPHALT. APPLY STE–1 ASPHALT FOR TACK COAT ON THE VERTICAL FACE OF ALL SAWCUTS. SAWCUT EXISTING SIDEWALKS OR GO BACK TO NEAREST JOINT.
5. REFERENCE GRADING PLAN SHEETS FOR INTERSECTION TRANSITION LAYOUTS.
6. WORK IN PUE'S IS FOR UTILITY PURPOSES. PUE'S ARE NOT AVAILABLE FOR STAGING, ETC. FOR OTHER WORK ITEMS.

UTILITY NOTES

1. NUMEROUS UNDERGROUND UTILITIES EXIST WITHIN THE PROJECT CORRIDOR. CONTACT UTILITY OWNERS AND GET LOCATES PRIOR TO ANY EXCAVATION.
2. THE DEPTH OF EXISTING UTILITIES SHOWN ON THE PLANS ARE BASED ON AVAILABLE INFORMATION FROM AS BUILT DRAWINGS AND ARE APPROXIMATE ONLY. DETERMINE ACTUAL DEPTH PRIOR TO INSTALLING NEW UTILITIES.
3. PROTECT, OR REMOVE AND REPLACE IN SAME LOCATION OR TO THE SIDE OF ROADWAY, EXISTING MARKER POSTS FOR UTILITIES THAT ARE DISTURBED DURING CONSTRUCTION. THIS IS SUBSIDIARY TO OTHER ITEMS OF WORK.
4. INSULATING PIPES, INLETS, MANHOLES, FITTINGS, APPURTENANCES AND CROSSING UTILITIES AS INDICATED ON THE PLANS WILL NOT BE MEASURED FOR PAYMENT. THIS WORK IS SUBSIDIARY TO ALL UTILITY AND STORM DRAIN INSTALLATIONS.
5. SEE INDIVIDUAL U SERIES SHEETS FOR ADDITIONAL NOTES.
6. CONTRACTOR SHALL PROVIDE SWPPP FOR THE CONCURRENT UTILITY RELOCATIONS. THIS WORK IS SUBSIDIARY TO 641 PAY ITEMS.
7. UTILITY COMPANIES WILL BE WORKING CONCURRENTLY WITH THE CONTRACTOR TO COMPLETE THE WORK IN THIS SECTION. THIS WORK MAY INCLUDE, BUT IS NOT LIMITED TO INSTALLING CABLE, SPLICING CABLE, INSTALLING OTHER EQUIPMENT AN CONNECTING SERVICES. THE CONTRACTOR SHALL COOPERATE AND SUPPORT THIS WORK. INCLUDING PROVIDING ANY NECESSARY TRAFFIC CONTROL. TRAFFIC CONTROL FOR UTILITY COMPANY WORK WILL BE PAID UNDER 643 PAY ITEMS.

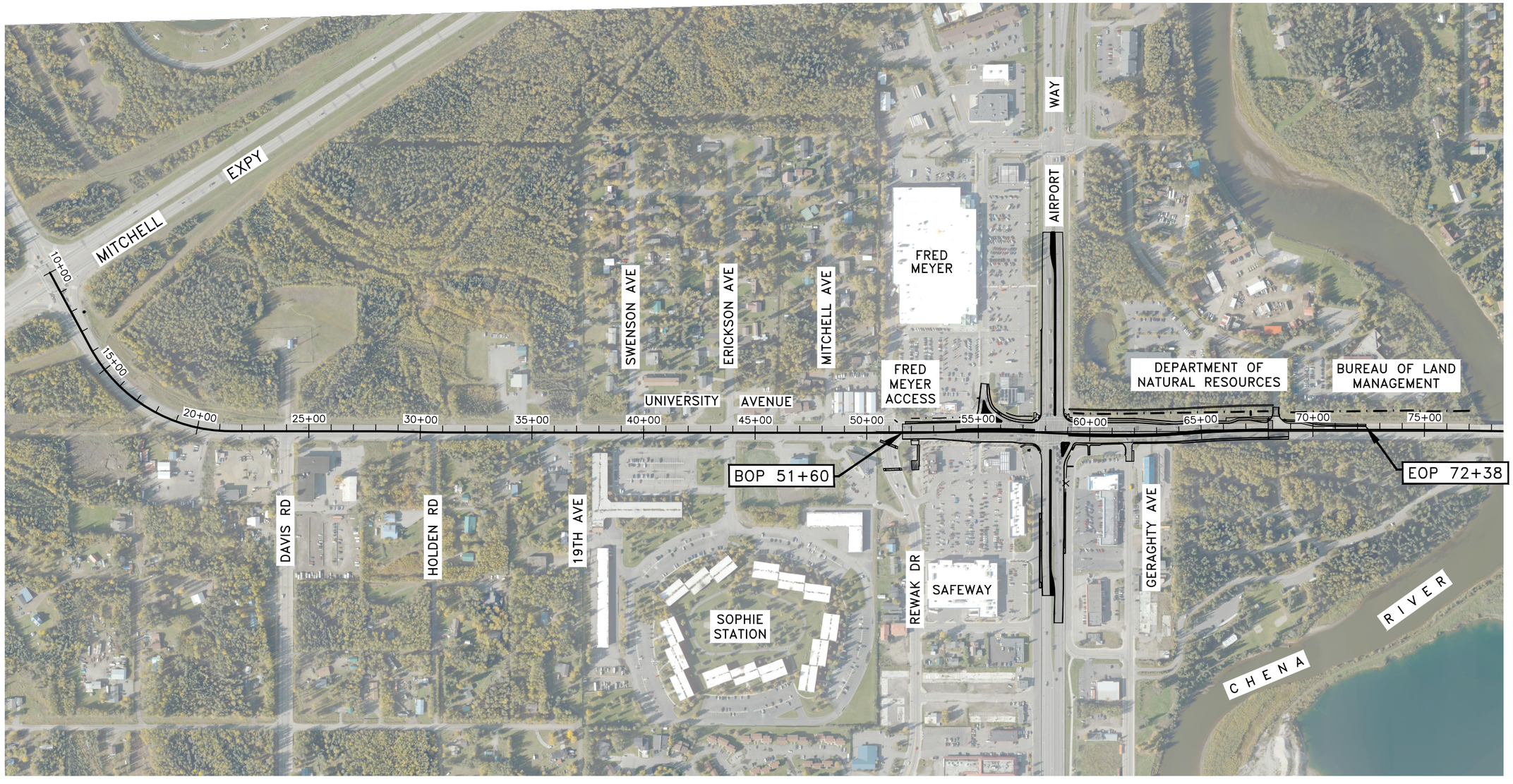
ABBREVIATIONS

ACS	ALASKA COMMUNICATION SYSTEMS
ADA	AMERICANS WITH DISABILITIES ACT
ARRC	ALASKA RAILROAD CORPORATION
ATB	ASPHALT TREATED BASE
AVE	AVENUE
BLM	THE BUREAU OF LAND MANAGEMENT
BOP	BEGINNING OF PROJECT
BP	BEGIN POINT
BV	BUTTERFLY VALVE
C/A	ACCESS CONTROL
℄, CL	CENTERLINE
C	CENTER
CB	CATCH BASIN
CGP	CONSTRUTION GENERAL PERMIT
CMP	CORRUGATED METAL PIPE
COM	COMMERCIAL
COMM	COMMUNICATIONS
CON	CONCRETE
CPM	CRITICAL PATH METHOD
CSP	CORRUGATED STEEL PIPE
DEMO	DEMOLITION
DIP	DUCTILE IRON PIPE
DOT	DEPARTMENT OF TRANSPORTATION
DNR	DEPARTMENT OF NATURAL RESOURCES
DR	DRIVE
DRWY	DRIVEWAY
DWT	DETECTABLE WARNING TILE
E	EASTING
EA	EACH
EG	EXISTING GROUND
ELEV, EL	ELEVATION
EOP	END OF PROJECT
EP	END POINT, END OF PAVEMENT
EXPY, EXP	EXPRESSWAY
EXP	EXPANSION JOINT
EX	EXISTING
FG	FINISHED GRADE
FL	FLOW LINE
FLG	FLANGE
FM	FORCE MAIN
FNG	FAIRBANKS NATURAL GAS
FT	FEET
GALV	GALVANIZE
GB	GRADE BREAK
GCI	GENERAL COMMUNICATIONS INCORPORATED
GPR	GROUND PENETRATING RADAR
GV	GATE VALVE
GVEA	GOLDEN VALLEY ELECTRIC ASSOCIATION
HDPE	HIGH DENSITY POLYETHYLENE
HMA	HOT MIX ASPHALT
HMCP	HAZARDOUS MATERIAL CONTROL PLAN
INT	INTERSECTION
INV	INVERT
LHF	LEFT HAND FORWARD
LN	LANE
LOC	LIP OF CURB
LP	LOW POINT
LT	LEFT
LVC	LENGTH OF VERTICAL CURVE
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MMA	METHYL METHACRYLATE
NO./#	NUMBER
N	NORTHING
NFL	NORMAL FLOW LINE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE / POINT OF COMPOUND CURVE
PRC	POINT OF REVERSE CURVE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
PUE	PUBLIC UTILITY EASEMENT
R	RADIUS
RES	RESIDENTIAL
REHAB	REHABILITATION
RHF	RIGHT HAND FORWARD
RD	ROAD
ROW, R/W, R.O.W.	RIGHT OF WAY
RP	RADIAL POINT
RT	RIGHT
SC	STRUCTURE CENTER
SD	STORM DRAIN
SDWK	SIDEWALK
SHLDR	SHOULDER
SS	SANITARY SEWER
ST	STREET
STD	STANDARD
STA	STATION
SW	SIDEWALK
SWR	SEWER
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
TBC	TOP BACK OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TCP	TEMPORARY CONSTRUCTION PERMIT
THK	THICK
TOC	TOP OF CASTING
TYP	TYPICAL
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W/	WITH
W, WTR	WATER
WWM	WELDED WIRE MESH

STATE OF ALASKA
49 TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

GENERAL NOTES

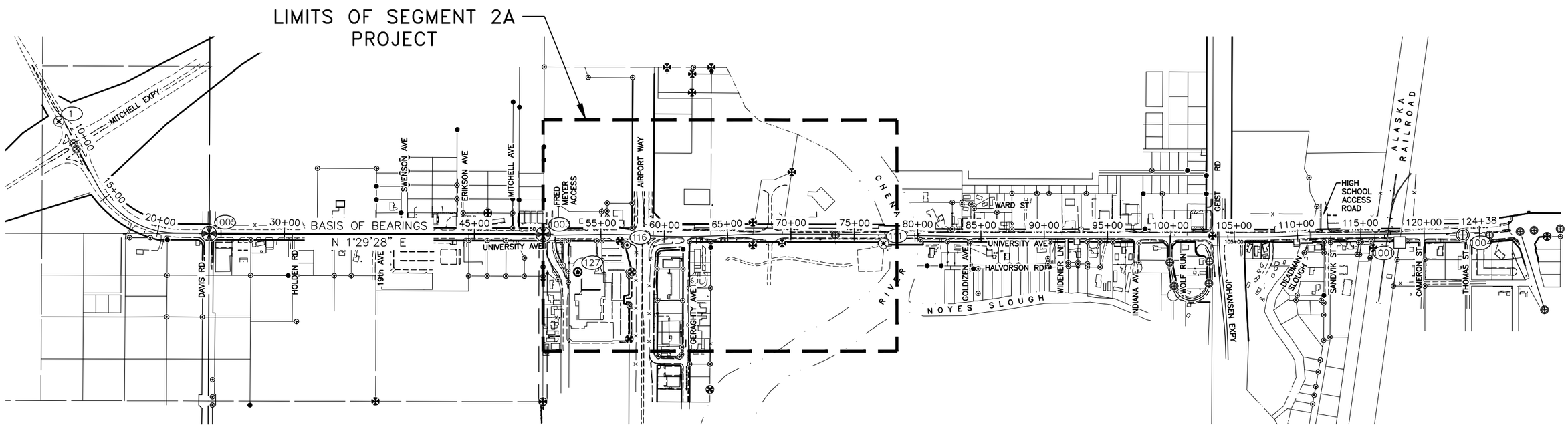
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	A4	A6



VICINITY MAP

STATE OF ALASKA
49TH
Heather D. Estabrook
2/27/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	A5	A6



NOTES:

1. THE BASIS OF HORIZONTAL COORDINATES IS PDC CONTROL POINT #1005, A 3 ½" ALUMINUM CAP STAMPED "RESET 2012 7621S" SET ON A 5/8" REBAR IN A CASING NEAR THE INTERSECTION OF UNIVERSITY AVENUE AND DAVIS ROAD. THIS MONUMENT MARKS THE POSITION OF THE ¼ CORNER COMMON TO SECTIONS 17 AND 18. IT IS ADOT POINT # 1 ON THE ADOT RECORD OF SURVEY "CONTROL DRAWING OF UNIVERSITY AVENUE 63213" STAMPED AND DATED 4/21/2010 AND RECORDED AS PLAT 2010–112 IN THE FAIRBANKS RECORDING DISTRICT. THE LOCAL PROJECT COORDINATES FOR POINT #1005 ARE 61,145.76 NORTH, 18,085.340 EAST, US FEET.

2. THE BASIS OF BEARING IS THE LINE BETWEEN THE BASIS OF COORDINATES (PDC POINT #1005) AND PDC POINT #1003, THE SECTION CORNER COMMON TO SECTIONS 7, 8, 17, AND 18, MARKED BY A 3 ½" ALUMINUM CAP ON A 5/8" REBAR STAMPED "RESET 2012, 7621S" IN A CASING NEAR THE INTERSECTION OF UNIVERSITY AVENUE AND REWAK DRIVE. THIS IS ADOT POINT #2 ON THE ADOT RECORD OF SURVEY "CONTROL DRAWING OF UNIVERSITY AVENUE 63213" STAMPED AND DATED 4/21/2010. THE LOCAL PROJECT BEARING IS N 1°29'28" E.

3. THIS PROJECT IS IN A LOCAL GROUND COORDINATE SYSTEM. UNITS ARE U.S. SURVEY FEET.

4. CONTROL MONUMENTS DEPICTED WITH POINT NUMBERS AND SHOWN IN THE CONTROL TABLES ARE LIMITED TO THOSE SURVEYED BY PDC, INC IN 2012. ALL OTHER MONUMENTS WERE SURVEYED BY R&M CONSULTANTS AND ADOT&PF AND ARE SHOWN GRAPHICALLY ON THESE SHEETS FOR INFORMATIONAL PURPOSES ONLY. CONTROL COORDINATES FOR R&M/ADOT&PF MONUMENTS ARE LISTED ON THE FOLLOWING DOCUMENTS: THE ADOT RECORD OF SURVEY "CONTROL DRAWING OF UNIVERSITY AVENUE 63213" STAMPED AND DATED 4/21/2010 AND RECORDED AS PLAT 2010–112 IN THE FAIRBANKS RECORDING DISTRICT, AND THE UNRECORDED RIGHT OF WAY MAP FOR THIS PROJECT, LAST REVISION DATE 8–9–2016, ON FILE AT THE ALASKA DEPARTMENT OF TRANSPORTATION.

5. THE BASIS OF ELEVATION IS ADOT BENCHMARK "NOYES", A 3 ¼" BRASS CAP MOUNTED ON THE TOP OF THE SOUTH WEST WING WALL IN THE NOYES SLOUGH BRIDGE NEAR THE JOHANSEN EXPRESSWAY. THE CAP IS STAMPED "SOA DOT/PF NOYES 1993 ELEV. 433.59 NAVD 1988".

LEGEND:

	RECOVERED	SET
BLM MONUMENT	✠	
GLO MONUMENT	✠	
USC&GS MONUMENT	▲	
PRIMARY MONUMENT	✠	✠
CENTERLINE MONUMENT IN CASING	⊕	⊕
PRIMARY R.O.W. MONUMENT	⊕	⊕
MISCELLANEOUS MONUMENT	⊗	
CONCRETE R.O.W. MONUMENT	□	
SURVEY PANEL POINT		
REBAR AND CAP	⊙	⊙
REBAR	⊕	●
IRON PIPE	●	
SPIKE		⊗

400 200 0 400 800 1200
SCALE IN FEET

CONTROL TABLE

POINT#	NORTHING	EASTING	STATION	OFFSET	DESCRIPTION
1	59979.81	17171.67	--	--	6" SPIKE SET THIS SURVEY
111	66468.05	18290.42	77+33.38	68.72'	6" SPIKE SET THIS SURVEY
116	64442.60	18254.44	57+08.26	81.64'	2" ALUMINUM CAP RECOVERED
127	64048.61	18458.69	53+10.32	294.26'	2" ALUMINUM CAP ON 5/8" REBAR SET THIS SURVEY
1001	70541.48	18377.83	118+06.37	67.21'	RECOVERED CONCRETE ROW MONUMENT
1003	63782.45	18153.97	50+43.20	-4.90'	3.25" ALUMINUM CAP IN CASING RECOVERED THIS SURVEY
1004	71042.43	18330.72	123+06.24	16.35'	2.5" BRASS CAP IN CASING RECOVERED THIS SURVEY
1005	61145.76	18085.34	24+05.56	3.95'	3.25" ALUMINUM CAP IN CASING RECOVERED THIS SURVEY

THE MONUMENTS IN THIS TABLE ARE LIMITED TO THOSE SURVEYED BY PDC, INC. ALL OTHER MONUMENTS DEPICTED ON THESE SHEETS WERE SURVEYED BY R&M CONSULTANTS AND ADOT&PF AND ARE SHOWN GRAPHICALLY FOR INFORMATIONAL PURPOSES ONLY. SEE NOTE 5.

STATE OF ALASKA
49TH
CRAIG OWEN RANSON
No. 11798
2/7/20
REGISTERED PROFESSIONAL LAND SURVEYOR

SURVEY CONTROL

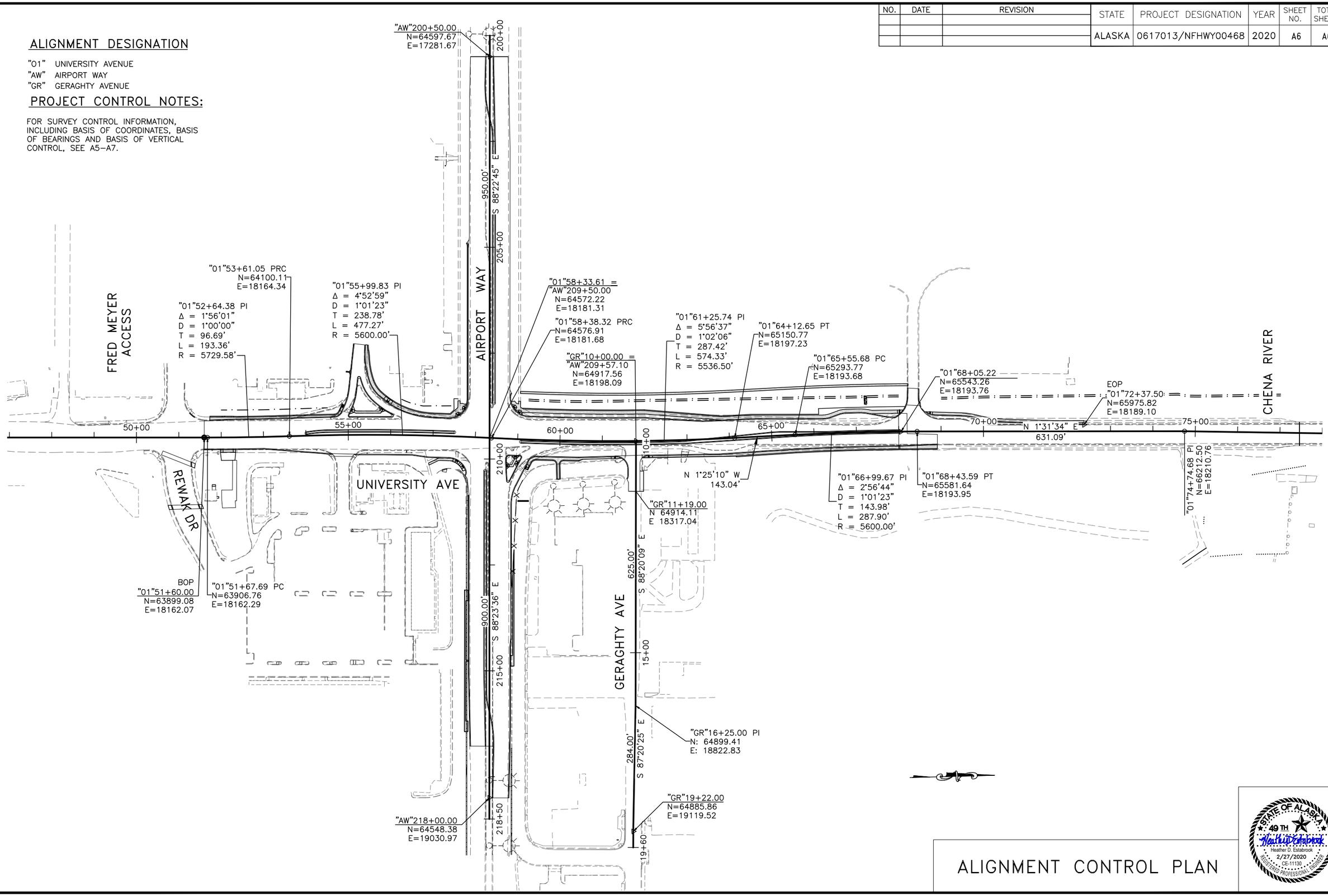
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	A6	A6

ALIGNMENT DESIGNATION

"01" UNIVERSITY AVENUE
"AW" AIRPORT WAY
"GR" GERAGHTY AVENUE

PROJECT CONTROL NOTES:

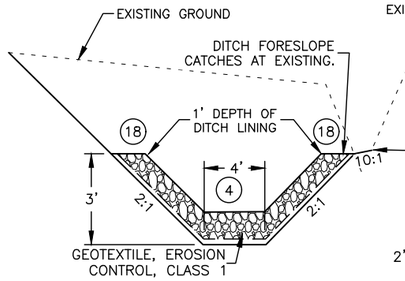
FOR SURVEY CONTROL INFORMATION, INCLUDING BASIS OF COORDINATES, BASIS OF BEARINGS AND BASIS OF VERTICAL CONTROL, SEE A5–A7.



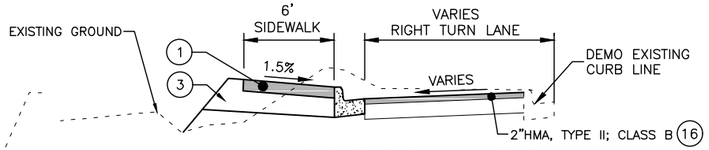
ALIGNMENT CONTROL PLAN

STATE OF ALASKA
49 TH
Heather D. Estabrook
2/27/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

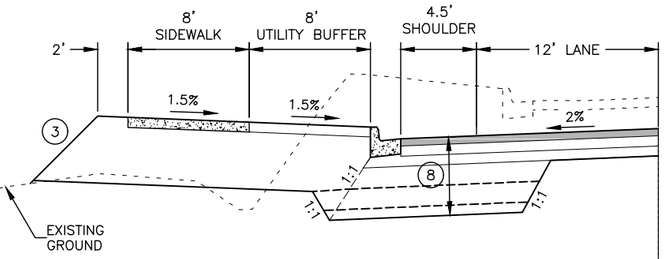
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	B1	B5



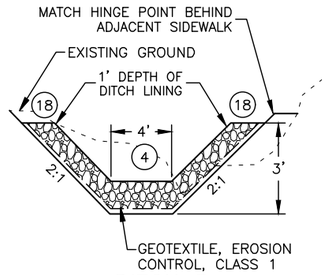
DITCH C
"01" 69+00 TO "01" 77+00



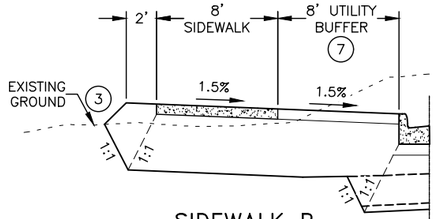
RIGHT TURN LANE B
"01" 68+60 TO "01" 72+38



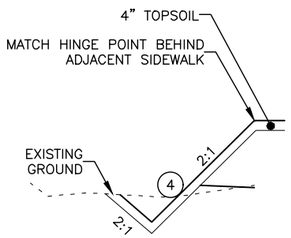
RIGHT TURN LANE A
"01" 59+00 TO "01" 62+00



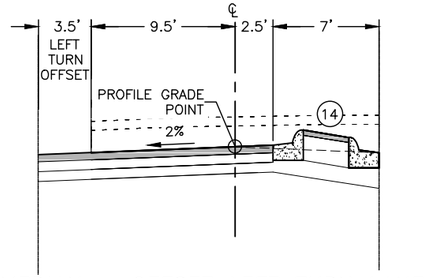
DITCH B
"01" 59+25 TO "01" 68+00



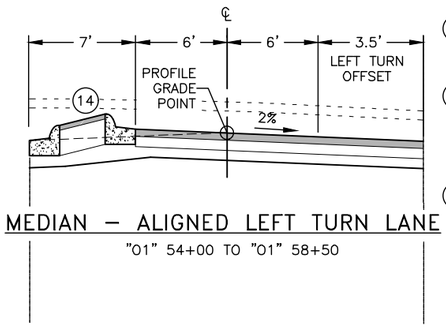
SIDEWALK B
"01" 59+09 TO "01" 63+83
(1) "01" 67+38 TO "01" 68+11



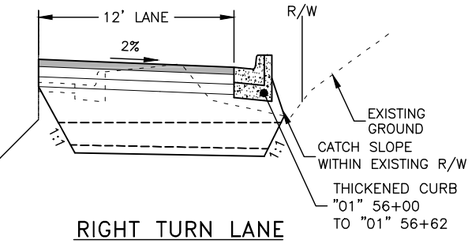
DITCH A
"01" 51+70 TO "01" 54+50
"01" 56+15 TO "01" 57+40



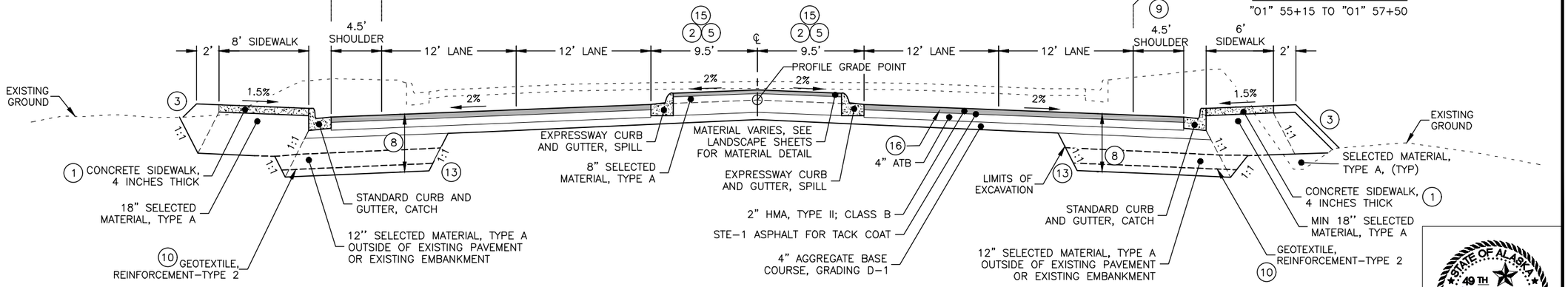
MEDIAN – OFFSET LEFT TURN LANE
"01" 58+50 TO "01" 62+80



MEDIAN – ALIGNED LEFT TURN LANE
"01" 54+00 TO "01" 58+50



RIGHT TURN LANE
"01" 55+15 TO "01" 57+50



SIDEWALK A
(1) "01" 51+73 TO "01" 58+50
"01" 63+83 TO "01" 67+38

UNIVERSITY AVENUE
"01" 51+60 TO "01" 54+00
"01" 62+80 TO "01" 68+00

NOTES:

1. TEMPORARY 1.5" ASPHALT SIDEWALK FROM "01" 67+38 TO "01" 68+11 LT, "01" 68+00 TO "01" 68+91 RT, AND "01" 68+60 TO "01" 72+38 LT. TEMPORARY 1.5" ASPHALT SIDEWALK 4' WIDE "01" 51+73 TO "01" 54+91 LT, "01" 60+45 TO "01" 64+14 RT. OMIT SIDEWALK FROM "01" 51+60 TO "01" 56+90 RT.
2. 9' TOTAL WIDTH MEDIAN FROM "01" 66+30 TO "01" 68+00.
3. UNLESS OTHERWISE CONTROLLED BY A DITCH TYPICAL SECTION CATCH TO EXISTING GROUND AT 2:1 IN BOTH A CUT AND FILL CONDITION.
4. SEE GRADING SHEETS FOR DITCH CONTROL.
5. MEDIAN VARIES IN WIDTH AND CENTERLINE VARIES IN LOCATION FROM "01" 62+80 TO "01" 66+30. SEE GRADING SHEETS FOR LAYOUT CONTROL.
6. 4" TOPSOIL AND SEED ANY LOCATIONS WHERE FINISHED SLOPE WORK ABUTS THE LAWNS OF RESIDENTIAL OR COMMERCIAL PROPERTY OWNERS. TOP SOIL IS COVERED UNDER PAY ITEM 620(1).
7. UTILITY BUFFER VARIES FROM "01" 62+00 TO "01" 63+83. SEE GRADING SHEETS FOR LAYOUT CONTROL.
8. OVER EXCAVATE BELOW PROPOSED GRADE 4' OR TO THE BOTTOM OF ORGANICS FROM "01" 61+00 TO "01" 63+00. INSTALL GEOTEXTILE, REINFORCEMENT – TYPE 2 AS SHOWN IN NOTE 10.
9. 2' SHOULDER DIMENSION FROM "01" 51+60 TO "01" 53+00.
10. 2 LAYERS OF GEOTEXTILE, REINFORCEMENT– TYPE 2 WITH A MINIMUM OF 12" OF SELECTED MATERIAL, TYPE A IN BETWEEN AND AS DIRECTED BY THE ENGINEER.
11. ALL DISTURBED GROUND NOT TO BE COVERED IN ASPHALT, CONCRETE OR LANDSCAPING MATERIAL SHALL BE SEEDED.
12. PROOF–ROLL THE BASE OF EXCAVATION. SEE SPECIAL PROVISIONS SECTION 203–3.06.
13. BENCH SLOPES PER SPECIFICATION SECTION 203.
14. MEDIAN SLOPE VARIES, CONTROLLED BY MEDIAN WIDTH AND HORIZONTAL LOCATION OF MEDIAN WITH RESPECT TO ℄.
15. FROM INNER LANE LINE TO CENTERLINE OMIT CURB AND GUTTER AND MEDIAN, INSTALL 1' GORE STRIPE FROM "01" 51+60 TO "01" 54+00 AND GORE STRIPE BOTH SIDES "01" 68+00 TO "01" 70+43. SEE SIGNING AND STRIPING SHEETS FOR MORE INFORMATION.
16. OMIT ALL ROADWAY STRUCTURAL LAYERS EXCEPT 2" HMA, TYPE II; CLASS B AND AGGREGATE BASE COURSE, GRADING D–1 FOR LEVELING COURSE FROM "01" 51+60 TO "01" 54+00, "01" 68+60 TO "01" 72+38.
17. EXPRESSWAY CURB AND GUTTER IN THE MEDIANS SHALL BE SPILL. SEE SHEET G18 FOR CURB AND GUTTER DETAILS.
18. DISTURBED GROUND FOR DITCH CONSTRUCTION, NOT COVERED IN DITCH LINING, SHALL BE SEEDED.

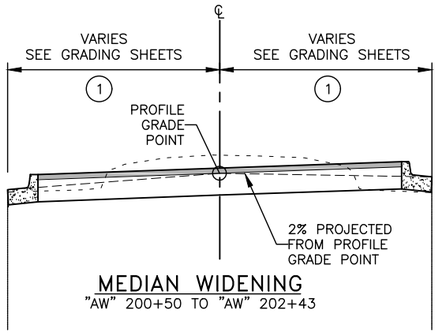
STATE OF ALASKA 49TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

TYPICAL SECTIONS

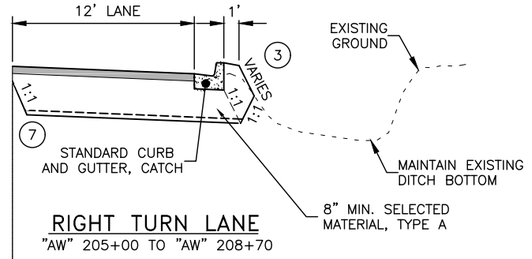
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	B2	B5

NOTES:

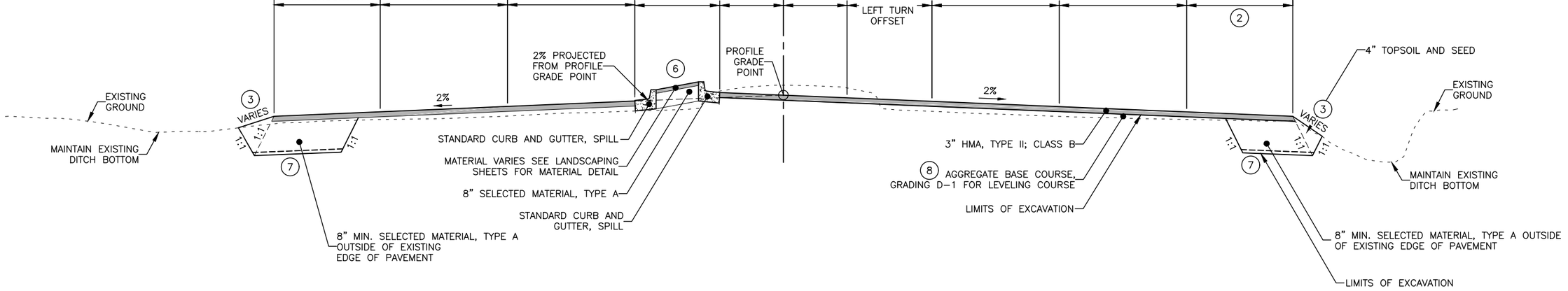
1. MEDIAN VARIES IN SLOPE, WIDTH AND CENTERLINE VARIES IN LOCATION. SEE GRADING SHEETS FOR CONTROL LAYOUT.
2. SHOULDER WIDTH VARIES FROM 10' TO 0' FROM "AW" 203+56 TO "AW" 205+00.
3. VARY FORESLOPE TO MAX OF 3:1 AND MAINTAIN EXISTING DITCH BOTTOM.
4. ALL DISTURBED GROUND NOT TO BE COVERED IN ASPHALT, CONCRETE OR LANDSCAPING MATERIAL SHALL BE SEEDED.
5. PROOF–ROLL THE BASE OF EXCAVATION. SEE SPEC SECTION 203–3.06.
6. MEDIAN SLOPE VARIES, CONTROLLED BY MEDIAN WIDTH AND HORIZONTAL LOCATION OF MEDIAN WITH RESPECT TO CL FROM "01" 202+43 TO "01" 202+66.
7. GEOTEXTILE, STABILIZATION IS TO BE PLACED WHEN SILT IS ENCOUNTERED AT THE BOTTOM OF EXCAVATION, AS DIRECTED BY THE ENGINEER. MAXIMUM DEPTH FOR OVEREXCAVATION SHALL BE 30".
8. REMOVE EXISTING PAVEMENT LAYER AND PRIOR TO PLACING PROPOSED LAYERS FILL VOIDS BETWEEN BOTTOM OF PROPOSED AND TOP OF EXISTING WITH AGGREGATE BASE COURSE, GRADING D–1. DEPTH AND AMOUNT VARIES BY LOCATION.



MEDIAN WIDENING
"AW" 200+50 TO "AW" 202+43



RIGHT TURN LANE
"AW" 205+00 TO "AW" 208+70

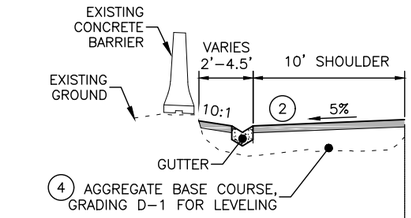


AIRPORT WAY
"AW" 200+50 TO "AW" 208+60

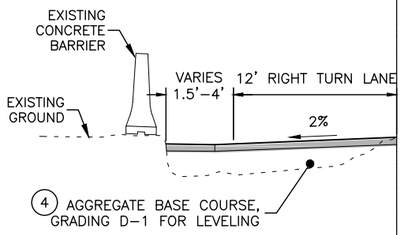
NO CURBING
"AW" 200+50 TO "AW" 205+00

TYPICAL SECTIONS

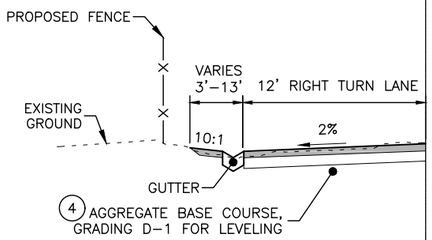
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	B3	B5



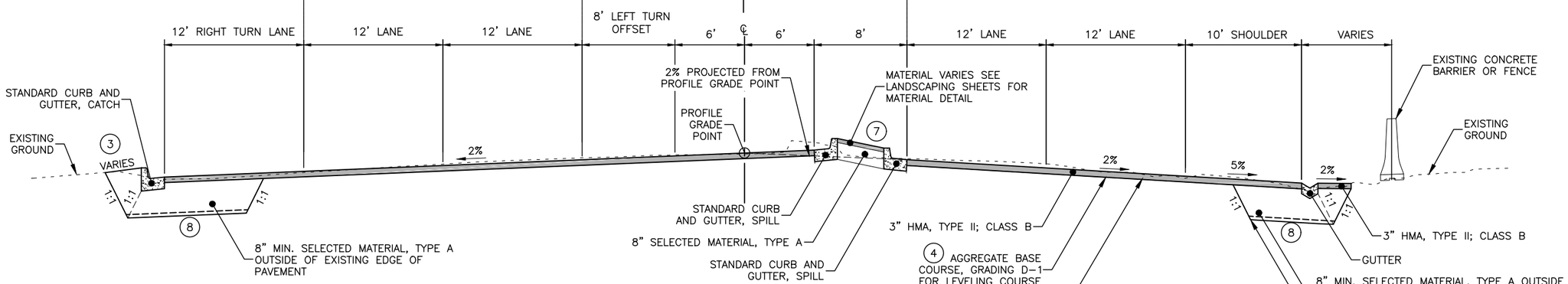
SHOULDER
"AW" 214+20 TO "AW" 218+00



RIGHT TURN LANE C
"AW" 213+05 TO "AW" 214+20



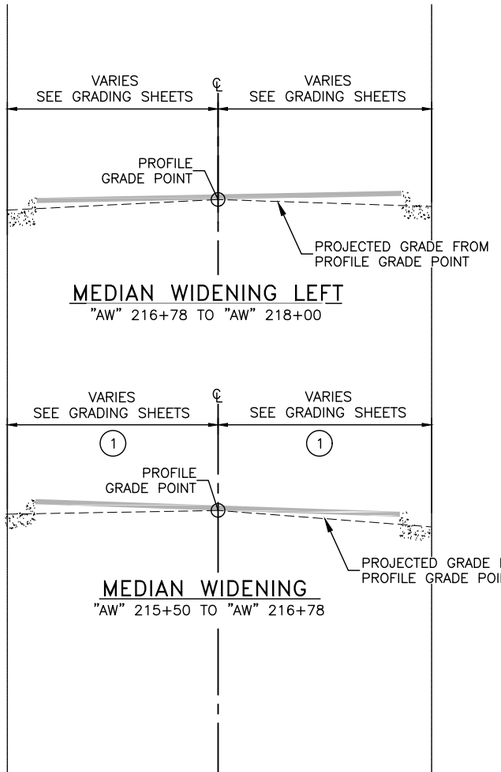
RIGHT TURN LANE B
"AW" 211+50 TO "AW" 213+05



RIGHT TURN LANE A
"AW" 210+00 TO "AW" 211+50

AIRPORT WAY
"AW" 210+25 TO "AW" 218+00 LT
"AW" 210+25 TO "AW" 216+78 RT

RIGHT GUTTER
"AW" 210+85 TO "AW" 216+78



MEDIAN WIDENING LEFT
"AW" 216+78 TO "AW" 218+00

MEDIAN WIDENING
"AW" 215+50 TO "AW" 216+78

NOTES:

1. MEDIAN VARIES IN SLOPE, WIDTH, AND CENTERLINE VARIES IN LOCATION. SEE GRADING SHEETS FOR CONTROL LAYOUT.
2. SHOULDER WIDTH VARIES FROM 0' TO 10' FROM "AW" 214+20 TO "AW" 215+64.
3. SLOPE VARIES, SEE GRADING SHEETS FOR CONTROL LAYOUT.
4. REMOVE EXISTING PAVEMENT LAYER AND PRIOR TO PLACING PROPOSED LAYERS FILL VOIDS BETWEEN BOTTOM OF PROPOSED AND TOP OF EXISTING WITH AGGREGATE BASE COURSE, GRADING D-1. DEPTH AND AMOUNT VARIES BY LOCATION.
5. ALL DISTURBED GROUND NOT TO BE COVERED IN ASPHALT, CONCRETE OR LANDSCAPING MATERIAL SHALL BE SEEDED.
6. PROOF-ROLL THE BASE OF EXCAVATION. SEE SPEC SECTION 203-3.06.
7. MEDIAN SLOPE VARIES, CONTROLLED BY MEDIAN WIDTH AND HORIZONTAL LOCATION OF MEDIAN WITH RESPECT TO ℄, FROM "AW" 215+50 TO "AW" 216+78.
8. GEOTEXTILE, STABILIZATION IS TO BE PLACED WHEN SILT IS ENCOUNTERED AT THE BOTTOM OF EXCAVATION, AS DIRECTED BY THE ENGINEER. MAXIMUM DEPTH FOR OVEREXCAVATION SHALL BE 30".

STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

TYPICAL SECTIONS

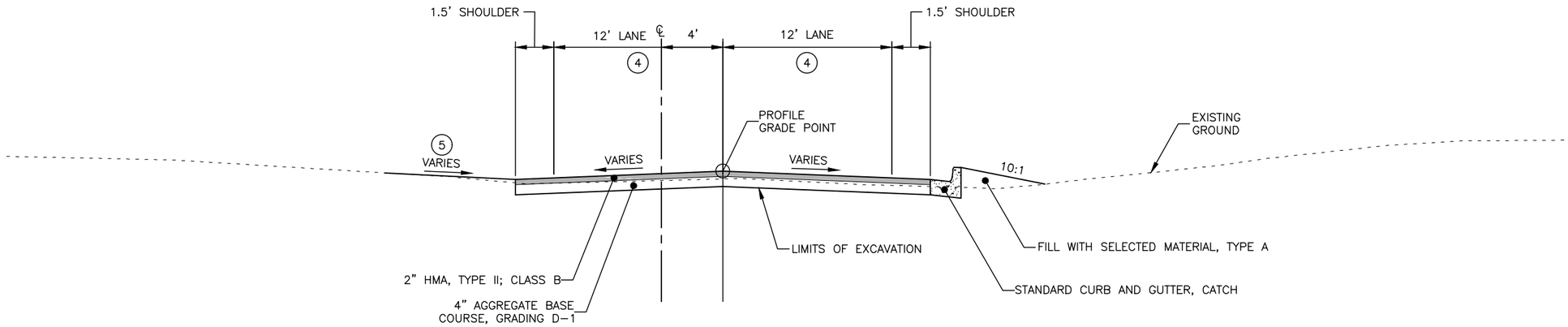
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	B4	B5

NOTES:

1. ALL DISTURBED GROUND NOT TO BE COVERED IN ASPHALT, CONCRETE OR LANDSCAPING MATERIAL SHALL BE SEEDED.
2. PROOF–ROLL THE BASE OF EXCAVATION SEE SPEC SECTION 203–3.06.
3. 4" TOPSOIL AND SEED ANY LOCATIONS WHERE FINISHED WORK ABUTS THE LAWNS OF RESIDENTIAL OR COMMERCIAL PROPERTY OWNERS.

(4) WIDTH VARIES SEE GRADING CONTROL SHEETS FOR WIDTH AND LAYOUT CONTROL.

(5) GRADE VARIES, SEE APPROACH TABLE, APPROACH DETAILS, AND GRADING SHEETS FOR LAYOUT CONTROL INFORMATION.



GERAGHTY AVE

"GR" 10+34 TO "GR" 11+19

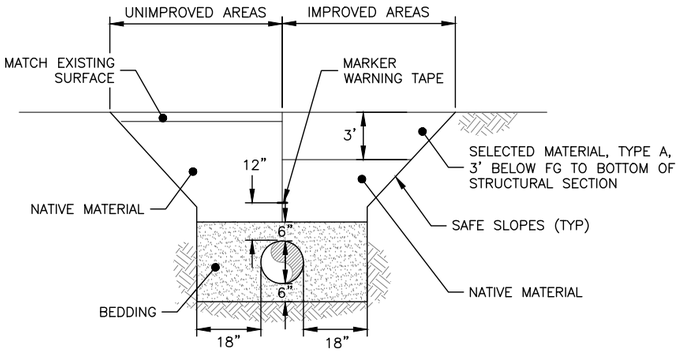
STATE OF ALASKA
49 TH
Heather D. Estabrook
2/21/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

TYPICAL SECTIONS

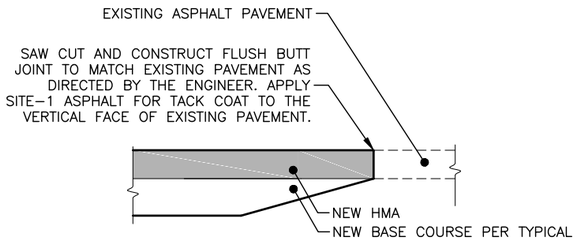
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	B5	B5

NOTES:

1. ALL DISTURBED GROUND NOT TO BE COVERED IN ASPHALT, CONCRETE OR LANDSCAPING MATERIAL SHALL BE SEEDED.
2. PROOF–ROLL THE BASE OF EXCAVATION. SEE SPEC SECTION 203–3.06.
3. 4" TOPSOIL AND SEED ANY LOCATIONS WHERE FINISHED SLOPE WORK ABUTS THE LAWNS OF RESIDENTIAL OR COMMERCIAL PROPERTY OWNERS.

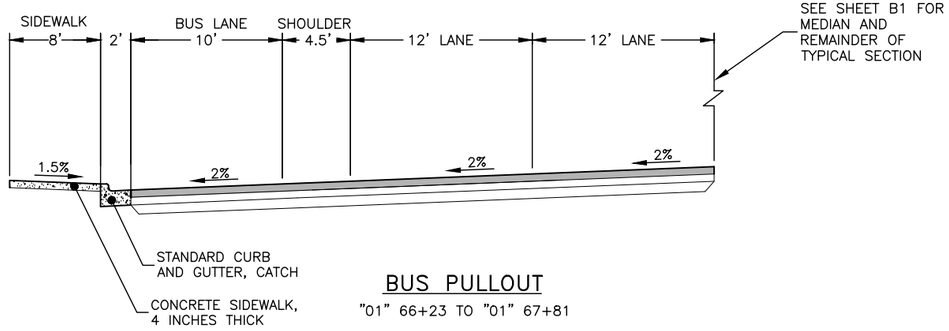


TYPICAL TRENCH SECTION



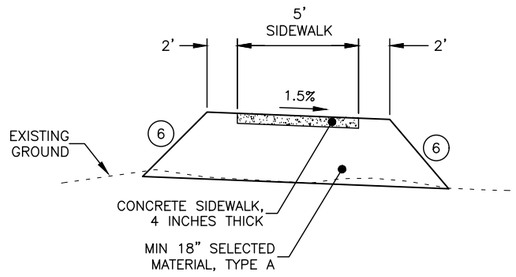
MATCH EXISTING PAVEMENT DETAIL

BOP, EOP, AIRPORT WAY, GERAGHTY AVE, AND APPROACHES.



BUS PULLOUT

"01" 66+23 TO "01" 67+81



SEPARATED SIDEWALK

UNIVERSITY AVENUE

"01" 59+94(RT)

NOTES:

4. SEE UNIVERSITY AVENUE TYPICAL ON B1 AND GRADING SHEET G4 FOR LAYOUT CONTROL.
5. MATCH UNIVERSITY AVENUE TYPICAL MATERIAL SECTION ON SHEET B1 FOR MATERIALS AT BUS PULLOUT AND SIDEWALK.

NOTES:

(6) CATCH TO EXISTING GROUND AT 2:1 IN BOTH CUT AND FILL CONDITION.

7. SEE GRADING SHEETS G2– G3 FOR LAYOUT CONTROL.

STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

TYPICAL SECTIONS

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	C1	C2

ESTIMATE OF QUANTITIES

ITEM NO.	SSHC 2017 ITEM NO.	DESCRIPTION	PAY UNIT	QUANTITY
201.0007.0000	201(1B)	CLEARING	LUMP SUM	ALL REQUIRED
201.0008.0000	201(2B)	GRUBBING	LUMP SUM	ALL REQUIRED
202.0001.0000	202(1)	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LUMP SUM	ALL REQUIRED
202.0002.0000	202(2)	REMOVAL OF PAVEMENT	SQUARE YARD	30,354
202.0003.0000	202(3)	REMOVAL OF SIDEWALK	SQUARE YARD	2,316
202.0009.0000	202(9)	REMOVAL OF CURB AND GUTTER	LINEAR FOOT	8,162
202.2029.0000		RESOLUTION OF CONFLICTS	CONTINGENT SUM	ALL REQUIRED
203.0003.0000	203(3)	UNCLASSIFIED EXCAVATION	CUBIC YARD	19,420
203.0006.0000	203(6)	BORROW	TON	17,060
301.0001.00D1	301(1)	AGGREGATE BASE COURSE, GRADING D-1	TON	3,605
306.0001.0000	306(1)	ATB	TON	2,375
306.0002.5228	306(102)	ASPHALT BINDER, GRADE PG 52-28	TON	107
401.0001.002B	401(1B)	HMA, TYPE II; CLASS B	TON	4,415
401.0012.002B	401(12)	HMA DRIVEWAY, TYPE II; CLASS B	TON	170
401.0004.5240	401(4)	ASPHALT BINDER, GRADE PG 52-40	TON	243
401.0008.002B	401(8B)	HMA PRICE ADJUSTMENT, TYPE II; CLASS B	CONTINGENT SUM	ALL REQUIRED
401.0015.0000	401(15)	ASPHALT MATERIAL PRICE ADJUSTMENT	CONTINGENT SUM	ALL REQUIRED
402.0001.STE1	402(1)	STE-1 ASPHALT FOR TACK COAT	TON	5
603.0001.0036	603(1)-36	CSP 36 INCH	LINEAR FOOT	100
603.0021.0012	603(21)-12	CORRUGATED POLYETHYLENE PIPE 12 INCH	LINEAR FOOT	36
603.0021.0018	603(21)-18	CORRUGATED POLYETHYLENE PIPE 18 INCH	LINEAR FOOT	1,710
603.0021.0024	603(21)-24	CORRUGATED POLYETHYLENE PIPE 24 INCH	LINEAR FOOT	410
603.0021.0036	603(21)-36	CORRUGATED POLYETHYLENE PIPE 36 INCH	LINEAR FOOT	200
604.0001.0000	604(1)	STORM SEWER MANHOLE	EACH	18
604.0002.0000	604(2)	SANITARY SEWER MANHOLE	EACH	5
604.0004.0000	604(4)	ADJUST EXISTING MANHOLE	EACH	7
604.0005.000A	604(5)	INLET, TYPE A	EACH	12
607.0003.0000	607(3)	CHAIN LINK FENCE	LINEAR FOOT	257
607.0004.0000	607(4)	RECONSTRUCTED FENCE	LINEAR FOOT	31
608.0001.0004	608(1A)	CONCRETE SIDEWALK, 4 INCHES THICK	SQUARE YARD	1,605
608.0001.0006	608(1B)	CONCRETE SIDEWALK, 6 INCHES THICK	SQUARE YARD	585
608.0002.0000	608(2)	ASPHALT SIDEWALK	TON	110
608.0006.0000	608(6)	CURB RAMP	EACH	18
608.2013.0001		CONCRETE SLABS, BROOM FINISH, 4 INCHES THICK	SQUARE YARD	162
608.2013.0005		CONCRETE SLABS, COLORED & PATTERN IMPRINTED, 4 INCHES THICK	SQUARE YARD	1,134
609.0001.0004	609(1)	CURB, TYPE 4	LINEAR FOOT	605
609.0002.0001	609(2)	CURB AND GUTTER, TYPE 1	LINEAR FOOT	11,660
609.2000.0000	609(101)	CURB, DRAIN	EACH	2
610.0004.0000	610(101)	DITCH LINING	LUMP SUM	ALL REQUIRED
611.0003.0001	611(102)	RIPRAP, CLASS I	LUMP SUM	ALL REQUIRED
613.0002.0000	613(2)	CULVERT MARKER POST	EACH	2

ESTIMATE OF QUANTITIES

ITEM NO.	SSHC 2017 ITEM NO.	DESCRIPTION	PAY UNIT	QUANTITY
614.0001.0000	614(1)	CONCRETE BARRIER	LINEAR FOOT	25
615.0001.0000	615(1)	STANDARD SIGN	SQUARE FOOT	435.0
615.0006.0000	615(6)	SALVAGE SIGN	EACH	74
618.0002.000A	618(2)-A	SEEDING (GENERAL SEED MIX)	POUND	610
618.0002.000B	618(2)-B	SEEDING (SIDEWALK BORDER SEED MIX)	POUND	5
620.0001.0000	620(1)	TOPSOIL	SQUARE YARD	4,710
621.2018.0000	621(7)	ROCK MULCH	SQUARE YARD	95
626.0001.0008	626(1)-8	SANITARY SEWER CONDUIT, 8 INCH	LINEAR FOOT	140
626.0001.0010	626(1)-10	SANITARY SEWER CONDUIT, 10 INCH	LINEAR FOOT	550
626.0002.0000	626(2)	SANITARY SEWER SERVICE CONNECTION	EACH	2
626.2002.0000	626(104)	SANITARY SEWER LIFT STATION	LUMP SUM	ALL REQUIRED
627.0001.0004	627(1)-4	DUCTILE IRON WATER CONDUIT, 4 INCH, CLASS 350	LINEAR FOOT	112
627.0001.0006	627(1)-6	DUCTILE IRON WATER CONDUIT, 6 INCH, CLASS 350	LINEAR FOOT	84
627.0001.0008	627(1)-8	DUCTILE IRON WATER CONDUIT, 8 INCH, CLASS 350	LINEAR FOOT	110
627.0001.0010	627(1)-10	DUCTILE IRON WATER CONDUIT, 10 INCH, CLASS 350	LINEAR FOOT	640
627.0001.0012	627(1)-12	DUCTILE IRON WATER CONDUIT, 12 INCH, CLASS 350	LINEAR FOOT	308
627.0001.0014	627(1)-14	DUCTILE IRON WATER CONDUIT, 14 INCH, CLASS 350	LINEAR FOOT	490
627.0005.0000	627(5)	FIRE HYDRANT INSTALLATION	EACH	4
627.0008.0000	627(8)	WATER SERVICE CONNECTION	EACH	1
627.0009.0004	627(9)-4	GATE VALVE, 4 INCH	EACH	1
627.0009.0006	627(9)-6	GATE VALVE, 6 INCH	EACH	1
627.0009.0008	627(9)-8	GATE VALVE, 8 INCH	EACH	1
627.0009.0010	627(9)-10	GATE VALVE, 10 INCH	EACH	1
627.0009.0012	627(9)-12	GATE VALVE, 12 INCH	EACH	1
627.0009.0014	627(9)-14	GATE VALVE, 14 INCH	EACH	2
627.0010.0000	627(10)	ADJUSTMENT OF VALVE BOX	EACH	1
630.0002.0001	630(2)	GEOTEXTILE, STABILIZATION, CLASS 1	SQUARE YARD	555
630.0003.0002	630(3B)	GEOTEXTILE, REINFORCEMENT - TYPE 2	SQUARE YARD	10,765
631.2001.0000	631(2)	GEOTEXTILE, EROSION CONTROL, CLASS 1	SQUARE YARD	3,150
639.2000.0000	639(101)	APPROACH	EACH	5
640.0001.0000	640(1)	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQUIRED
641.0001.0000	641(1)	EROSION, SEDIMENT AND POLLUTION CONTROL ADMINISTRATION	LUMP SUM	ALL REQUIRED
641.0003.0000	641(3)	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM	ALL REQUIRED
641.0005.0000	641(5)	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL BY DIRECTIVE	CONTINGENT SUM	ALL REQUIRED
641.0006.0000	641(6)	WITHHOLDING	CONTINGENT SUM	ALL REQUIRED
641.0007.0000	641(7)	SWPPP MANAGER	LUMP SUM	ALL REQUIRED
642.0001.0000	642(1)	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED
642.0003.0000	642(3)	THREE PERSON SURVEY PARTY	HOUR	55

STATE OF ALASKA
49TH
Heather D. Estabrook
3/25/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

ESTIMATE OF QUANTITIES

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	C2	C2

ESTIMATE OF QUANTITIES

ITEM NO.	SSHC 2017 ITEM NO.	DESCRIPTION	PAY UNIT	QUANTITY
643.0002.0000	643(2)	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED
643.0003.0000	643(3)	PERMANENT CONSTRUCTION SIGNS	LUMP SUM	ALL REQUIRED
643.0023.0000	643(23)	TRAFFIC PRICE ADJUSTMENT	CONTINGENT SUM	ALL REQUIRED
643.0025.0000	643(25)	TRAFFIC CONTROL	CONTINGENT SUM	ALL REQUIRED
643.2005.0000	643(101)	PUBLIC INFORMATION PROGRAM	LUMP SUM	ALL REQUIRED
643.0021.0000	643(102A)	ROAD CLOSURE, UNIVERSITY AVENUE	LUMP SUM	ALL REQUIRED
643.0021.0000	643(102B)	ROAD CLOSURE, REWAK DRIVE	LUMP SUM	ALL REQUIRED
644.0001.0000	644(1)	FIELD OFFICE	LUMP SUM	ALL REQUIRED
644.0002.0000	644(2)	FIELD LABORATORY	LUMP SUM	ALL REQUIRED
644.0006.0000	644(6)	VEHICLE	LUMP SUM	ALL REQUIRED
645.0001.0000	645(1)	TRAINING PROGRAM, 2 TRAINEES / APPRENTICES	LABOR HOUR	2,000
646.0001.0000	646(1)	CPM SCHEDULING	LUMP SUM	ALL REQUIRED
660.0001.0000	660(1)	TRAFFIC SIGNAL SYSTEM COMPLETE, UNIVERSITY/AIRPORT	LUMP SUM	ALL REQUIRED
660.0003.0000	660(3)	HIGHWAY LIGHTING SYSTEM COMPLETE	LUMP SUM	ALL REQUIRED
660.0007.0000	660(7)	TEMPORARY SIGNAL SYSTEM COMPLETE, UNIVERSITY/AIRPORT	LUMP SUM	ALL REQUIRED
661.0001.0000	661(1)	LOAD CENTER, TYPE 1	EACH	1
661.0006.0000	661(6)	TRANSFORMER, 5 KVA	EACH	1
662.2005.0000	662(122)	FIBER OPTIC INTERCONNECT INFRASTRUCTURE	LUMP SUM	ALL REQUIRED
670.2006.0000	670(104)	MMA PAVEMENT MARKINGS, LONGITUDINAL INLAID	LINEAR FOOT	21,038
670.2007.0000	670(109)	MMA PAVEMENT MARKINGS, SYMBOLS AND ARROW(S) INLAID	EACH	28
670.2010.0000	670(107)	MMA PAVEMENT MARKINGS, TRANSVERSE AND GORE INLAID	SQUARE FOOT	3,460
680.2001.0000		TELECOMMUNICATIONS VAULT, DUCTBANK, AND CONDUIT SYSTEM	LUMP SUM	ALL REQUIRED

ESTIMATE OF LUMP SUM QUANTITIES

ITEM NO.	SSHC 2017 ITEM NO.	DESCRIPTION	QUANTITY
201.0007.0000	201(1B)	CLEARING	0.1 ACRE
201.0008.0000	201(2B)	GRUBBING	3.11 ACRE
202.0001.0000	202(1)	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	
		SD PIPE	1,034 LINEAR FOOT
		SD MANHOLE	5 EACH
		SD CATCH BASIN	13 EACH
		WATER VALVE	8 EACH
		WATER HYDRANT	1 EACH
		WATER PIPE	1,278 LINEAR FOOT
		SEWER MANHOLE	2 EACH
		SEWER PIPE	520 LINEAR FOOT
		LIFT STATION	1 EACH
		BUS SHELTER	1 EACH
		FENCE	286 LINEAR FOOT
		CULVERT PIPE	134 LINEAR FOOT
610.0004.0000	610(101)	DITCH LINING	1,045 CUBIC YARD
611.0003.0001	611(102)	RIPRAP, CLASS I	5 CUBIC YARD
680.2001.0000		TELECOMMUNICATIONS VAULT, DUCTBANK, AND CONDUIT SYSTEM	
		ACS CONDUIT	1,800 LINEAR FOOT
		GCI CONDUIT	260 LINEAR FOOT
		ACS PEDS	3 EACH

ESTIMATING FACTORS

ITEM NO.	SSHC 2017 ITEM NO.	DESCRIPTION	FACTOR
203.0006.0000	203(6)	BORROW	2 TONS/CUBIC YARD
301.0001.00D1	301(1)	AGGREGATE BASE COURSE, GRADING D-1	1.96 TONS/CUBIC YARD
306.0001.0000	306(1)	ATB	1.96 TONS/CUBIC YARD
306.0002.5228	306(102)	ASPHALT BINDER, GRADE PG 52-28	4.5%/TON
401.0001.002B	401(1B)	HMA, TYPE II; CLASS B	1.96 TONS/CUBIC YARD
401.0004.5240	401(4)	ASPHALT BINDER, GRADE PG 52-40	5.5%/TON
402.0001.STE1	402(1)	STE-1 ASPHALT FOR TACK COAT	0.0003 TONS/SQUARE YARD
608.0002.0000	608(2)	ASPHALT SIDEWALK	1.96 TONS/CUBIC YARD
618.0002.000A	618(2)-A	SEEDING (GENERAL SEED MIX)	4.0 LBS/1,000 SQUARE FEET
618.0002.000B	618(2)-B	SEEDING (SIDEWALK BORDER SEED MIX)	2.5 LBS/1,000 SQUARE FEET

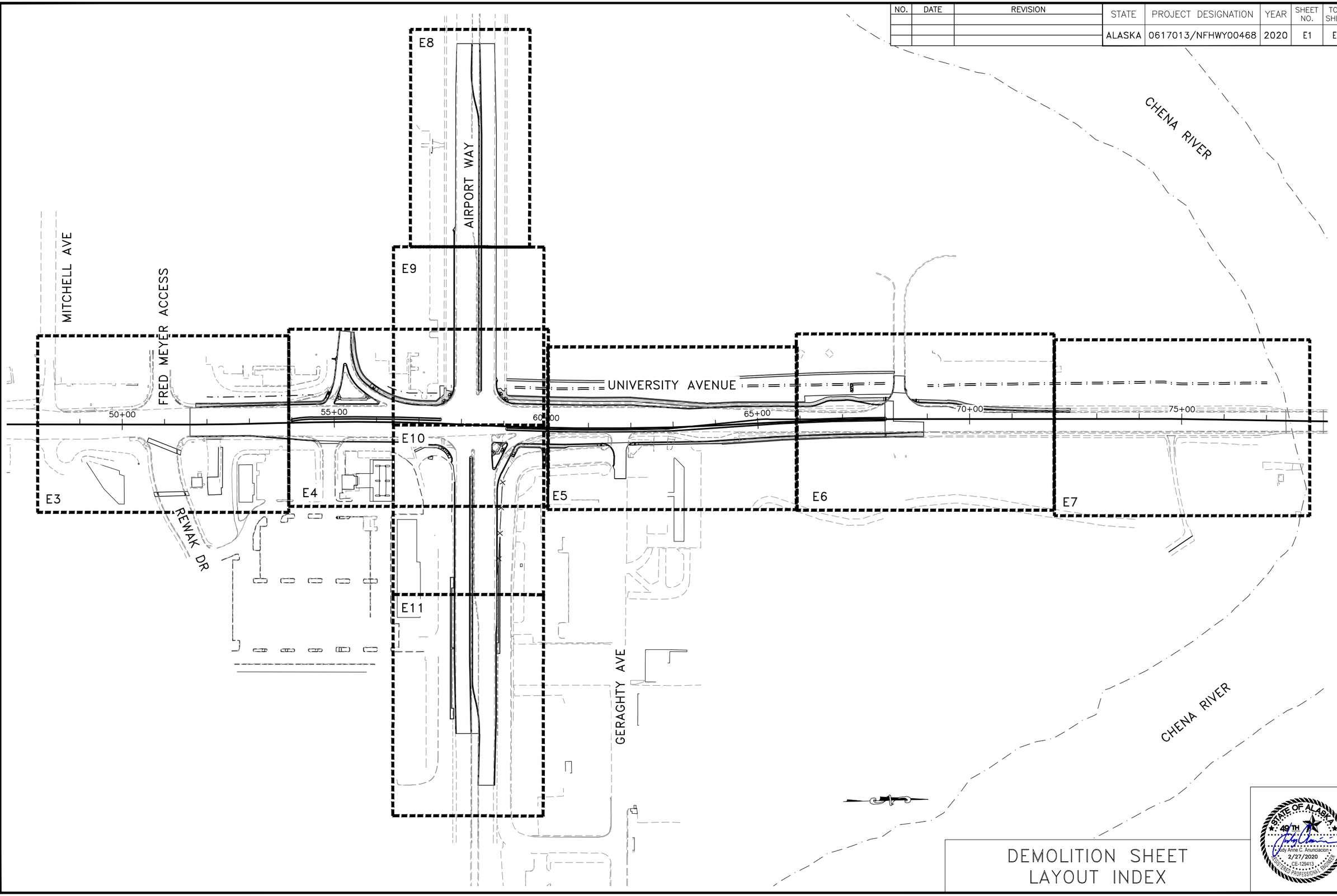
NOTES:

SEE H SHEETS FOR SIGNING AND STRIPING SUMMARIES.

ESTIMATE OF QUANTITIES

STATE OF ALASKA 49TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

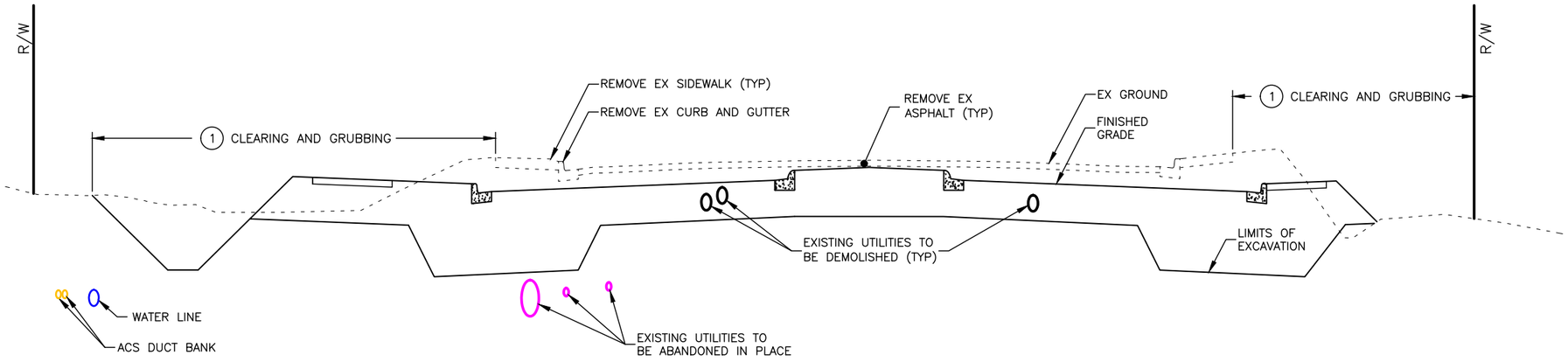
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	E1	E11



DEMOLITION SHEET
LAYOUT INDEX

STATE OF ALASKA
49TH
Judy Anne C. Anunciacion
2/27/2020
CE-12841
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	E2	E11



ROADWAY DEMOLITION TYPICAL

GENERAL DEMOLITION NOTES

1. CLEARING AND GRUBBING TO OCCUR IN LOCATIONS SHOWN IN THE DEMOLITION PLANS. DO NOT CLEAR BEYOND THE RIGHT OF WAY.
2. ALL UTILITIES MUST BE TEMPORARILY OR PERMANENTLY RELOCATED PRIOR TO DEMOLITION. REFER TO UTILITY RESPECTIVE PAY ITEMS OR SECTION 105-1.06 FOR ALLOWABLE OUTAGES AND OTHER REQUIREMENTS.
3. SUPPORT AND PROTECT OTHER UNDERGROUND UTILITIES, CONDUITS, AND STRUCTURES WHICH ARE NOT SCHEDULED FOR DEMOLITION OR ABANDONMENT.
4. ABANDON IN PLACE EXISTING UNDERGROUND UTILITIES WHICH ARE NOT BEING INCORPORATED INTO NEW SYSTEMS UNLESS THEY ARE IN CONFLICT WITH THE INSTALLATION OF A NEW UNDERGROUND UTILITY SYSTEM. CRUSH OR CAP PIPE ENDS OF UTILITIES TO BE ABANDONED WITHIN THE STRUCTURAL SECTIONS WITH 12" NON SHRINK GROUT TO PREVENT UNDERMINING OF THE ROADWAY STRUCTURE.
5. REMOVE PORTIONS OF ABANDONED UNDERGROUND UTILITIES THAT ARE IN CONFLICT WITH THE INSTALLATION OF NEW UNDERGROUND UTILITY SYSTEMS WITHIN 4' OF CROSSING OR WITHIN THE EXCAVATION LIMITS SHOWN.
6. EXISTING ACS DUCT BANK IS TO REMAIN IN PLACE UNTIL FULL RELOCATION CAN OCCUR. PROTECT ACS DUCT BANK AND STRUCTURES DURING CONSTRUCTION.
7. ALL EXISTING LIGHT POLE AND SIGNAL POLE FOUNDATIONS SCHEDULED TO BE DEMOLISHED SHALL BE REMOVED COMPLETELY AND BACKFILLED ACCORDING TO SECTION 203 OF THE CONTRACT SPECIFICATIONS. LIGHT POLE AND SIGNAL POLE FOUNDATIONS MAY BE DEMOLISHED TO 12" BELOW LIMITS OF EXCAVATION ONLY WITH THE APPROVAL OF THE ENGINEER.

DEMOLITION INDEX:

- SANITARY SEWER DEMO
- SANITARY SEWER ABANDON IN PLACE
- WATER DEMO
- WATER ABANDON IN PLACE
- STORM DRAIN DEMO
- STORM DRAIN ABANDON IN PLACE
- ACS DUCT BANK DEMO
- ACS DUCT BANK ABANDON IN PLACE
- GCI DEMO
- GCI ABANDON IN PLACE
- LIGHTING DEMO
- FORCE MAIN DEMO
- FORCE MAIN ABANDON IN PLACE
- GAS LINE DEMO
- GAS LINE ABANDON IN PLACE
- CULVERT DEMO
- CULVERT ABANDON IN PLACE
- STRUCTURES
- FENCE
- GUARDRAIL
- BUS SHELTER
- GUY ANCHOR
- SIGNS
- MAILBOX
- HAND CLEARING
- CLEARING
- GRUBBING
- REMOVAL OF PAVEMENT, CONCRETE, CURB & GUTTER

REMOVAL BY OWNERS

ALIGNMENT	BEGIN	OFFSET	END	OFFSET	QUANTITY	UNIT	REMARKS
"01"	53+28	52.25 RT	53+68	53.62 RT	40	LF	WOOD BEAM FENCE
"01"	53+76	53.88 RT	54+17	54.58 RT	40	LF	WOOD BEAM FENCE

CAUTION: 2019 UTILITIES TO REMAIN

- ACS DUCT BANK TO REMAIN

STATE OF ALASKA 49TH
Judy Anne C. Anunciacion
2/27/2020
CE-12941?
REGISTERED PROFESSIONAL ENGINEER

DEMOLITION DETAILS

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	E3	E11

MITCHELL AVE

FRED MEYER ACCESS

TCP

PROTECT EXISTING STORM DRAIN TO REMAIN

PROTECT EXISTING FRED MEYER SIGN TO REMAIN

DRAINAGE EASEMENT

PROTECT EXISTING WATER LINE TO REMAIN

PUE

TCE

R/W

EXISTING LIGHTING CONDUIT PICKED UP IN SURVEY DEMO IF FOUND

PROTECT EXISTING WATER LINE TO REMAIN

00 49+00 50+00 51+00 52+00 53+00 54+

UNIVERSITY AVENUE

MATCH "01" 54+00 LINE

REWAK DR

WOOD BEAM FENCE TO BE REMOVED AND RELOCATED BY PROPERTY OWNER

UNIVERSITY AVE DEMOLITION PLAN (1 OF 5)

STATE OF ALASKA 49TH
Judy Anne C. Anunciacion
2/27/2020
CE-12913
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	E4	E11

PROTECT EXISTING MT. MCKINLEY BANK TO REMAIN

DRAINAGE EASEMENT

PROTECT EXISTING ACS INSTALLED WITH 2019 CONSTRUCTION

PROTECT EXISTING ACS STEEL CASING TO REMAIN IN PLACE

PROTECT EXISTING WATER LINE TO REMAIN

PROTECT EXISTING WATER LINE TO REMAIN

EXISTING LIGHTING CONDUIT PICKED UP IN SURVEY DEMO IF FOUND

EXISTING LIGHTING CONDUIT CROSSES UNIVERSITY AVE. NOT SURVEYED, DEMO IF FOUND

PROTECT EXISTING CARL'S JR. SIGN TO REMAIN

CURRENT SURVEYED WATER SERVICE LOCATION, CORRECT LOCATION OF SAFEWAY SERVICE TO BE FIELD LOCATED.

PROTECT EXISTING SEWER LINE TO REMAIN

PROTECT EXISTING SIGN TO REMAIN

PROTECT EXISTING FENCE TO REMAIN

MATCH "01" 54+00 LINE

MATCH "01" 60+00 LINE

UNIVERSITY AVENUE

AIRPORT WAY

UNIVERSITY AVE DEMOLITION PLAN (2 OF 5)

STATE OF ALASKA
49TH
Judy Anne C. Anunciacion
2/27/2020
CE-12941
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	E5	E11

PROTECT EXISTING ACS INSTALLED WITH 2019 CONSTRUCTION

TCE

R/W

LANDSCAPE TO BE REMOVED
COORDINATE W/ PROPERTY OWNER TO SALVAGE MATERIALS AS REQUESTED

MATCH "01" 60+00 LINE

MATCH "01" 66+00 LINE

UNIVERSITY AVENUE

60+00 61+00 "GR"10+00.00 BP 10+00 62+00 63+00 64+00 65+00 66+

C/A

R/W

TCE

PROTECT EXISTING FENCE TO REMAIN.

COORDINATE WITH FAIRBANKS NORTH STAR BOROUGH (FNSB) ON THE RELOCATION OF THE EXISTING BUS SHELTER.

11+00

GERAGHTY AVE

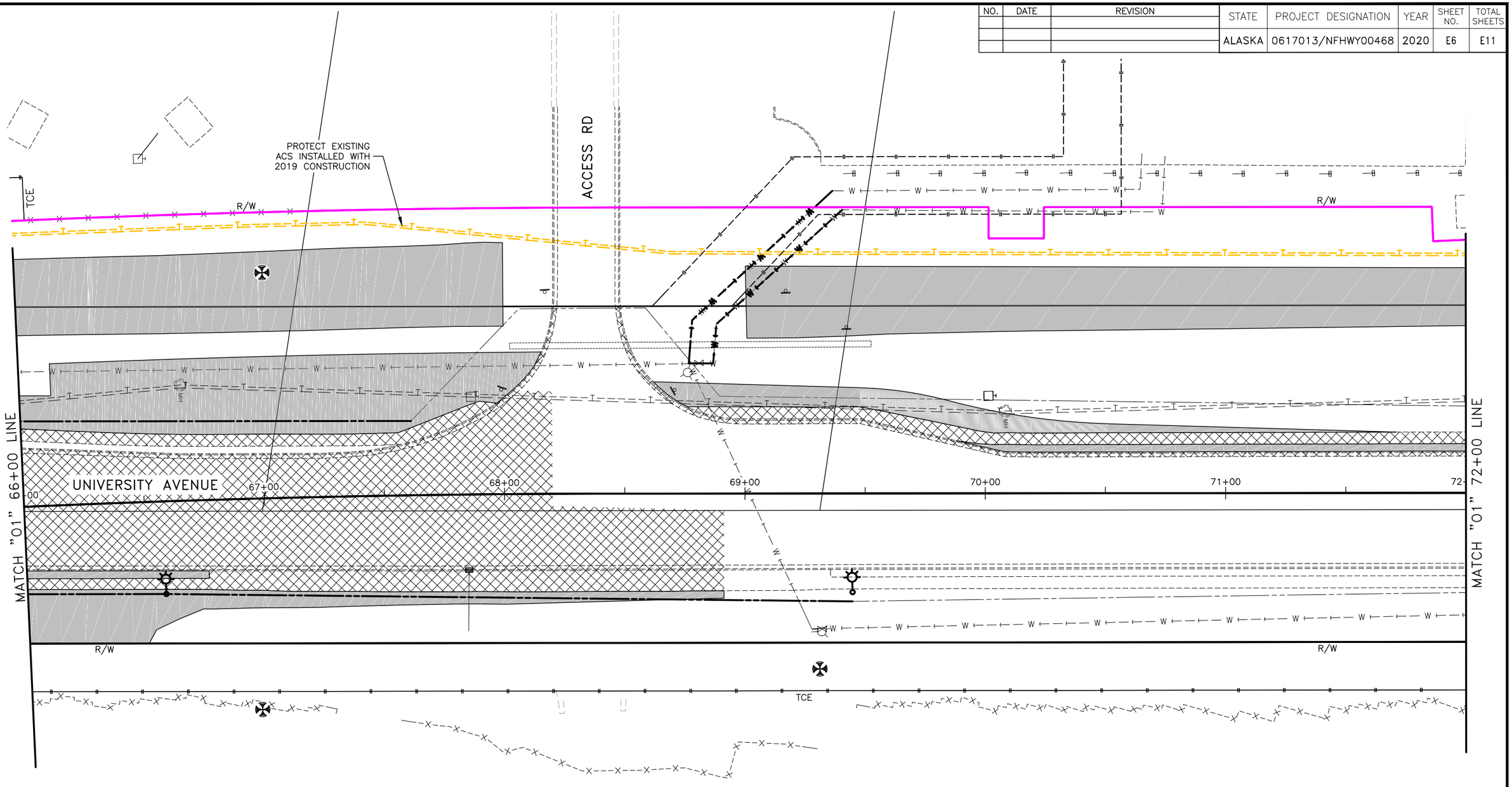
TCP

STATE OF ALASKA 49TH
Judy Anne C. Anunciacion
2/27/2020
CE-12941
REGISTERED PROFESSIONAL ENGINEER

UNIVERSITY AVE DEMOLITION PLAN (3 OF 5)

NO.	DATE	REVISION

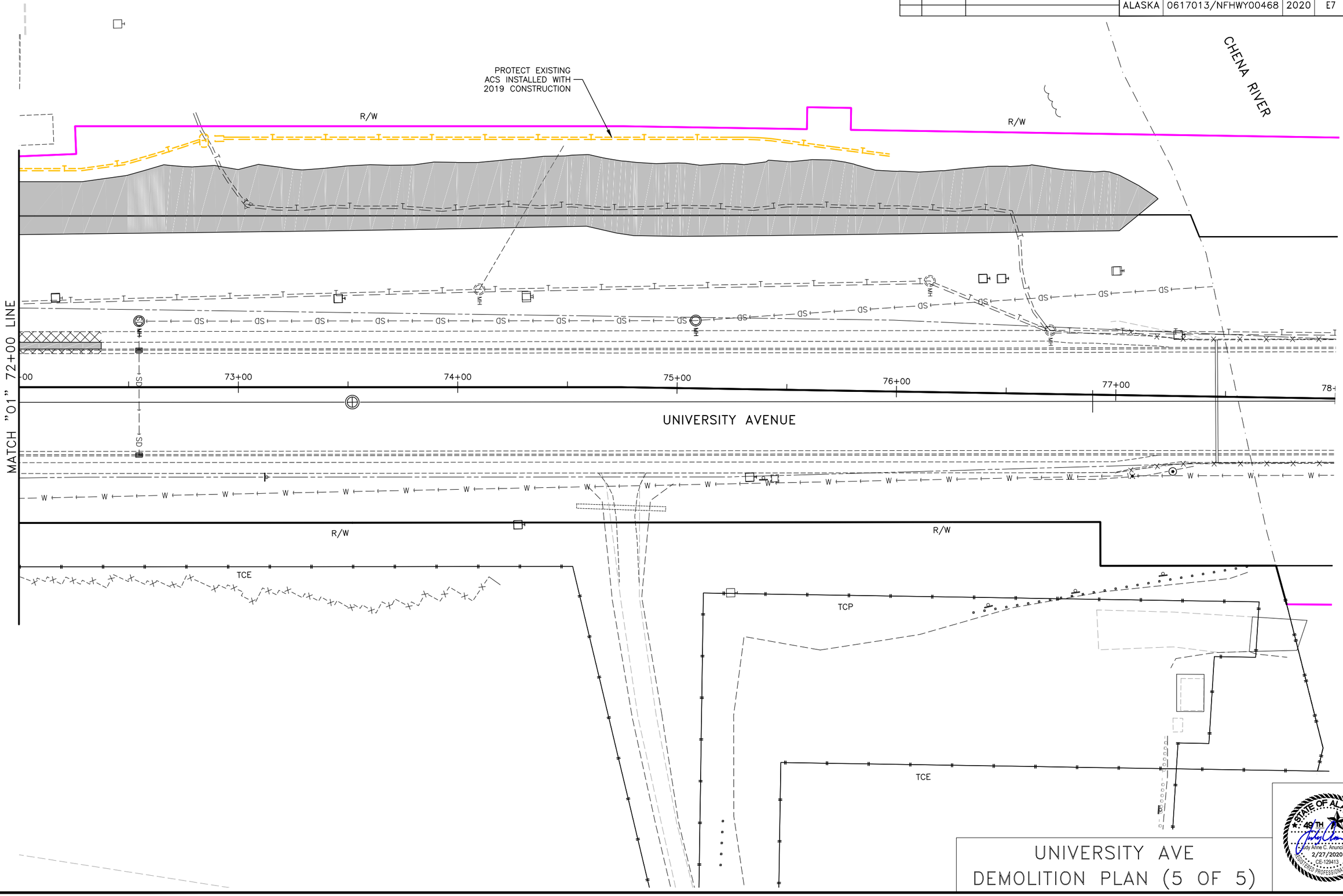
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	E6	E11



UNIVERSITY AVE DEMOLITION PLAN (4 OF 5)

STATE OF ALASKA 49TH
Judy Anne C. Anunciacion
2/27/2020
CE-129413
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	E7	E11

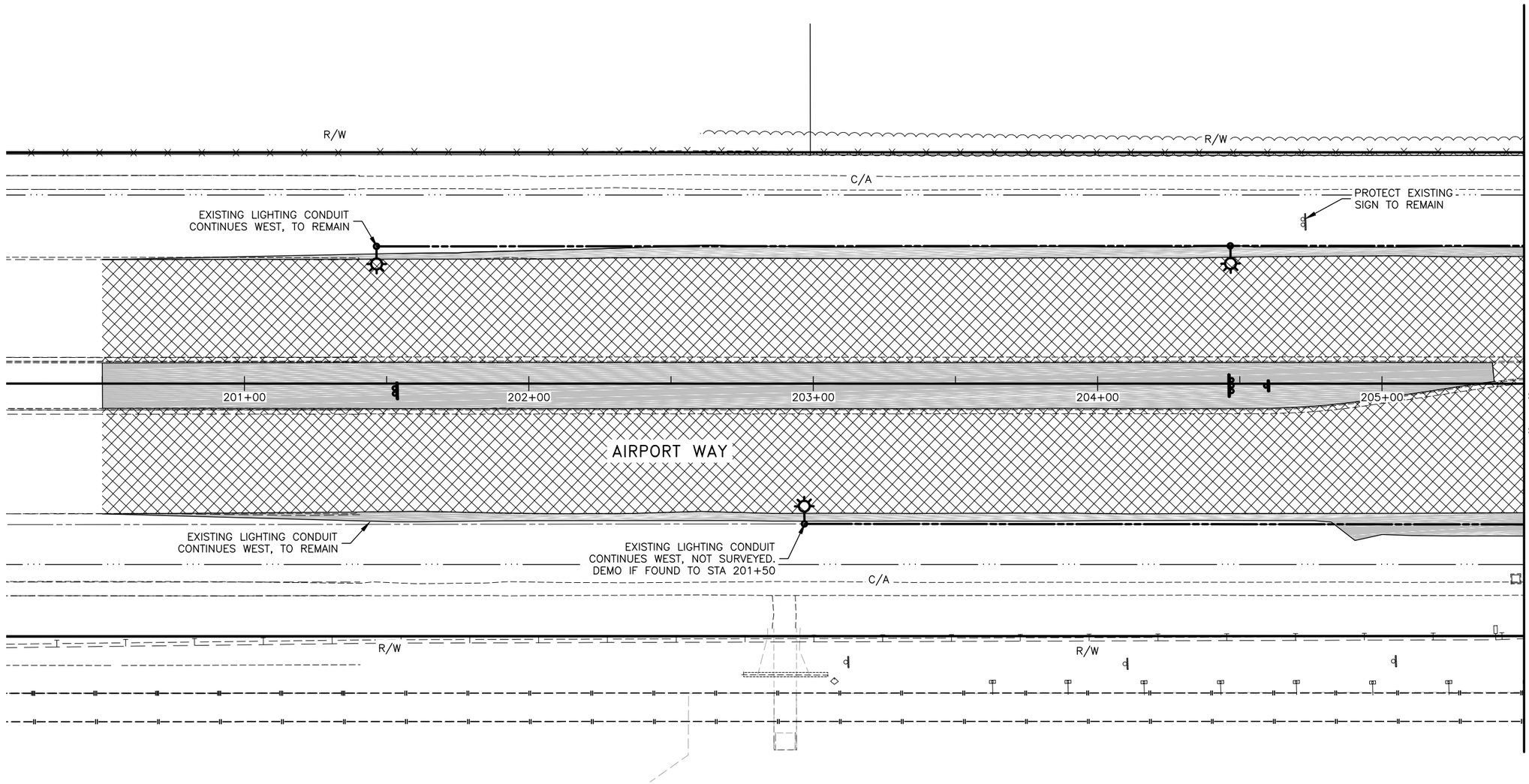


UNIVERSITY AVE DEMOLITION PLAN (5 OF 5)

STATE OF ALASKA 49TH
Judy Anne C. Anunciacion
2/27/2020
CE-12943
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	E8	E11

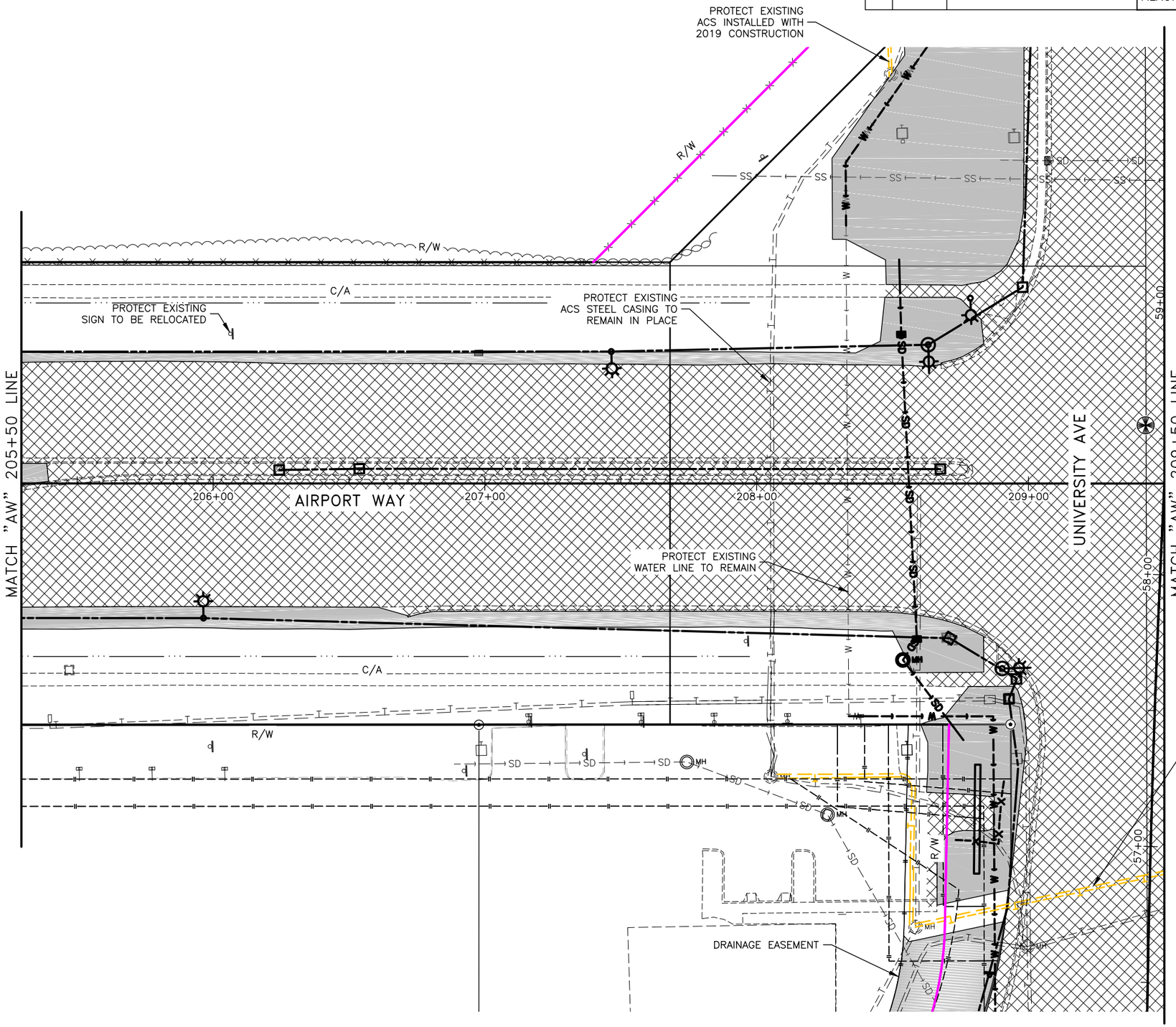


AIRPORT WAY
DEMOLITION PLAN (1 OF 4)

STATE OF ALASKA
49TH
Judy Anne C. Anunciacion
2/27/2020
CE-12941 3
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	E9	E11

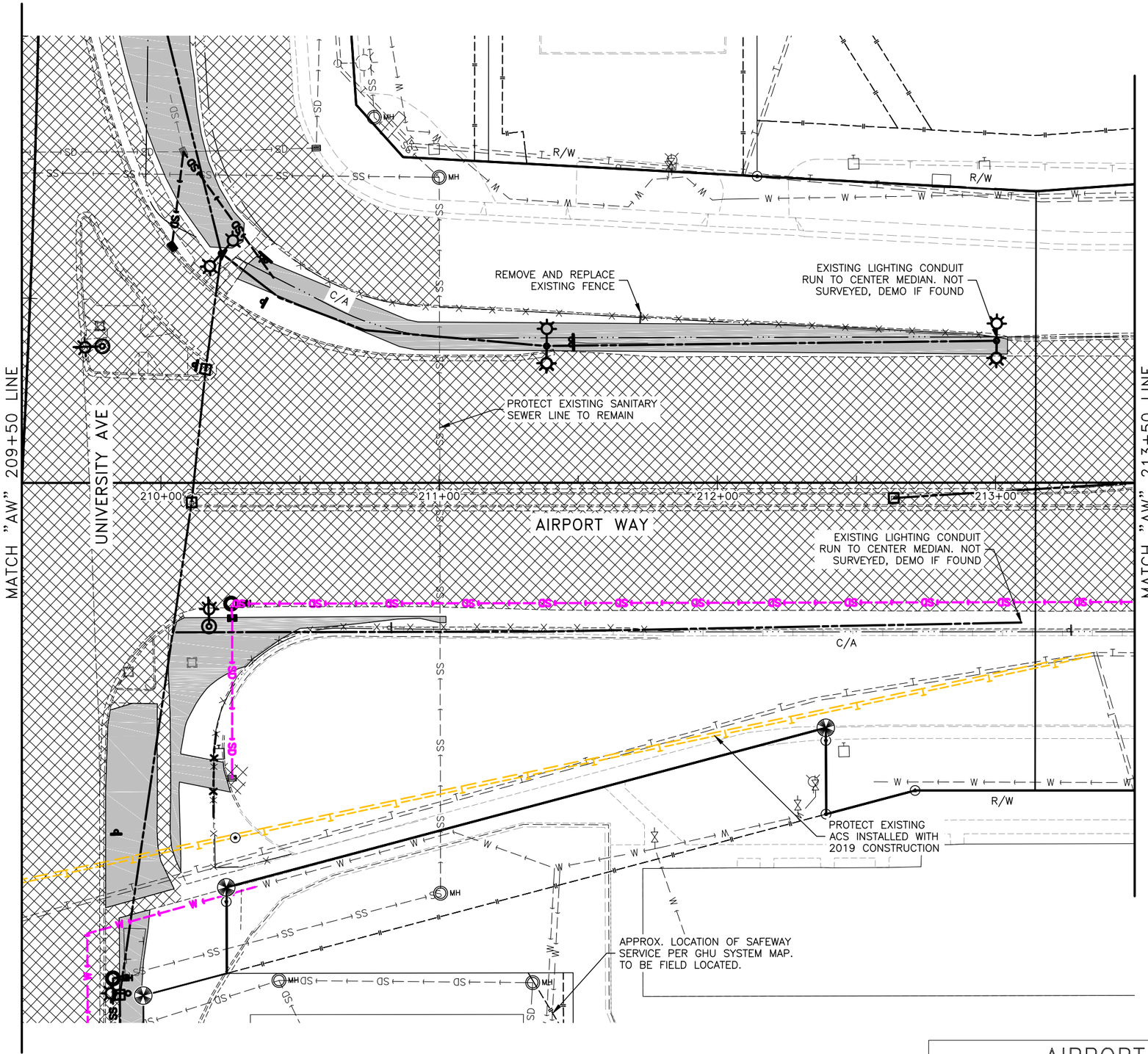


AIRPORT WAY
DEMOLITION PLAN (2 OF 4)

STATE OF ALASKA
49TH
Judy Anne C. Anunciacion
2/27/2020
CE-12913
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

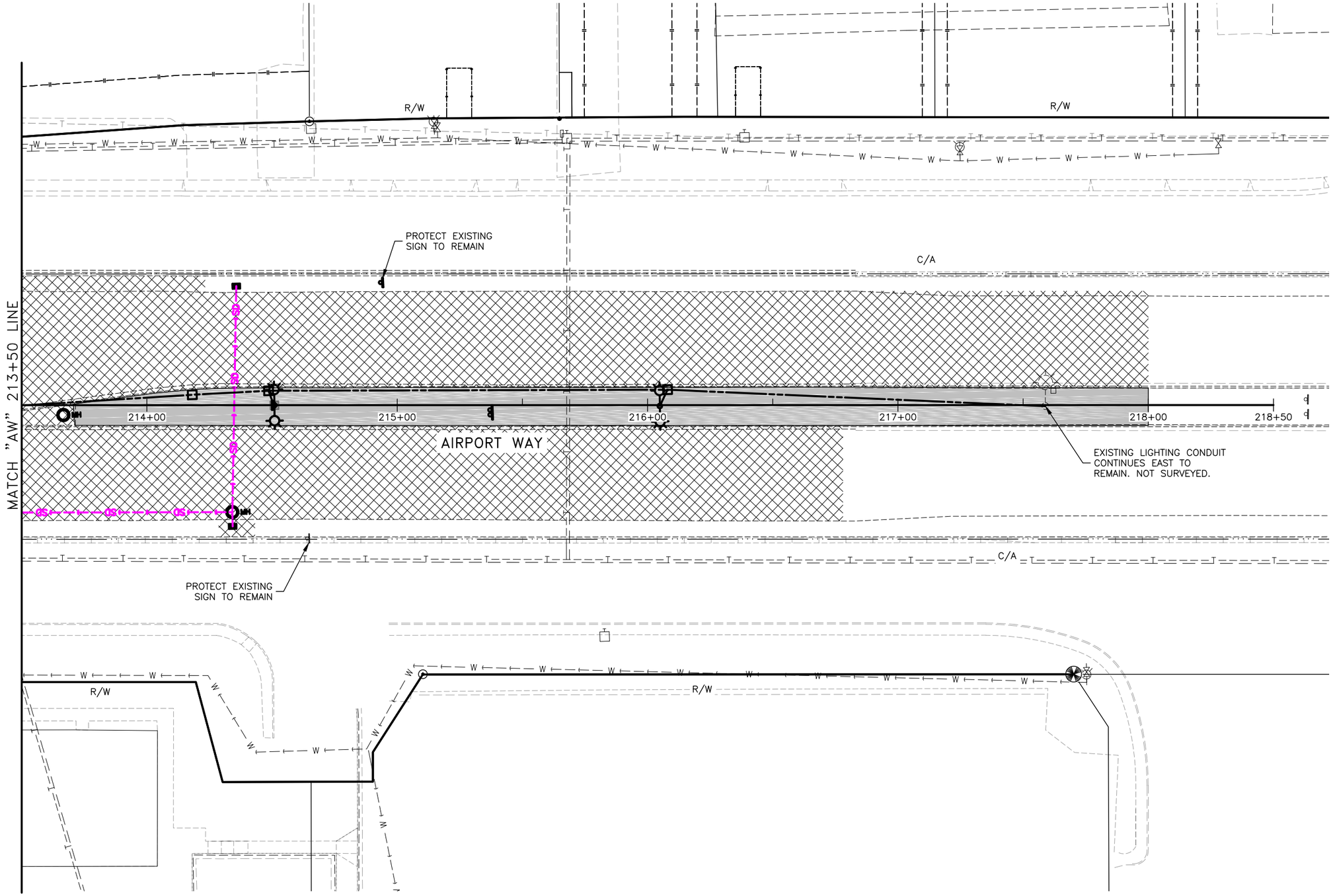
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	E10	E11



AIRPORT WAY
DEMOLITION PLAN (3 OF 4)

STATE OF ALASKA 49TH
Judy Anne C. Anunciacion
2/27/2020
CE-129413
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	E11	E11

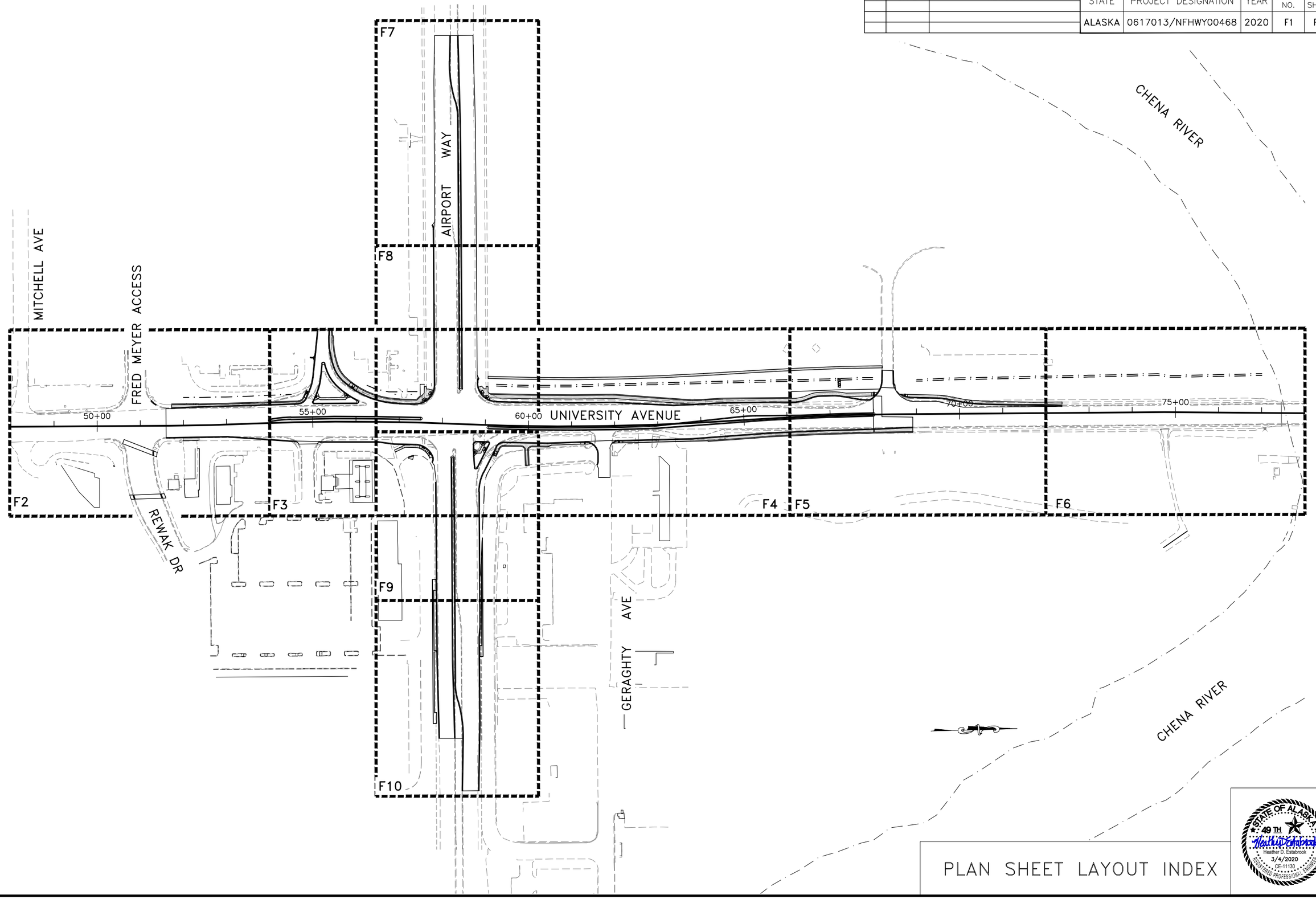


AIRPORT WAY
DEMOLITION PLAN (4 OF 4)

STATE OF ALASKA 49TH
Judy Anne C. Anunciacion
2/27/2020
CE-12941
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	F1	F15



PLAN SHEET LAYOUT INDEX

STATE OF ALASKA
49 TH
Heather D. Estabrook
3/4/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

P:\2011\111147.04FB-UNIV_AVE-SEGMENT_2A\C\c0006cnst111147.04fb-F1 Wed, Mar/04/20 11:55am
PLANS DEVELOPED BY: PDC INC ENGINEERS, LLC. CERT. OF AUTHORIZATION NO.: AECC605, 2700 GAMBELL STREET, SUITE 500, ANCHORAGE, AK 99503, (907)743-3200

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	F2	F15

MITCHELL AVE

R/W

FRED MEYER ACCESS

R/W

FRED MEYER SIGN BASE TO REMAIN

GRADE DITCH BACKSLOPE TO CATCH WITHIN EXISTING DRAINAGE EASEMENT

EASEMENT (DRAINAGE)

PUE

MATCH "01" 48+00 LINE

UNIVERSITY AVENUE

N 1°34'29" E 2064.75'

48+00 49+00 50+00 51+00 52+00 53+00

MATCH EXISTING 51+60

"01"52+64.38 PI
Δ = 1°56'01"
D = 1°00'00"
T = 96.69'
L = 193.36'
R = 5729.58'

TEMPORARY 1.5" ASPHALT SIDEWALK "01" 51+73 TO "01" 54+91

"01"55+99.83 PI
Δ = 4°52'59"
D = 1°01'23"
T = 238.78'
L = 477.27'
R = 5600.00'

MATCH "01" 54+00 LINE

"01"51+67.69 PC

"01"53+19.05 PRC

31

32

R/W

TCE

TCE

REWAK DR

PAVEMENT REPLACEMENT

TCP

R/W

R/W

PLAN NOTES

1. SEE U200 – U209 FOR STORM DRAIN RELOCATION.
2. SEE U100 – U108 FOR WATER LINE RELOCATION.
3. SEE U301 – U308 FOR DUCT BANK RELOCATION.
4. SEE L1 – L9 FOR LANDSCAPING PLAN.

STATE OF ALASKA
49 TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

UNIVERSITY AVENUE PLAN (1 OF 5)

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	F3	F15

CURB DRAIN, SEE SHEET G17

EASEMENT (DRAINAGE)

PROPOSED EASEMENT (DRAINAGE)

TEMPORARY 1.5" ASPHALT SIDEWALK "01" 51+73 TO "01" 54+91

ADJUST EXISTING ACS MH LID TO NEW FINISHED ROADWAY GRADE

PROTECT EXISTING ACS STEEL CASING TO REMAIN IN PLACE

FIELD FIT TEMPORARY ASPHALT SIDEWALK TO AVOID THE PROPOSED LOAD CENTER

COMM NOT FOUND BY ACS, GNI OR GPR

TEMPORARY 1.5" ASPHALT SIDEWALK TO BE FIELD FIT. CONTRACTOR SHALL AVOID EXISTING UTILITIES TO REMAIN IN SERVICE AND PROPOSED UTILITIES THAT ARE INSTALLED DURING CONSTRUCTION. TEMPORARY ASPHALT SIDEWALK SHALL ALSO MEET 2006 ADA COMPLIANCE.

UNIVERSITY AVENUE

MATCH "01" 54+00 LINE

MATCH "01" 60+00 LINE

"01"55+99.83 PI
Δ = 4°52'59"
D = 1°01'23"
T = 238.78'
L = 477.27'
R = 5600.00'

"01"58+33.61 = "AW"209+50

"U"58+38.32 PRC

CARL'S JR SIGN AND BASE TO REMAIN

SAFEWAY SIGN AND BASE TO REMAIN

RECONSTRUCT EXISTING CHAIN LINK FENCE

TEMPORARY 1.5" ASPHALT SIDEWALK "01" 56+90 TO "01" 57+15

AIRPORT WAY

INSTALL NEW CHAIN LINK FENCE

SEPARATED SIDEWALK, SEE B5

55+00 56+00 57+00 58+00 59+00 208+00 209+00 210+00 211+00

UNIVERSITY AVENUE PLAN
(2 OF 5)

STATE OF ALASKA
49 TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	F4	F15

MATCH "01" 60+00 LINE

MATCH "01" 66+00 LINE

UNIVERSITY AVENUE

GERAGHTY AVE

"01"61+79.42 = "GR"10+00

"01"61+25.74 PI
Δ = 5°56'37"
D = 1°02'06"
T = 287.42'
L = 574.33'
R = 5536.50'

N 1°25'10" W 143.04

"U"64+12.65 PT

"U"65+55.68 PC

TEMPORARY 1.5" ASPHALT SIDEWALK TO BE FIELD FIT. CONTRACTOR SHALL AVOID EXISTING UTILITIES TO REMAIN IN SERVICE AND PROPOSED UTILITIES THAT ARE INSTALLED DURING CONSTRUCTION. TEMPORARY ASPHALT SIDEWALK SHALL ALSO MEET 2006 ADA COMPLIANCE.

ADJUST EXISTING ACS MH LID TO NEW FINISHED SIDEWALK GRADE

ADJUST EXISTING ACS MH LID TO NEW FINISHED SIDEWALK GRADE

ADJUST EXISTING ACS MH LID TO NEW FINISHED SIDEWALK GRADE

TEMPORARY 1.5" ASPHALT SIDEWALK "01" 60+44 TO "01" 61+45

TEMPORARY 1.5" ASPHALT SIDEWALK "01" 61+97 TO "01" 64+14

R/W

TCE

C/A

UNIVERSITY AVENUE PLAN (3 OF 5)

STATE OF ALASKA
49 TH
Heather D. Estabrook
2/21/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	F5	F15

TEMPORARY 1.5" ASPHALT SIDEWALK TO BE FIELD FIT. CONTRACTOR SHALL AVOID EXISTING UTILITIES TO REMAIN IN SERVICE AND PROPOSED UTILITIES THAT ARE INSTALLED DURING CONSTRUCTION. TEMPORARY ASPHALT SIDEWALK SHALL ALSO MEET 2006 ADA COMPLIANCE.

TCE

R/W

COMM INSTALLED 2019

ADJUST EXISTING ACS MH LID TO NEW FINISHED SIDEWALK GRADE

TEMPORARY 1.5" ASPHALT SIDEWALK "01" 67+38 TO "01" 68+11

REMOVE EXISTING CURB LINE
REGRADE/PAVE RT TURN LANE −1.3 TO −2%
INSTALL NEW CURB LINE & ASPHALT SIDEWALK

R/W
CONTINUE DRAINAGE DITCH TO CHENA RIVER

TEMPORARY 1.5" ASPHALT SIDEWALK "01" 68+60 TO "01" 72+38

ADJUST EXISTING ACS MH LID TO NEW FINISHED SIDEWALK GRADE

MATCH "01" 66+00 LINE

UNIVERSITY AVENUE

67+00 68+00 69+00 70+00 71+00

REGRADE/PAVE MATCH EXISTING 68+20

"01"66+99.67 PI
Δ = 2°56'44"
D = 1°01'23"
T = 143.98'
L = 287.90'
R = 5600.00'

SIDEWALK CURB DRAIN, SEE SHEET G13

MATCH EXISTING 68+00

"U"68+43.59 PT

MATCH EXISTING 68+91

45 46 47

1/6 1/6 1/6 1/6 1/4

REGRADE/PAVE INSTALL NEW CURB LINE & SIDEWALK

TEMPORARY 1.5" ASPHALT SIDEWALK "01" 68+00 TO "01" 68+91

R/W

TCE

MATCH "01" 72+00 LINE

UNIVERSITY AVENUE PLAN
(4 OF 5)

STATE OF ALASKA
49TH
Heather D. Estabrook
3/4/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	F6	F15

MATCH "01" 72+00 LINE

R/W

R/W

CHENA RIVER

TEMPORARY 1.5" ASPHALT SIDEWALK "01" 68+60 TO "01" 72+38

MATCH EXISTING 72+37.50

73+00

74+00

75+00

76+00

77+00

78+00

"U"74+74.68 PI

R/W

R/W

TCE

TCE

TCP

TCP

TCP

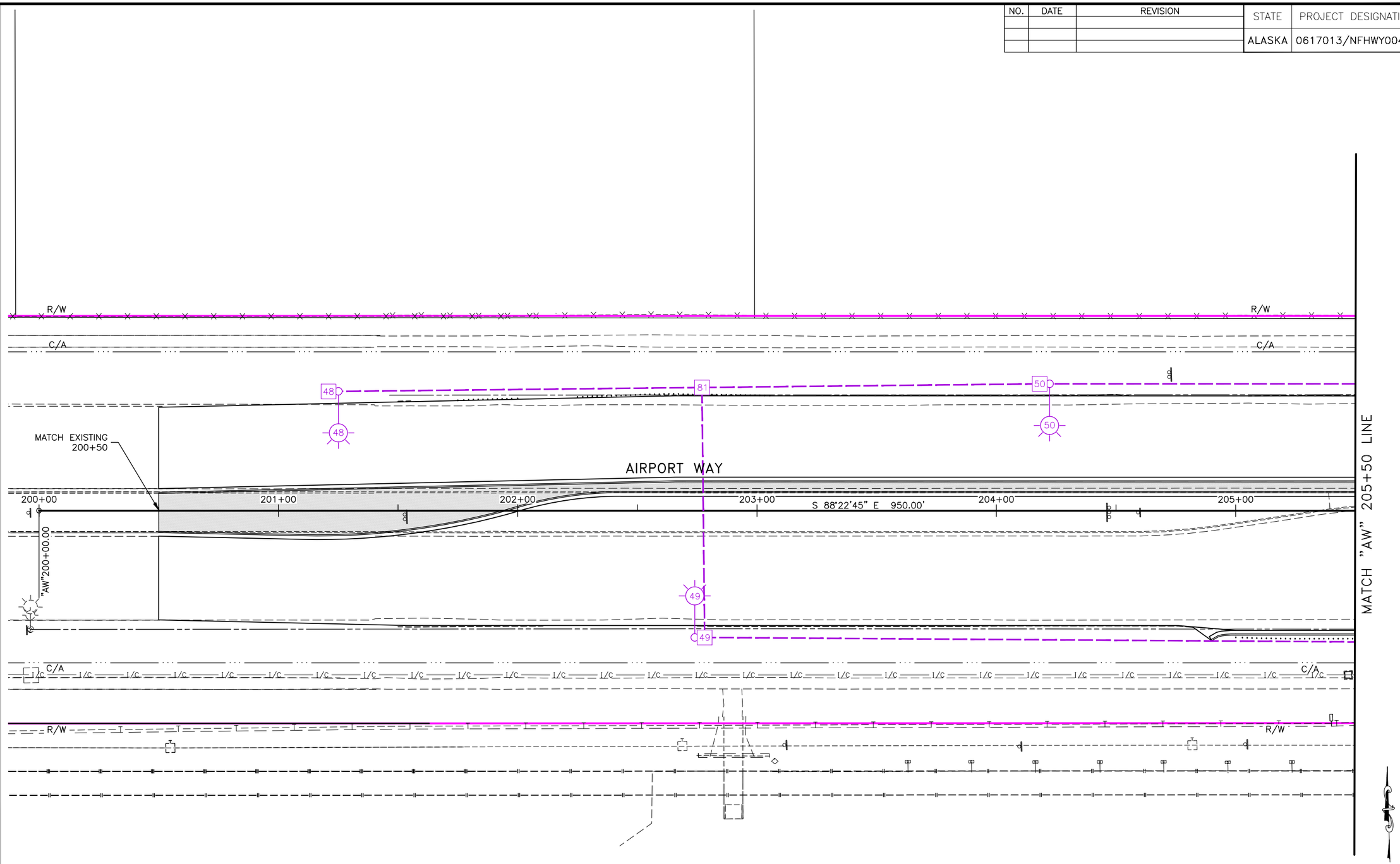
TCP

TCE

UNIVERSITY AVENUE PLAN
(5 OF 5)

STATE OF ALASKA
49 TH
Heather D. Estabrook
3/4/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	F7	F15



PLAN NOTES

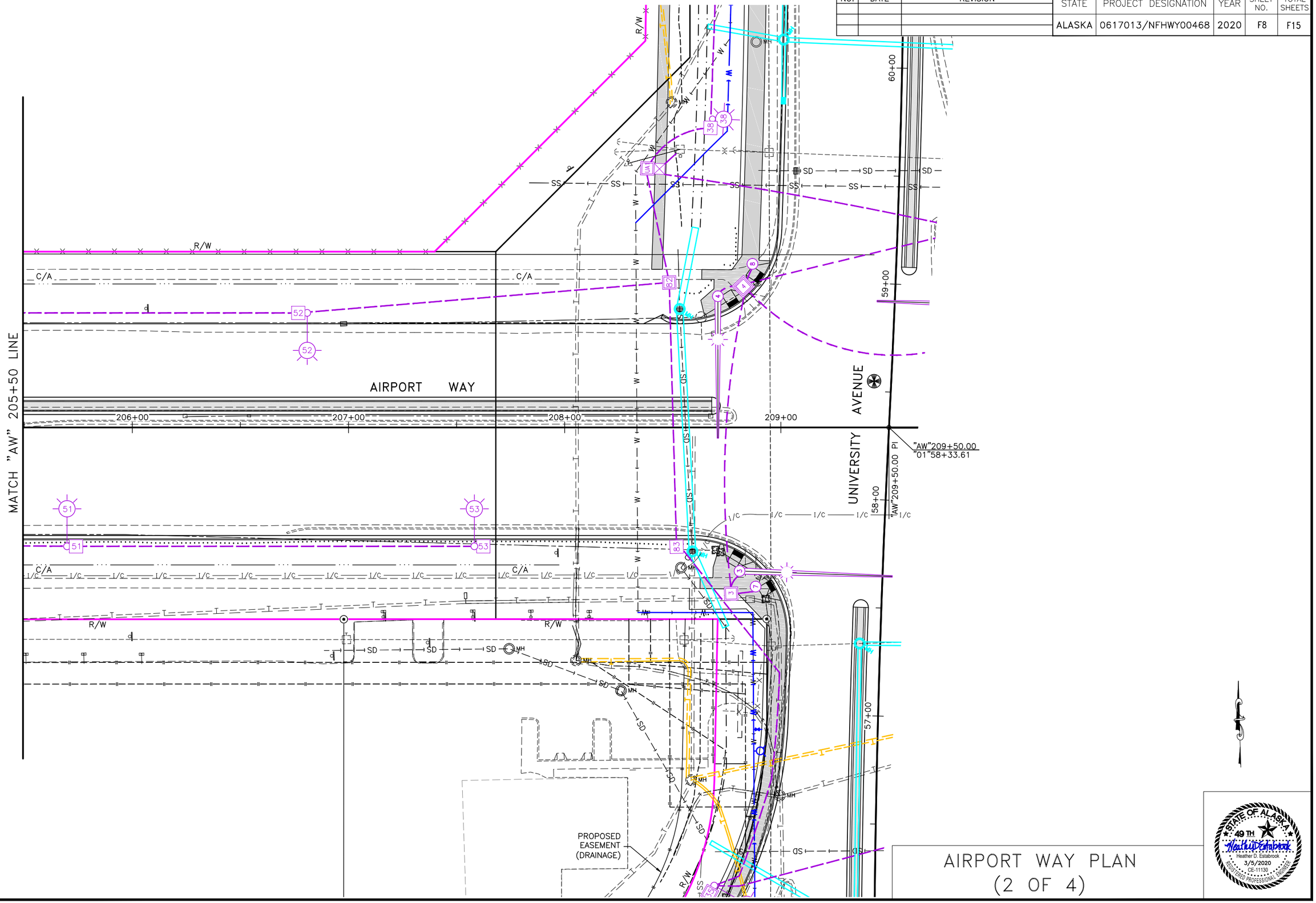
1. SEE U200 – U209 FOR STORM DRAIN RELOCATION.
2. SEE U100 – U108 FOR WATER LINE RELOCATION.
3. SEE U301 – U308 FOR DUCT BANK RELOCATION.
4. SEE L1 – L9 FOR LANDSCAPING PLAN.

AIRPORT WAY PLAN
(1 OF 4)

STATE OF ALASKA
49 TH
Heather D. Estabrook
2/21/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	F8	F15

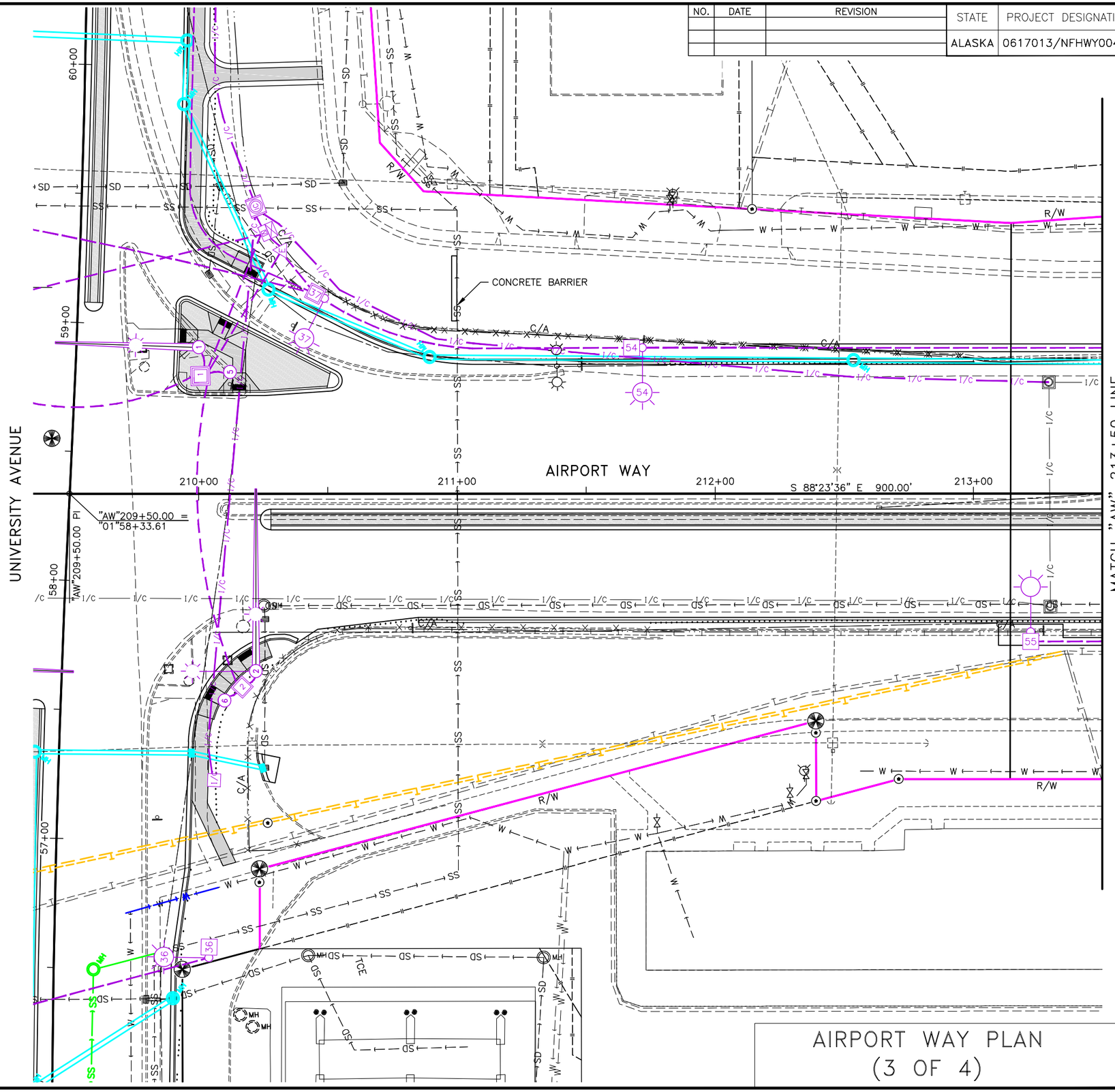


AIRPORT WAY PLAN (2 OF 4)

STATE OF ALASKA
49 TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	F9	F15



AIRPORT WAY PLAN
(3 OF 4)

STATE OF ALASKA
49 TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	F10	F15

MATCH "AW" 213+50 LINE

AIRPORT WAY

214+00 215+00 216+00 217+00 218+00

S 88°23'36" E 900.00'

MATCH EXISTING STA 218+00

MATCH EXISTING STA 216+78

"AW"218+50.00

R/W

C/A

SD

MH

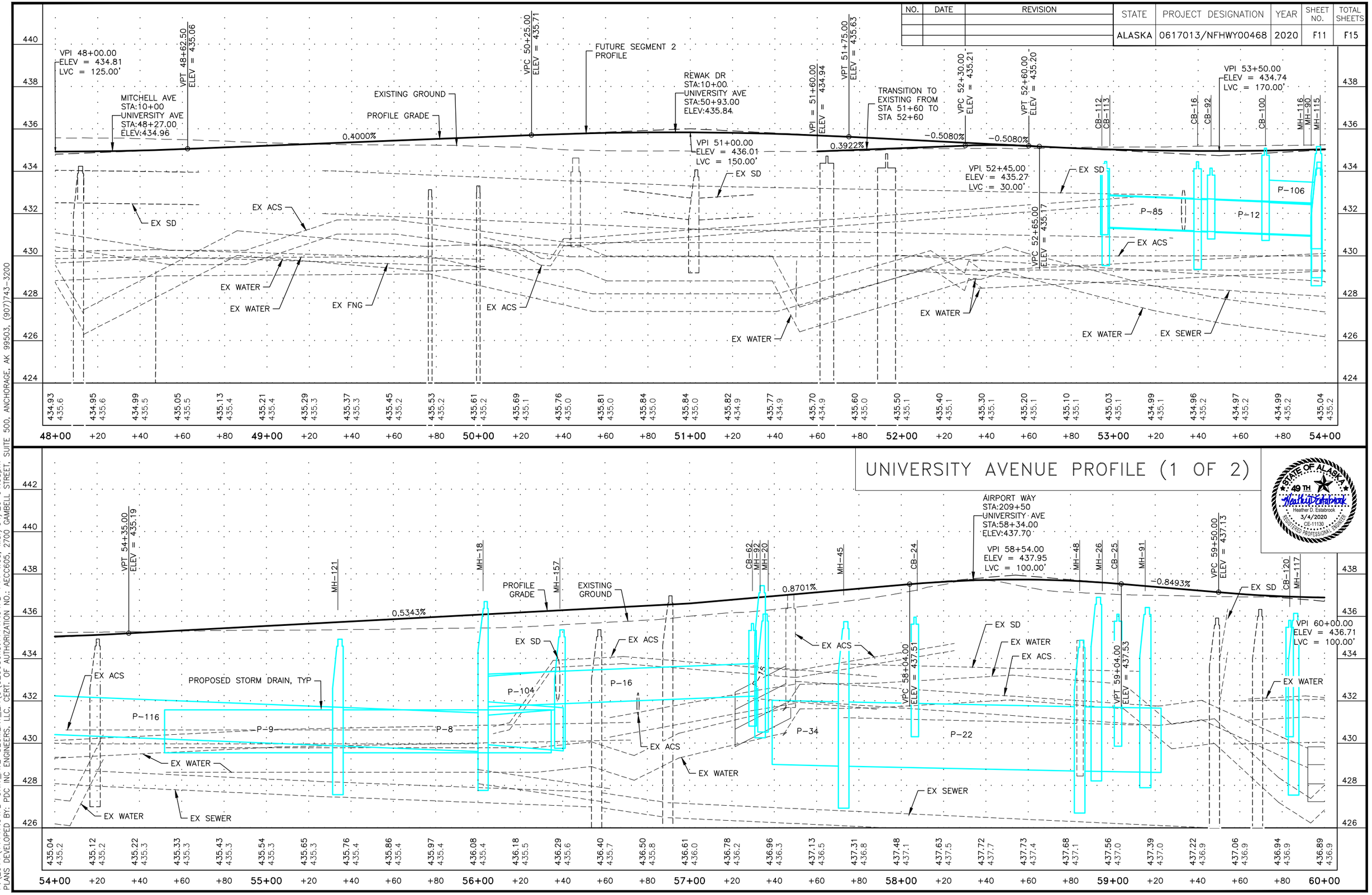
56 57 85

AIRPORT WAY PLAN (4 OF 4)

STATE OF ALASKA 49TH Heather D. Estabrook 2/21/2020 CE-11130 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

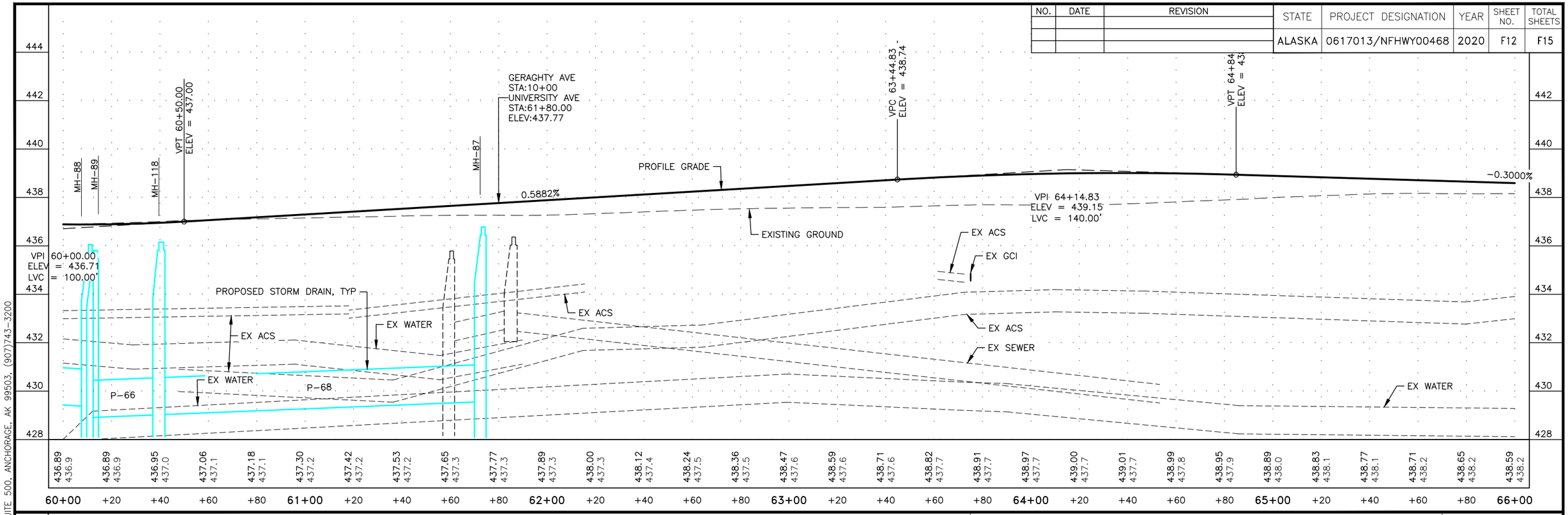
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	F11	F15



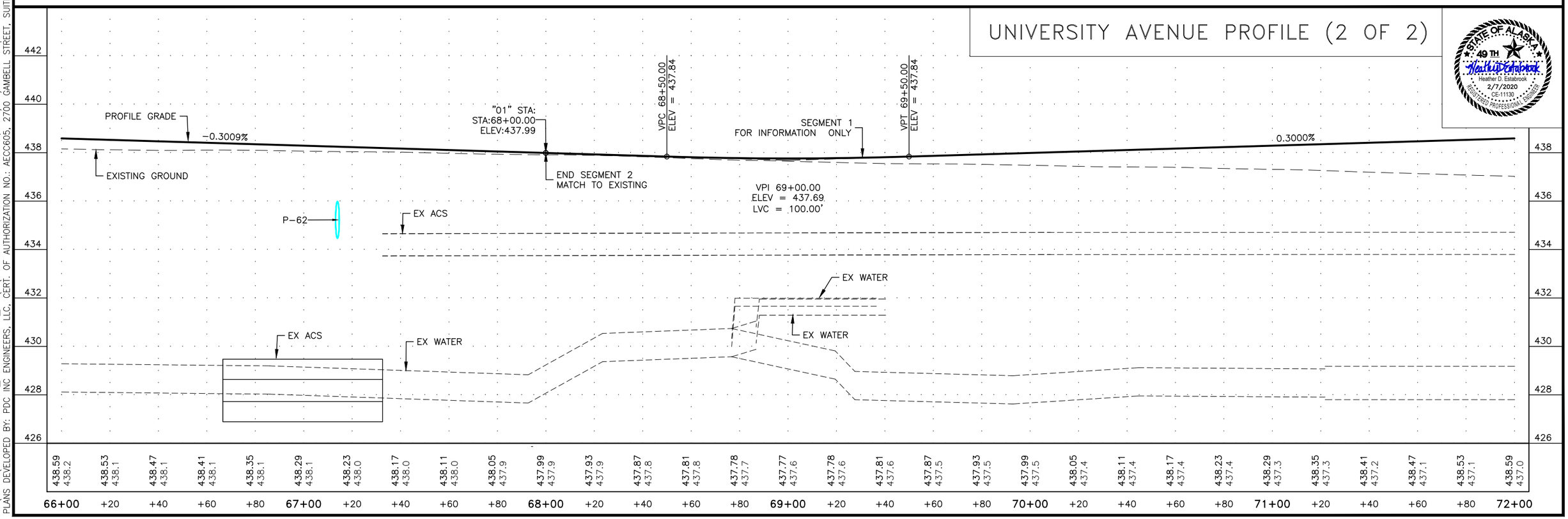
UNIVERSITY AVENUE PROFILE (1 OF 2)

STATE OF ALASKA 49TH
Heather D. Estabrook
3/4/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	F12	F15

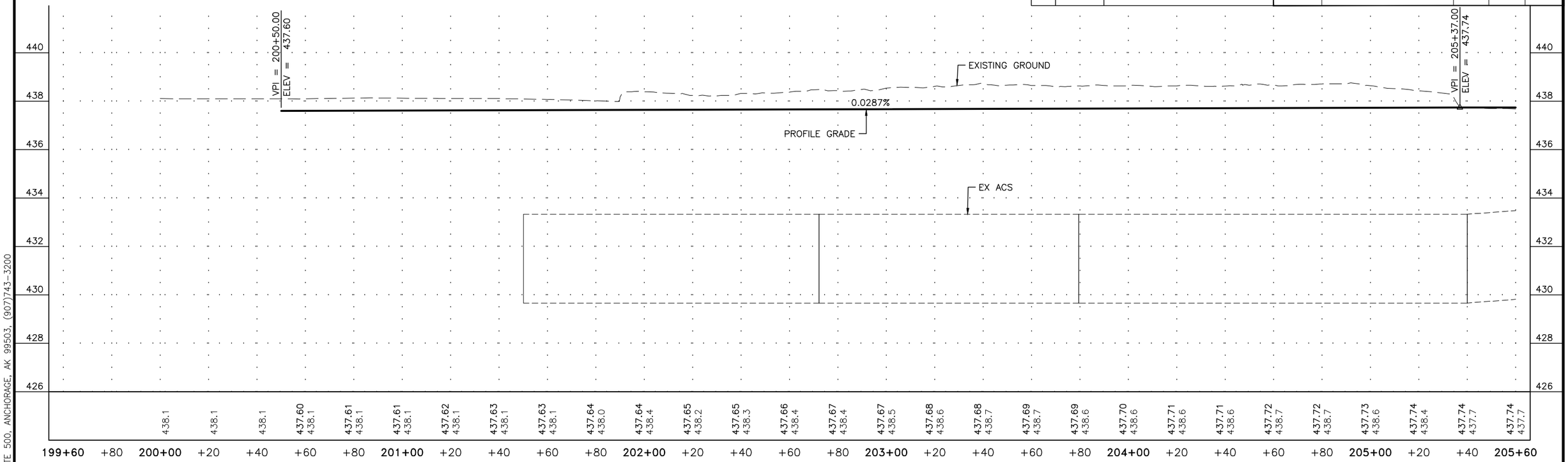


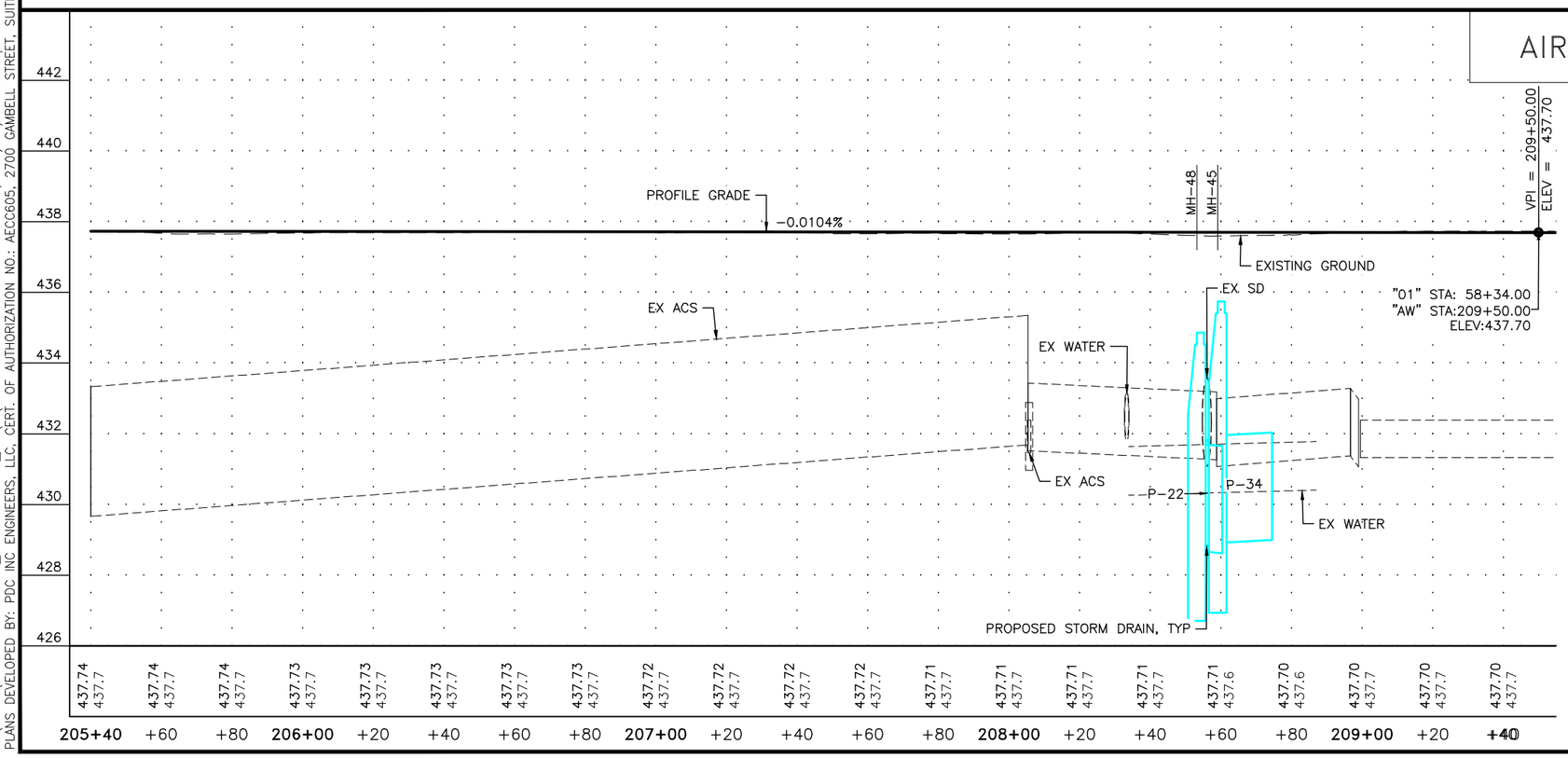
UNIVERSITY AVENUE PROFILE (2 OF 2)



STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	F13	F15

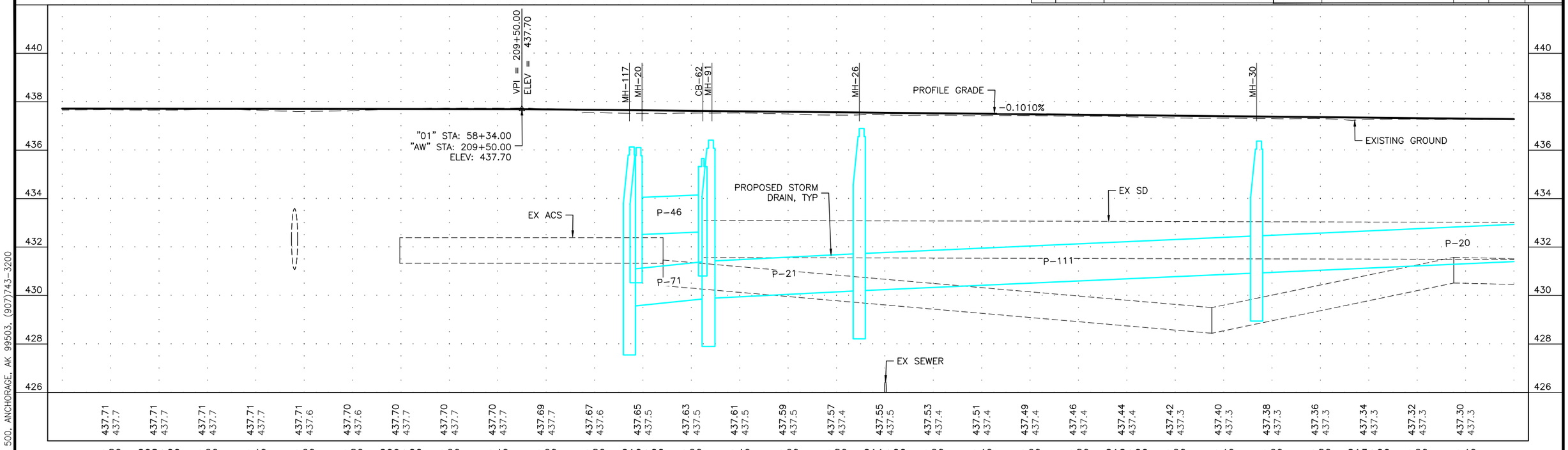




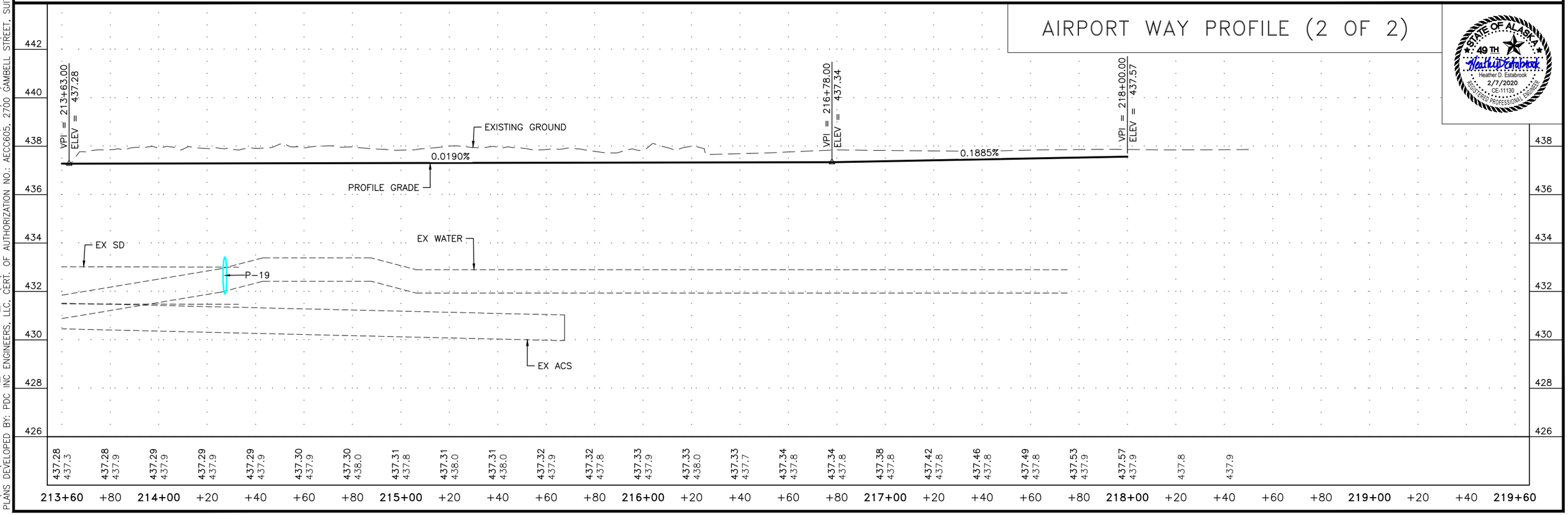
AIRPORT WAY PROFILE (1 OF 2)

STATE OF ALASKA
49 TH
Heather D. Estabrook
3/4/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	F14	F15

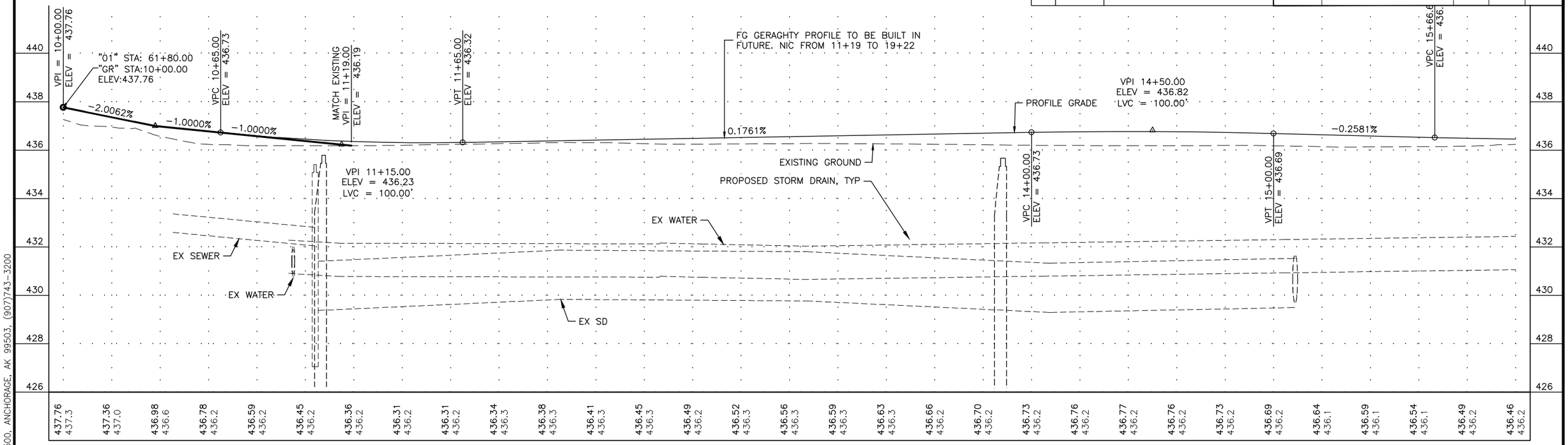


AIRPORT WAY PROFILE (2 OF 2)

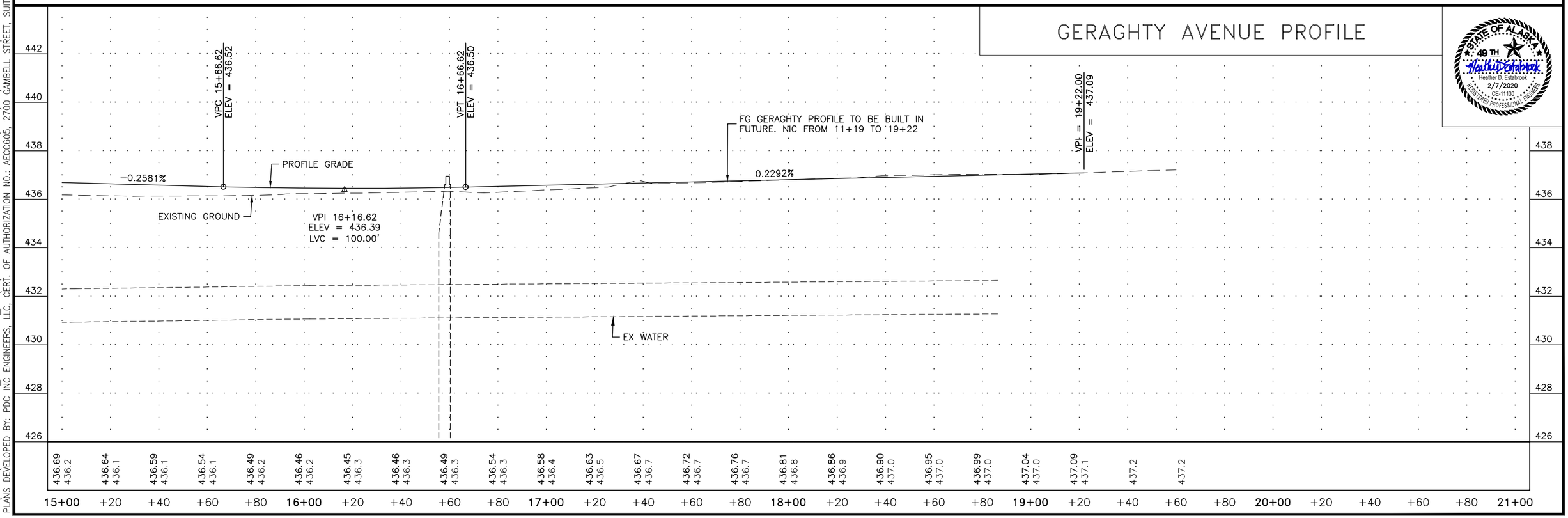


STATE OF ALASKA
49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	F15	F15



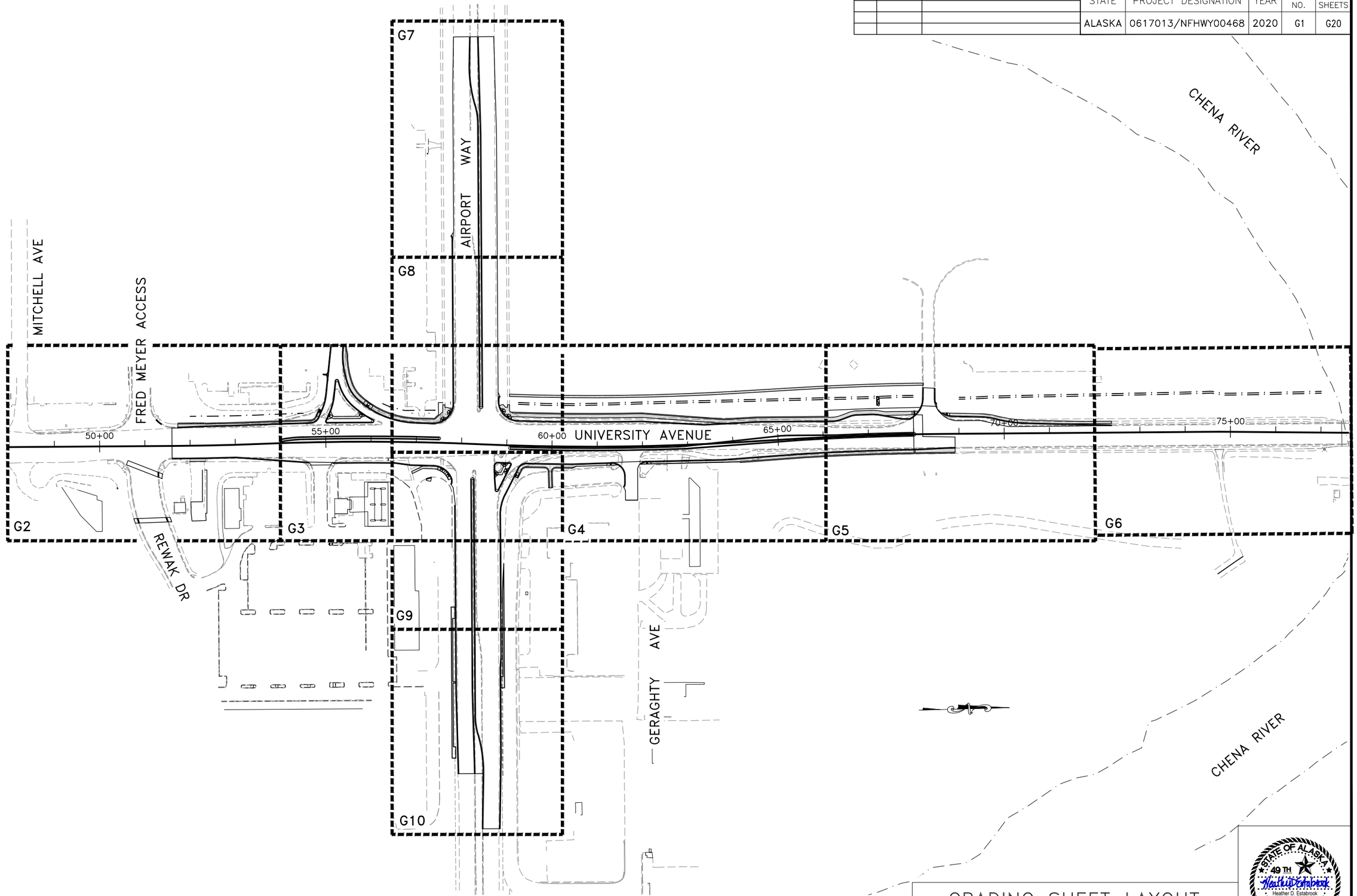
GERAGHTY AVENUE PROFILE



STATE OF ALASKA
49 TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

P:\2011\11147.04FB-UNIV_AVE-SEGMENT_2A\C\C2006cnst111147.04FB-F15 Fri, Feb/07/20 01:54pm
PLANS DEVELOPED BY: PDC INC ENGINEERS, LLC, CERT. OF AUTHORIZATION NO.: AECC605, 2700 GAMBELL STREET, SUITE 500, ANCHORAGE, AK 99503, (907)743-3200

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G1	G20



GRADING SHEET LAYOUT INDEX

STATE OF ALASKA 49TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G2	G20

MITCHELL AVE

FRED MEYER ACCESS

UNIVERSITY AVENUE

MATCH "01" 48+00 LINE

MATCH "01" 54+00 LINE

49+00 50+00 51+00 52+00 53+00

MATCH EXISTING AT 51+60

R/W

TCE

PUE

EASEMENT (DRAINAGE)

GRADE DITCH BACKSLOPE TO CATCH WITHIN EXISTING DRAINAGE EASEMENT

R=50.00'

R=5641.5'

R=5756.6'

PAVEMENT REPLACEMENT

REWAK DR

TCP

436.0 435.0 434.0 433.0 432.5 430.0 434.5

CONTROL POINT TABLE				
POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
101		63900.16	18122.59	LOC
102		63907.85	18122.80	LOC–PC
103		63913.24	18122.95	LOC–PT
104	434.86	63964.23	18115.35	SW–PC
105	434.85	63969.70	18115.80	SW–PRC
106	434.84	63975.77	18116.26	SW–PT
107	434.38	63975.70	18122.26	LOC–PT
108	434.14	64099.85	18122.84	LOC–PC
109		63899.08	18162.08	EP
110		63898.33	18189.07	LOC
111	434.19	63906.02	18189.28	LOC–PC
112	434.49	64039.48	18191.40	LOC–PT
113	430.14	63941.15	18098.08	FL

STATE OF ALASKA 49TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

UNIVERSITY AVE GRADING PLAN (1 OF 5)

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	G3	G20

CONTROL POINT TABLE

POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
229	434.62	64240.22	18118.02	LOC–PRC
230	434.57	64248.97	18100.08	LOC–PC
231	434.31	64259.62	18065.03	LOC–PT
232	434.12	64264.30	18030.93	LOC–PC
233	434.12	64272.15	18030.54	LOC–PRC
234	434.25	64276.66	18046.55	LOC–PCC
235	434.60	64300.80	18085.58	LOC–PCC
236	435.22	64345.22	18119.09	LOC–PRC
237	435.26	64343.10	18126.56	LOC–PRC

CONTROL POINT TABLE

POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
238	435.29	64258.39	18114.39	SW
239	435.25	64259.61	18109.42	SW
240	435.53	64316.63	18115.92	SW
241	435.44	64313.88	18110.85	SW
242		64283.53	17953.62	LOC
243		64290.31	17954.08	SW–PC
244	434.80	64291.19	17967.48	SW–PRC
245	434.76	64292.19	17978.00	SW–PT
246	434.42	64282.65	17966.38	LOC–PC

CONTROL POINT TABLE

POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
247	434.24	64291.88	18041.63	LOC–PCC
248	434.35	64312.00	18074.15	LOC–PCC
249	435.78	64441.15	18131.03	LOC–PRC
250	436.09	64477.09	18133.10	LOC–PCC
251	436.71	64524.80	18089.45	LOC–PT
252	436.63	64481.58	18123.35	SW
253	437.03	64499.62	18107.25	SW
254		64500.24	18091.79	SW
255		64505.14	18092.05	SW

CONTROL POINT TABLE

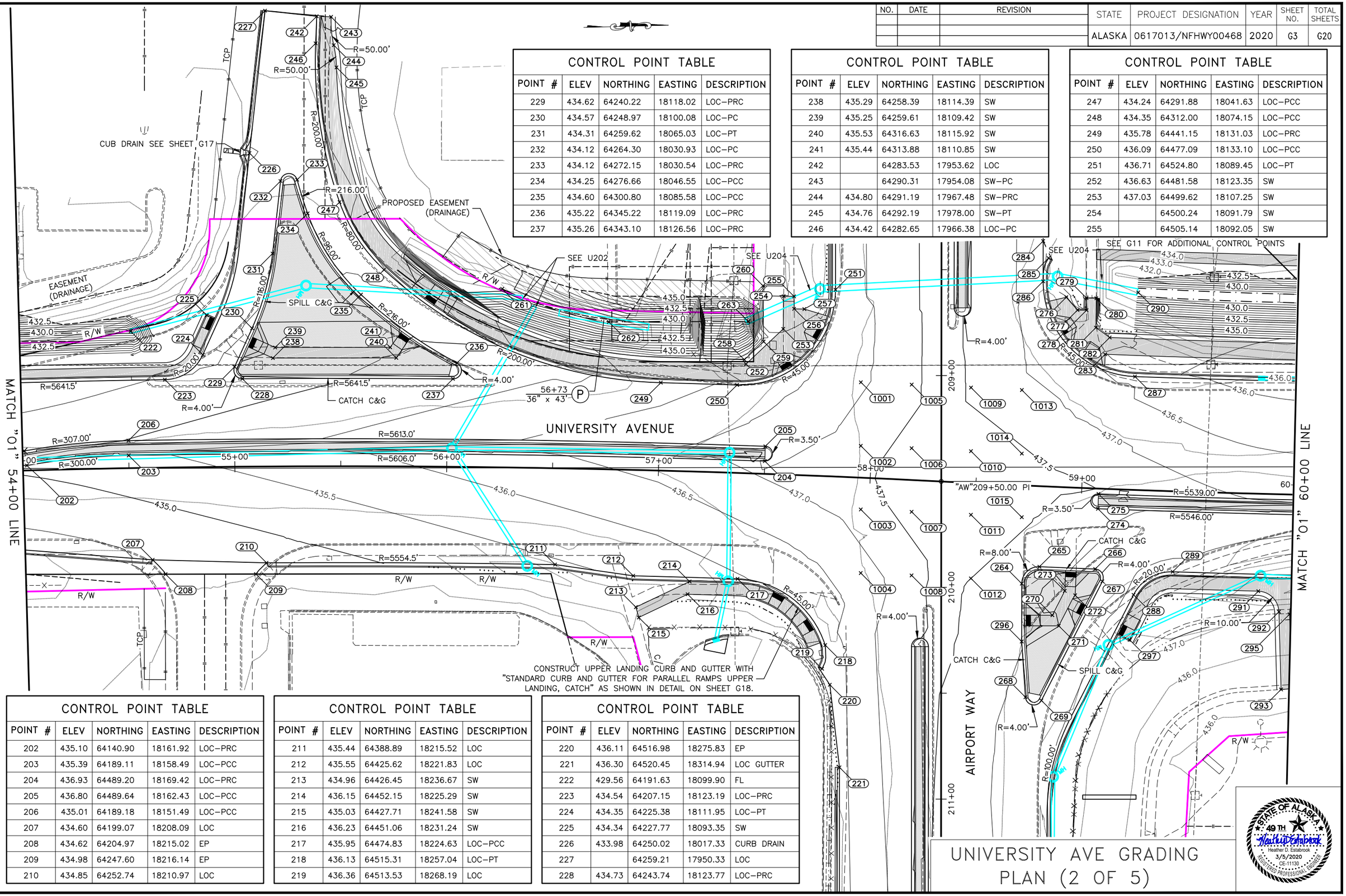
POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
202	435.10	64140.90	18161.92	LOC–PRC
203	435.39	64189.11	18158.49	LOC–PCC
204	436.93	64489.20	18169.42	LOC–PRC
205	436.80	64489.64	18162.43	LOC–PCC
206	435.01	64189.18	18151.49	LOC–PCC
207	434.60	64199.07	18208.09	LOC
208	434.62	64204.97	18215.02	EP
209	434.98	64247.60	18216.14	EP
210	434.85	64252.74	18210.97	LOC

CONTROL POINT TABLE

POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
211	435.44	64388.89	18215.52	LOC
212	435.55	64425.62	18221.83	LOC
213	434.96	64426.45	18236.67	SW
214	436.15	64452.15	18225.29	SW
215	435.03	64427.71	18241.58	SW
216	436.23	64451.06	18231.24	SW
217	435.95	64474.83	18224.63	LOC–PCC
218	436.13	64515.31	18257.04	LOC–PT
219	436.36	64513.53	18268.19	LOC

CONTROL POINT TABLE

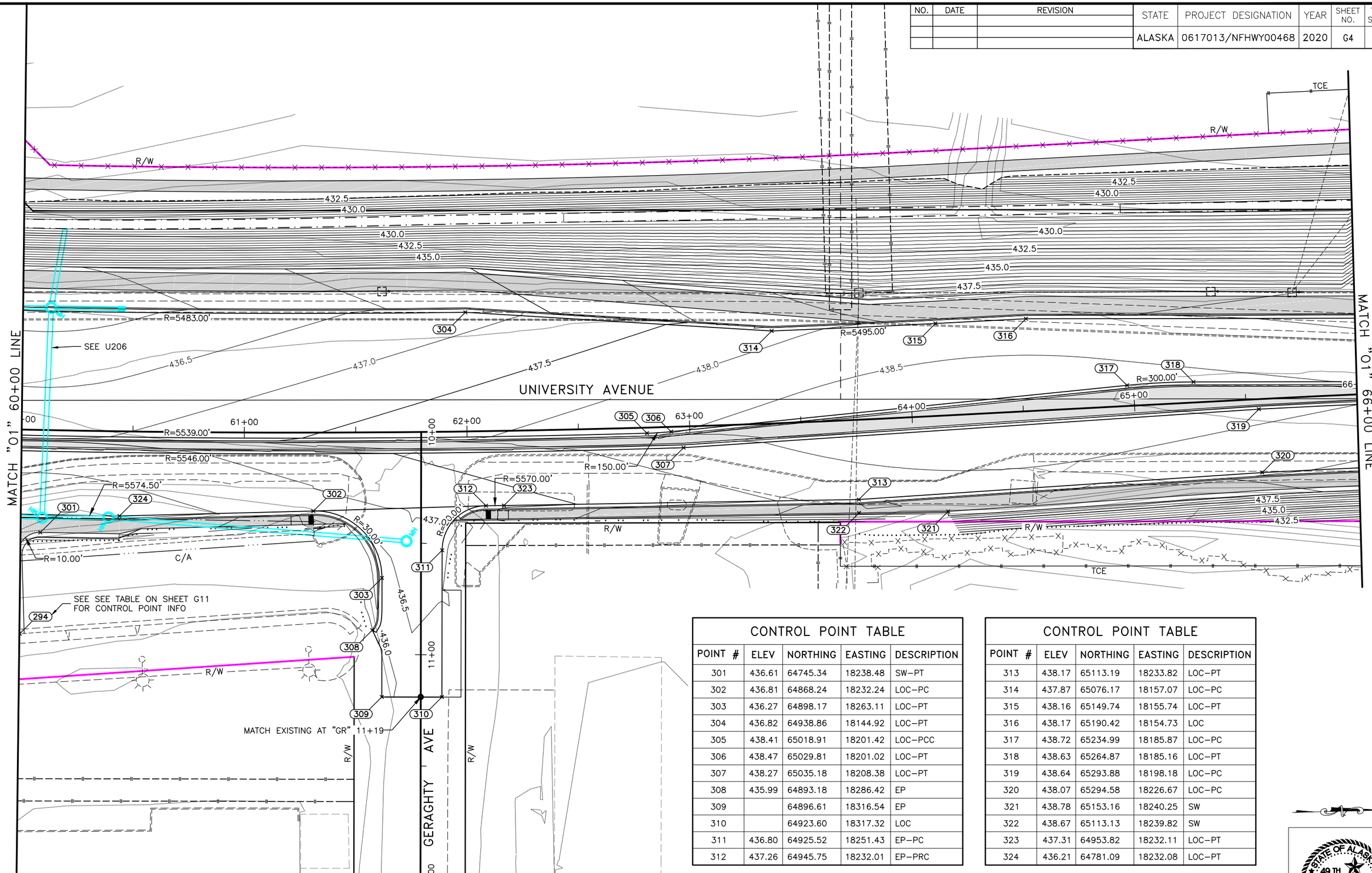
POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
220	436.11	64516.98	18275.83	EP
221	436.30	64520.45	18314.94	LOC GUTTER
222	429.56	64191.63	18099.90	FL
223	434.54	64207.15	18123.19	LOC–PRC
224	434.35	64225.38	18111.95	LOC–PT
225	434.34	64227.77	18093.35	SW
226	433.98	64250.02	18017.33	CURB DRAIN
227		64259.21	17950.33	LOC
228	434.73	64243.74	18123.77	LOC–PRC



UNIVERSITY AVE GRADING PLAN (2 OF 5)

STATE OF ALASKA 49TH Heather D. Estabrook 3/5/2020 CE-11130 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G4	G20



CONTROL POINT TABLE

POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
301	436.61	64745.34	18238.48	SW-PT
302	436.81	64868.24	18232.24	LOC-PC
303	436.27	64898.17	18263.11	LOC-PT
304	436.82	64938.86	18144.92	LOC-PT
305	438.41	65018.91	18201.42	LOC-PCC
306	438.47	65029.81	18201.02	LOC-PT
307	438.27	65035.18	18208.38	LOC-PT
308	435.99	64893.18	18286.42	EP
309		64896.61	18316.54	EP
310		64923.60	18317.32	LOC
311	436.80	64925.52	18251.43	EP-PC
312	437.26	64945.75	18232.01	EP-PRC

CONTROL POINT TABLE

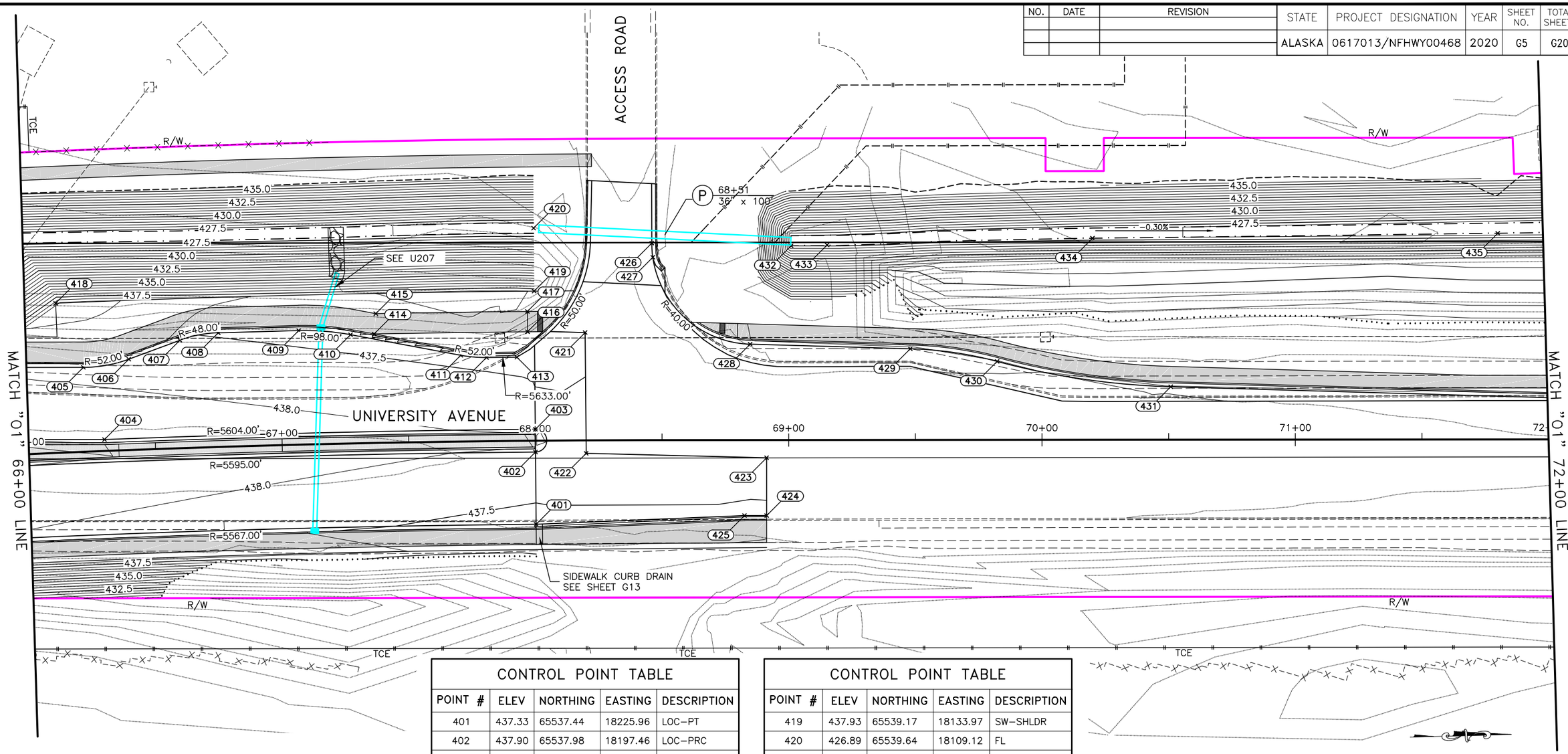
POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
313	438.17	65113.19	18233.82	LOC-PT
314	437.87	65076.17	18157.07	LOC-PC
315	438.16	65149.74	18155.74	LOC-PT
316	438.17	65190.42	18154.73	LOC
317	438.72	65234.99	18185.87	LOC-PC
318	438.63	65264.87	18185.16	LOC-PT
319	438.64	65293.88	18198.18	LOC-PC
320	438.07	65294.58	18226.67	LOC-PC
321	438.78	65153.16	18240.25	SW
322	438.67	65113.13	18239.82	SW
323	437.31	64953.82	18232.11	LOC-PT
324	436.21	64781.09	18232.08	LOC-PT

STATE OF ALASKA
49 TH
Heather D. Estabrook
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

UNIVERSITY AVE GRADING PLAN (3 OF 5)

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	G5	G20



CONTROL POINT TABLE

POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
401	437.33	65537.44	18225.96	LOC–PT
402	437.90	65537.98	18197.46	LOC–PRC
403	437.90	65538.15	18188.47	LOC–PCC
404	438.41	65368.02	18187.84	LOC–PT
405	437.86	65360.46	18159.15	LOC–PC
406	437.75	65378.48	18156.42	LOC–PT
407	437.56	65398.84	18149.53	LOC–PC
408	437.46	65414.08	18147.00	LOC–PCC
409	437.37	65445.88	18146.98	LOC–PCC
410	437.35	65466.27	18149.17	LOC–PT
411	437.40	65509.52	18158.48	LOC–PC
412	437.39	65519.66	18159.64	LOC–PCC
413	437.35	65531.64	18159.84	LOC–PT
414	437.76	65475.57	18149.13	TBC
415	437.88	65476.45	18141.14	SW
416	437.77	65536.14	18149.92	SW
417	437.89	65536.29	18141.92	SW
418	438.21	65350.21	18133.56	SW–SHLDR

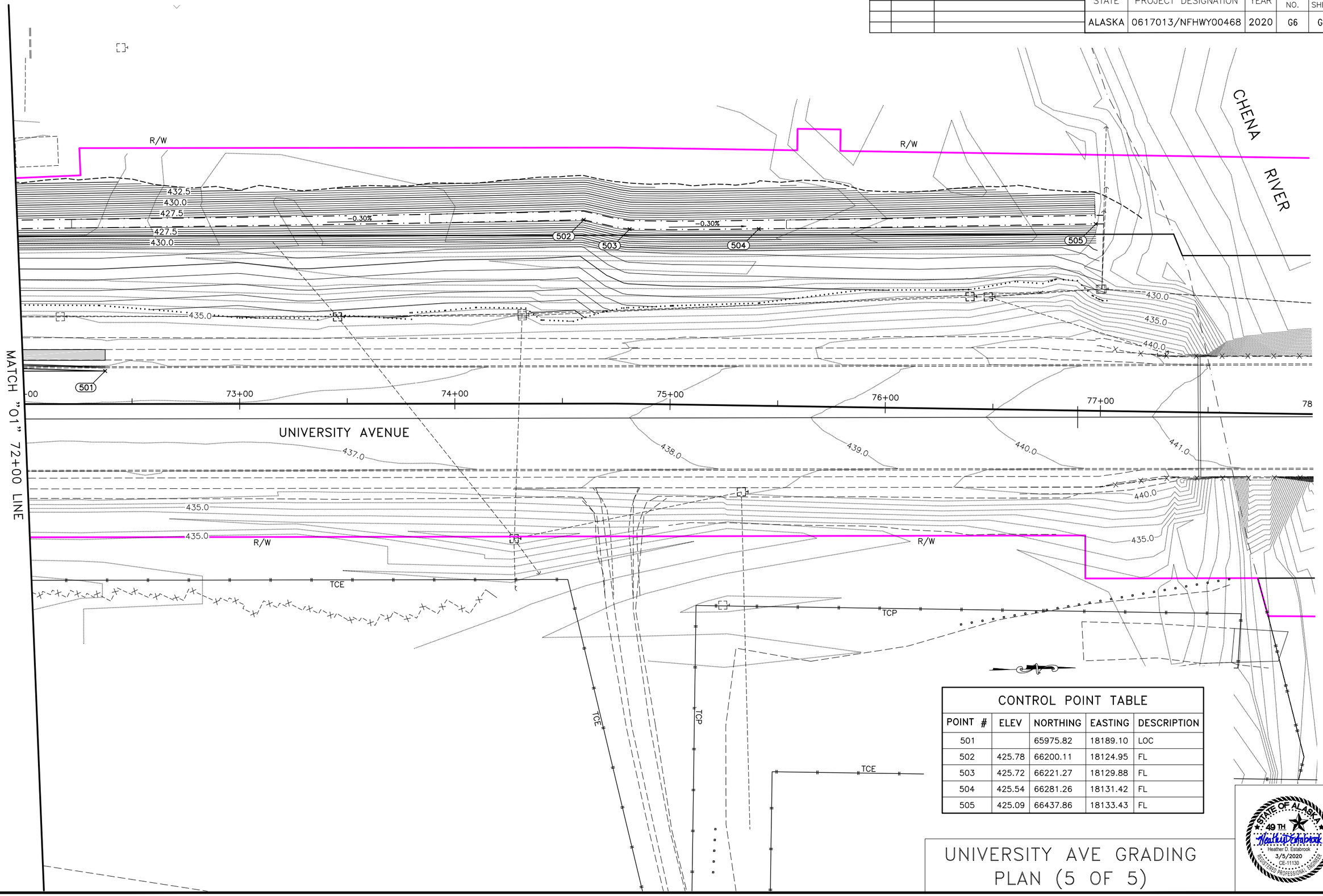
CONTROL POINT TABLE

POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
419	437.93	65539.17	18133.97	SW–SHLDR
420	426.89	65539.64	18109.12	FL
421		65558.86	18150.86	EP
422	437.96	65557.96	18198.50	EP
423		65629.12	18202.22	EP
424		65628.51	18225.00	LOC
425	437.40	65619.76	18224.76	LOC
426		65586.13	18116.32	LOC
427		65586.39	18121.92	LOC–PC
428	436.75	65623.87	18157.24	LOC–PT
429	436.86	65686.99	18160.80	LOC–PC
430	436.93	65721.12	18166.73	LOC–PRC
431	436.94	65789.38	18178.59	LOC–PT
432	427.49	65641.09	18118.90	FL
433	427.42	65655.30	18118.96	FL
434	427.11	65760.10	18119.16	FL
435	426.63	65920.10	18121.61	FL

UNIVERSITY AVE GRADING PLAN (4 OF 5)

STATE OF ALASKA
49 TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G6	G20



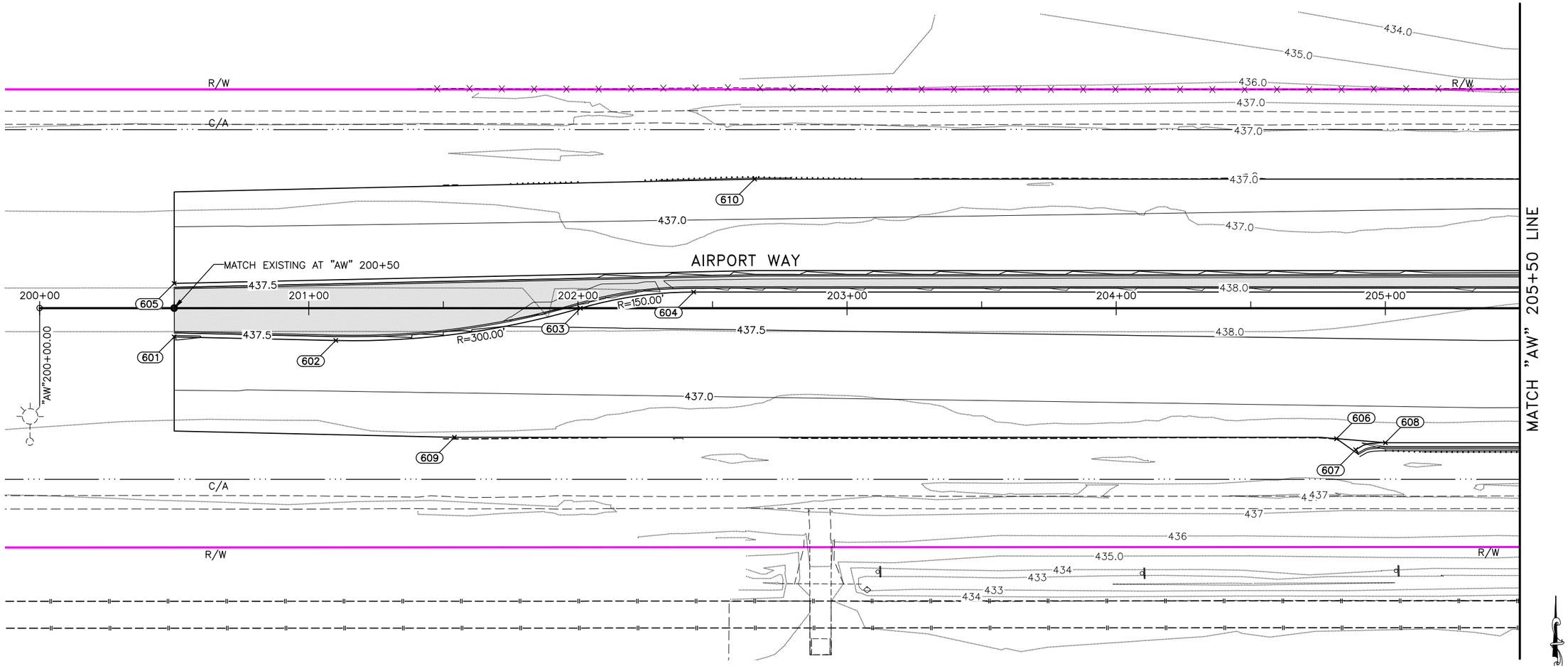
CONTROL POINT TABLE

POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
501		65975.82	18189.10	LOC
502	425.78	66200.11	18124.95	FL
503	425.72	66221.27	18129.88	FL
504	425.54	66281.26	18131.42	FL
505	425.09	66437.86	18133.43	FL

STATE OF ALASKA
49 TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

UNIVERSITY AVE GRADING PLAN (5 OF 5)

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G7	G20



CONTROL POINT TABLE				
POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
601		64587.00	17281.37	LOC
602	437.38	64583.97	17341.34	LOC–PC
603	437.64	64593.37	17432.51	LOC–PRC
604	437.78	64598.21	17474.76	LOC–PT
605		64606.87	17281.93	LOC
606	436.75	64536.99	17711.99	EP
607	436.72	64532.70	17719.01	LOC
608	436.73	64534.96	17730.07	LOC
609	436.67	64546.75	17384.39	EP
610	436.70	64639.55	17498.56	EP

AIRPORT WAY GRADING PLAN (1 OF 4)

STATE OF ALASKA
49 TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	G8	G20

MATCH "AW" 205+50 LINE

AIRPORT WAY

UNIVERSITY AVENUE

"AW" 209+50.00 PI

206+00 207+00 208+00 209+00

R/W C/A

R=4.00' R=45.00' R=5539.00' R=5546.00' R=3.50' R=200.00'

702 701

56+73 36" x 43"

PROPOSED EASEMENT (DRAINAGE)

434.0 435.0 436.0 437.0 438.0 433.0 432.0 430.0 432.5 435.0 436.5 437.5

CONTROL POINT TABLE

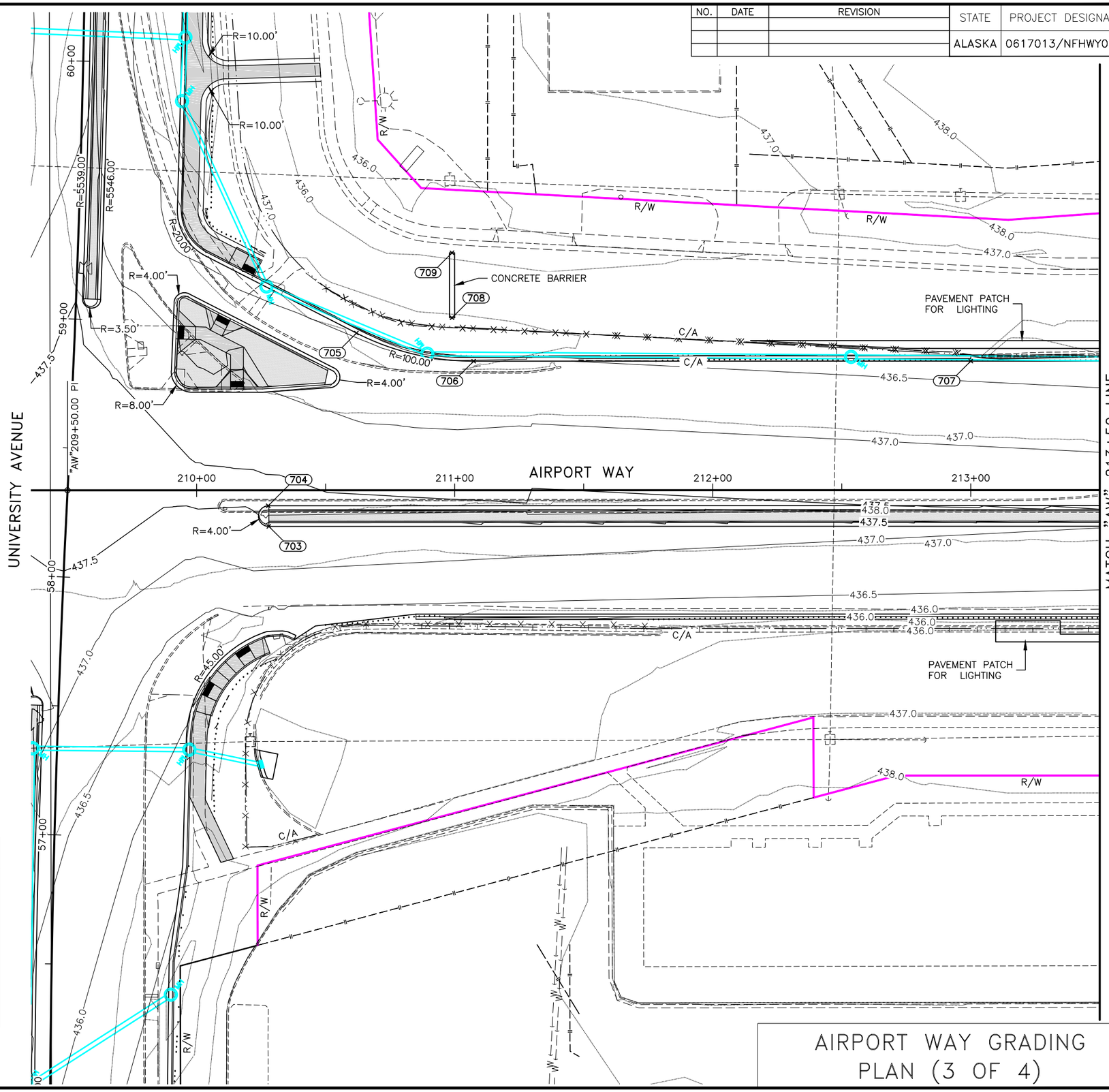
POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
701	437.82	64580.53	18099.51	LOC–PC
702	437.43	64588.53	18099.74	LOC–PT

AIRPORT WAY GRADING PLAN (2 OF 4)

STATE OF ALASKA 49TH Heather D. Estabrook 3/5/2020 CE-11130 REGISTERED PROFESSIONAL ENGINEER

P:\2011\11147.04FB-UNIV_AVE-SEGMENT_2A\C\C2003cnst111147.04FB-G8 Thu, Mar/05/20 02:43pm
PLANS DEVELOPED BY: PDC INC ENGINEERS, LLC. CERT. OF AUTHORIZATION NO.: AECC605, 2700 GAMBELL STREET, SUITE 500, ANCHORAGE, AK 99503, (907)743-3200

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G9	G20

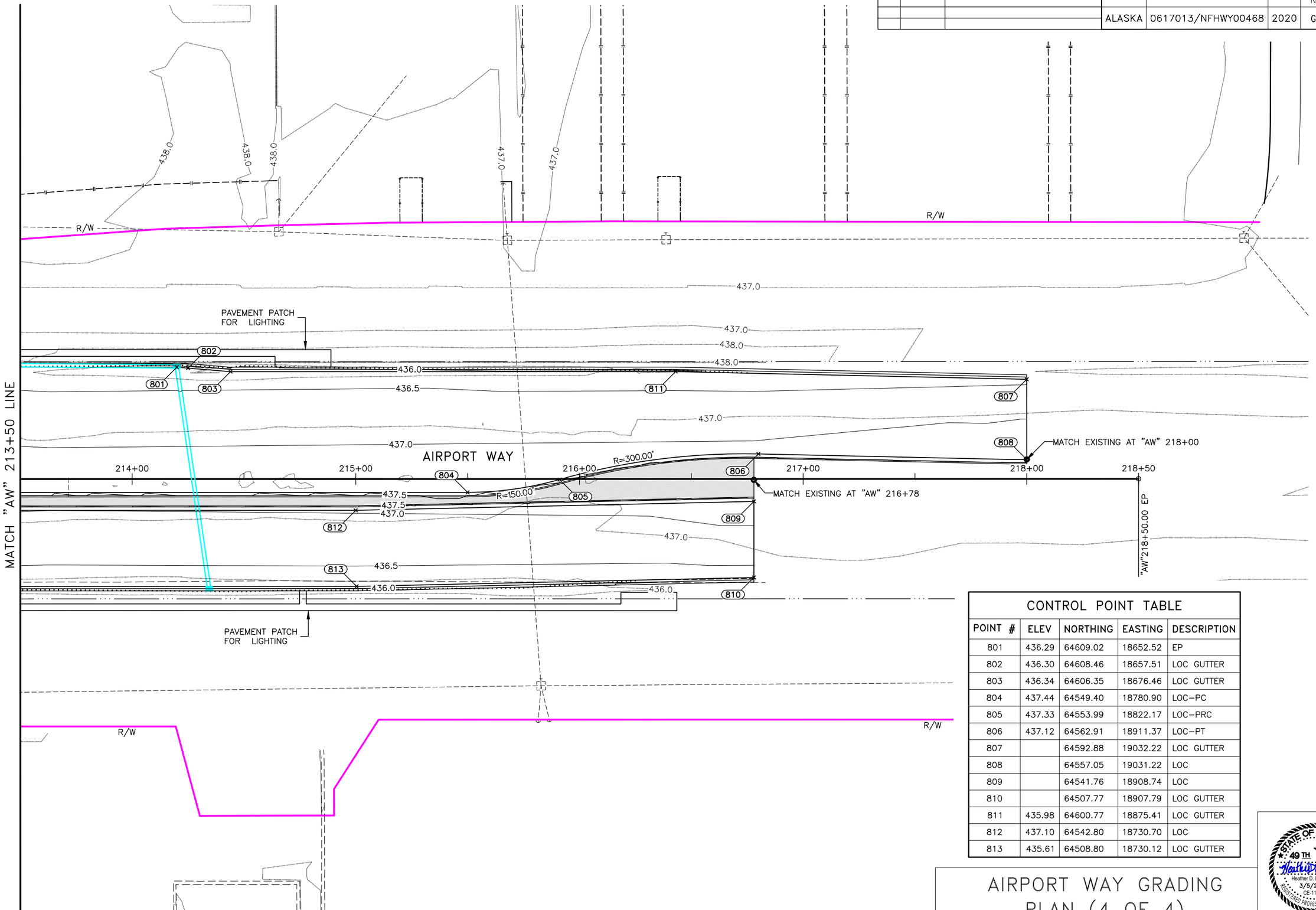


CONTROL POINT TABLE				
POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
703	437.34	64556.03	18258.88	LOC–PC
704	437.63	64564.03	18258.88	LOC–PT
705	436.47	64629.95	18294.94	LOC–PC
706	436.52	64617.78	18340.02	LOC–PT
707	436.34	64612.38	18532.57	LOC GUTTER
708		64634.85	18332.12	CONC BARRIER
709		64660.00	18332.83	CONC BARRIER

AIRPORT WAY GRADING PLAN (3 OF 4)

STATE OF ALASKA 49TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G10	G20



CONTROL POINT TABLE

POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
801	436.29	64609.02	18652.52	EP
802	436.30	64608.46	18657.51	LOC GUTTER
803	436.34	64606.35	18676.46	LOC GUTTER
804	437.44	64549.40	18780.90	LOC–PC
805	437.33	64553.99	18822.17	LOC–PRC
806	437.12	64562.91	18911.37	LOC–PT
807		64592.88	19032.22	LOC GUTTER
808		64557.05	19031.22	LOC
809		64541.76	18908.74	LOC
810		64507.77	18907.79	LOC GUTTER
811	435.98	64600.77	18875.41	LOC GUTTER
812	437.10	64542.80	18730.70	LOC
813	435.61	64508.80	18730.12	LOC GUTTER

AIRPORT WAY GRADING PLAN (4 OF 4)

STATE OF ALASKA 49TH
Heather D. Estabrook
3/5/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G11	G20

CONTROL POINT TABLE

POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
1001	436.93	64535.56	18133.44	FG
1002	437.27	64534.71	18163.46	FG
1003	437.23	64533.86	18193.48	FG
1004	436.82	64533.02	18223.49	FG
1005	437.41	64559.52	18135.20	FG
1006	437.62	64558.67	18165.22	FG
1007	437.60	64557.82	18195.24	FG
1008	437.31	64556.98	18225.26	FG
1009	437.46	64587.47	18137.37	FG
1010	437.72	64586.62	18167.39	FG
1011	437.70	64585.77	18197.42	FG
1012	437.50	64584.93	18227.44	FG
1013	437.14	64611.42	18139.18	FG
1014	437.55	64610.57	18169.20	FG
1015	437.59	64609.73	18199.22	FG

CONTROL POINT TABLE

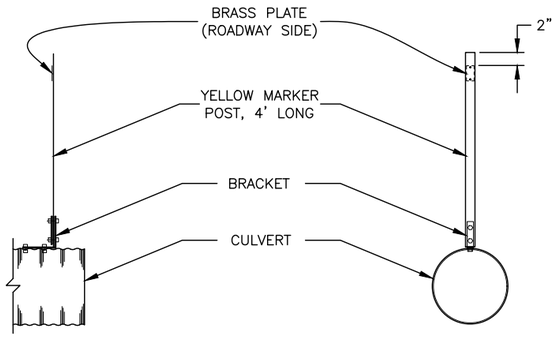
POINT #	ELEV	NORTHING	EASTING	DESCRIPTION
256	437.16	64505.03	18097.90	SW
257	437.11	64509.82	18098.16	SW
258	436.66	64480.87	18121.31	SW–SHLDR
259	436.91	64490.19	18112.99	SW–SHLDR
260	436.13	64490.64	18086.64	SW–SHLDR
261	429.56	64367.51	18084.70	FL
262	429.56	64417.38	18101.70	FL
263	429.00	64483.21	18103.26	FL
264	437.19	64608.85	18230.58	LOC–PC
265	437.19	64617.41	18222.83	LOC–PRC
266	436.86	64643.70	18224.64	LOC–PRC
267	436.75	64646.94	18230.55	LOC–PT
268	436.85	64609.12	18284.21	LOC–PC
269	436.73	64616.62	18285.98	LOC–PT
270	437.59	64622.87	18245.90	SW
271	437.50	64625.79	18250.98	SW
272	437.20	64633.92	18236.76	SW
273	437.24	64629.06	18234.58	SW
274	437.20	64645.78	18196.21	LOC–PCC
275	437.41	64646.24	18189.23	LOC–PRC
276	437.31	64633.58	18095.96	SW
277	437.31	64638.70	18102.18	SW
278	437.29	64642.99	18102.36	SW
279		64643.14	18096.63	SW
280		64647.74	18096.81	SW
281	437.20	64647.19	18110.67	SW
282	437.11	64653.54	18115.55	SW
283	436.98	64651.20	18123.41	SW
284	436.75	64623.41	18069.13	EP
285	436.35	64625.75	18077.23	LOC
286	436.75	64622.87	18088.15	LOC–PC
287	436.29	64664.99	18134.33	LOC–PCC
288	436.40	64661.48	18237.31	LOC–PC
289	436.37	64680.22	18226.95	LOC–PRC
290	428.63	64667.61	18094.63	FL
291	436.66	64720.38	18237.22	SW–PC
292	436.61	64729.86	18247.21	SW–PT
293		64729.85	18283.90	SW
294		64734.85	18283.69	SW
295	436.58	64734.85	18248.46	SW–PC
296	437.02	64608.08	18257.91	LOC
297	436.91	64659.00	18258.51	SW

UNIVERSITY AVE GRADING
G3 CONTROL

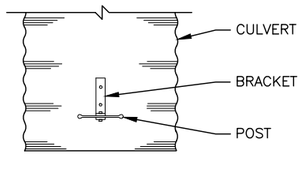
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G12	G20

CULVERT SUMMARY

STATION	LT/C/RT	603(1)–36	INVERT		613(2) CULVERT MARKER POST	SKEW ANGLE	END SECTION	REMARKS
		36"	IN	OUT			603(20)–36	
"01" 56+73	LT	43	429.37	429.54	2	0	2	
"01" 68+51	LT	100	427.76	427.47	2	2°53'44" RHF	0	APPROACH LT
	TOTAL:	143			4		2	



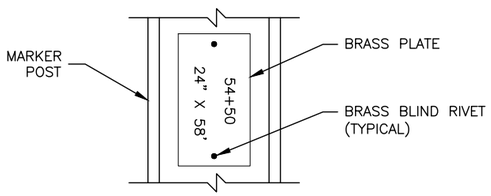
SIDE VIEW
NTS



END VIEW
NTS

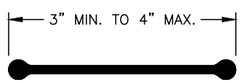
TOP VIEW
NTS

CULVERT MARKER POST DETAIL



STAMP STATION AND PIPE SIZE, USING 3/8" HIGH MINIMUM LETTERS INTO A 2"X4"X 0.064" THICK BRASS PLATE. FASTEN PLATE TO THE SIDE FACING THE ROADWAY WITH TWO 1/8" BRASS BLIND RIVETS.

BRASS PLATE DETAIL
NTS

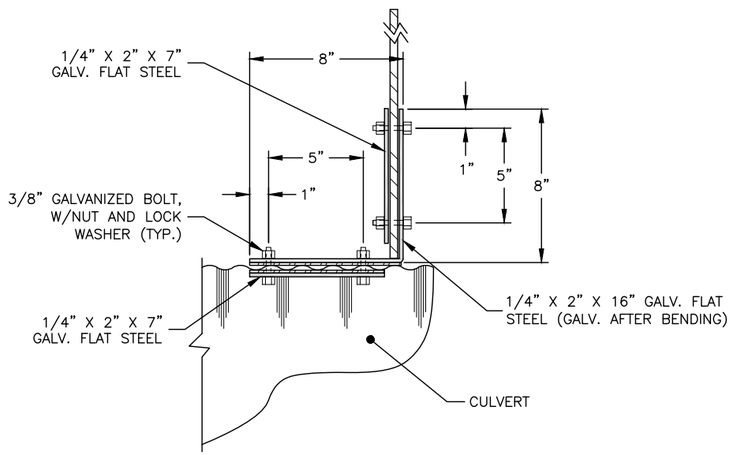


POST DETAIL
NTS

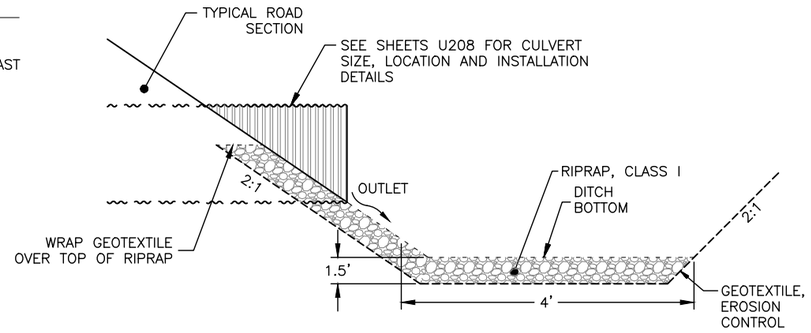
CULVERT MARKER POST DETAILS

CULVERT MARKER POSTS NOTES:

1. MARKER POSTS ARE TO BE INSTALLED AS SHOWN IN TABLE.
2. IF CULVERTS ARE CLOSELY SPACED, MARK ONLY THE FIRST AND LAST CULVERT IN SERIES AS APPROVED BY THE ENGINEER.
3. DRILL ALL BOLT HOLES. COAT HOLES WITH ZINC RICH PAINT. FLAME CUTTING SHALL NOT BE PERMITTED.
4. GASKET MATERIAL SHALL BE PLACED BETWEEN DISSIMILAR METALS. GASKET MATERIAL SHALL BE APPROVED PRIOR TO INSTALLATION.



BRACKET DETAIL
NTS



RIPRAP OUTLET AT STORM DRAIN OUTLET
NTS

NOTES:

1. INSTALL RIPRAP TO A WIDTH OF THREE TIMES CULVERT DIAMETER.
2. INSTALL RIPRAP UP FILL SLOPE TO CULVERT SPRING LINE (WIDEST HORIZONTAL POINT).
3. SEE SHEET U208, PIPE NUMBER P–64.

STATE OF ALASKA 49TH
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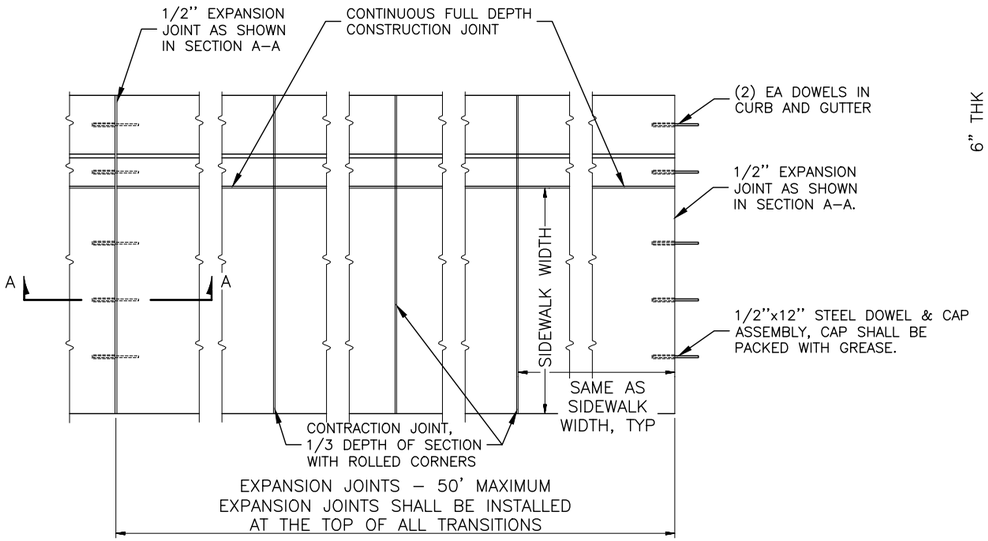
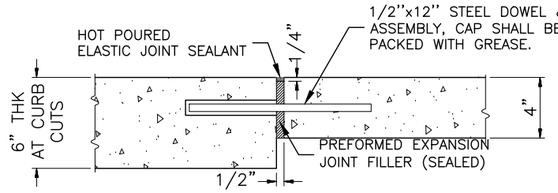
CULVERT DETAILS
(1 OF 1)



DETAIL A EXPANSION SIDEWALK & CURB AND GUTTER JOINT

PLAN VIEW

NTS

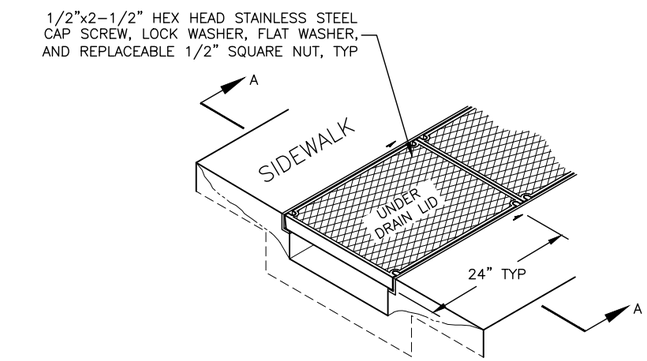


PARTIAL SECTION VIEW A – A

NTS

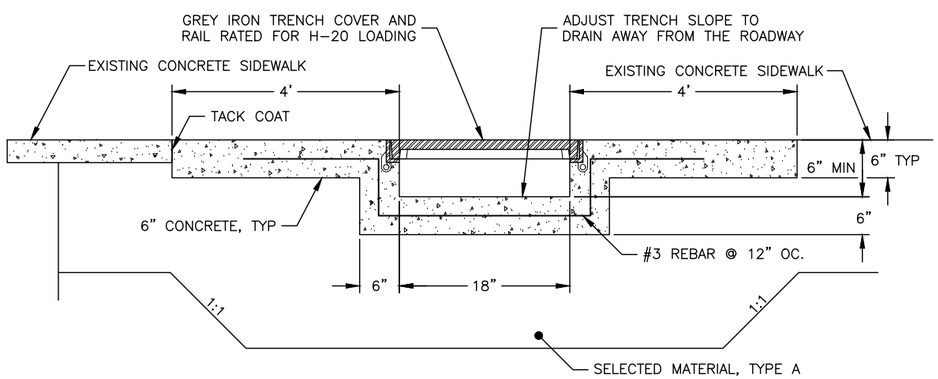
EXPANSION JOINT NOTES:

1. INSTALL CONTINUOUS FULL DEPTH 1/8" CONSTRUCTION JOINT AT ALL LOCATIONS WHERE SIDEWALK AND CURB (ANY TYPE) MEET.
2. PROTECT CONCRETE DURING CURE.
3. SEAL ALL EXPANSION JOINTS WITH HOT POURED ELASTIC TYPE JOINT SEAL CONFORMING TO AASHTO DESIGNATION M173–60.
4. FOR SIDEWALKS LARGER OR DIFFERENTLY CONFIGURED THAN SHOWN, PLACE EXPANSION AND CONTRACTION JOINTS AS ENGINEER DIRECTS.
5. EXPANSION AND CONTRACTION JOINTS IN THE SIDEWALK SHALL LINE UP WITH EXPANSION AND CONTRACTION JOINTS IN THE CURB.



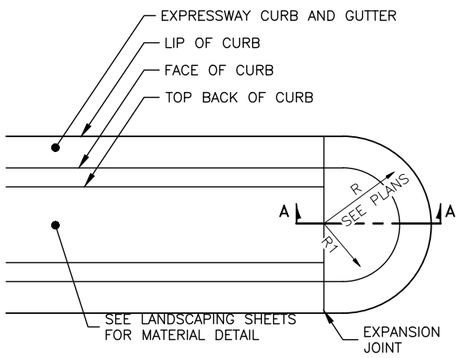
DETAIL B SIDEWALK CURB DRAIN

NTS



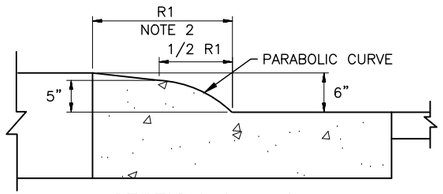
SECTION A–A

NTS



DETAIL C RAMPED MEDIAN NOSE

NTS



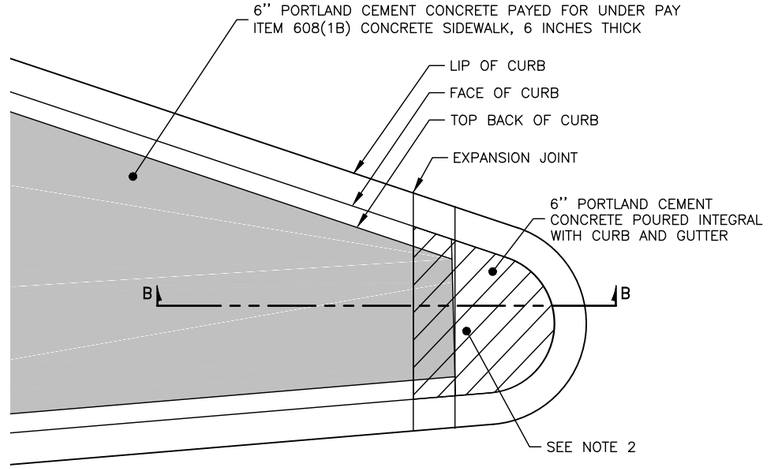
SECTION A – A

NTS

RAMPED MEDIAN NOSE NOTES:

1. CONSTRUCT RAMP MEDIAN NOSE TO RADIUS POINT "R1" OR 3 FEET WHICHEVER IS GREATER.
2. RAMPED MEDIAN NOSE SHALL BE 6" PORTLAND CEMENT CONCRETE POURED INTEGRAL WITH CURB AND GUTTER AND IS SUBSIDIARY TO PAY ITEM 609(2) CURB AND GUTTER, TYPE 1.
3. RAMPED MEDIAN NOSE PAINTING IS SUBSIDIARY TO RESPECTIVE STRIPING PAY ITEMS, FOR MORE DETAILS AND INFORMATION ON PAINTING REFER TO SIGNING AND STRIPING PLAN SHEETS AND SPECS.

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G13	G20



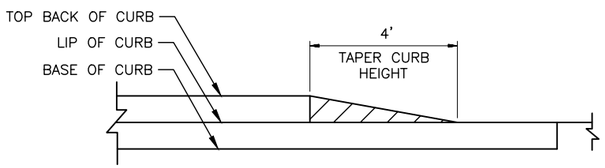
DETAIL D ISLAND–RAMPED MEDIAN NOSE

NTS

ISLAND – RAMPED MEDIAN NOSE NOTES:

1. CONSTRUCTION OF ISLAND RAMPED MEDIAN NOSE IS SUBSIDIARY TO PAY ITEM 609(2) CURB AND GUTTER, TYPE 1.
2. ISLAND RAMPED MEDIAN NOSE PAINTING IS SUBSIDIARY TO RESPECTIVE STRIPING PAY ITEMS, FOR MORE DETAILS AND INFORMATION ON PAINTING REFER TO THE SIGNING AND STRIPING SHEETS AND SPECS.
3. FOR CLARIFICATION ON LOCATION SEE TABLE BELOW. LOCATION IS AT RADIUS MIDPOINT ALONG LIP OF CURB. THESE STATIONS AND OFFSETS ARE FOR CLARIFICATION PURPOSES, NOT FOR CONSTRUCTION PLACEMENT.

ISLAND – RAMPED MEDIAN NOSE LOCATIONS		
STATION	OFFSET	REMARKS
"01" 55+23	150' LT	
"01" 56+06	45' LT	
"AW" 210+55	43' LT	



SECTION B – B

NTS

CONCRETE DETAILS

STATE OF ALASKA
49 TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G14	G20

639(101) APPROACH

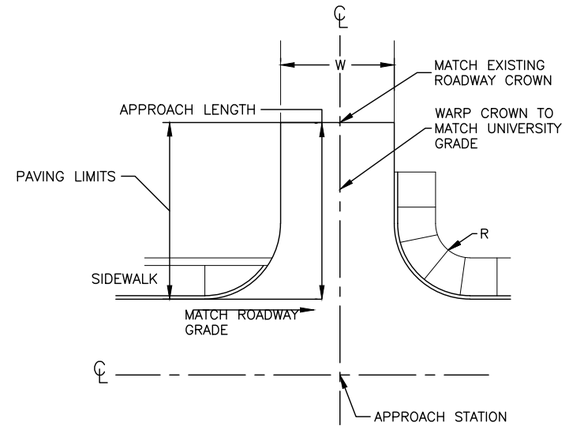
STATION	OFFSET	SKEW ANGLE (90° TYP.)	(1) APPROACH PLAN TYPE	WIDTH (FT)	LENGTH (FT)	RADIUS (FT)	LANDING LENGTH (FT)	REMARKS
"01" 52+16.00	RT	90°	2	24/32	54	–	30(2)	CUC LOT
"01" 54+69.84	LT	65°	1	12	223	50	–	FRED MEYER ACCESS
"01" 54+86.76	RT	90°	1	43	7	–	30(2)	SAFWAY INC.
"01" 57+36.56	LT	23°	1	16	330	207	–	FRED MEYER ACCESS
"GR" 10+95.00	LT	90°	1	48	8.5	–	30(2)	SPLASH AND DASH
"GR" 11+49.00	LT	90°	2	34	54	–	30	SPLASH AND DASH
"GR" 13+78.00	LT	90°	2	24	44	–	30(2)	
"GR" 14+56.00	LT	90°	2	24	54	–	30	
"GR" 15+34.00	RT	90°	3	16	41	–	30(2)	
"GR" 15+83.00	RT	90°	3	16	36	–	10	
"GR" 16+16.00	LT	90°	2	18	43	–	10	
"GR" 16+30.00	RT	90°	3	24	46	–	30	
"GR" 17+50.00	LT	90°	2	24	40	–	30(2)	
"GR" 18+50.00	LT	90°	2	24	43	–	30(2)	
"GR" 18+58.00	RT	90°	3	34	36	–	10(2)	
		PAY ITEM TOTALS	5					

(NIC)

APPROACH NOTES:

(1) SEE DETAILS ON G14 THROUGH G16 FOR APPROACH PLAN TYPE.

(2) APPROACH LENGTH TIES INTO EXISTING CONDITIONS PRIOR TO FULL LANDING LENGTH.

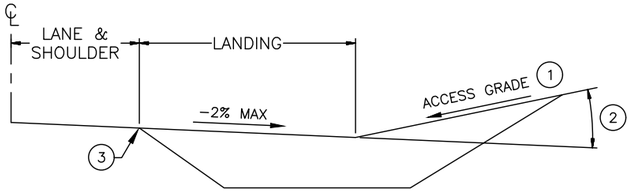


APPROACH PLAN TYPE 1 PLAN DETAIL

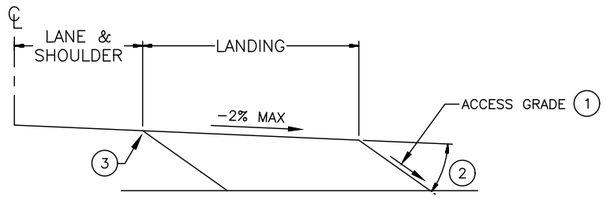
NTS

APPROACH NOTES:

1. MATERIAL FOR CONSTRUCTION OF APPROACH IS PAID FOR UNDER THE RESPECTIVE PAY ITEM.



IN CUT

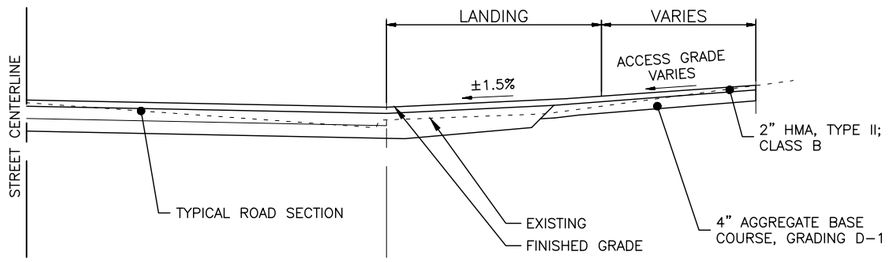


IN FILL

(1) MAX RESIDENTIAL ACCESS GRADE IS 15%.

(2) MAX ALGEBRAIC DIFFERENCE FOR COMMERCIAL ACCESS GRADE: 8% RESIDENTIAL: NONE

(3) FOR OTHER APPROACH PLAN TYPES FOLLOW THESE CUT AND FILL DETAILS FROM LANDING POINT FOR ACCESS GRADE. THE LANE SHOULDER AND LANDING CONFIGURATION IS DIFFERENT FOR APPROACH TYPE PLAN 2, & 3, SEE SECTION DETAIL FOR SPECIFIC LAYOUT FROM ROADWAY EDGE THROUGH LANDING

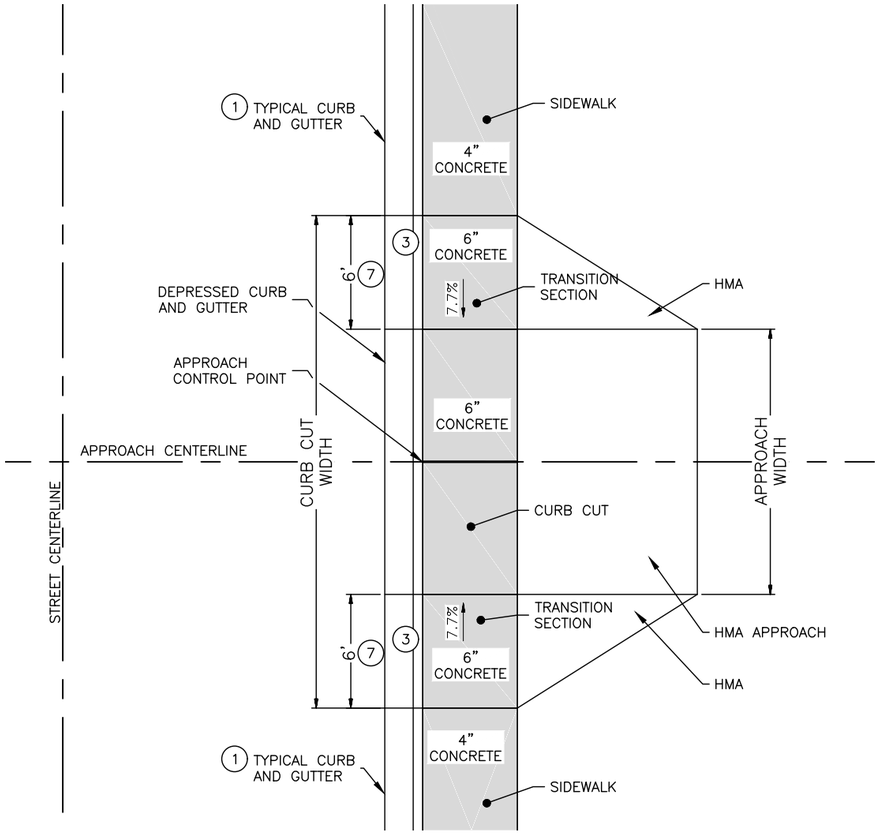


APPROACH PLAN TYPE 1 SECTION DETAIL

NTS

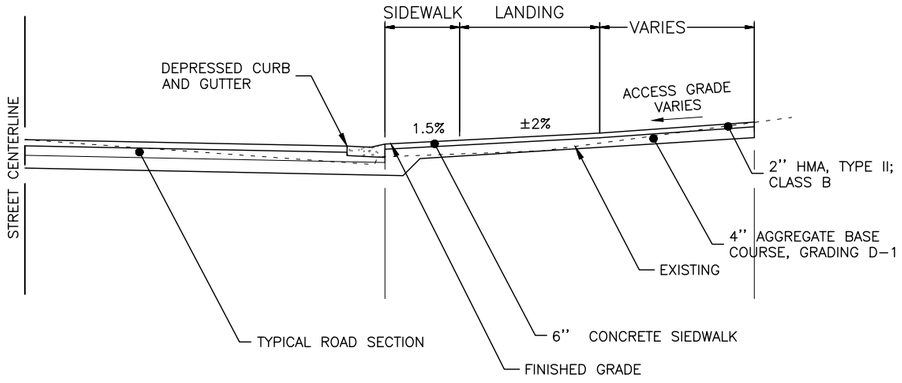
APPROACH DETAILS (1 OF 3)

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G15	G20



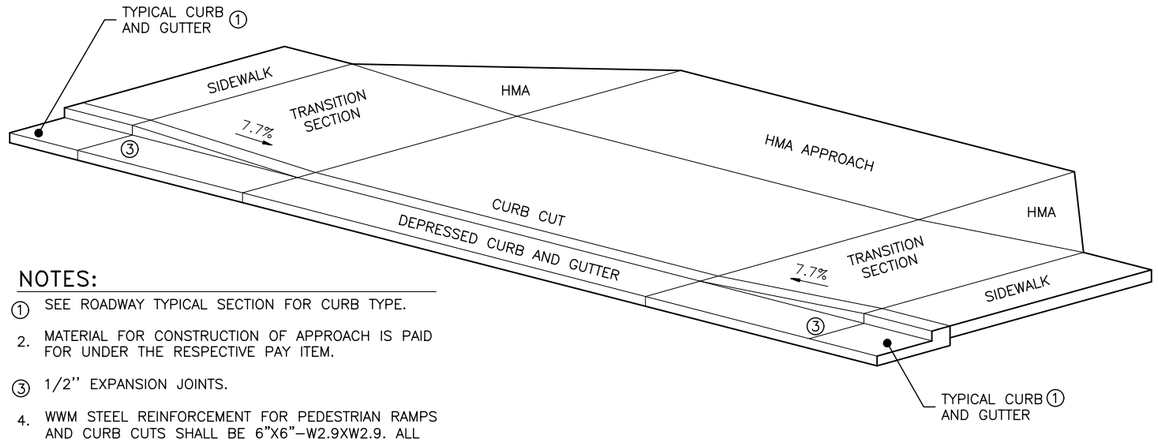
APPROACH PLAN TYPE 2 PLAN DETAIL

NTS



APPROACH PLAN TYPE 2 SECTION DETAIL

NTS



NOTES:

1. SEE ROADWAY TYPICAL SECTION FOR CURB TYPE.
2. MATERIAL FOR CONSTRUCTION OF APPROACH IS PAID FOR UNDER THE RESPECTIVE PAY ITEM.
3. 1/2'' EXPANSION JOINTS.
4. WWM STEEL REINFORCEMENT FOR PEDESTRIAN RAMPS AND CURB CUTS SHALL BE 6"X6"–W2.9XW2.9. ALL STEEL SHALL BE SET ON SPACERS AND PULLED UP AS REQUIRED TO POSITION STEEL 1 1/2' UP FROM BOTTOM OF SIDEWALK.
5. FOR SIDEWALK REINFORCEMENT, POSITION STEEL 1 1 1/2'' UP FROM BOTTOM OF SIDEWALK.
6. SEE SHEET G13 FOR EXPANSION SIDEWALK & CURB AND GUTTER JOINT DETAIL.
7. TRANSITION SECTION LENGTHS SHOWN IN PLANS ARE APPROXIMATE. CONSTRUCT TRANSITIONS AT A NOMINAL 7.7% GRADE OR FLATTER. SLOPES MAY BE INCREASED TO A MAXIMUM OF 8.3% WHERE SITE CONDITIONS WARRANT.

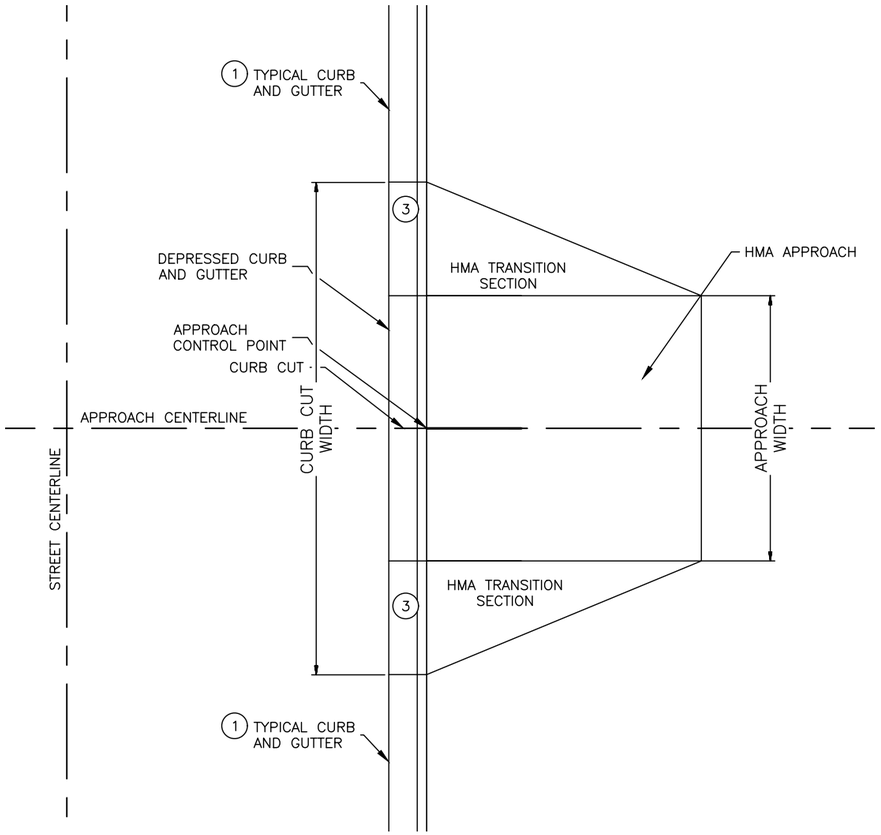
APPROACH PLAN TYPE 2 DETAIL

NTS

APPROACH DETAILS (2 OF 3)

STATE OF ALASKA 49TH Heather D. Estabrook 2/7/2020 CE-11130 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G16	G20

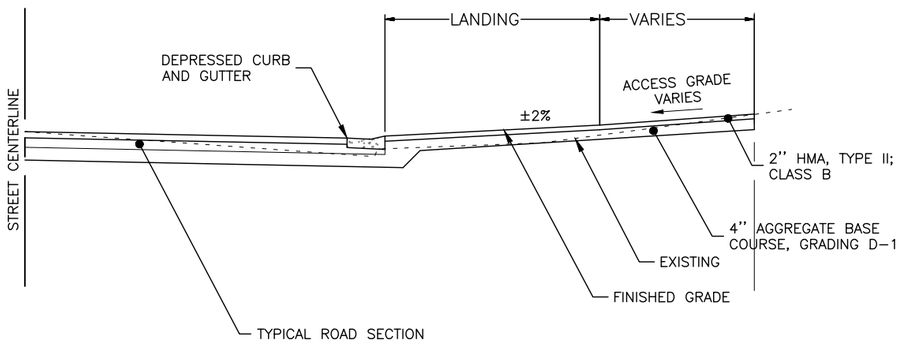


APPROACH PLAN TYPE 3 PLAN DETAIL

NTS

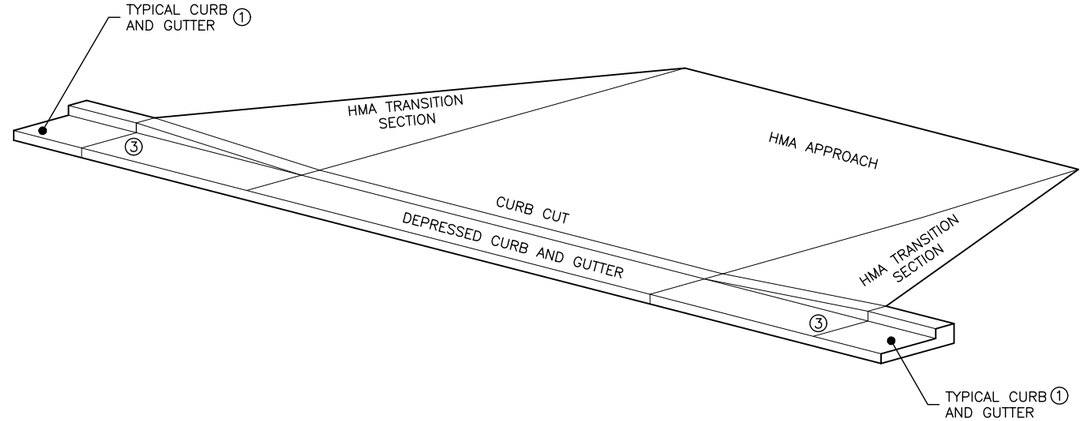
NOTES:

1. SEE ROADWAY TYPICAL SECTION FOR CURB TYPE.
2. MATERIAL FOR CONSTRUCTION OF APPROACH IS PAID FOR UNDER THE RESPECTIVE PAY ITEM.
3. 1/2'' EXPANSION JOINTS.
4. SEE SHEET G13 FOR EXPANSION SIDEWALK & CURB AND GUTTER JOINT DETAIL.



APPROACH PLAN TYPE 3 SECTION DETAIL

NTS



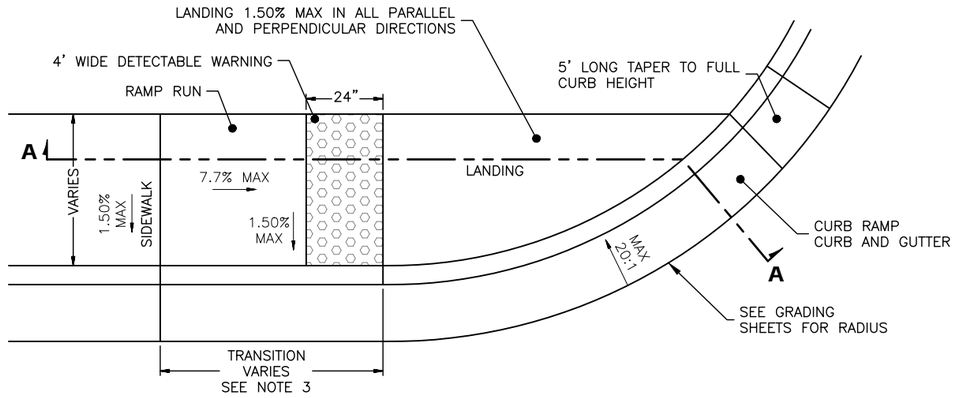
APPROACH PLAN TYPE 3 DETAIL

NTS

APPROACH DETAILS (3 OF 3)

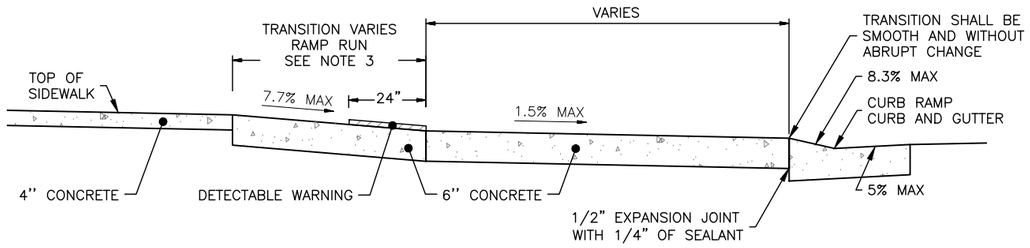
STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G17	G20



PLAN

NTS



SECTION A–A

NTS

UNIDIRECTIONAL CURB RAMP DETAILS

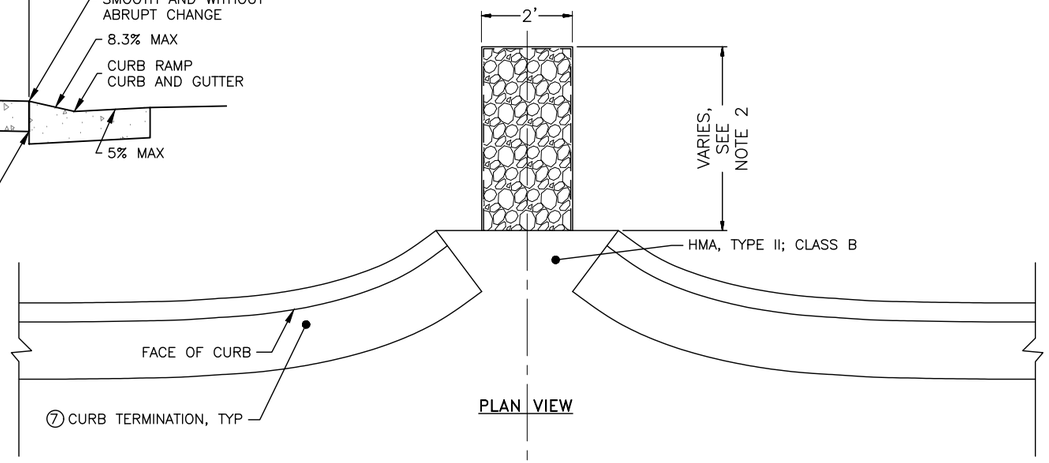
UNIDIRECTIONAL CURB RAMP NOTES:

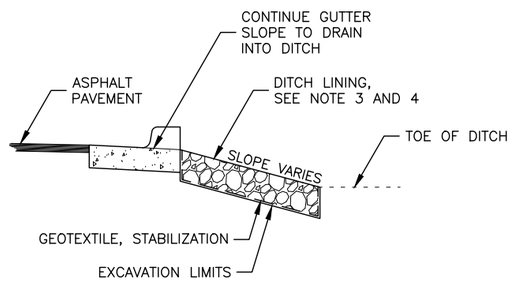
1. CONSTRUCT 6 INCH THICK RAMP AND LANDING OF CONCRETE.
2. CONCRETE SHALL RECEIVE A COARSE BROOMED FINISH RUNNING PERPENDICULAR TO THE CURB ON RAMP RUNS AND UPPER LANDINGS AND PARALLEL TO THE DIRECTION OF TRAVEL ON LOWER LANDINGS.
3. TRANSITION FROM STANDARD CURB AND GUTTER WHERE SIDEWALK SLOPE MAKES IT NECESSARY TO LENGTHEN A RAMP RUN TO AVOID EXCEEDING THE ALLOWABLE RAMP SLOPE.
4. INSTALL FEDERAL YELLOW CAST IRON DETECTABLE WARNINGS IN THE RAMP RUN.
5. SEE CURB RAMP SUMMARY FOR INSTALLATION LOCATIONS.
6. CONSTRUCT RAMP SLOPES AT A NOMINAL 7.7% GRADE, OR FLATTER. RAMP SLOPES MAY BE INCREASED TO A MAXIMUM OF 8.3% WHEN SITE CONDITIONS WARRANT IT. RAMP LENGTHS SHOULD BE INCREASED TO KEEP GRADES UNDER 8.3% MAXIMUM, BUT ARE NOT REQUIRED TO EXCEED 15.0 FEET. THE RESULTING RAMP GRADE AT A 15.0 FOOT RAMP LENGTH IS ACCEPTABLE EVEN IF IT EXCEEDS 8.3%.
7. CONSTRUCT LANDING AND SIDEWALK CROSS SLOPE AT NOMINAL 1.5% (1% MIN.,2% MAX) DO NOT CONSTRUCT LANDING AND SIDEWALK CROSS SLOPES STEEPER THAN 2%.
8. WWM STEEL REINFORCEMENT FOR PEDESTRIAN RAMPS AND CURB CUTS SHALL BE 6"x6"–W2.9 WWM. FOR NORMAL SIDEWALK REINFORCEMENT SHALL BE 6"x6"–W1.4XW1.4. ALL STEEL SHALL BE SET ON SPACERS AND PULLED UP AS REQUIRED TO POSITION STEEL 1 1/2" UP FROM BOTTOM OF SIDEWALK.
9. FOR SIDEWALK REINFORCEMENT, POSITION STEEL 1 1/2" UP FROM BOTTOM OF SIDEWALK.
10. ALL CURB RAMP LAYOUTS AND DIMENSIONS IN THIS PLAN SET ARE APPROXIMATE AND NEED TO BE FIELD FIT AND SHALL MEET 2006 ADA STANDARDS FOR MAXIMUM SLOPES. FINAL LAYOUT TO BE APPROVED BY THE ENGINEER PRIOR TO CONCRETE POUR.
11. SEE SHEET G14 FOR EXPANSION SIDEWALK AND CURB AND GUTTER JOINT DETAIL.

609(101) CURB DRAIN				
ALIGNMENT	STATION	OFFSET	QUANTITY (EACH)	REMARKS
"01"	55+08	LT	1	FRED MEYER ACCESS
"01"	68+00	RT	1	SIDEWALK CURB DRAIN
PAY ITEM TOTALS			2	

CURB DRAIN NOTES:

1. CURB DRAINS SHALL BE ADJUSTED AS NEEDED BY THE ENGINEER.
2. DITCH LINING SHALL EXTEND FROM BACK OF CURB TO THE TOE OF DITCH AS APPROVED BY THE ENGINEER.
3. DITCH LINING SHALL CONSIST OF STONES THAT ARE SOUND, DURABLE, AND SIZED 3" TO 6" IN DIAMETER AS APPROVED BY THE ENGINEER.
4. DITCH LINING SHALL NOT BE PLACED MORE THAN 1" ABOVE CONCRETE GUTTER EDGE.
5. CONCRETE CURB DRAIN AND DITCH LINING GEOMETRY MAY VARY BASED ON ACTUAL FIELD CONDITIONS AND MAY BE ADJUSTED AS APPROVED BY THE ENGINEER.
6. SIGNS SHALL NOT BE PLACED WITHIN DITCH LINING MATERIAL.
7. INSTALL CURB TERMINATIONS ON EITHER SIDE OF THE CURB DRAIN CUT. SEE CURB TERMINATION DETAIL ON SHEET G18.
8. SIDEWALK CURB DRAIN IS PAID FOR UNDER PAY ITEM 609(101) SEE DETAIL ON SHEET G13 FOR MORE INFORMATION.





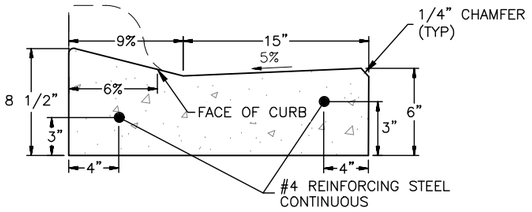
PROFILE VIEW

CURB DRAIN DETAIL

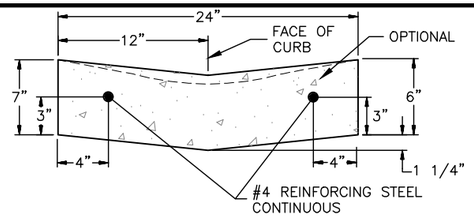
STATE OF ALASKA 49TH
Heather D. Estabrook
2/27/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

RAMP AND CURB DRAIN DETAILS

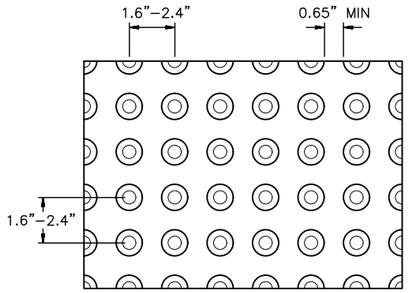
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G18	G20



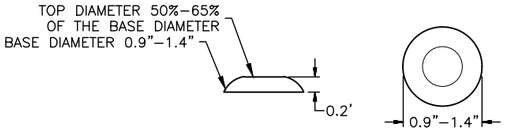
DEPRESSED CURB AND GUTTER



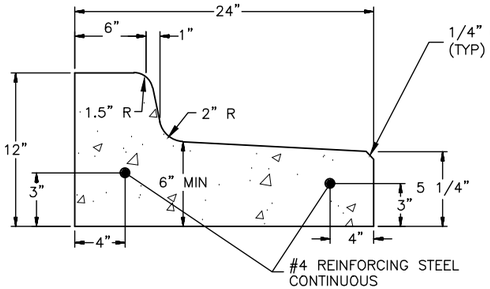
GUTTER



TRUNCATED PATTERN DETAIL

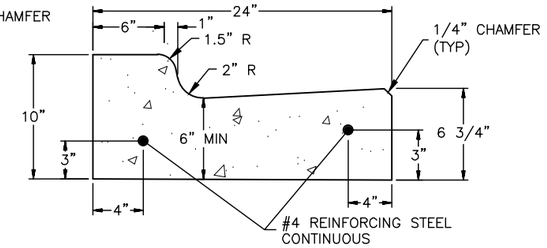


TRUNCATED DOME DETAILS

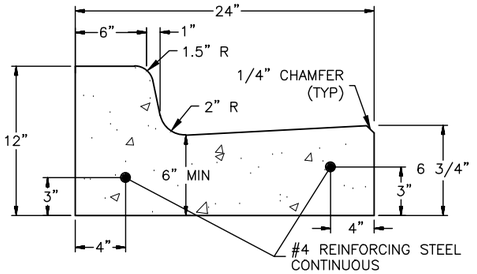


STANDARD CURB AND GUTTER

SPILL

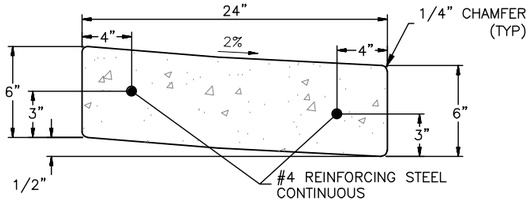


STANDARD CURB AND GUTTER CATCH FOR PARALLEL RAMPS UPPER LANDING



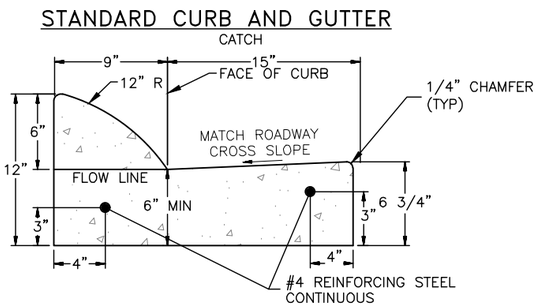
STANDARD CURB AND GUTTER

SPILL



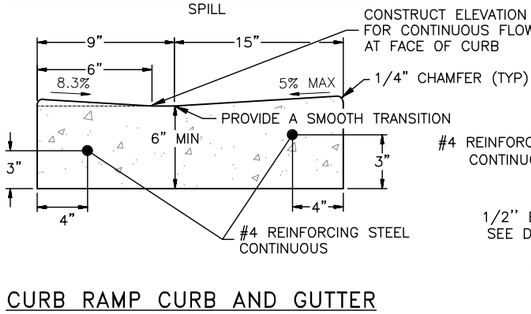
CURB RAMP CURB AND GUTTER

SPILL



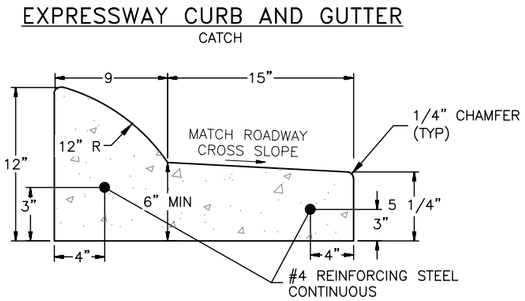
STANDARD CURB AND GUTTER

CATCH



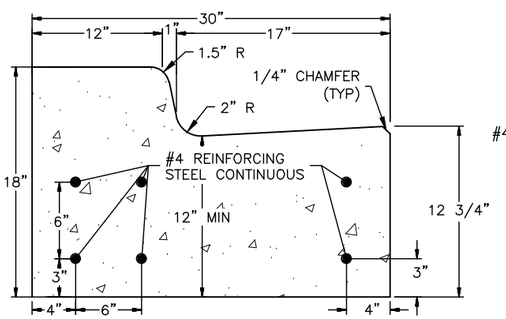
CURB RAMP CURB AND GUTTER

CATCH



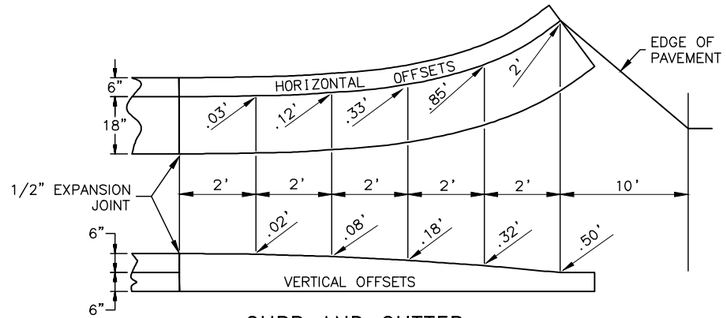
EXPRESSWAY CURB AND GUTTER

CATCH

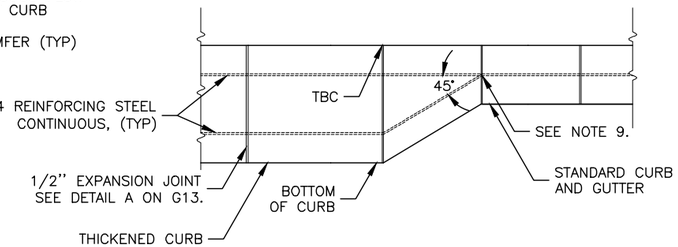


THICKENED CURB

CATCH

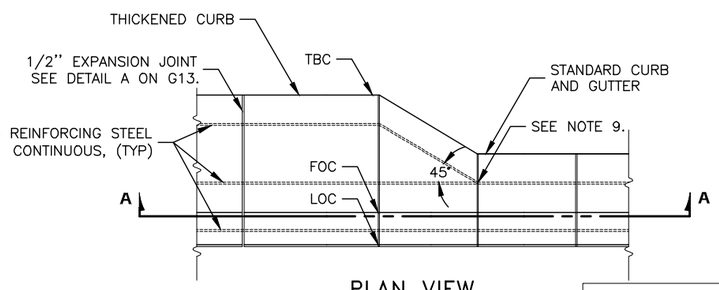


CURB AND GUTTER TERMINATION TRANSITIONS



SECTION VIEW A – A

NTS



PLAN VIEW

NTS

THICKENED CURB

GENERAL NOTES:

1. USE THE TYPE OF CURB AND GUTTER SPECIFIED ON THE PLANS.
2. CONSTRUCT RAMP RUNS AND LANDINGS OF CONCRETE REGARDLESS OF WHETHER THE SIDEWALK IS ASPHALT OR CONCRETE.
3. CONSTRUCT RAMP SLOPES AT A 7.7% NOMINAL GRADE, OR FLATTER. RAMP SLOPES MAY BE INCREASED TO A MAXIMUM OF 8.3% WHEN SITE CONDITIONS WARRANT IT. RAMP LENGTHS SHOULD BE INCREASED TO KEEP GRADES UNDER THE 8.3% MAXIMUM, BUT ARE NOT REQUIRED TO EXCEED 15.0 FEET. THE RESULTING RAMP GRADE AT A 15.0 FOOT RAMP LENGTH IS ACCEPTABLE EVEN IF IT EXCEEDS 8.3%.
4. CONSTRUCT FLARE SLOPES AT 8.3% (MEASURED PARALLEL TO THE CURB LINE ADJACENT TO THE TOP BACK OF CURB) OR FLATTER, AND SIDEWALK CROSS SLOPES AT 1.5% NOMINAL (1.0% MIN. AND 2.0% MAX) AND CURB RAMP CURB AND GUTTER PAN SLOPES AT 4.7% NOMINAL. CONSTRUCT GRADE BREAKS PERPENDICULAR TO RAMP RUNS.
5. DO NOT CONSTRUCT FLARE SLOPES STEEPER THAN 10.0%, SIDEWALK CROSS SLOPES STEEPER THAN 2.0% AND CURB RAMP CURB CURB AND GUTTER GUTTER PAN SLOPES STEEPER THAN 5.0%. THESE ARE THE STEEPEST SLOPES ALLOWED UNDER THE 2006 ADA STANDARDS FOR TRANSPORTATION FACILITIES.
6. PROVIDE A COARSE BROOMED FINISH RUNNING PERPENDICULAR TO THE CURB ON RAMP RUNS AND UPPER LANDINGS AND PARALLEL TO THE CURB ON LOWER LANDINGS.
7. INSTALL 24'' WIDE DETECTABLE WARNING TILES FOR THE FULL WIDTH OF THE RAMP. PROVIDE TILES WITH TRUNCATED DOMES MEETING SECTION 705.1 OF THE 2006 ADA STANDARDS FOR TRANSPORTATION FACILITIES. ALIGN TRUNCATED DOME PATTERN IN THE PREDOMINANT DIRECTION OF WHEELCHAIR TRAVEL TO PERMIT WHEELS TO ROLL BETWEEN DOMES.
8. STANDARD CURB AND GUTTER, EXPRESSWAY CURB AND GUTTER, DEPRESSED CURB AND GUTTER, GUTTER, CURB RAMP CURB AND GUTTER, AND CURB AND GUTTER TERMINATION TRANSITIONS, AND TRANSITION CURB AND GUTTER OFFSETS SHALL ALL BE MEASURED AND PAID FOR UNDER ITEM 609(2).
9. CURB AND GUTTER REINFORCING BARS TO BE SPLICED SHALL BE LAPPED AT LEAST 20 BAR DIAMETERS AND DOUBLE TIED. THE INNER AND OUTER BAR SPLICES SHALL BE OFFSET FROM EACH OTHER BY AT LEAST SIX INCHES.
10. ALL DETECTABLE WARNINGS TO BE FEDERAL YELLOW AND CAST IRON. PROJECT ENGINEER TO APPROVE COLOR PRIOR TO PLACEMENT.
11. ALL CURB RAMP LAYOUTS AND DIMENSIONS IN THIS PLAN SET ARE APPROXIMATE AND NEED TO BE FIELD FIT AND SHALL MEET 2006 ADA STANDARDS FOR MAXIMUM SLOPES. FINAL LAYOUT TO BE APPROVED BY THE ENGINEER PRIOR TO CONCRETE POUR.
12. MAXIMUM CROSS SLOPE ON LOWER LANDINGS IS 2.0% MEASURED IN ANY DIRECTION. MAXIMUM CROSS SLOPE ON RAMPS IS 2.0% MEASURED PERPENDICULAR TO THE RAMP RUN.

STATE OF ALASKA 49TH
Heather D. Estabrook
3/6/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

CURB AND GUTTER DETAILS (1 OF 1)

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	G19	G20

607(3) CHAIN LINK FENCE

ALIGNMENT	START		PI/PC/PT		END		LENGTH	REMARKS
	STATION	OFFSET	STATION	OFFSET	STATION	OFFSET	(FT)	
"AW"	210+50.00	78.25' LT						
			PI 210+68.28	68.91 LT				
			PC 210+88.60	63.49 LT				R= 50.00'
			PT 211+60.00	60.00 LT				
			PI 212+93.00	53.50 LT				
					213+03.00	52.00 LT	256.47	
						PAY ITEM TOTAL	256.47	

607(4) RECONSTRUCTED FENCE

ALIGNMENT	START		END		LENGTH	REMARKS
	STATION	OFFSET	STATION	OFFSET	(FT)	
"01"	57+15.54	74' LT	57+46.35	74' LT	31	UTILITY WORK
			PAY ITEM TOTALS		31	

608(1A) CONCRETE SIDEWALK, 4 INCHES THICK

ALIGNMENT	BEGIN STATION	END STATION	OFFSET	QUANTITY (SQUARE YARD)	REMARKS
"01"	50+74.56	50+84.80	RT	7.89	UTILITY PATCHING
"01"	51+29.98	51+38.90	RT	9.01	UTILITY PATCHING
"01"	51+47.46	51+58.26	RT	7.89	UTILITY PATCHING
"01"	55+14.05	55+78.57	LT	35.55	
"01"	55+41.00	55+87.93	LT	118.00	
"01"	55+99.93	57+76.72	LT	186.67	
"01"	57+15.50	57+48.33	RT	21.99	
"01"	58+80.93	67+20.00	LT	754.89	
"01"	58+83.02	58+98.95	RT	13.89	
"01"	59+24.13	60+44.47	RT	115.20	
"01"	64+13.96	68+00.00	RT	331.84	
"GR"	10+49.63	11+26.00	LT	65.89	
"GR"	11+72.00	13+60.00	LT	167.11	
"GR"	13+96.00	14+38.00	LT	37.33	
"GR"	14+74.00	16+01.00	LT	112.89	
"GR"	16+30.73	17+32.00	LT	90.11	
"GR"	17+68.00	18+32.00	LT	56.89	
"GR"	18+68.00	19+09.33	LT	33.56	
			PAY ITEM TOTALS	1,602.82	

(NIC)

608(1B) CONCRETE SIDEWALK, 6 INCHES THICK

ALIGNMENT	BEGIN STATION	END STATION	OFFSET	QUANTITY (SQUARE YARD)	REMARKS
"01"	55+02.23	56+06.42	LT	379.23	ISLAND MEDIAN & CURB RAMPS
"01"	55+83.09	56+04.09	LT	18.11	CURB RAMP
"01"	57+48.33	57+79.50	RT	25	CURB RAMP
"01"	57+51.91	57+65.10	LT	7.89	CURB RAMP
"01"	57+66.23	57+76.30	LT	8	CURB RAMP
"01"	58+77.54	59+09.48	RT	123.44	ISLAND MEDIAN & CURB RAMPS
"01"	58+83.25	58+92.80	LT	8.11	CURB RAMP
"01"	58+93.17	59+07.64	LT	8.33	CURB RAMP
"01"	59+19.74	59+29.50	RT	7	CURB RAMP
"GR"	11+26.00	11+72.00	LT	40.89	APPROACH
"GR"	13+60.00	13+96.00	LT	32	APPROACH
"GR"	14+38.00	14+74.00	LT	32	APPROACH
"GR"	16+01.00	16+30.59	LT	26.67	APPROACH
"GR"	17+32.00	17+68.00	LT	32	APPROACH
"GR"	18+32.00	18+68.00	LT	31.89	APPROACH
			PAY ITEM TOTALS	585.11	

608.2013.0005 CONCRETE SLABS, COLORED & PATTERN IMPRINTED, 4 INCHES THICK

ALIGNMENT	BEGIN STATION	END STATION	OFFSET	QUANTITY (SQUARE YARD)	REMARKS
"01"	54+01	57+50	LT	233	
"01"	59+08	68+00	RT	288	
"AW"	202+25	208+68	LT	116	
"AW"	210+28	215+75	RT	498	
			PAY ITEM TOTALS	1,134	

608.2013.0001 CONCRETE SLABS, BROOM FINISH, 4 INCHES THICK

ALIGNMENT	BEGIN STATION	END STATION	OFFSET	QUANTITY (SQUARE YARD)	REMARKS
"01"	59+09	63+83	LT	162	
			PAY ITEM TOTALS	162	

NOTES:

1. ALL STATIONS ARE APPROXIMATE FOR SIDEWALK AND CURB RAMPS. CURB RAMPS NEED TO BE FIELD FIT AND THEY SHALL MEET 2006 ADA STANDARDS FOR MAXIMUM SLOPES. FINAL LAYOUT TO BE APPROVED BY THE ENGINEER, PRIOR TO CONCRETE POUR.

SUMMARY TABLES
(1 OF 2)

STATE OF ALASKA 49TH
Heather D. Estabrook
3/3/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	G20	G20

608(2) ASPHALT SIDEWALK

ALIGNMENT	BEGIN STATION	END STATION	OFFSET	QUANTITY (TONS)	REMARK
"01"	51+73.12	54+94.13	LT	20	
"01"	56+90.94	57+15.50	RT	1	
"01"	59+02.45	68+22.66	LT	43	FIELD FIT
"01"	60+44.47	61+45.46	RT	4	
"01"	61+96.80	64+13.96	RT	8	
"01"	67+20.00	68+03.24	LT	6	
"01"	68+00.00	68+91.27	RT	6	
"01"	68+64.58	72+37.50	LT	20	
			PAY ITEM TOTALS	108	

608(6) CURB RAMP

ALIGNMENT	STATION	OFFSET	QUANTITY (EACH)	REMARKS
"01"	54+88.83	LT	1	PARALLEL
"01"	55+08.87	LT	1	PERPENDICULAR
"01"	55+79.36	LT	1	PERPENDICULAR
"01"	55+92.01	LT	1	PARALLEL
"01"	57+58.27	LT	1	PERPENDICULAR
"01"	57+58.57	RT	1	PARALLEL
"01"	57+72.30	LT	1	PERPENDICULAR
"01"	57+73.68	RT	1	PARALLEL
"01"	58+77.62	RT	1	PERPENDICULAR
"01"	58+88.23	LT	1	PERPENDICULAR
"01"	58+96.47	RT	1	PERPENDICULAR
"01"	59+00.60	LT	1	PERPENDICULAR
"01"	59+01.79	RT	1	PERPENDICULAR
"01"	59+21.83	RT	1	PARALLEL
"01"	61+45.95	RT	1	UNIDIRECTIONAL
"01"	61+96.12	RT	1	UNIDIRECTIONAL
"01"	67+91.46	LT	1	UNIDIRECTIONAL
"01"	68+73.85	LT	1	UNIDIRECTIONAL
		PAY ITEM TOTALS	18	

609(2) CURB AND GUTTER, TYPE I

ALIGNMENT	BEGIN STATION	END STATION	OFFSET	QUANTITY (LINEAR FOOT)	SHAPE	REMARKS
"01"	50+82.19	50+85.32	RT	10	STANDARD	UTILITY PATCHING
"01"	51+29.98	51+30.16	RT	11	STANDARD	UTILITY PATCHING
"01"	51+46.93	51+50.61	RT	11	STANDARD	UTILITY PATCHING
"01"	51+26.07	51+37.26	LT	15	STANDARD	UTILITY PATCHING
"01"	51+60.00	54+59.96	RT	301	STANDARD	
"01"	51+73.12	55+14.15	LT	482	STANDARD	
"01"	53+99.09	57+52.25	LT	713	EXPRESSWAY MEDIAN	
"01"	54+96.19	56+05.21	LT	331	EXPRESSWAY ISLAND MEDIAN	
"01"	55+15.22	56+00.00	RT	84	STANDARD	
"01"	56+00.00	56+62.00	RT	62	THICKENED CURB	
"01"	56+62.00	57+80.56	RT	140	STANDARD	
"01"	55+40.52	57+78.53	LT	375	STANDARD	
"01"	57+24.71	57+35.51	RT	11	STANDARD	UTILITY PATCHING
"01"	58+73.72	59+11.16	RT	175	EXPRESSWAY MEDIAN	
"01"	58+80.93	68+03.24	LT	962	STANDARD	
"01"	59+05.75	68+03.25	LT/RT	1,803	EXPRESSWAY MEDIAN	
"01"	59+27.57	61+59.88	RT	255	STANDARD	
"01"	61+96.49	68+91.27	RT	696	STANDARD	
"01"	68+03.73	68+21.21	LT	64	STANDARD	UTILITY PATCHING
"01"	68+47.48	68+47.52	LT	23	STANDARD	UTILITY PATCHING
"01"	68+64.58	72+37.50	LT	377	STANDARD	
"01"	68+47.52	68+50.86	LT	11	STANDARD	
"AW"	200+50.00	208+70.50	LT/RT	1,646	STANDARD	
"AW"	204+89.75	208+59.82	RT	370	STANDARD	
"AW"	210+04.16	211+50.00	LT	155	STANDARD	
"AW"	210+25.50	218+00.00	LT/RT	1,431	STANDARD	
"AW"	210+85.00	216+78.00	RT	593	GUTTER	
"AW"	211+50.00	213+00.00	LT	150	GUTTER	
"AW"	214+25.00	218+00.02	LT	375	GUTTER	
"GR"	10+65.55	10+90.00	RT	27	STANDARD	
"GR"	10+67.33	19+22.00	LT	855	STANDARD	
"GR"	10+68.34	11+50.00	RT	82	STANDARD	
"GR"	11+50.00	14+50.00	RT	300	GUTTER	
"GR"	14+50.00	19+21.98	RT	472	STANDARD	
			PAY ITEM TOTALS	11,659		

(NIC)

609(1) CURB, TYPE 4

ALIGNMENT	BEGIN STATION	END STATION	OFFSET	QUANTITY (LINEAR FOOT)	REMARKS
"01"	59+09	59+57	LT	53	
"01"	59+62	61+60	LT	207	
"01"	61+65	63+39	LT	182	
"01"	60+02	61+63	RT	163	
		PAY ITEM TOTALS		605	

NOTES:

1. ALL STATIONS ARE APPROXIMATE FOR SIDEWALK AND CURB RAMPS. CURB RAMPS NEED TO BE FIELD FIT AND THEY SHALL MEET 2006 ADA STANDARDS FOR MAXIMUM SLOPES. FINAL LAYOUT TO BE APPROVED BY THE ENGINEER, PRIOR TO CONCRETE POUR.

STATE OF ALASKA 49TH
Heather D. Estabrook
3/6/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

SUMMARY TABLES (2 OF 2)

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H1	H58

ABBREVIATIONS

ABBREVIATIONS APPLY TO H SHEETS ONLY

AAWF	ACTIVE ADVANCE WARNING FLASHER
ADT	AVERAGE DAILY TRAFFIC
AH	AHEAD
ARRC	ALASKA RAILROAD CORPORATION
ASDS	ALASKA SIGN DESIGN SPECIFICATIONS
ATM	ALASKA TRAFFIC MANUAL
AVC	AUTOMATED VEHICLE COUNTER
BMP	BEST MANAGEMENT PRACTICE
C/A	CONTROLLED ACCESS
CF	CUBIC FOOT
CGP	CONSTRUCTION GENERAL PERMIT
CKT	ELECTRICAL CIRCUIT
CRT	CONTROLLED RELEASE TERMINAL
DIA	DIAMETER
DIR	DIRECTION
DOT&PF	DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
DTL	DETAIL
EA	EACH
EB	EASTBOUND
EGC	EQUIPMENT GROUND CONDUCTOR
H	HORIZONTAL
HDG	HOT DIPPED GALVANIZING
HGT	HEIGHT
GVEA	GOLDEN VALLEY ELECTRIC ASSOCIATION
I/C	INTERCONNECT
IN OR "	INCH
JBOX, J-BOX	JUNCTION BOX
LBS	POUNDS
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LF	LINEAR FOOT
L.O.C.	LIP OF CURB
MMA	METHYL METHACRYLATE
MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
MTG	MOUNTING
NB	NORTHBOUND
NE	NORTHEAST
NO.	NUMBER
N.I.C.	NOT IN CONTRACT
NTS	NOT TO SCALE
NW	NORTHWEST
PTZ	PAN, TILT, ZOOM
PHB	PEDESTRIAN HYBRID BEACON
PST	PERFORATED STEEL TUBING
RP	REFERENCE POINT
SB	SOUTHBOUND
SDB	SPEED DISPLAY BOARD
SE	SOUTHEAST
SQ	SQUARE
SF	SQUARE FOOT
SMFO	SINGLE MODE FIBER OPTIC
STD	STANDARD
SW	SOUTHWEST
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
SY	SQUARE YARD
TS	SQUARE STRUCTURAL STEEL TUBING
USACE	UNITED STATES ARMY CORPS OF ENGINEERS
V	VERTICAL
WB	WESTBOUND
W/	WITH
W/O	WITHOUT

LEGEND

LEGEND APPLIES TO H SHEETS ONLY.

	EXISTING	PROPOSED
JUNCTION BOX, TYPE IA		5
JUNCTION BOX, TYPE II		6
JUNCTION BOX, TYPE III		3
JUNCTION BOX, ABOVE GRADE		7
SIGNAL FACE, VEHICULAR	42	42
SIGNAL FACE, BACKPLATE	42	42
SIGNAL FACE, LEFT TURN, BACKPLATE	43	43
SIGNAL FACE, PEDESTRIAN	80	80
LOOP DETECTOR	33	73
VIDEO DETECTOR	2	2
RADAR DETECTOR	4	4A
OPTICOM DETECTOR	1	1
PAN, TILT, ZOOM CAMERA	1	1
PEDESTRIAN PUSH BUTTON	1	1
SIGNAL POST W/O MAST ARM	1	1
SIGNAL POLE W/MAST ARM	1	1
INTERCONNECT VAULT	I/C	I/C
INTERCONNECT MANHOLE	IC	IC
TRAFFIC CONTROLLER		M
LOAD CENTER		
LUMINAIRE		#
RIGID METAL CONDUIT		
TRAFFIC SIGNAL INTERCONNECT	I/C	I/C
BORING		
TRANSFORMER	E	E

INDEX OF SHEETS

MMA TRAFFIC MARKINGS SUMMARY

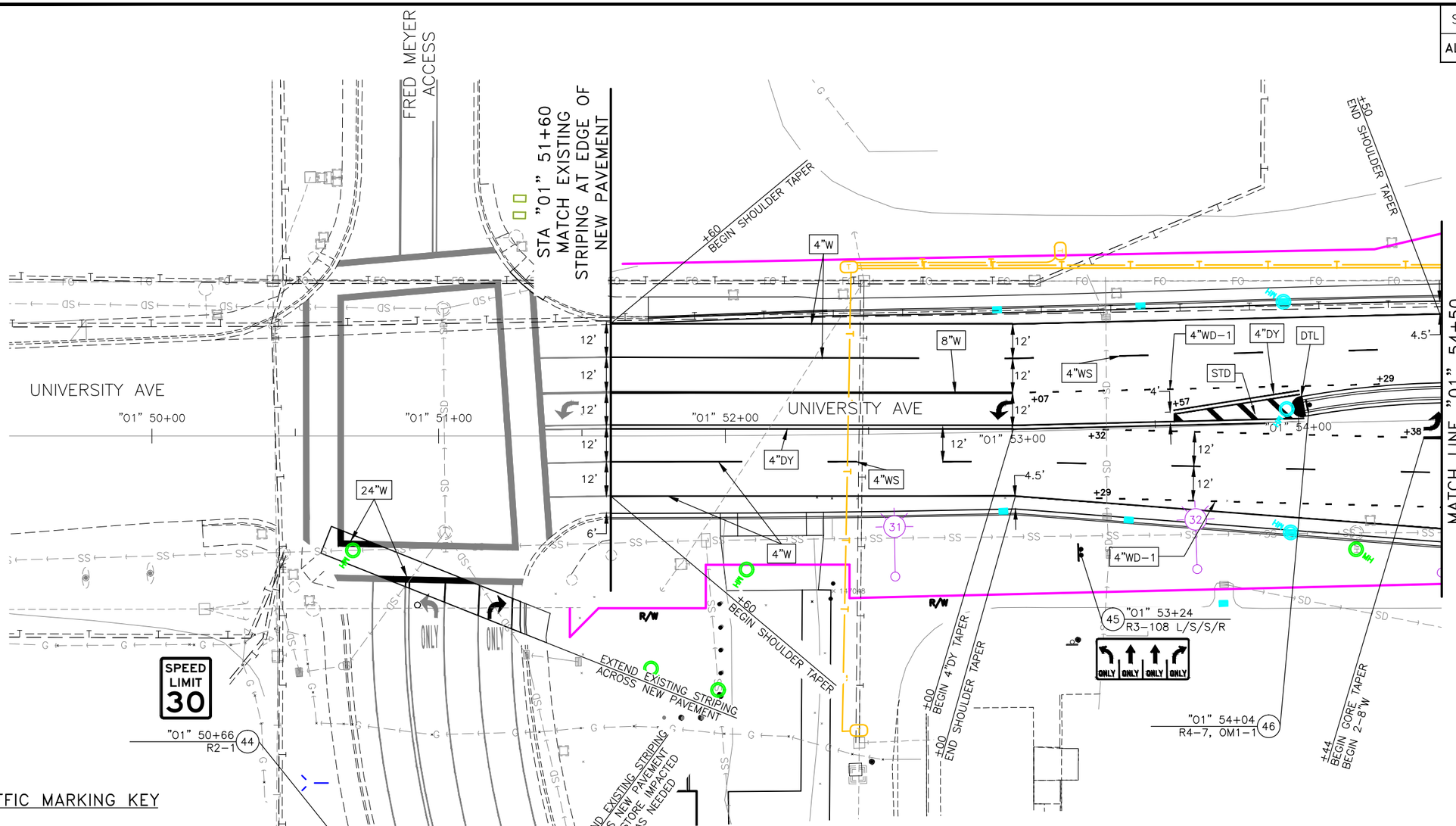
DESCRIPTION	QUANTITY	REMARKS
4"W	5,710 LF	
4"WS	5,800 LF	INCLUDES SKIPS
4"WD-1	1,090 LF	INCLUDES SKIPS
4"DY	1,160 LF	
8"W	5,620 LF	
8"WD-2	90 LF	INCLUDES SKIPS
24"W	2,140 SF	INCLUDES CROSSWALKS AND STOP BARS
WHITE CHEVRONS	1020 SF	
YELLOW DIAGONALS	300 SF	
TURN ARROW SYMBOLS	28 EA	
YELLOW RAMPED MEDIAN NOSES	8 EA	
YELLOW CURB AND GUTTER	15 LF	MEASURED ALONG FACE OF CURB

TRAFFIC LEGEND, ABBREVIATIONS, AND SHEET INDEX

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H2	H58



TRAFFIC MARKING KEY

4"W	4" WHITE LINE
4"WS	4" WHITE SKIP LINE (10' STRIPE/30' SKIP PATTERN)
4"WD-1	4" WHITE DOTTED LINE (2' STRIPE/6' SKIP PATTERN)
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24"W	24" WHITE LINE
STD	SEE STANDARD DRAWING
DTL	SEE DETAIL

SIGNING KEY

(#) STATION
SIGN CODE(S)
SIGN LOCATION #

TRAFFIC MARKING NOTES:

1. ALL PROPOSED PAVEMENT MARKINGS SHALL BE INLAID METHYL METHACRYLATE (MMA).
2. SEE SECTION 670 OF THE SPECIAL PROVISIONS FOR DEPTH OF INLAID MARKINGS.
3. BEGIN PAVEMENT MARKINGS BY INSTALLING THE INTERSECTION CROSSWALKS FIRST. LAYOUT THE CROSSWALKS IN ACCORDANCE WITH STD. DWG. T-23.00. FOR SKEWED INTERSECTIONS AND WHERE CURB RAMPS ARE LOCATED IN NON-STANDARD LOCATIONS, CENTER THE CROSSWALK PAVEMENT MARKINGS ON THE CURB RAMP.
4. "LADDER" STYLE CROSSWALK PAVEMENT MARKINGS SHALL BE COMPRISED OF 24"W LINES THAT ARE 10-FT LONG WITH 2-FT GAPS. CENTER THE 24"W 10-FT LONG PAVEMENT MARKINGS ON THE CURB RAMP. ALIGN THE 24"W PAVEMENT MARKINGS WITH THE VEHICLE TRAVEL DIRECTION AND CENTER THE 2-FT GAP ON THE WHEEL PATH.
5. TRANSITION NEW PAVEMENT MARKINGS TO MATCH EXISTING MARKINGS AT A 100:1 TAPER.
6. REMOVE ALL EXISTING PAVEMENT MARKINGS NOT COINCIDING WITH THE NEW INLAID MARKINGS. THIS WORK IS SUBSIDIARY TO 670 PAY ITEMS.
7. DIMENSIONS REFER TO THE CENTER OF STRIPE, STRIPE GROUP, EDGE OF PAVEMENT OR LIP OF GUTTER WHEN PRESENT.
8. ALL LANES ARE 12-FT WIDE UNLESS OTHERWISE NOTED.
9. AT MINOR SIDE STREETS, BREAK 4"W FOG LINE PAVEMENT MARKINGS AT APPROACH RADII. DO NOT BREAK FOG LINE AT DRIVEWAYS.
10. BREAK CENTERLINE STRIPING FOR DEDICATED LEFT TURN BAYS. CONTINUE CENTERLINE STRIPING FOR CENTER TWO-WAY LEFT TURN LANES AND WHEN THERE ARE NO LEFT TURN LANES.
11. INSTALL THE "APPROACH TO OBSTRUCTIONS" PAVEMENT MARKINGS IN ACCORDANCE WITH STANDARD DRAWING T-20.04 OR AS SHOWN ON THESE PLANS.
12. INSTALL TURN ARROWS WHERE SHOWN AND ACCORDING TO STD. DWG. T-21.03. DO NOT INSTALL "ONLY" MARKINGS UNLESS SHOWN ON THE STRIPING PLAN.
13. PAINT THE TOP AND FACE OF ALL RAMPED MEDIAN NOSES AND THE CURB AND GUTTER ISLAND NOSES WITH 20 MILS OF SURFACE APPLIED YELLOW METHYL METHACRYLATE TRAFFIC PAINT. THIS WORK IS SUBSIDIARY TO 670 PAY ITEMS.
14. LOCATE STOP BARS A MINIMUM OF EITHER 4' FROM BACK OF SIDEWALK OR 10' FROM FACE OF CURB, WHICHEVER PROVIDES THE GREATER OFFSET FROM BACK OF SIDEWALK.
15. STRIPING CONFIGURATIONS IN THIS PLAN SET ARE APPROXIMATE. THE CONTRACTOR SHALL PERFORM PRELIMINARY SPOTTING (RABBIT TRACKING) OF STRIPING AT LEAST 48 HOURS PRIOR TO FINAL MILLING AND APPLICATION OF MARKINGS. THE ENGINEER WILL THEN APPROVE THE LAYOUT OR MAKE MODIFICATIONS AS REQUIRED.

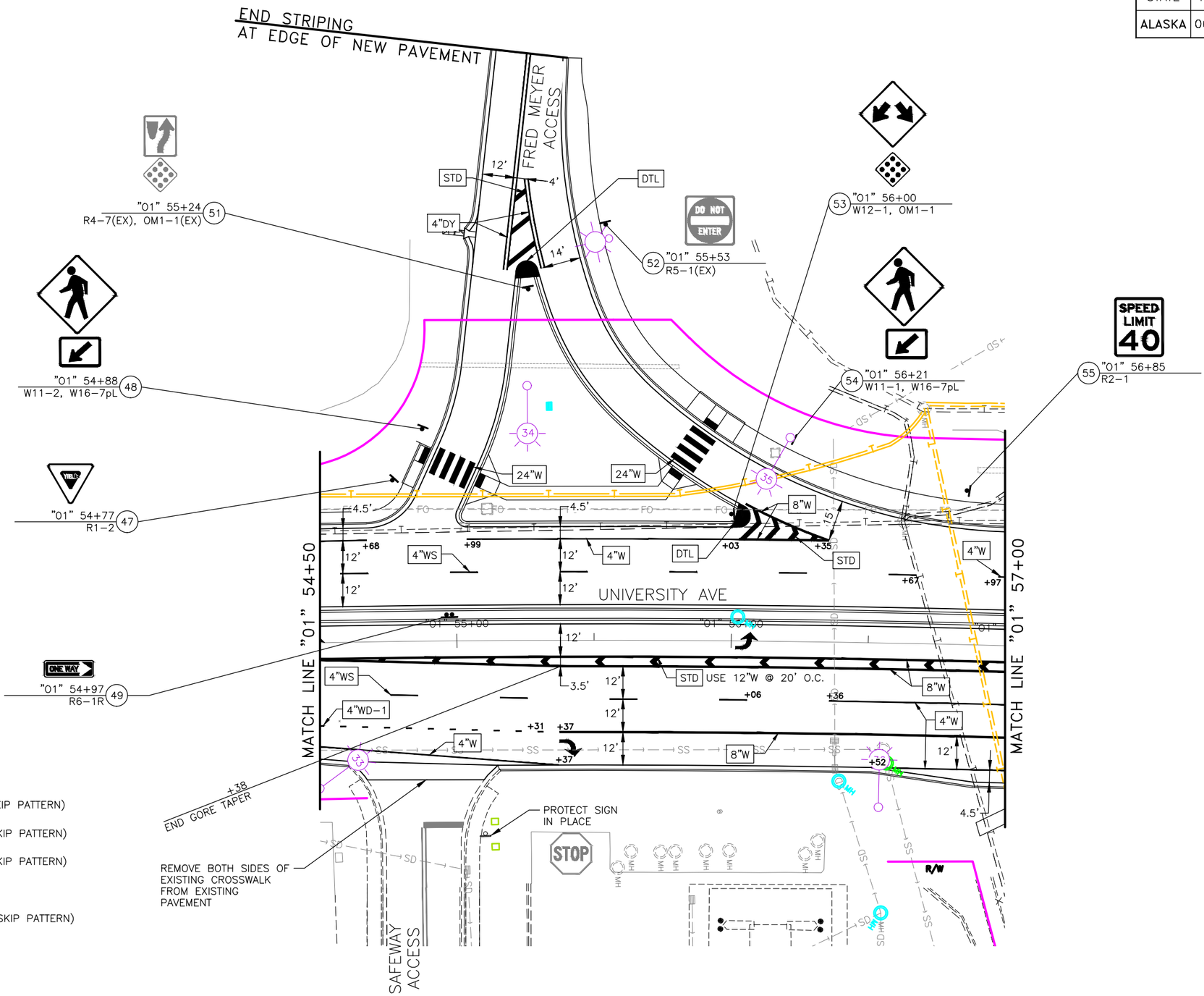
SIGNING AND STRIPING

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H2-H9_SIGN&STRIP.DWG PLOTTED: Feb 24, 2020 - 11:47:00 AM (Brian Lewis) KE#: 00245

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H3	H58



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PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
9
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2__PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H2-H9_SIGN&STRIP.DWG PLOTTED: Feb 24, 2020 - 11:32:43 AM (Brian Lewis) KE#: 00245

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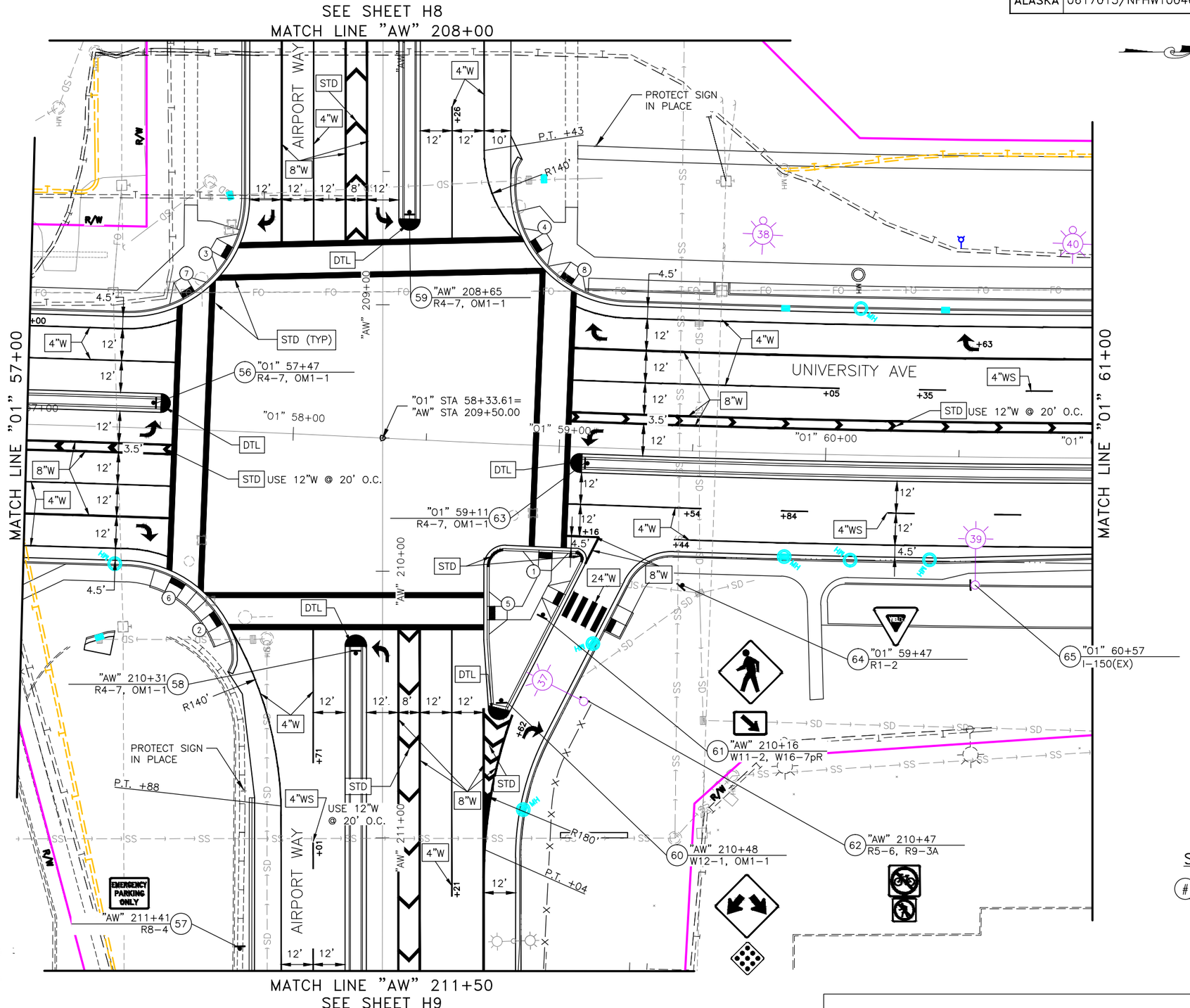
ALASKA	0617013/NFHWY00468	2020	H4	H58



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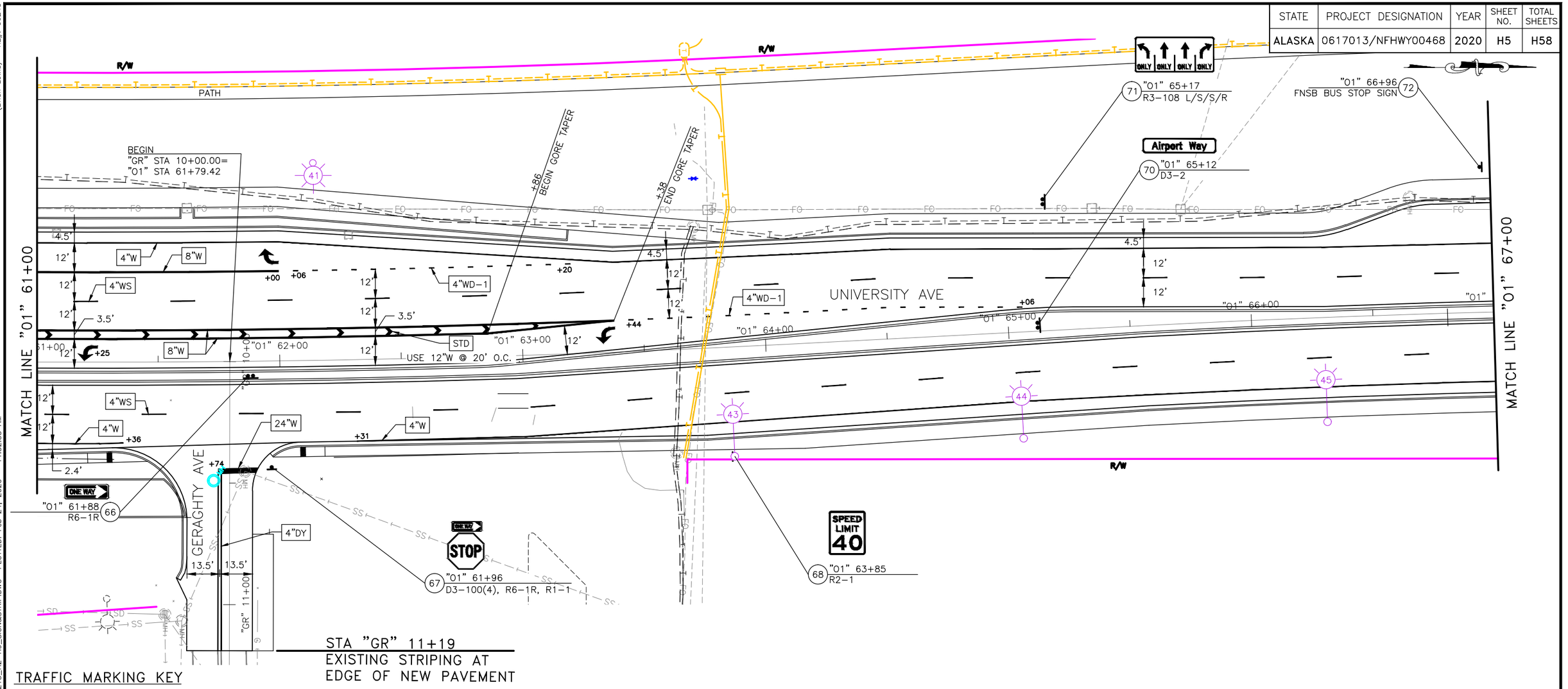
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H5	H58



STA "GR" 11+19
EXISTING STRIPING AT
EDGE OF NEW PAVEMENT

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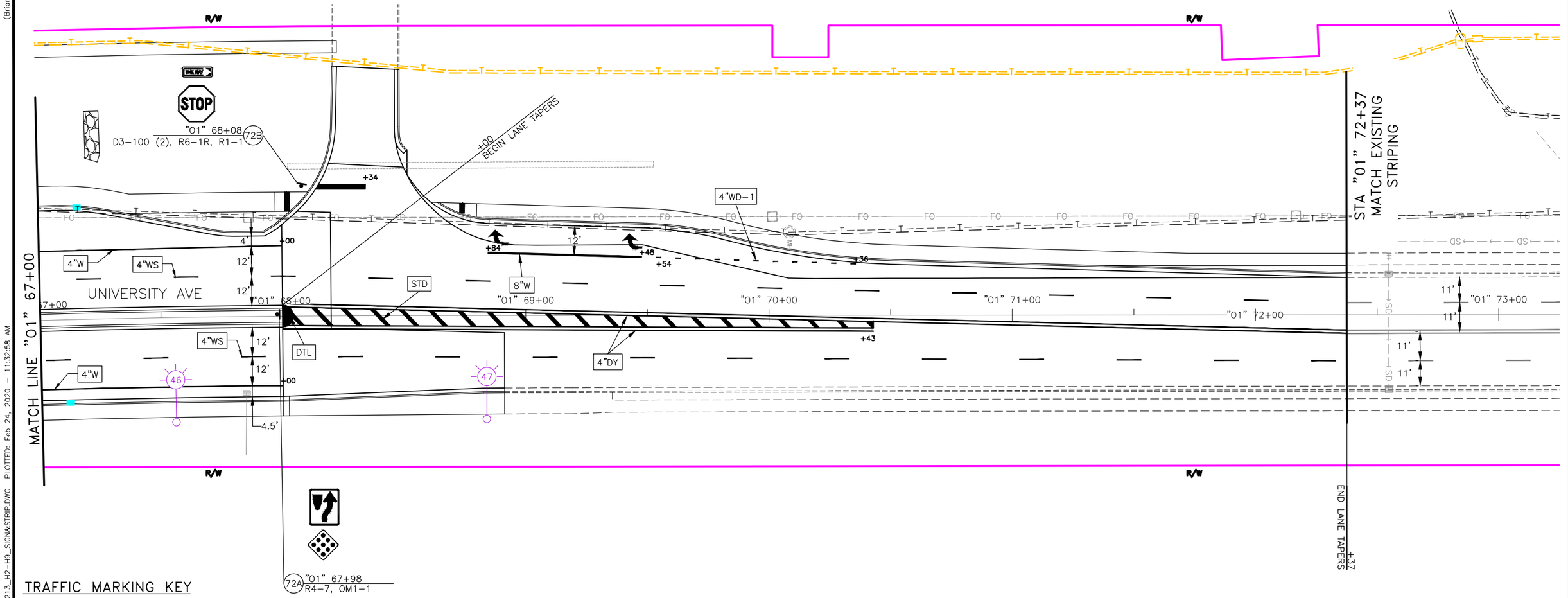
2/24/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H6	H58



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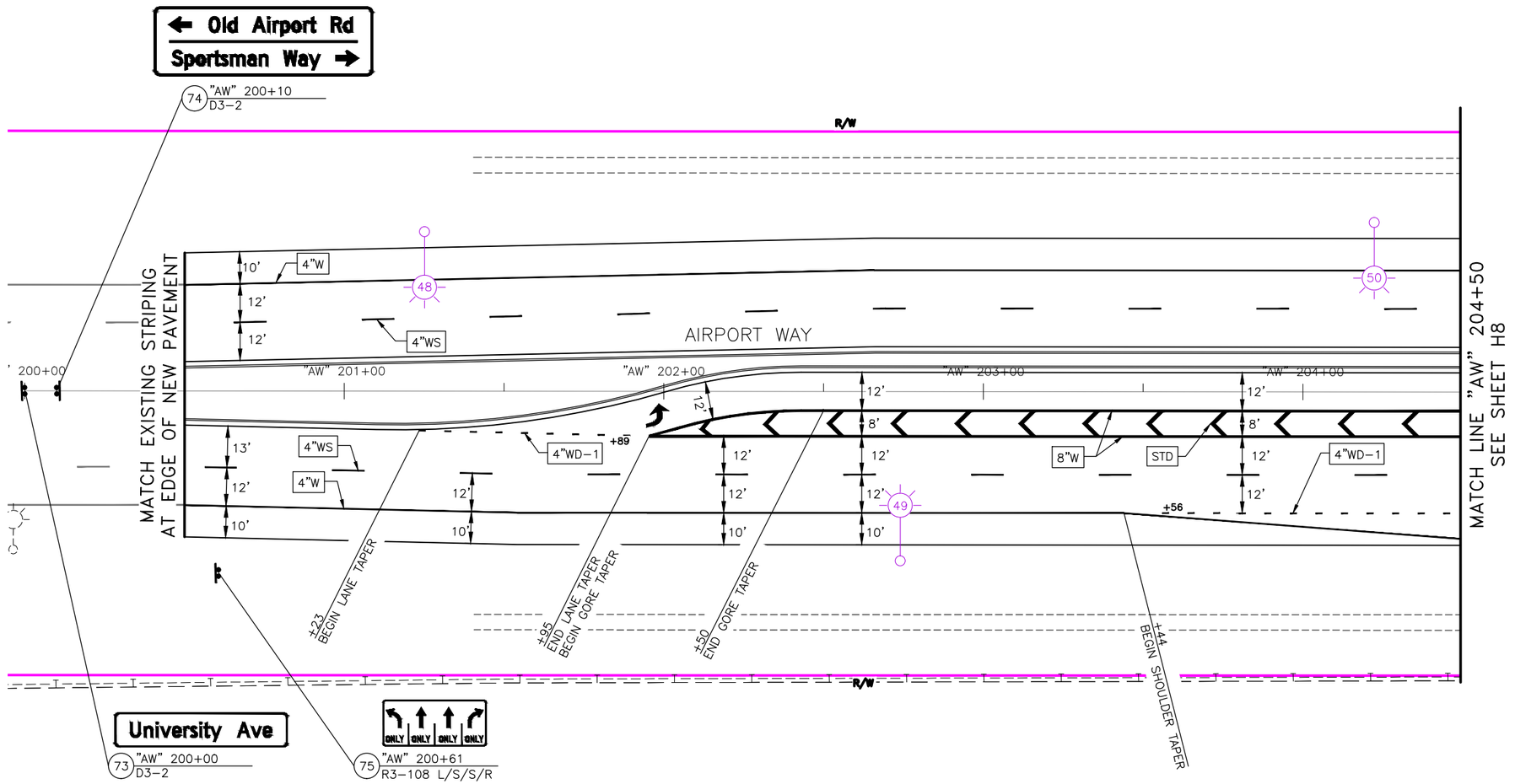
2/24/2020

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H2-H9_SIGN&STRIP.DWG PLOTTED: Feb 24, 2020 - 11:32:58 AM (Brian Lewis) KE#: 00245

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H7	H58



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2/24/2020

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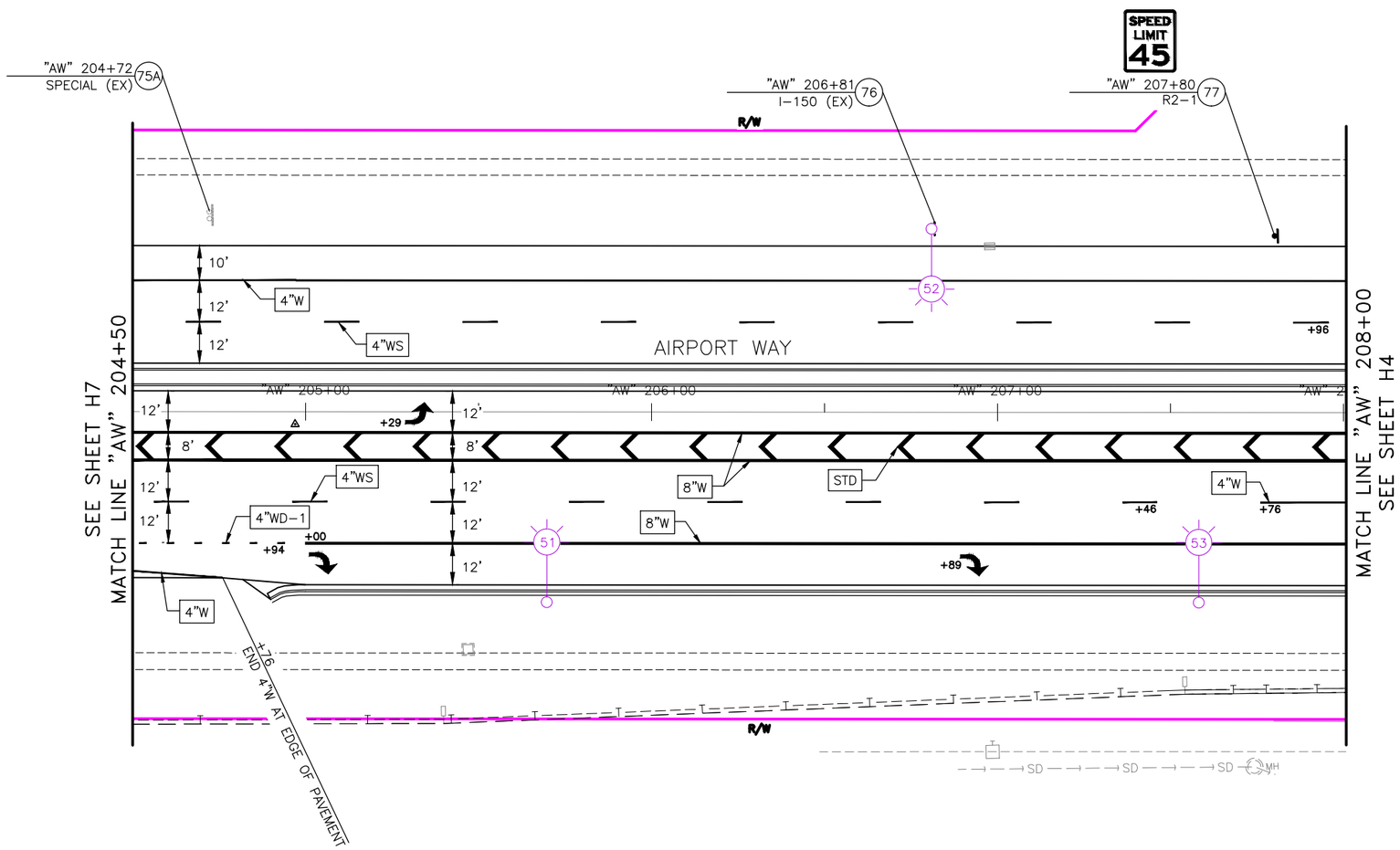
ALASKA	0617013/NFHWY00468	2020	H8	H58



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JAIN S. MCPHERSON
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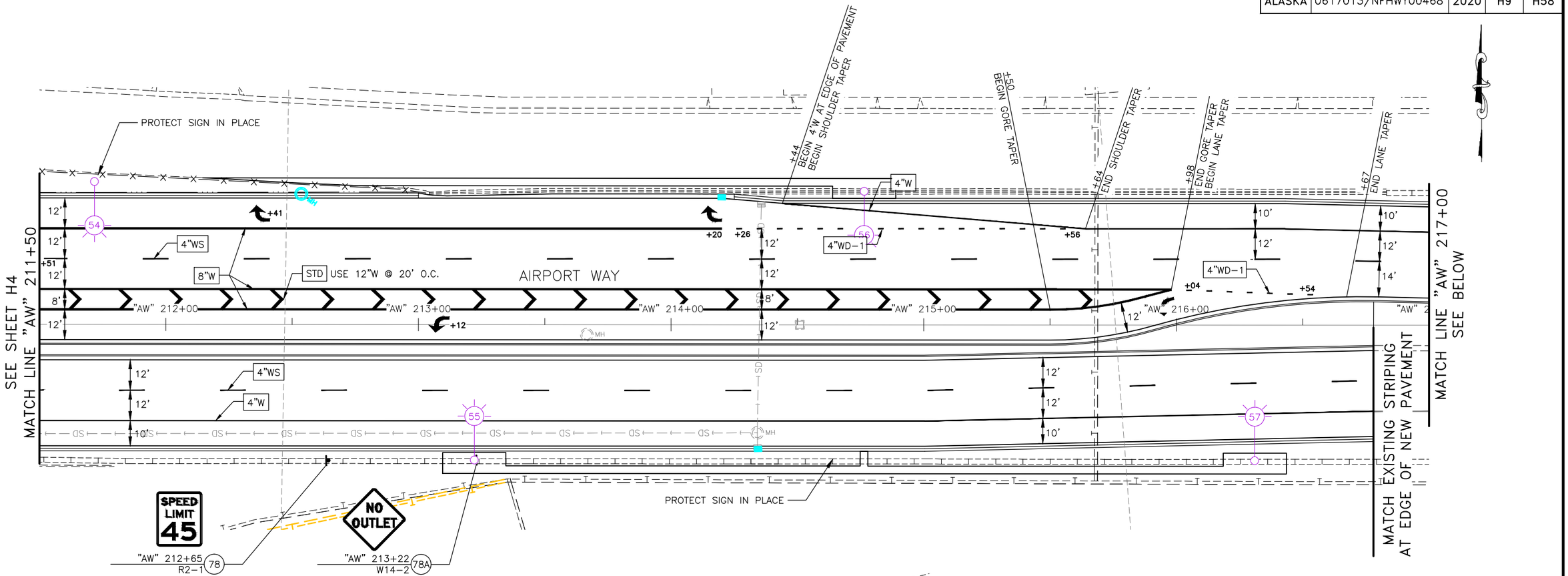
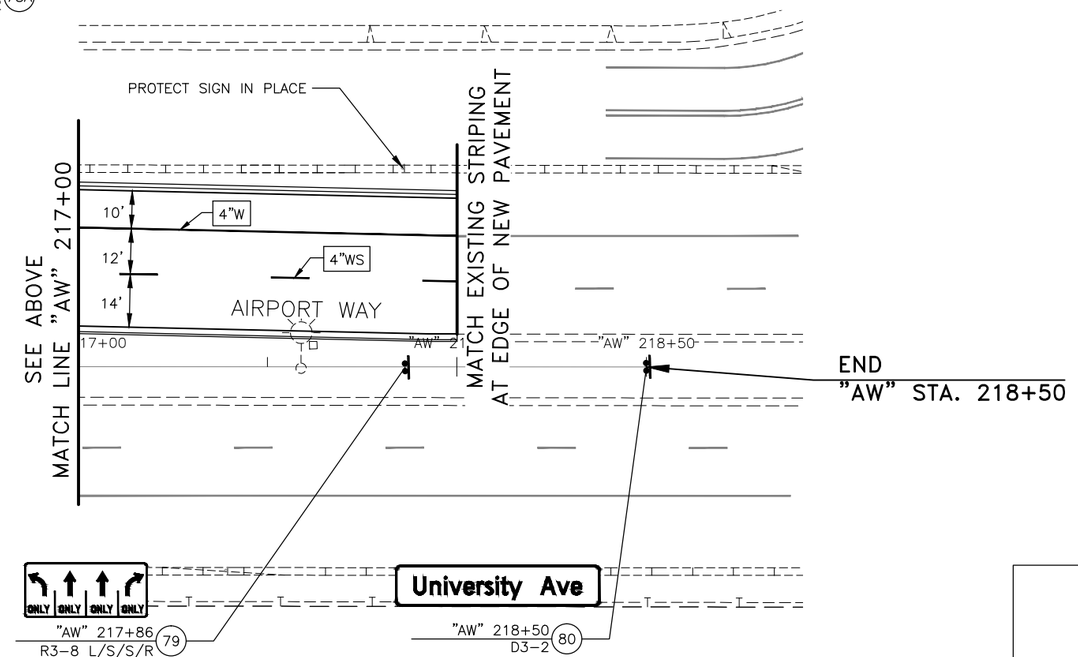
2/24/2020

SIGNING AND STRIPING

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H9	H58





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9
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2/24/2020

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H2-H9_SIGN&STRIP.DWG PLOTTED: Feb 24, 2020 - 11:33:14 AM (Brian Lewis) KE#: 00245

SIGNING SUMMARY

LOC. NO	STATION	LOCATION LT.	LOCATION RT.	ASDS CODE	LEGEND	SIZE H X V (INCHES)	BRACING/ FRAMING BRACED	BRACING/ FRAMING FRAMED	AREA (SQ.FT.)	MTG. HGT. (FT.)	DIR.	POST TYPE	POST SIZE (INCHES)	POST NO.	REMARKS
44	"01" 50+66		X	R2-1	30 MPH SPEED LIMIT	24 X 30			5.00		N	PST	2.5	1	
45	"01" 53+24		X	R3-108 L/S/S/R	(LEFT) ARROW ONLY, (THRU) ARROW ONLY, (THRU) ARROW ONLY, (RIGHT) ARROW ONLY	66 X 30		X	13.75		S	TS	3.0	2	SEE NOTES 20 & 21
46	"01" 54+04		X	R4-7	KEEP RIGHT	24 X 30			5.00		S	PST	2.5	1	
				OM1-1	OBJECT MARKER	18 X 18			2.25						
47	"01" 54+77	X		R1-2	YIELD	36 X 36	X		9.00		NW	PST	2.5	1	
48	"01" 54+88	X		W11-2	PEDESTRIAN SYMBOL	36 X 36	X		9.00		W	PST	2.5	1	
				W16-7pL	(DOWN LEFT) ARROW	30 X 18	X		3.75						
49	"01" 54+97	X		R6-1R	ONE WAY (RIGHT) ARROW	54 X 18		X	6.75		E	TS	3.0	2	SEE NOTES 20 & 21
51	"01" 55+24	X		R4-7	KEEP RIGHT						W	PST	2.5	1	SALVAGE EXISTING SIGNS AND REINSTALL ON NEW POST
				OM1-1	OBJECT MARKER 1										
52	"01" 55+53	X		R5-1	DO NOT ENTER						W	PST	2.5	1	SALVAGE EXISTING SIGNS AND REINSTALL ON NEW POST
53	"01" 56+00	X		W12-1	(DOWN LEFT-RIGHT) DOUBLE ARROW	36 X 36	X		9.00		N	PST	2.5	1	
				OM1-1	OBJECT MARKER 1	18 X 18			2.25						
54	"01" 56+21	X		W11-2	PEDESTRIAN SYMBOL	36 X 36	X		9.00		NE				MOUNT ON LIGHT POLE
				W16-7pL	(DOWN LEFT) ARROW	30 X 18	X		3.75						
55	"01" 56+85	X		R2-1	40 MPH SPEED LIMIT	30 X 36	X		7.50		N	PST	2.5	1	
56	"01" 57+47	X		R4-7	KEEP RIGHT	24 X 30			5.00		N	PST	2.5	1	
				OM1-1	OBJECT MARKER	18 X 18			2.25						
57	"AW" 211+41		X	R8-4	EMERGENCY PARKING ONLY	30 X 24	X		5.00		W	PST	2.5	1	
58	"AW" 210+31		X	R4-7	KEEP RIGHT	24 X 30			5.00		W	PST	2.5	1	
				OM1-1	OBJECT MARKER	18 X 18			2.25						
59	"AW" 208+65	X		R4-7	KEEP RIGHT	24 X 30			5.00		E	PST	2.5	1	
				OM1-1	OBJECT MARKER	18 X 18			2.25						
60	"AW" 210+48	X		W12-1	(DOWN LEFT-RIGHT) DOUBLE ARROW	36 X 36	X		9.00		E	PST	2.5	1	
				OM1-1	OBJECT MARKER 1	18 X 18			2.25						
61	"AW" 210+16	X		W11-2	PEDESTRIAN SYMBOL	36 X 36	X		9.00		E	PST	2.5	1	
				W16-7pR	(DOWN RIGHT) ARROW	30 X 18	X		3.75						
62	"AW" 210+47	X		R5-6	NO BIKES SYMBOL	30 X 30	X		6.25		W				INSTALL ON NEW LIGHT POLE
				R9-3A	NO PEDESTRIANS SYMBOL	18 X 18			2.25						
63	"01" 59+11		X	R4-7	KEEP RIGHT	24 X 30			5.00		S	PST	2.5	1	
				OM1-1	OBJECT MARKER	18 X 18			2.25						
64	"01" 59+47	X		R1-2	YIELD	36 X 36	X		9.00		SE	PST	2.5	1	
65	"01" 60+57		X	I-150	ADOPT A HIGHWAY						S				INSTALL EXISTING SIGNS ON NEW LIGHT POLE
					GOLDEN KEY INT'L HONOR SOCIETY										
66	"01" 61+88		X	R6-1R	ONE WAY (RIGHT) ARROW	54 X 18		X	6.75		E	TS	3.0	2	SEE NOTES 20 & 21

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H10	H58

SIGNING NOTES:

1. REMOVE AND DISPOSE OF ALL EXISTING SIGNS AND SIGN POST FOUNDATIONS WITHIN THE PROJECT LIMITS, EXCEPT SIGNS DESIGNATED FOR REINSTALLATION, SALVAGE, OR OTHERWISE NOTED.
2. OFFSET DISTANCES FOR STOP SIGN ASSEMBLIES, SIGNS MOUNTED ON LIGHT POLES, AND POSTS IN THE MEDIAN ARE FROM DESIGN CENTERLINE TO CENTER OF POST. ALL OTHER OFFSET DISTANCES ARE FROM DESIGN CENTERLINE TO NEAR EDGE OF SIGN.
3. MOUNT SIGNS PER STANDARD DRAWING S-05.01. SIGNS THAT PROJECT OVER OR WITHIN 2 FEET OF THE SIDEWALK AND PATHWAYS SHALL BE MOUNTED TO A HEIGHT OF 8 FEET.
4. DETERMINE POST LENGTHS IN THE FIELD. DO NOT EXTEND POSTS ABOVE TOP OF SIGN.
5. INSTALL POSTS WITH SLEEVE TYPE CONCRETE FOUNDATIONS PER STANDARD DRAWING S-30.04. ATTACH THE SIGN POST USING GALVANIZED 3/8" DIA. BOLT, NUT, SPLIT LOCK WASHER AND TWO FLAT WASHERS. INSTALL SIGN POSTS 12", 13" MAX IN PST CONCRETE HUBS, THIS MODIFIES THE STANDARD DRAWING.
6. PROVIDE "TUBE POST BRACING" AS SHOWN ON STANDARD DRAWING S-01.01 FOR ALL SIGNS MOUNTED ON A SINGLE POST AND HAVING A HORIZONTAL DIMENSION OF 30 INCHES OR GREATER, EXCEPT D3-100 SERIES SIGNS. INSTEAD OF 5/8" DIA. GALVANIZED BOLTS AND NYLON LOCKING NUTS SHOWN ON STANDARD DRAWING S-01.01, USE GALVANIZED 3/8" DIA. BOLTS, SPLIT LOCK WASHERS AND NUTS. 1/4" T X 1-1/2" W ALUMINUM ALLOY 6061-T6 BAR MAY ALSO BE USED TO FABRICATE SIGN BRACES.
7. ATTACH ALL SIGNS TO THEIR SUPPORTS WITH 3/8" DIA. BOLTS, EXCEPT ATTACH UNFRAMED SIGNS TO POSTS WITH ALUMINUM DRIVE RIVETS. WIND WASHERS ARE NOT REQUIRED WITH DRIVE RIVETS. INCLUDE SPLIT LOCK WASHERS WHEN BOLTS ARE USED.
8. ALL FASTENER HARDWARE SHALL MEET THE REQUIREMENTS OF THE "FASTENER SPECIFICATION TABLE" ON SHEET H13.
9. SIGNS INSTALLED ON LIGHT POLES MAY REQUIRE TEMPORARY INSTALLATION ON 2-1/2" PST POST UNTIL LIGHT POLES ARE IN PLACE. THIS WORK IS SUBSIDIARY TO PAY ITEM 615(1).
10. SEE TRAFFIC SIGNAL SHEETS H27-H31 FOR ADDITIONAL TRAFFIC SIGNS, MOUNTING LOCATIONS, AND MOUNTING DETAILS.
11. STOP (R1-1) AND YIELD (R1-2) SIGN LOCATIONS, ESPECIALLY THOSE LOCATED AT LARGE RADIUS INTERSECTIONS, MAY NEED ADJUSTMENT IN THE FIELD. THE ENGINEER WILL APPROVE FINAL LOCATIONS.
12. WHERE TWO DIFFERENT D3-100 SERIES SIGNS ARE TO BE LOCATED ON THE SAME POST, INSTALL THE CROSS-STREET PANEL IN THE LOWER POSITION. SEE SHEET H13 FOR DETAIL.
13. D3-100(2) INDICATES TWO SEPARATE SINGLE SIDED SIGN PANELS; AND D3-100 INDICATES ONE SINGLE SIDED SIGN PANEL. PROVIDE SIGN BRACING AS INDICATED ON SHEET H13 AND STANDARD DRAWING S-01.01.
14. MAINTAIN EXISTING SIGNS UNTIL NEW SIGNS ARE INSTALLED. DO NOT LEAVE DUPLICATE OR CONFLICTING SIGNING UP AT ANY TIME.
15. ALL SIGNS NOTED FOR REMOVAL AND REINSTALLATION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE IF THEY ARE DAMAGED DURING THE RELOCATION EFFORT.
16. USE SERIES C LETTERS FOR D3-100 SERIES SIGNS UNLESS OTHERWISE NOTED. USE 4.5-INCH FOR DIMENSION "E" FOR 12-INCH VERTICAL (V) D3-100 SIGNS. THE LETTERING INDICATING THE TYPE OF STREET (SUCH AS St, Ave, OR Rd) SHALL BE UPPER CASE AND LOWER CASE. THIS MODIFIES THE ASDS.
17. LOCATE AND PROTECT ALL NEW AND EXISTING UNDERGROUND UTILITIES PRIOR TO INSTALLING SIGN POSTS. UTILITIES MAY NOT BE SHOWN ON THE SIGNING AND STRIPING PLANS. SEE OTHER PROJECT PLAN SHEETS AND AS-BUILT DRAWINGS FOR UTILITY INFORMATION.
18. CLEARING OR TRIMMING OF VEGETATION AS DIRECTED BY THE ENGINEER MAY BE REQUIRED TO ENSURE ADEQUATE VISIBILITY OF SIGNS. THIS WORK IS SUBSIDIARY TO PAY ITEM 615(1).
19. PROVIDE WEATHER TIGHT CAPS ON ALL TUBE POSTS, EXCEPT PERFORATED STEEL TUBES.
20. PROVIDE FRANGIBLE COUPLING SYSTEMS IN ACCORDANCE WITH STANDARD DRAWING S-31.01.
21. HINGED JOINTS WITH FRANGIBLE FUSE PLATE ARE REQUIRED ON ALL MULTIPLE POST SIGNS WITH FRANGIBLE COUPLING SYSTEMS. THE HINGE LOCATION ON ALL POSTS SHALL BE THE SAME DISTANCE BELOW THE SIGNS, INSTEAD OF THE 6 INCH MINIMUM SHOWN ON STANDARD DRAWING S-31.01. SEE MANUFACTURER'S SPECIFICATION FOR HINGE LOCATION BELOW SIGN.
22. UNLESS OTHERWISE NOTED, RELOCATE EXISTING (SALVAGED) SIGNS TO LOCATIONS IDENTIFIED IN THE SIGNING SUMMARY USING NEW POSTS. FOUNDATIONS, BRACING/FRAMING, MOUNTING BRACKETS, AND FASTENERS. THIS WORK SHALL BE SUBSIDIARY TO PAY ITEM 615(1) STANDARD SIGN.

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020

SIGN SUMMARY

SIGNING SUMMARY

LOC. NO	STATION	LOCATION LT.	LOCATION RT.	ASDS CODE	LEGEND	SIZE H (INCHES)	SIZE X	SIZE V (INCHES)	BRACING/ FRAMING BRACED	BRACING/ FRAMING FRAMED	AREA (SQ.FT.)	MTG. HGT. (FT.)	DIR.	POST TYPE	POST SIZE (INCHES)	POST NO.	REMARKS
67	"01" 61+96		X	D3-100(2)	UNIVERSITY AVE	36	X	8	X		4.00		E/W	PST	2.5	1	SEE INSTALLATION DETAIL ON SHEET H13
				D3-100(2)	GERAGHTY AVE	48	X	12	X		8.00		N/S				
				R6-1R	ONE WAY (RIGHT) ARROW	36	X	12	X		3.00		E				
				R1-1	STOP	30	X	30	X		6.25						
68	"01" 63+85		X	R2-1	40 MPH SPEED LIMIT	30	X	36	X		7.50		S				INSTALL ON NEW LIGHT POLE
70	"01" 65+12	X		D3-2	AIRPORT WAY	60	X	18		X	7.50		N	TS	3.0	2	SEE NOTES 20 & 21
71	"01" 65+17	X		R3-108 L/S/S/R	(LEFT) ARROW ONLY, (THRU) ARROW ONLY, (THRU) ARROW ONLY, (RIGHT) ARROW ONLY	66	X	30		X	13.75		N	TS	3.0	2	SEE NOTES 20 & 21
72	"01" 66+96	X		FNSB	BUS STOP								N	PST	2.5	1	INSTALL EXISTING SIGN ON NEW POST
72A	"01" 67+98	X		R4-7	KEEP RIGHT	24	X	30			5.00		N	PST	2.5	1	
				OM1-1	OBJECT MARKER	18	X	18			2.25						
72B	"01"68+08	X		D3-100(2)	University Ave	36	X	8	X		4.00		E/W	PST	2.5	1	SEE INSTALLATION DETAIL ON SHEET H13
				R6-1R	ONE WAY (RIGHT) ARROW	36	X	12	X		3.00		W				
				R1-1	STOP	30	X	30	X		6.25		W				
73	"AW" 200+00		X	D3-2	UNIVERSITY AVE	90	X	18		X	11.25		W	TS	3.0	2	SEE NOTES 20 & 21
74	"AW" 200+10		X	D3-2	(LEFT) ARROW OLD AIRPORT RD, SPORTSMAN WAY (RIGHT) ARROW	114	X	36		X	28.50		E	TS	3.0	2	SEE NOTES 20 & 21
75	"AW" 200+61		X	R3-108 L/S/S/R	(LEFT) ARROW ONLY, (THRU) ARROW ONLY, (THRU) ARROW ONLY, (RIGHT) ARROW ONLY	66	X	30		X	13.75		W	TS	3.0	2	SEE NOTES 20 & 21
75A	"AW" 204+72	X		SPECIAL	ANCHORAGE NEXT EXIT												PROTECT EXISTING SIGN IN PLACE
76	"AW" 206+81	X		I-150	ADOPT A HIGHWAY								E				INSTALL EXISTING SIGNS ON NEW LIGHT POLE
					FAIRBANKS ANIMAL SHELTER FUND												
77	"AW" 207+80	X		R2-1	45 MPH SPEED LIMIT	30	X	36	X		7.50		E	PST	2.5	1	
78	"AW" 212+65		X	R2-1	45 MPH SPEED LIMIT	30	X	36	X		7.50		W				MOUNT ON LIGHT POLE
78A	"AW" 213+22		X	W14-2	NO OUTLET	30	X	30	X		6.25		N	PST	2.5	1	
79	"AW" 217+86		X	R3-108 L/S/S/R	(LEFT) ARROW ONLY, (THRU) ARROW ONLY, (THRU) ARROW ONLY, (RIGHT) ARROW ONLY	66	X	30		X	13.75		E	TS	3.0	2	SEE NOTES 20 & 21
80	"AW" 218+50		X	D3-2	UNIVERSITY AVE	90	X	18		X	11.25		E	TS	3.0	2	SEE NOTES 20 & 21

SUBTOTAL =	338.50
SIGNAL SIGN SUBTOTAL =	96.50
TOTAL SIGN AREA =	435.00

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H11	H58

SIGN SUMMARY

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H12	H58

SIGN SALVAGE SUMMARY

LOCATION	ALIGNMENT	STATION	CL REF	ASDS CODE	LEGEND	REMARKS
1	O1	50+66	140.5' RT	R2-1	30 MPH SPEED LIMIT	
2	O1	54+63	70.3' LT	R5-1	DO NOT ENTER	
3	O1	54+77	44.3' LT	R5-1	DO NOT ENTER	
4	O1	54+84	46.7' LT	R3-2	NO (LEFT) ARROW TURN	
5	O1	55+11	69.6' RT	R1-1	STOP	
6	O1	55+25	105.8' LT	R4-7	KEEP RIGHT	STORE SIGNS UNTIL THEY CAN BE INSTALLED IN NEW LOCATION
				OM1-1	OBJECT MARKER 1	
7	O1	55+58	116.5' LT	R5-1	DO NOT ENTER	STORE SIGN UNTIL IT CAN BE INSTALLED IN NEW LOCATION
8	O1	55+64	44.6' LT	R2-1	40 MPH SPEED LIMIT	
9	O1	56+07	43.5' LT	W12-1	(DOWN LEFT-RIGHT) ARROW	
				OM1-1	OBJECT MARKER 1	
10	O1	56+52	58.2' LT	D11-1	BIKE ROUTE	
11	O1	57+09	38.8' RT	R3-7R	RIGHT LANE MUST TURN RIGHT	
12	O1	60+42	62.0' LT	D11-1	BIKE ROUTE	
13	O1	60+64	45.8' RT	W1-1L	CURVE WARNING	
				W13-1	15 MPH SPEED ADVISORY	
14	O1	60+94	20.4' RT	R2-1	40 MPH SPEED LIMIT	MOUNTED ON LIGHT POLE
15	O1	61+36	85.7' RT	D3-1	GERAGHTY AVE	
				R1-2	YIELD	
16	O1	61+99	27.3' RT	D3-1	GERAGHTY AVE	
				D3-1	UNIVERSITY AVE	
				R1-1	STOP	
17	O1	62+38	54.7' LT	D3-2	AIRPORT WAY	
18	O1	62+54	26.7' LT	R1-1	STOP	
				SPECIAL	EXIT ONLY	
19	O1	62+87	27.4' RT	R1-1	STOP	
				SPECIAL	EXIT ONLY	
20	O1	62+88	25.4' RT	I-150	ADOPT A HIGHWAY	MOUNTED ON LIGHT POLE. STORE SIGNS UNTIL THEY CAN BE INSTALLED IN NEW LOCATION
					GOLDEN KEY HONOUR SOCIETY	
21	O1	62+96	48.2' RT	SPECIAL	ENTRANCE (LEFT) ARROW	
22	O1	64+08	41.0' RT	R7-107A	BUS STOP	STORE SIGN UNTIL IT CAN BE INSTALLED IN NEW LOCATION
23	O1	63+39	39.2' RT	R1-1	STOP	
				SPECIAL	ENTRANCE	
				SPECIAL	EXIT	
24	O1	63+97	52.9' LT	R7-107A	BUS STOP	STORE SIGN UNTIL IT CAN BE INSTALLED IN NEW LOCATION
25	O1	64+16	42.6' RT	D11-1	BIKE ROUTE	
				SPECIAL	USE SIDEWALK	
26	O1	64+44	49.8' LT	I-5	AIRPORT (SYMBOL)	
27	O1	67+99	43.6' LT	R1-1	STOP	
28	O1	68+71	43.0' LT	R5-1	DO NOT ENTER	
29	AW	201+46	48.3' LT	M4-5	TO	
				M1-5	STATE ROUTE 3	
				M6-3	(THRU) ARROW	
30	AW	201+53	3.6' RT	D3-2	(LEFT) ARROW OLD AIRPORT RD, SPORTSMAN WAY (RIGHT) ARROW	
31	AW	204+47	0.7' RT	D3-2	UNIVERSITY AVE	
32	AW	204+59	0.8' RT	R2-1	45 MPH SPEED LIMIT	
33	AW	205+96	49.2' RT	SPECIAL	NO LITTER (SYMBOL)	

SIGN SALVAGE SUMMARY

LOCATION	ALIGNMENT	STATION	CL REF	ASDS CODE	LEGEND	REMARKS
34	AW	206+06	55.1' LT	I-150	ADOPT A HIGHWAY	STORE SIGNS UNTIL THEY CAN BE INSTALLED IN NEW LOCATION
					FAIRBANKS ANIMAL SHELTER FUND	
35	AW	207+96	58.1' RT	R5-6	NO BIKES (SYMBOL)	
				R9-3A	NO PEDESTRIANS (SYMBOL)	
36	AW	208+70	5.4' LT	R4-7	KEEP RIGHT	
				OM1-1	OBJECT MARKER 1	
37	AW	210+12	42.4' LT	W12-1	(DOWN LEFT-RIGHT) ARROW	
				OM1-1	OBJECT MARKER 1	
38	AW	210+17	5.9' RT	R4-7	KEEP RIGHT	
				OM1-1	OBJECT MARKER 1	
39	AW	210+22	82.5' LT	R1-2	YIELD	
40	AW	210+37	64.9' LT	W11-2	PEDESTRIAN	
				W16-7PL	(DOWN-LEFT) ARROW	
41	AW	210+38	79.8' LT	W1-8R	(RIGHT) ARROW	
				OM1-1	OBJECT MARKER 1	
42	AW	210+57	73.7' LT	W1-8R	(RIGHT) CHEVRON	
43	AW	211+15	61.3' LT	R7S-104	NO STOPPING OR STANDING	
44	AW	211+38	49.1' LT	R5-6	NO BIKES (SYMBOL)	
				R9-3A	NO PEDESTRIANS (SYMBOL)	
45	AW	211+38	53.5' RT	R8-4	NO PARKING	
				R7-107	EMERGENCY PARKING ONLY	
46	AW	211+47	49.6' LT	D1-101	(THRU) ARROW AIRPORT, ANCHORAGE, UAF (RIGHT) ARROW	
47	AW	213+26	92.5' LT	W1-1R	CURVE WARNING	
				W13-1	15 MPH SPEED ADVISORY	
48	AW	214+51	0.3' RT	R2-1	45 MPH SPEED LIMIT	
49	AW	214+93	49.1' LT	R3-7R	RIGHT LANE MUST TURN RIGHT	
50	AW	215+37	3.8' RT	D3-2	UNIVERSITY AVE	

SIGN SALVAGE AND DISPOSAL NOTES:

1. DELIVER SALVAGED SIGN PANELS, NOT IDENTIFIED FOR REUSE IN THE SIGNING SUMMARY, TO THE DOT&PF FAIRBANKS MAINTENANCE YARD LOCATED AT 2301 PEGER ROAD. CONTACT DANIEL SCHACHER (907) 451-5276 BETWEEN MONDAY AND THURSDAY TO ARRANGE FOR DELIVERY.
2. SALVAGED SIGNS WILL BE PAID PER EACH SIGN PANEL DELIVERED IN ACCEPTABLE CONDITION.

SIGN SALVAGE

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

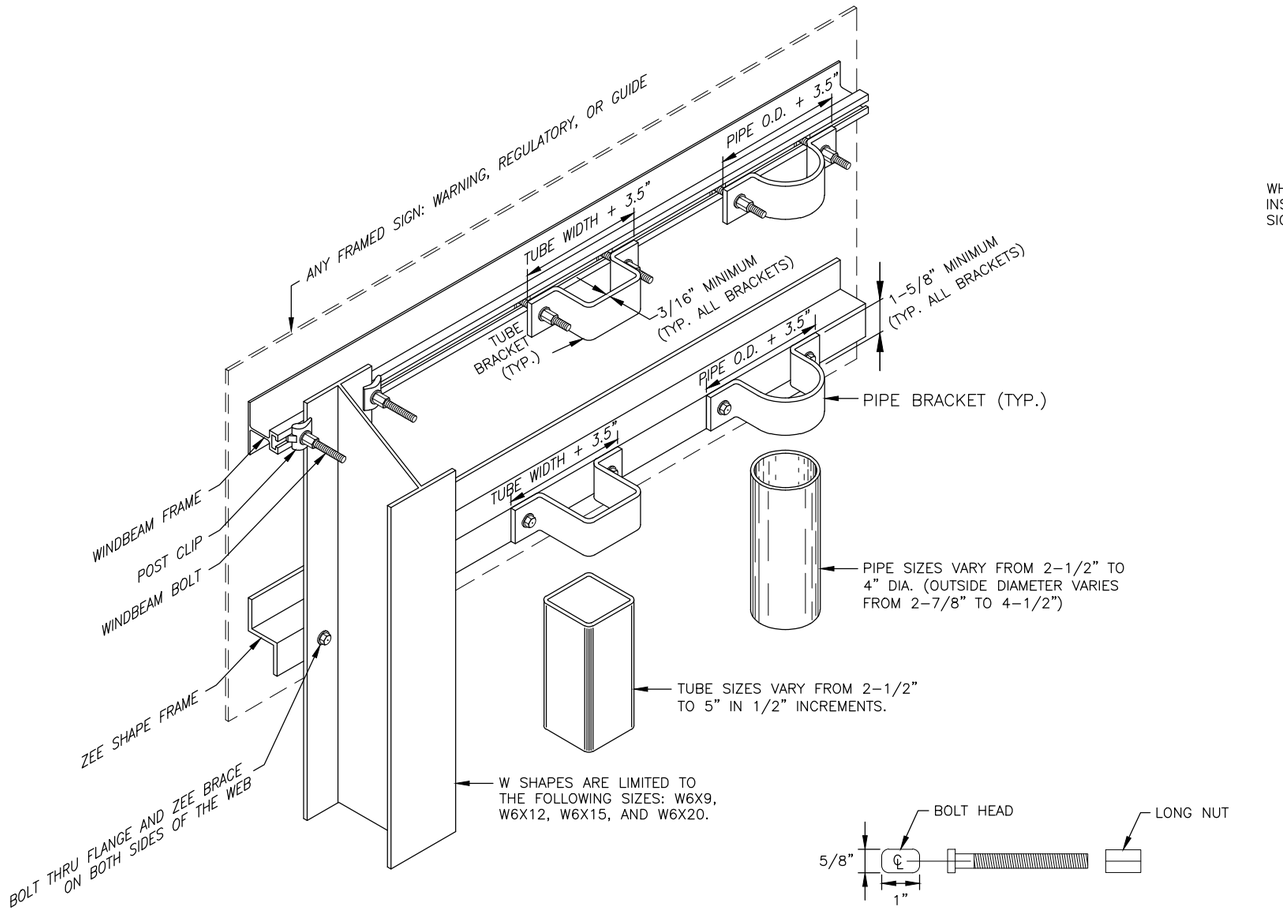
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020

FRAMED SIGN & BRACKET DETAIL NOTES:

1. ATTACH FRAMED SIGNS TO POSTS WHEREVER THE FRAMES CROSS THE POSTS. AT EACH CROSSING, ATTACH THE SIGN USING TWO POST CLIPS ON W–SHAPE POSTS, A U–SHAPED BRACKET ON PIPES OR A BRACKET WITH SQUARE CORNERS ON TUBES.
2. THE TUBE BRACKETS USED ON EVEN INCH SIZE TUBES MAY ALSO BE USED ON TUBES 1/2" SMALLER IN SIZE.
3. THE BRACKET DETAILS SHOWN INDICATE GENERAL DESIGNS ONLY. DESIGNS MAY VARY BY MANUFACTURER.
4. ALUMINUM ALLOY 6061–T6 SHALL BE USED FOR ZEE SHAPE FRAMING AND RIVETS.

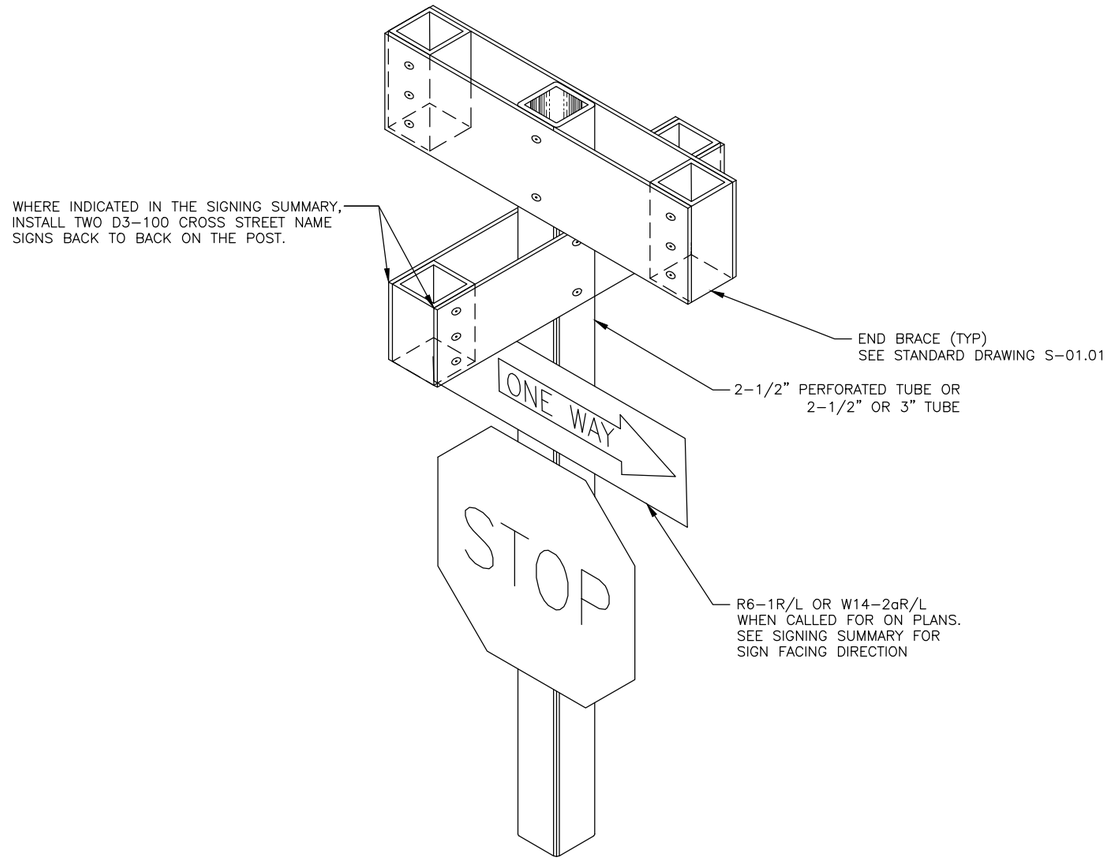
FASTENER SPECIFICATION TABLE		
FASTENERS	STEEL	STAINLESS STEEL
BOLTS	ASTM A 307	ASTM F 593
NUTS	ASTM A 563	ASTM F 594
WASHERS	ASTM F 844	ASTM A 480

THESE SPECIFICATIONS APPLY TO ALL SIGN FASTENER HARDWARE ON THE PROJECT.



FRAMED SIGN ATTACHMENT BRACKETS

3/8" DIA. WINDBEAM BOLT AND LONG NUT



STREET NAME SIGN NOTES:

1. VERTICALLY SEPARATE MULTIPLE SIGNS MOUNTED ON THE SAME POST BY 2 1/2 INCHES.
2. WHERE CALLED FOR INSTALL W14–2aL AND W14–2aR SIGN BACK TO BACK USING END BRACING PER STANDARD DRAWING S–01.01. MOUNT BELOW THE CROSS STREET NAME SIGNS.
3. WHERE A SINGLE SIGN THAT IS NOT MOUNTED BACK TO BACK IS CALLED FOR IN THE SIGNING SUMMARY, INSTALL USING FLAT GALVANIZED STEEL BRACE(S) IN ACCORDANCE WITH STANDARD DRAWING S–01.01.

STREET NAME SIGN

SIGN DETAILS
1 OF 2

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H14	H58

BANDING: ¾" x 0.030 STAINLESS STEEL DOUBLE BANDING (TYPICAL)
BUCKLES: ¾" STAINLESS STEEL (TYPICAL)

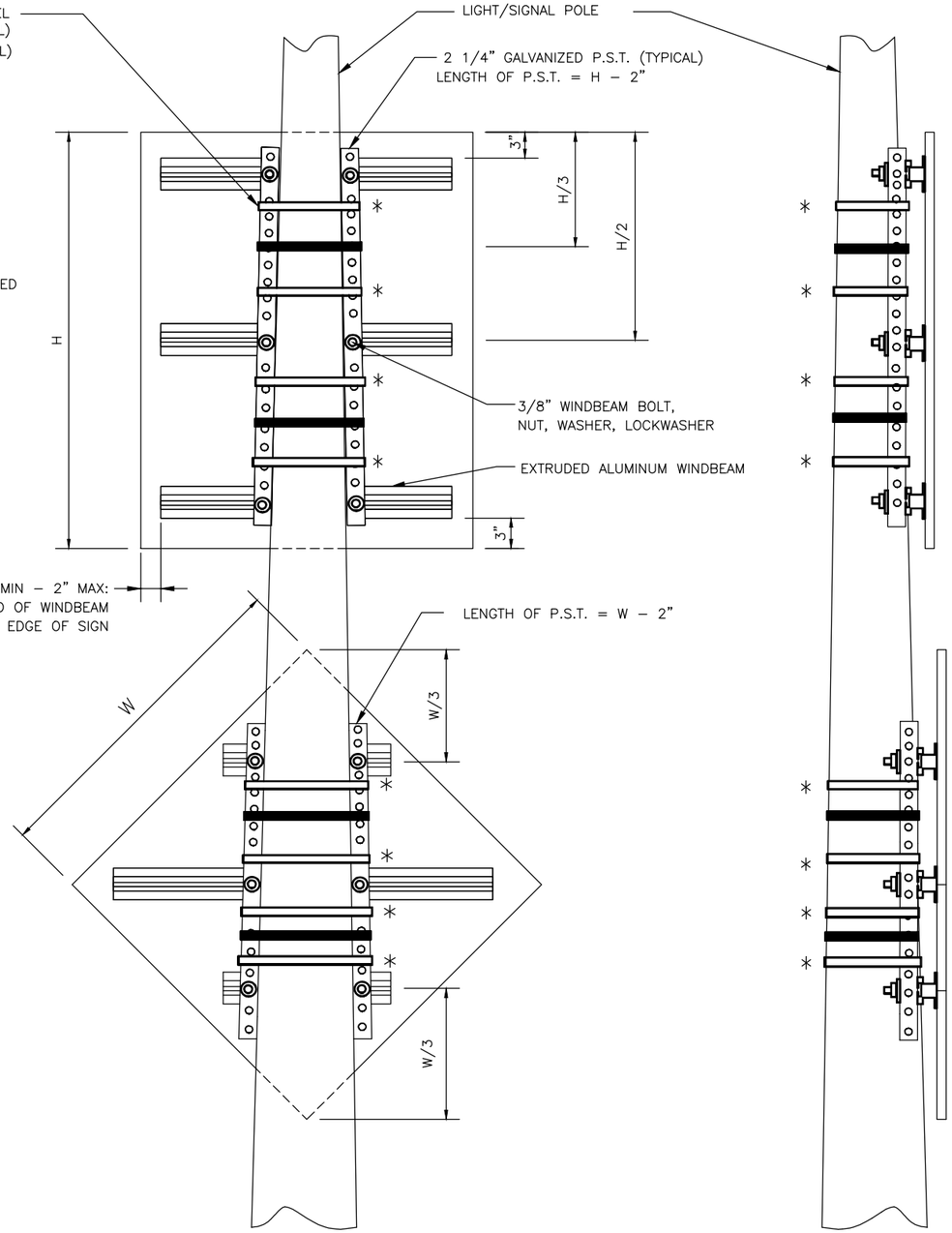
IF H > 48" 3 WINDBEAMS ARE REQUIRED

IF 15" < H ≤ 48" USE 2 WINDBEAMS

IF H <_15" USE 1 WINDBEAM

USE 4 BANDS H ≥ 48"
USE 2 BANDS H < 48"

BAND LOCATIONS
SPACE BANDS H/5
WHEN 4 ARE REQUIRED

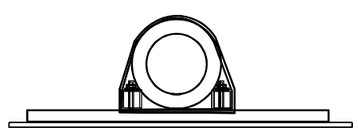


IF W ≥ 36"
3 WINDBEAMS ARE REQUIRED

IF W < 36"
USE 2 WINDBEAMS

USE 4 BANDS W ≥ 48"
USE 2 BANDS W < 48"

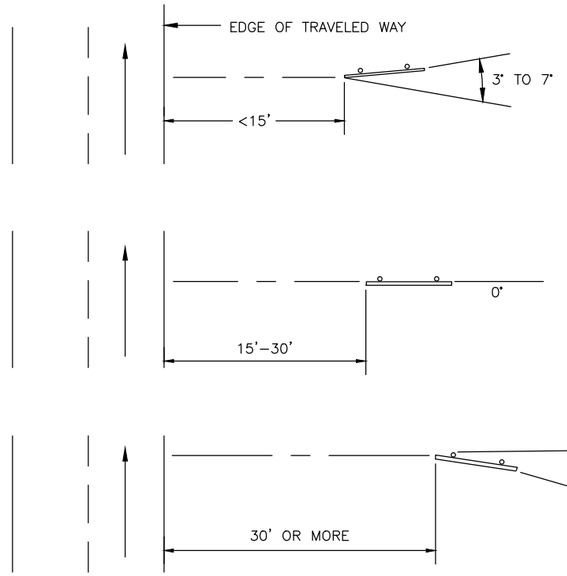
BAND LOCATIONS
SPACE BANDS W/5
WHEN 4 ARE REQUIRED



NOTE:

1. ATTACH SIGN TO WINDBEAMS WITH 3/16" RIVETS AT 4" STAGGERED SPACING.

LIGHT/SIGNAL POLE SIGN FRAMING & MOUNTING DETAILS



SIGN INSTALLATION ANGLES

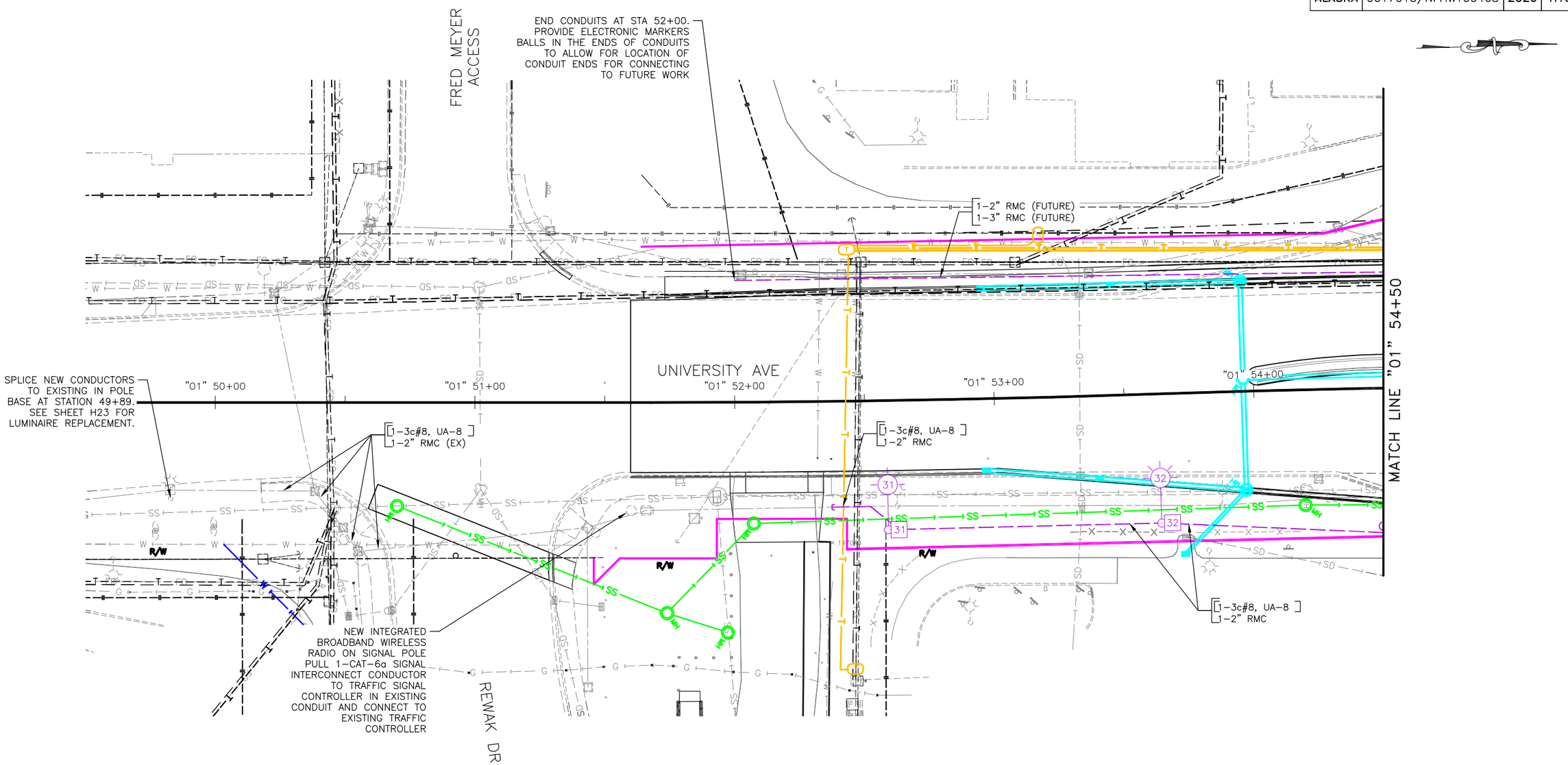
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

SIGN DETAILS
2 OF 2

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H13-H14_SIGN DETLS.DWG PLOTTED: Feb 7, 2020 – 4:42:27 PM (Brian Lewis) KE#: 00245

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H15	H56



GENERAL NOTES (APPLY TO ILLUMINATION & INTERCONNECT PLANS, SHEETS H15 TO H21):

1. EQUIPMENT GROUND CONDUCTORS (EGC) ARE NOT INDICATED ON PLANS FOR CLARITY; PROVIDE 1-#8 BARE COPPER EQUIPMENT GROUND CONDUCTOR IN ALL CONDUITS PER SPEC SECTION 660, WITH THE FOLLOWING EXCEPTIONS:
   - WHERE ANOTHER GROUND CONDUCTOR SIZE IS SPECIFIED.
   - NOT REQUIRED FOR SPARE CONDUITS.
   - NOT REQUIRED IN CONDUITS CONTAINING ONLY FIBER OPTIC CABLE.
2. REFER TO ELECTROLIER SUMMARY ON SHEETS H22 AND H23. ELECTROLIER FOUNDATIONS AND ASSOCIATED JUNCTION BOXES SHALL BE LOCATED PER DETAILS ON SHEET H47 UNLESS OTHERWISE NOTED.
3. IN ALL SPARE AND FUTURE CONDUITS, PROVIDE A PULL ROPE AND CAP CONDUIT ENDS IN ACCORDANCE WITH SECTION 660-3.03, CONDUIT.
4. SEE E SHEETS FOR DEMOLITION OF EXISTING LIGHTING AND INTERCONNECT COMPONENTS AND SHEET H25 FOR ELECTROLIER DEMOLITION SCHEDULE.

WIRELESS INTERCONNECT NOTES:

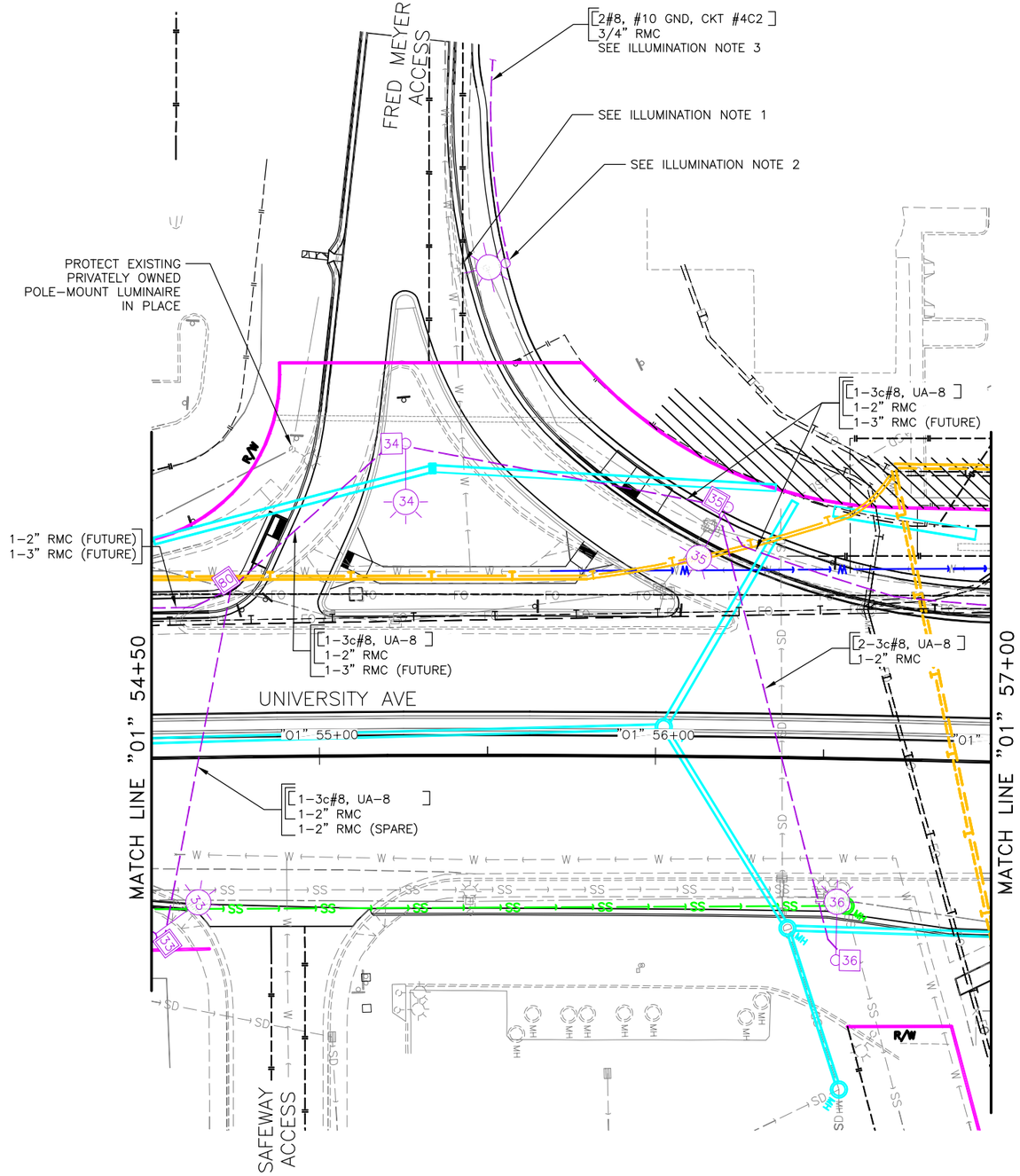
1. ALL ANTENNA MOUNTING HARDWARE SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL.
2. WHENEVER PENETRATING TRAFFIC SIGNAL POLES OR ELECTROLIERS, PAINT THE PENETRATION HOLE WITH A COAT OF ZINC RICH PAINT AND INSERT A RUBBER GROMMET AROUND THE INSIDE OF THE HOLE.
3. WORK TO INSTALL COMPLETE FUNCTIONING WIRELESS INTERCONNECT AND ALL ASSOCIATED EQUIPMENT SHALL BE PAID UNDER 662(122) FIBER OPTIC INTERCONNECT, INFRASTRUCTURE.

ILLUMINATION AND INTERCONNECT PLANS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
49 TH
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
3/3/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H16	H56



ILLUMINATION NOTES:

1. SALVAGE AND RELOCATE PRIVATELY-OWNED POLE-MOUNT LUMINAIRE. COORDINATE WITH PROPERTY OWNER (FRED MEYER) MAINTENANCE TO IDENTIFY AND DE-ENERGIZE EXISTING CIRCUITS AS REQUIRED.
2. PROVIDE NEW FOUNDATION FOR RELOCATED POLE-MOUNT LUMINAIRE AT STATION 55+55.29, 146.44' LT, INSTALL SALVAGED ELECTROLIER AND RECONNECT TO EXISTING 277V LIGHTING CIRCUIT. SET CENTER OF FOUNDATION 24" FROM BACK OF SIDEWALK. SEE SHEET H47 "LIGHT POLE FOUNDATION DETAIL".
3. INTERCEPT EXISTING 3/4" RMC CONDUIT AT 30" DEPTH FROM UPSTREAM ELECTROLIER. EXTEND CONDUIT AS REQUIRED AND PROVIDE NEW CONDUCTORS FROM UPSTREAM ELECTROLIER TO RELOCATED ELECTROLIER, APPROXIMATELY 130' HORIZONTAL DISTANCE.

ILLUMINATION AND INTERCONNECT PLANS

PLANS DEVELOPED BY:
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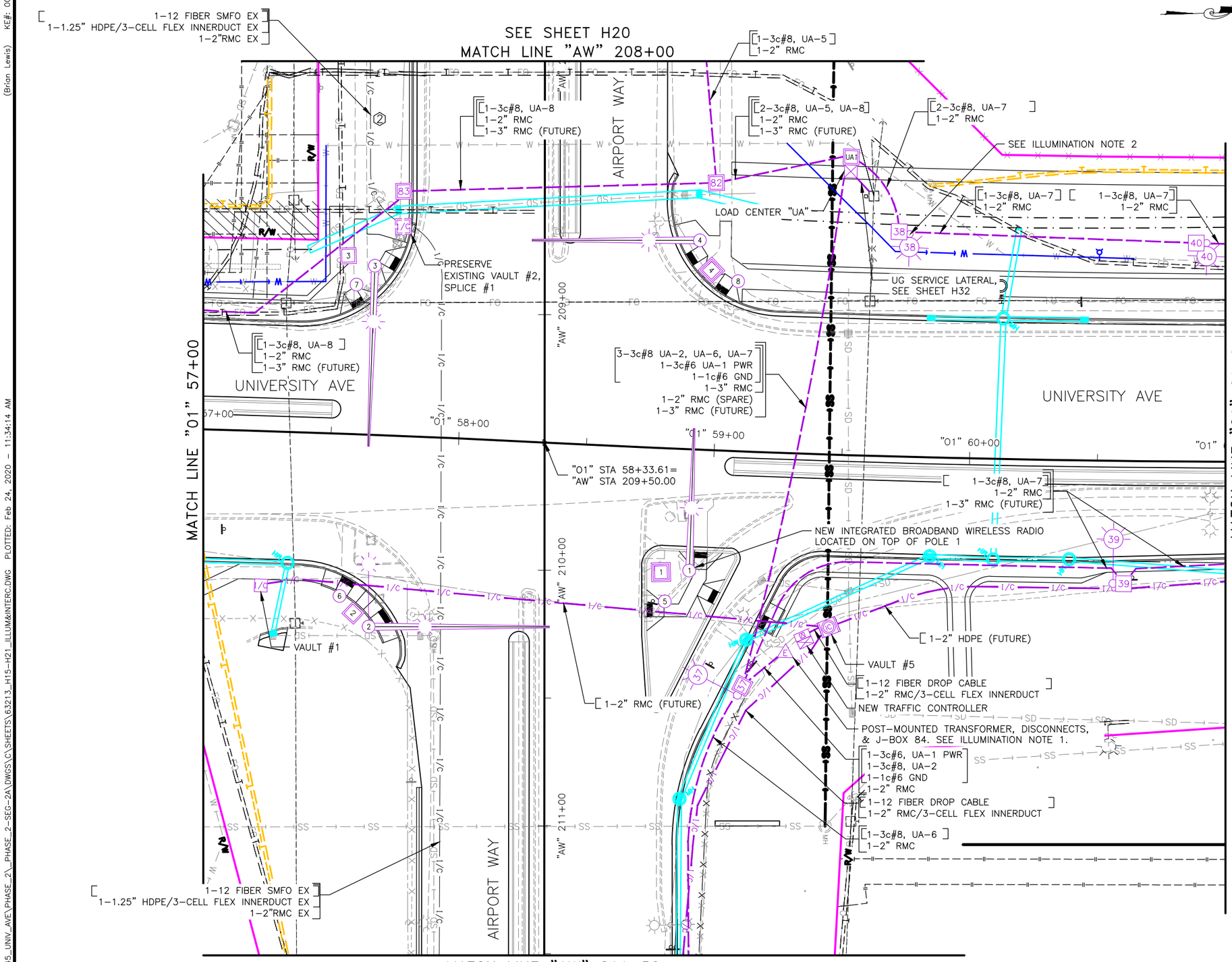
STATE OF ALASKA
49 TH
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
3/3/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H17	H58

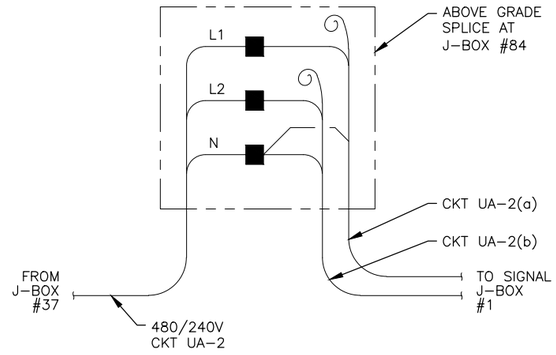


ILLUMINATION NOTES:

1. PROVIDE ABOVE-GRADE JUNCTION BOX #84 AT POST-MOUNTED TRANSFORMER FOR SIGNAL CONTROLLER. SECURE J-BOX TO POSTS WITH FRAMING CHANNEL CROSS MEMBER. SPLICE 480/240V 3-WIRE CIRCUIT UA-2 TO TWO 240V 2-WIRE CIRCUITS IN 3C CABLES FOR 240V INTERSECTION LIGHTING. SEE WIRING DETAIL THIS SHEET, AND POST-MOUNT TRANSFORMER DETAIL ON SHEET H33.
2. PROVIDE 3-WAY SPLICE IN POLE HANDHOLE TO CONNECT LP 40 AND 41 TO UA-7 CIRCUIT.

INTERCONNECT NOTES:

1. SPLICE EXISTING 12-FIBER CABLE AS SHOWN ON H26 TO RELOCATE CONTROLLER TO NORTHEAST QUADRANT. COORDINATE WORK WITH TRAFFIC SIGNAL MAINTENANCE TO MINIMIZE IMPACTS TO ADJACENT SIGNALS.
2. PRESERVE AND PROTECT EXISTING CONDUIT AND FIBER OPTIC CABLE.
3. SEE SHEET H28 FOR WIRELESS INTERCONNECT WIRING.



J-BOX 84 ILLUMINATION SPLICE DETAIL

ILLUMINATION AND INTERCONNECT PLANS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H15-H21_ILLUM&INTERC.DWG PLOTTED: Feb 24, 2020 - 11:34:14 AM (Brian Lewis) KE#: 00245

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H18	H58

MATCH LINE "01" 61+00

BEGIN
"GR" STA 10+00.00=
"01" STA 61+79.42

UNIVERSITY AVE

[1-3c#8, UA-7
1-2" RMC
1-3" RMC (FUTURE)]

GERAGHTY AVE

"GR" 11+00

EXISTING UTILITY-OWNED STREET LIGHTS ON GERAGHTY AVE TO REMAIN

"GR" 10+00

"01" 62+00

"01" 63+00

"01" 64+00

"01" 65+00

"01" 66+00

"01"

UNIVERSITY AVE

[1-3c#8, UA-7
1-2" RMC
1-3" RMC (FUTURE)]

[1-2" HDPE (FUTURE)]

VAULT #6

[1-3c#8, UA-7
1-2" RMC
1-3" RMC (FUTURE)]

MATCH LINE "01" 67+00
SEE BELOW

SEE ABOVE
MATCH LINE "01" 67+00

7+00

"01" 68+00

EOP
"01" STA. 69+00

"01" 69+00

"01" 72+00

UNIVERSITY AVE

[1-3c#8, UA-7
1-2" RMC
1-3" RMC (FUTURE)]

[1-3c#8, UA-7
1-2" RMC]

[1-3c#8, UA-7
1-2" RMC (EX)]

SPLICE NEW CONDUCTORS TO EXISTING IN POLE BASE AT STATION 72+29. SEE SHEET H23 FOR LUMINAIRE REPLACEMENT.

ILLUMINATION AND INTERCONNECT PLANS

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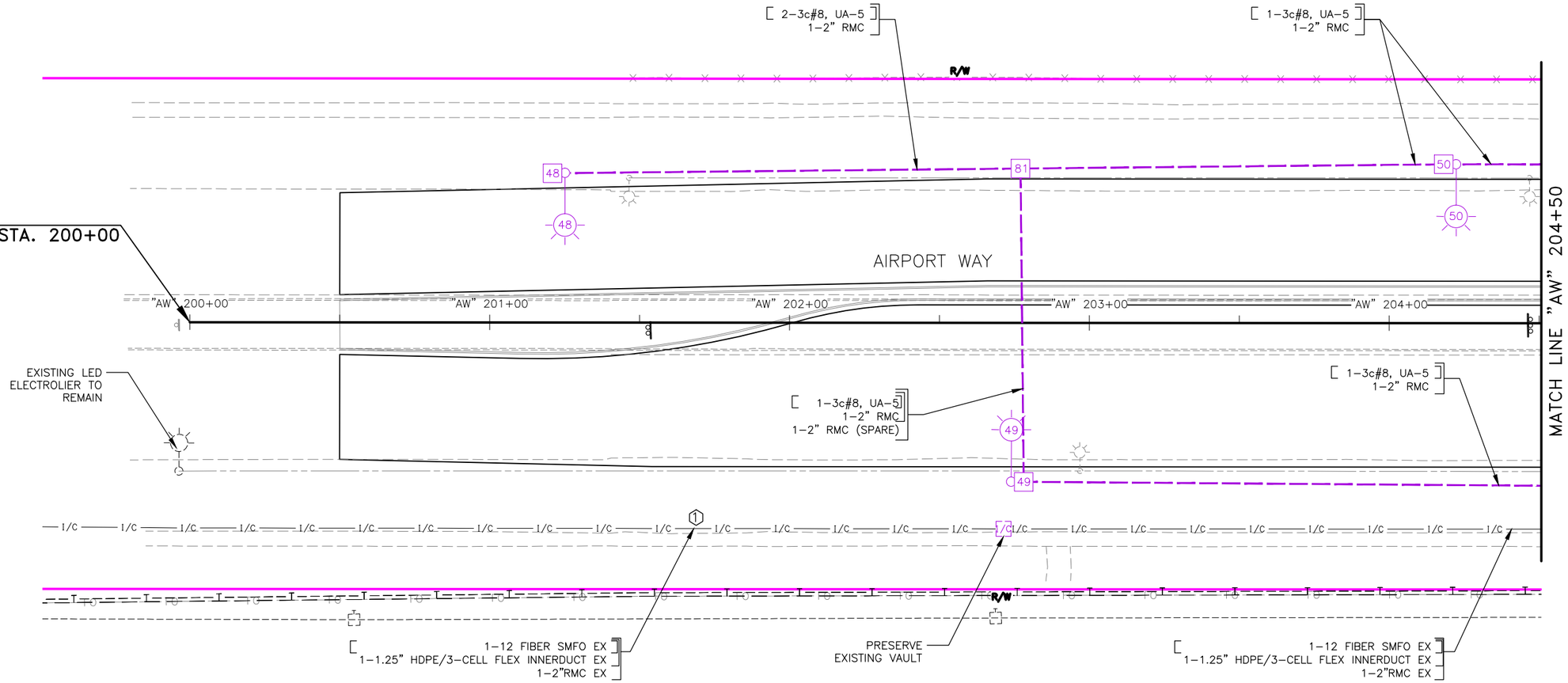
2/24/2020

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H15-H21_ILLUM&INTERC.DWG PLOTTED: Feb 24, 2020 - 11:34:24 AM (Brian Lewis) KE#: 00245

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H19	H58



INTERCONNECT NOTE:

1. PRESERVE AND PROTECT EXISTING CONDUIT AND FIBER OPTIC CABLE.

PLANS DEVELOPED BY:
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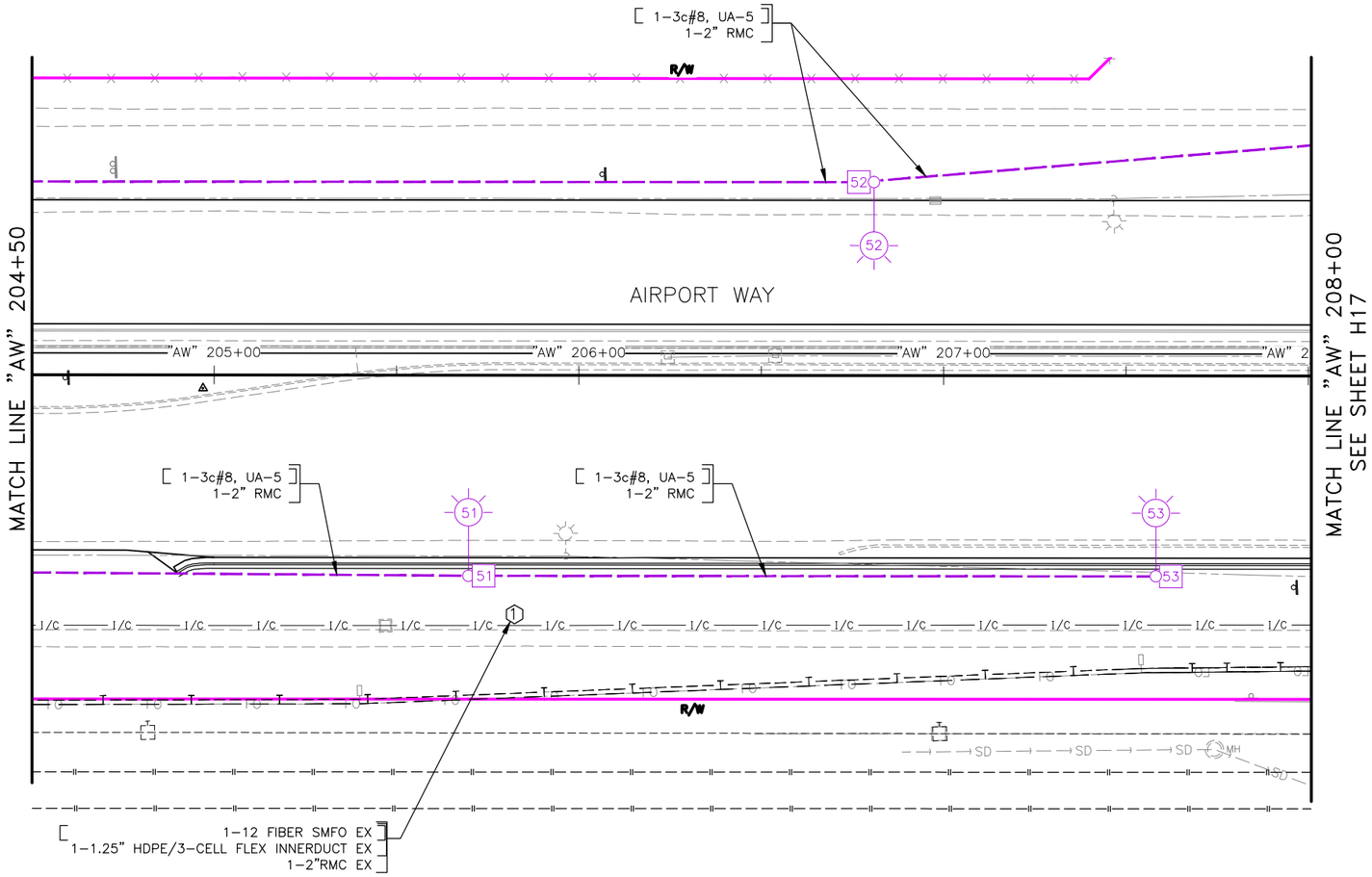
ILLUMINATION AND INTERCONNECT PLANS

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H15-H21_ILLUM&INTERC.DWG PLOTTED: Feb 24, 2020 - 11:34:28 AM (Brian Lewis) KE#: 00245

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H20	H58



INTERCONNECT NOTE:

(1) PRESERVE AND PROTECT EXISTING CONDUIT AND FIBER OPTIC CABLE.

ILLUMINATION AND INTERCONNECT PLANS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
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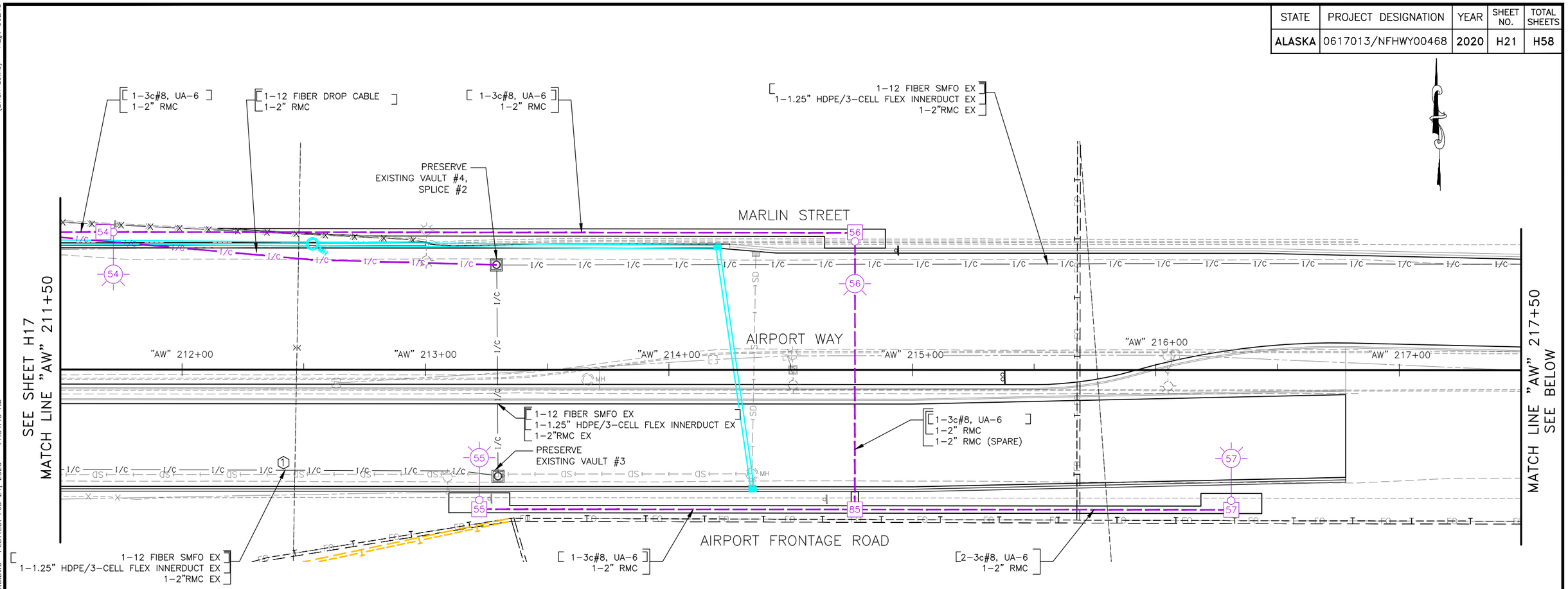
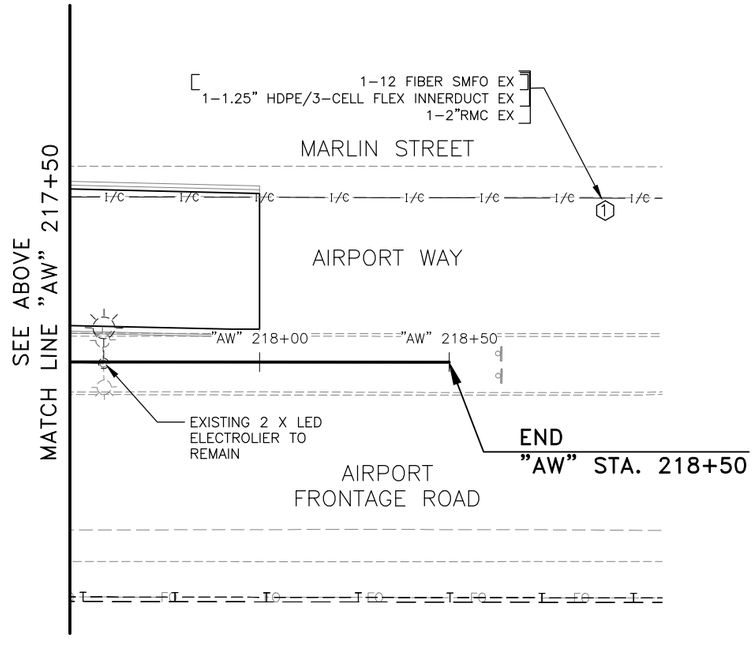
2/24/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H21	H58





INTERCONNECT NOTE:

(1) PRESERVE AND PROTECT EXISTING CONDUIT AND FIBER OPTIC CABLE.

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

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2/24/2020

ILLUMINATION AND INTERCONNECT PLANS

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H15-H21_ILLUM&INTERC.DWG PLOTTED: Feb 24, 2020 - 11:34:40 AM (Brian Lewis) KE#: 00245

COBRAHEAD ELECTROLIER SUMMARY

LUMINAIRE No.	ALIGN.	STATION	OFFSET	POLE TYPE	BASE TYPE	LUMINAIRE			CIRCUIT	MOUNT HEIGHT	MAST ARM LENGTH	REMARKS
						TYPE	VOLTAGE	WATTAGE				
31	"01"	52+58.4	49.8 R	STP	CIDH	A	480V	240W	UA–8	40'	22'	
32	"01"	53+63.0	49.8 R	STP	CIDH	A	480V	240W	UA–8	40'	22'	
33	"01"	54+49.0	53.2 R	STP	CIDH	A	480V	240W	UA–8	40'	22'	ORIENT MAST ARM 55° FROM PERPENDICULAR TO CENTERLINE
34	"01"	55+26.0	92.8 L	STP	CIDH	A	480V	240W	UA–8	30'	22'	
35	"01"	56+20.6	74.3 L	STP	CIDH	B	480V	200W	UA–8	30'	12'	ORIENT MAST ARM PARALLEL W/ CROSSWALK
36	"01"	56+54.8	60.0 R	STP	CIDH	B	480V	200W	UA–8	40'	22'	
37	"01"	59+12.8	95.3 R	STP	CIDH	B	480V	200W	UA–6	40'	12'	ORIENT MAST ARM PARALLEL W/ CROSSWALK
39	"01"	60+56.7	48.0 R	STP	CIDH	A	480V	240W	UA–7	40'	22'	
43	"01"	63+85.1	45.0 R	STP	CIDH	A	480V	240W	UA–7	40'	22'	
44	"01"	65+04.0	43.8 R	STP	CIDH	A	480V	240W	UA–7	40'	22'	
45	"01"	66+29.7	43.0 R	STP	CIDH	A	480V	240W	UA–7	40'	22'	
46	"01"	67+55.7	43.0 R	STP	CIDH	A	480V	240W	UA–7	40'	22'	
47	"01"	68+84.0	42.5 R	STP	CIDH	A	480V	240W	UA–7	40'	22'	
48	"AW"	201+25.1	49.9 L	STP	CIDH	A	480V	240W	UA–5	40'	22'	
49	"AW"	202+74.0	53.0 R	STP	CIDH	A	480V	240W	UA–5	40'	22'	
50	"AW"	204+22.3	53.0 L	STP	CIDH	A	480V	240W	UA–5	40'	22'	
51	"AW"	205+69.8	55.0 R	STP	CIDH	A	480V	240W	UA–5	40'	22'	
52	"AW"	206+80.9	53.0 L	STP	CIDH	B	480V	200W	UA–5	40'	22'	
53	"AW"	207+58.2	55.0 R	STP	CIDH	B	480V	200W	UA–5	40'	22'	
54	"AW"	211+71.8	56.5 L	STP	CIDH	A	480V	240W	UA–6	40'	22'	
55	"AW"	213+22.2*	53.6 R*	STP	JBF	A	480V	240W	UA–6	37.5'	22'	SEE DETAIL ON SHEET H52 FOR MORE INFORMATION REGARDING MOUNTING HEIGHT
56	"AW"	214+76.4*	52.8 L*	STP	JBF	A	480V	240W	UA–6	37.5'	22'	SEE DETAIL ON SHEET H52 FOR MORE INFORMATION REGARDING MOUNTING HEIGHT
57	"AW"	216+31.0*	53.7 R*	STP	JBF	A	480V	240W	UA–6	37.5'	22'	SEE DETAIL ON SHEET H52 FOR MORE INFORMATION REGARDING MOUNTING HEIGHT

*SEE NOTE 12

ELECTROLIER SUMMARY NOTES:

1. LUMINAIRES FOR CONTINUOUS STREET LIGHTING SHALL BE SUITABLE FOR 480V SUPPLY, AND COMPLY WITH SPECIAL PROVISIONS OF SECTION 740–2.18. LUMINAIRES SHALL PROVIDE THE AVERAGE INITIAL LUMINANCE, ILLUMINANCE, AND UNIFORMITIES SPECIFIED IN THE PERFORMANCE CRITERIA SCHEDULES. PROVIDE LIGHTING CALCULATIONS USING THE MANUFACTURER'S CURRENT PUBLISHED PHOTOMETRIC DATA IN ACCORDANCE WITH SPECIAL PROVISIONS OF SECTION 740–2.18 FOR LED ROADWAY LUMINAIRES.
2. PRIOR TO INSTALLATION, CONTRACTOR SHALL REQUEST LOCATES FOR EXISTING UNDERGROUND UTILITIES, AND RECEIVE WRITTEN CONFIRMATION THAT ALL FACILITIES HAVE BEEN IDENTIFIED.
3. POLE LOCATIONS SHALL BE STAKED AND APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ADJUST POLE LOCATIONS AS DIRECTED BY THE ENGINEER. MINOR RELOCATIONS OF FOUNDATIONS, CONDUIT, AND JUNCTION BOXES SHALL BE CONSIDERED SUBSIDIARY TO THE SECTION 660(3) PAY ITEM.
4. JUNCTION BOXES AND CONDUIT RUNS SHOWN IN PLANS FOR THE LIGHTING SYSTEM ARE CONSIDERED SUBSIDIARY TO THE 660(3) HIGHWAY LIGHTING SYSTEM PAY ITEM.
5. UNLESS NOTED OTHERWISE, DESIGN MOUNTING HEIGHT AS SCHEDULED SHALL BE MEASURED FROM THE FINISHED ROAD SURFACE TO THE LUMINAIRE.
6. PROVIDE LIGHTING STANDARDS AND CONCRETE POLE FOUNDATIONS IN ACCORDANCE WITH DETAIL ON SHEET H48. WHERE DRIVEN PIPE PILE FOUNDATIONS ARE SCHEDULED, CONSTRUCT PER DETAIL ON SHEET H49.
7. ORIENT POLE WITH LUMINAIRE MAST ARMS PERPENDICULAR TO THE ROADWAY CENTERLINE, UNLESS A SPECIFIC ORIENTATION IS OTHERWISE NOTED.
8. ALL LUMINAIRES SHALL BE FURNISHED WITH A NEMA 7–PIN TWIST–LOCK PHOTOCELL RECEPTACLE AND WIRELESS CONTROL NODE.
9. REFER TO LIGHT POLE WIDENING DETAILS ON SHEET H47 FOR TYPICAL ELECTROLIER INSTALLATION, UNLESS OTHERWISE NOTED.
10. SEE TRAFFIC SIGNAL SHEETS FOR ADDITIONAL LUMINAIRES MOUNTED ON TRAFFIC SIGNAL POLE STRUCTURES.
11. UNLESS OTHERWISE NOTED, ALL ELECTROLIERS SHALL BE MOUNTED USING FRANGIBLE COUPLINGS.
12. ADJUST THE STATION AND OFFSET OF ELECTROLIERS MOUNTED ON JERSEY BARRIER FOUNDATION SO THE LOCATION FALLS IN BETWEEN THE CENTER OF 2 EXISTING F SHAPE BARRIERS. FINAL LOCATION SHALL BE APPROVED BY THE ENGINEER.
13. ELECTROLIER NUMBER 42 IS NOT USED AND RESERVED FOR FUTURE USE.

ABBREVIATIONS:
BOS BACK OF SIDEWALK
CIDH CAST IN DRILLED HOLE
DPP DRIVEN PIPE PILE, SEE DETAIL ON SHEET H49
JBF JERSEY BARRIER FOUNDATION, SEE DETAILS ON SHEETS H50–H51
STP STEEL TAPERED POLE

ELECTROLIER SUMMARY
1 OF 2

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA 49 TH
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
3/3/2020

OFFSET ELECTROLIER SUMMARY

LUMINAIRE No.	ALIGN.	STATION	OFFSET	POLE TYPE	BASE TYPE	LUMINAIRE			CIRCUIT	MOUNT HEIGHT	TILT (DEGREES)	REMARKS
						TYPE	VOLTAGE	WATTAGE				
38	"01"	59+74.2	87.1 L	STP	CIDH	C	480V	215W	UA–7	40'	20°	PROVIDE 5' MIN SEPARATION FROM EDGE OF FOUNDATION TO WATERLINE
40	"01"	60+92.3	85.5 L	STP	CIDH	C	480V	215W	UA–7	40'	20°	PROVIDE 5' MIN SEPARATION FROM EDGE OF FOUNDATION TO WATERLINE
41	"01"	62+15.0	81.2 L	STP	CIDH	C	480V	215W	UA–7	40'	20°	PROVIDE 5' MIN SEPARATION FROM EDGE OF FOUNDATION TO WATERLINE

NOTE:
SEE SHEET H24 FOR ELECTROLIER NOTES

STREET LIGHTING DESIGN CRITERIA

ROADWAY CHARACTERISTICS	
ROADWAY LIGHTING STANDARD:	IESNA RP–8–2014
CALCULATION ZONE:	ENTIRE ROADWAY
STREET CLASSIFICATION (UNIV. AVE.)	MAJOR
PEDESTRIAN AREA CLASSIFICATION:	MEDIUM (UNLESS NOTED OTHERWISE)
PAVEMENT CLASSIFICATION:	R3
TRAFFIC FLOW:	2–WAY
LANE WIDTH:	12 FT.
NO. OF LANES, LEFT / RIGHT:	2 BOTH DIRECTIONS
MEDIAN:	VARIES
UNIVERSITY AVE AND AIRPORT WAY LUMINANCE CRITERIA	
AVERAGE MAINTAINED (Lavg):	0.9 CD/SQ M
Lavg/Lmin RATIO (MAXIMUM):	<= 3.0
Lmax/Lmin RATIO (MAXIMUM):	<= 5.0
Lvmax/Lavg VEILING LUMINANCE RATIO (MAXIMUM):	<= 0.3
INTERSECTION ILLUMINANCE CRITERIA	
UNIVERSITY AVE/AIRPORT WAY, ILLUMINANCE:	Eavg >= 2.4 FC Eavg/Emin <= 3.0
PEDESTRIAN CROSSWALK ILLUMINANCE CRITERIA	
CONFLICT AREA LIMITS:	CROSSWALKS / CURB RAMPS
CROSSWALKS AT SIGNALIZED INTERSECTIONS, MEDIUM PEDESTRIAN CONFLICT:	Emin,v >= 0.2 FC METERED AT 5FT HEIGHT AND 1.64 FT SPACING IN DIRECTION OF APPROACHING TRAFFIC, CENTERED IN CROSSWALK
CROSSWALKS AT NON–SIGNALIZED, UNCONTROLLED TRAFFIC FREE–RIGHT SLIP LANES, HIGH PEDESTRIAN CONFLICT:	Emin,v >= 1.0 FC METERED AT 5FT HEIGHT AND 1.64 FT SPACING IN DIRECTION OF APPROACHING TRAFFIC, CENTERED IN CROSSWALK
LUMINAIRE DEPRECIATION	
LED – TOTAL LIGHT LOSS FACTOR (LLF):	0.85

LUMINAIRE SCHEDULE

TYPE	MANUFACTURER & MODEL NO.	LIGHT SOURCE	IES TYPE OPTICS	INITIAL LUMENS	COLOR TEMP (CCT)	DRIVER CURRENT	VOLTAGE WATTS	POWER FACTOR	MOUNTING	REMARKS
A	CREE # RSWX–A–HT 3ME–32L–40K7–UH–N	LED	TYPE III MED.	31,100	4000K	0.51 AMPS	480V 240W	>0.9	HORIZ. TENON	
B	CREE # RSWX–A–HT– 3ME–24L–40K7–UH–N	LED	TYPE III MED.	23,800	4000K	0.42 AMPS	480V 200W	>0.9	HORIZ. TENON	
C	CREE # OSQ–A–NM– 3ME–U–40K7–UH–SV–R	LED	TYPE III MED.	26,583	4000K	0.45 AMPS	480V 215W	>0.9	VERT. OSQ–B–AASV MOUNT	MOUNTING ORDERED SEPARATELY FROM LUMINAIRE
D	CREE # RSWX–A–HT 3ME–32L–40K7–UL–N	LED	TYPE III MED.	31,100	4000K	1.02 AMPS	240V 240W	>0.9	HORIZ. TENON	
E	CREE # RSWX–A–HT– 3ME–24L–40K7–UL–N	LED	TYPE III MED.	23,800	4000K	0.84 AMPS	240V 200W	>0.9	HORIZ. TENON	

REMOVE AND REPLACE LUMINAIRE

ALIGN.	STATION	OFFSET	LUMINAIRE			CIRCUIT	REMARKS
			TYPE	VOLTAGE	WATTAGE		
"01"	48+71	RT	A	480V	240W	UA–8	
"01"	49+82	RT	A	480V	240W	UA–8	
"01"	72+29	RT	A	480V	240W	UA–7	
"01"	75+24	RT	A	480V	240W	UA–7	

ELECTROLIER SUMMARY
2 OF 2

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
49 TH
IAIN S. MCPHERSON
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REGISTERED PROFESSIONAL ENGINEER
3/3/2020

LUMINAIRE JUNCTION BOX SUMMARY

JUNCTION BOX No.	ALIGN.	STATION	OFFSET	TYPE	CIRCUIT	REMARKS
31	"01"	52+62.5	R	1A	UA–8	
32	"01"	53+67.1	R	1A	UA–8	
33	"01"	54+53.8	R	II	UA–8	
34	"01"	55+22.0	L	1A	UA–8	FUTURE UA–3,4 SIG AND LTG PWR
35	"01"	56+17.1	L	II	UA–8	FUTURE UA–3,4 SIG AND LTG PWR
36	"01"	56+59.0	R	1A	UA–8	
37	"01"	59+14.5	R	II	UA–1 PWR, UA–2, UA–6 & UA–7	FUTURE AVC PWR
38	"01"	59+70.0	L	1A	UA–7	
39	"01"	60+60.8	R	1A	UA–7	FUTURE AVC PWR
40	"01"	60+88.1	L	1A	UA–7	
41	"01"	62+10.8	L	1A	UA–7	
43	"01"	63+89.3	R	1A	UA–7	FUTURE AVC PWR
44	"01"	65+08.1	R	1A	UA–7	FUTURE AVC PWR
45	"01"	66+33.9	R	1A	UA–7	FUTURE AVC PWR
46	"01"	67+59.9	R	1A	UA–7	FUTURE AVC PWR
47	"01"	68+88.1	R	1A	UA–7	FUTURE AVC PWR
48	"AW"	201+20.9	L	1A	UA–5	
49	"AW"	202+78.1	R	1A	UA–5	
50	"AW"	204+18.1	L	1A	UA–5	
51	"AW"	205+73.9	R	1A	UA–5	
52	"AW"	206+76.8	L	1A	UA–5	
53	"AW"	207+62.3	R	1A	UA–5	
54	"AW"	211+67.7	L	1A	UA–6	
55	"AW"	213+22.2	R	1A	UA–6	
56	"AW"	214+76.4	L	1A	UA–6	
57	"AW"	216+31.0	R	1A	UA–6	

LUMINAIRE JUNCTION BOX SUMMARY NOTES:

1. JUNCTION BOX NUMBER 42 IS NOT USED AND RESERVED FOR FUTURE USE.

JUNCTION BOX SUMMARY

JUNCTION BOX No.	ALIGN.	STATION	OFFSET	TYPE	CIRCUIT	REMARKS
80	"01"	54+74.4	50.2 L	II	N/A	FUTURE UA–3,4 SIG AND LTG PWR
81	"AW"	202+77.0	51.5 L	1A	UA–5	
82	"AW"	208+48.4	67.1 L	II	UA–5,8	FUTURE UA–3,4 SIG AND LTG PWR
83	"AW"	208+51.7	52.7 R	II	UA–8	FUTURE UA–3,4 SIG AND LTG PWR
84	"01"	59+30.6	78.1 R	4X	UA–2	10" X 10" X 6"; NOTE 1,2
85	"AW"	214+76.4	57.3 R	1A	UA–6	

JUNCTION BOX SUMMARY NOTES:

1. PROVIDE NEMA TYPE 4 ENCLOSURE WITH CONTINUOUS HINGED COVER WITH CLAMPS, 14 GA BODY & 16 GA COVER, WITH DIMENSIONS SHOWN AS A MINIMUM.

2. INCLUDE HEAVY–DUTY PAD–LOCK HASP ON COVER.

LUMINAIRE JUNCTION BOX SUMMARY

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H25	H58

ELECTROLIER DEMOLITION SUMMARY

ALIGN.	STATION	OFFSET	REMARKS
"01"	52+62.0	R	
"01"	53+86.7	R	
"01"	55+44.8	R	
"01"	55+49.7	L	NON-DOT; SALVAGE ELECTROLIER & REINSTALL. SEE SHEET H49
"01"	56+50.8	R	
"01"	59+18.7	R	SALVAGE (2 EA) TYPE B LUMINAIRES FOR REINSTALLATION
"01"	60+94.2	R	DUAL LUMINAIRE ELECTROLIER
"01"	62+88.3	R	
"01"	64+55.0	R	
"01"	66+58.0	R	
"01"	69+44.8	R	
"AW"	201+46.4	L	SALVAGE TYPE A LUMINAIRE FOR REINSTALLATION
"AW"	202+96.9	R	SALVAGE TYPE A LUMINAIRE FOR REINSTALLATION
"AW"	204+46.7	L	SALVAGE TYPE A LUMINAIRE FOR REINSTALLATION
"AW"	205+96.5	R	SALVAGE TYPE A LUMINAIRE FOR REINSTALLATION
"AW"	207+46.5	L	SALVAGE TYPE A LUMINAIRE FOR REINSTALLATION
"AW"	211+38.1	R	SALVAGE TYPE B LUMINAIRE FOR REINSTALLATION
"AW"	211+38.7	L	SALVAGE (2 EA) TYPE B LUMINAIRES FOR REINSTALLATION
"AW"	213+00.4	L	SALVAGE (2 EA) TYPE B LUMINAIRES FOR REINSTALLATION
"AW"	213+09.2	R	SALVAGE TYPE B LUMINAIRE FOR REINSTALLATION
"AW"	214+50.8	R	SALVAGE (2 EA) TYPE B LUMINAIRES FOR REINSTALLATION
"AW"	216+04.3	R	SALVAGE (2 EA) TYPE B LUMINAIRES FOR REINSTALLATION

SALVAGE LUMINAIRE NOTES:

1. CONTRACTOR SHALL SALVAGE 5 EA TYPE A LUMINAIRES AND 12 EA TYPE B LUMINAIRES FROM EXISTING DEMOLISHED ELECTROLIERS.
2. 4 EA TYPE A LUMINAIRES SHALL BE SALVAGED FROM DEMOLISHED SIGNAL POLES FROM AIRPORT WAY AND UNIVERSITY AVENUE INTERSECTION.
3. ANY SALVAGED FIXTURE NOT REINSTALLED SHALL BE RETURNED TO DOT MAINTENANCE. CONTACT ERIC SLAY (907) 451-5279 TO ARRANGE FOR DELIVERY.
4. UNLESS OTHERWISE NOTED REMOVE EXISTING ELECTROLIER FOUNDATIONS ALONG WITH POLES.

ELECTROLIER DEMOLITION SUMMARY

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H26	H58

FIBER-OPTIC INTERCONNECT VAULT SCHEDULE

I/C VAULT NO.	LOCATION			TYPE	REMARKS
	ALIGNMENT	STATION	OFFSET		
VAULT 1	"01"	57+24.3	60.0 RT	VAULT TYPE I	INSTALL VAULT COLLAR
VAULT 2	"01"	57+74.3	81.9 LT	VAULT TYPE II	EXISTING VAULT
VAULT 3	"AW"	213+29.8	43.8 RT	MANHOLE	EXISTING VAULT
VAULT 4	"AW"	213+29.2	43.1 LT	MANHOLE	EXISTING VAULT
VAULT 5	"01"	59+47.0	67.5 RT	MANHOLE	
VAULT 6	"01"	57+75.27	81.2 LT	VAULT TYPE I	INSTALL VAULT COLLAR

NOTES:

1. REFER TO PLANS FOR CABLE ROUTING TO/FROM CABINETS.
2. ALL ETHERNET SWITCHES, ARE SINGLE MODE, OPERATING AT 1310 nm, UNLESS OTHERWISE SPECIFIED.
3. ETHERNET SWITCHES AND TERMINAL SERVERS SHALL INCLUDE POWER ADAPTERS CONVERTING 120 VAC TO APPROPRIATE OPERATING VOLTAGES.
4. ALL SPLICE TRAYS SHALL BE CONTAINED WITHIN ONE CLOSURE PER VAULT.
5. DROP CABLES SHALL BE PRECONNECTORIZED IN THE FACTORY. CONNECTORS INSTALLED IN THE FIELD WILL NOT BE ALLOWED.
6. COMMUNICATION COMPONENTS ARE SHOWN SCHEMATICALLY. VERIFY TX-RX FIBER PORTS PRIOR TO MAKING FINAL CONNECTIONS.
7. CONNECT ETHERNET SWITCH TO EACH PATCH PANEL WITH TWO SINGLE MODE FIBER PATCH CABLES. THE CABLES SHALL BE OF SUFFICIENT LENGTH TO ALLOW FOR MOVING OF THE ETHERNET SWITCH TO ANY SHELF LOCATION IN THE CABINET ONCE THE PATCH PANEL HAS BEEN INSTALLED. LABEL EACH PATCH CABLE ACCORDING TO THE TRANSMISSION DIRECTION TABLE.
8. PROVIDE THREE (EACH) ETHERNET CABLES OF SIX FOOT LENGTH FOR EACH CABINET RECEIVING AN ETHERNET SWITCH, TO BE CONNECTED TO CABINET COMPONENTS ACCORDING TO THE SWITCH COMMUNICATIONS WIRING DIAGRAM.
9. NO SPLICES ARE PERMITTED EXCEPT WHERE SPECIFICALLY INDICATED IN THE FIBER OPTIC SPLICE DIAGRAM. SPLICE CLOSURES MUST CONFORM TO SECTION 662-3.10 OF THE SPECIFICATIONS
10. MOUNT PATCH PANEL TO CABINET WALL AND IN A LOCATION AS TO NOT INTERFERE WITH OTHER EQUIPMENT AND SUCH THAT IT IS READILY ACCESSIBLE. PROVIDE SUFFICIENT SLACK CABLE IN CABINET TO ALLOW THE PATCH CABLE TO BE RELOCATED AT ANY LOCATION IN THE CABINET.

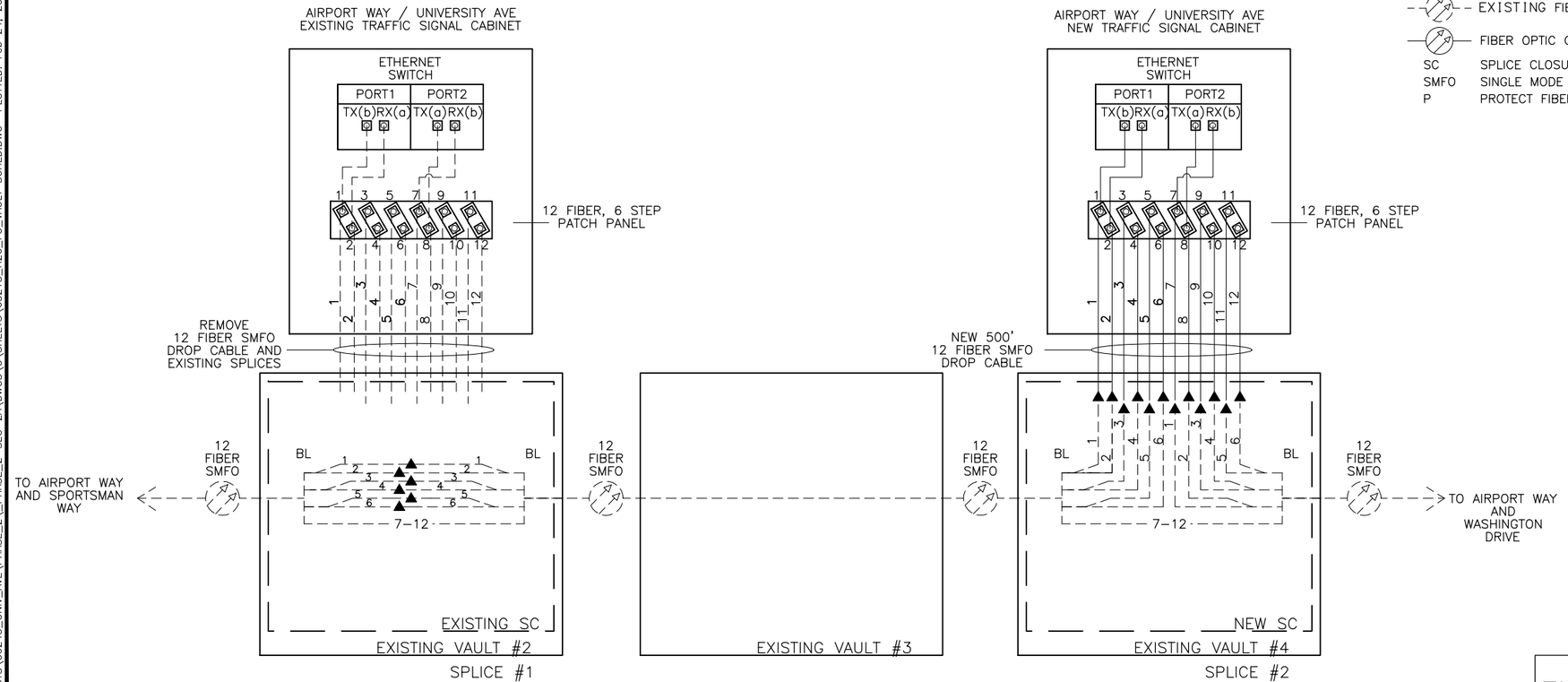
LEGEND

- ▲ FIBER SPLICE
- EXISTING FIBER SPLICE
- FIBER STRAND / BUFFER TUBE
- LC CONNECTOR
- LC PORT
- JUMPER OR PATCH CHORD
- EXISTING FIBER STRAND / BUFFER TUBE
- EXISTING FIBER OPTIC CABLE
- FIBER OPTIC CABLE
- SC SPLICE CLOSURE
- SMFO SINGLE MODE FIBER OPTIC CABLE
- P PROTECT FIBER END

BUFFER COLOR CODING

FIBER / POSITION NO.	BASE COLOR	ABBREVIATION
1	BLUE	BL
2	ORANGE	OR
3	GREEN	GR
4	BROWN	BR
5	SLATE	SL
6	WHITE	WH
7	RED	RD
8	BLACK	BK
9	YELLOW	YL
10	VIOLET	VI
11	PINK	PK
12	AQUA	AQ

TRANSMIT DIRECTION	ABBREVIATION	
	TRANSMIT	RECEIVE
SOUTH TO NORTH	TX(a)	RX(a)
NORTH TO SOUTH	TX(b)	RX(b)
WEST TO EAST	TX(a)	RX(a)
EAST TO WEST	TX(b)	RX(b)

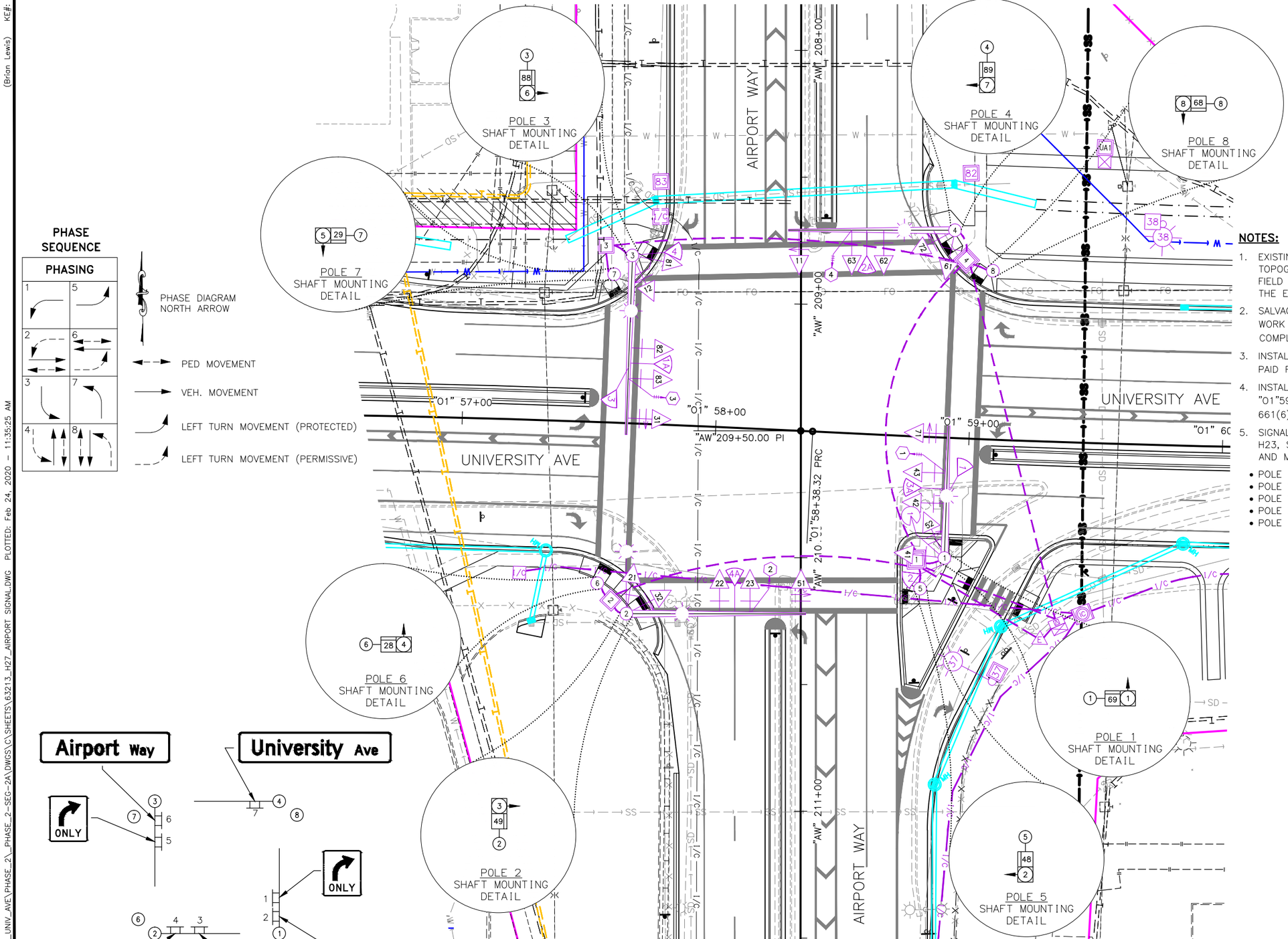


FIBER OPTIC SPLICE DIAGRAM AND VAULT SCHEDULE

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H27	H58



PHASE SEQUENCE

PHASING	
1	5
2	6
3	7
4	8

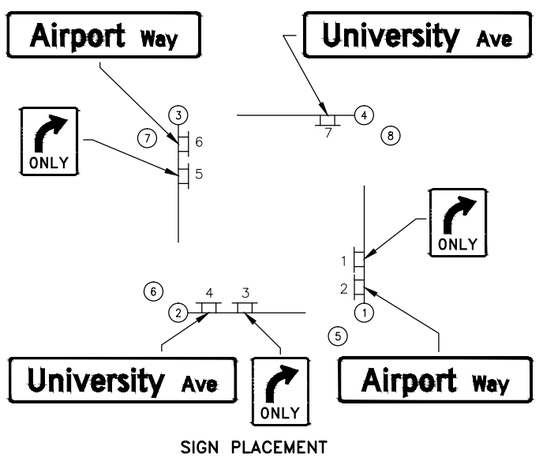
PHASE DIAGRAM NORTH ARROW

PED MOVEMENT

VEH. MOVEMENT

LEFT TURN MOVEMENT (PROTECTED)

LEFT TURN MOVEMENT (PERMISSIVE)



SIGN PLACEMENT

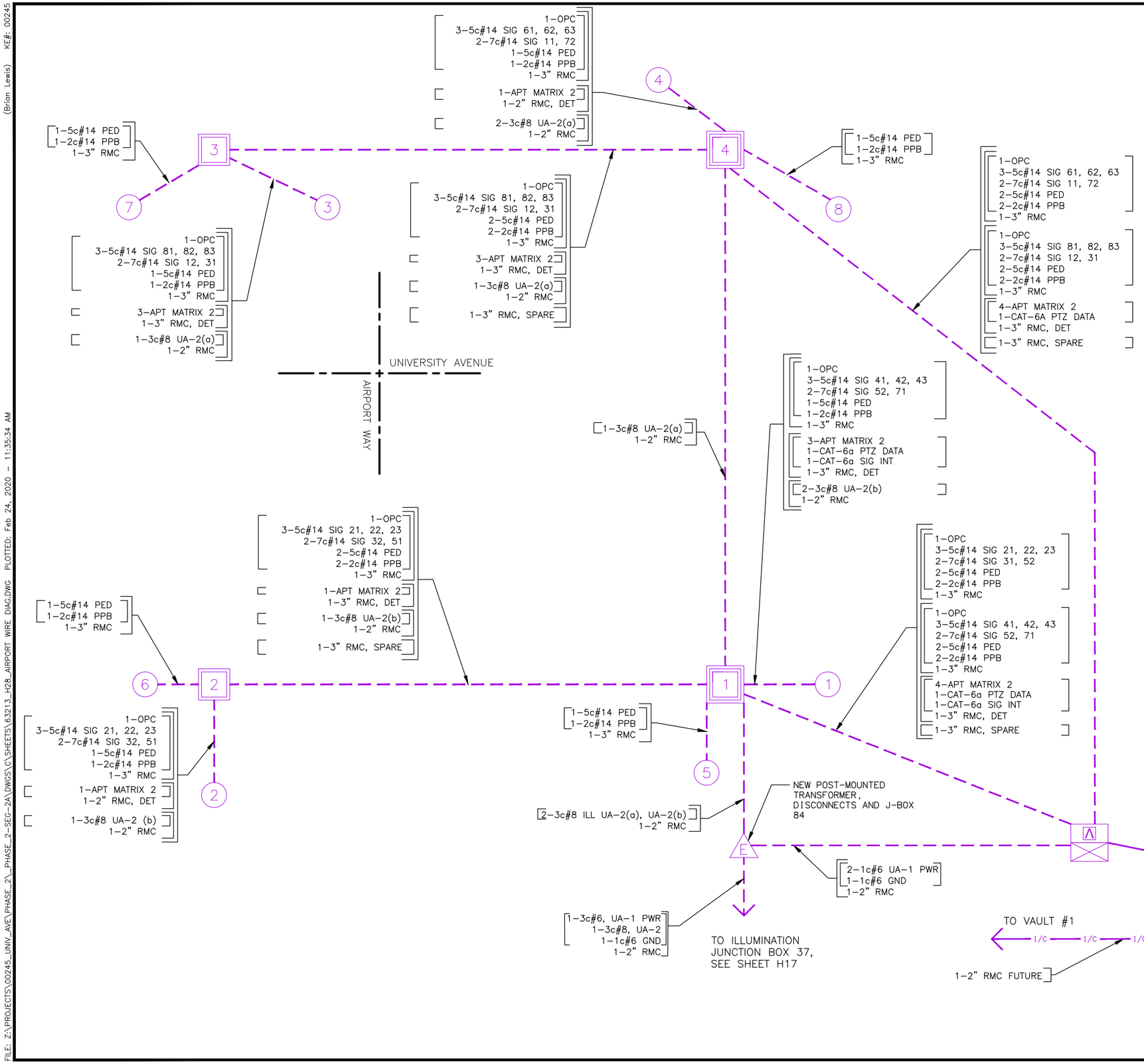
NOTES:

1. EXISTING SIGNAL LINE WORK IS FROM A COMBINATION OF DESIGN TOPOGRAPHIC SURVEY, AS-BUILTS AND SITE VISITS. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE MAKING MODIFICATIONS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
2. SALVAGE EXISTING SIGNAL EQUIPMENT PER THE SPECIFICATIONS. THIS WORK SHALL BE PAID FOR UNDER 660(1) TRAFFIC SIGNAL SYSTEM COMPLETE, UNIVERSITY/AIRPORT.
3. INSTALLATION OF NEW SIGNS ON TRAFFIC SIGNAL STRUCTURES WILL BE PAID FOR UNDER PAY ITEM 615(1).
4. INSTALL NEW SIGNAL CONTROLLER TRANSFORMER AND DISCONNECT AT STA: "01"59+30.6 OFF: 78.1RT. PAYMENT SHALL BE MADE UNDER PAY ITEM 661(6) TRANSFORMERS, 5KVA. SEE INSTALLATION DETAIL ON SHEET H33.
5. SIGNAL POLE LUMINAIRES SHALL BE PER LUMINAIRE SCHEDULE ON SHEET H23, SEE BELOW FOR TYPE. SEE SHEET H29 FOR REQUIRED MAST ARMS AND MOUNTING HEIGHTS. ADJUST LUMINAIRES FOR OUTPUT AS FOLLOWS:
   - POLE 1: TYPE E SET TO 100%
   - POLE 2 LUMINAIRE 1: TYPE E SET TO 100%
   - POLE 2 LUMINAIRE 2: TYPE E SET TO 90%
   - POLE 3: TYPE E SET TO 80%
   - POLE 4: TYPE D SET TO 100%

AIRPORT WAY SIGNAL PLAN

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020



STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H28	H58

WIRING DIAGRAM CODING LEGEND

OPC = OPTICOM CABLE
LL = LOOP LEAD-IN
INT = INTERCONNECT CABLE
PWR = POWER CONDUCTORS FOR SIGNAL CONTROLLER
T = TRANSFORMER
PTZ = PAN, TILT, ZOOM CAMERA
GND = GROUND
ILL = ILLUMINATION
RMC = RIGID METAL CONDUIT
PVC = POLYVINYLCHLORIDE CONDUIT
HDPE = HIGH DENSITY POLYETHALENE
PPB = PEDESTRIAN PUSH-BUTTON
SIG# = SIGNAL HEAD NUMBER
PED = PEDESTRIAN SIGNAL
DET = DETECTION CONDUIT
F = FUTURE USE
VDET = VIDEO DETECTION
EX = EXISTING
AAWF = ACTIVE ADVANCED WARNING FLASHER

5c#14 TRAFFIC SIGNALS
7c#14 PROTECTED-PERMITTED SIGNALS
5c#14 PEDESTRIAN SIGNALS
2c#14 PEDESTRIAN PUSH-BUTTON
3pr#18, 6pr#18, 9pr#18, 15pr#18 } LOOP LEAD-IN CABLE & VDET
3c#8 ILLUMINATION
3c#6 SIGNAL POWER
1c#8 BARE COPPER GROUND
18pr#19 PE-39 INTERCONNECT CABLE
1c#6 BARE COPPER GROUND
APT MATRIX 2 RDET HOME RUN CABLE
CAT-6a PTZ DATA
SMFO SINGLE MODE FIBER OPTIC

NOTES:

1. INSTALL 1-1c#8 BARE COPPER GROUND CONDUCTOR IN ALL CONDUITS UNLESS ANOTHER GROUND CONDUCTOR IS SPECIFIED.
2. SEE SHEET H26 FOR INTERCONNECT SPLICE DETAIL.
3. POST MOUNTED 480/120V STEP-DOWN TRANSFORMER WITH PRIMARY AND SECONDARY DISCONNECTS. SEE SHEET H34 FOR SIGNAL CONTROLLER XFMR AND DISCONNECT DETAIL.
4. SIGNAL POWER AND INTERSECTION CONDUIT AND WIRING TO AIRPORT WAY SHALL BE PAID FOR UNDER 660(1B) TRAFFIC SIGNAL SYSTEM COMPLETE, UNIVERSITY/AIRPORT.

WIRING LEGEND:

- 1/c — INDICATES NEW INTERCONNECT CONDUIT RUN
- 1/c — INDICATES EXISTING INTERCONNECT CONDUIT RUN
- INDICATES EXISTING CONDUIT RUN
- INDICATES NEW RIGID METAL CONDUIT RUN(S)
- INDICATES THE CONNECTION BETWEEN EXISTING AND NEW CONDUIT

AIRPORT WAY WIRING DIAGRAM

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H28_AIRPORT WIRE DIAG.DWG PLOTTED: Feb 24, 2020 - 11:35:34 AM (Brian Lewis) KE#: 00245

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H29	H58

POLE–POST DESIGN LOADING SCHEDULE

POLE NO.	CORNER	ILLUMINATION # ARM L. (FT.)	SIGNAL ARM L (FT.)		A	B	C	D	E	F	G	REMARKS
1	NE	12'	55'	SIG. OR SIGN	SIGNAL	SIGNAL	RADAR	RADAR	SIGNAL	SIGN	SIGN	LUMINAIRE ARM @ 0° MOUNTING HEIGHT @ 40'
				LOC. OFFSET	49.0	33.5	27.3	24.5	21.5	11.4	5.3	
				LxW OR S.F.	14.10	11.50	1.00	1.00	11.50	7.50	17.00	
2	SE	LUMINAIRE 1 – 22' LUMINAIRE 2 – 22'	70'	SIG. OR SIGN	SIGNAL	SIGNAL	RADAR	SIGNAL	SIGN	SIGN		LUMINAIRE ARM 1 @ 0° MOUNTING HEIGHT @ 40' LUMINAIRE ARM 2 @ 270° MOUNTING HEIGHT @ 40'
				LOC. OFFSET	68.7	48.7	42.8	36.7	24.7	10.0		
				LxW OR S.F.	14.10	11.50	1.00	11.50	7.50	20.00		
3	SW	22'	70'	SIG. OR SIGN	SIGNAL	SIGNAL	RADAR	RADAR	SIGNAL	SIGN	SIGN	LUMINAIRE ARM @ 0° MOUNTING HEIGHT @ 30'
				LOC. OFFSET	64.2	48.4	44.2	42.4	36.4	24.4	9.0	
				LxW OR S.F.	14.10	11.50	1.00	1.00	11.50	7.50	17.00	
4	NW	22'	65'	SIG. OR SIGN	SIGNAL	SIGNAL	RADAR	SIGNAL	SIGN			LUMINAIRE ARM @ 0°, MOUNTING HEIGHT @ 40'
				LOC. OFFSET	61.5	40.7	34.8	28.1	9.2			
				LxW OR S.F.	14.10	11.50	1.00	11.50	20.00			

POLE–POST DESIGN LOADING SCHEDULE NOTES:

1. ORIENT SIGNAL MAST ARM(S) 90° TO THE ℄ OF THE ROADWAY UNLESS NOTED OTHERWISE.
2. LUMINAIRE MAST ARM MOUNTING HEIGHT IS FROM ROADWAY FINISHED GRADE TO BOTTOM OF FIXTURE.
3. SEE SIGNAL PLAN ON SHEET H27 FOR LUMINAIRE TYPE AND ADJUSTABLE OUTPUT SETTINGS.

SIGNAL SIGN SCHEDULE

SIGN NO.	LOCATION		ASDS CODE	LEGEND	SIZE HxV (INCHES)	AREA (SQ FT)	BRACING/FRAMING		REMARKS
	POLE NO.	OFFSET					BRACED	FRAMED	
1	1	11.4	R3–5R	RIGHT ONLY	30x36	7.5		X	
2	1	5.3	D3–1B	AIRPORT WAY	102x24	17.0		X	SEE NOTE 2
3	2	24.7	R3–5R	RIGHT ONLY	30x36	7.5		X	
4	2	10.0	D3–1B	UNIVERSITY AVE	120x24	20.0		X	SEE NOTE 2
5	3	24.5	R3–5R	RIGHT ONLY	30x36	7.5		X	
6	3	9.0	D3–1B	AIRPORT WAY	102x24	17.0		X	SEE NOTE 2
7	4	9.2	D3–1B	UNIVERSITY AVE	120x24	20.0		X	SEE NOTE 2
					SUBTOTAL SIGNAL SIGNS	96.5			

SIGNAL SIGN SCHEDULE NOTES:

1. LOCATION OFFSETS ARE FROM CENTER OF SIGN TO ℄ OF SIGNAL POLE.
2. FOR SIGN STREET NAMES, USE 12" INITIAL UPPERCASE LETTERING AND A MINIMUM OF 9" LOWERCASE LETTERING. FOR STREET TYPES, USE 8" INITIAL UPPERCASE LETTERING AND A MINIMUM OF 5" LOWERCASE LETTERING.

SIGNAL HEAD SCHEDULE

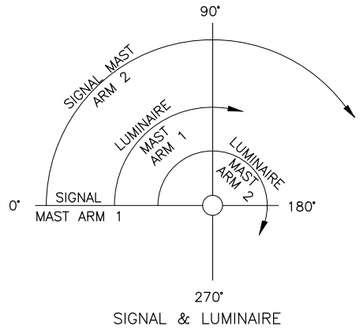
POLE/POST NO.	FACE NO.	INDICATIONS										MOUNTING				REMARKS
		12" BALL			12" ARROW				8" BALL			MAST ARM		SIDE MTNG. TYPE	TOP OF POST	
		R	Y	G	R	Y	FYA	G	R	Y	G	LOC. OFFSET	ELEV. PLUMB			
1	41	X	X	X										D		
	52				L	L	L	L						D		
	42	X	X	X								21.5	X			
	43	X	X	X								33.5	X			
	71				L	L	L	L				49.0	X			
2	21	X	X	X										D		
	32				L	L	L	L						D		
	22	X	X	X								36.7	X			
	23	X	X	X								48.7	X			
	51				L	L	L	L				68.7	X			
3	81	X	X	X										D		
	12				L	L	L	L						D		
	82	X	X	X								36.4	X			
	83	X	X	X								48.4	X			
	31				L	L	L	L				64.2	X			
4	61	X	X	X										D		
	72				L	L	L	L						D		
	62	X	X	X								28.1	X			
	63	X	X	X								40.7	X			
	11				L	L	L	L				61.5	X			

SIGNAL HEAD SCHEDULE NOTES:

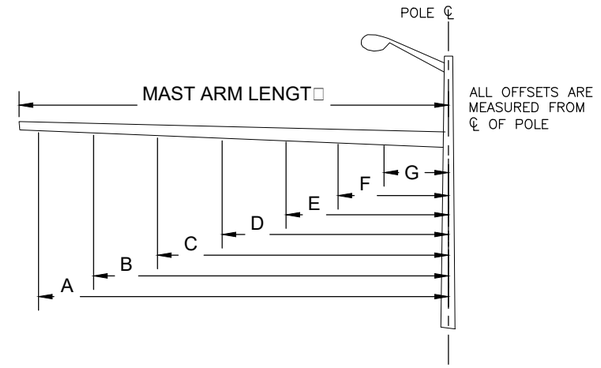
1. LOCATION OFFSETS ARE FROM CENTER OF SIGNAL HEAD TO ℄ OF SIGNAL POLE.
2. FYA = FLASHING YELLOW ARROW.

PED SIGNAL HEAD SCHEDULE

POLE/POST NO.	FACE NO.	MOUNTING TYPE	REMARKS
1	69	P	
2	49	P	
3	88	P	
4	89	P	
5	48	P	
6	28	P	
7	29	P	
8	68	P	

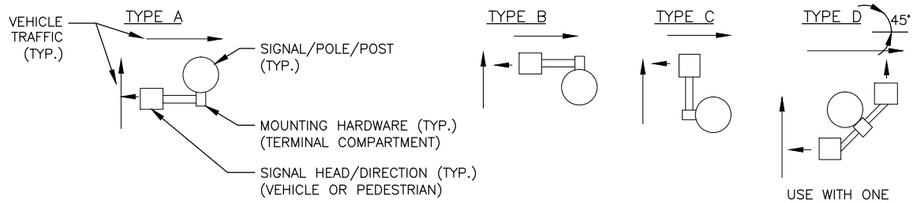


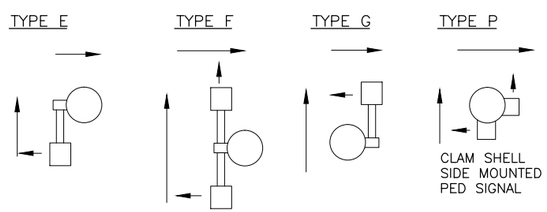
SIGNAL & LUMINAIRE ARM ORIENTATION

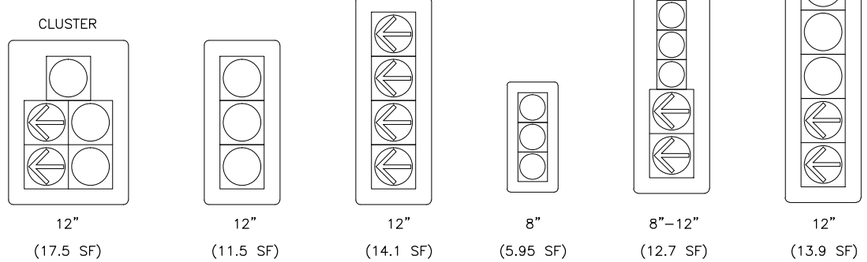


POLE/POST SIGNAL HEAD SIDE MOUNTING TYPES

NTS







SIGNAL HEAD CONFIGURATIONS

(AREAS ARE FOR WIND LOAD CALCULATIONS)

(ARROWS AND BALL INDICATIONS ARE INTERCHANGEABLE)

AIRPORT WAY SCHEDULES

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
9 TH
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H30	H58

BASE & JUNCTION BOX SCHEDULE

LOCATION		DESCRIPTION			BASE TYPE*			JUNCTION BOX TYPE				REMARKS
STATION	OFFSET	POLE NO.	JUNCTION BOX NO.	CONTROLLER	CIDH	P	A	IA	II	III	IV	
"01" 58+92.3	47.4' RT	1			X							
"01" 57+67.65	75.1' RT	2			X							SE NOTE 3
"01" 57+64.7	66.1' LT	3			X							
"01" 58+91.0	81.9' LT	4			X							
"01" 58+83.3	59.9' RT	5					X					SEE NOTE 2
"01" 57+55.7	63.5' RT	6					X					SEE NOTES 2 & 3
"01" 57+57.8	58.4' LT	7					X					SEE NOTE 2
"01" 59+05.8	66.5' LT	8					X					SEE NOTE 2
"01" 58+81.3	48.5' RT		1							X		
"01" 57+62.4	68.7' RT		2						X			
"01" 57+50.4	64.6' LT		3						X			
"01" 58+95.6	69.9' LT		4							X		
"01" 59+35.6	70.6' RT			X								

BASE & JUNCTION BOX NOTES:

1. INSTALL ON PUSH BUTTON POST BASE TYPE B, SEE STD. DWG, T-31.00.
2. USE ALTERNATE "PELCO" POST BASE, SEE STD. DWG, T-31.00.
3. INSTALL JUNCTION BOX/FOUNDATION AT BACK OF SIDEWALK.

*P = PRECAST BASE (FOUNDATION)
A = TYPE "A" SIGNAL BASE POST FOUNDATION. SEE STD. DWG, T-31.00
CIDH = CAST IN DRILLED HOLE

PEDESTRIAN DETECTION SCHEDULE

POLE	PUSH BUTTON	PHASE	REMARKS
1	1	6	SEE NOTE 1
5	2	4	SEE NOTE 2
2	3	4	SEE NOTE 1
6	4	2	SEE NOTE 2
7	5	2	SEE NOTE 1
3	6	8	SEE NOTE 2
4	7	8	SEE NOTE 1
8	8	6	SEE NOTE 2

PEDESTRIAN DETECTION NOTES:

1. INSTALL AN R10-3eL SIGN ABOVE PEDESTRIAN PUSH BUTTON. SIGN SHALL NOT BE MEASURED FOR PAYMENT AND IS SUBSIDIARY TO TRAFFIC SIGNAL PAY ITEMS.
2. INSTALL AN R10-3eR SIGN ABOVE PEDESTRIAN PUSH BUTTON. SIGN SHALL NOT BE MEASURED FOR PAYMENT AND IS SUBSIDIARY TO TRAFFIC SIGNAL PAY ITEMS.

RADAR DETECTION EQUIPMENT

QTY	DESCRIPTION
4	SMARTSENSOR MATRIX (WX-SS-225)
8	PELCO MOUNT (WX-SS-611)
8	SMARTSENSOR 6-CONDUCTOR CABLE (WX-SS-704-XXX)
4	SMARTSENSOR ADVANCED EXTENDED RANGE (WX-SS-200E)

NEMA CLOSURE EQUIPMENT

QTY	DESCRIPTION
0	CLICK 710, SMARTSENSOR 6-CONDUCTOR CABLE JUNCTION BOX (WX-SS-710)

CABINET EQUIPMENT

QTY	DESCRIPTION
0	CLICK! 112 RACK CARDS (WX-CLK-112)
0	CLICK! 114 RACK CARDS (WX-CLK-114)
0	INTERSECTION PREASSEMBLED BACKPLATE - AC, FOUR SENSOR, (WX-SS-B01-0005)
	1 CLICK! 204 4 AMP POWER SUPPLY
	5 CLICK! 210-02 2 AMP CIRCUIT BREAKERS (WX-CLK-210)
	2 CLICK! 222, SMARTSENSOR SURGE PROTECTOR (WX-CLK-222)
	1 CLICK! 230, AC SURGE PROTECTOR (WX-CLK-230)
	1 T-BUS 5-SCREW TERMINAL BLOCKS (LEFT END)
	5 T-BUS CONNECTORS (POWER AND COMMUNICATION)
	1 T-BUS CONNECTOR (POWER ONLY)
	5 END BRACKETS WITH LABELS
	1 END BRACKET WITHOUT LABEL
	4 TERMINAL BLOCKS FOR AC LINE INPUT: SPRING CAGE TO PLUG SPRING
	CAGE 10 AWG (2 GROUNDED)
	28 TERMINAL BLOCKS FOR CABLE TERMINATION: INSULATION DISPLACEMENT
	TO PLUG INSULATION DISPLACEMENT (4 GROUNDED)
	MOUNTING PLATFORM: TRAFFIC CABINET BACKPLATE
	1 8-FT POWER CORD
	1 8-FT 14 AWG GROUND CABLE
	1 5-FT BLACK RJ-11 PATCH CABLE
	4 5-FT WHITE RJ-11 PATCH CABLES
2	CLICK! 650, CABINET INTERFACE (WX-CLK-650)

OPTICOM DETECTOR SCHEDULE

LOCATION	DET. NO.	PHASE CALL	FACING DIR.	PREEMPTOR PRIORITY	REMARKS
ON TOP OF SIGNAL HEAD 43	1	4, 7	SOUTH		
ON TOP OF SIGNAL HEAD 23	2	2, 5	WEST		
ON TOP OF SIGNAL HEAD 83	3	3, 8	NORTH		
ON TOP OF SIGNAL HEAD 63	4	1, 6	EAST		

OPTICOM DETECTOR NUMBER

COMMUNICATION EQUIPMENT

QTY	DESCRIPTION
1	RUGGEDCOM RSG920P ETHERNET SWITCH OR APPROVED EQUAL
1	12-FIBER ITS DROP CABLE
2	LC SMF PATCH CABLE
3	CAT-6A CABLE (6')

ADDITIONAL EQUIPMENT

QTY	DESCRIPTION
1	SMARTSENSOR MANAGER ADVANCE SOFTWARE (WX-550-0001)
1	SMARTSENSOR MANAGER MATRIX SOFTWARE (WX-550-0004)

RADAR DETECTION SCHEDULE

DET. NO.	PHASE CALL	TYPE	FACING DIR.	POLE NO.	LOCATION	RADAR TYPE
1	3&8	STOP BAR	NORTH	1	SIGNAL MAST ARM	SMARTSENSOR MATRIX
2	1&6	STOP BAR	SOUTHEAST	1	SIGNAL SHAFT	SMARTSENSOR MATRIX
3	4&7	STOP BAR	SOUTHEAST	3	SIGNAL MAST ARM	SMARTSENSOR MATRIX
4	2&5	STOP BAR	WEST	3	SIGNAL SHAFT	SMARTSENSOR MATRIX
1A	8	ADVANCE	NORTH	3	SIGNAL MAST ARM	SMARTSENSOR ADVANCE
2A	6	ADVANCE	EAST	4	SIGNAL MAST ARM	SMARTSENSOR ADVANCE
3A	4	ADVANCE	SOUTH	1	SIGNAL MAST ARM	SMARTSENSOR ADVANCE
4A	5	ADVANCE	WEST	2	SIGNAL MAST ARM	SMARTSENSOR ADVANCE

RADAR DETECTOR NUMBER

FLASH PROGRAM COLOR

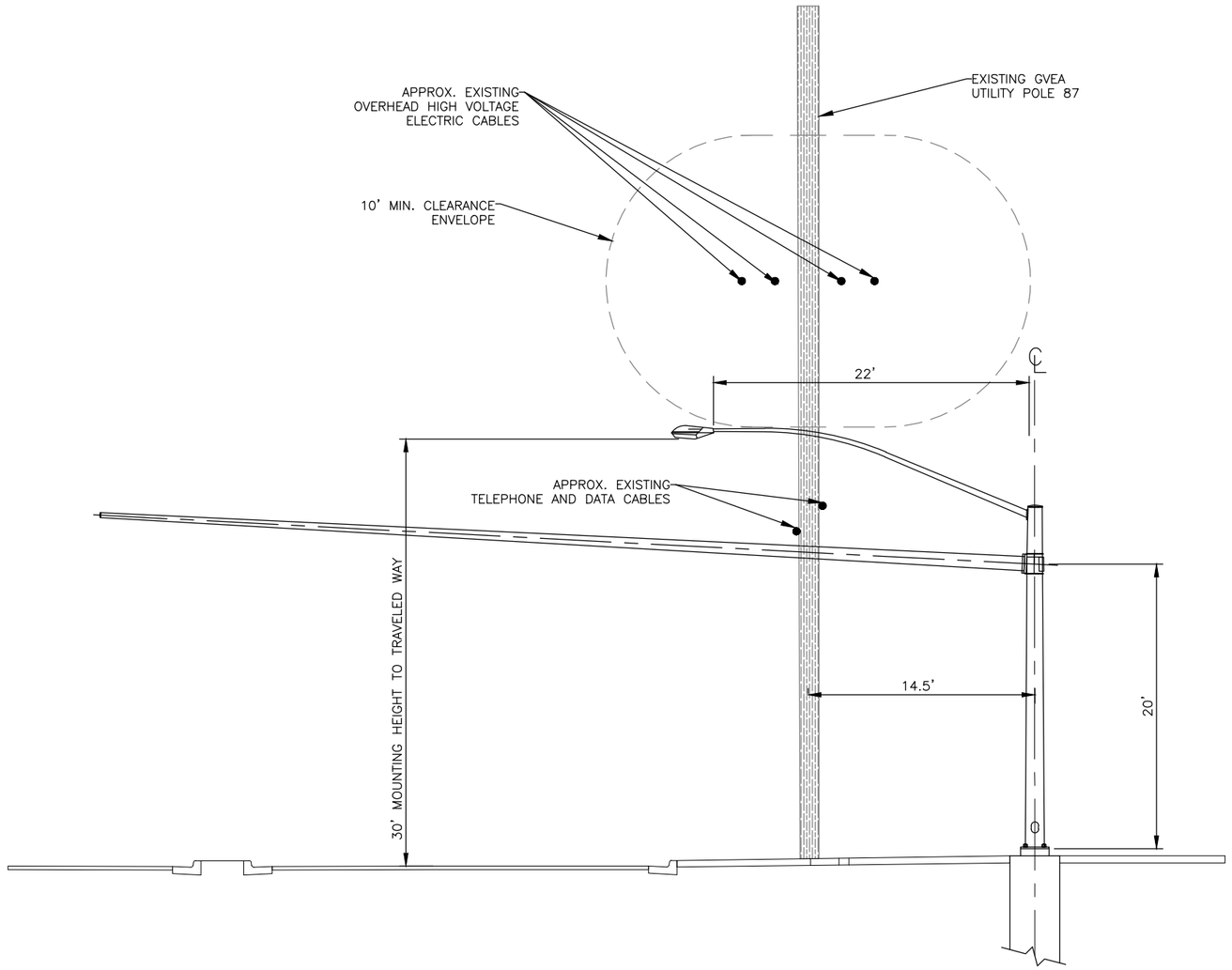
PHASE	1	2	3	4	5	6	7	8
COLOR	R	R	R	R	R	R	R	R

AIRPORT WAY SCHEDULES

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H31	H58



SIGNAL POLE 3 – LOOKING SOUTH
NTS

NOTES:

1. SIGNAL HEADS, SIGNS, PEDESTRIAN HEADS, PUSH BUTTONS, RADAR DETECTORS, AND OPTICOM DETECTORS NOT SHOWN. SEE OTHER SIGNAL SHEETS FOR LAYOUT. INTENTION IS TO SHOW LUMINAIRE MOUNTING HEIGHT AND ELECTRIC CLEARANCE ENVELOPE.
2. GVEA POLE MOUNTED CROSS ARMS AND POLE TOP GUY CABLES NOT SHOWN.

AIRPORT WAY POLE ELEVATIONS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
JAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H31_AIRPORT POLE ELEVS.DWG PLOTTED: Feb 7, 2020 – 4:52:08 PM (Brian Lewis) KE#: 00245

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H32	H56

LOAD CENTER "UA"

TYPE 1 LOAD CENTER, LOCATION: ALIGNMENT "U", STA. 59+50', 111' LT.
SERVICE LOCATION: ALIGNMENT "U", STA. 61+62' LT. APPROX. DISTANCE: 214'
240/480V SINGLE PHASE SERVICE, 4-JAW METER
100 AMP MAIN BREAKER, 10,000 AIC MIN.

CIRCUIT	BRANCH BREAKER	PURPOSE	CONTACTOR	LOAD
UA1	25 AMP, 2P, 480V	TRAFFIC CONTROLLER- UA/AW	N/A	8.7 AMPS
UA2	20 AMP, 1P, 240V	LIGHTING	LC-01:30 AMP	4.3 AMPS
UA3	XX AMP, 2P, 480V	FUTURE TRAFFIC CONTR.- UA/R	N/A	
UA4	XX AMP, 1P, 240V	FUTURE LIGHTING	LC-01:30 AMP	
UA5	20 AMP, 2P, 480V	LIGHTING	LC-01:30 AMP	2.8 AMPS
UA6	20 AMP, 2P, 480V	LIGHITNG	LC-01:30 AMP	2.4 AMPS
UA7	20 AMP, 2P, 480V	LIGHTING	LC-01:30 AMP	5.7 AMPS
UA8	20 AMP, 2P, 480V	LIGHTING	LC-01:30 AMP	3.8 AMPS
UA9	XX AMP, 2P, 480V	FUTURE AVC	N/A	
UA10	15 AMP, 1P, 240V	LIGHTING CONTACTOR "LC-01"	N/A	0.1 AMPS
UA11	20 AMP, 2P, 480V	SPARE	LC-01:30 AMP	
UA12	20 AMP, 2P, 480V	SPARE	LC-01:30 AMP	
TOTAL LOAD				27.8 AMPS
NEC TOTAL LOAD(125%)				34.8 AMPS
DEMAND				16.7 KVA

NOTES:

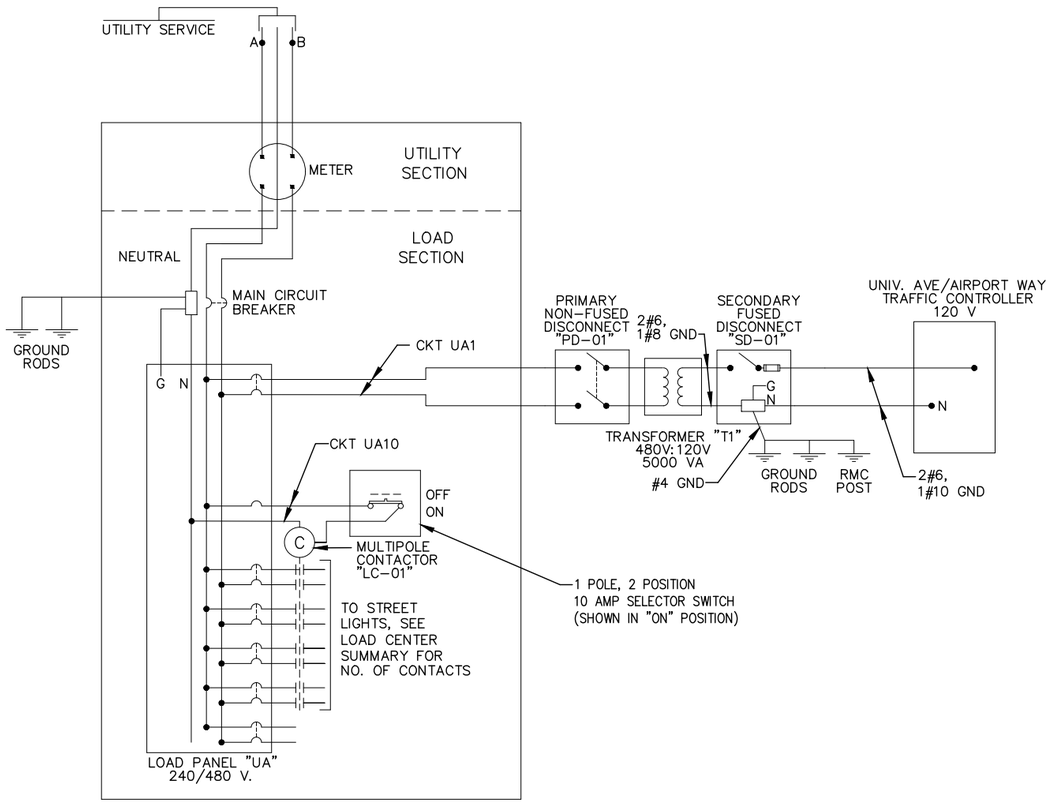
1. SERVING UTILITY IS GOLDEN VALLEY ELECTRIC ASSOIATION LOCATED IN FAIRBANKS, ALASKA.
2. COORDINATE INSTALLATION OF SERVICE TO LOAD CENTERS WITH GVEA. CONTACT GVEA FOR SERVICE REQUIREMENTS AND SPECIFICATIONS.
3. ALL SERVICE CONDUCTORS ARE TO BE COPPER, TYPE XHHW-2.
4. PROVIDE EQUIPMENT GROUNDING CONDUCTORS WITH ALL FEEDERS AND BRANCH CIRCUITS. TERMINATE EACH END OF SUITABLE LUG, BUS OR BUSHING. SIZE EQUIPMENT GROUNDING CONDUCTORS IN ACCORDANCE WITH NEC AND ADOT PROJECT SPECIFICATION SECTION 660 AND 661, UNLESS OTHERWISE INDICATED, BUT NOT SMALLER THAN NO. 8 AWG.
5. CIRCUITS UA3 AND UA4: RESERVED FOR ELECTRICAL LOADS ASSOCIATED WITH THE REMAINING UNIVERSITY AVE WIDENING PROJECT, PHASE 2 WORK.
6. CIRCUIT UA7: ADDITIONAL ELECTRICAL LOADS TO BE ADDED/REMOVED FROM CIRCUIT AS PART OF UNIVERSITY AVE WIDENING PROJECT, PHASE 1D WORK.
7. CIRCUIT UA8: ADDITIONAL ELECTRICAL LOADS TO BE ADDED TO CIRCUIT AS PART OF THE REMAINING UNIVERSITY AVE WIDENING PROJECT, PHASE 2 WORK.
8. CIRCUIT UA9: RESERVED FOR ELECTRICAL LOADS ASSOCIATED WITH UNIVERSITY AVE WIDENING PROJECT, PHASE 1D WORK.

LOAD CENTER SUMMARY

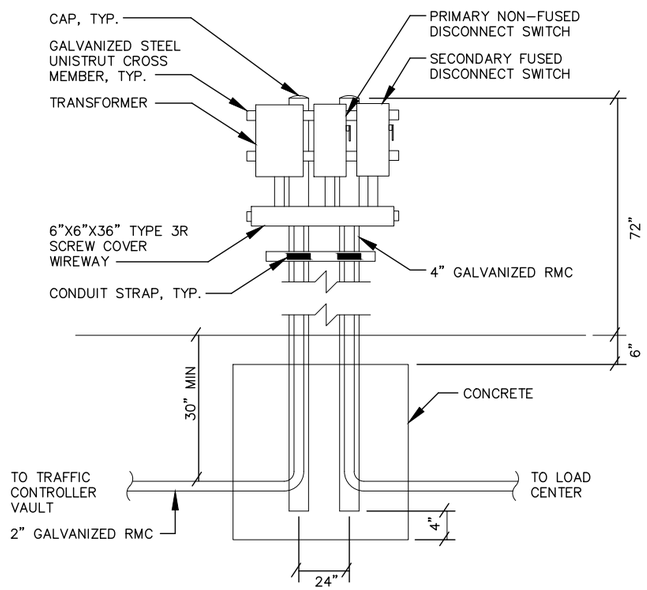
STATE OF ALASKA 49TH
Michael Gonzales-Smith
Feb 21, 2020
EE-141832
REGISTERED PROFESSIONAL ENGINEER

P:\2011\11147.04FB-UNIV_AVE-SEGMENT_2A\E\Load Center Design\E\E0034pmsh11147.04-H32 Fri, Feb/21/20 12:02pm

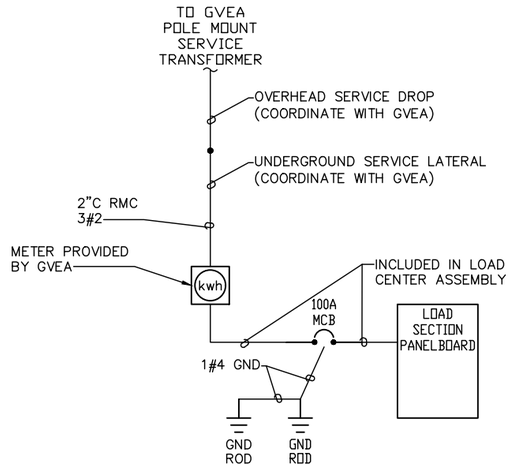
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H33	H56



LOAD CENTER "UA"
WIRING DIAGRAM AND
SELECTOR SWITCH WIRING



POST-MOUNTED TRANSFORMER AND DISCONNECT



LOAD CENTER "UA"
ONE-LINE DIAGRAM

WIRING NOTES- FOR LOAD CENTER "UA"

1. FURNISH ALL EQUIPMENT NOTED IN THE LOAD CENTER SUMMARY, PLUS TWO 20-AMP 2-POLE SPARE CIRCUIT BREAKERS, AND SPACE FOR A MINIMUM OF TWO ADDITIONAL TWO-POLE CIRCUIT BREAKERS, IN EACH LOAD PANEL. SEE SUMMARIES FOR LOAD PANEL VOLTAGES, CURRENT RATINGS, SHORT CIRCUIT INTERRUPTING RATINGS, AND THE NAME OF THE SERVING UTILITY.
2. SIZE THE LOAD CENTER CABINETS TO HOLD THE EQUIPMENT SHOWN IN THE WIRING DIAGRAM AND DETAILED IN EACH LOAD CENTER SUMMARY, ALLOWING SPACE FOR WIRING PER THE NATIONAL ELECTRICAL CODE. INSTALLING A METER BASE AND MAIN BREAKER IN A SEPARATE ENCLOSURE IS ALLOWABLE.
3. LABEL ALL CIRCUIT BREAKERS AS TO LOAD SUPPLIED. LABEL THE SELECTOR SWITCH "LIGHTING" AND ITS POSITIONS "ON-OFF".
4. STORE A SCHEMATIC DIAGRAM, A CIRCUIT DIRECTORY, AND A MATERIALS LIST THAT INCLUDES THE MANUFACTURER'S NAME AND PART/CATALOG NUMBERS, ALL LAMINATED IN PLASTIC, IN A METAL POCKET ATTACHED TO THE INSIDE OF THE LOAD CENTER. INSTALL THE POCKET ON THE LOAD CENTER DOOR, PROVIDING DRAIN HOLES TO PREVENT WATER ACCUMULATION.
5. SEE LOAD CENTER SUMMARIES AND PLANS FOR THE STATION AND OFFSET OF THE LOAD CENTER AND POWER SOURCE, AND THE APPROXIMATE DISTANCE BETWEEN THE LOAD CENTER AND THE POWER SOURCE.
6. SEE ILLUMINATION AND INTERCONNECT PLANS FOR ROUTING OF UNDERGROUND SERVICE LATERAL AND FEEDERS.
7. SEE LOAD CENTER SUMMARIES FOR FEATURES AND OTHER OVERCURRENT PROTECTIVE DEVICES NOT INDICATE ON ELECTRICAL ONE-LINE DIAGRAM.
8. PRIMARY NON-FUSED DISCONNECTS "PD-01" SHALL BE TYPE HD "HEAVY DUTY", RATED FOR 30 AMPS, 600V AND NEMA TYPE 3R ENCLOSURE.
9. SECONDARY FUSED DISCONNECT "SD-01" SHALL BE TYPE HD "HEAVY DUTY", RATED FOR 60 AMPS, 240V AND NEMA TYPE 3R ENCLOSURE. FUSE TO BE SIZED AT 55 AMPS. DISCONNECT TO ALSO INCLUDE: FACTORY INSTALLED PROVISIONS TO ALLOW DISCONNECT TO BE LOCKED IN THE "ON" POSITION, MASTER LOCK MODEL TYPE 1KA KEYED TO "2001".
10. SEE ILLUMINATION AND INTERCONNECT PLANS FOR TRANSFORMER "T1" PRIMARY SIDE CONDUCTOR SIZE.
11. SEE POST-MOUNT TRANSFORMER AND DISCONNECT DETAIL FOR ADDITIONAL INFORMATION AND CONSTRUCTION OF ASSEMBLY.

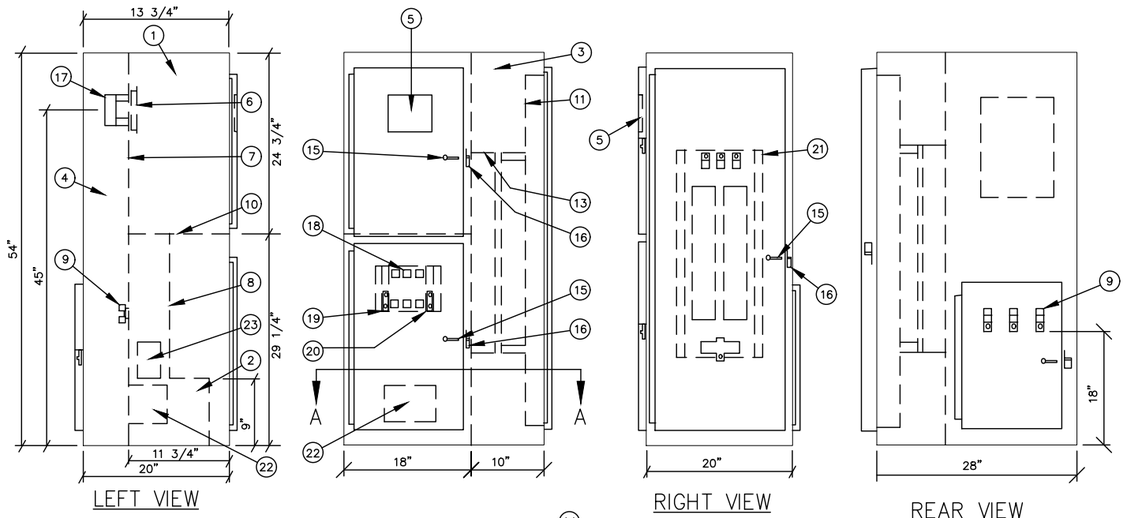
POST-MOUNTED TRANSFORMER AND DISCONNECT NOTES:

1. SEE ILLUMINATION AND INTERCONNECT PLANS FOR LOCATION OF EQUIPMENT.
2. THE DIMENSIONS OF THE CONCRETE BLOCK IS 36"x36"x24" (HxWxD).

STATE OF ALASKA
49 TH
MICHAEL GONZALES-SMITH
Feb 06, 2020
EE-141832
REGISTERED PROFESSIONAL ENGINEER

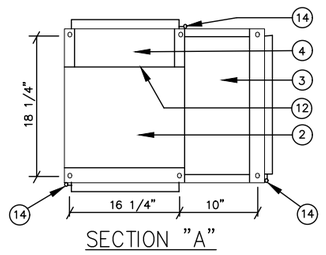
LOAD CENTER DETAILS

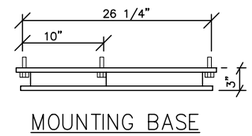
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H34	H56



EQUIPMENT LEGEND

1. METER SECTION
2. LOAD SECTION (MAIN)
3. LOAD SECTION (DISTRIBUTION)
4. SERVICE PULL SECTION
5. METER READING WINDOW
6. METER SOCKET COVER
7. TEST SECTION COVER
8. DEAD FRONT
9. UTILITY LANDING LUGS
10. METER SECTION BARRIER
11. PANEL BOARD DEADFRONT
12. EQUIPMENT CHASSIS
13. MOUNTING PAN
14. STAINLESS STEEL PIN HINGE
15. COIN LATCH
16. HASP FOR PADLOCK
17. METER SOCKET KIT ASS'Y.
18. MAIN BREAKER(S)
19. NEUTRAL BAR
20. GROUND BAR
21. PANEL BOARD INTERIOR
22. ALTERNATE CONTACTOR LOCATION
23. CABLE OPENING

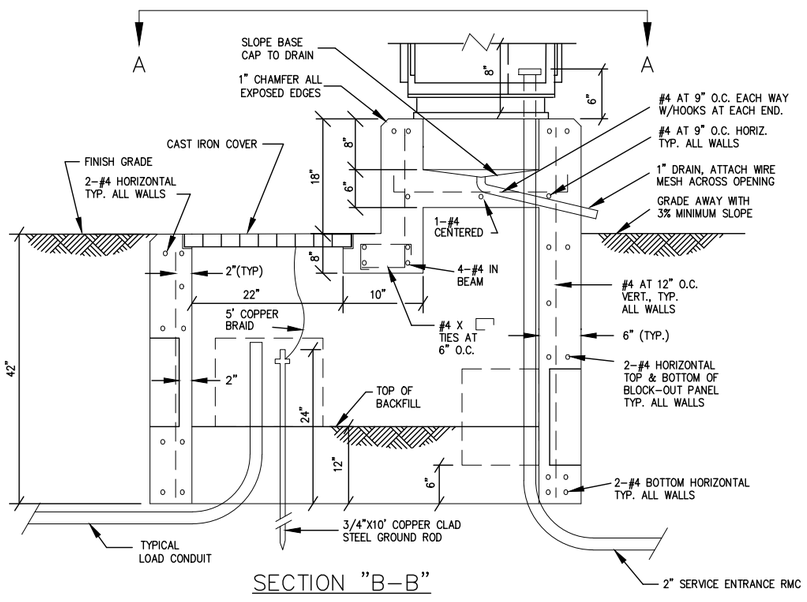


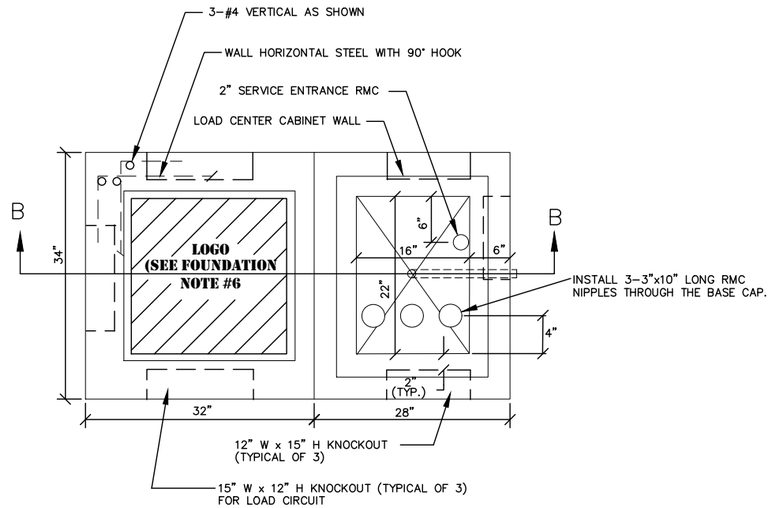


TYPE 1 LOAD CENTER CABINET SECTION / ELEVATION

FOUNDATION NOTES:

1. INSTALL THE SURFACE WITH CAST IRON COVER FLUSH WITH THE PAVEMENT, SIDEWALK, OR FINISHED GRADE. GRADE AWAY FROM THE BASE WITH A MINIMUM SLOPE OF 3%. USE A PRE-MOULDED BITUMINOUS JOINT BETWEEN THE BASE AND CONCRETE SIDEWALK OR PAVING.
2. WHEN INSTALLING THE BASE, EXCAVATE TO 60" BELOW FINISHED GRADE AND INSTALL A DRAIN CONSISTING OF 18" OF COARSE CONCRETE AGGREGATE APPROVED BY THE ENGINEER. BACKFILL AROUND THE BASE IN 6" LIFTS WITH SELECTED MATERIAL TYPE "A".
3. BACKFILL INSIDE THE FOUNDATION TO WITHIN 30" OF THE LID AFTER ALL CONDUITS ARE INSTALLED, USING COARSE AGGREGATE. TERMINATE THE ENDS OF ALL LOAD CONDUITS A MINIMUM OF 6" ABOVE THE COARSE CONCRETE AGGREGATE BACKFILL AND A MINIMUM OF 12" BELOW THE LID.
4. PROVIDE ANCHOR BOLTS OR EXPANSION ANCHORS IN THE BASE FOR MOUNTING THE CABINET PER THE MANUFACTURER'S SHOP DRAWINGS. ANCHOR BOLTS, NUTS, AND WASHERS SHALL CONFORM TO EITHER ASTM A307 OR A449 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153.
5. USE GRADE 60 REINFORCING STEEL CONFORMING TO ASTM 615 AND CLASS "A" CONCRETE CONFORMING TO SECTION 501 OF THE SPECIFICATIONS WHEN CASTING THE BASE.
6. FINISH THE BASE ACCESS OPENING WITH A 24" SQUARE IRON FRAME AND COVER, WEIGHING APPROXIMATELY 280 LBS. PROVIDE COVERS INSCRIBED WITH THE LEGEND "LIGHTING" FOR THOSE LOAD CENTERS WITH STREET LIGHTING CIRCUITS ONLY, AND "TRAFFIC" FOR THOSE LOAD CENTERS WITH A TRAFFIC SIGNAL CIRCUIT.
7. IF THE BASE IS PRECAST, INSTALL TWO 3/4" FERRULE LOOP INSERTS IN TWO SIDES OPPOSITE ONE ANOTHER FOR LIFTING.





TYPE 1 LOAD CENTER BASE

NOTE: STOP HORIZONTAL & VERTICAL STEEL AT BLOCK-OUT PANELS & OPTIONAL JOINT USING 90° HOOK. INSTALL 2 EXTRA #4 HORIZONTAL & VERTICAL BARS ON ALL SIDES OF EACH KNOCKOUT.

STATE OF ALASKA 49TH
MICHAEL GONZALES-SMITH
Feb 06, 2020
EE-141832
REGISTERED PROFESSIONAL ENGINEER

LOAD CENTER FOUNDATION DETAILS

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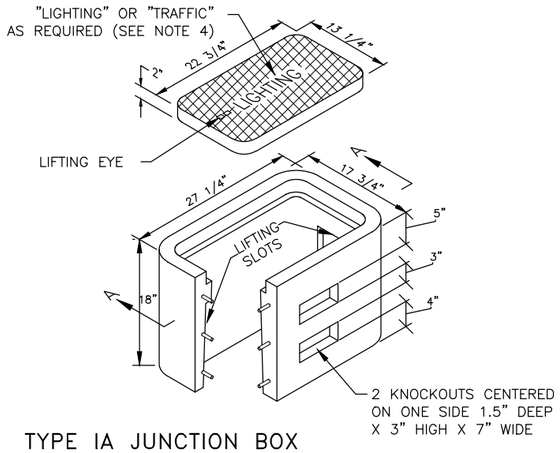
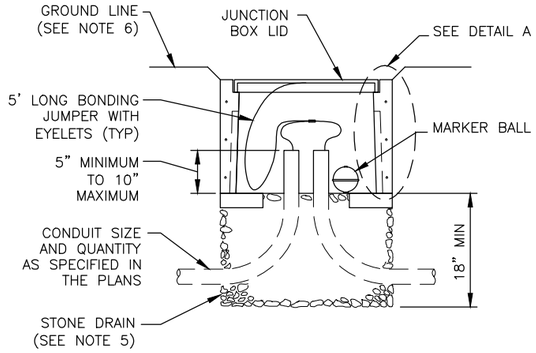
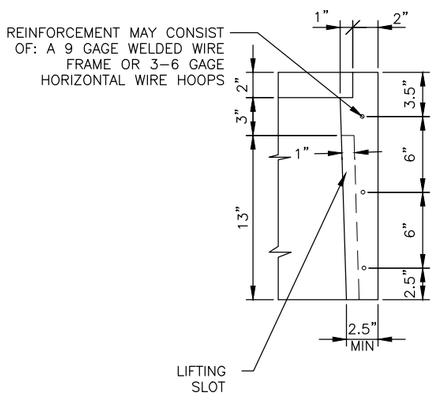
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H35	H58

TYPE IA JUNCTION BOX



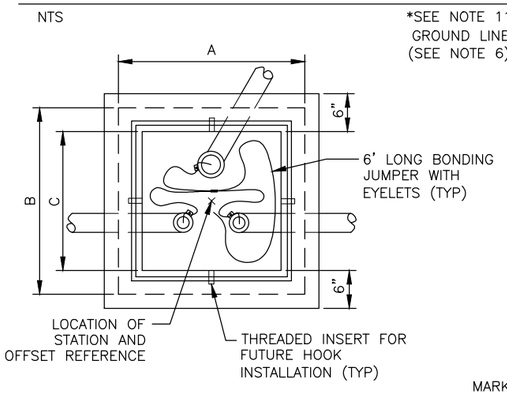


SECTION A–A

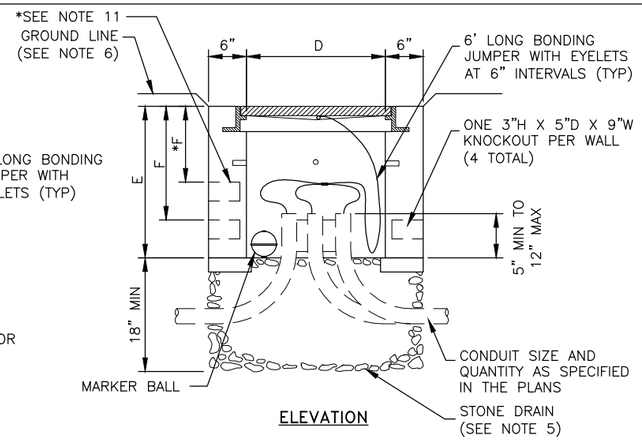


DETAIL A

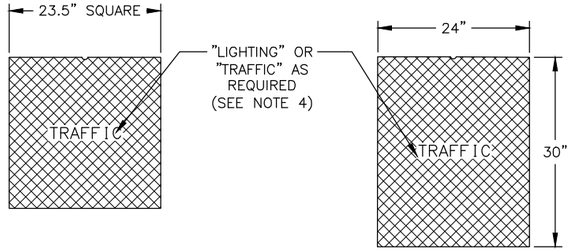
NTS



PLAN



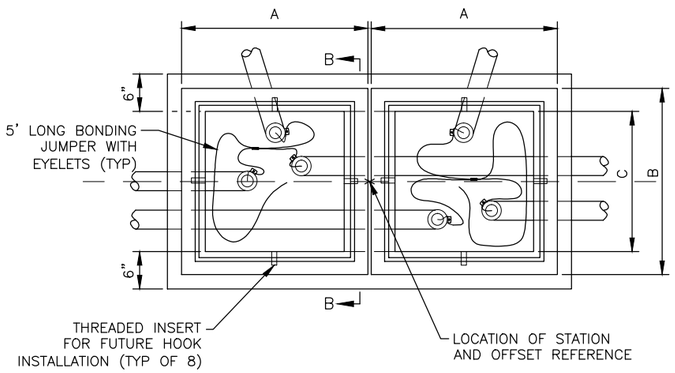
ELEVATION



TYPE II/MODIFIED TYPE II JUNCTION BOX

NTS

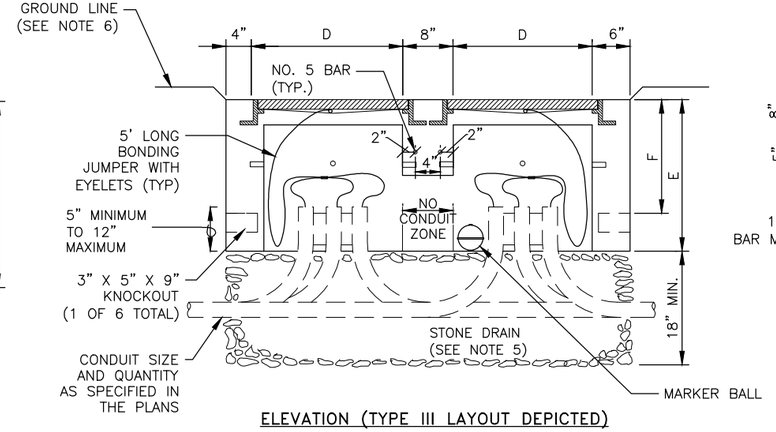
*=APPLICABLE TO MODIFIED TYPE II JUNCTION BOX



PLAN

LID FOR TYPE II, MOD. TYPE II & TYPE III J–BOX

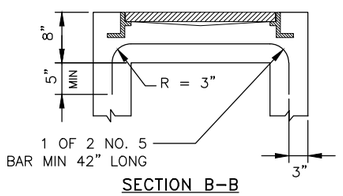
NTS



ELEVATION (TYPE III LAYOUT DEPICTED)

LID FOR TYPE IV J–BOX

NTS



SECTION B–B

TYPE III/IV JUNCTION BOX

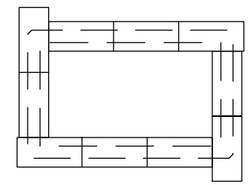
NTS

NOTES:

1. AVOID INSTALLING TYPE IA JUNCTION BOXES IN DRIVEWAYS OR IN LOCATIONS SUBJECT TO USE BY HEAVY TRUCKS. INSTALL JUNCTION BOXES ONLY AT THE LATERAL LOCATIONS ALLOWED IN SUBSECTION 660–3.04.
2. FURNISH TYPE II, III AND IV JUNCTION BOXES WITH CAST IRON FRAMES AND LIDS THAT WEIGH A MINIMUM OF 210 POUNDS AND ARE RATED FOR HEAVY TRAFFIC LOADS IN COMPLIANCE WITH AASHTO M306. FURNISH TYPE IA JUNCTION BOXES WITH CAST IRON LIDS THAT WEIGH A MINIMUM OF 50 POUNDS.
3. CONSTRUCT JUNCTION BOXES ACCORDING TO SECTION 501 USING CLASS A CONCRETE. REINFORCE TYPE IA JUNCTION BOXES AS SHOWN. SYNTHETIC STRUCTURAL FIBER–REINFORCED CONCRETE THAT MEETS ASTM C 1116 AND CONTAINS FIBER IN PROPORTIONS AS RECOMMENDED BY THE FIBER MANUFACTURER MAY BE ADDED FOR STRENGTH.
4. FOR JUNCTION BOXES THAT CONTAIN ILLUMINATION CONDUCTORS EXCLUSIVELY, FURNISH LIDS WITH THE WORD LIGHTING INSCRIBED INTO THEM. FOR OTHER JUNCTION BOXES, FURNISH LIDS WITH THE WORD TRAFFIC INSCRIBED INTO THEM.
5. UNDER JUNCTION BOXES, INSTALL STONE DRAINS THAT CONSIST OF POROUS BACKFILL MATERIAL CONFORMING TO SUBSECTION 703–2.10.
6. SET THE TOPS OF JUNCTION BOXES WITH THE FOLLOWING DIMENSIONS BELOW THE FINISHED SURROUNDING SURFACE:
   - 1" IN PAVED MEDIANS AND ADJACENT TO PEDESTRIAN FACILITIES
   - 3/16" IN PEDESTRIAN FACILITIES
   - 2" IN ALL OTHER AREAS
7. BOND JUNCTION BOX LIDS TO THE SYSTEM OF EQUIPMENT GROUNDING CONDUCTORS ACCORDING TO SUBSECTION 660–3.06. ATTACH BONDING JUMPERS TO THE JUNCTION BOX LIDS WITH STAINLESS STEEL HARDWARE.
8. INSTALL A 1/2" THICK PREFORMED BITUMINOUS JOINT MATERIAL AROUND JUNCTION BOXES INSTALLED IN PORTLAND CEMENT CONCRETE WALKWAYS.
9. INSTALL AN ELECTRONIC MARKER BALL IN ALL JUNCTION BOXES PER SUBSECTION 660–3.04.
10. PROVIDE CONDUIT GROUNDING BUSHINGS AND BOND TO 3/4"X10' COPPER CLAD GROUND ROD WITH #8 BARE COPPER BONDING WIRE (AS REQUIRED).
11. WHERE MODIFIED TYPE II JUNCTION BOXES ARE REQUIRED FOR DETECTOR LOOP TAIL INSTALLATIONS, ADD ONE(1) ADDITIONAL 5" DEEP X 3" HIGH X 18" WIDE KNOCKOUT 12" BELOW TOP OF JUNCTION BOX.

J–BOX DIMENSIONS

J–BOX TYPE	DIMENSIONS					
	A (MAX.)	B (MAX.)	C (MIN.)	D (MIN.)	E (MIN.)	F
II	29 1/2"	29 1/2"	22"	22"	24"	18"
MOD. II	29 1/2"	29 1/2"	22"	22"	24"	12"
III	29 1/2"	29 1/2"	22"	22"	24"	18"
IV	30"	36"	30"	24"	30"	18"



BRICK BASE TYPE IA AND TYPE II ONLY

NTS

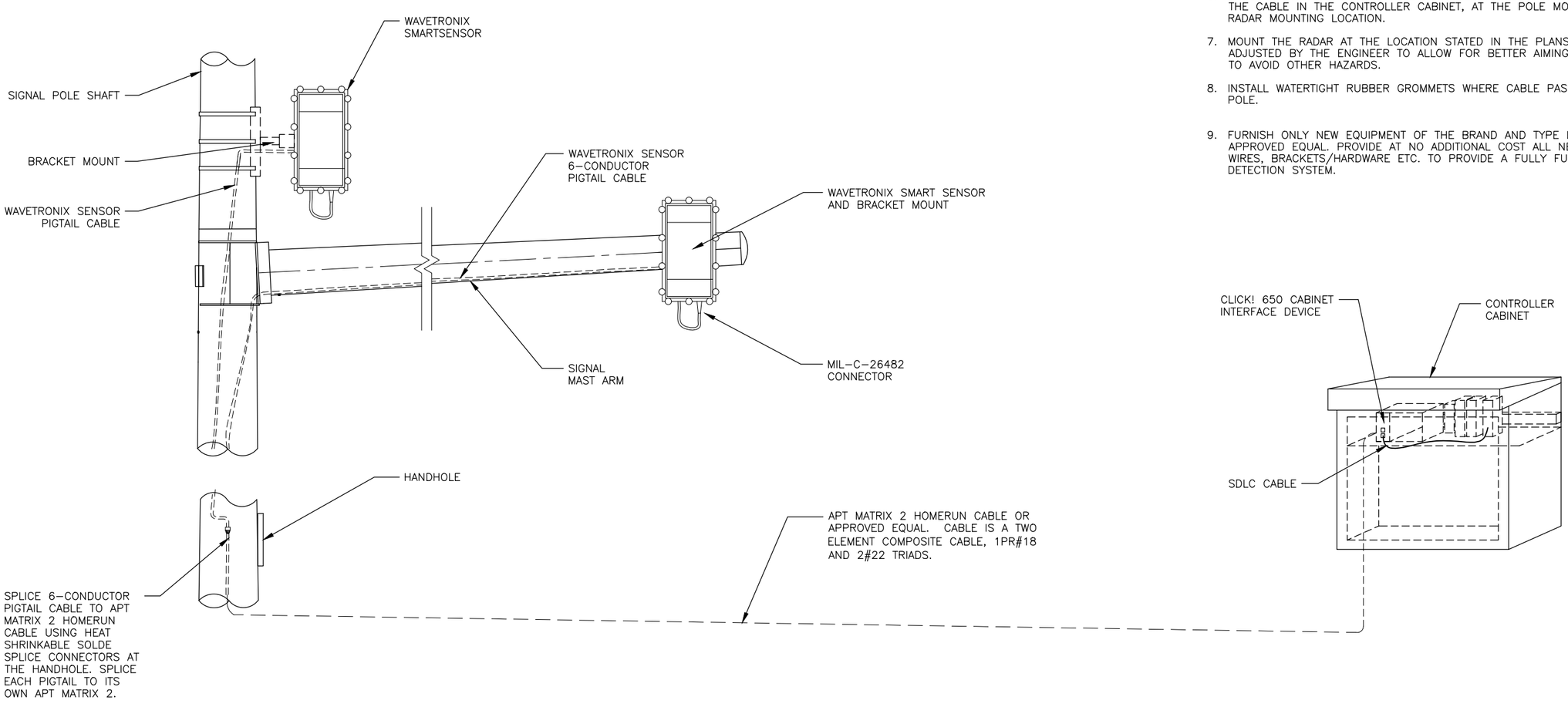
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

JUNCTION BOX DETAILS

RADAR INSTALLATION NOTES:

1. PROTECT CABLE ENDS FROM MOISTURE AT ALL TIMES.
2. PULL CABLE IN ACCORDANCE WITH SECTION 660 OF THE SPECIAL PROVISIONS. PULL CABLE SO THAT THERE IS SUFFICIENT LENGTH TO REACH THE TOP OF THE CONTROLLER CABINET. CABLES ARE TO BE PULLED WITHOUT CONNECTORS ATTACHED. WHEN CABLE HAS BEEN PULLED TO FINAL LOCATIONS INSTALL AND MAKE FINAL CONNECTIONS.
3. CABLE RUNS ARE TO BE MADE CONTINUOUS WITHOUT SPLICES.
4. CABLE WITH DAMAGED INSULATION, OR THAT HAS BEEN CRIMPED OR BENT BEYOND THE MINIMUM BEND RADIUS MUST BE REPLACED AT CONTRACTORS EXPENSE.
5. THE MINIMUM BEND RADIUS SHALL NOT EXCEED MANUFACTURERS RECOMMENDATIONS.
6. ENSURE ADEQUATE LENGTH OF EACH CABLE TO ALLOW WORK ON THE ENDS OF THE CABLE IN THE CONTROLLER CABINET, AT THE POLE MOUNT ENCLOSURE AND RADAR MOUNTING LOCATION.
7. MOUNT THE RADAR AT THE LOCATION STATED IN THE PLANS. PLACEMENT MAY BE ADJUSTED BY THE ENGINEER TO ALLOW FOR BETTER AIMING OF THE RADAR OR TO AVOID OTHER HAZARDS.
8. INSTALL WATERTIGHT RUBBER GROMMETS WHERE CABLE PASSES THROUGH THE POLE.
9. FURNISH ONLY NEW EQUIPMENT OF THE BRAND AND TYPE LISTED OR ITS APPROVED EQUAL. PROVIDE AT NO ADDITIONAL COST ALL NECESSARY DEVICES, WIRES, BRACKETS/HARDWARE ETC. TO PROVIDE A FULLY FUNCTIONING RADAR DETECTION SYSTEM.



RADAR INSTALLATION DETAIL

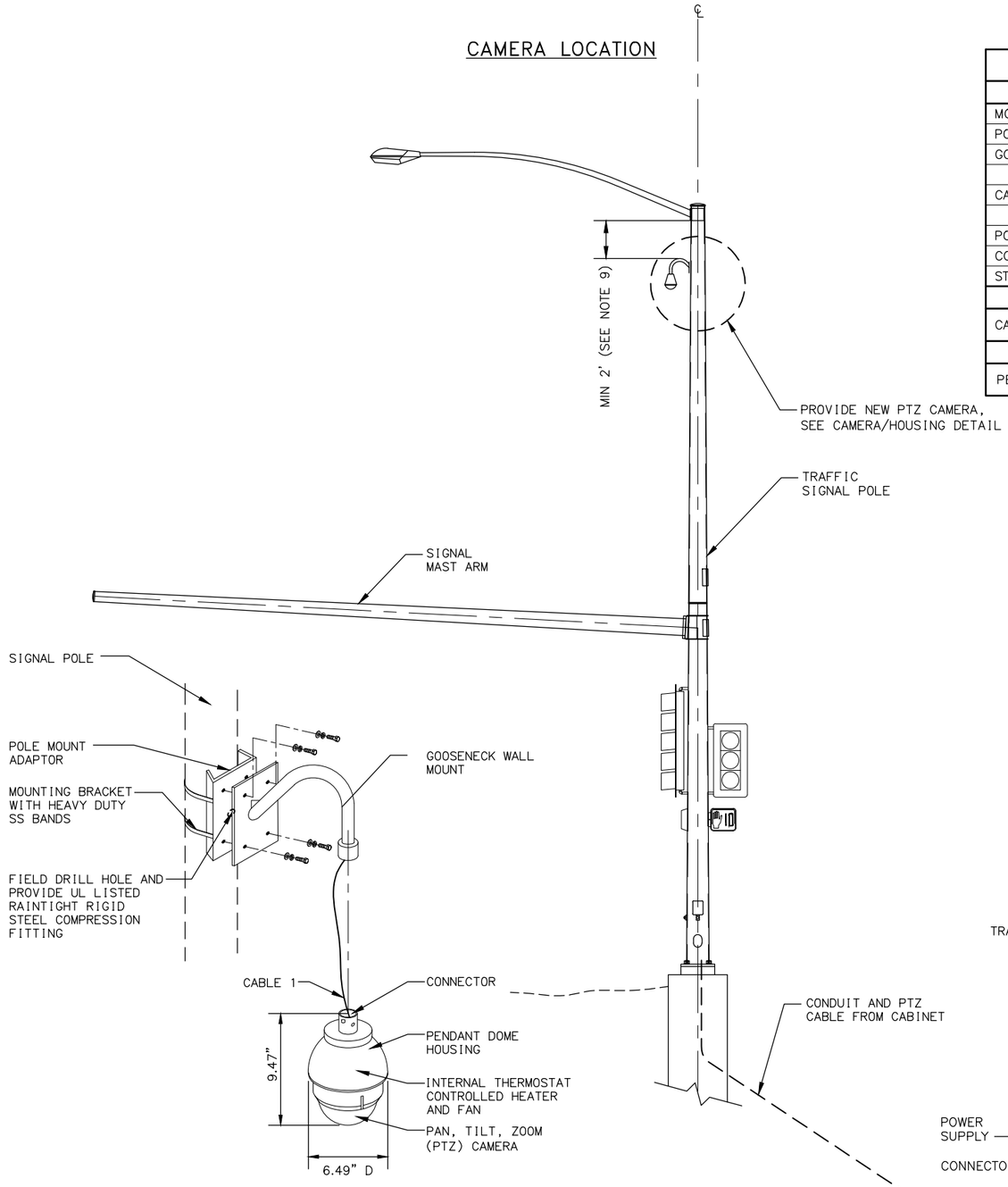
NTS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

RADAR DETAIL

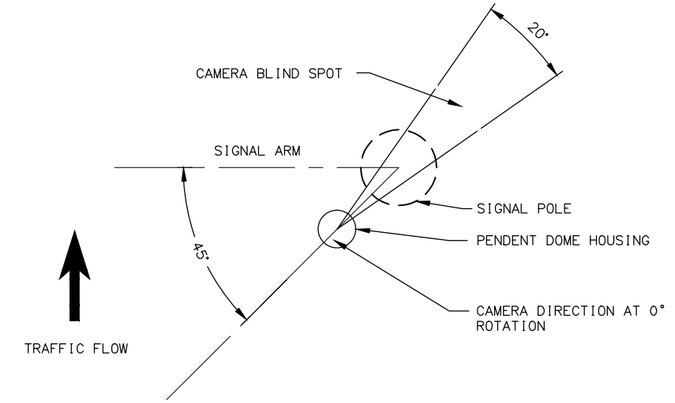
CAMERA LOCATION



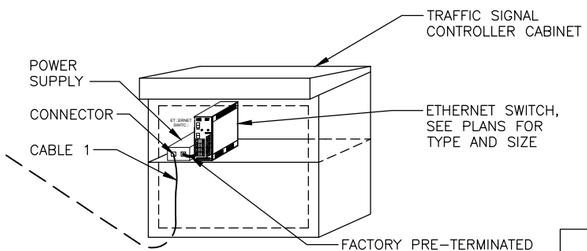
CAMERA/HOUSING DETAIL
NTS

MATERIAL REQUIREMENTS

ALL ASSEMBLIES	
MOUNTING BRACKET	PELCO TRITON BRACKET OR APPROVED EQUAL
POLE MOUNT ADAPTOR	AXIS T91A57 OR APPROVED EQUAL
GOOSENECK WALL MOUNT	AXIS T91G61 OR APPROVED EQUAL
CABLE 1	CAT-6a, FOILED
POWER SUPPLY	AXIS T8134 60W OR APPROVED EQUAL
CONNECTOR	ENVIRONMENTALLY HARDENED RJ-45
STRAIN RELIEF	REMKE 2201-013 OR APPROVED EQUAL
CAMERA	
CAMERA	UNLESS OTHERWISE NOTED, PROVIDE AXIS Q6155-E OR APPROVED EQUAL
HOUSING	
PENDANT DOME HOUSING	OUTDOOR, INTEGRATED WITH CAMERA OR APPROVED EQUAL



PLAN



NOTES:

1. PROTECT CABLE ENDS FROM MOISTURE AT ALL TIMES.
2. PULL CABLE IN ACCORDANCE WITH SECTION 660 OF THE SPECIAL PROVISIONS. PULL CABLE SO THAT THERE IS SUFFICIENT LENGTH TO REACH THE TOP OF THE CONTROLLER CABINET. CABLES ARE TO BE PULLED WITHOUT CONNECTORS ATTACHED. WHEN CABLE HAS BEEN PULLED TO FINAL LOCATIONS INSTALL AND MAKE FINAL CONNECTIONS.
3. CABLE RUNS ARE TO BE MADE CONTINUOUS WITHOUT SPLICES EXCEPT FOR IN LOCATION SHOWN IN SPICE DETAIL WITH SPECIFIED CONNECTOR.
4. CABLE WITH DAMAGED INSULATION, OR THAT HAS BEEN CRIMPED OR BENT BEYOND THE MINIMUM BEND RADIUS MUST BE REPLACED AT NO ADDITIONAL COST.
5. THE MINIMUM CABLE BEND RADIUS SHALL NOT EXCEED THE MANUFACTURERS RECOMMENDATIONS.
6. MOUNT THE PENDANT DOME HOUSING AT A 45° ANGLE AT THE REQUIRED HEIGHT. ANGLE AND HEIGHT MAY BE ADJUSTED BY THE ENGINEER TO AVOID WELDS, APPENDICES AND TO IMPROVE CAMERA VIEWS.
7. ADJUST CAMERA INSIDE THE PENDANT DOME HOUSING AS SHOWN. ENSURE THAT THE CAMERA IS MOUNTED AT A 0° TILT ANGLE.
8. AT CABLE END CONNECTOR LOCATION PROVIDE A SECURE CONNECTION USING CONNECTOR PARTS SPECIFIED. AFTER CONNECTION IS MADE COVER SPLICE WITH WATER PROOF HEAT SHRINK TUBING. PROVIDE A STRAIN RELIEF CABLE AS NECESSARY.
9. CAT6a TOTAL CABLE LENGTH SHALL NOT EXCEED 325 FEET FROM THE ETHERNET SWITCH TO THE PTZ CAMERA. WHEN MOUNTED ON THE SAME POLE AS A LIGHTING CONTROL GATEWAY MOUNT THE PTZ CAMERA BELOW THE GATEWAY WITH 2-FEET OF SEPARATION BETWEEN THE TOP OF THE PTZ WALL MOUNT AND THE BOTTOM OF THE GATEWAY, OR AT THE ENGINEER'S DIRECTION.

PAN, TILT, ZOOM, CAMERA DETAILS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
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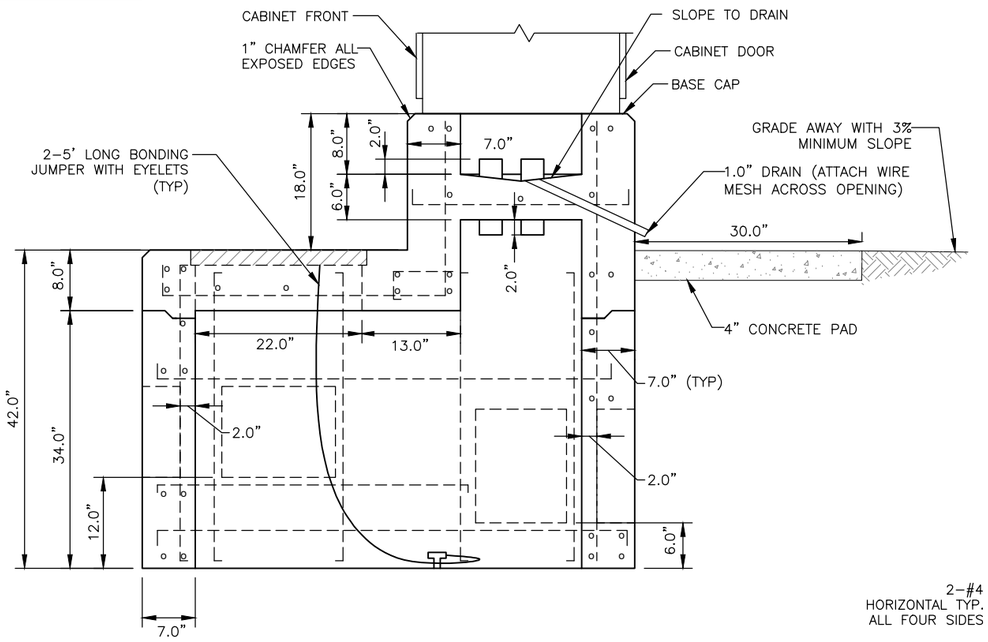
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

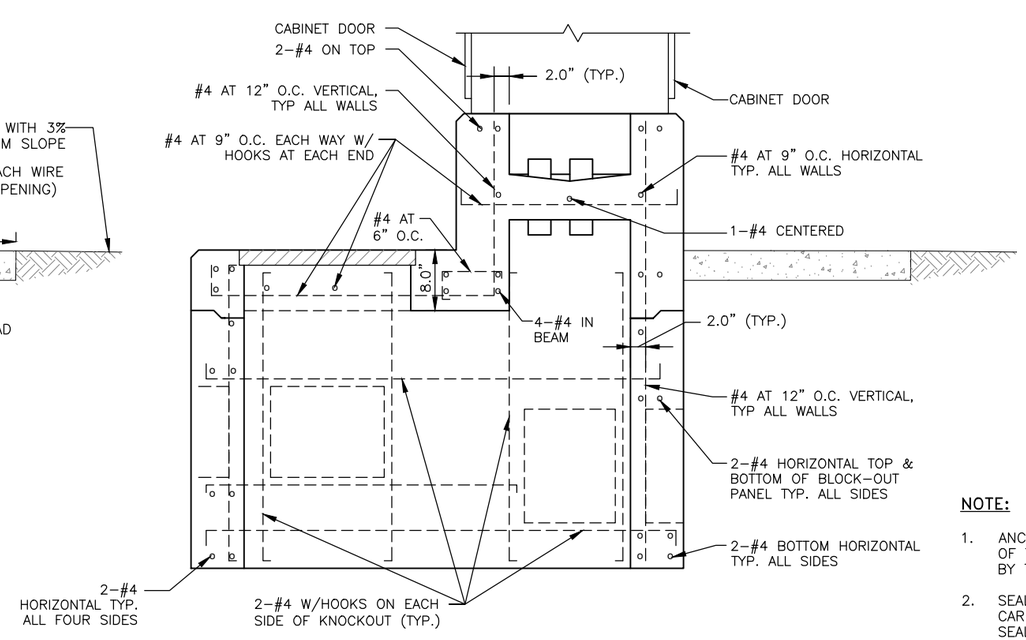
FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H35-H41_SIGNAL DETLS.DWG PLOTTED: Feb 7, 2020 - 4:45:22 PM (Brian Lewis) KE#: 00245

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H38	H58



SECTION A–A

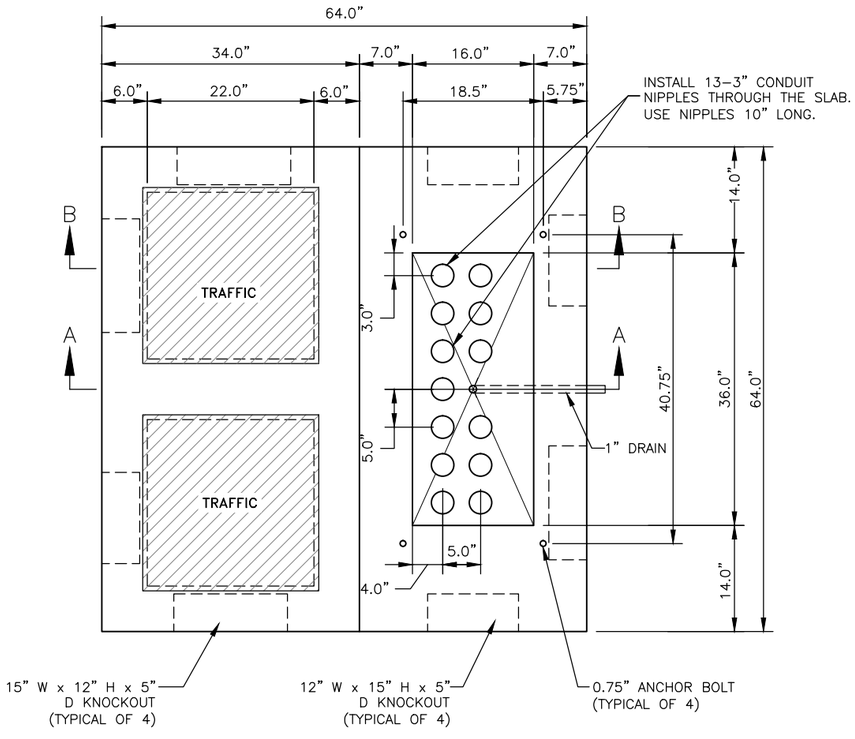
NOTE: SEE SECTION B–B FOR REBAR DETAILS



SECTION B–B

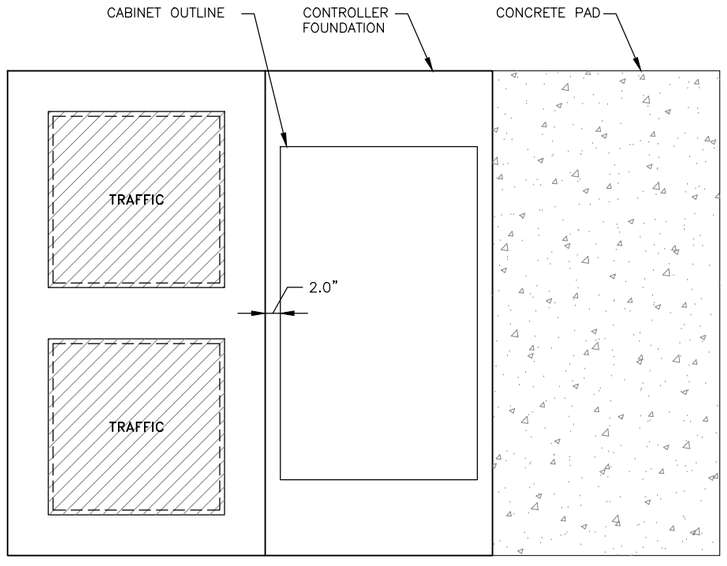
NOTE:

1. ANCHOR BOLTS SHALL NOT PROTRUDE MORE THAN 1.5" ABOVE THE TOP OF THE FOUNDATION. ANCHOR BOLT DIMENSIONS SHALL BE AS SPECIFIED BY THE CABINET MANUFACTURER.
2. SEAL UNUSED CONDUIT STUBS WITH WATERTIGHT CAPS. SEAL STUBS CARRYING CONDUCTORS WITH WATERTIGHT SEALING BUSHINGS DESIGNED TO SEAL AROUND CONDUCTORS AND AGAINST THE CONDUIT WALLS.
3. ROUTE THE FIVE FOOT COPPER GROUNDING JUMPER THROUGH THE 2" PIPE NIPPLE AND ATTACH IT TO THE GROUNDING BUSHING ON THE FEEDER CONDUIT.
4. STOP HORIZONTAL & VERTICAL STEEL AT THE BLOCK–OUT PANELS & THE JOINT USING 90 DEGREE HOOKS. USE 2 EXTRA #4 HORIZONTAL & VERTICAL BARS. ALL SIDES AS SHOWN.
5. INSTALL TRAFFIC CONTROLLER WITHIN 1–DEGREE OF PLUMB.
6. CONCRETE PAD SHALL BE SUBSIDIARY TO THE SIGNAL PAY ITEM.



SIZE 6 OR 7 CONTROLLER CABINET FOUNDATION

NOTE: BOLT SPACING DIMENSIONS SHOWN FOR TS2 CONTROLLER CABINETS.



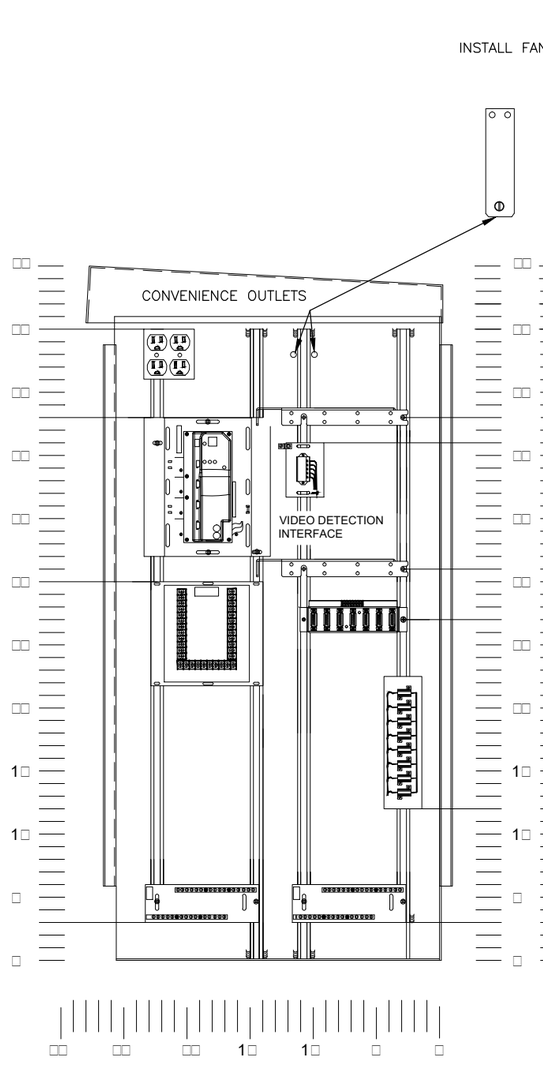
PLAN VIEW

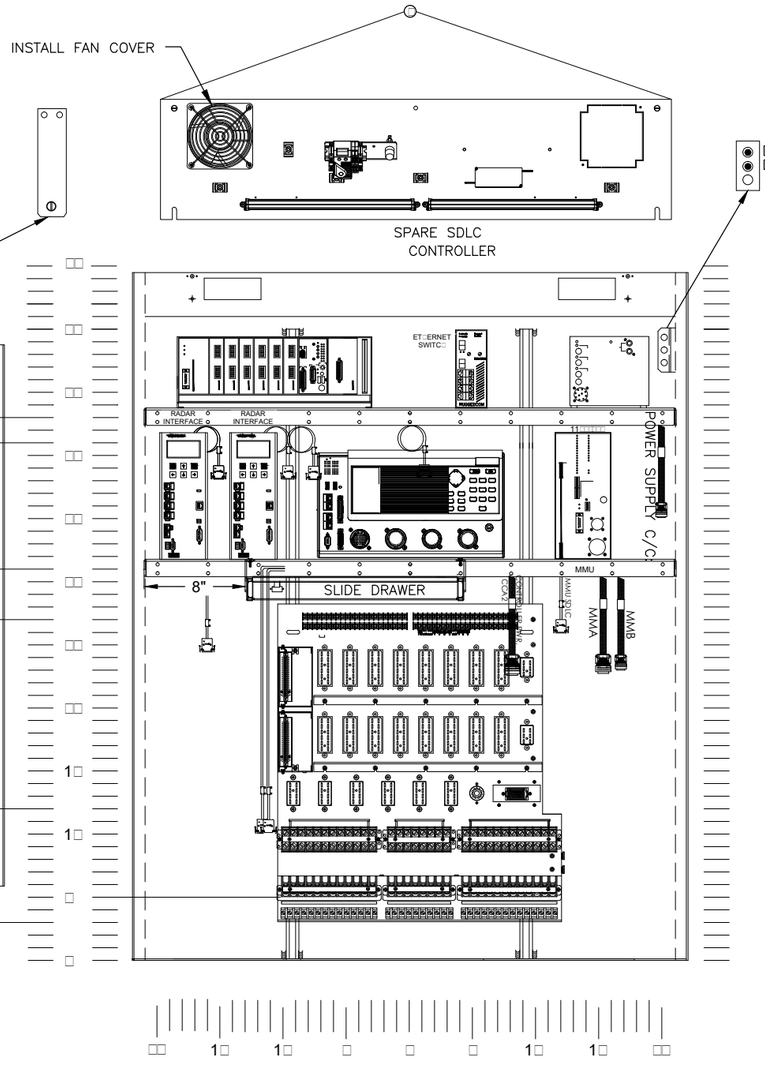
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

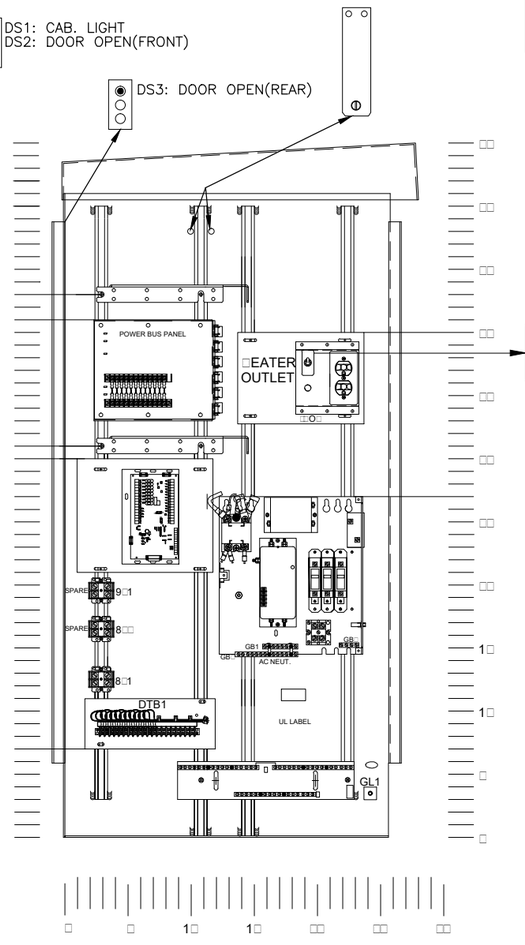
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

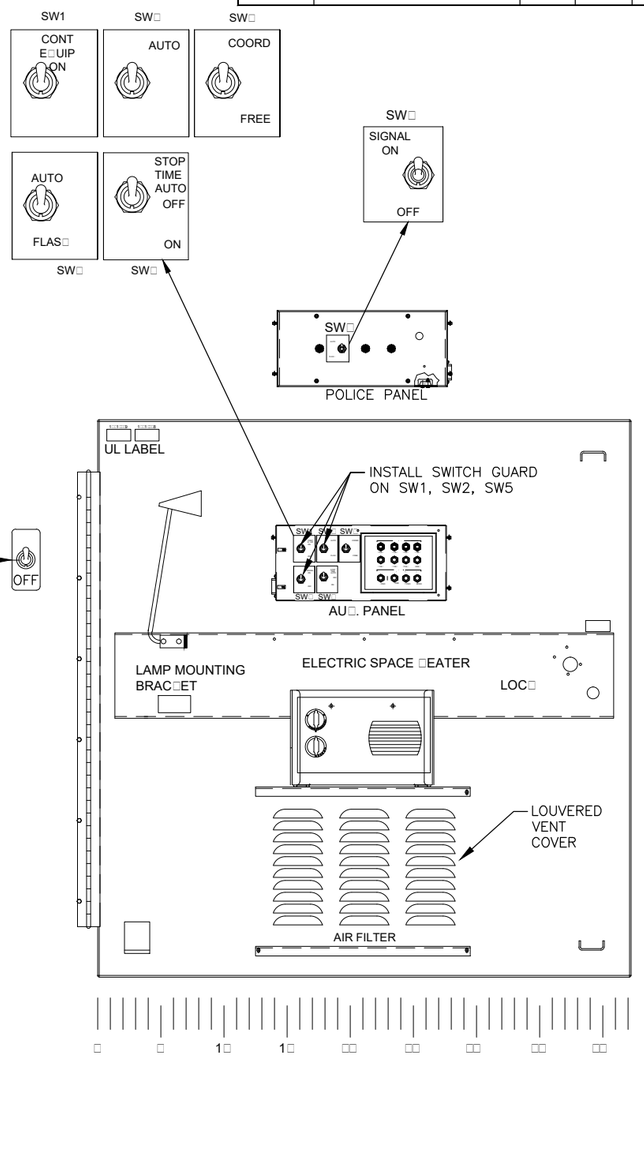
SIGNAL CONTROLLER FOUNDATION DETAILS

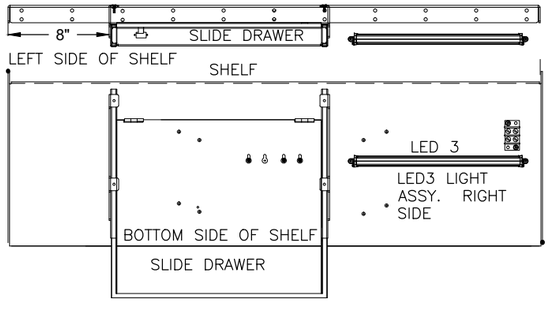
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H39	H58

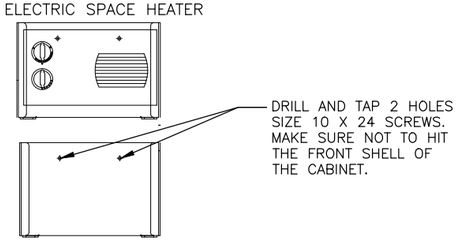








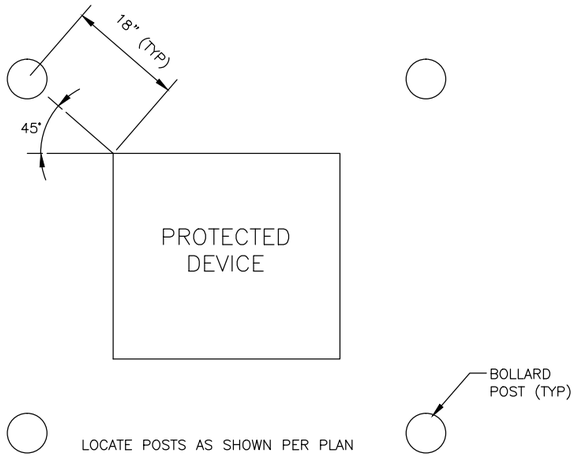


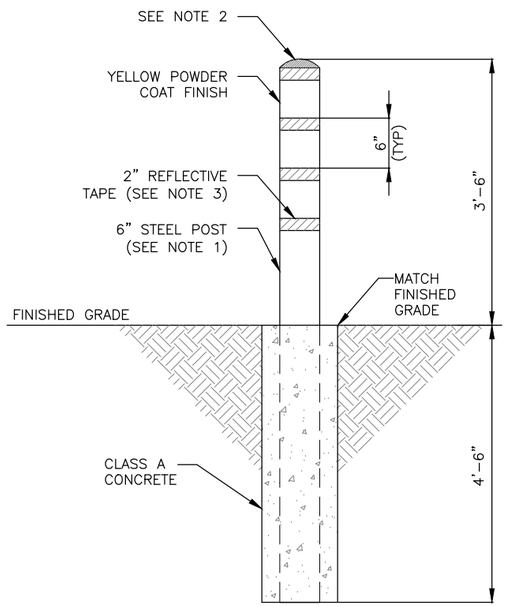


PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

CONTROLLER CABINET LAYOUT

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H40	H58

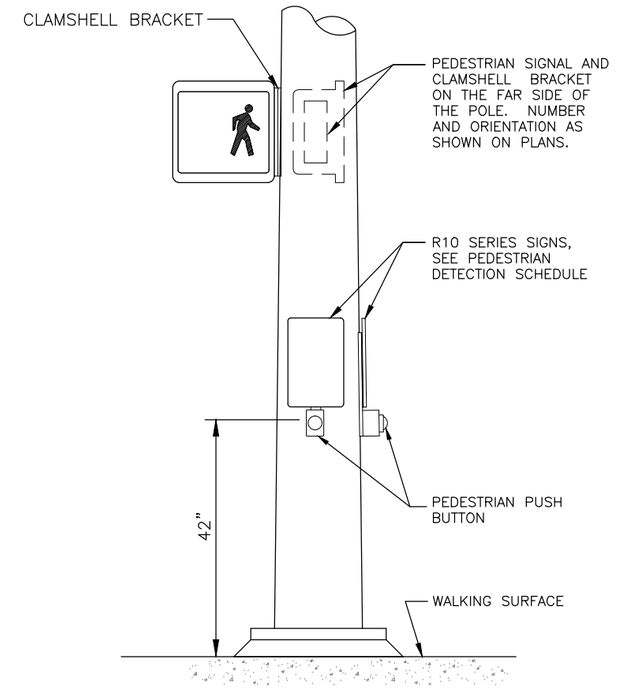


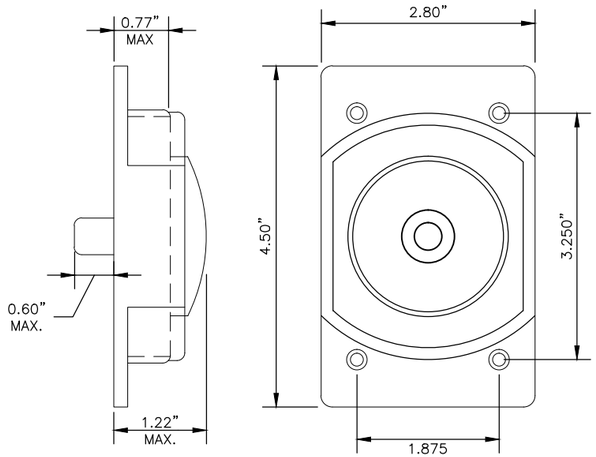


BOLLARD AND PLACEMENT DETAIL
NTS

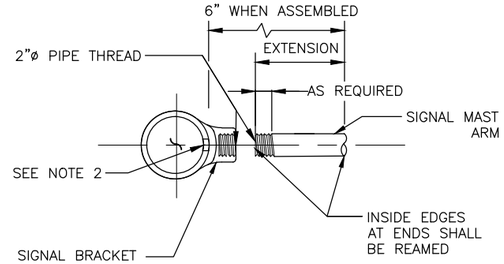
BOLLARD NOTES:

1. PROVIDE 6" DIA. GALVANIZED STEEL, SCHEDULE #40 PIPE, FILLED WITH CONCRETE.
2. ROUND CONCRETE AT TOP OF POST SMOOTH AND PAINT YELLOW. USE EXTERIOR ACRYLIC–EPOXY CONCRETE PAINT.
3. INSTALL 4–2" BANDS OF YELLOW REFLECTIVE TAPE AS SHOWN.
4. LOCATION AND QUANTITY OF POSTS AS INDICATED ON DRAWINGS.





PEDESTRIAN PUSH BUTTON DETAIL
NTS



PLUMBIZER SIGNAL MOUNTING DETAIL
(REQUIRED FOR ALL NEW OR RELOCATED PLUMBIZER [MAST ARM] MOUNTED SIGNALS)

NOTES

1. THESE DETAILS MODIFY STANDARD DRAWING T–30.11.
2. FIELD DRILL WIRING ACCESS HOLE AS REQUIRED. REAM INSIDE & OUTSIDE AND PAINT WITH COLD ZINC GALVANIZING COMPOUND CONFORMING TO DOD–P–21035A, MIL–P–26915A, OR TT–P–460.
3. ONE 2" GALVANIZED SCHEDULE 40 RIGID METAL CONDUIT EXTENSION SHALL BE FURNISHED WITH EACH SIGNAL BRACKET.
4. SIGNAL BRACKETS SHALL BE ASTRO–BRAC AB–3008AK OR APPROVED EQUAL AND SHALL BE INSTALLED AS RECOMMENDED BY THE MANUFACTURER. THE ACTUAL LOCATION OF BRACKETS ON EACH ARM SHALL BE DETERMINED BY THE ENGINEER AFTER THE POLES AND ARMS HAVE BEEN INSTALLED.

PLANS DEVELOPED BY:
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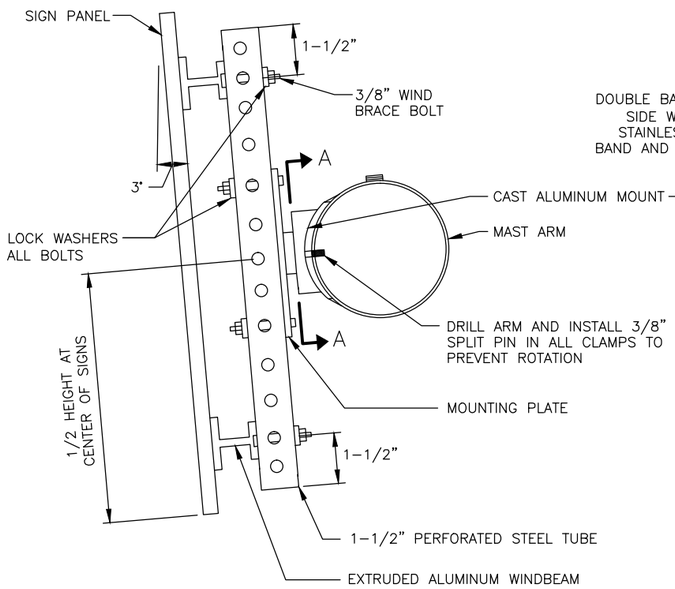
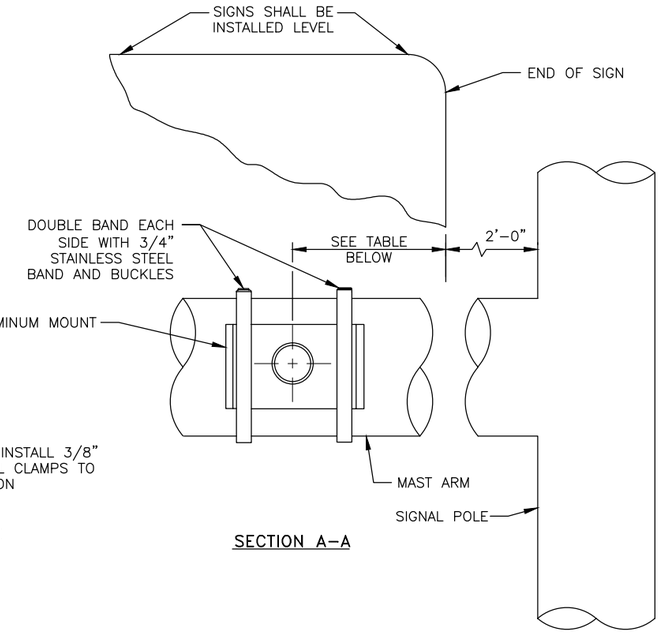
2/7/2020

PED PUSH BUTTON POST AND SIGNAL MOUNTING BRACKET DETAIL





SECTION A–A

BANDING = STAINLESS STEEL 3/4"x0.030"
TYPE 201 NO. C206

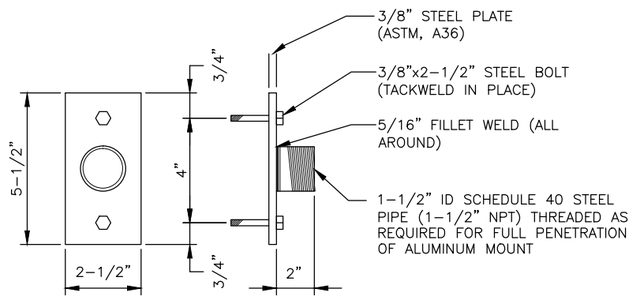
BUCKLES = STAINLESS STEEL 3/4"
TYPE 201 NO. C256

ALUMINUM MOUNT (SIGNAL) = 1–1/2"NPT
NO. D040

PIN = NO. D042

SIGNAL MAST ARM MOUNTED SIGNS (NOT FOR "R" SERIES SIGNS)

NTS



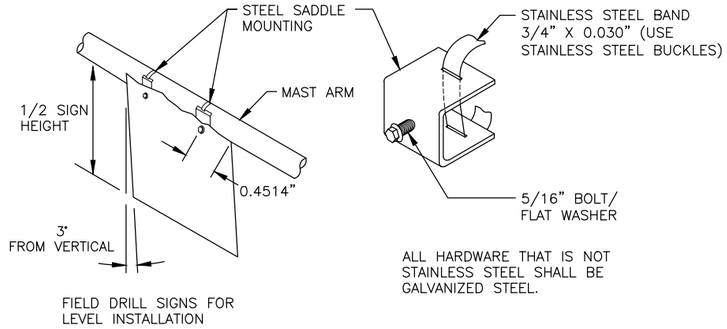
NOTES:

1. CAST ALUMINUM MOUNTS AND BANDING MATERIALS SHALL BE "BAND–IT" OR APPROVED EQUAL.
2. MOUNTING PLATE SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
3. ALL WELDING SHALL MEET AMERICAN WELDING SOCIETY SPECS.
4. BOLTS, NUTS AND WASHERS SHALL MEET THE REQUIREMENTS OF SHEET H13.

MOUNTING PLATE DETAIL

NTS

SIGN WIDTH(W)	NO. OF CLAMPS	CLAMP SPACING		
		OVERHANG	BETWEEN CLAMPS	OVERHANG
0–12.5'	2	0.2W	1 SPACE AT 0.6W	0.2W
13' TO 21'	3	0.15W	2 SPACES AT 0.35W	0.15W

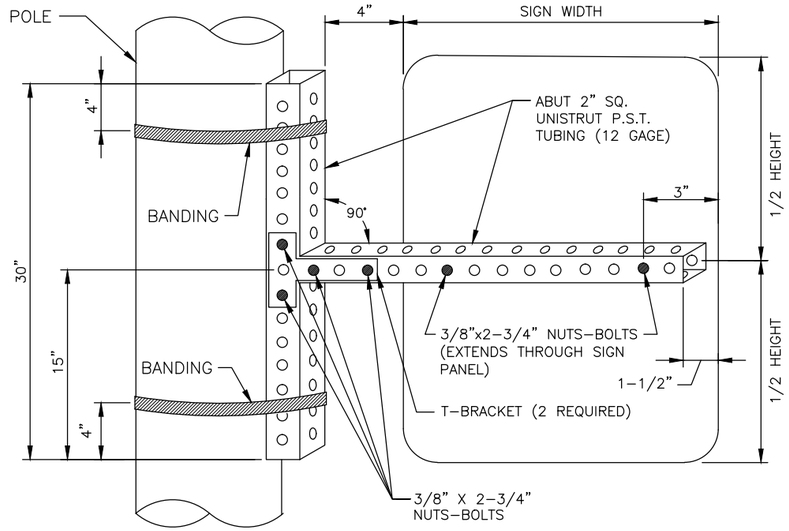


FIELD DRILL SIGNS FOR LEVEL INSTALLATION

ALL HARDWARE THAT IS NOT STAINLESS STEEL SHALL BE GALVANIZED STEEL.

MAST ARM MOUNTING FOR "R" SERIES SIGNS

NTS



ALL NUTS SHALL BE INSTALLED WITH LOCK WASHERS
BANDING = STAINLESS STEEL 3/4" X 0.030" (DOUBLE BANDING REQUIRED)
BUCKLES = STAINLESS STEEL 3/4"

POLE/POST SIDE MOUNTED SIGN BRACKET

NTS

SIGNAL MOUNTED SIGN DETAILS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
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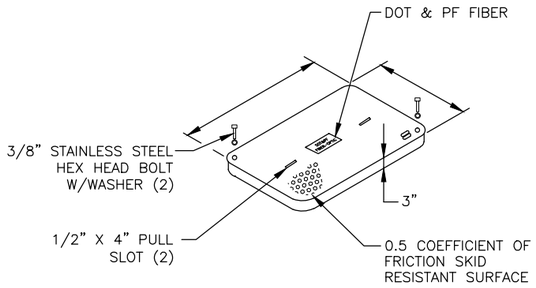
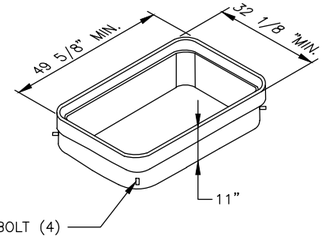
2/7/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H42	H58



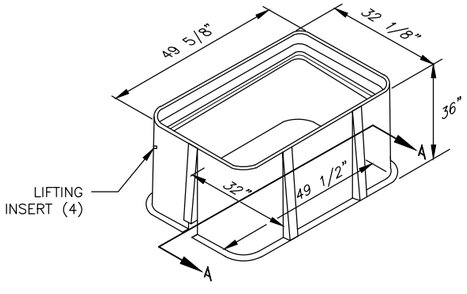
COVER
N.T.S.

HUBBELL QUAZITE NO. PG3048HH00
OR APPROVED EQUIVALENT



TOP EXTENSION
N.T.S.

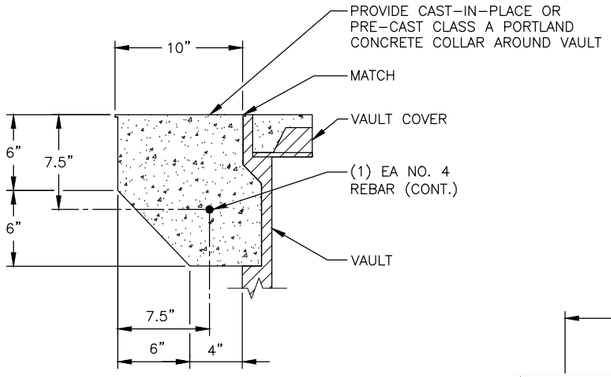
HUBBELL QUAZITE NO. PG3048EA11
OR APPROVED EQUIVALENT



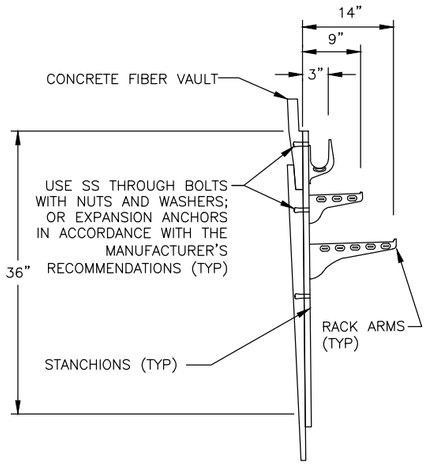
BOTTOM

TYPE I VAULT
N.T.S.

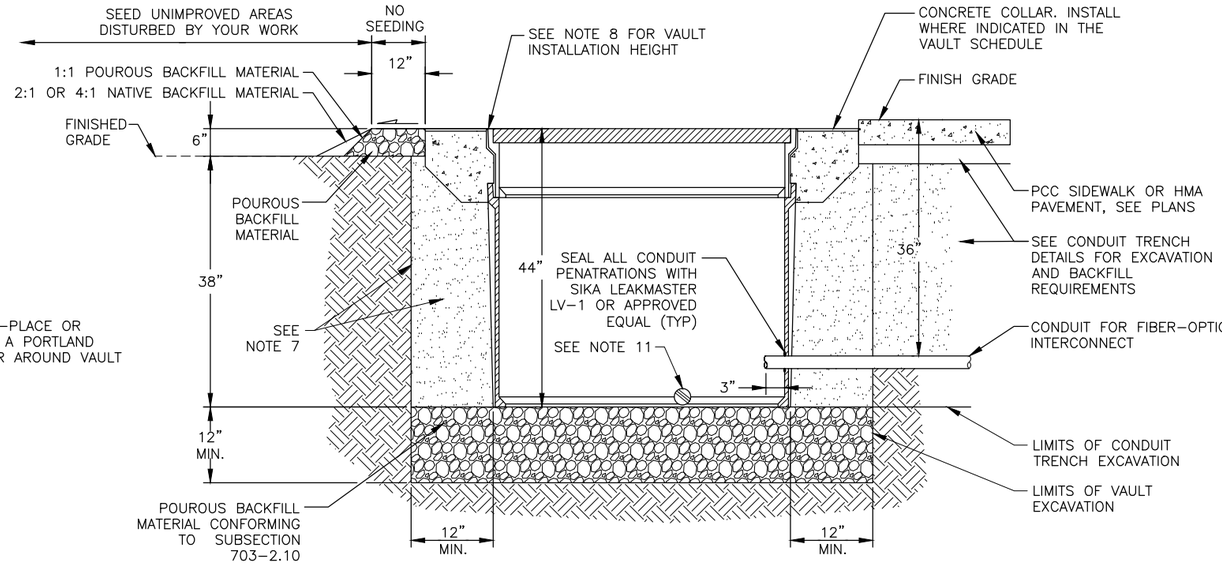
HUBBELL QUAZITE NO. PG3048BA36
OR APPROVED EQUIVALENT



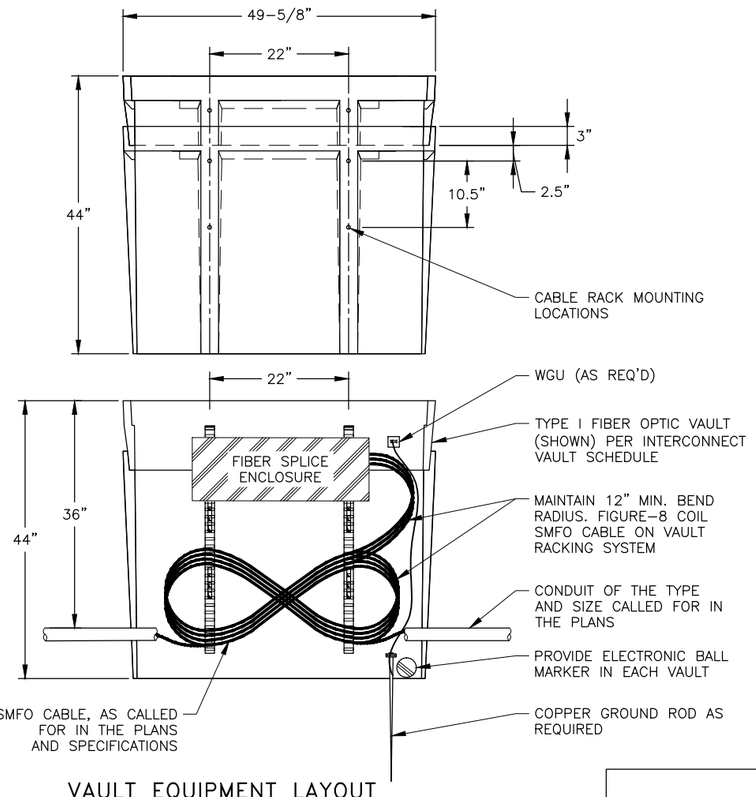
CONCRETE COLLAR DETAIL
N.T.S.



TYPICAL CABLE RACK
N.T.S.



SECTION
N.T.S.



VAULT EQUIPMENT LAYOUT
N.T.S.

NOTES:

1. PROVIDE TYPE I FIBER-OPTIC VAULTS WHERE NOTED IN THE PLANS.
2. TYPE 1 FIBER-OPTIC VAULTS SHALL BE PRECAST POLYMER CONCRETE, HAVE OPEN FLARED BOTTOMS, AND CONFORM TO PLAN DETAILS AND PROJECT SPECIFICATIONS.
3. THE DESIGN/TEST LOAD STRENGTH OF THE BOX SHALL BE MINIMUM OF 22,500/33,750 LBS.
4. THE STANDARD COVER (LID) SHALL HAVE NOMINAL DIMENSIONS OF 30 1/8 in. WIDE X 47 5/8 in. LONG X 3 in. DEEP.
5. THE DESIGN/TEST LOAD STRENGTH OF THE COVER SHALL BE A MINIMUM OF 22,500/33,750 LBS.
6. THE COVER SHALL BE CAPABLE OF BEING SECURED TO THE BOX WITH TWO BOLTS, AND EMBOSSED WITH: "DOT&PF FIBER".
7. EXCAVATE AND BACKFILL FOR VAULT INSTALLATION IN ACCORDANCE WITH SECTION 204. USE BACKFILL MEETING THE REQUIREMENTS OF SELECTED MATERIAL TYPE A
8. U.O.N., TYPE I FIBER OPTIC VAULTS SHALL BE INSTALLED:
   A. BETWEEN 1/16" TO 3/16" BELOW FINISHED GRADE WHEN INSTALLED IN OR IMMEDIATELY ADJACENT TO SIDEWALK, PATHWAY, DRIVEWAY, ROADWAY, OR PARKING LOT; OR
   B. 6" ABOVE FINISHED GRADE IN UNIMPROVED AREAS.
9. FIBER-OPTIC VAULTS SHALL NOT INCLUDE ELECTRICAL CONDUCTORS.
10. DO NOT INSTALL VAULTS IN DRAINAGE COLLECTION AREAS.
11. PROVIDE ONE MARKER BALL IN EACH VAULT, SEE PROJECT SPECIFICATIONS.
12. ALL TRENCHING AND EXCAVATION SHALL COMPLY WITH OSHA SAFETY STANDARDS AND REGULATIONS.

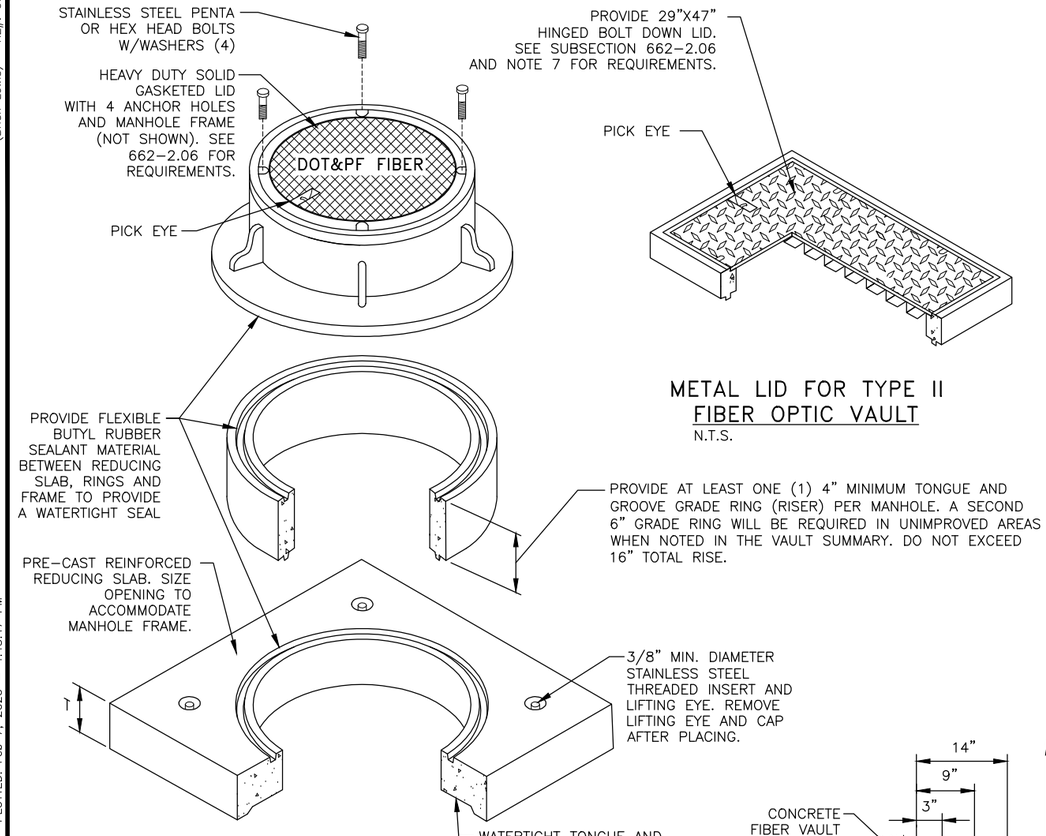
TYPE I FIBER OPTIC VAULT

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
9 T
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

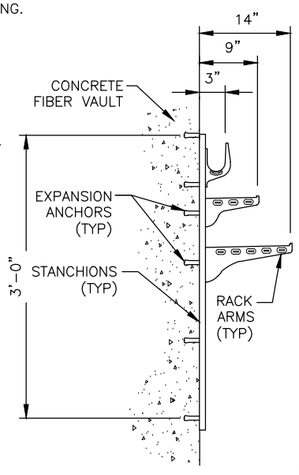
FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H42-H45_INTERCT DETLS.DWG PLOTTED: Feb 7, 2020 - 4:45:47 PM (Brian Lewis) KE#: 00245

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H43	H58

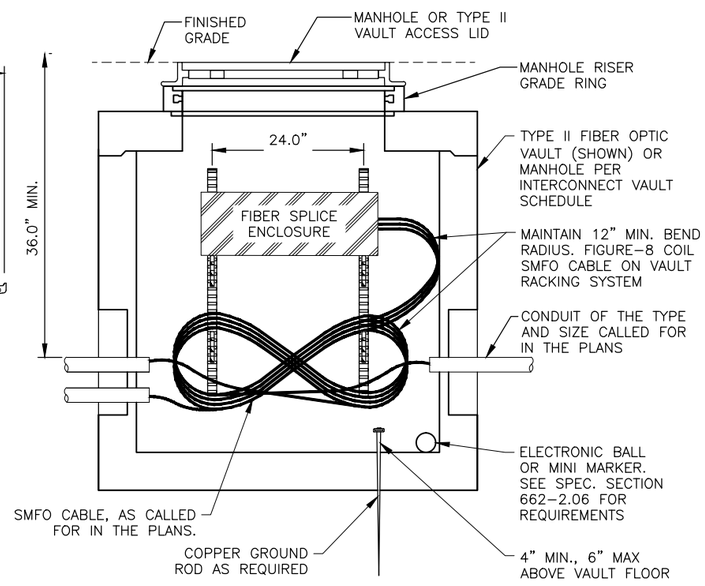


METAL LID FOR TYPE II FIBER OPTIC VAULT
N.T.S.

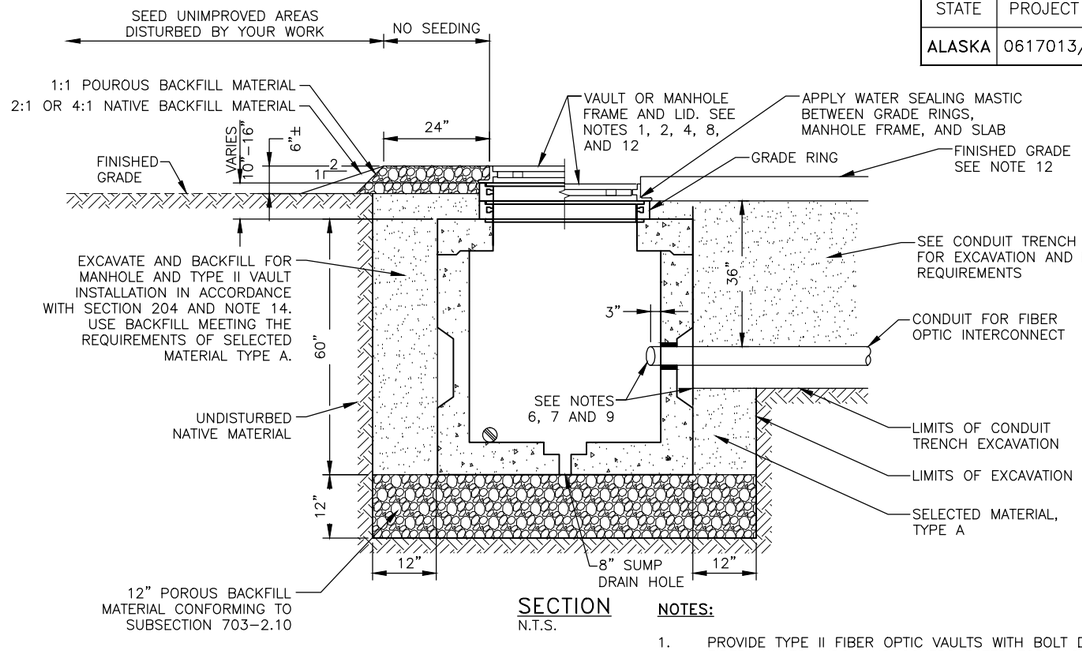
FIBER OPTIC MANHOLE WITH MANHOLE LID
N.T.S.
(TYPE II FIBER OPTIC VAULT SIMILAR)



TYPICAL CABLE RACK
N.T.S.



MANHOLE AND TYPE II VAULT LAYOUT
N.T.S.



SECTION
N.T.S.

TYPE	"L" INCH	'W' INCH	"H" INCH	"T" INCH	LID
TYPE II FIBER OPTIC VAULT	30	48	48	6 MIN	HINGED METAL
MANHOLE	48	48	48	6 MIN	MANHOLE

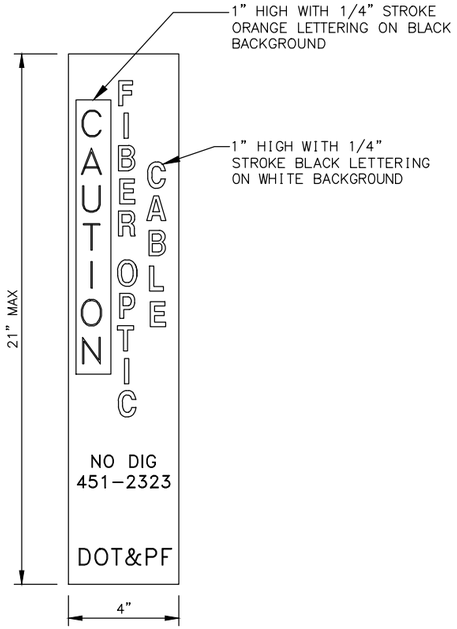
NOTES:

1. PROVIDE TYPE II FIBER OPTIC VAULTS WITH BOLT DOWN HINGED METAL LID. SUPPLY FIBER VAULTS, LIDS, AND COVERS RATED FOR AASHTO HS-20-44 LOADING.
2. SUPPLY ALL LIDS WITH WITH A HOLE OR SLOT FOR REMOVAL WITH A LEVER OR HOOK.
3. WHERE REQUIRED BY OSHA, PROVIDE A PORTABLE ENTRY LADDER MEETING OSHA REQUIREMENTS.
4. PROVIDE FIBER VAULT AND MANHOLE LIDS MARKED, "DOT&PF FIBER".
5. PROVIDE FIBER MANHOLES AND VAULTS WITH A HEAVY-DUTY NON-METALLIC CABLE STORAGE RACK SYSTEM. PROVIDE RACK ARMS OR STANCHIONS CAPABLE OF SUPPORTING A MINIMUM OF 250 LBS. INCLUDE A MINIMUM OF 36 INCH RACK STANCHIONS AND 4 RACK ARMS.
6. INSTALL CONDUITS INTO FIBER VAULT AT THINWALL SECTIONS ONLY. CORE DRILL IN THE THINWALL SECTION TO CONDUIT SIZE PLUS 1/4 INCH ALL AROUND. DO NOT "KNOCK OUT" THE THINWALL SECTION.
7. SEAL CONDUIT PENETRATIONS USING SIKA LEAKMASTER LV-1 OR APPROVED ADEKA PRODUCT EQUIVALENT.
8. BOND AND GROUND ALL METALLIC COMPONENTS OF THE FIBER VAULT, INCLUDING RACK, FRAME AND LIDS PER STANDARD SPECIFICATION 660-3.06.
9. PLUG CONDUITS ENDS TO EXCLUDE WATER UNTIL FIBER OPTIC CABLE IS INSTALLED. SEE SECTIONS 660 AND 662.
10. EXTEND GROUND ROD A MINIMUM OF 4 INCHES AND A MAXIMUM OF 6 INCHES ABOVE BOTTOM OF VAULTS AND MANHOLES.
11. USE A SPLIT BOLT CONNECTER TO ATTACH GROUND WIRES TO GROUND ROD. ATTACH NOT MORE THAN TWO WIRES PER BOLT.
12. U.O.N., TOP OF FIBER OPTIC VAULTS AND MANHOLES SHALL BE INSTALLED:
    A. FROM 0" TO 3/16" BELOW FINISHED GRADE WHEN LOCATED IN A SIDEWALK OR PATHWAY;
    B. 3/8" BELOW FINISHED GRADE WHEN LOCATED IN A PAVED PARKING LOT, MEDIAN, OR ROADWAY;
    C. FROM 4" TO 8" ABOVE FINISHED GRADE IN UNIMPROVED AREAS, AWAY FROM HARDSCAPED SURFACES;
    D. OR AS DIRECTED BY THE ENGINEER.
13. DO NOT PLACE VAULTS AND MANHOLES IN THE BOTTOM OF DRAINAGE COLLECTION AREAS.
14. ALL TRENCHING AND EXCAVATION SHALL COMPLY WITH OSHA SAFETY STANDARDS AND REGULATIONS.

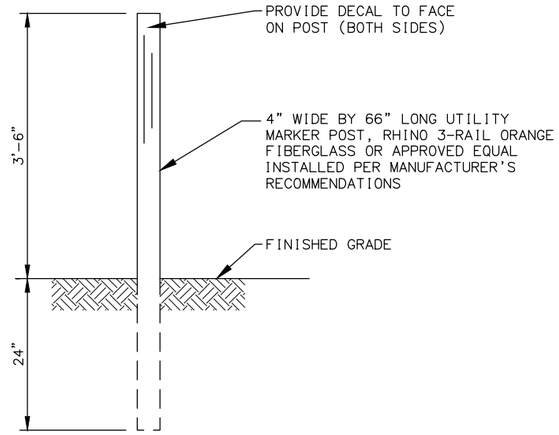
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

TYPE II FIBER OPTIC VAULT AND FIBER OPTIC MANHOLE

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H44	H58

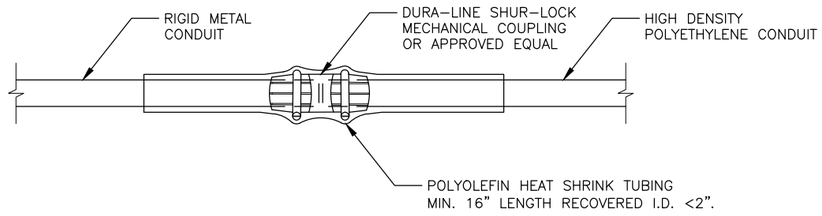


DECAL DETAIL
NTS



ELEVATION

FIBER OPTIC MARKER POST DETAIL
NTS



ELEVATION

NOTES:

USE ELECTROFUSION COUPLING PER THE HDPE MANUFACTURER'S REQUIREMENTS, WHEN JOINING HDPE TO HDPE.

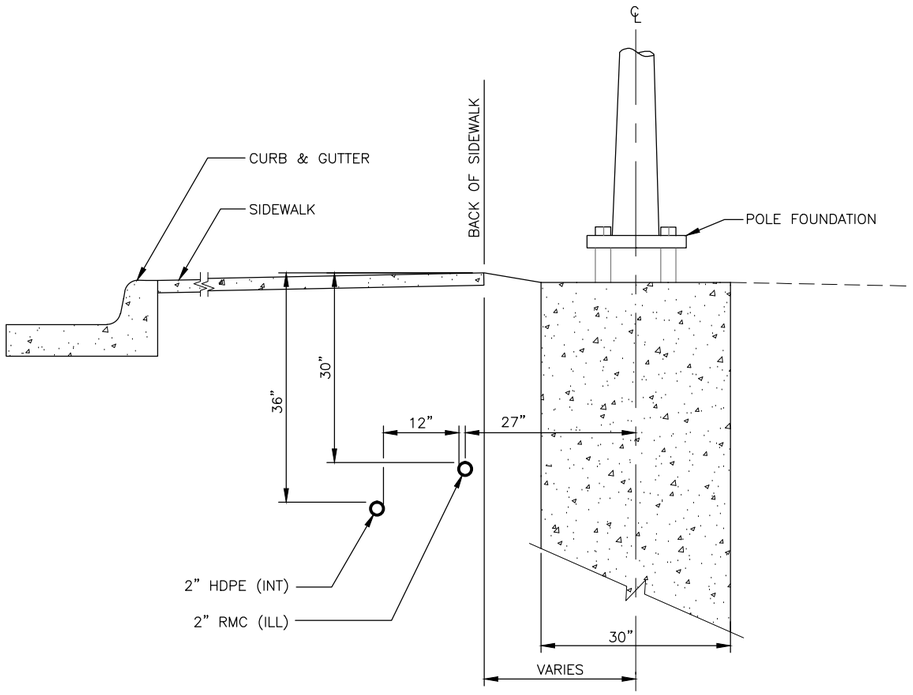
RMC TO HDPE CONDUIT CONNECTION DETAIL
NTS

MISCELLANEOUS FIBER OPTIC DETAILS

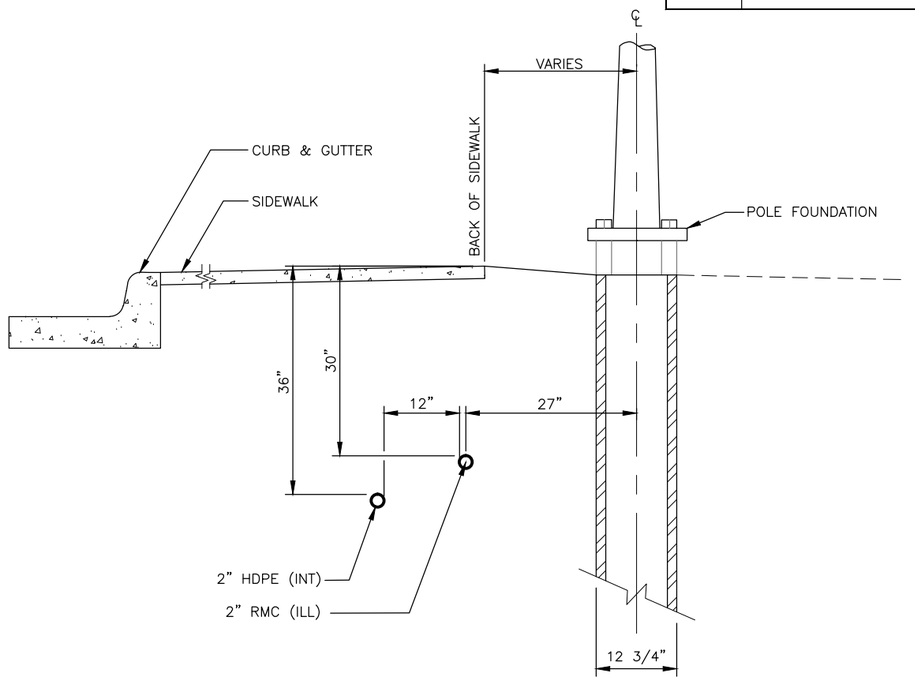
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H45	H58



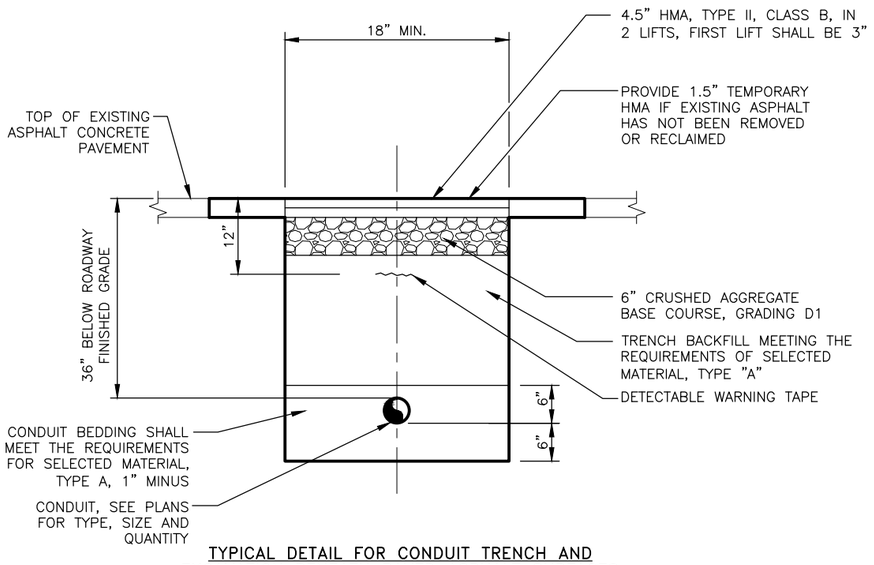
TYPICAL PLACEMENT ADJACENT TO CIDH LIGHT POLE FOUNDATIONS



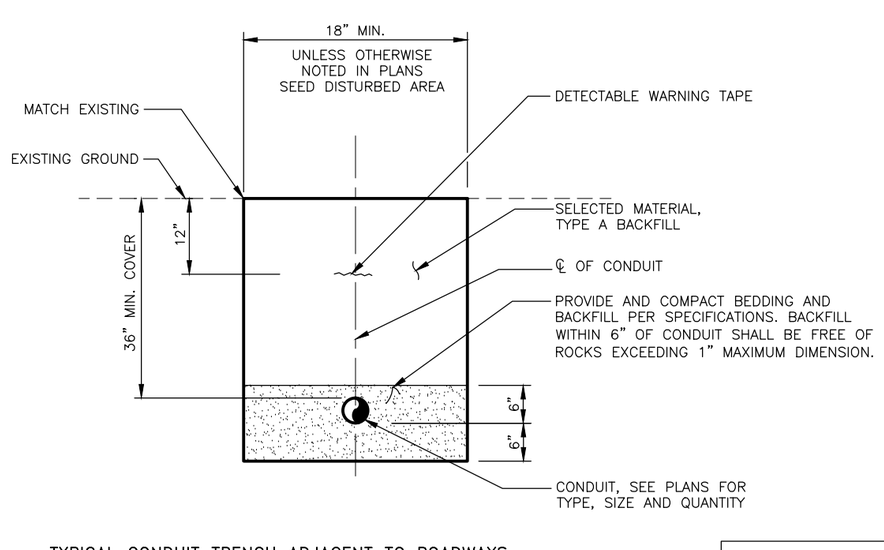
TYPICAL PLACEMENT ADJACENT TO STEEL PIPE PILE LIGHT POLE FOUNDATIONS

UTILITY PLACEMENT DETAILS

NTS



TYPICAL DETAIL FOR CONDUIT TRENCH AND EXCAVATION BENEATH PAVED ASPHALT SURFACES



TYPICAL CONDUIT TRENCH ADJACENT TO ROADWAYS

NOTES:

1. ALL ASPHALT PAVEMENT OR CONCRETE SIDEWALK SHALL BE SAWCUT PRIOR TO REMOVAL. EXCEPTION: WHERE APPLICABLE, THE CONCRETE SIDEWALK SHALL BE REMOVED TO THE NEAREST CONSTRUCTION JOINT UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. ALL CONDUIT TRENCH AND EXCAVATION BENEATH ASPHALT OR CONCRETE PAVED SURFACES SHALL BE COMPLETED BEFORE FINAL PAVING.
3. SEE SPECIAL PROVISIONS SUBSECTION 643-3.08 FOR ADDITIONAL PAVING REQUIREMENTS.

TRENCH DETAILS

NTS

INTERCONNECT AND LIGHTING TRENCH DETAILS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
9
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

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STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
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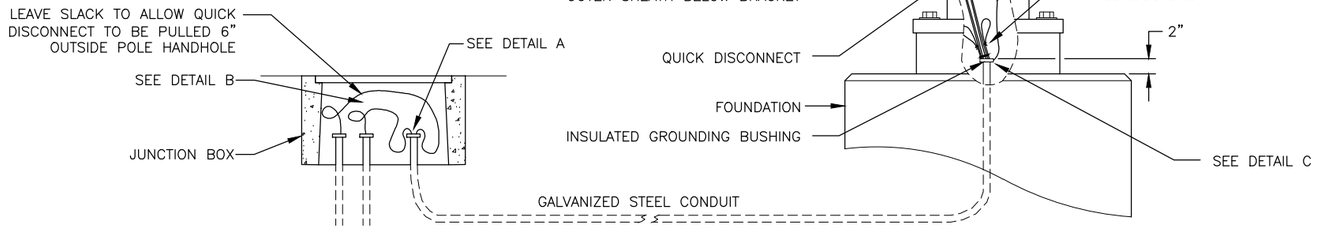
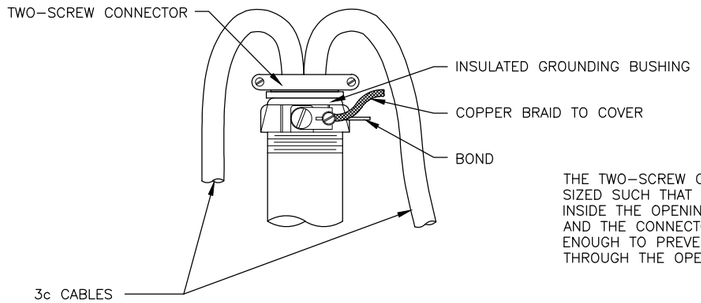
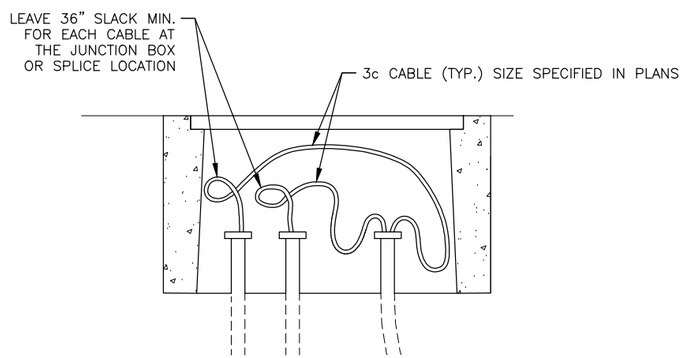


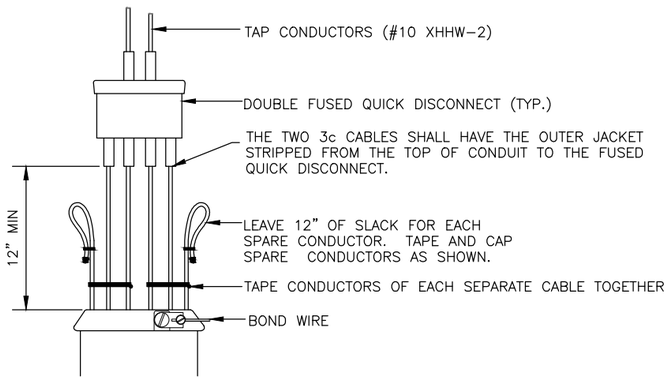


THE TWO-SCREW CONNECTOR SHALL BE SIZED SUCH THAT THE THREADS FIT INSIDE THE OPENING OF THE BUSHING AND THE CONNECTOR BODY IS LARGE ENOUGH TO PREVENT IT FROM SLIPPING THROUGH THE OPENING.

DETAIL A

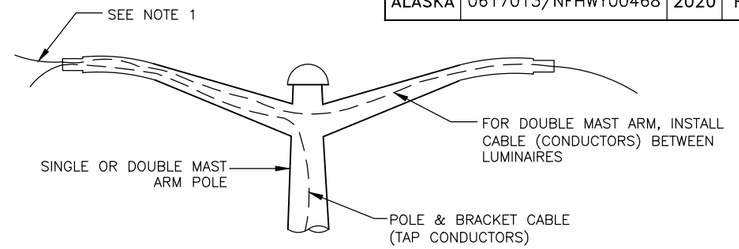


DETAIL B



DETAIL C

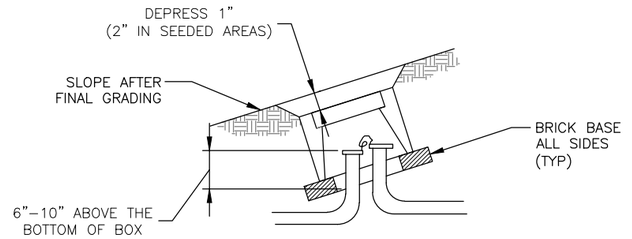
LIGHTING SYSTEM POLE AND J-BOX WIRING DETAILS
NTS



NOTE:

1. INSTALL 2"x1" REDUCING WASHER AND 1" CONNECTOR TO SECURE CONDUCTORS AT THE END OF THE MAST ARM

LIGHT STANDARD MAST ARM WIRING DETAIL
NTS



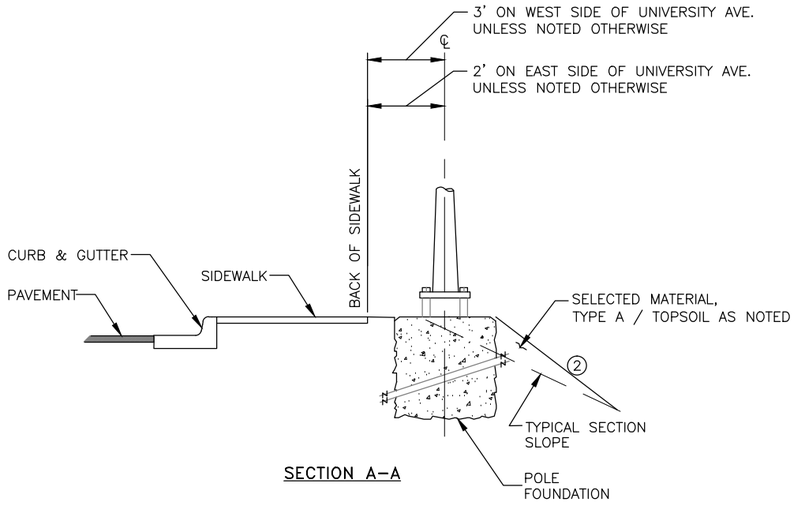
TYPE IA J-BOX INSTALLATION ON SLOPE
NTS

NOTES:

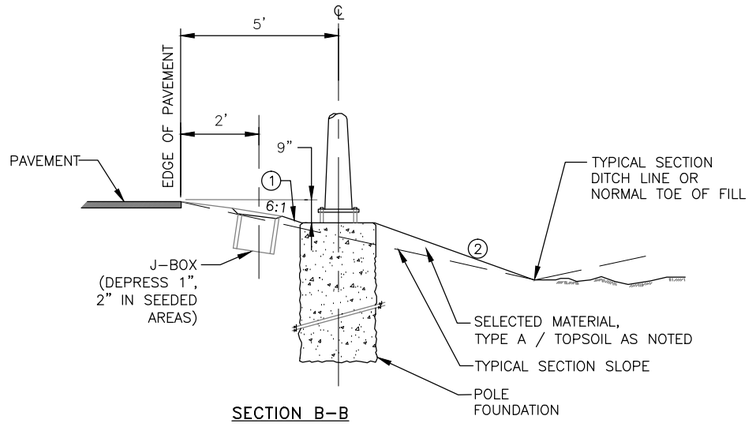
1. LABEL ALL CABLES AND CONDUCTORS IN POLE BASE AND J-BOX.
2. LEAVE ENOUGH SLACK ABOVE THE CONDUCTOR ATTACHMENT BRACKET TO ALLOW THE QUICK DISCONNECT TO BE PULLED 6" OUTSIDE OF HANDHOLE.
3. NOT ALL GROUNDING CONDUCTORS, AS REQUIRED BY SECTION 660-3.06, ARE SHOWN IN THESE DETAILS.

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

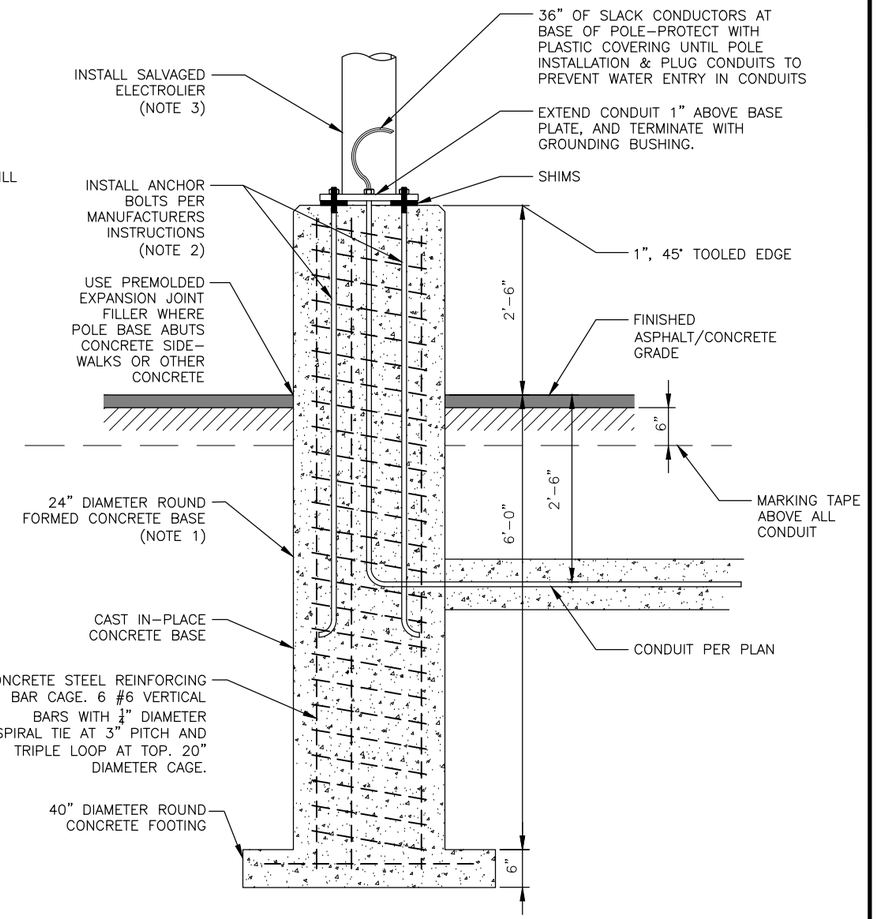
LIGHTING SYSTEM POLE J-BOX DETAILS

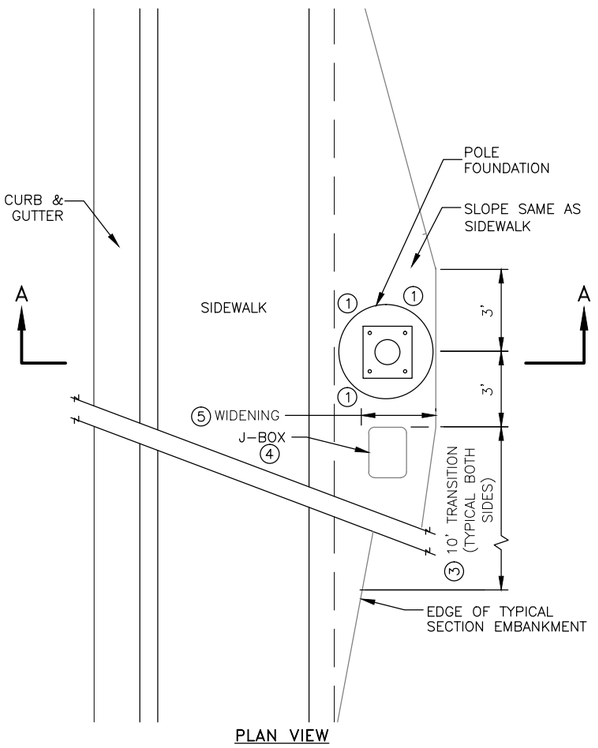


SECTION A–A



SECTION B–B

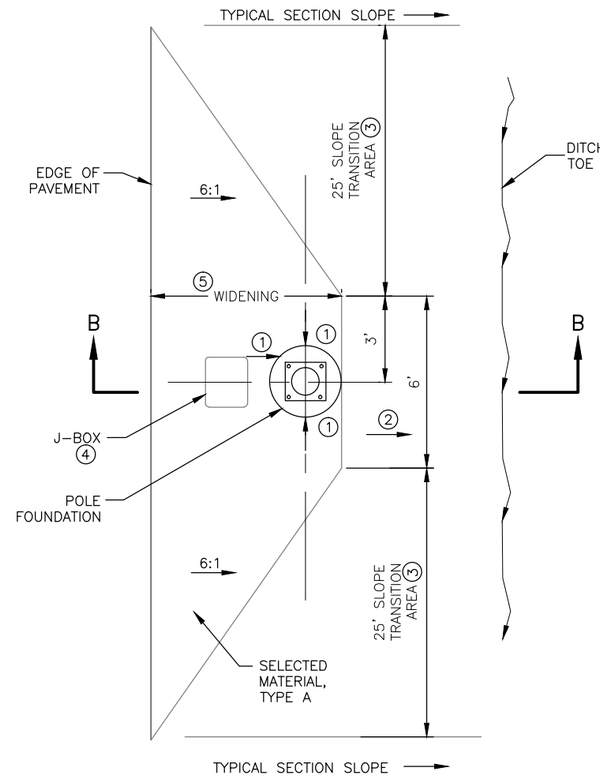




PLAN VIEW

LIGHT POLE WIDENING DETAIL "A"

(USE WHEN POLE IS LOCATED OFF BACK OF SIDEWALK)



LIGHT POLE WIDENING DETAIL "C"

(USE WHEN POLE IS LOCATED OFF SHOULDER)

LIGHT POLE WIDENING NOTES:

1. WARP SLOPE TO TOP CIRCUMFERENCE OF POLE FOUNDATION.
2. SLOPE FROM TOP EDGE OF POLE FOUNDATION TO TYPICAL SECTION DITCHLINE OR NORMAL TOE OF FILL. NO STEEPER THAN 2:1.
3. WHEN THE TYPICAL SECTION SLOPE IS STEEPER THAN 2:1 USE 35' FOR THE SLOPE TRANSITION AREA.
4. DEPRESS JUNCTION BOX 1" BELOW SURFACE. DEPRESS 2" IN SEEDED AREAS.
5. WIDENING SHALL BE CONSTRUCTED PRIOR TO POURING FOUNDATION.

NOTES:

1. FOUNDATION DETAIL APPLIES TO RELOCATED, SALVAGED ELECTROLIER AT THE FRED MEYER ENTRANCE DRIVEWAY. SEE SHEET H16 PLAN.
2. PROVIDE 1" X 36" X 4" ANCHOR BOLTS WITH 11.5" BOLT CIRCLE WITH NEW NUTS AND WASHERS.
3. PROVIDE NEW LAMP IN LUMINAIRE AFTER SALVAGED ELECTROLIER INSTALLED ON NEW FOUNDATION. BASED ON RECORD DRAWINGS, EXISTING ELECTROLIER CONSISTS OF THE FOLLOWING:

- LUMINAIRE: SINGLE POLE–MOUNT SQUARE LUMINAIRE, 250W HPS, TYPE V SQUARE DISTRIBUTION, WET LOCATION LISTED, 277V HPF BALLAST.
  MANUFACTURER: KIM #SBC500/250HPS277/WHITE.
- POLE: 25 FT STRAIGHT SQUARE POLE WITH HANDHOLE AND BASE COVER.
  MANUFACTURER: VALMONT DS230–500Q250–P2–PP–HH–AB.

FRED MEYER LIGHT POLE – FOUNDATION DETAIL

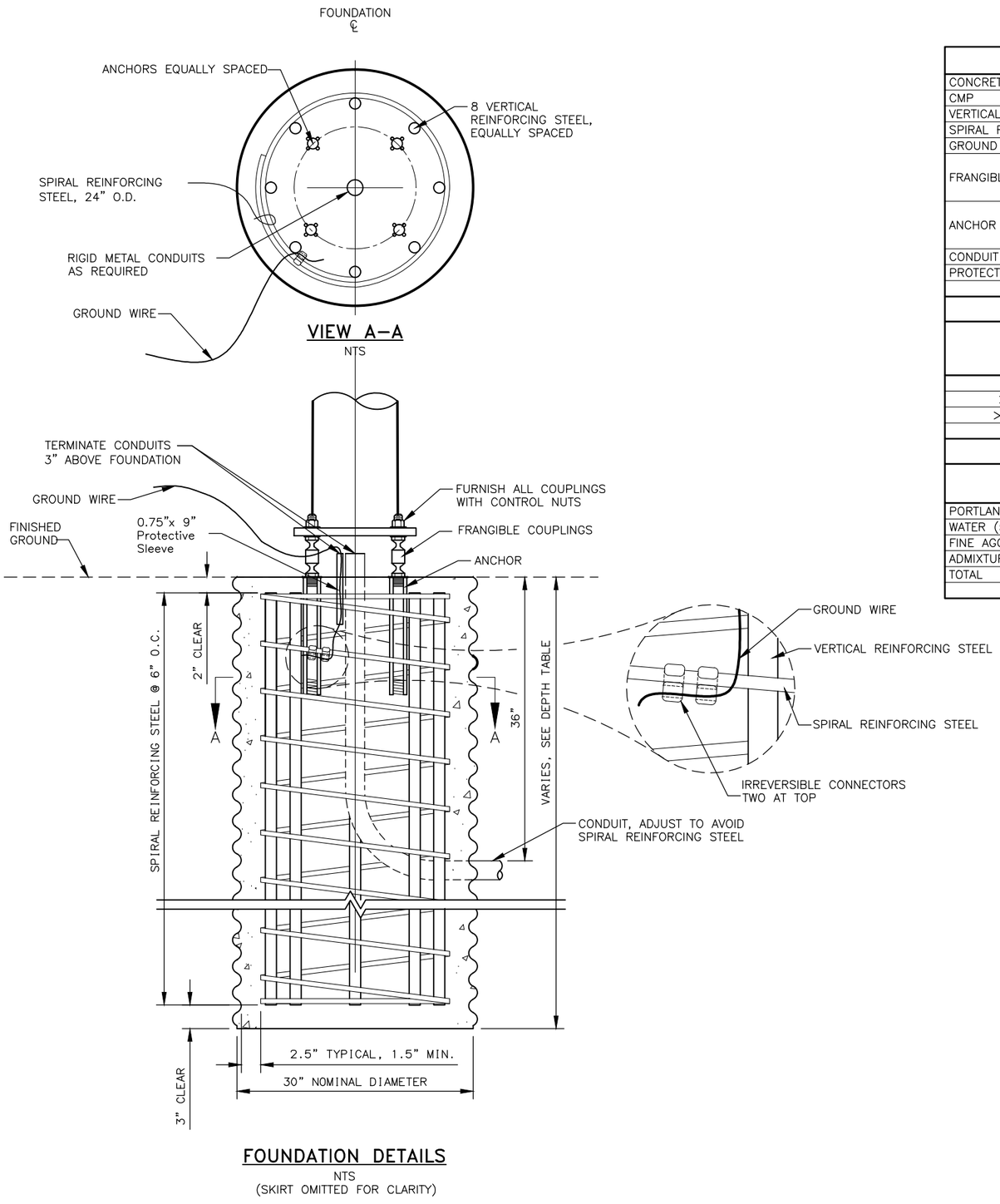
NTS

LIGHTING AND JUNCTION BOX DETAILS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H48	H58



FOUNDATION DETAILS

NTS
(SKIRT OMITTED FOR CLARITY)

MATERIAL REQUIREMENTS

CONCRETE	CLASS A	F'C = 4000 PSI
CMP	AASHTO M218	14 GA.
VERTICAL REINFORCING STEEL	AASHTO M31 #11	GR 60
SPIRAL REINFORCING STEEL	AASHTO M31 #5	GR 60
GROUND WIRE		#4 awg
FRANGIBLE COUPLING	NCHRP 350 TL3 FRANGIBLE COUPLING	VU = 5.5 KIPS TU = 43.2 KIPS
ANCHOR	NCHRP 350 TL3 FRANGIBLE COUPLING ANCHOR	
CONDUIT	SCH 40	RMC
PROTECTIVE SLEEVE	SCH 40	PVC

DEPTH TABLE

GRADE	FOUNDATION DEPTH BY APPLICATION (ft.)	
	ELECTROLIER * SEE NOTE 9	BREAKAWAY TRAFFIC SIGNAL
FLAT TO 6:1	8	6
>=6:1 TO 3:1	9	7
>=3:1 TO 1.5:1	10	8

SAND SLURRY MIX DESIGN

ITEM	BATCHING QUANTITIES PER CYD BATCH (lbs.)	APPLICABLE SPECS.
PORTLAND CEMENT CONCRETE	188	701–2.01
WATER (52.1 GAL.)	435	712–2.01
FINE AGGREGATE SSD	3041	703–2.01
ADMIXTURE: MICROAIR	2.0 OZ.	711–2.02
TOTAL	3664	

BOLT CIRCLE

NORTHERN REGION PROJECTS	14.5"

DESIGN NOTES:

DESIGN STANDARD: SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS, LFRD 1ST EDITION, AASHTO, 2015, WITH 2017 AND 2018 INTERIM REVISIONS.

DESIGN LOAD: 1,000 LBS AXIAL, 2,000 LBS SHEAR, 50,000 FT–LBS MOMENT.

CONSTRUCTION STANDARD: LATEST EDITION OF THE STATE OF ALASKA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION WITH SPECIAL PROVISIONS.

NOTES:

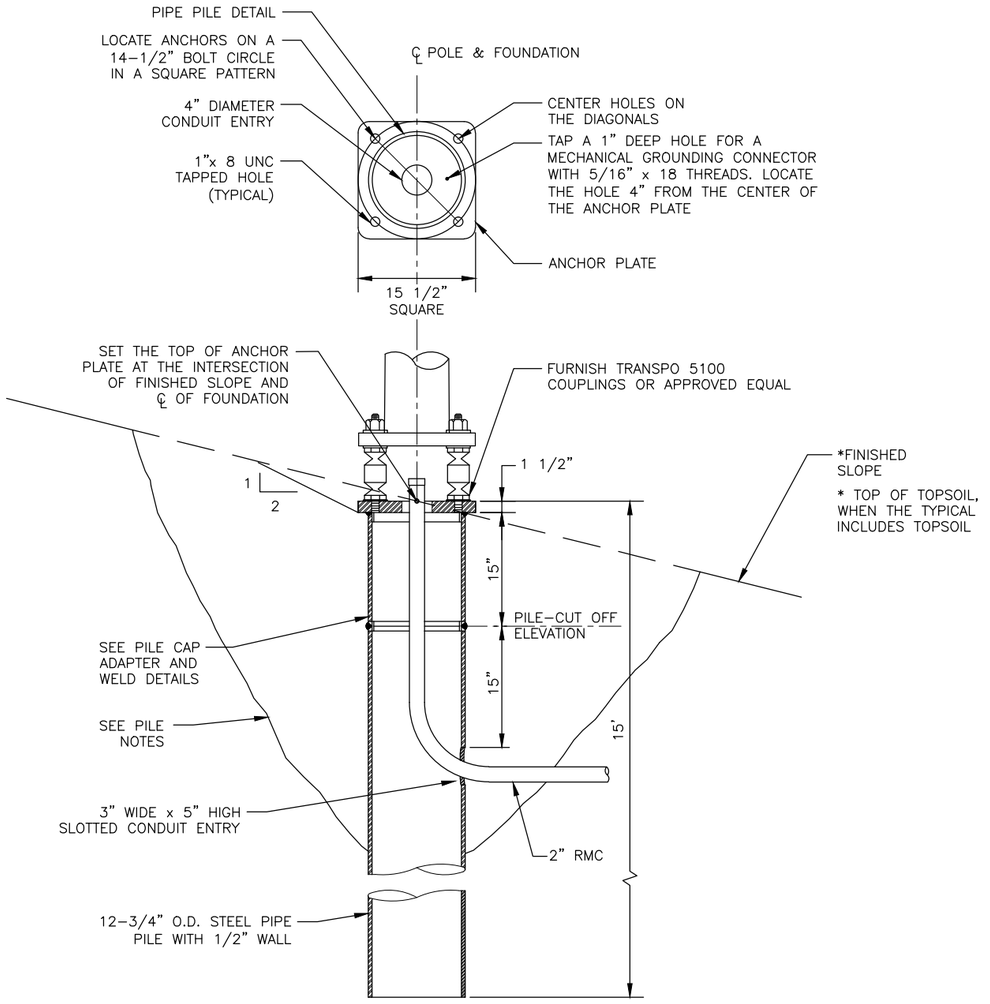
1. THIS FOUNDATION IS APPROVED FOR ELECTROLIER AND BREAKAWAY TRAFFIC SIGNAL APPLICATIONS IN COHESIONLESS SOILS WITH AN N1–60 VALUE OF 10 OR GREATER PER AASHTO T–206, "STANDARD PENETRATION TEST" (SPT). THIS FOUNDATION SHALL NOT BE USED IF ANY OF THE FOLLOWING ARE ENCOUNTERED; WATER TABLE ABOVE THE BOTTOM OF FOUNDATION, VERY LOOSE SOILS, ORGANIC SOILS, COHESIVE SOILS (CLAY), OR SOILS SUSCEPTIBLE TO FROST JACKING. IF ANY OF THESE CONDITIONS ARE ENCOUNTERED, STOP FOUNDATION WORK AND CONTACT THE ENGINEER.
2. PLACE FOUNDATION IN DRILLED OR EXCAVATED HOLE WITH CENTERLINE OF FOUNDATION LOCATED AT THE STATION, OFFSET, AND ELEVATION SPECIFIED IN PLANS. SET FOUNDATION TO SATISFY THE CONDITIONS DEPICTED IN CLEARANCE DETAIL.
3. FORM THE FOUNDATION IN CORRUGATED METAL PIPE CONFORMING TO SUBSECTION 707–2.01 OF THE SPECIFICATIONS.
4. PROVIDE 1.5 EXTRA TURNS AT EACH END OF THE SPIRAL REINFORCING STEEL. REINFORCING STEEL SHALL NOT BE SPLICED. TIE VERTICAL REINFORCING STEEL TO EACH INTERSECTION OF THE SPIRAL REINFORCING STEEL.
5. CONNECT GROUND WIRE NEAR THE TOP OF SPIRAL REINFORCING STEEL WITH TWO IRREVERSIBLE CONNECTORS AS SHOWN. FASTEN CONNECTORS ACCORDING TO THE MANUFACTURERS' RECOMMENDATIONS INCLUDING THE USE OF MANUFACTURER SPECIFIED TOOLS. THE GROUND WIRE MAY BE BARE SOLID, STRANDED, OR BRAIDED COPPER. PROTECT GROUND WIRE WITH PROTECTIVE SLEEVE AS SHOWN AND FILL WITH SILICON SEALANT.
6. COMPLETE ALL CONCRETE WORK IN CONFORMANCE WITH SECTIONS 501, 503, AND 660 OF THE SPECIFICATIONS. USE A TUBE WITH A HOPPER HEAD OR OTHER APPROVED DEVICE WHEN DROPPING CONCRETE MORE THAN 5 FEET PER SUBSECTION 501–3.08. VIBRATE CONCRETE DURING PLACEMENT BY MECHANICAL VIBRATION PER SUBSECTION 501–3.08. ENSURE ANCHOR THREADS ARE PROTECTED FROM CONTACT WITH CONCRETE DURING POUR.
7. BACKFILL AND COMPACT ACCORDING TO SECTION 205, AND SUBSECTIONS 203–3.04 AND 660–3.01 OF THE SPECIFICATIONS. USE SELECT MATERIAL, TYPE A OR SAND SLURRY AS BACKFILL MATERIAL. ENSURE AREA BELOW FOUNDATION MEETS COMPACTION REQUIREMENTS AND IS FREE OF LOOSE MATERIAL AND DEBRIS PRIOR TO CONCRETE WORK.
8. INSTALL ALL ANCHORS ACCORDING TO THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. ANCHORS SHALL BE INSTALLED PLUMB. ANCHORS GREATER THAN 1:40 OUT–OF–PLUMB WILL RESULT IN FOUNDATION REJECTION.
9. WHEN USED FOR ELECTROLIER REDUCE THE FOUNDATION DEPTH 1 FOOT WHEN THERE IS NO LUMINAIRE ARM OR THE LUMINAIRE ARM IS LESS THAN OR EQUAL TO 12 FEET.
10. GRADE IN DEPTH TABLE REFERS TO FILL SLOPES. IF FOUNDATION IS IN A CUT SLOPE ASSUME FLAT GRADE IN TABLE. TO DETERMINE GRADE IN FILL SLOPES, USE THE MOST SEVERE GRADE FOUND WITHIN AN 8 FOOT RADIUS OF THE CENTER OF THE FOUNDATION. SLOPES STEEPER THAN 1.5:1 REQUIRE ENGINEERED DEPTH CALCULATION.

CIDH LIGHT POLE FOUNDATION DETAIL

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

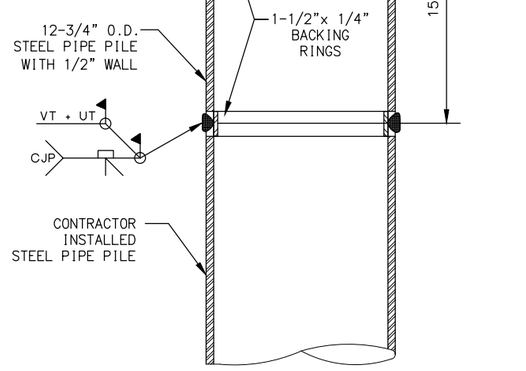
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H49	H58



PIPE PILE FOUNDATION

(SHOWN WITH FRANGIBLE COUPLINGS)
NTS



PILECAP ADAPTER DETAIL

NTS

DESIGN NOTES:

DESIGN STANDARD: 2001 STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS WITH 2006 INTERIM.

DESIGN LOADS: 5–KIPS AXIAL, 7.5–KIPS SHEAR, 40–KIP–FT MOMENT.

CONSTRUCTION STANDARD: STATE OF ALASKA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2004 ENGLISH EDITION WITH SPECIAL PROVISIONS.

MATERIAL REQUIREMENTS		
STRUCTURAL STEEL PLATE	ASTM A709, GRADE 50	Fy = 50 KSI
STEEL PIPE PILE	ASTM A709, GRADE 50 TE	Fy = 50 KSI
	API 5L GRADE X 42	Fy = 42 KSI

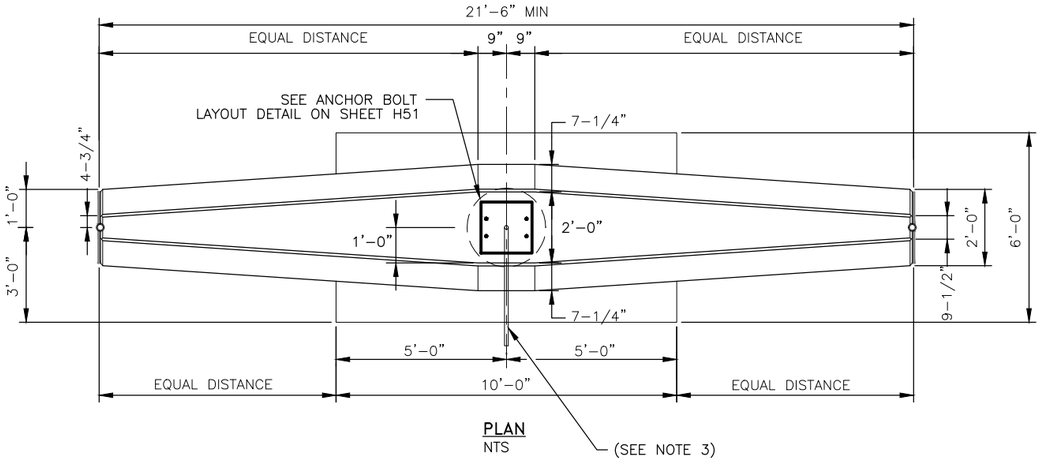
NOTES:

1. IN LIEU OF CONCRETE STREET LIGHT FOUNDATIONS SHOWN IN STANDARD DRAWING L–30.10, THE CONTRACTOR MAY PROVIDE STEEL PIPE PILE LIGHT POLE FOUNDATIONS IN ACCORDANCE WITH THIS DRAWING AND PROJECT SPECIFICATIONS AT NO ADDITIONAL COST TO THE STATE OF ALASKA.
2. FURNISH STEEL PIPE PILES THAT CONFORM TO THE MATERIAL REQUIREMENTS AND SECTION 660, 715 AND 740 OF THE SPECIFICATIONS. NO SPLICES ARE ALLOWED BELOW THE PILECAP ADAPTER.
3. DRIVE PILES OPEN ENDED. COMPLETE PILE WORK ACCORDING TO SECTIONS 505, 660 AND 715 OF THE SPECIFICATIONS. REMOVE AND REINSTALL PILES OUT OF PLUMB MORE THAN 1:40.
4. FRESH HEAD THE TOP OF PILES IN A LEVEL PLANE AND CUT THE CONDUIT ENTRANCE HOLE AFTER DRIVING THE PILE. NOTE; ONLY MECHANICAL OR PLASMA CUTTER MEANS ARE PERMITTED. OXY–FUEL CUTTING IS PROHIBITED.
5. FURNISH ONLY SHOP FABRICATED PILECAP ADAPTERS. INCLUDE STAMPED ENGINEERING CALCULATIONS, DRAWINGS, MILL CERTIFICATIONS AND WELDING PLANS FOR PILECAP ADAPTERS AND THE PILECAP ADAPTER TO PILE WELD. WELDING SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE AWS D1.1, STRUCTURAL WELDING CODE–STEEL AND THE SPECIFICATIONS.
6. AT EACH FOUNDATION, EXCAVATE A CONE SHAPED WORK HOLE 6.5' DIAMETER AT THE SURFACE DOWN TO 1 FOOT BELOW THE CONDUIT HOLE SUBJECT TO THE REQUIREMENTS AND RESTRICTIONS OF OSHA 1926.652. AFTER CUTTING THE CONDUIT ENTRANCE HOLE AND WELDING ON THE PILECAP ADAPTER, BACKFILL AND COMPACT THE WORK HOLE IN 8" LIFTS WITH A SOIL–CEMENT MIXTURE, CONSISTING OF 2 SACKS OF PORTLAND CEMENT PER CUBIC YARD OF SOIL. SUFFICIENT COMPACTIVE EFFORT WILL BE DETERMINED BY THE ENGINEER.
7. WAIT AT LEAST 3 DAYS AFTER BACKFILLING THE WORK HOLE BEFORE ERECTING THE LUMINAIRE POLE.
8. TERMINATE CONDUIT(S) 3" ABOVE THE TOP OF THE ANCHOR PLATE. INSTALL A GROUNDING BUSHING ON THE END OF THE RIGID METAL CONDUIT AND ESTABLISH A BOND WITH THE ANCHOR PLATE.

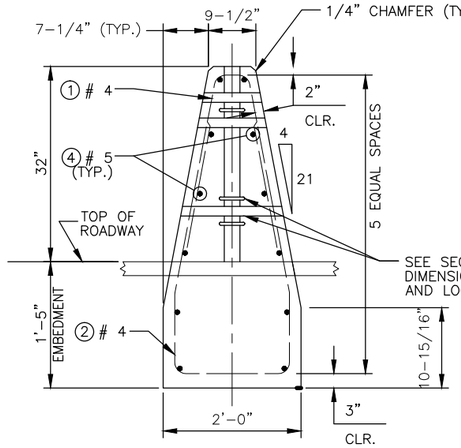
PIPE PILE FOUNDATION DETAILS FOR LIGHT POLES

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

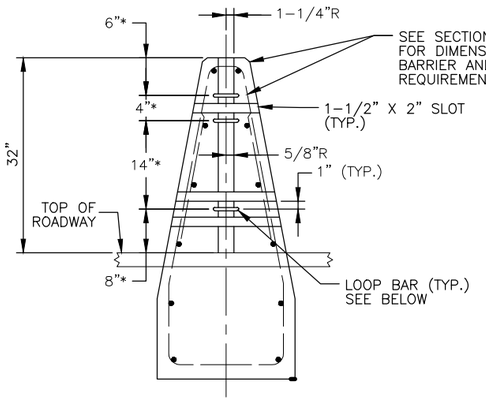
2/7/2020



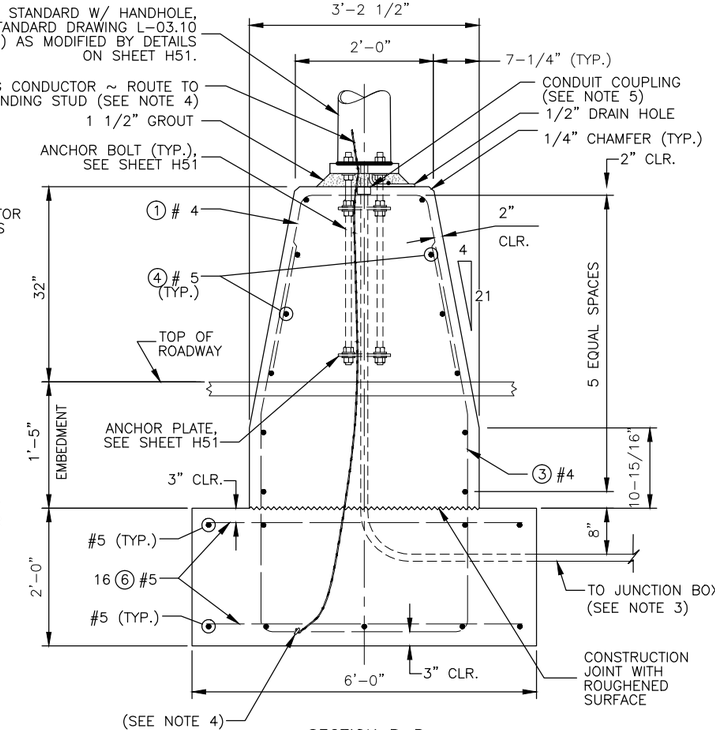
PLAN
NTS



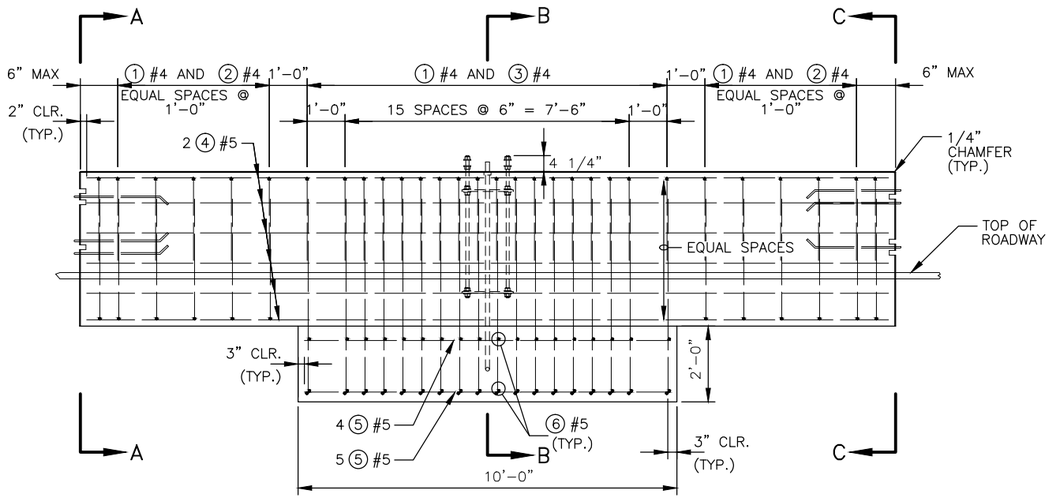
SECTION A-A
NTS



SECTION C-C
NTS
*INVERT DIMENSIONS FOR SECTION A-A

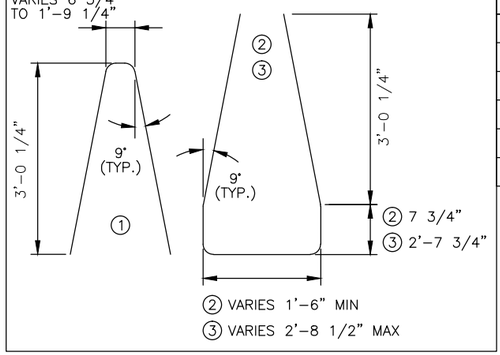


SECTION B-B
NTS

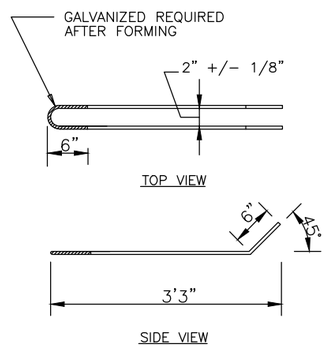


ELEVATION
NTS

ALL DIMENSIONS ARE OUT TO OUT
ALL BENDS ARE 2" (IN) RADIUS



BAR LIST		
MARK NO.	LOCATION	SIZE
①	BARRIER ~ TOP VERTICAL	# 4
②	BARRIER ~ BOTTOM VERTICAL	# 4
③	FND. & BARRIER ~ VERTICAL	# 4
④	BARRIER ~ HORIZONTAL	# 5
⑤	FOUNDATION	# 5
⑥	FOUNDATION	# 5



LOOP BAR DETAIL
NTS
(3/4" DIA - A36 STEEL

NOTES

1. WHEN CONNECTING BETWEEN CAST-IN-PLACE AND PRECAST F SHAPE BARRIER, PROVIDE A CONNECTION PIN PER DETAIL ON STD DWG G-46.12 (SHEETS V16-V16A) AND RECONNECT TO EXISTING BARRIERS.
2. CONFIRM WHETHER SECTIONS A-A AND B-B ARE UPSTREAM OR DOWNSTREAM, RESPECTIVELY, PRIOR TO CONSTRUCTING FORMS.
3. SEE ILLUMINATION AND INTERCONNECT PLANS SHEETS H15-H21 FOR CONDUIT PLACEMENT.
4. GROUNDING CONDUCTOR SHALL BE NON-INSULATED #4 AWG STRANDED COPPER; PROVIDE 3' MIN. SLACK. CLAMP STEEL REINFORCING BAR WITH CONNECTOR SUITABLE FOR USE EMBEDDED IN CONCRETE.
5. INSTALL CONDUIT COUPLING FLUSH WITH TOP OF FOUNDATION. DO NOT GLUE PVC STUBOUT.
6. THIS PLAN SHALL BE USED FOR A 35' MOUNTING HEIGHT ABOVE TOP OF BARRIER WITH 15' (FT) MAX. LENGTH DOUBLE MAST ARMS OR A SINGLE 22 FT MAX. MAST ARM.
7. USE AIR ENTRAINED CONCRETE WITH MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
8. THIS SPREAD FOOTING IS DESIGNED FOR AN ALLOWABLE SOIL BEARING PRESSURE OF 2500 PSF OR BETTER.

SINGLE-SLOPE CONCRETE LIGHT STANDARD FOUNDATION DETAILS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H46-H51_LIGHT DETLS.DWG PLOTTED: Feb 7, 2020 - 4:46:28 PM (Brian Lewis) KE#: 00245

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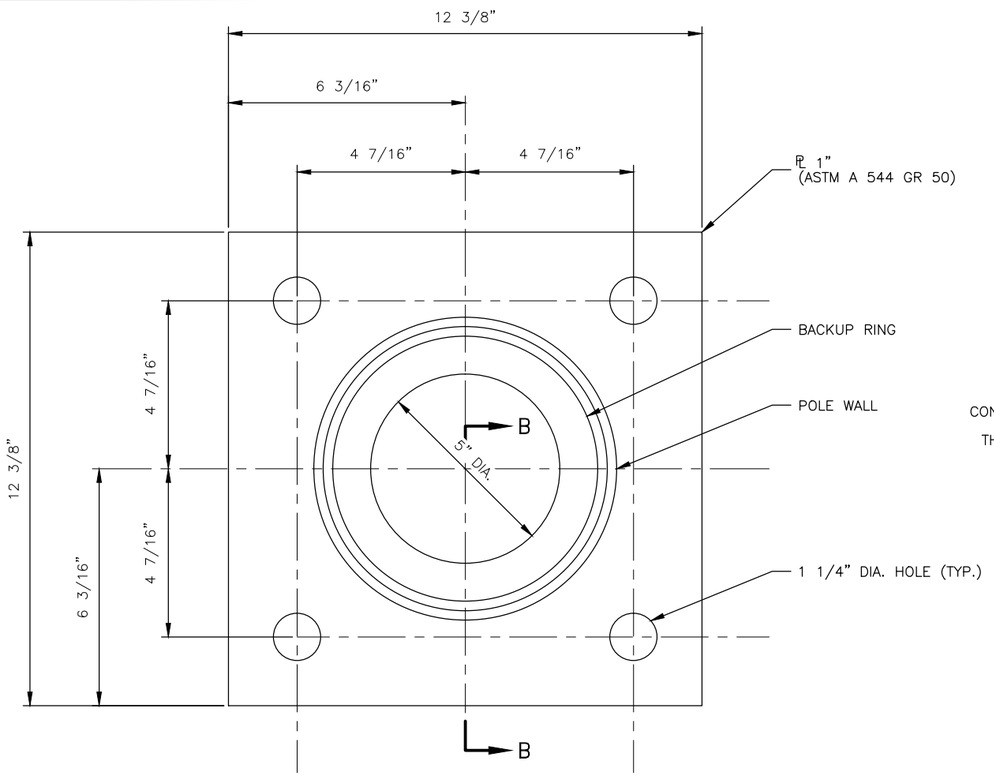
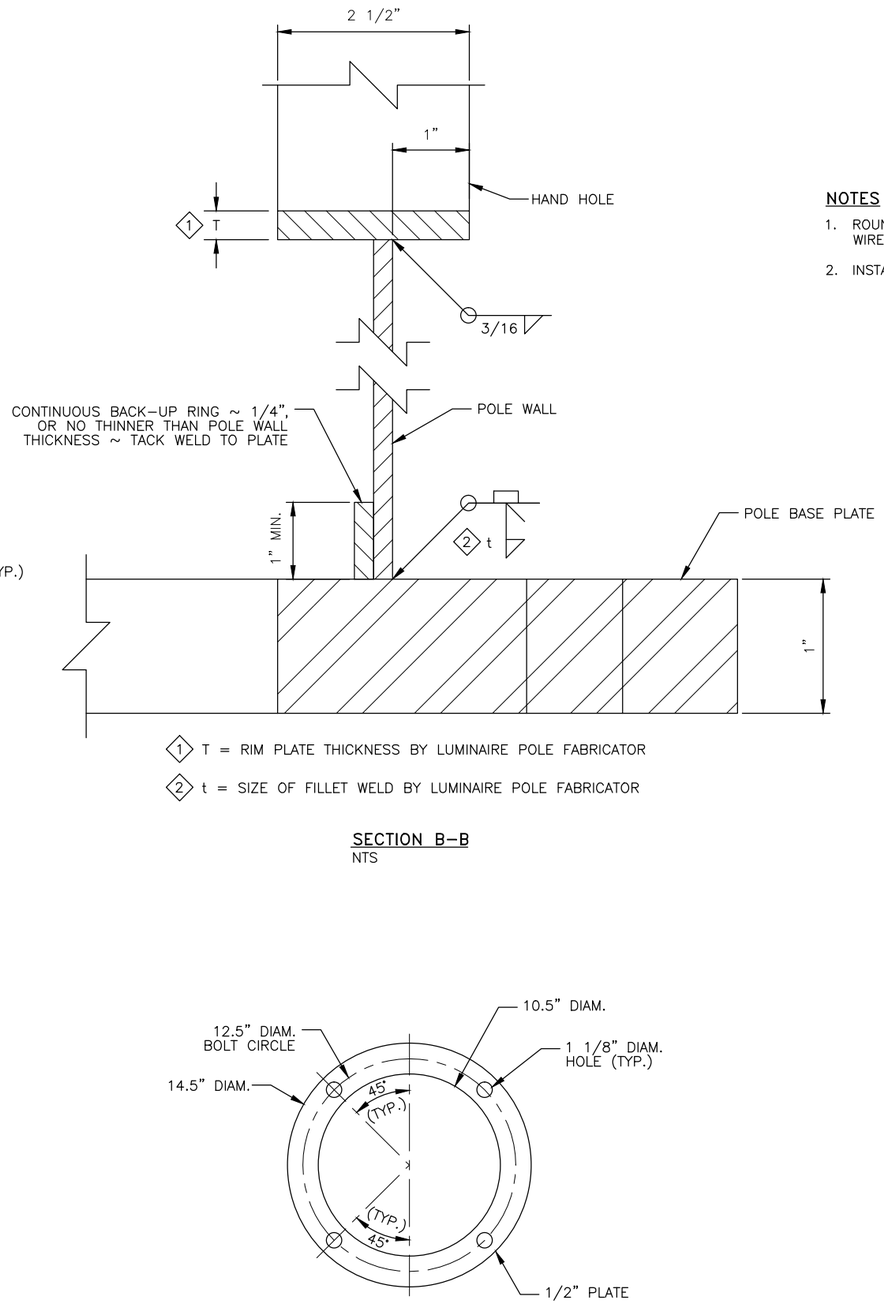
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H51	H58



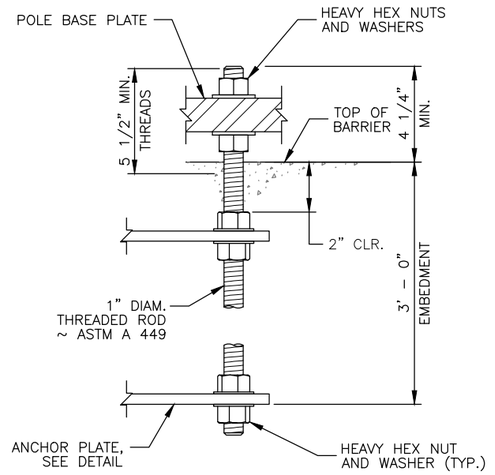
SECTION A–A
NTS



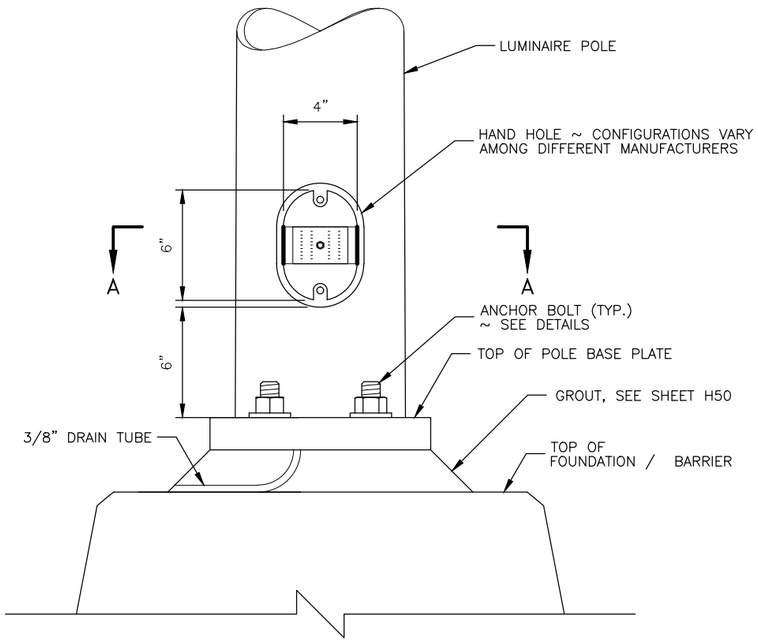
SECTION B–B
NTS

NOTES

1. ROUND AND SMOOTH ALL EDGES AROUND HAND HOLE AND ALONG THE WIRE–WAY TO PROTECT THE CONDUCTORS.
2. INSTALL GROUT AFTER PLUMBING THE POLE.

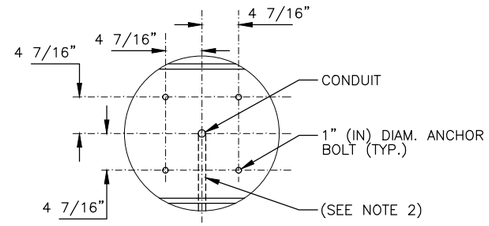


ANCHOR BOLT DETAIL
NTS
GALVANIZE EXPOSED ANCHOR ROD END 1' – 0" MIN.



PLACEMENT DETAIL
NTS SEE NOTE 4

ANCHOR PLATE
NTS



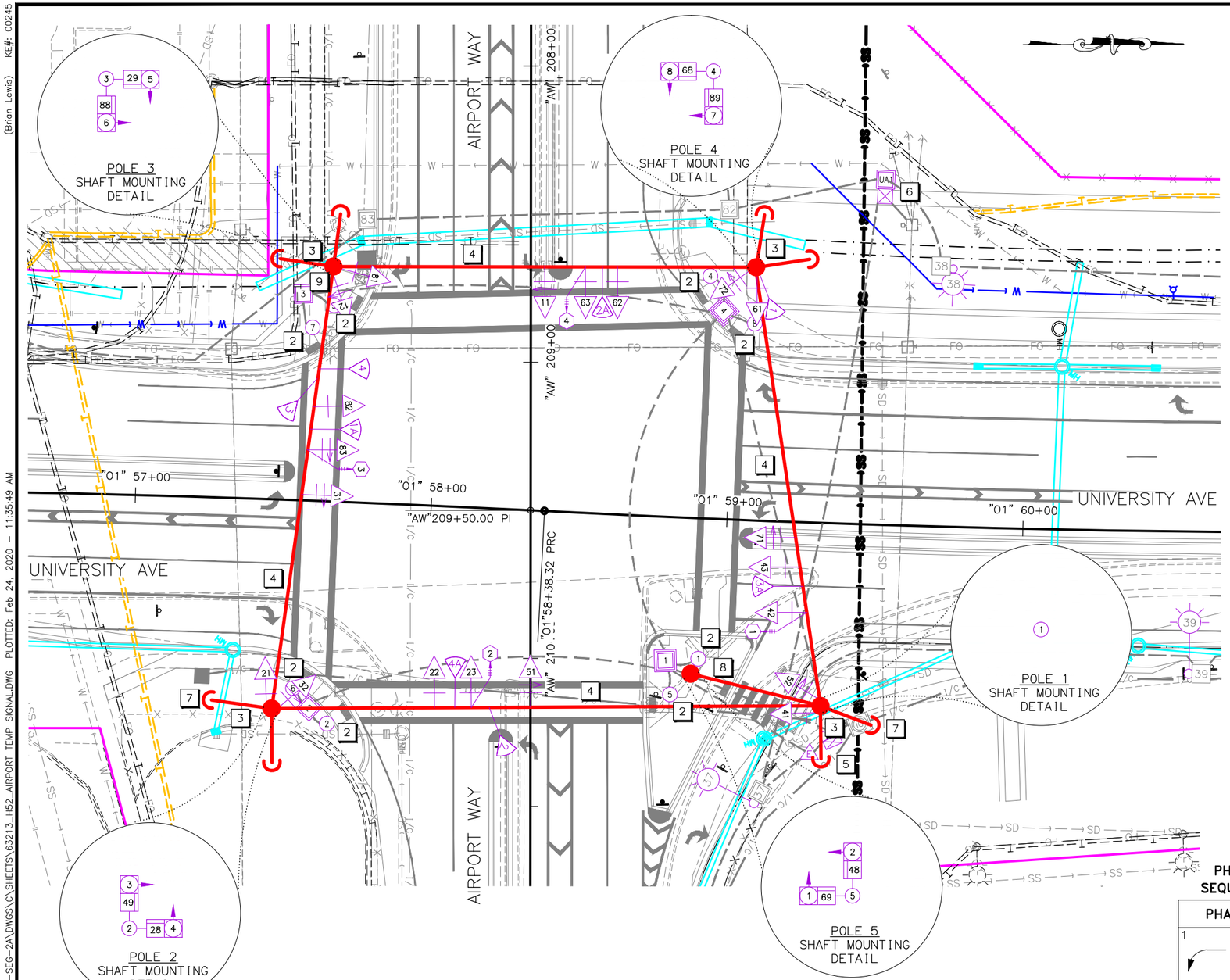
PLAN VIEW

ANCHOR BOLT LAYOUT DETAIL
NTS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

SINGLE–SLOPE CONCRETE LIGHT STANDARD FOUNDATION DETAILS



STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H52	H58

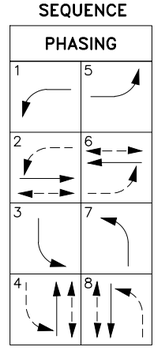
GENERAL SHEET NOTES:

1. THE TEMPORARY SIGNAL SYSTEM SHOWN IS IN THE FINAL LANE CONFIGURATION. MODIFICATIONS TO THE TEMPORARY TRAFFIC SIGNAL WILL BE REQUIRED DURING CONSTRUCTION TO ACCOMMODATE VARYING TRAFFIC LANE CONFIGURATIONS AND OPERATIONS.
2. SUBMIT A TEMPORARY TRAFFIC PLAN FOR APPROVAL BY THE ENGINEER PRIOR TO IMPLEMENTING ALTERATIONS TO THE TEMPORARY TRAFFIC SIGNAL.
3. VEHICLE DETECTION WILL BE REQUIRED THROUGHOUT CONSTRUCTION. ADJUST AS NEEDED TO ACCOMMODATE CONSTRUCTION WORK. SEE SPECIFICATIONS FOR RADAR VEHICLE DETECTION REQUIREMENTS.
4. DURING CONSTRUCTION, CONTRACTOR SHALL RE-AIM AND/OR RE-POSITION VEHICLE SIGNAL HEADS, OPTICOM, AND RADAR DETECTION AS REQUIRED OR AS DIRECTED BY THE ENGINEER TO ACCOMMODATE THE IMPROVEMENTS OR MIS-ALIGNMENT.
5. PROVIDE AND MAINTAIN TEMPORARY SIGNING AND PAVEMENT MARKINGS AS REQUIRED BY THE ALASKA TRAFFIC MANUAL, THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, PLANS, AND SPECIFICATIONS. REMOVE OR COVER CONFLICTING TRAFFIC SIGNS AND PAVEMENT MARKINGS.
6. MAINTAIN EXISTING PEDESTRIAN AND BICYCLE ACCESS THROUGH THE WORK ZONE AND IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT GUIDELINES, PLANS, AND SPECIFICATIONS.
7. ALL WORK SHALL BE CONTAINED WITHIN THE ROW.
8. OBTAIN THE ENGINEER'S APPROVAL TO DECOMMISSION AND SALVAGE THE TEMPORARY TRAFFIC SIGNAL SYSTEM ONCE THE PERMANENT TRAFFIC SIGNAL SYSTEM IS FUNCTIONAL AND ACCEPTED. SEE SPECIFICATIONS FOR DELIVERY REQUIREMENTS.
9. TEMPORARY TRAFFIC SIGNALIZATION WORK AT THIS INTERSECTION SHALL BE PAID FOR UNDER 660(7).

SHEET NOTES:

1. EXISTING TRAFFIC SIGNAL POLE TO BE DEMOLISHED.
2. PROPOSED PERMANENT TRAFFIC OR PEDESTRIAN SIGNAL POLE.
3. TEMPORARY WOOD TRAFFIC POLE. PLACED OUTSIDE OF PROPOSED ROADWAY AND WITHIN ROW OR TCE. POLE GUYS SHALL BE PLACED WITHIN ROW OR TCE.
4. MESSENGER, TETHER, SIGNAL, OPTICOM, LIGHT, AND RADAR DETECTION CABLES.
5. PROPOSED PERMANENT TRAFFIC CONTROLLER.
6. PROPOSED PERMANENT LOAD CENTER.
7. PROPOSED PERMANENT INTERCONNECT VAULT.
8. TEMPORARY PEDESTRIAN SIGNAL POLE.
9. PROVIDE SIDEWALK DOWN GUY. PROVIDE 12 FT. CLEARANCE OVER PATHWAY.
10. TEMPORARY SIGNING
11. USE VACTOR TRUCK AND/OR WATER KNIFE FOR NEW TEMP POLE EXCAVATION, DUE TO PROXIMITY TO UNDERGROUND UTILITIES.

PHASE SEQUENCE



PHASE DIAGRAM NORTH ARROW

PED MOVEMENT

VEH. MOVEMENT

LEFT TURN MOVEMENT (PROTECTED)

LEFT TURN MOVEMENT (PERMISSIVE)

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/24/2020

AIRPORT WAY TEMPORARY SIGNAL PLAN

FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_H52_AIRPORT TEMP SIGNAL.DWG PLOTTED: Feb 24, 2020 - 11:35:49 AM (Brian Lewis) KE#: 00245

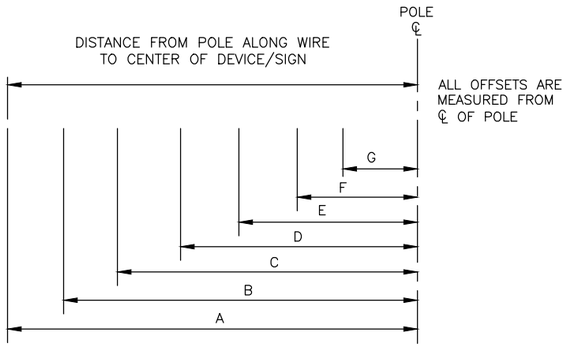
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H53	H58

TEMPORARY POLE–POST DESIGN LOADING SCHEDULE

TEMP POLE NO.	CORNER		A	B	C	D	E	F	G	REMARKS
1	NE	SIG. OR SIGN	RADAR	SIGNAL	RADAR	SIGNAL	SIGN			
		LOC. OFFSET	137.4	93.8	84.5	75.6	58.6			
		LxW OR S.F.	1.0	11.5	1.0	11.5	25.0			
2	SE	SIG. OR SIGN	RADAR	SIGNAL	SIGNAL	SIGNAL	RADAR	SIGNAL	SIGN	
		LOC. OFFSET	130.6	71.9	59.8	47.7	42.4	35.5	24.8	
		LxW OR S.F.	1.0	11.5	11.5	11.5	1.0	11.5	20.0	
3	SW	SIG. OR SIGN	SIGNAL	RADAR	SIGN	SIGNAL	RADAR	SIGN		
		LOC. OFFSET	81.9	73.0	68.5	64.0	55.8	40.5		
		LxW OR S.F.	11.5	1.0	7.5	11.5	1.0	25.0		
4	NW	SIG. OR SIGN	SIGNAL	SIGNAL	SIGNAL	RADAR	SIGNAL	SIGN		
		LOC. OFFSET	64.6	52.5	40.8	35.0	28.5	22.0		
		LxW OR S.F.	11.5	11.5	11.5	1.0	11.5	20.0		

TEMPORARY POLE–POST DESIGN LOADING SCHEDULE NOTES:

1. LAYOUT AND OFFSET DISTANCES ARE FOR FINAL LANE CONFIGURATION. OFFSETS MAY BE ALTERED WITH APPROVAL OF ENGINNER. SIGNAL HEADS, RADAR DETECTION, AND SIGNS MAY BE OMITTED WITH APPROVAL OF ENGINEER.



PED SIGNAL HEAD SCHEDULE

POLE/POST NO.	FACE NO.	MOUNTING TYPE	REMARKS
2	69	P	REUSE OF EXISTING SIGNAL HEADS IS PERMITTED, AS APPROVED BY ENGINEER
	48	P	
3	88	P	
	89	P	
4	48	P	
	28	P	
5	29	P	
	68	P	

PEDESTRIAN DETECTION SCHEDULE

POLE	PUSH BUTTON	PHASE	REMARKS
5	1	6	SEE NOTE 1
	2	4	SEE NOTE 1
2	3	4	SEE NOTE 2
	4	2	SEE NOTE 1
3	5	2	SEE NOTE 2
	6	8	SEE NOTE 1
4	7	8	SEE NOTE 2
	8	6	SEE NOTE 1

PEDESTRIAN DETECTION NOTES:

1. INSTALL A R10–3eL SIGN ABOVE PEDESTRIAN PUSH BUTTON. SIGN SHALL NOT BE MEASURED FOR PAYMENT AND IS SUBSIDIARY TO THE TEMPORARY SIGNAL.
2. INSTALL A R10–3eR SIGN ABOVE PEDESTRIAN PUSH BUTTON. SIGN SHALL NOT BE MEASURED FOR PAYMENT AND IS SUBSIDIARY TO THE TEMPORARY SIGNAL.

TEMPORARY SIGNAL NOTES:

1. LOCATION OFFSETS ARE FROM CENTER OF OBJECT TO ℄ OF TEMPORARY POLE. OFFSETS MAY BE ALTERED AS APPROVED BY ENGINEER.
2. LAYOUT AND NUMBER OF DEVICES MAY BE ALTERED AS APPROVED BY ENGINEER.
3. SEE SHEET H30 FOR POLE/POST SIGNAL HEAD SIDE MOUNTING TYPES AND SIGNAL HEAD CONFIGURATIONS.
4. SEE SHEET H30 FOR SIGNAL SIGN SCHEDULE. REUSE OF EXISTING SIGNS FOR TEMPORARY TRAFFIC CONTROL IS PERMITTED, AS APPROVED BY ENGINEER.
5. SEE SHEET H30 FOR OPTICOM DETECTION SCHEDULE. LOCATION OF OPTICOM SENSORS MAY BE ALTERED WITH APPROVAL OF ENGINEER.
6. SEE SHEET H30 FOR FLASH PROGRAM SCHEDULE.

RADAR DETECTION SCHEDULE

DET. NO.	PHASE CALL	TYPE	FACING DIR.	POLE NO.	LOCATION	RADAR TYPE
1	3&8	STOP BAR	NORTHEAST	2	TEMP CABLE	SMARTSENSOR MATRIX
2	1&6	STOP BAR	EAST	3	TEMP CABLE	SMARTSENSOR MATRIX
3	4&7	STOP BAR	SOUTHEAST	3	TEMP POLE	SMARTSENSOR MATRIX
4	2&5	STOP BAR	NORTHWEST	1	TEMP CABLE	SMARTSENSOR MATRIX
1A	8	ADVANCE	NORTH	4	TEMP CABLE	SMARTSENSOR ADVANCE EXTENDED RANGE
2A	6	ADVANCE	EAST	1	TEMP CABLE	SMARTSENSOR ADVANCE EXTENDED RANGE
3A	4	ADVANCE	SOUTH	2	TEMP CABLE	SMARTSENSOR ADVANCE EXTENDED RANGE
4A	5	ADVANCE	WEST	3	TEMP CABLE	SMARTSENSOR ADVANCE EXTENDED RANGE

RADAR DETECTOR NUMBER

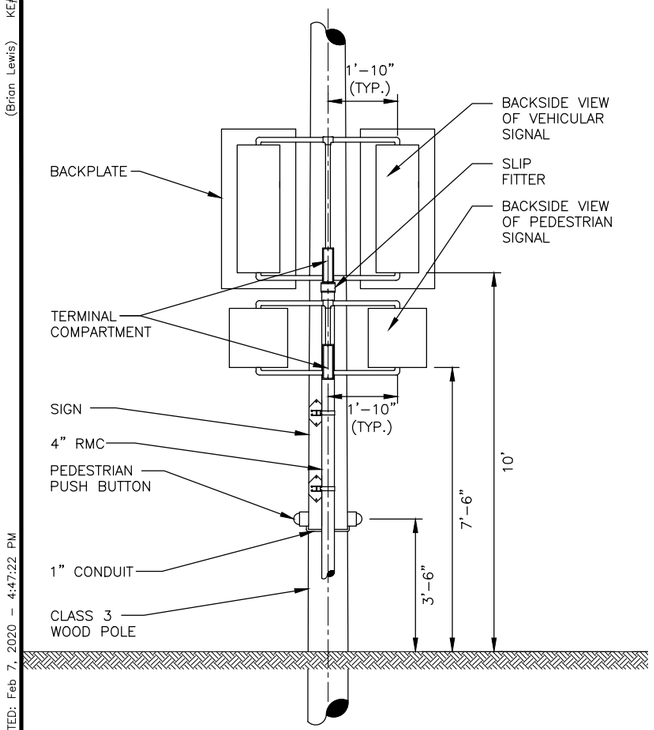
SIGNAL HEAD SCHEDULE

TEMP POLE/POST NO.	FACE NO.	INDICATIONS										MOUNTING				REMARKS
		12" BALL			12" ARROW				8" BALL			TEMP CABLE		SIDE MTNG. TYPE	TOP OF POST	
		R	Y	G	R	Y	FYA	G	R	Y	G	LOC. OFFSET	ELEV. PLUMB			
1	41	X	X	X										D		REUSE OF EXISTING SIGNAL HEADS IS PERMITTED, AS APPROVED BY ENGINEER
	52				L	L	L	L						D		
	42	X	X	X								21.5	X			
	43	X	X	X								33.5	X			
	71				L	L	L	L				49.0	X			
2	21	X	X	X										D		
	32				L	L	L	L						D		
	22	X	X	X								36.7	X			
	23	X	X	X								48.7	X			
	51				L	L	L	L				68.7	X			
3	81	X	X	X										D		
	12				L	L	L	L						D		
	82	X	X	X								36.4	X			
	83	X	X	X								48.4	X			
	31				L	L	L	L				64.2	X			
4	61	X	X	X										D		
	72				L	L	L	L						D		
	62	X	X	X								28.1	X			
	63	X	X	X								40.7	X			
	11				L	L	L	L				61.5	X			

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

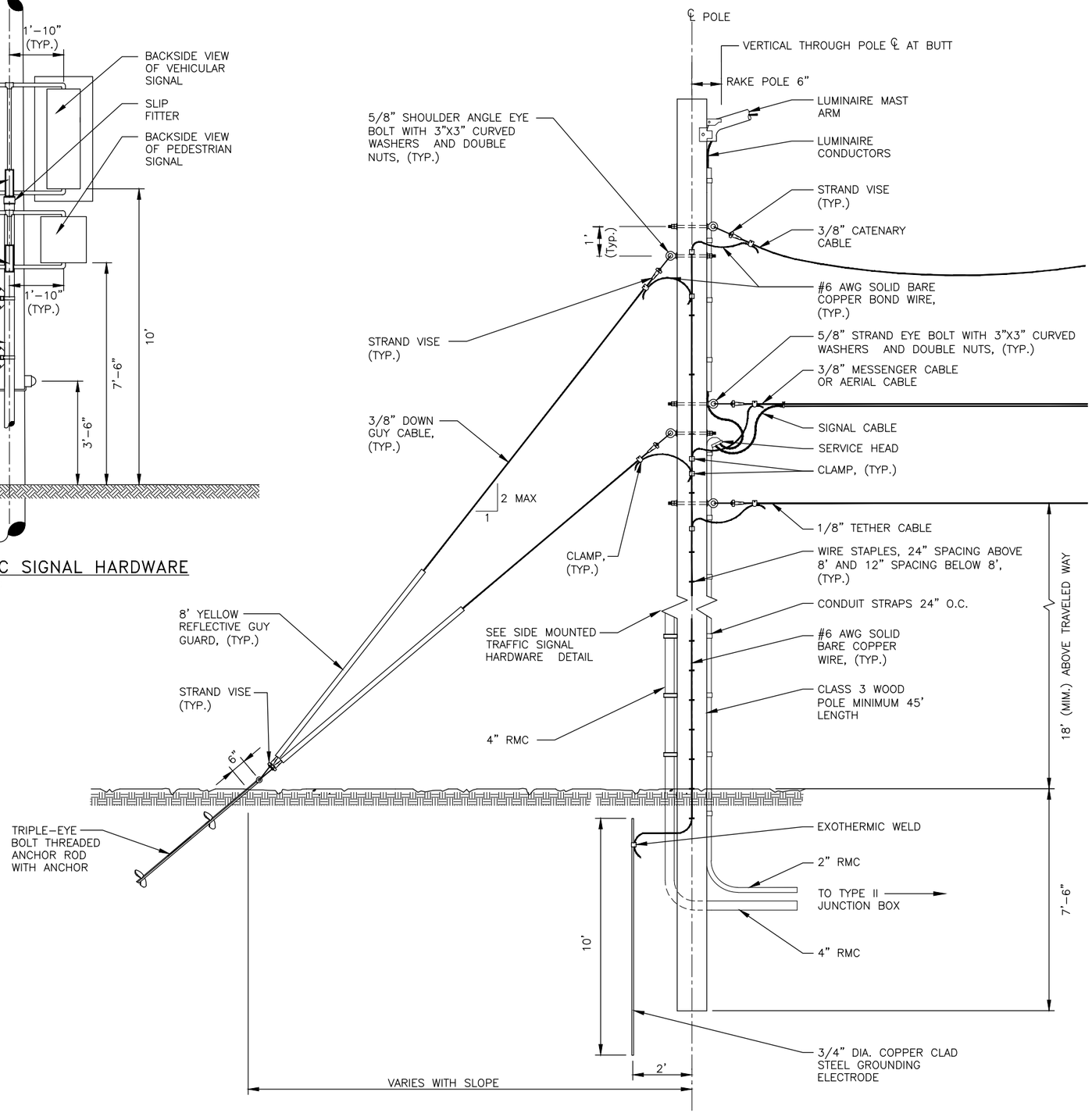
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

AIRPORT WAY TEMPORARY SIGNAL SCHEDULE



SIDE MOUNTED TRAFFIC SIGNAL HARDWARE

NTS



WOOD TRAFFIC POLE DETAIL

NTS
(SINGLE SPAN ATTACHMENT SHOWN)

GENERAL NOTES:

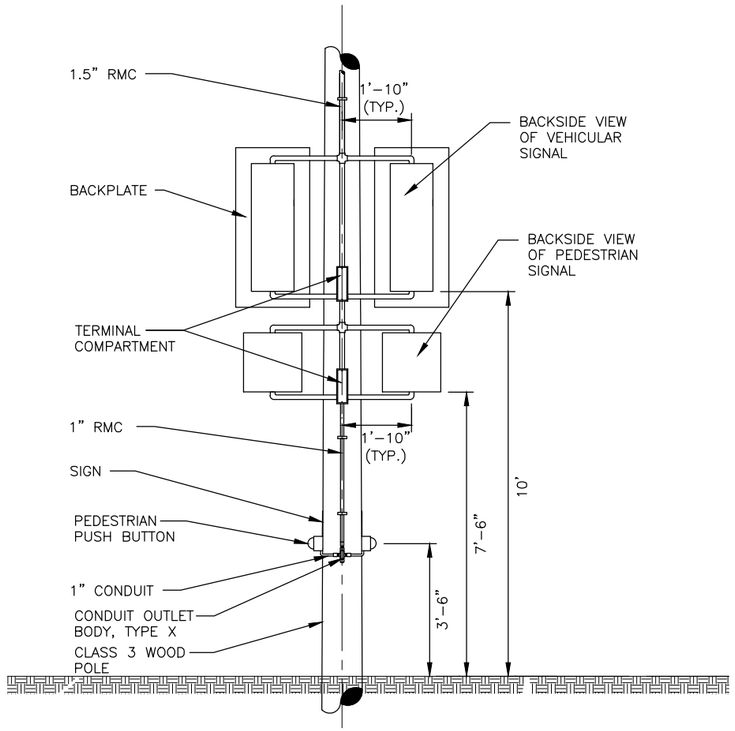
1. ATTACH A 4 INCH RIGID METAL CONDUIT TO THE WOOD POLE, USING UNISTRUT P9014 WITH P4101 CHANNEL, AND P1121 PIPE CLAMPS, OR APPROVED EQUAL.
2. INSTALL THE 4 INCH CONDUIT ON THE SIDE OF THE POLE AT A LOCATION WHERE A LINE PARALLEL TO THE LONG CORD (P.C. TO P.T.) OF THE RADIUS IS TANGENT TO THE POLE, AS SHOWN IN STANDARD DRAWING T–30.11 OR THE SIGNAL HARDWARE DETAIL SHEET IN PLANS FOR TERMINAL COMPARTMENT LOCATIONS.
3. USE POST TOP SIGNAL FRAMES WITH TERMINAL COMPARTMENTS TO INSTALL THE VEHICULAR SIGNAL HEADS ON TOP OF THE 4 INCH CONDUIT.
4. USE SIDE MOUNTED SIGNAL FRAMES WITH TERMINAL COMPARTMENTS TO INSTALL THE PEDESTRIAN SIGNAL HEADS ON THE 4 INCH CONDUIT.
5. THE VERTICAL CLEARANCES SHOWN ARE FROM THE WALKING SURFACE FOR THE PEDESTRIAN GEAR AND THE TRAVELED WAY FOR THE VEHICULAR SIGNALS.
6. TERMINATE POLES WITH NO LUMINAIRE A MINIMUM OF 2 FEET ABOVE THE CATENARY CABLE CONNECTION.
7. SEE STANDARD DRAWING T–30.11 OR THE SIGNAL HARDWARE DETAIL SHEET IN PLANS FOR ADDITIONAL TRAFFIC SIGNAL HARDWARE DETAILS.
8. ALL 3/8 INCH SPAN AND GUY CABLE SHALL BE HEAVY DUTY (HD) STEEL WITH MINIMUM 9,700 LB BREAKING STRENGTH. ALL OTHER CABLES SHALL ALSO BE HD RATED.
9. GUY ANCHOR SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATIONS. SOIL CLASSIFICATION SHALL BE USED TO DETERMINE ANCHOR SIZE, FOLLOW MANUFACTURE GUIDELINES AND CONFIRM SOIL CLASSIFICATION WITH ENGINEER PRIOR TO ANCHOR SELECTION.

UNDERGROUND SERVICE TEMPORARY WOOD DETAILS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

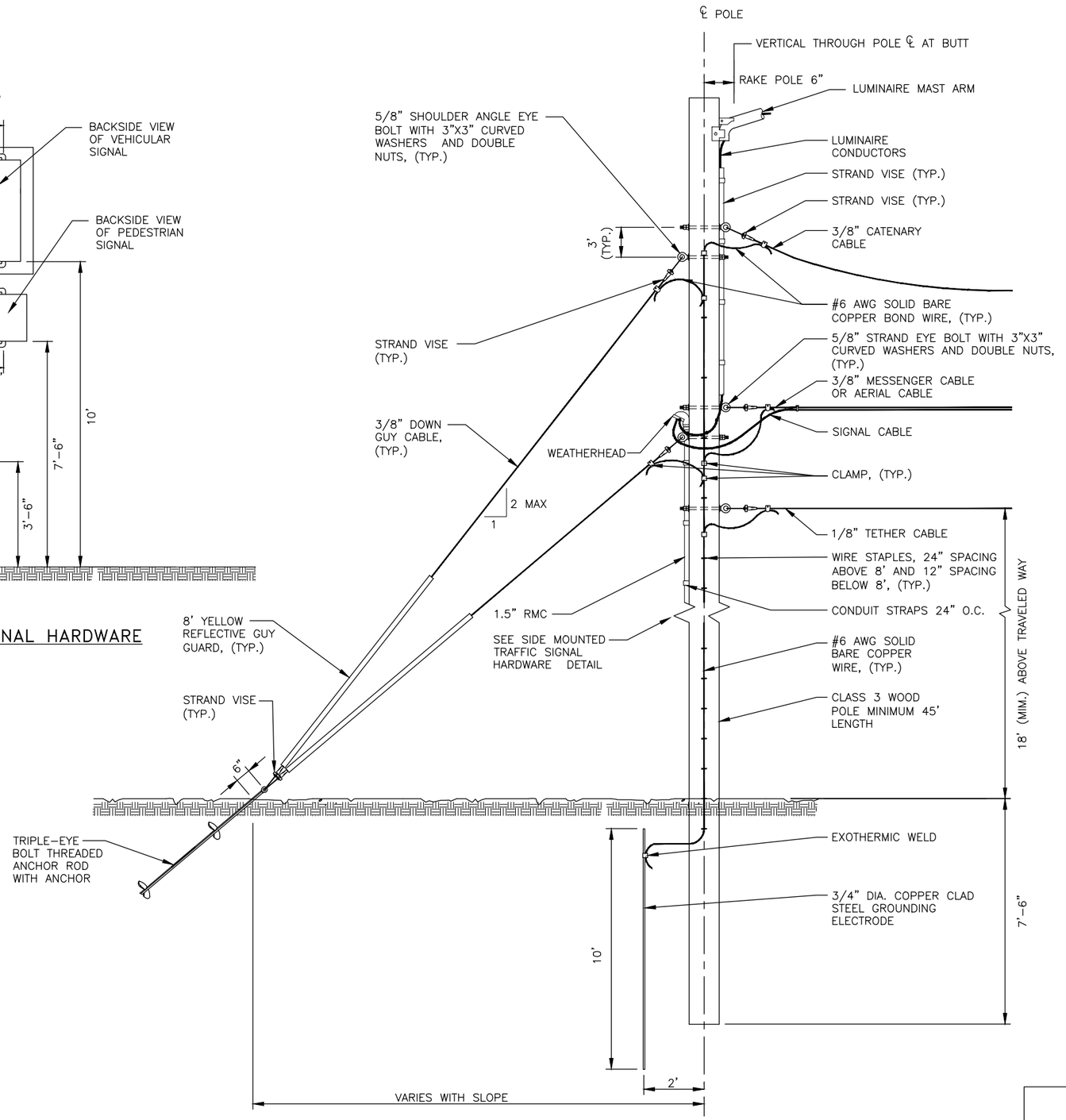
STATE OF ALASKA
9
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H55	H58



SIDE MOUNTED TRAFFIC SIGNAL HARDWARE

NTS



WOOD TRAFFIC POLE DETAIL

NTS

(SINGLE SPAN ATTACHMENT SHOWN)

GENERAL NOTES:

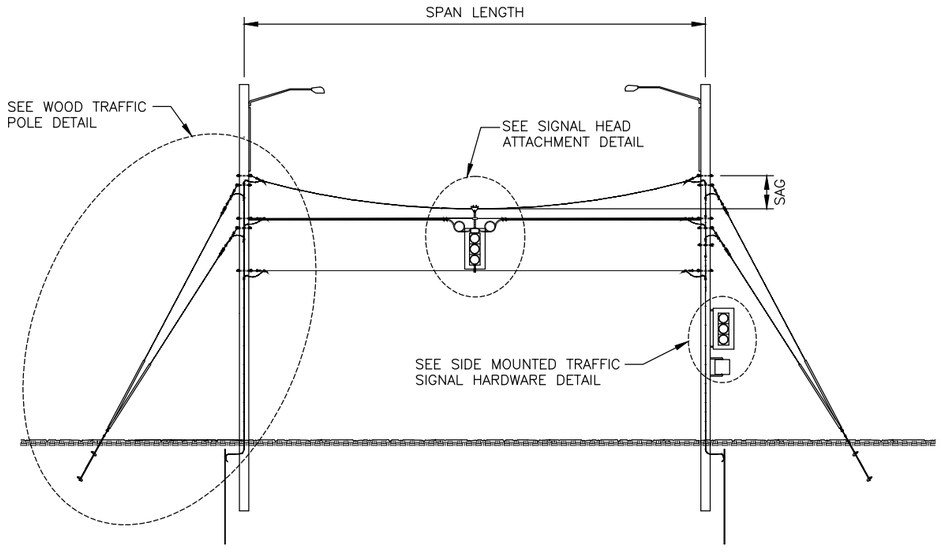
1. ATTACH A 4 INCH RIGID METAL CONDUIT TO THE WOOD POLE, USING UNISTRUT P9014 WITH P4101 CHANNEL, AND P1121 PIPE CLAMPS, OR APPROVED EQUAL.
2. INSTALL THE 4 INCH CONDUIT ON THE SIDE OF THE POLE AT A LOCATION WHERE A LINE PARALLEL TO THE LONG CORD (P.C. TO P.T.) OF THE RADIUS IS TANGENT TO THE POLE, AS SHOWN IN STANDARD DRAWING T-30.11 OR THE SIGNAL HARDWARE DETAIL SHEET IN PLANS FOR TERMINAL COMPARTMENT LOCATIONS.
3. USE POST TOP SIGNAL FRAMES WITH TERMINAL COMPARTMENTS TO INSTALL THE VEHICULAR SIGNAL HEADS ON TOP OF THE 4 INCH CONDUIT.
4. USE SIDE MOUNTED SIGNAL FRAMES WITH TERMINAL COMPARTMENTS TO INSTALL THE PEDESTRIAN SIGNAL HEADS ON THE 4 INCH CONDUIT.
5. THE VERTICAL CLEARANCES SHOWN ARE FROM THE WALKING SURFACE FOR THE PEDESTRIAN GEAR AND THE TRAVELED WAY FOR THE VEHICULAR SIGNALS.
6. TERMINATE POLES WITH NO LUMINAIRE A MINIMUM OF 2 FEET ABOVE THE CATENARY CABLE CONNECTION.
7. SEE STANDARD DRAWING T-30.11 OR THE SIGNAL HARDWARE DETAIL SHEET IN PLANS FOR ADDITIONAL TRAFFIC SIGNAL HARDWARE DETAILS.
8. ALL 3/8 INCH SPAN AND GUY CABLE SHALL BE HEAVY DUTY (HD) STEEL WITH MINIMUM 9,700 LB BREAKING STRENGTH. ALL OTHER CABLES SHALL ALSO BE HD RATED.
9. GUY ANCHOR SHALL BE INSTALLED PER MANUFACTURER RECOMMENDATIONS. SOIL CLASSIFICATION SHALL BE USED TO DETERMINE ANCHOR SIZE, FOLLOW MANUFACTURE GUIDELINES AND CONFIRM SOIL CLASSIFICATION WITH ENGINEER PRIOR TO ANCHOR SELECTION.

OVERHEAD SERVICE TEMPORARY WOOD SIGNAL POLE DEATILS

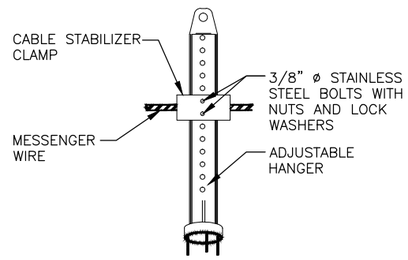
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

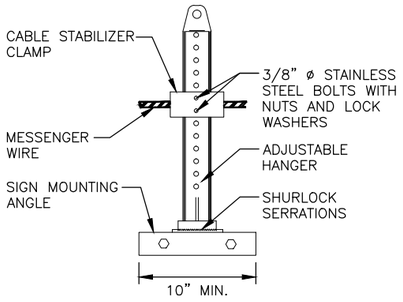
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	H56	H58



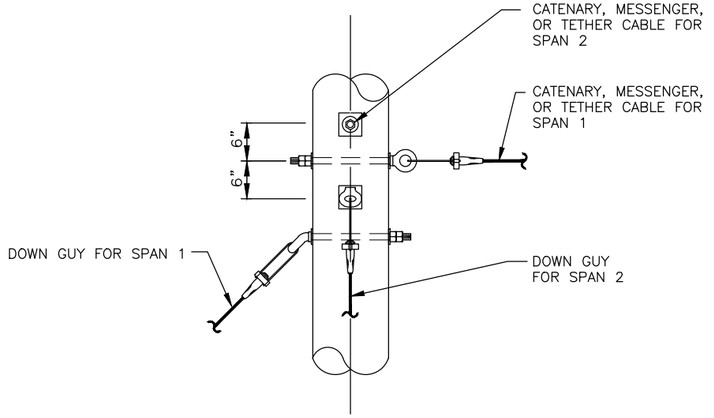
SPAN ELEVATION
NTS



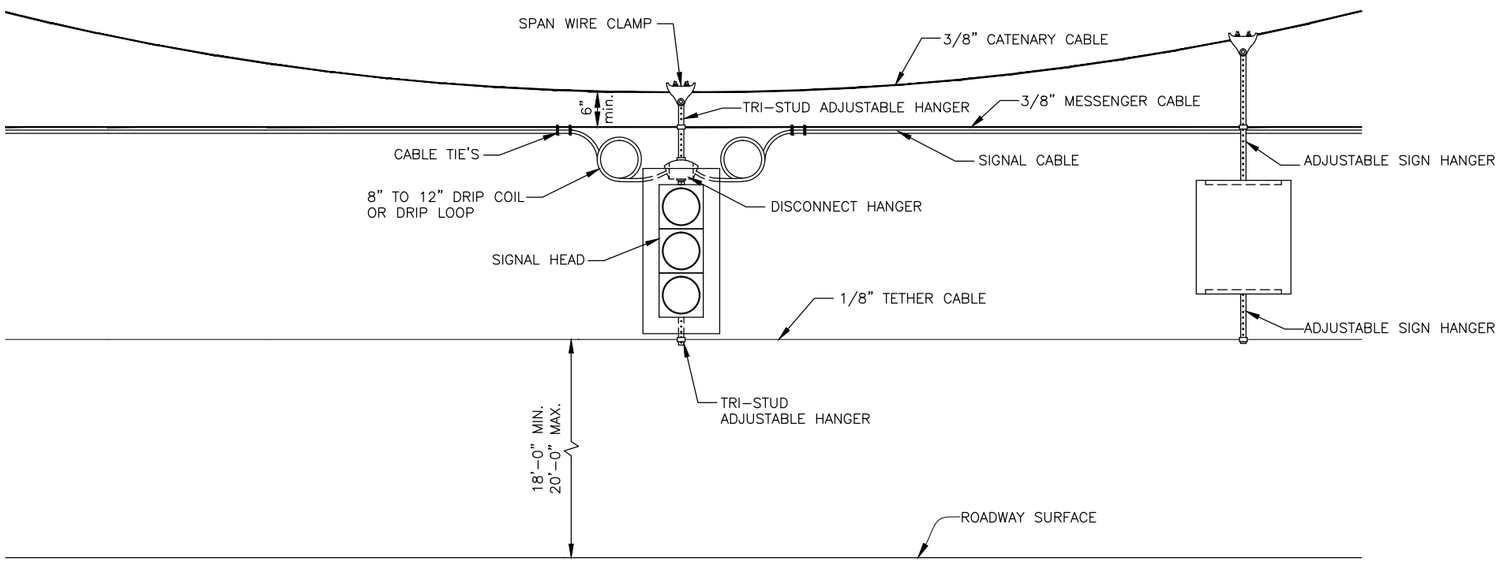
TRI–STUD ADJUSTABLE HANGER
NTS



ADJUSTABLE HANGER FOR SIGN MOUNTING
NTS



MULTIPLE SPAN ATTACHMENT DETAIL
NTC



SIGNAL HEAD AND SIGN ATTACHMENT DETAIL
NTS

GENERAL NOTES:

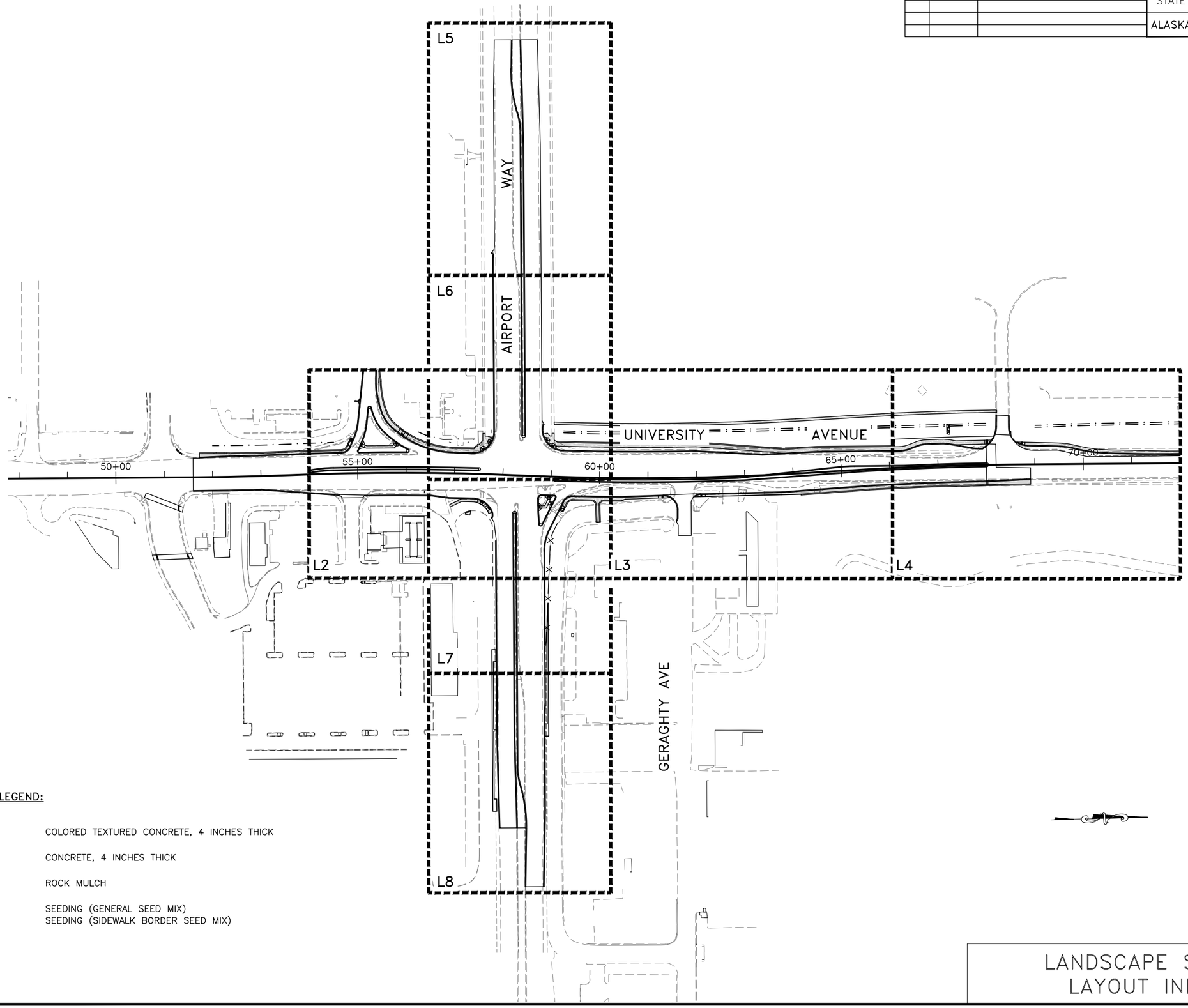
1. ATTACH ADJUSTABLE HANGERS TO THE MESSENGER AND TETHER CABLES WITH CABLE STABILIZER CLAMPS.
2. ATTACH SIGNAL CABLES TO MESSENGER CABLE EVERY 1' USING 3M HEAVY DUTY BLACK CABLE TIES OR APPROVED EQUAL. CABLE TIES SHALL BE WEATHER RESISTANT BLACK NYLON GREATER THAN 0.065" THICK, HAVE A TENSILE STRENGTH GREATER THAN 110LBS, AND HAVE A TEMPERATURE RANGE BETTER THAN –35°F TO 180°F. USE TWO TIES BEFORE/AFTER DRIP LOOPS. CABLE TIES SHALL BE ATTACHED "SNUG TIGHT", DO NOT OVER TIGHTEN.
3. INSTALL SIGNS SO THAT THE BOTTOM EDGES ARE AT APPROXIMATELY THE SAME ELEVATION.
4. SAG=4% TO 5% OF SPAN LENGTH.

TEMPORARY TRAFFIC SIGNAL DETAILS

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	L1	L9



LANDSCAPE LEGEND:

- COLORED TEXTURED CONCRETE, 4 INCHES THICK
- CONCRETE, 4 INCHES THICK
- ROCK MULCH
- SEEDING (GENERAL SEED MIX)
  SEEDING (SIDEWALK BORDER SEED MIX)

STATE OF ALASKA 49TH
M. ELISE HIGGINS
LA#10435
Date: 03-04-20
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

LANDSCAPE SHEET LAYOUT INDEX

PLANS DEVELOPED BY: EARTHSCAPE, LLC, CERT. OF AUTHORIZATION NO.: AECL 1007, 729 N STREET, ANCHORAGE, AK 99501, (907)279-2688
P:\2011\11147.04FB-UNIV_AVE-SEGMENT_2A\C\c0006cnst11147.04fb-L1 Wed, Mar/04/20 01:38pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	L2	L9

MATCH "01" 54+00 LINE

UNIVERSITY AVENUE

54+00 55+00 56+00 57+00 58+00 59+00 60+00

MATCH "01" 60+00 LINE

208+00 209+00 210+00 211+00

AIRPORT WAY

"01"58+33.61 = "AW"209+50

TCP

EASEMENT (DRAINAGE)

PROPOSED EASEMENT (DRAINAGE)

R/W

2 L9 COLORED TEXTURED CONCRETE, 4 INCHES THICK

ROCK MULCH

SEEDING

C/A

1 L9 CONCRETE, 4 INCHES THICK, 5' WIDTH

SEEDING (SIDEWALK BORDER SEED MIX)

3 L9 LANDSCAPE CURB

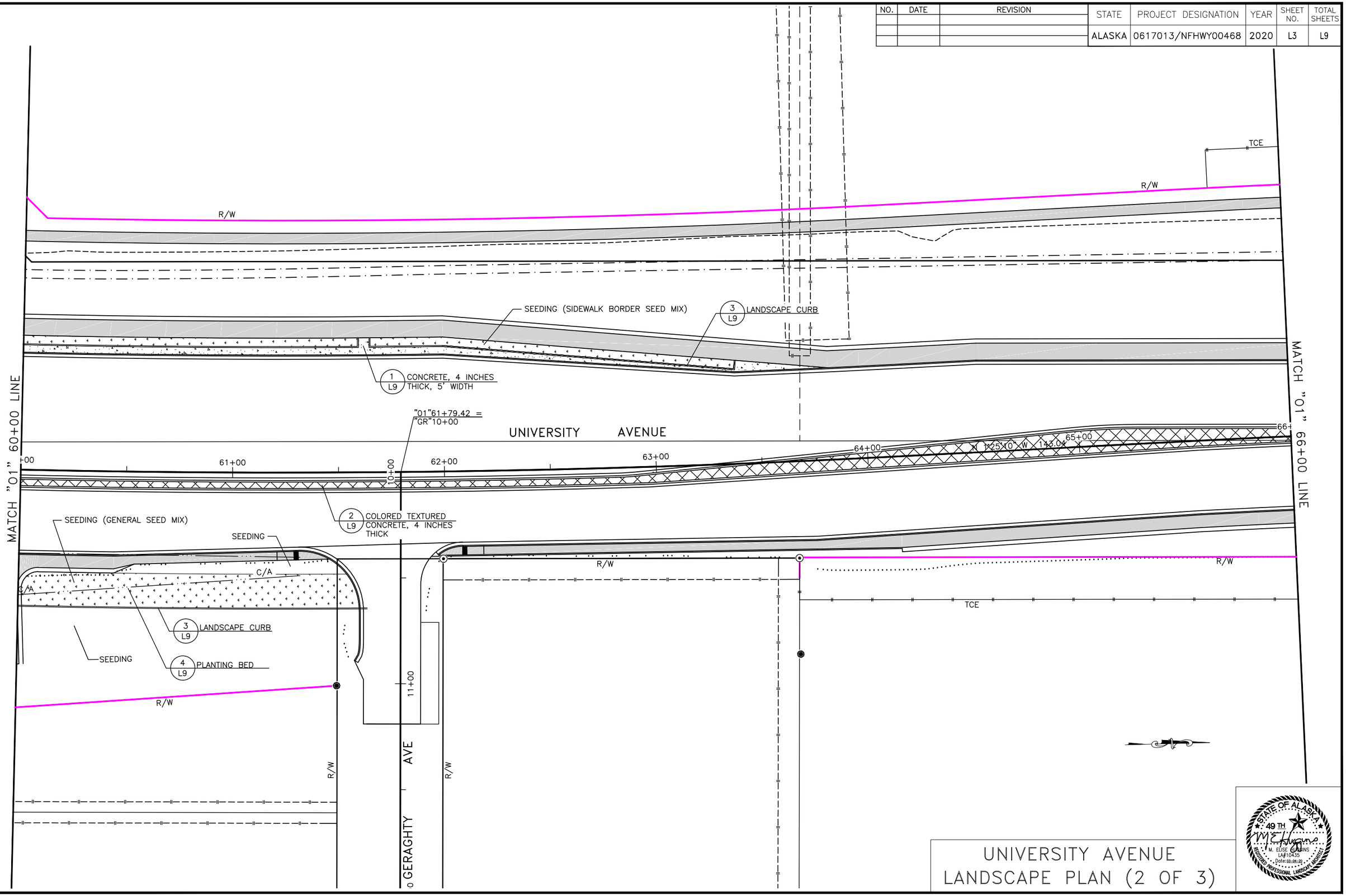
CONCRETE BARRIER

UNIVERSITY AVENUE LANDSCAPE PLAN (1 OF 3)

STATE OF ALASKA 49TH
M. ELISE HUGGINS LA#10435
Date: 03-06-20
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

PLANS DEVELOPED BY: EARTHSCAPE, LLC, CERT. OF AUTHORIZATION NO.: AECL 1007, 729 N STREET, ANCHORAGE, AK 99501, (907)279-2688
P:\2011\11147.04FB-UNIV_AVE-SEGMENT_2A\C\L2001cnst11147.04FB-L2 Wed, Mar/04/20 01:38pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	L3	L9



UNIVERSITY AVENUE LANDSCAPE PLAN (2 OF 3)

STATE OF ALASKA
49 TH
M. ELISE GIBBINS
LA#10435
Date: 03-06-20
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	L4	L9

TCE

R/W

SEEDING

SEEDING

SEEDING

R/W

MATCH "01" 99+00 LINE

UNIVERSITY AVENUE

67+00

68+00

69+00

70+00

71+00

+00

2 L9 COLORED TEXTURED CONCRETE, 4 INCHES THICK

MATCH EXISTING 68+00

R/W

R/W

TCE

UNIVERSITY AVENUE LANDSCAPE PLAN (3 OF 3)

STATE OF ALASKA 49TH
M. ELISE CUMMINS
LA#10435
Date: 03-04-20
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

PLANS DEVELOPED BY: EARTHSCAPE, LLC, CERT. OF AUTHORIZATION NO.: AECL 1007, 729 N STREET, ANCHORAGE, AK 99501, (907)279-2688
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NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	L5	L9

R/W

R/W

MATCH TO EXISTING 200+50

BEGIN COLORED TEXTURED CONCRETE AT "AW" 202+25

AIRPORT WAY

200+00 201+00 202+00 203+00 S 88°22'45" E 950.00' 204+00 205+00

MATCH "AW" 205+50 LINE

SEEDING

COLORED TEXTURED CONCRETE, 4 INCHES THICK (2 / L9)

R/W

R/W

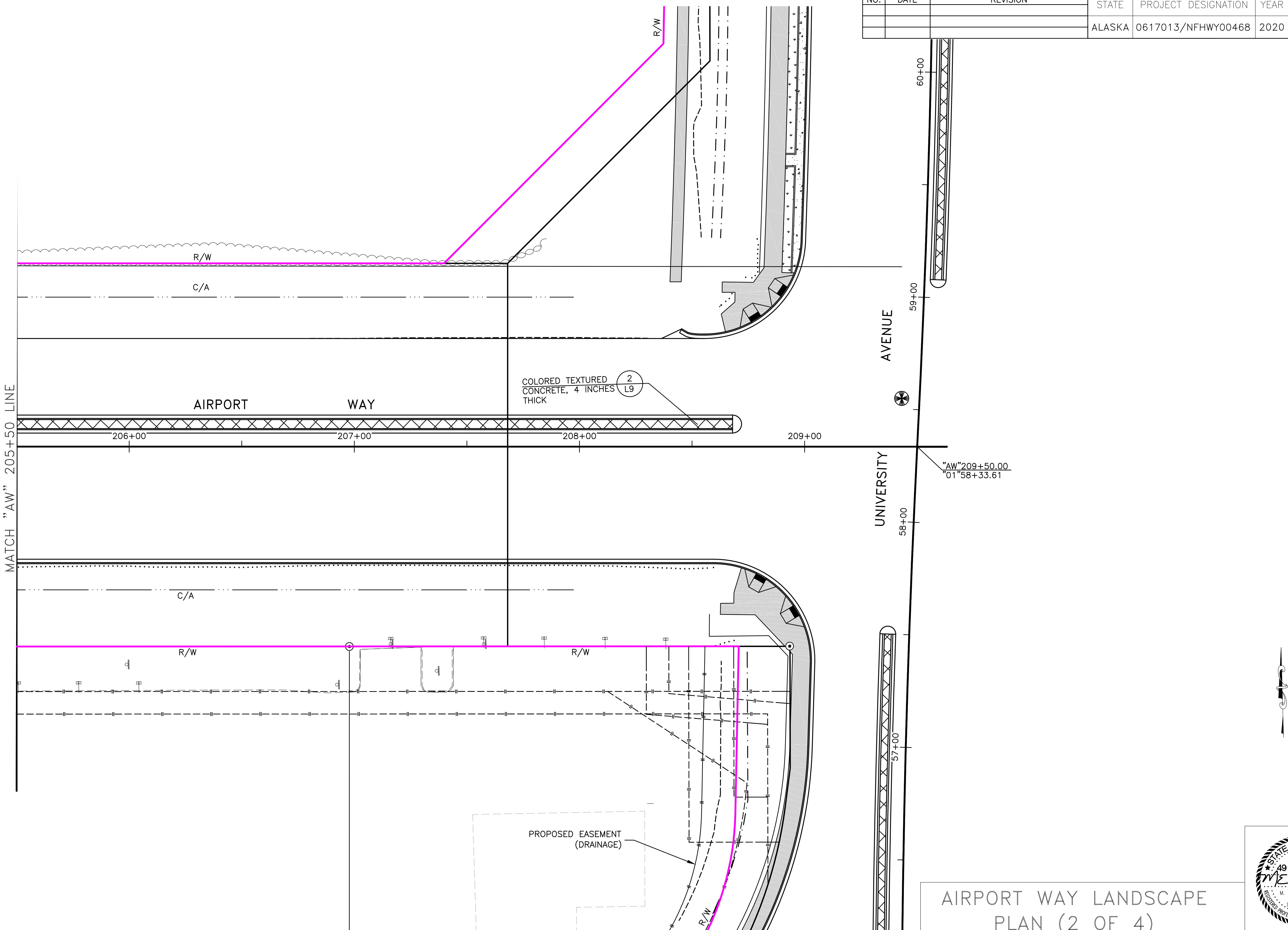
TCE

AIRPORT WAY LANDSCAPE PLAN (1 OF 4)

STATE OF ALASKA 49 TH
M. ELISE HUGGINS
LA#10435
Date:03-06-20
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

PLANS DEVELOPED BY: EARTHSCAPE, LLC, CERT. OF AUTHORIZATION NO.: AECL 1007, 729 N STREET, ANCHORAGE, AK 99501, (907)279-2688
P:\2011\11147.04FB-UNIV_AVE-SEGMENT_2A\C\L2002cnst11147.04FB-L6 Wed, Mar/04/20 01:38pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	L6	L9

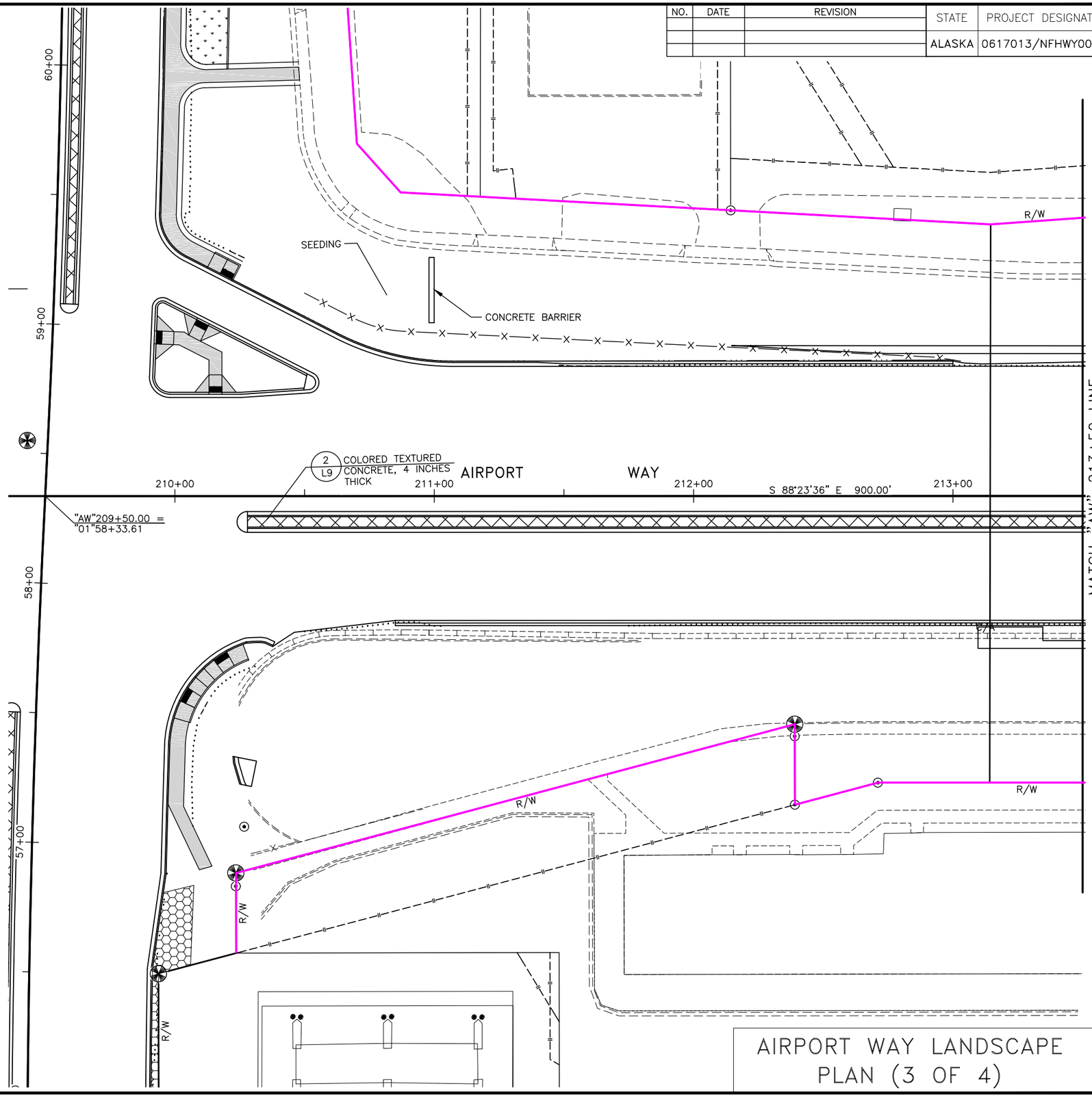


AIRPORT WAY LANDSCAPE PLAN (2 OF 4)

STATE OF ALASKA 49TH M. ELISE HUGGINS LA Date: 03-04-20 REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

PLANS DEVELOPED BY: EARTHSCAPE, LLC, CERT. OF AUTHORIZATION NO.: AECL 1007, 729 N STREET, ANCHORAGE, AK 99501, (907)279-2688
P:\2011\11147.04FB-UNIV_AVE-SEGMENT_2A\C\L2002cnst\11147.04FB-L7 Wed, Mar/04/20 01:38pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	L7	L9

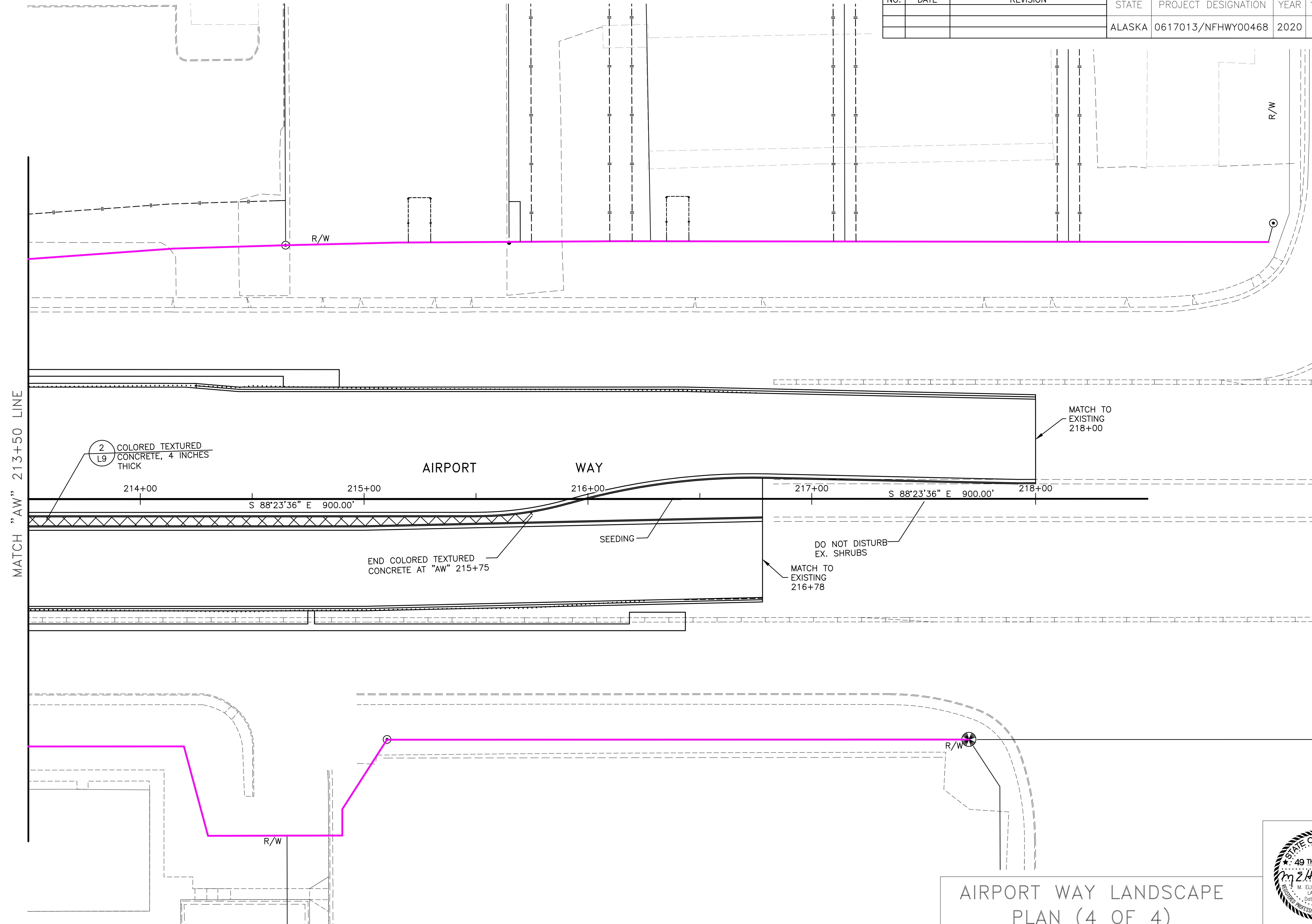


AIRPORT WAY LANDSCAPE PLAN (3 OF 4)

STATE OF ALASKA 49TH
M. ELISE HUGGINS
LAR 104315
Date: 03-04-20
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

PLANS DEVELOPED BY: EARTHSCAPE, LLC, CERT. OF AUTHORIZATION NO.: AECL 1007, 729 N STREET, ANCHORAGE, AK 99501, (907)279-2688
P:\2011\11147.04FB-UNV_AVE-SEGMENT_2A\C\L2002cnst11147.04FB-L8 Wed, Mar/04/20 01:38pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	L8	L9

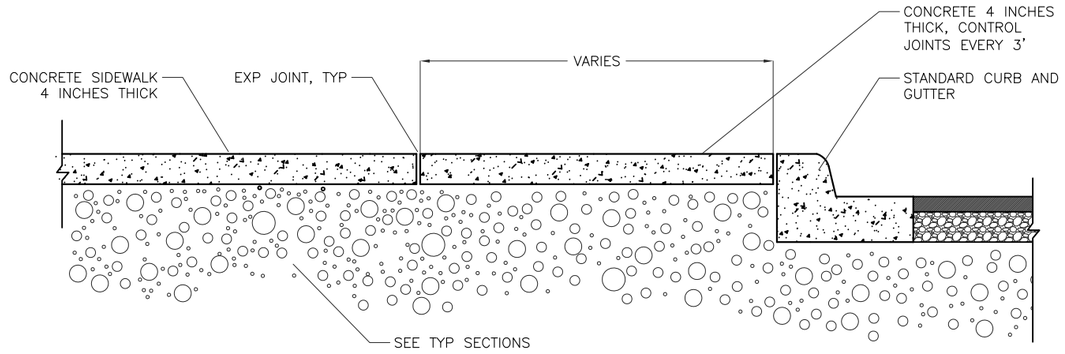


AIRPORT WAY LANDSCAPE PLAN (4 OF 4)

STATE OF ALASKA 49TH
M. ELISE HUGGINS LA-10435 Date: 03-04-20
REGISTERED PROFESSIONAL LANDSCAPE ARCHITECT

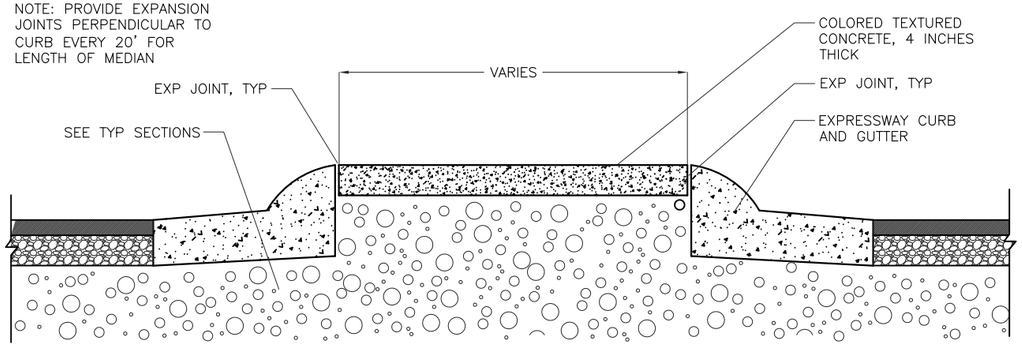
PLANS DEVELOPED BY: EARTHSCAPE, LLC, CERT. OF AUTHORIZATION NO.: AECL 1007, 729 N STREET, ANCHORAGE, AK 99501, (907)279-2688
P:\2011\11147.04FB-UNIV_AVE-SEGMENT_2A\C\L2002cnst\11147.04FB-L9 Wed, Mar/04/20 01:39pm

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	**2020**	**L9**	**L9**

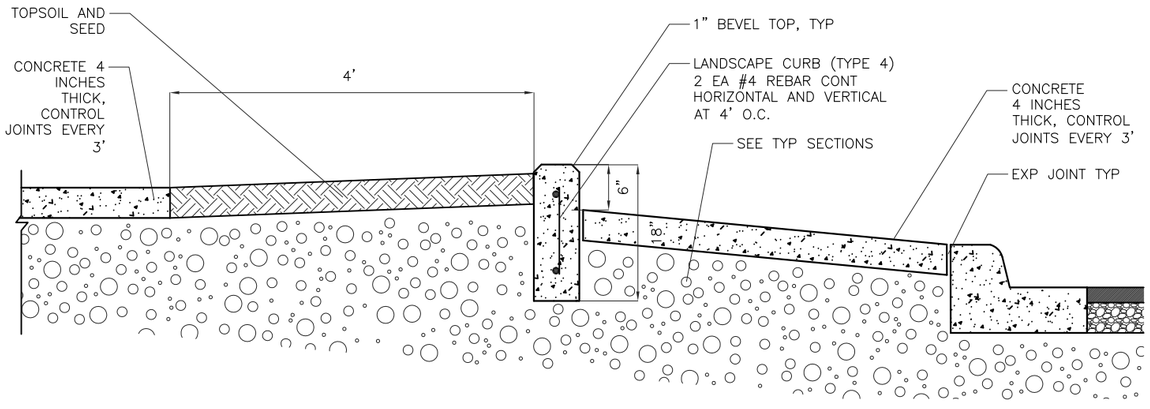


1 ROADSIDE APRON AT SEPARATED PATHWAY

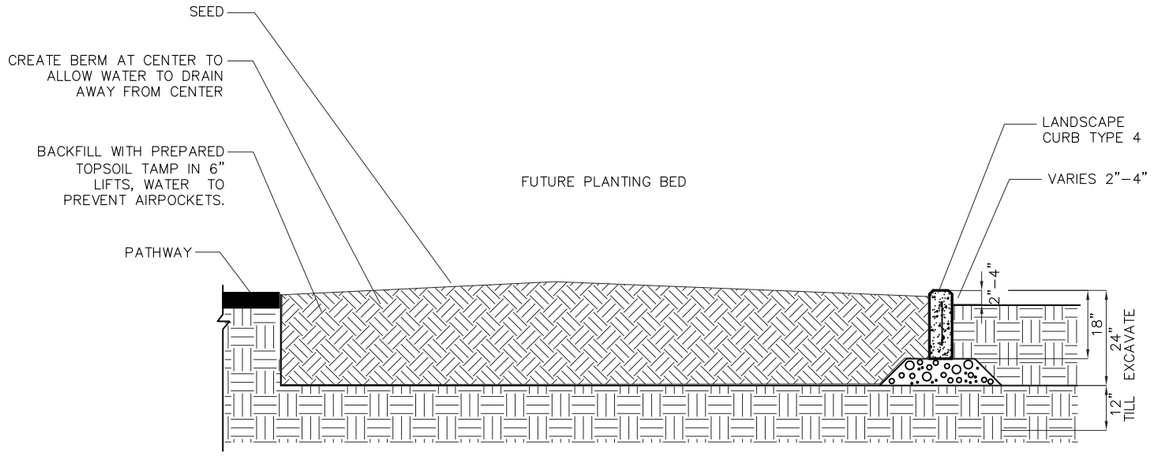
NOTE: PROVIDE EXPANSION JOINTS PERPENDICULAR TO CURB EVERY 20' FOR LENGTH OF MEDIAN



2 MEDIAN TREATMENT – NARROW



3 ROADSIDE APRON W/ PLANTINGS AT SEPARATED PATHWAY



4 PLANTING BED

LANDSCAPING DETAILS

STATE OF ALASKA 49TH
M. ELISE HUGGINS
LA#10435
Date: 2-07-20
REGISTERED LANDSCAPE ARCHITECT
AECL 1007

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	Q1	Q10

GENERAL NOTES

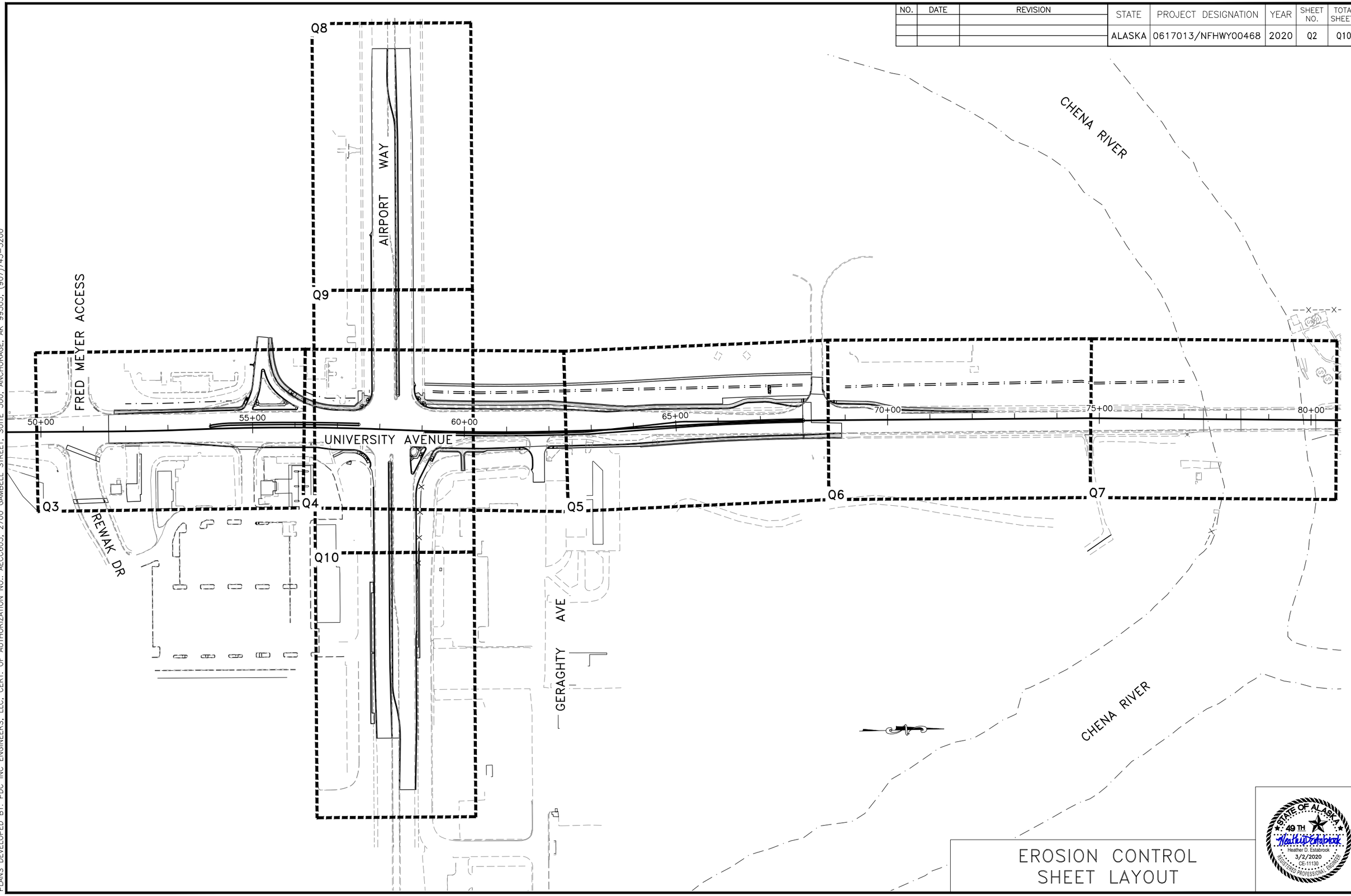
1. THIS ESCP IS A GENERAL PLAN FOR GUIDING THE DEVELOPMENT OF THE CONTRACTORS SWPPP, A TEMPLATE IS INCLUDED IN APPENDIX C OF THE CONTRACT. THE CONTRACTOR IS EXPECTED TO PROVIDE ADDITIONAL DETAILS AND BMP'S BASED ON THE CONTRACTORS ACTUAL SCHEDULE AND CONSTRUCTION METHODS, AS REQUIRED TO COMPLY WITH THE 2016 CONSTRUCTION GENERAL PERMIT AND SECTION 641 OF THE PROJECT SPECIFICATIONS.
2. A SWPPP AND HMCP ARE REQUIRED FOR THIS PROJECT.
3. EROSION AND SEDIMENT CONTROL FEATURES MUST BE BASED ON THE DOT&PF MANUAL ALASKA STORM WATER POLLUTION PREVENTION PLAN GUIDE (OCTOBER 2016 OR LATEST VERSION) AND LATEST BMPs.
4. INITIATE EROSION AND SEDIMENT CONTROLS PRIOR TO ANY EARTH DISTURBING ACTIVITIES.
5. DEVICES MAY NEED TO BE REMOVED AND REINSTALLED TO ALLOW CONSTRUCTION ACTIVITIES TO PROCEED. MAINTAIN ALL DEVICES DAILY INCLUDING, BUT NOT LIMITED TO REMOVAL AND DISPOSAL OF ACCUMULATED SOILS, CLEANING DEVICES AND REPLACEMENT OF DAMAGED DEVICES.
6. STOCKPILE AND STAGING LOCATIONS MUST BE RECLAIMED TO THEIR ORIGINAL CONDITION. STOCKPILES AND/OR STAGING AREAS ARE NOT ALLOWED IN WETLANDS.
7. ENSURE LOADS ARE STABLE OR COVERED SO THAT NO MATERIAL ESCAPES DURING HAULING ACTIVITIES.
8. PROVIDE CONCRETE WASHOUT FACILITIES.
9. PROVIDE VEHICLE CLEANING EQUIPMENT OR OTHER APPROVED CONTROLS TO PREVENT TRACKING OF DIRT AND GRAVEL ONTO PAVED SURFACES.
10. PROVIDE INLET PROTECTION AT ALL INLETS IN AND ADJACENT TO WORK AREAS (SEE BMP 25.00 – 29.00 DOT&PF SWPPP GUIDE).
11. AVOID UNNECESSARY GROUND DISTURBANCE AND MAINTAIN NATIVE VEGETATION WHERE PRACTICABLE THROUGH THE USE OF BMPs AND DOT&PF REVIEW OF PROPOSED SWPPP.
12. FOLLOW BMPs, SOPs, AND THE SWPPP TO AVOID IMPACTS TO A CONTAMINATED SITE IF THE AREA MUST BE USED FOR CONSTRUCTION STAGING. DEVELOP A CONTINGENCY PLAN IN THE EVENT THAT CONTAMINATION IS UNEXPECTEDLY ENCOUNTERED, AND PHASE UNDERGROUND CONSTRUCTION WORK IN KNOWN GROUNDWATER–CONTAMINATED AREAS DURING PERIODS OF LOW GROUNDWATER.
13. VEGETATIVE BUFFERS IS THE PREFERRED METHOD OF PERIMETER CONTROL FOR THIS PROJECT. WHERE VEGETATION IS NOT 25 FEET WIDE, THEN A BMP MUST BE INSTALLED FOR PERIMETER CONTROL.
14. SWEEP CLEAN STABILIZED CONSTRUCTION EXITS EACH SHIFT OR AS DIRECTED BY ENGINEER.

ESCP LEGEND:

- PARCEL BOUNDARY
- SURFACE WATER FLOW DIRECTION
- INLET PROTECTION (SEE BMP 08.00 DOT&PF SWPPP GUIDE)
- VELOCITY DISSIPATOR (RIPRAP CLASS II OR FUNCTIONAL EQUIVALENT)
- WETLANDS
- UPLANDS
- DITCH LINE
- EXISTING EMBANKMENT CATCHLINE (CUT OR FILL)
- APPROXIMATE LIMITS OF EARTH DISTURBANCE
- PERIMETER CONTROL
- TEMPORARY CHECK DAM (SEE BMP 31.00–33.00 DOT&PF SWPPP GUIDE)
- VEHICLE TRACKING ENTRANCE/EXIT

EROSION CONTROL NOTES & DETAILS

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	Q2	Q10



EROSION CONTROL
SHEET LAYOUT

STATE OF ALASKA
49 TH
Heather D. Estabrook
3/2/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	Q3	Q10

SEE CURB DRAIN DETAIL ON SHEET G17

UNIVERSITY AVENUE

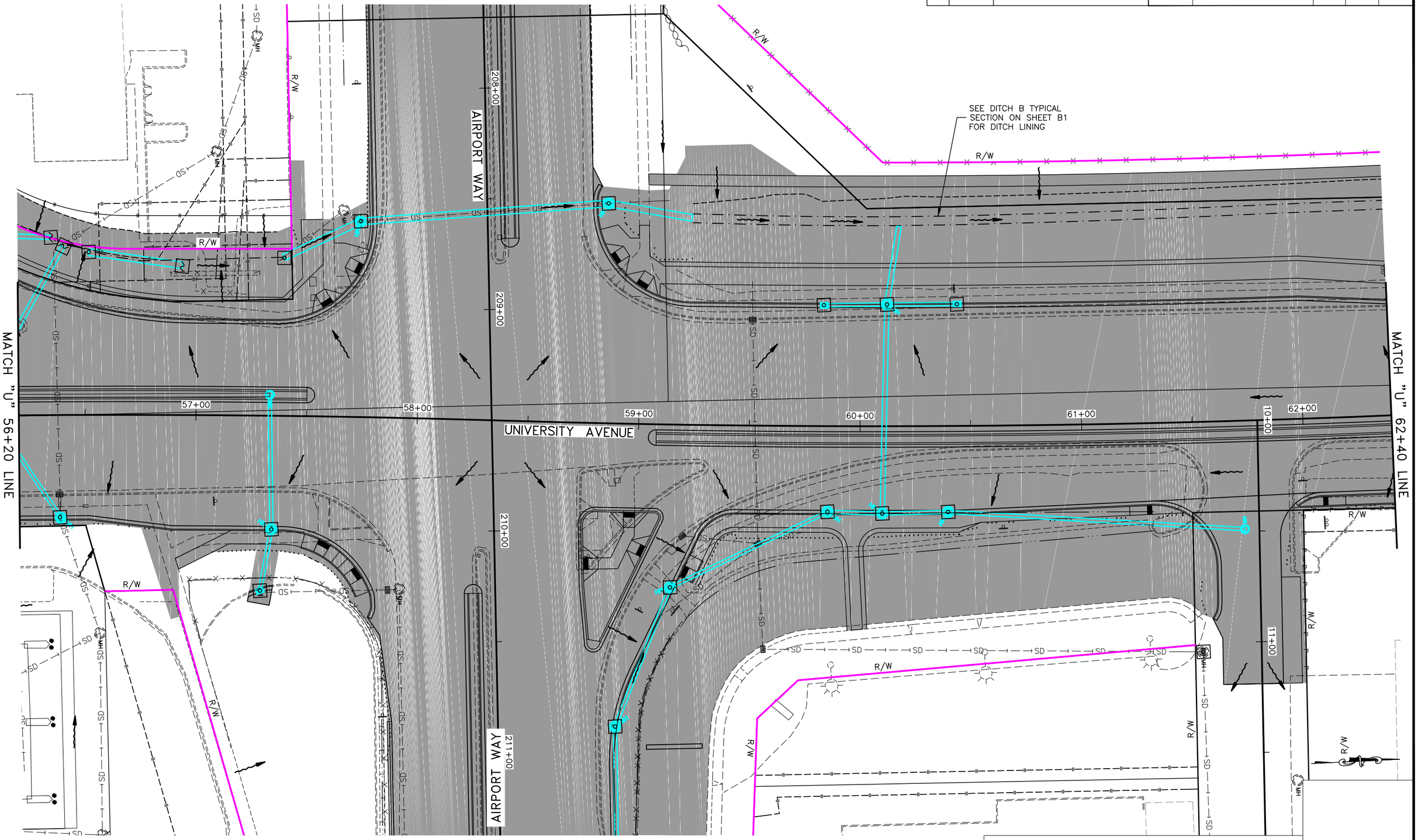
50+00 51+00 52+00 53+00 54+00 55+00 56+00

MATCH "U" 56+20 LINE

R/W TCP TCE SD MH

EROSION AND SEDIMENT CONTROL PLAN (1 OF 9)

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	Q4	Q10



EROSION AND SEDIMENT CONTROL PLAN (2 OF 9)

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	Q5	Q10

SEE DITCH B TYPICAL SECTION ON SHEET B1 FOR DITCH LINING

SEE RIPRAP OUTLET AT STORM DRAIN OUTLET DETAIL ON SHEET G12

R/W

R/W

MATCH "U" 62+40 LINE

MATCH "U" 68+60 LINE

63+00

64+00

65+00

66+00

67+00

68+00

UNIVERSITY AVENUE

R/W

R/W

R/W

TCE

TCP

EROSION AND SEDIMENT CONTROL PLAN (3 OF 9)

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	Q6	Q10

SEE DITCH C TYPICAL SECTION ON SHEET B1

R/W

R/W

MATCH "U" 68+60 LINE

MATCH "U" 74+80 LINE

69+00

70+00

71+00

72+00

73+00

74+00

UNIVERSITY AVENUE

SD

SD

SD

SD

SD

SD

SD

SD

SD

SD

R/W

R/W

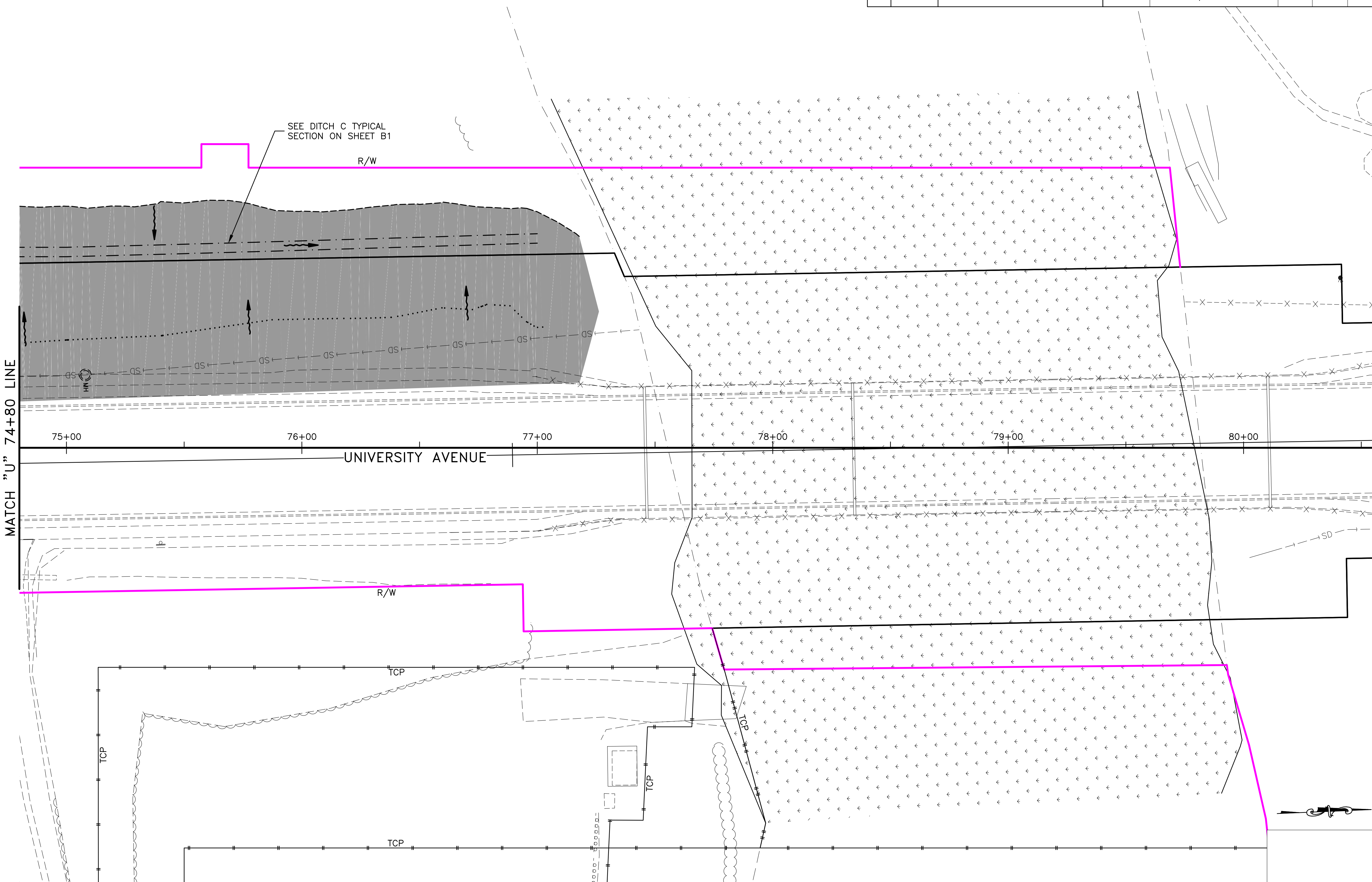
TCE

TCP

TCP

EROSION AND SEDIMENT CONTROL PLAN (4 OF 9)

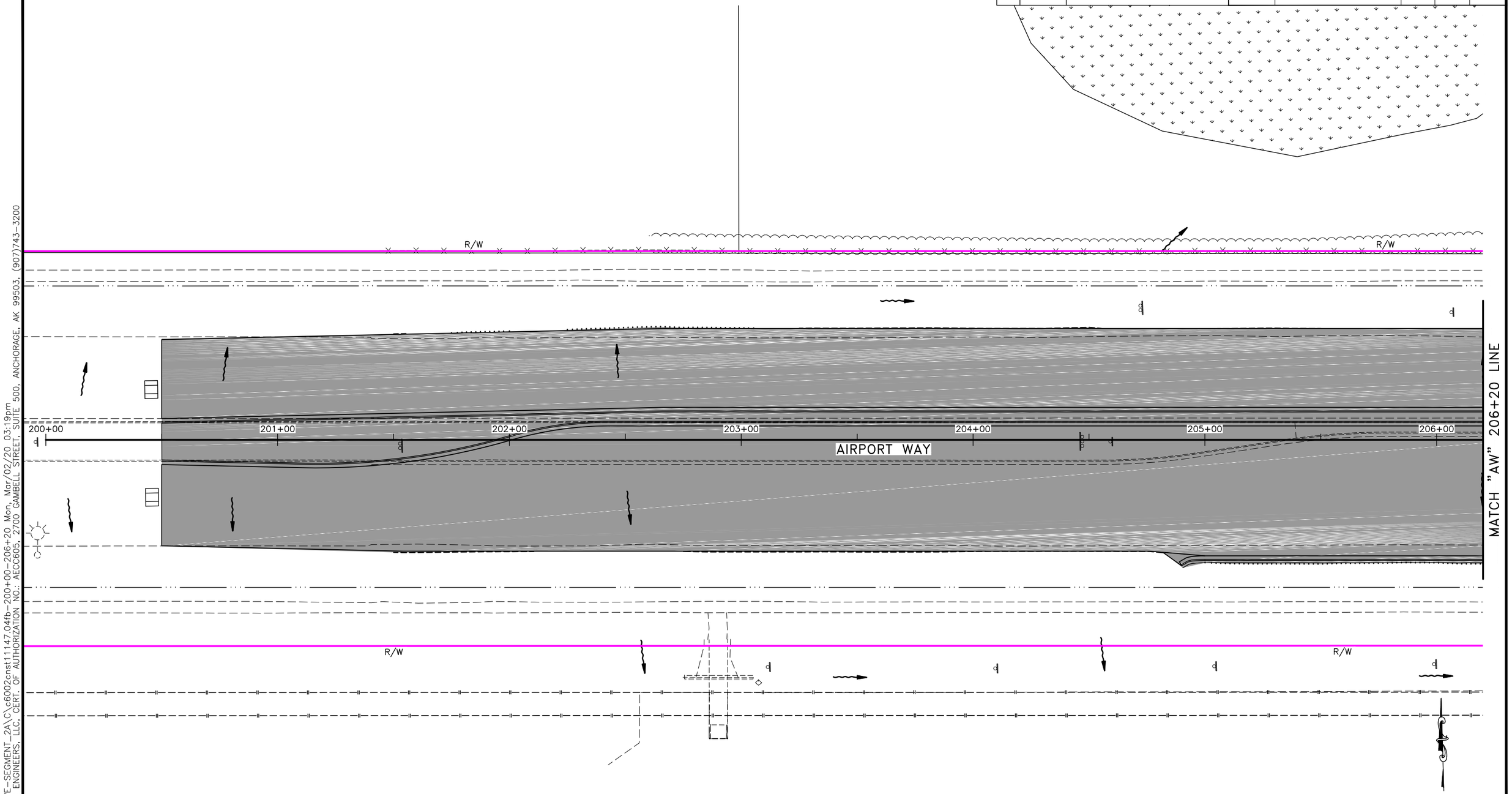
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	Q7	Q10



EROSION AND SEDIMENT CONTROL PLAN (5 OF 9)

P:\2011\11147.04FB-UNIV_AVE-SEGMENT_2A\C\c6002cnst11147.04fb-74+80-80+00 Mon, Mar/02/20 03:19pm
PLANS DEVELOPED BY: PDC INC ENGINEERS, LLC, CERT. OF AUTHORIZATION NO.: AECC605, 2700 GAMBELL STREET, SUITE 500, ANCHORAGE, AK 99503, (907)743-3200

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	Q8	Q10



EROSION AND SEDIMENT CONTROL PLAN (6 OF 9)

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	Q9	Q10

MATCH "AW" 206+20 LINE

MATCH "AW" 212+40 LINE

AIRPORT WAY

UNIVERSITY AVENUE

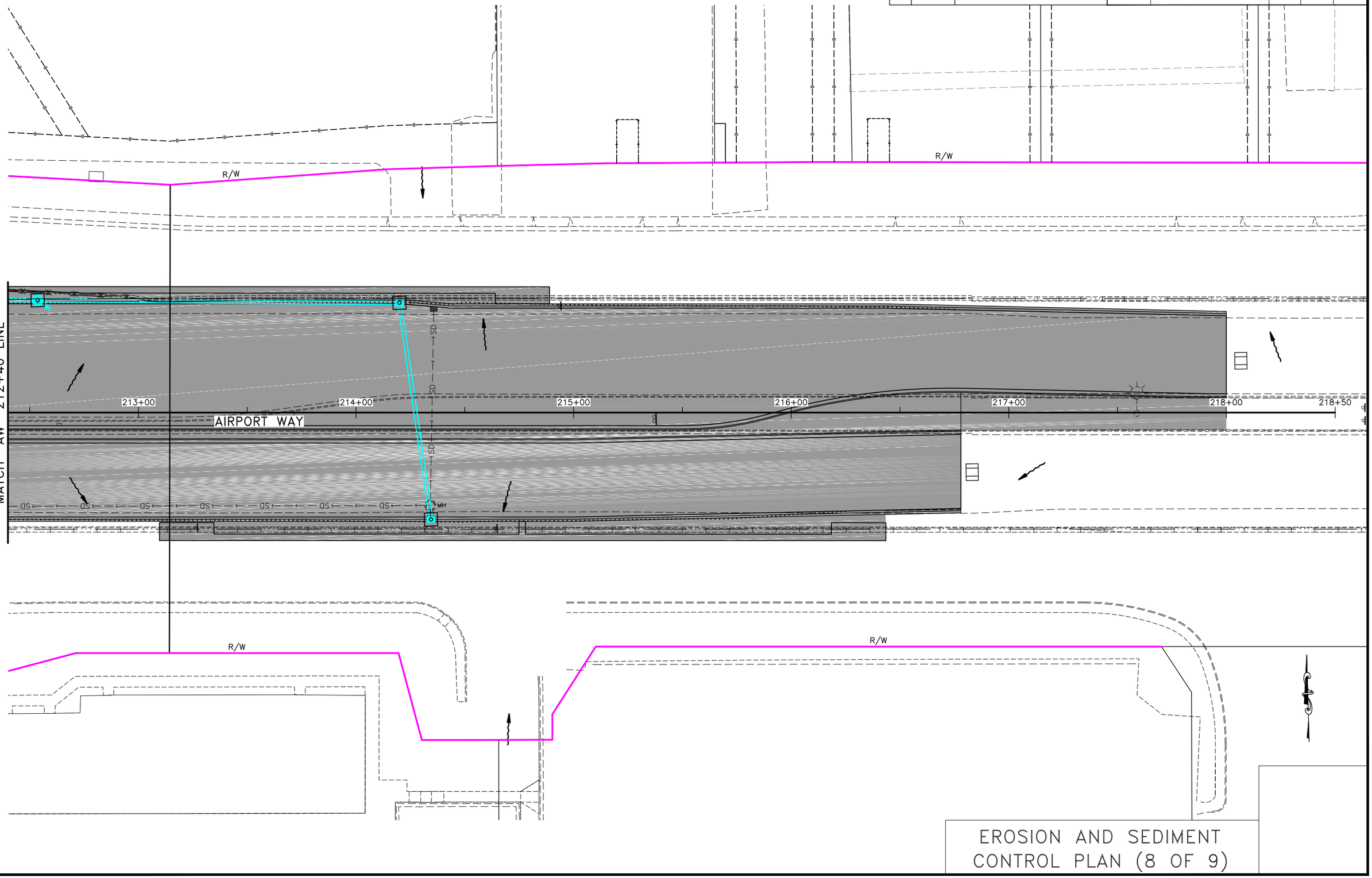
207+00 208+00 209+00 210+00 211+00 212+00

60+00 59+00 58+00 57+00

R/W SD SS MH

EROSION AND SEDIMENT CONTROL PLAN (7 OF 9)

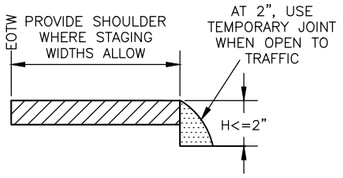
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	Q10	Q10



EROSION AND SEDIMENT CONTROL PLAN (8 OF 9)

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T1	T25

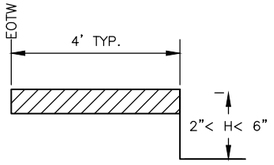
VERTICAL DROP-OFFS



CASE A

DROP-OFFS <2 INCHES
(PAVED SURFACES ONLY)

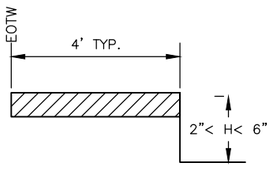
1. USE "UNEVEN LANES" (CW8-11) SIGNS FOR ALL DROP-OFFS IN BETWEEN TRAFFIC LANES.
2. LEAVE NO DROP-OFFS > 1.5" IN THE



CASE B

2"< DROP-OFFS < 6"
(ALL ROADWAY SURFACES)

1. PLACE CONES OR CANDLES FOR DROP-OFFS > 4 FEET AND ≤ 30 FEET FROM THE EOTW.
2. USE DRUMS OR TYPE II BARRICADES FOR DROP-OFFS ≤ 4 FEET FROM THE EOTW.

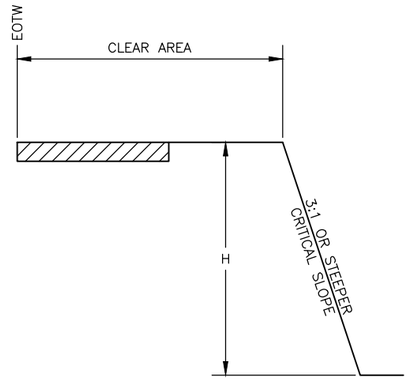


CASE C

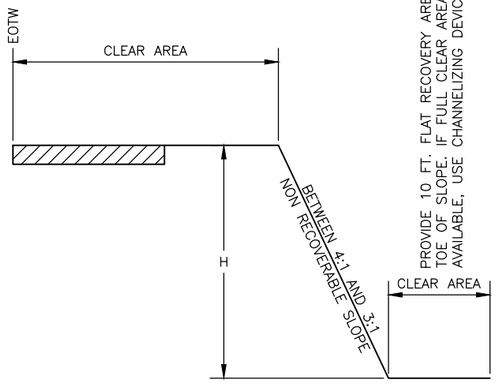
DROP-OFFS >6"
(ALL ROADWAY SURFACES AND ROADSIDE SLOPES)

1. PLACE DRUMS OR TYPE II BARRICADES FOR DROP-OFFS < 24" WITHIN THE CLEAR AREA.
2. PROVIDE PORTABLE CONCRETE BARRIER FOR DROP-OFFS >24" WITHIN 15 FEET OF THE EOTW. USE DRUMS OR TYPE II BARRICADES IF BEYOND 15 FEET.

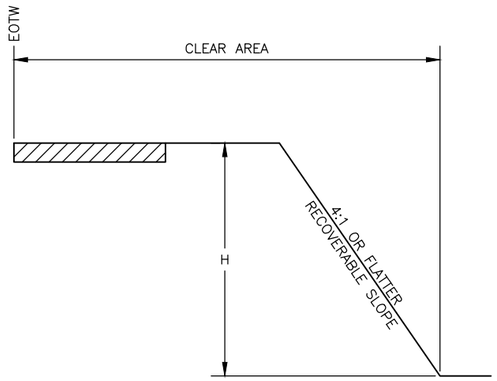
STEEPER THAN OR EQUAL TO 3:1



BETWEEN 4:1 AND 3:1



BETWEEN 4:1 AND 3:1



CLEAR AREA REQUIREMENTS

	LOW SPEED < = 35 MPH	INTERMEDIATE SPEED 40 MPH TO 45 MPH	HIGH SPEED > = 50 MPH
RURAL	15'	24'	30'
URBAN	10' DITCH SECTION, OR 2' BEHIND CURB	15' DITCH CONDITIONS, OR 2' BEHIND CURB	15' DITCH SECTIONS, OR 2' BEHIND CURB

CHANNELIZING DEVICE REQUIREMENTS FOR SLOPES 3:1 OR STEEPER WITHIN THE CLEAR AREA

	H <= 15'	H > 15'
< 2000 VPD LOW VOLUME	CANDLES OR CONES	TYPE II BARRICADES OR DRUMS
> 2000 VPD	TYPE II BARRICADE OR DRUMS	PORTABLE CONCRETE BARRIER OR TEMPORARY GUARDRAIL

TRAFFIC CONTROL NOTES:

1. USE THE EXISTING CROSS-SECTION (PRIOR TO CONSTRUCTION) AS A BASIS FOR DETERMINING WHEN CHANNELIZING DEVICES ARE NEEDED.
2. INSTALL CHANNELIZING DEVICES WHEN THE HORIZONTAL OR VERTICAL CURVATURE IS MADE MORE SEVERE.
3. INSTALL FLEXIBLE DELINEATORS WHEN ALL VEGETATION OVER 4 FEET HIGH IS CLEARED FROM FILL SLOPES THAT ARE 3:1 OR STEEPER IN THE CLEAR AREA.
4. USE PORTABLE CONCRETE BARRIER FOR WARRANTING CONDITIONS WHICH LAST LONGER THAN 3 DAYS. FOR CONDITIONS LASTING LESS THAN 3 DAYS, OTHER CHANNELIZING DEVICES MAY BE INSTALLED.
5. TERMINATE RUNS OF PORTABLE CONCRETE BARRIER USING THE FOLLOWING METHODS:
   - 5.A. CONNECT TO A PORTABLE CRASH CUSHION, OR
   - 5.B. PROVIDE A CONCRETE BARRIER WITH THRIE BEAM TRANSITION TO W-BEAM GUARDRAIL, TREATED WITH A PARALLEL GUARDRAIL TERMINAL, OR
   - 5.C. FLARE THE ENDS OF THE PORTABLE CONCRETE BARRIER AWAY FROM THE ROADWAY AT A RATE OF 7:1 ON A COMPACTED SLOPE OF 6:1 OR FLATTER, OUTSIDE OF THE CLEAR AREA. INSTALL A SLOPING PORTABLE CONCRETE BARRIER END TREATMENT, OR
   - 5.D. BURY IN THE BACKSLOPE.
6. TERMINATE THE RUNS OF TEMPORARY W-BEAM GUARDRAIL USING THE FOLLOWING METHODS.
   - 6.A. PROVIDE A PARALLEL GUARDRAIL TERMINAL TO W-BEAM GUARDRAIL, OR
   - 6.B. FLARE THE ENDS OF THE TEMPORARY GUARDRAIL AWAY FROM THE ROADWAY AT A RATE OF 6:1 ON A COMPACTED SLOPE OF 6:1 OR FLATTER OUTSIDE OF THE CLEAR AREA, TERMINATE WITH A STANDARD W-BEAM END SECTION, OR
   - 6.C. BURY IN THE BACKSLOPE.

EQUIPMENT NOTES:

1. WHEN THERE IS ACTIVE, NONMOBILE CONSTRUCTION EQUIPMENT WITHIN THE CLEAR AREA, DELINEATE THE ROADSIDE WITH TRAFFIC CONES.
2. SEPARATE PROCEDURES ARE REQUIRED FOR MOBILE WORK ZONE OPERATIONS AND SHORT DURATION WORK OF LESS THAN 12 HOURS.

WINTER SHUTDOWN NOTES:

1. WHEN REQUIRED, USE CHANNELIZING DEVICES WHICH CAN BE MAINTAINED OVER WINTER.
2. NO CHANNELIZING DEVICES ARE REQUIRED IF:
   - 2.A. CONSTRUCTION SLOPES ARE RECOVERABLE, AND
   - 2.B. SLOPES ARE SMOOTH AND COMPACTED, AND
   - 2.C. REQUIRED CLEAR AREA IS PROVIDED

TRAFFIC CONTROL DETAILS

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T2	T25

GENERAL TRAFFIC CONTROL NOTES

1. ALL TEMPORARY TRAFFIC CONTROL PLANS MUST BE IN ACCORDANCE WITH THE CURRENT ALASKA TRAFFIC MANUAL (ATM) COMPOSED OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE ALASKA TRAFFIC MANUAL SUPPLEMENT AND A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED AND APPROVED PRIOR TO IMPLEMENTATION.
2. ALL SIGNS AND BARRICADES SHALL MEET REQUIREMENTS OF THE CURRENT ATM, WITH THE ALASKA SIGN DESIGN GUIDE(ASDS).
3. MAINTAIN EXISTING REGULATORY SIGNS WITHIN THE WORK ZONE. EXISTING SPEED LIMIT SIGNS MUST BE COVERED OR REMOVED WHERE SPEED REDUCTIONS ARE IN EFFECT.
4. INSTALL PERMANENT CONSTRUCTION SIGNS ON WOOD POSTS.
5. TRAFFIC CONTROL SIGNS MAY NOT BE PLACED ON PORTABLE SIGN SUPPORTS FOR MORE THAN THREE CONSECUTIVE CALENDAR DAYS UNLESS FIELD CONDITIONS PRECLUDE A PERMANENT SIGN POST INSTALLATION AS DIRECTED BY THE ENGINEER. SIGNS INSTALLED FOR LONGER THAN THIS PERIOD MUST BE MOUNTED ON A PERMANENT SIGN POST UNLESS OTHERWISE NOTED. PEDESTRIAN TRAFFIC CONTROL SIGNS AND SIGNS MOUNTED ON A TYPE III BARRICADE ARE EXEMPT FROM THIS AND MAY BE INSTALLED ON PORTABLE SIGN SUPPORTS FOR THE DURATION OF THEIR INSTALLATION.
6. EXISTING SIGNS WHICH CONFLICT WITH CONSTRUCTION SIGNING SHALL BE COVERED.
7. ALL CHANNELIZING DEVICES SHALL HAVE OPERABLE FLASHING LIGHT EXCEPT IN A TAPER WHERE ONLY THE FIRST TWO LIGHTS SHALL FLASH (TYPE "A"), ALL TANGENT CHANNELIZATION DEVICES SHALL FLASH (TYPE "A") AND THE REMAINDER SHALL BE STEADY BURN (TYPE "C").
8. WHEN STREETS ARE RESTRICTED TO ONE LANE, THE MINIMUM CLEAR WIDTH SHALL BE 12' UNLESS OTHERWISE SPECIFIED ON AN APPROVED TRAFFIC CONTROL PLAN (TCP) OR AS DIRECTED BY THE ENGINEER.
9. CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH THE POSTAL SERVICE TO ACCOMMODATE MAIL DELIVERIES.
10. MAINTAIN ACCESS AT ALL TIMES FOR THE PASSAGE OF EMERGENCY VEHICLES THROUGH THE PROJECT.
11. ACCESS TO COMMERCIAL PROPERTIES SHALL REMAIN OPEN DURING NORMAL BUSINESS HOURS EXCEPT THOSE ACCESS CLOSURES DEPICTED ON THESE PLANS. ACCESS TO PRIVATE PROPERTIES SHALL REMAIN OPEN AT ALL TIME. TCPs WHICH REQUEST ACCESS CLOSURES SHALL BE SUBMITTED FOR APPROVAL A MINIMUM OF 10 DAYS PRIOR TO IMPLEMENTATION. ANY ACCESS CLOSURE SHALL NOT OCCUR WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER. THE ENGINEER AND CONTRACTOR WILL COORDINATE ACCESS CLOSURE PLANS WITH THE AFFECTED BUSINESS AND/OR PROPERTY OWNERS. THE CONTRACTOR SHALL NOTIFY OWNERS A MINIMUM OF 48 HOURS PRIOR TO IMPLEMENTATION OF AN APPROVED ACCESS CLOSURE.
12. TYPE "A" FLASHING WARNING LIGHTS SHALL BE USED TO MARK TYPE III BARRICADES, ROAD CLOSURES, AND ADVANCE DETOUR SIGNING AT NIGHT.
13. PUBLIC NOTICE OF ROAD CLOSURES MUST BE MADE IN ACCORDANCE WITH SECTION 643.
14. ALL SIGNS SHALL BE SUPPLEMENTED WITH HIGH LEVEL WARNING DEVICES.
15. ALL W-SERIES AND SPECIAL CONSTRUCTION SIGNS SHALL BE FABRICATED OF MATERIALS CONFORMING TO SECTION 615 OF THE SPECIFICATIONS AND SHALL HAVE A BLACK LEGEND ON ORANGE BACKGROUND.
16. TEMPORARY STRIPING SHALL BE EITHER PAINT OR PREFORMED PAVEMENT MARKING TAPE. TEMPORARY PAVEMENT ARROWS SHALL BE REMOVABLE MARKING MATERIAL. SEE STANDARD DRAWING C-05.20 FOR INTERIM PAVEMENT MARKING APPLICATION GUIDELINES. PAINT SHALL NOT BE APPLIED TO EXISTING PAVED SURFACES WHERE EXISTING PAVEMENT IS TO REMAIN.
17. SEE SHEETS FOR CONSTRUCTION DETOUR SIGNING AND DEVICES ASSOCIATED WITH PROPOSED CONSTRUCTION PHASES.
18. TEMPORARY PEDESTRIAN ROUTES SHALL MEET THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT. WHEN EXISTING PEDESTRIAN FACULTIES ARE DISRUPTED, CLOSED, OR RELOCATED IN A TEMPORARY TRAFFIC CONTROL ZONE, THE TEMPORARY FACILITIES SHALL BE DETECTABLE AND INCLUDE ACCESSIBILITY FEATURES CONSISTENT WITH THE FEATURES PRESENT IN THE EXISTING PEDESTRIAN FACILITY.
19. THE SPACING BETWEEN CHANNELIZING DEVICES SHALL BE AS SHOWN ON THE TRAFFIC CONTROL PLANS.
20. DO NOT IMPLEMENT ANY TCPS WITH A REDUCED WORK ZONE SPEED LIMIT UNTIL AN APPROVED SPEED ZONE ORDER AUTHORIZATION IS OBTAINED FROM THE ENGINEER.

TRAFFIC CONTROL PLAN SHEET INDEX

LEGEND

- UNDER CONSTRUCTION, OR CLOSED TO THRU TRAFFIC
- TRAFFIC SIGN
- EXISTING TRAFFIC SIGNAL
- DETOUR ROUTE
- DETOUR ROUTE
- TYPE 3 BARRICADE
- ARROW BOARD
- DEVICES

TEMPORARY STRIPING LEGEND

- STD — PAVEMENT ARROW (SEE STANDARD DRAWING)
- 4"DY — 4" DOUBLE YELLOW LINE
- 8"WD — 8" WHITE WIDE DOTTED LINE (2' STRIPE/4' SKIP PATTERN)

GENERAL NOTES, LEGEND, AND SHEET INDEX

NO STAMP REQUIRED

02/21/2020

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STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
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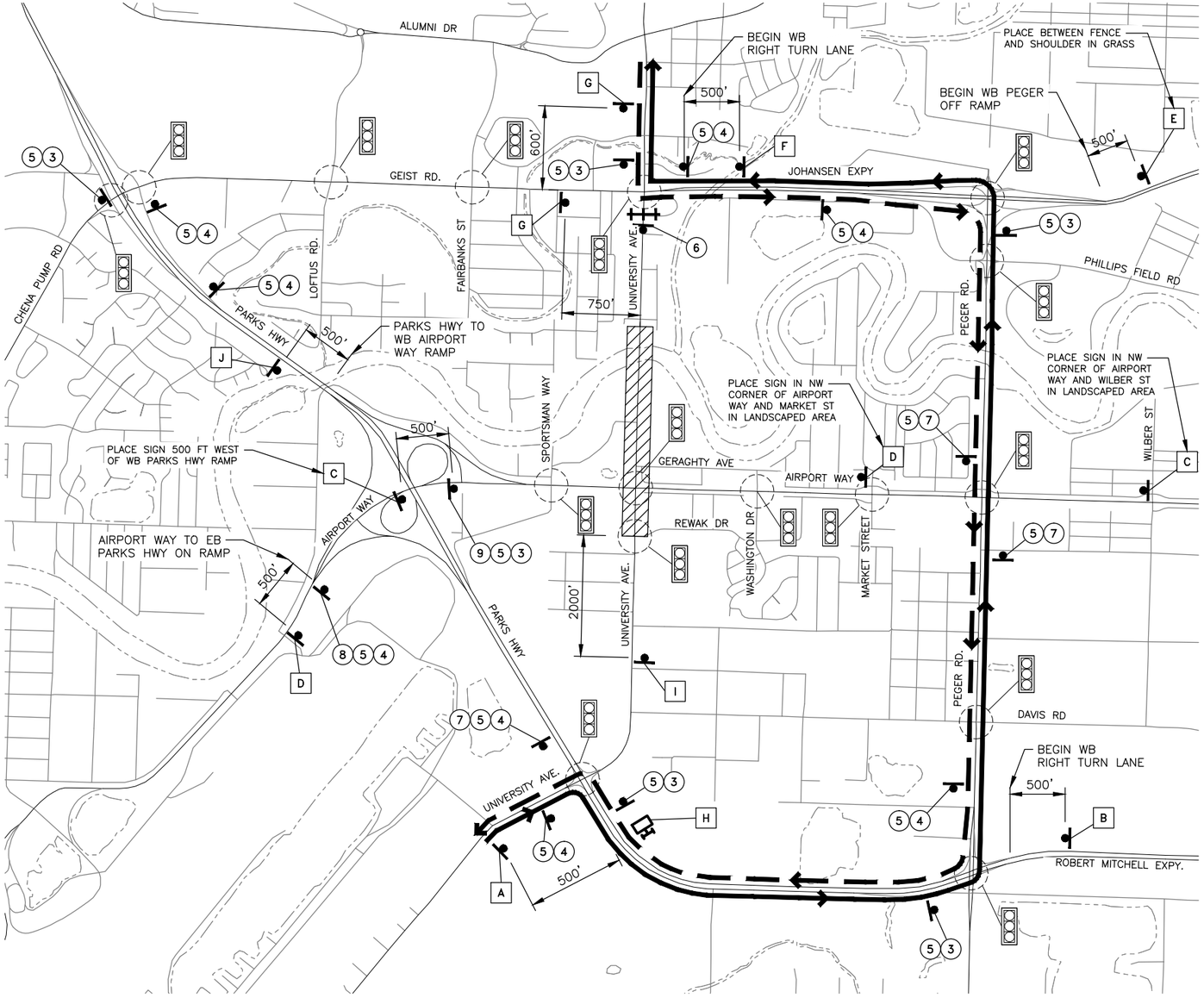


NOTES:

1. ALL TRAFFIC CONTROL DEVICES MUST BE IN ACCORDANCE WITH THE CURRENT ALASKA TRAFFIC MANUAL (ATM).
2. A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED AND APPROVED PRIOR TO IMPLEMENTATION.
3. DETOUR SPECIAL SIGNS SHALL BE LOCATED AS SHOWN OR IN ADVANCE OF ROAD WORK AHEAD SIGNING ON CLOSED ROUTES.
4. WHERE DIMENSIONS ARE NOT INCLUDED, ADVANCE DETOUR SIGNS SHALL BE INSTALLED APPROXIMATELY 100'–200' IN ADVANCE OF POINT OF DETOUR.

THE FOLLOWING CLOSURE PLANS ARE ASSOCIATED WITH THIS DETOUR PLAN

T4	UNIVERSITY AVENUE NORTHBOUND APPROACH CLOSURE AT REWAK DRIVE.
T5	UNIVERSITY AVENUE SOUTHBOUND APPROACH CLOSURE AT GOLDIZEN AVE.
T6–T9	AIRPORT WAY LANE CLOSURES AND SHIFT.
T10	OFF SITE MODIFICATIONS – WESTBOUND JOHANSEN EXPRESSWAY AT PEGER ROAD.
T11	OFF SITE MODIFICATIONS – PEGER ROAD AT JOHANSEN EXPRESSWAY LANE CLOSURE.
T12	OFF SITE MODIFICATIONS – NORTHBOUND PARKS HIGHWAY OFF–RAMP AT GEIST ROAD.
T13	OFF SITE MODIFICATIONS – WESTBOUND AIRPORT WAY AT PEGER ROAD.
T14	OFF SITE MODIFICATIONS – EASTBOUND AIRPORT WAY AT PEGER ROAD.
T15	OFF SITE MODIFICATIONS – SOUTHBOUND PEGER ROAD AT AIRPORT WAY.
T16–T17	UNIVERSITY AVENUE PEDESTRIAN DETOUR.

LEGEND:

- UNDER CONSTRUCTION – CLOSED TO THRU TRAFFIC
- TRAFFIC SIGN
- EXISTING TRAFFIC SIGNAL
- NORTHBOUND DETOUR ROUTE
- SOUTHBOUND DETOUR ROUTE
- TYPE 3 BARRICADE

1		R3–1 (24" X 24")
2		R3–2 (24" X 24")
3		M4–9L (30" X 24")
4		M4–9R (30" X 24")
5		SPECIAL (36" X 12")
6		R11–4 (60" X 30")
7		M4–103 (30" X 24")
8		M3–3 (24" X 12")
9		M3–1 (24" X 12")

DETOUR SPECIAL SIGNS

SEE SPECIAL CONSTRUCTION SIGNS, SHEETS T23–T25 FOR SIGN LAYOUT.

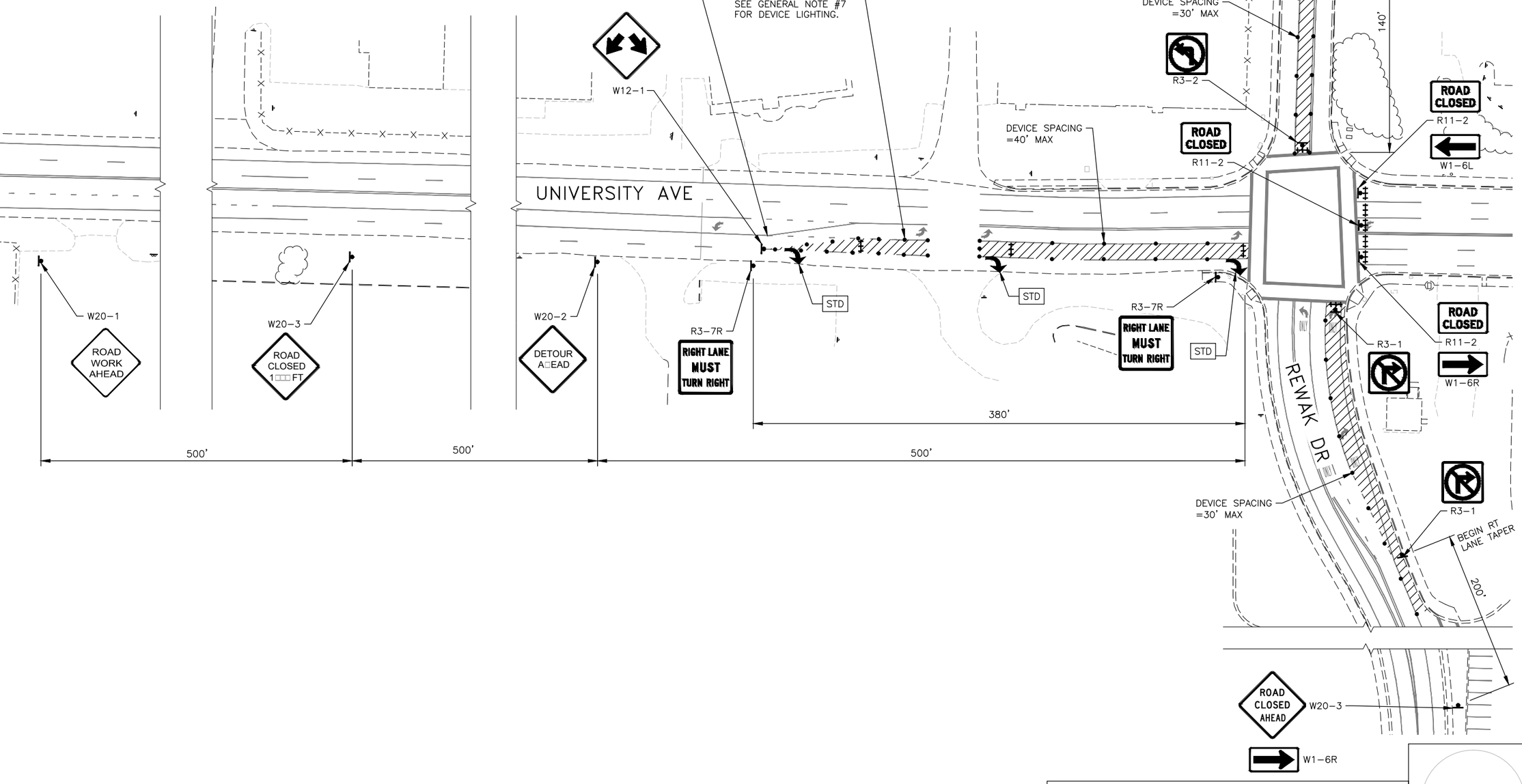
A	UNIVERSITY CLOSED AT REWAK DR USE MITCHELL EXPWY
B	UNIVERSITY CLOSED AT REWAK DR USE PEGER RD
C	UNIVERSITY CLOSED AT AIRPORT WAY USE PEGER RD
D	UNIVERSITY CLOSED AT AIRPORT WAY USE PARKS HWY
E	UNIVERSITY CLOSED AT GOLDIZEN AVE USE PEGER RD
F	UNIVERSITY CLOSED AT GOLDIZEN AVE USE GEIST RD
G	UNIVERSITY CLOSED AT GOLDIZEN AVE USE JOHANSEN EXPWY
H	UNIVERSITY CLOSED AT REWAK DR USE PARKS TO GEIST
I	UNIVERSITY AVE CLOSED AT REWAK DR
J	UNIVERSITY CLOSED AT AIRPORT WAY USE MITCHELL EXPWY

UNIVERSITY AVE CLOSURE DETOUR PLAN

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T4	T25



UNIVERSITY AVENUE NORTHBOUND APPROACH CLOSURE AT REWAK DRIVE

NO STAMP REQUIRED

02/21/2020

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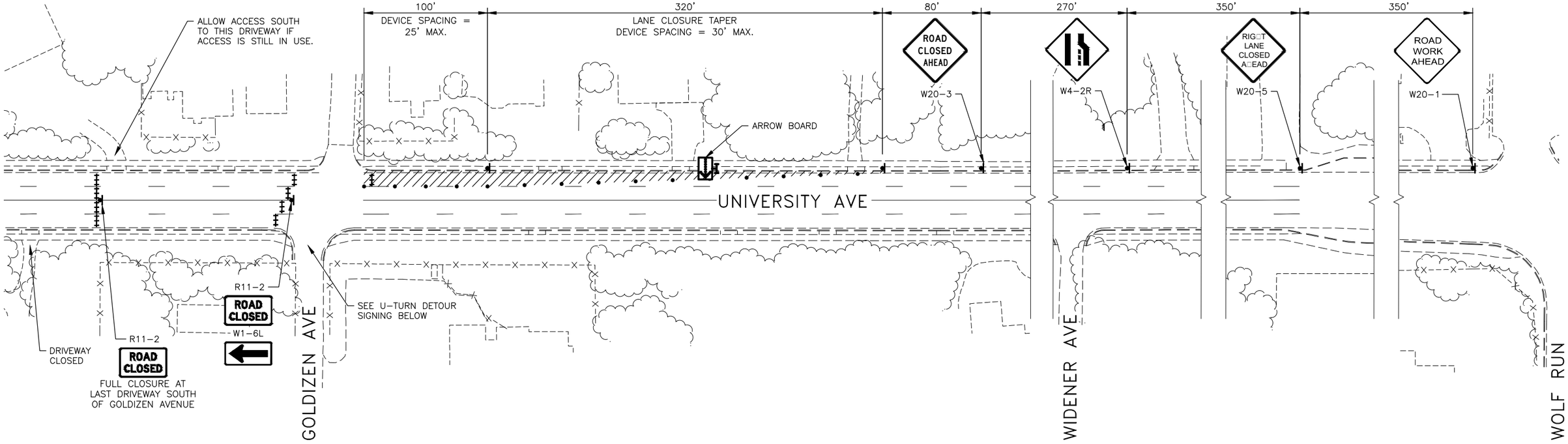
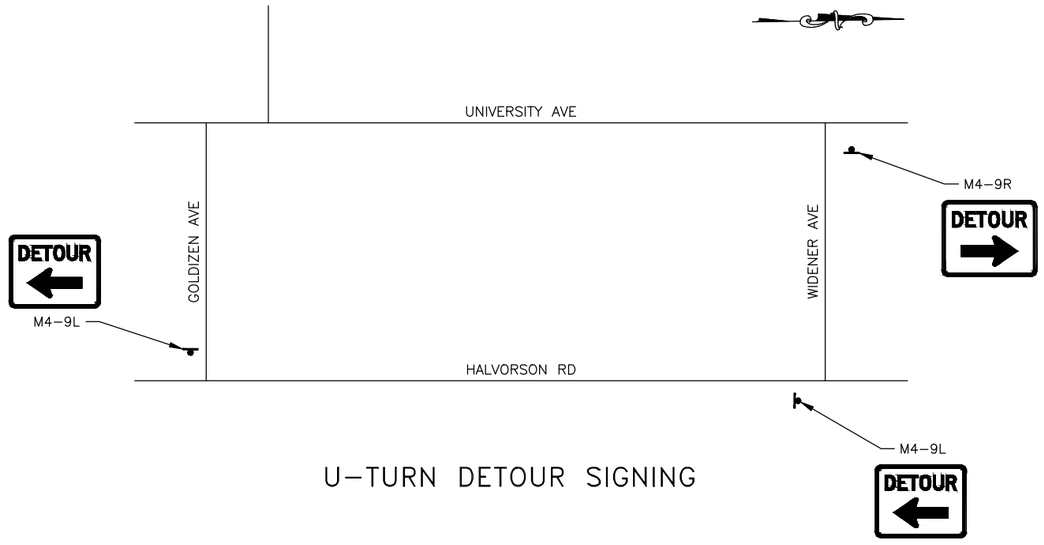
ALASKA	0617013/NFHWY00468	2020	T5	T25





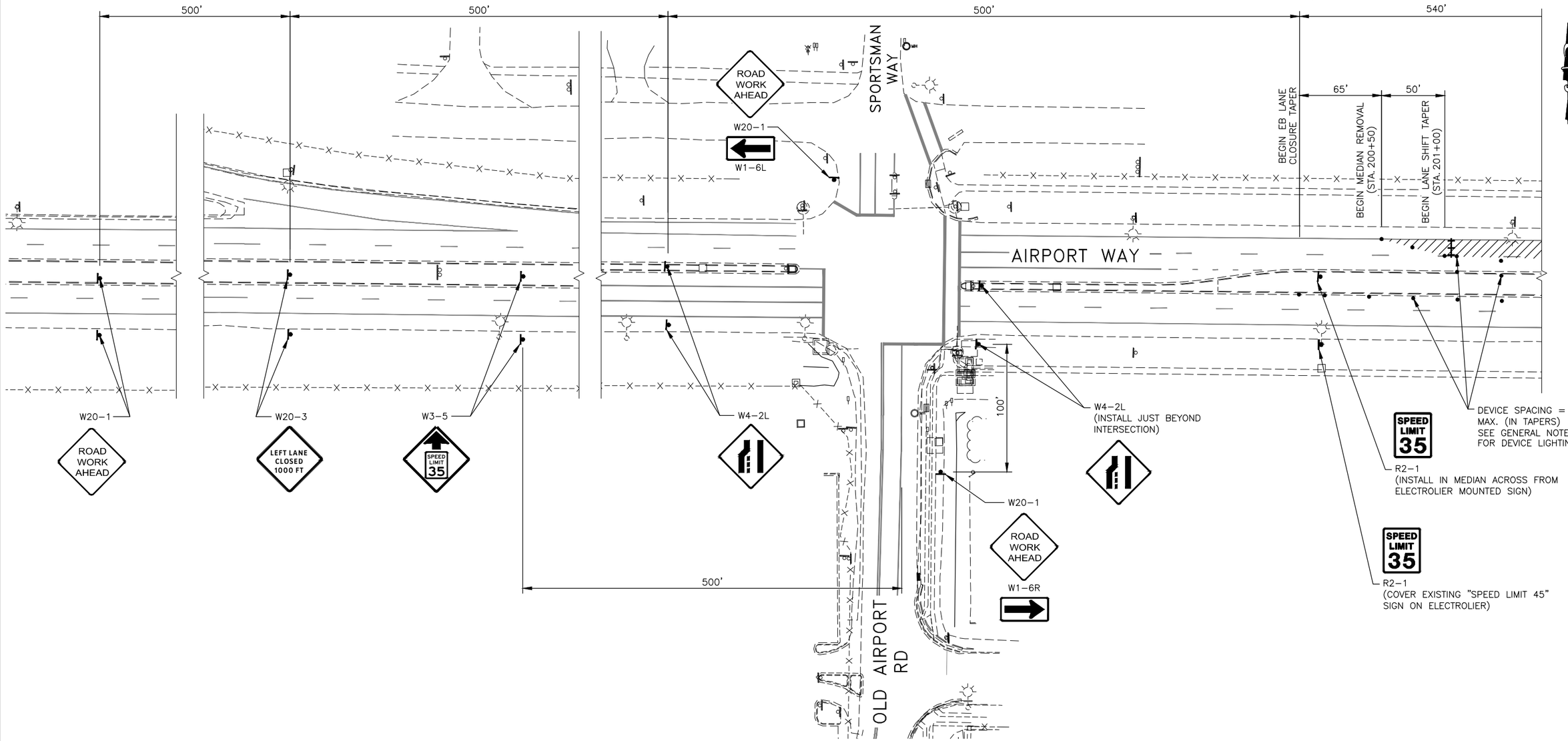
U-TURN DETOUR SIGNING

UNIVERSITY AVENUE SOUTHBOUND APPROACH CLOSURE AT GOLDIZEN AVE

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T6	T25



NOTE:

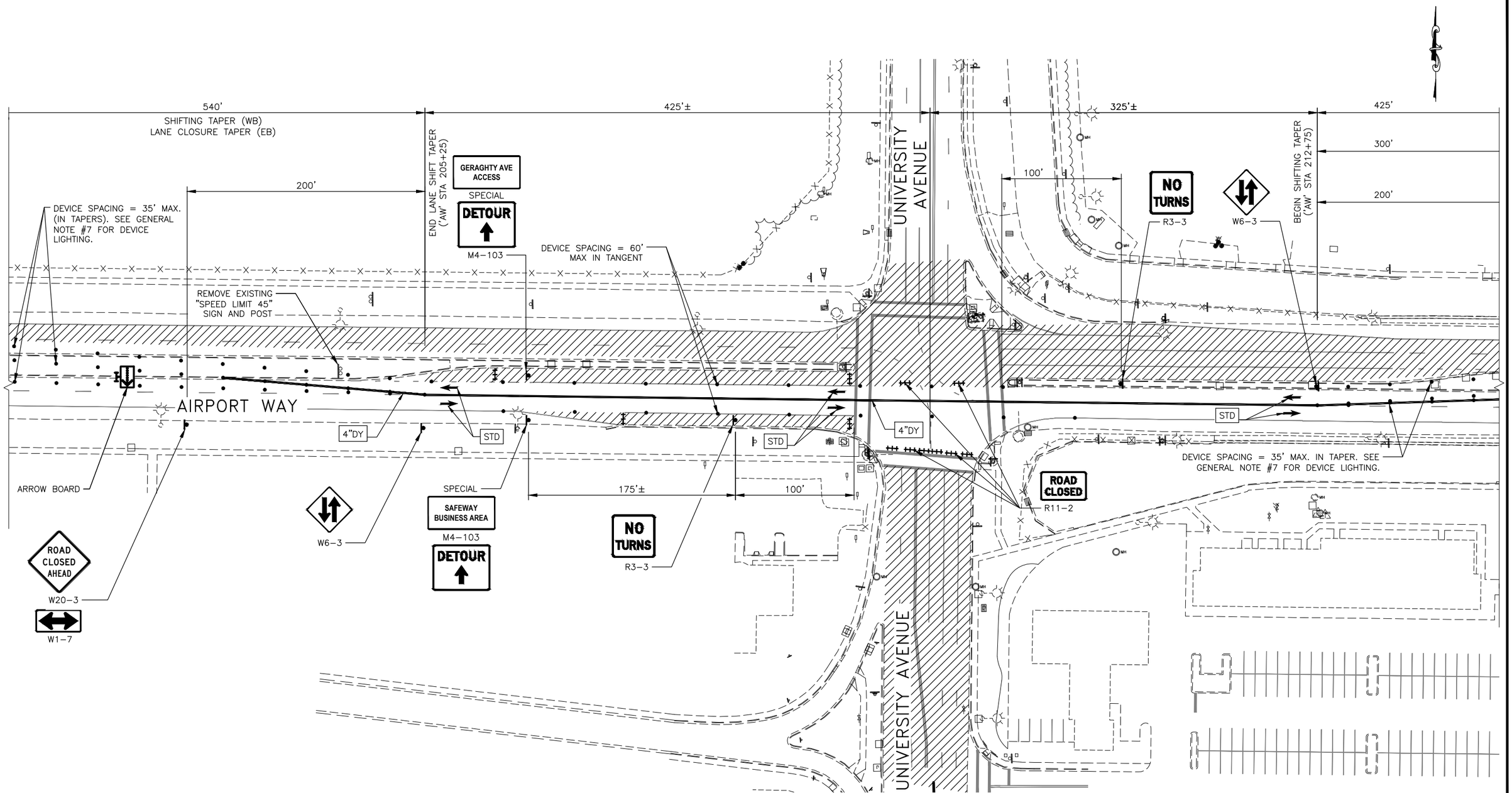
THIS PLAN DEPICTS REDUCING AIRPORT WAY FROM 4 TO 2 LANES AND SHIFTING TRAFFIC TO THE SOUTH (EB LANES). ADJUST PLAN AS REQUIRED FOR SHIFTING TRAFFIC TO THE NORTH WITH APPROPRIATE LANE REDUCTION AND CLOSURE SIGNING LEGENDS.

AIRPORT WAY LANE CLOSURES AND SHIFT

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T7	T25

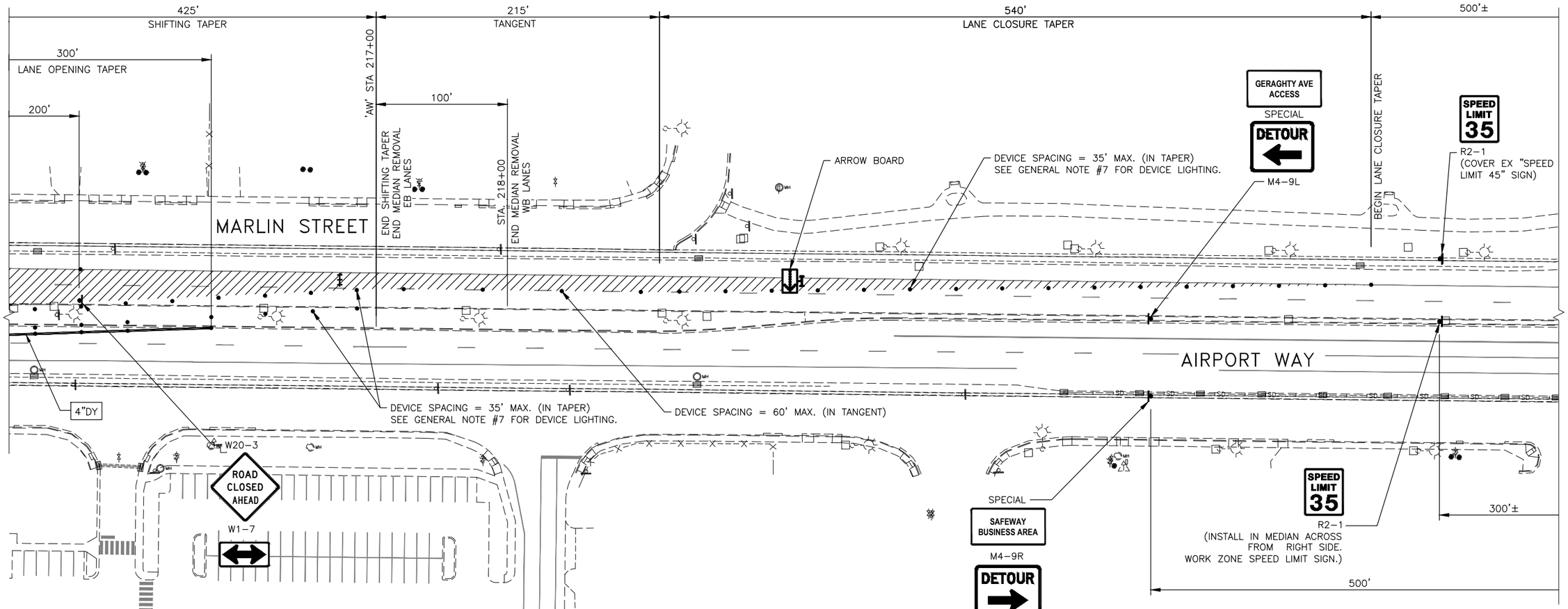


AIRPORT WAY LANE CLOSURES AND SHIFT

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T8	T25

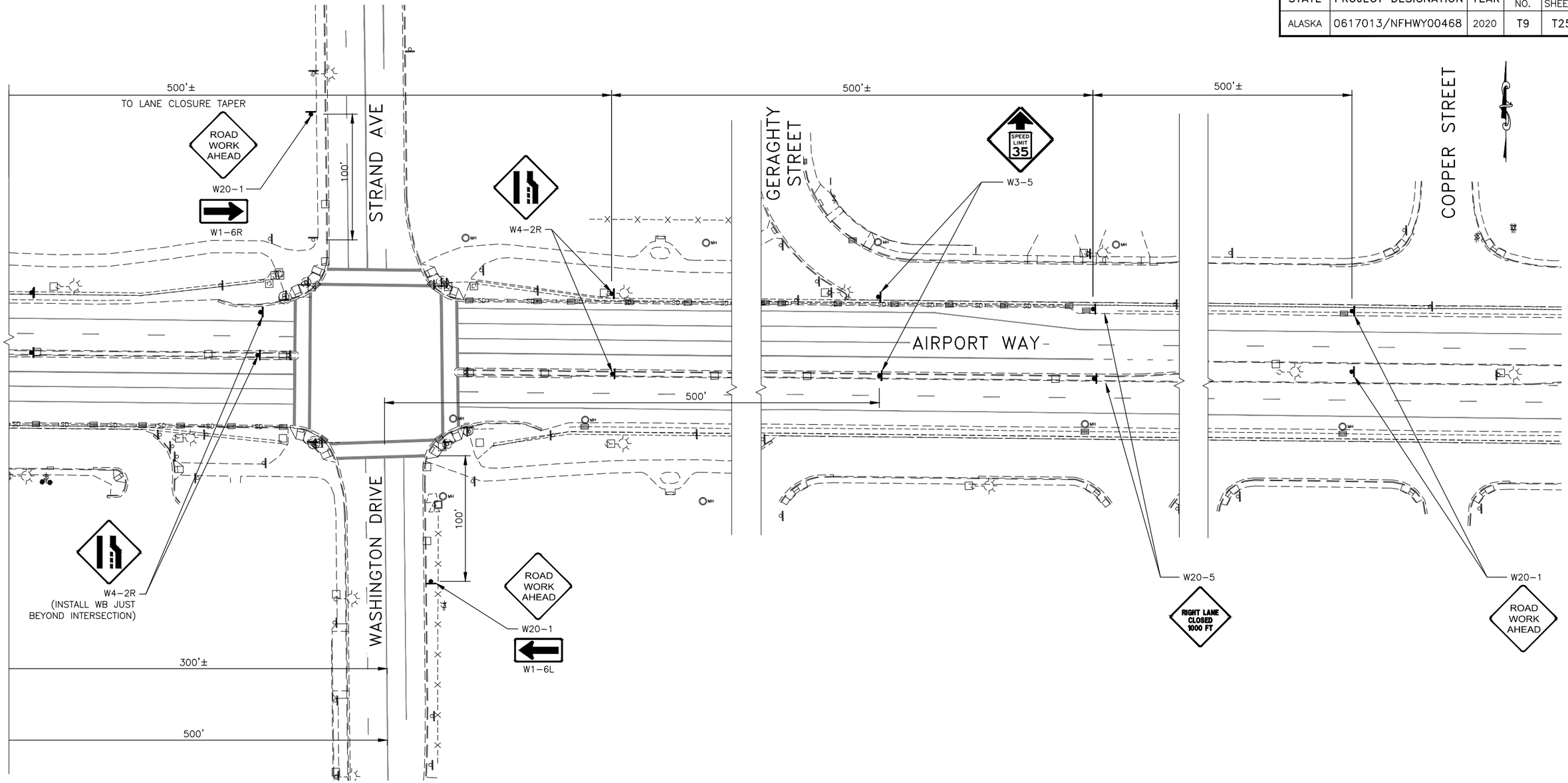


AIRPORT WAY LANE CLOSURES AND SHIFT

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T9	T25



AIRPORT WAY LANE CLOSURES AND SHIFT

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02/21/2020

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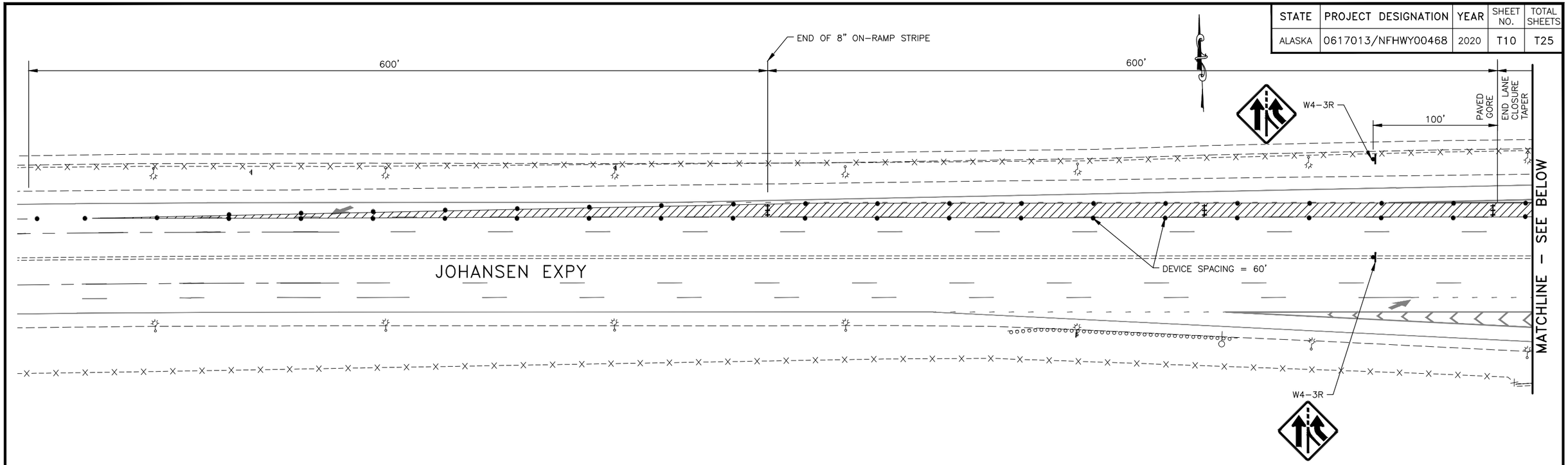
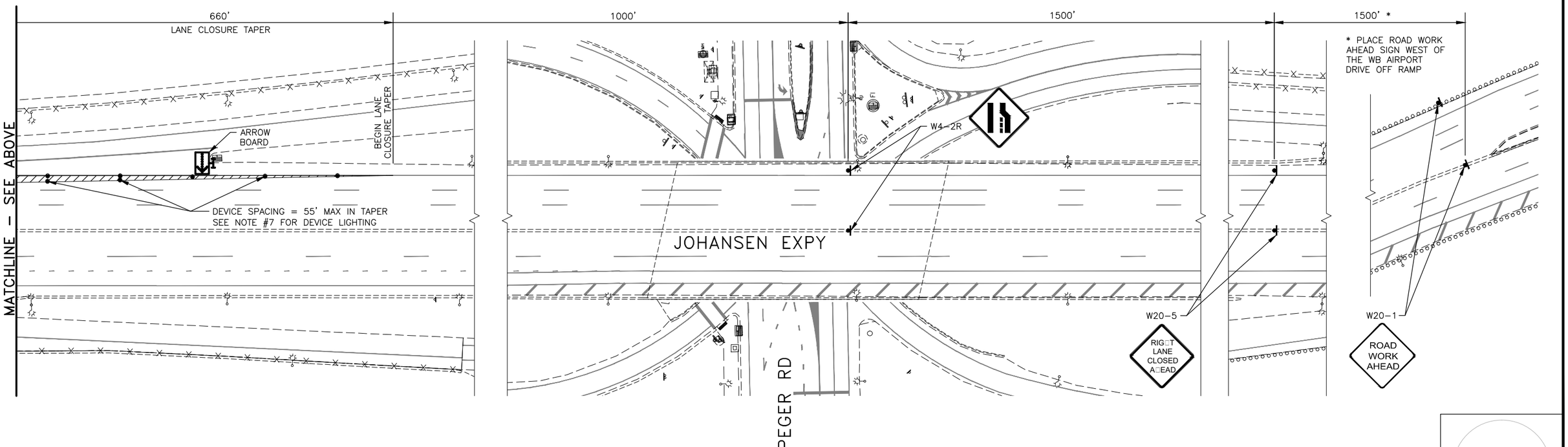
ALASKA	0617013/NFHWY00468	2020	T10	T25





OFF SITE MODIFICATIONS
WESTBOUND JOHANSEN
EXPRESSWAY AT PEGER ROAD

NO STAMP REQUIRED

02/21/2020

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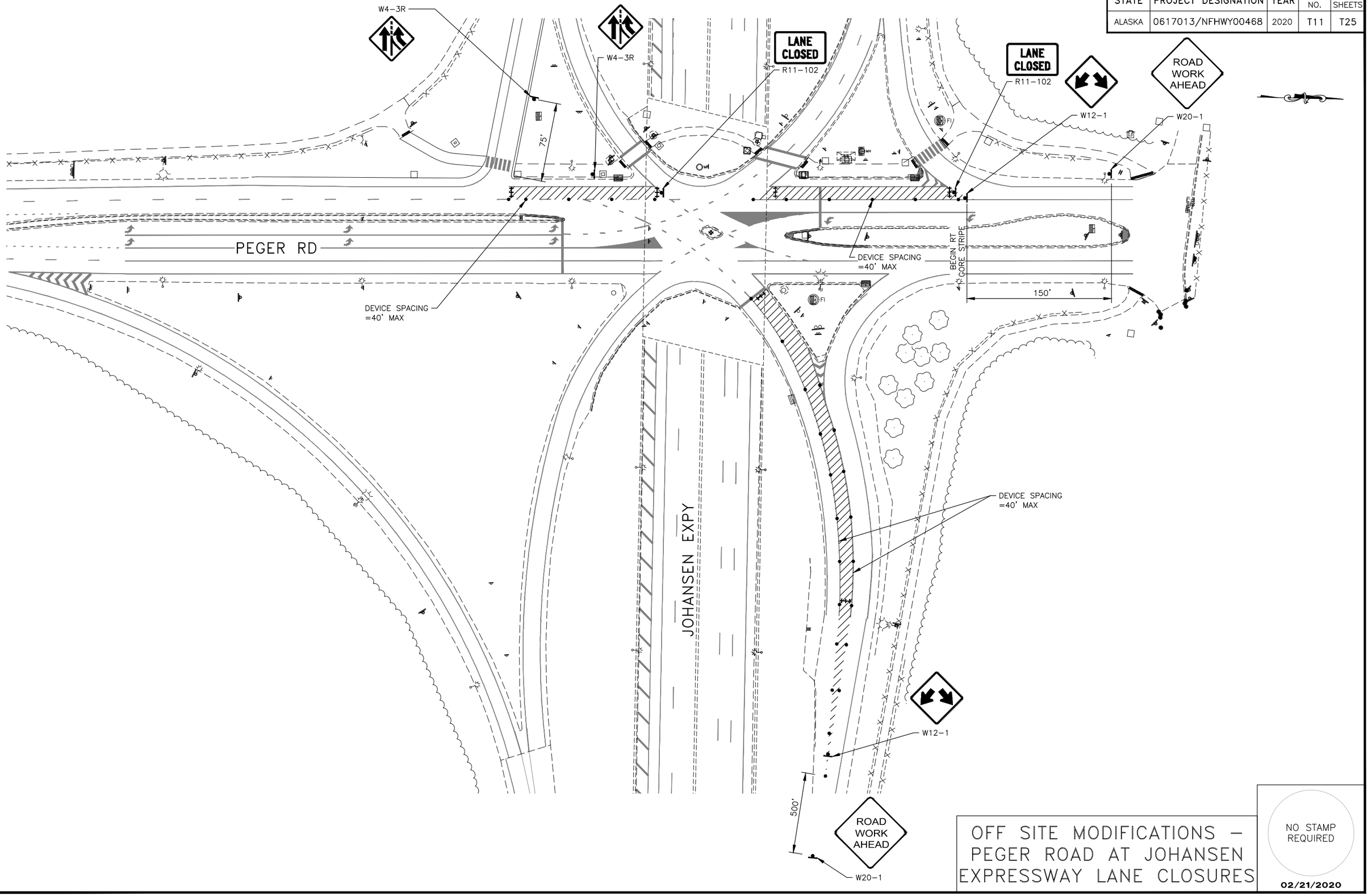
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T11	T25



OFF SITE MODIFICATIONS – PEGER ROAD AT JOHANSEN EXPRESSWAY LANE CLOSURES

NO STAMP REQUIRED

02/21/2020

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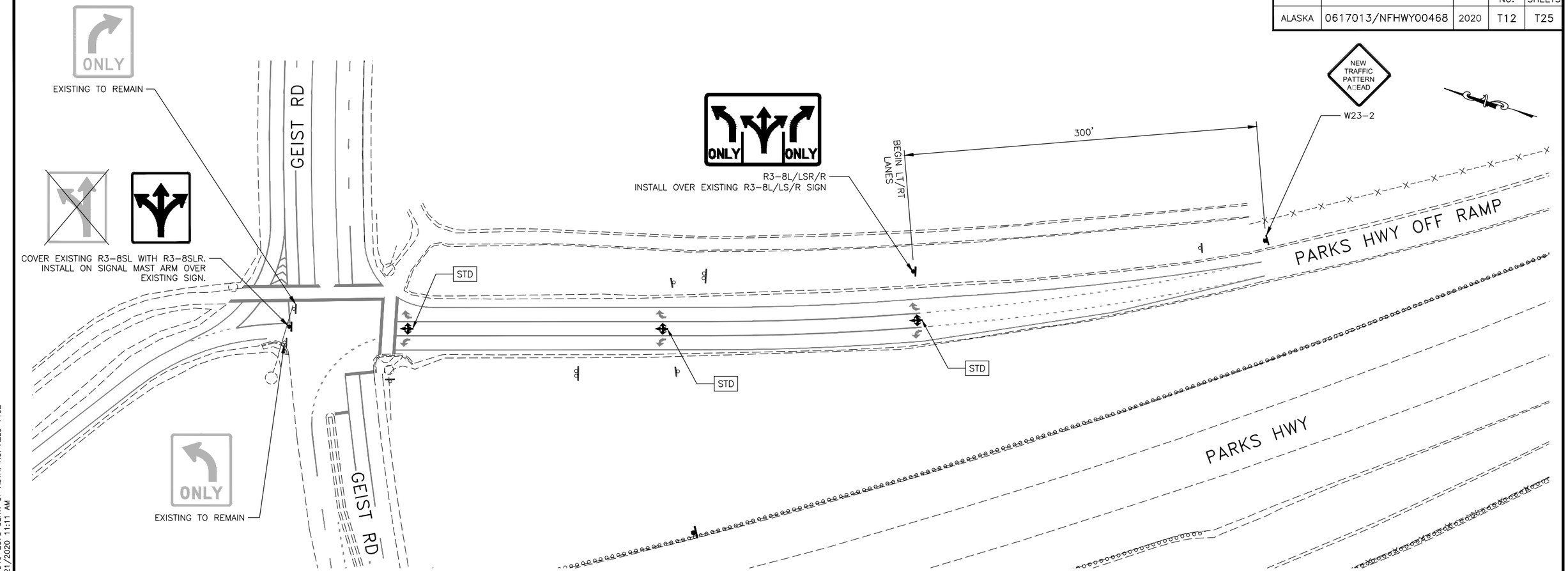
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T12	T25



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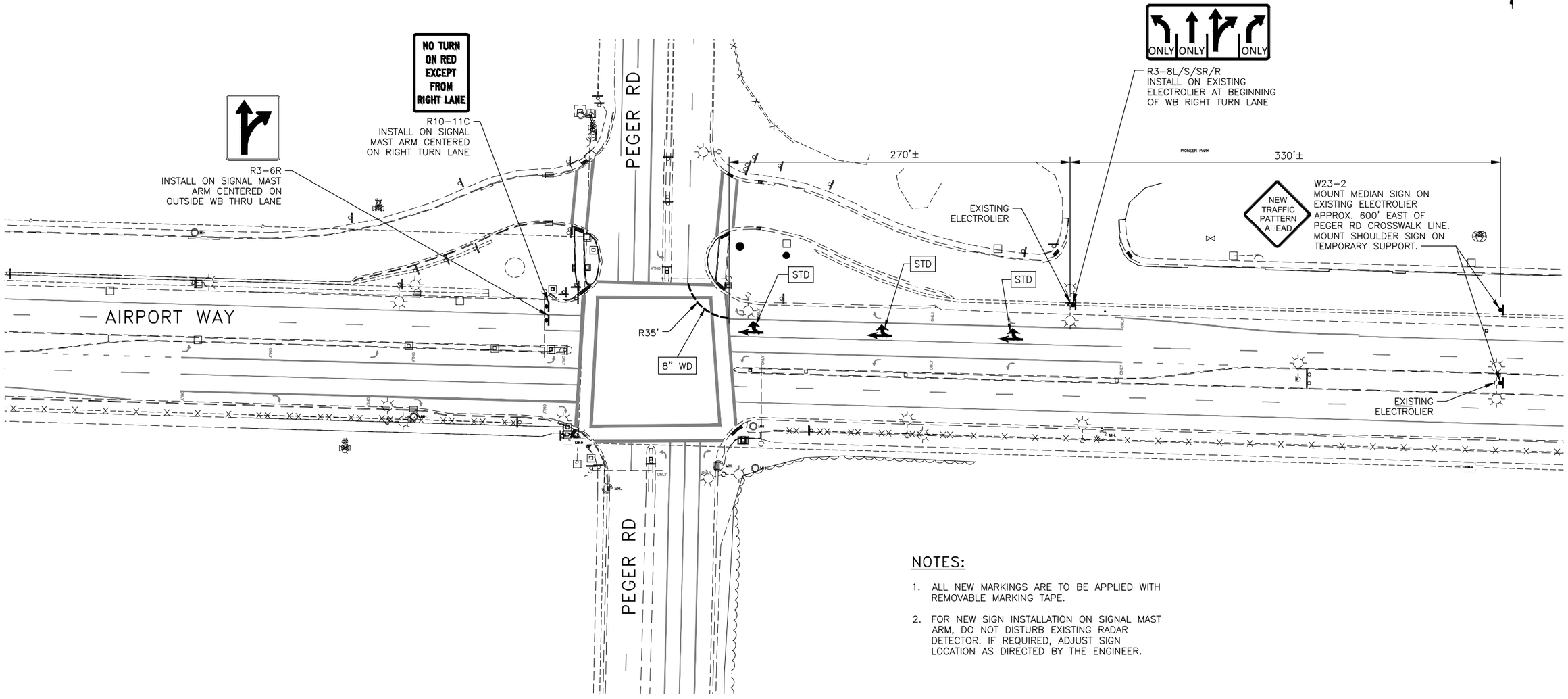
OFF SITE INTERSECTION MODIFICATIONS – NORTHBOUND PARKS HIGHWAY OFF RAMP AT GEIST ROAD

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T13	T25



NOTES:

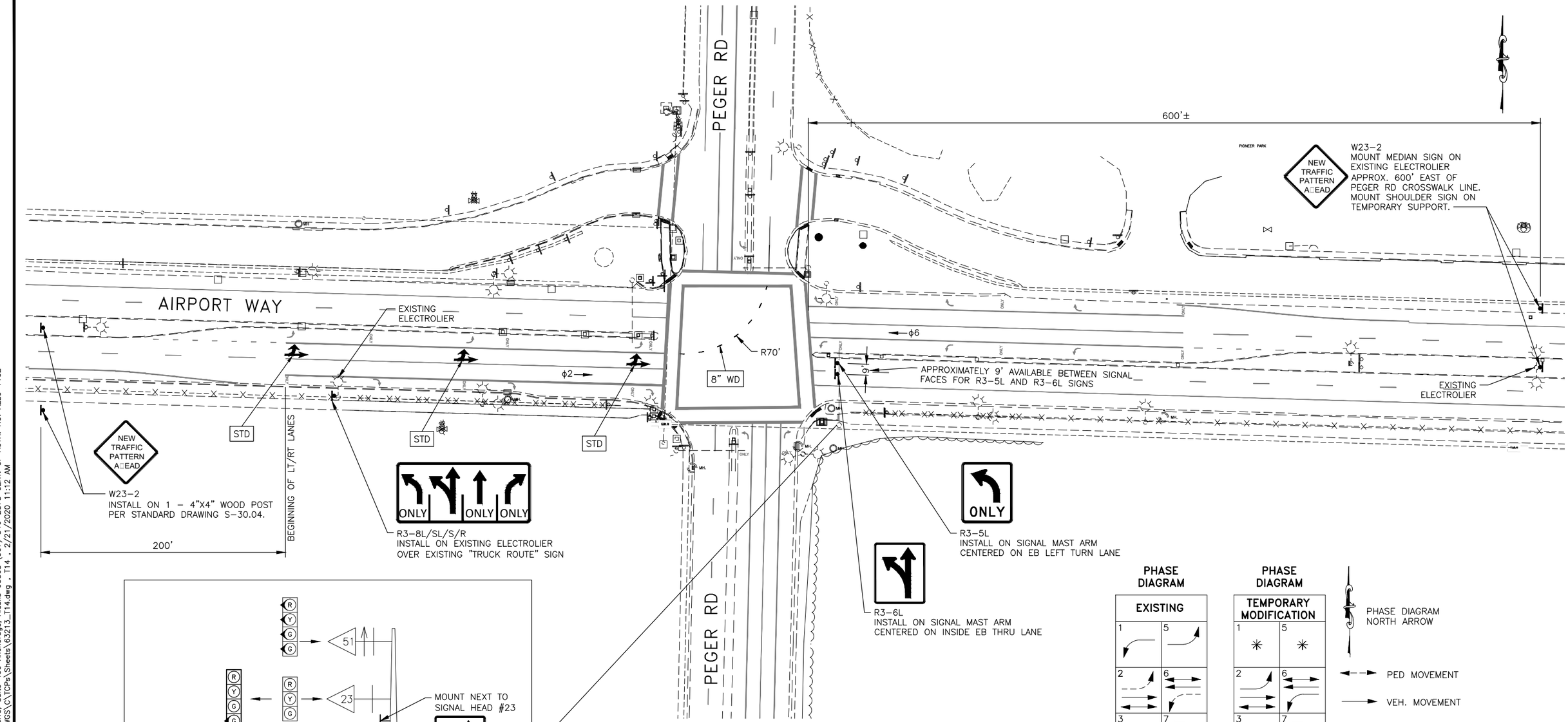
1. ALL NEW MARKINGS ARE TO BE APPLIED WITH REMOVABLE MARKING TAPE.
2. FOR NEW SIGN INSTALLATION ON SIGNAL MAST ARM, DO NOT DISTURB EXISTING RADAR DETECTOR. IF REQUIRED, ADJUST SIGN LOCATION AS DIRECTED BY THE ENGINEER.

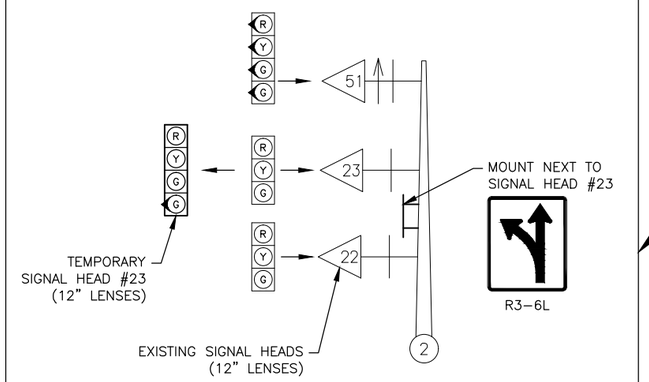
OFF SITE INTERSECTION MODIFICATIONS – WB AIRPORT WAY AT PEGER ROAD

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T14	T25





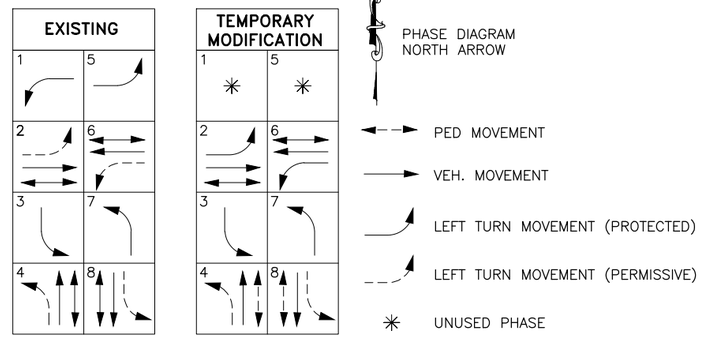
NOTE:

SEE NOTE 1 FOR SIGNAL MODIFICATIONS IF NEW SIGNAL POLE SCHEDULED TO BE INSTALLED IN 2020 IS IN PLACE.

DETAIL A

NOTES:

1. THIS PLAN ASSUMES TRAFFIC SIGNAL MODIFICATIONS SCHEDULED FOR 2020 ARE NOT YET INSTALLED. IF 2020 SIGNAL REVISIONS ARE INSTALLED, MODIFICATIONS TO THE INSIDE EB THRU SIGNAL HEAD (HEAD #23) MAY BE REQUIRED. SEE DETAIL 'A' THIS SHEET.
2. ALL NEW MARKINGS ARE TO BE APPLIED WITH REMOVABLE MARKING TAPE.
3. FOR NEW SIGN INSTALLATION ON SIGNAL MAST ARM, DO NOT DISTURB EXISTING RADAR DETECTOR. IF REQUIRED, ADJUST SIGN LOCATION AS DIRECTED BY THE ENGINEER.



OFF SITE INTERSECTION MODIFICATIONS – EASTBOUND AIRPORT WAY AT PEGER ROAD

NO STAMP REQUIRED

02/21/2020

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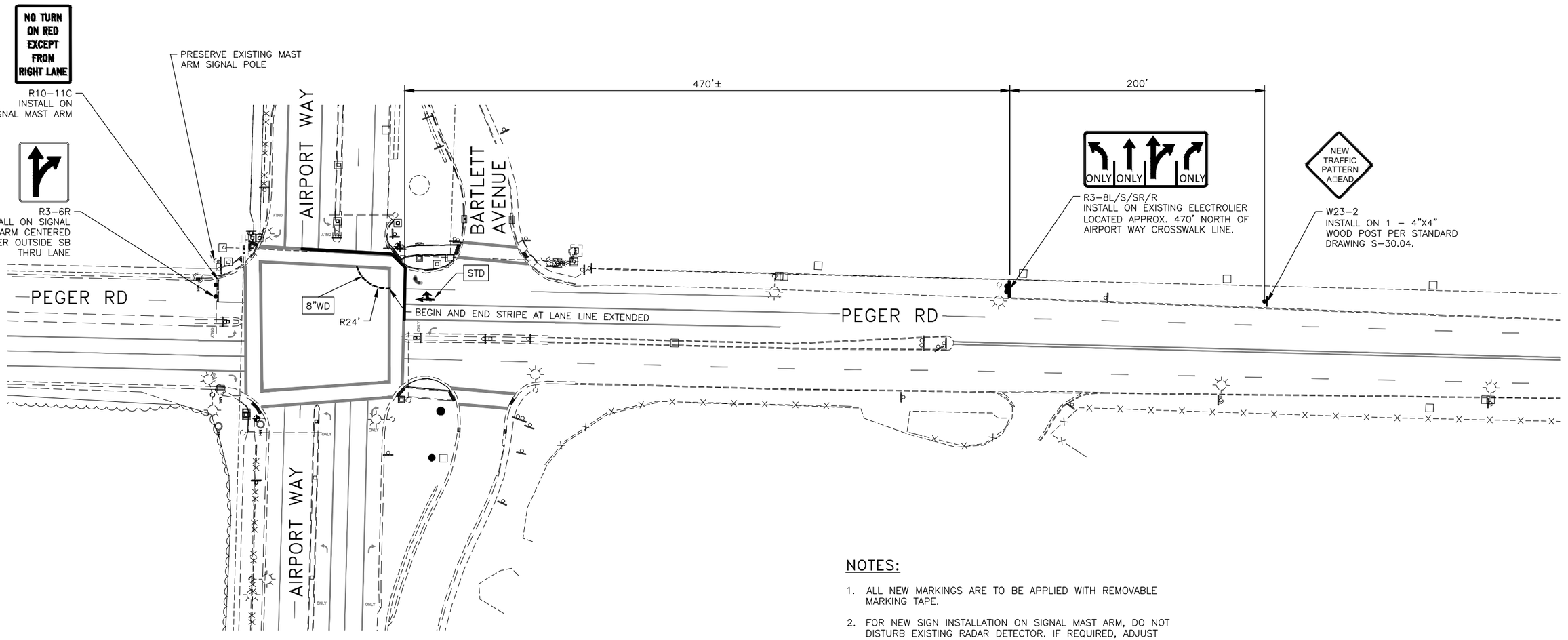
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T15	T25



NOTES:

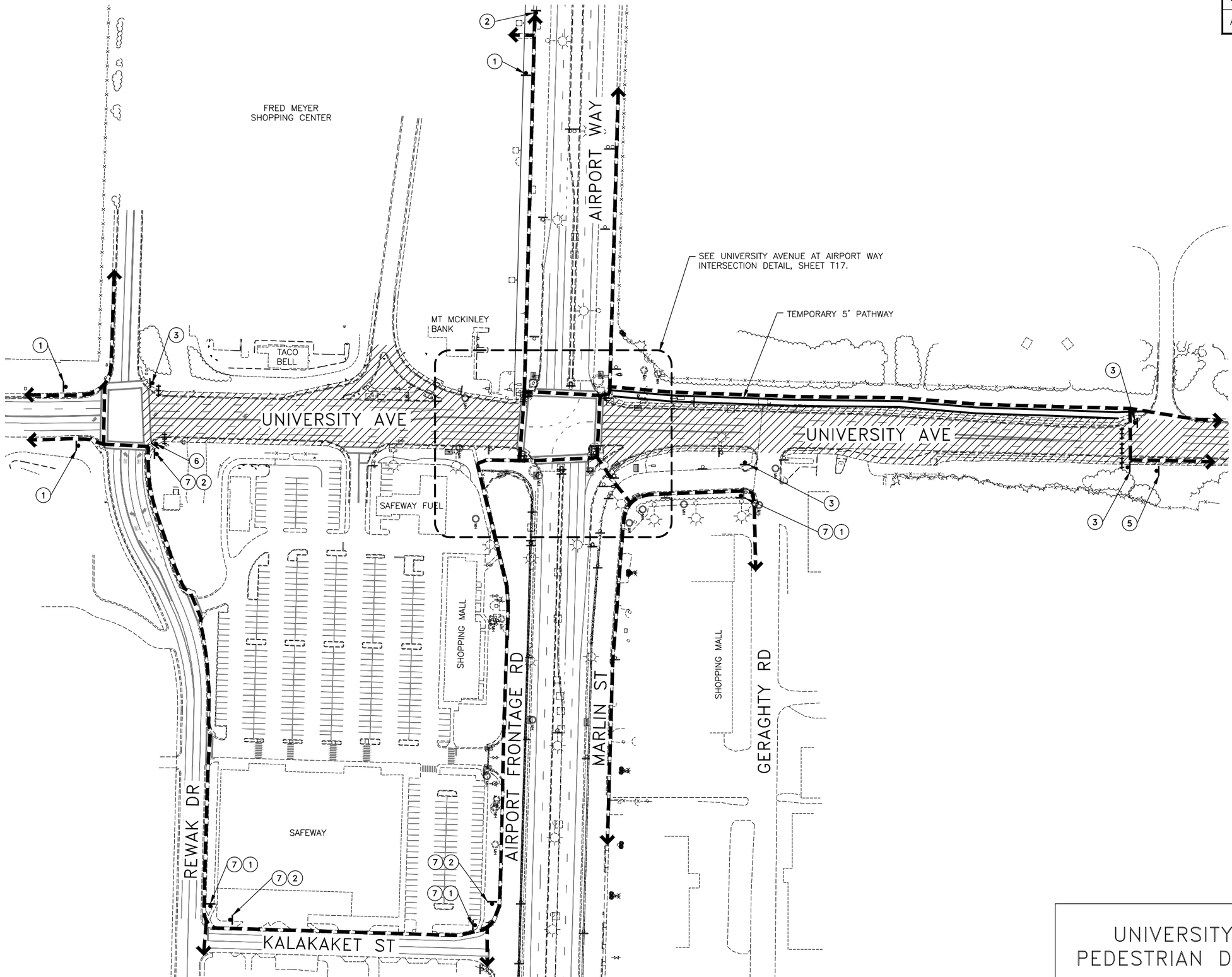
1. ALL NEW MARKINGS ARE TO BE APPLIED WITH REMOVABLE MARKING TAPE.
2. FOR NEW SIGN INSTALLATION ON SIGNAL MAST ARM, DO NOT DISTURB EXISTING RADAR DETECTOR. IF REQUIRED, ADJUST SIGN LOCATION AS DIRECTED BY THE ENGINEER.

OFF SITE INTERSECTION MODIFICATIONS – SB PEGER ROAD AT AIRPORT WAY (RT LANE)

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T16	T25



1. DETOUR M4-9a(LEFT)
2. DETOUR M4-9a(RIGHT)
3. SIDEWALK CLOSED — R9-9
4. SIDEWALK CLOSED USE OTHER SIDE — R9-10
5. SIDEWALK CLOSED AHEAD → CROSS HERE — R9-11
6. SIDEWALK CLOSED ← CROSS HERE — R9-11a
7. UNIVERSITY AVE — SPECIAL

CLOSURE AREA

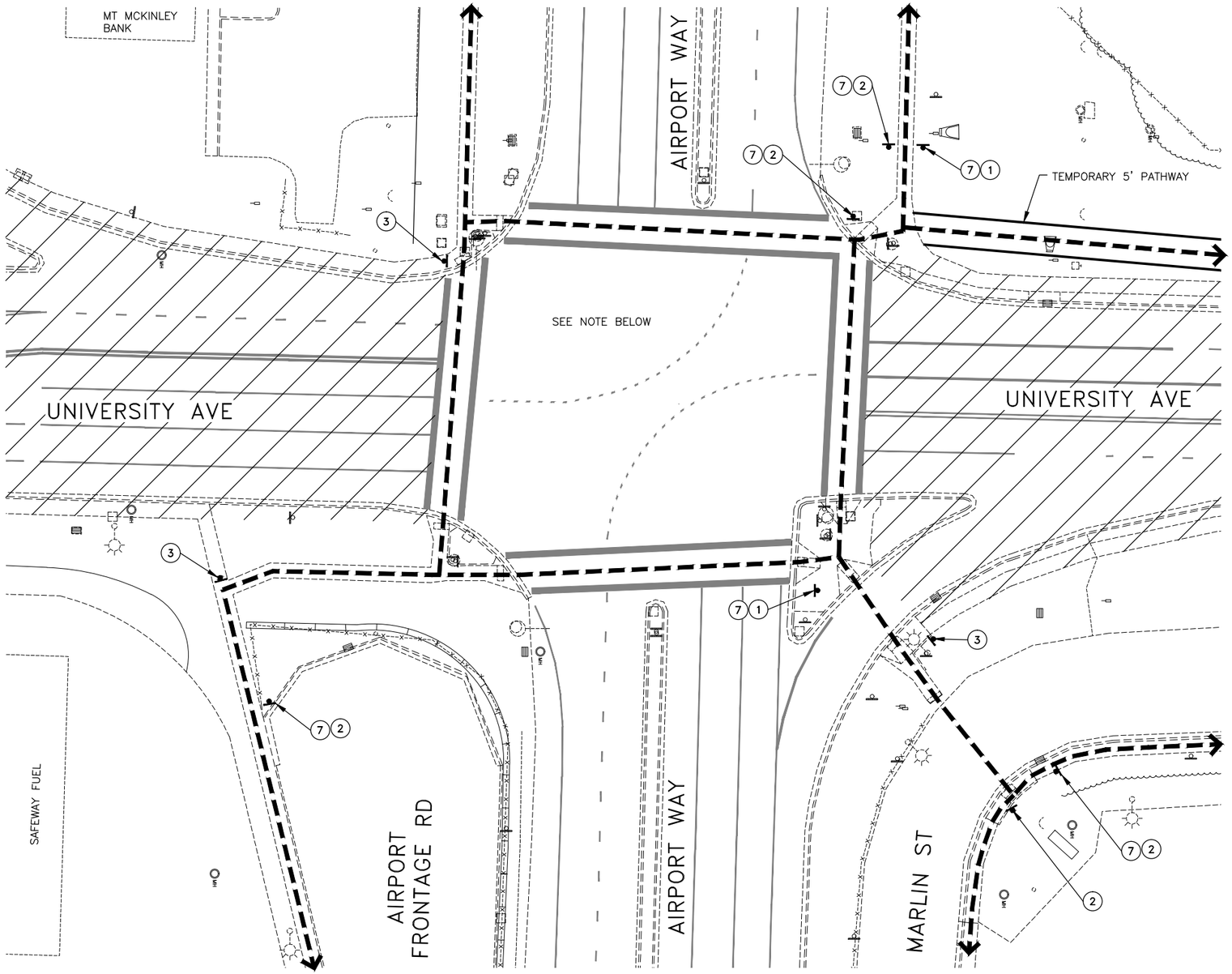
OPEN PEDESTRIAN ROUTES

UNIVERSITY AVENUE PEDESTRIAN DETOUR PLAN

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T17	T25



UNIVERSITY AVENUE AT AIRPORT WAY INTERSECTION DETAIL

NOTE:

A MINIMUM OF TWO CROSSING LEGS MUST BE MAINTAINED AT ALL TIMES (ONE AIRPORT WAY, AND ONE UNIVERSITY AVENUE CROSSING)

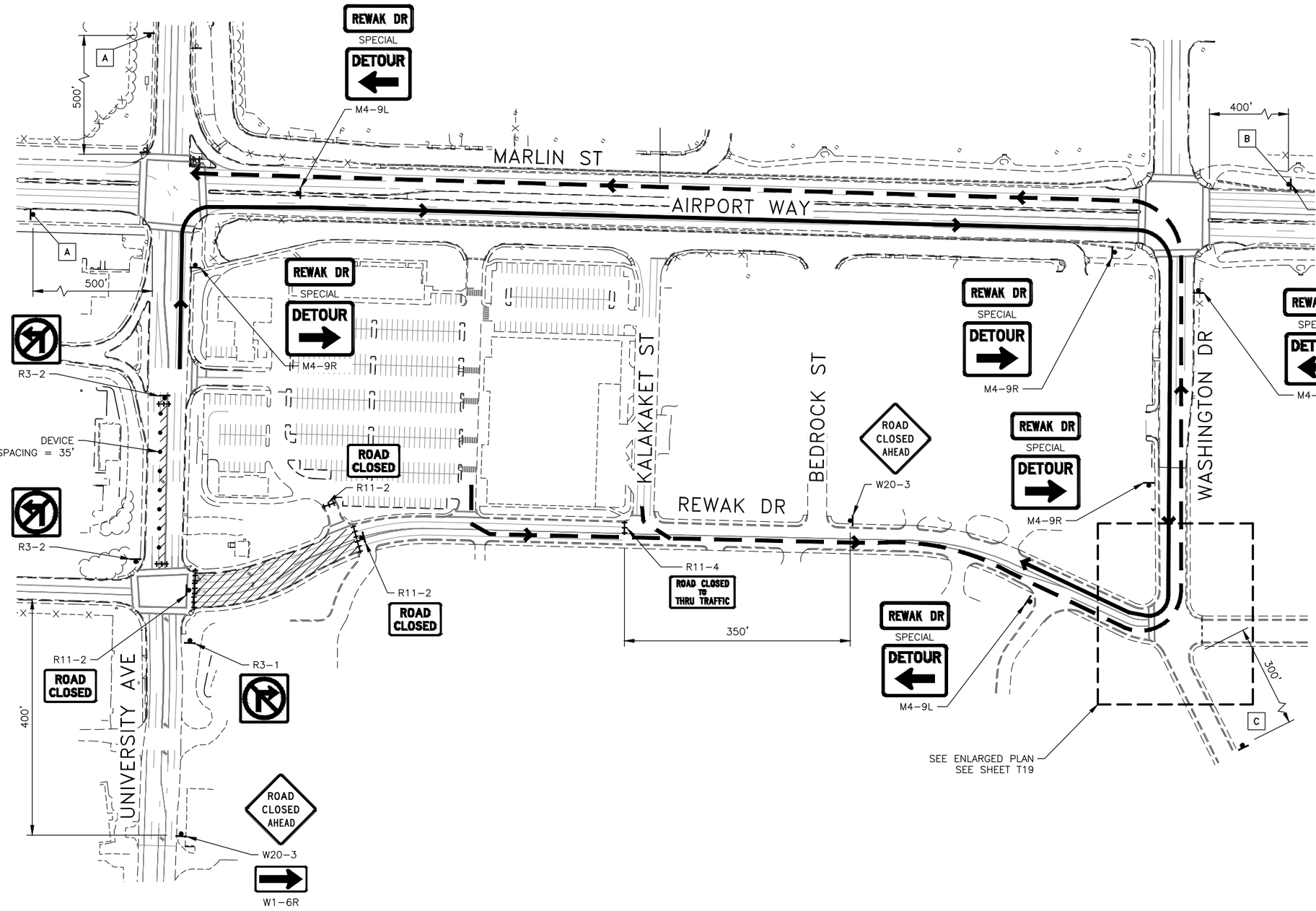
1	DETOUR	M4-9a(LEFT)
2	DETOUR	M4-9a(RIGHT)
3	SIDEWALK CLOSED	R9-9
4	SIDEWALK CLOSED USE OTHER SIDE	R9-10
5	SIDEWALK CLOSED AHEAD CROSS HERE	R9-11
6	SIDEWALK CLOSED CROSS HERE	R9-11a
7	UNIVERSITY AVE	SPECIAL
		CLOSURE AREA
		OPEN PEDESTRIAN ROUTES

UNIVERSITY AVENUE PEDESTRIAN DETOUR PLAN

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T18	T25



DETOUR SPECIAL SIGNS

SEE SPECIAL CONSTRUCTION SIGNS, SHEETS T23–T25 FOR SIGN LAYOUT.

A	EAST REWAK DR CLOSED USE AIRPORT AVE
B	EAST REWAK DR CLOSED USE UNIVERSITY
C	REWAK DR CLOSED AHEAD USE WASHINGTON

LEGEND:

- UNDER CONSTRUCTION – CLOSED TO THRU TRAFFIC
- TRAFFIC SIGN
- EASTBOUND DETOUR ROUTE
- WESTBOUND DETOUR ROUTE
- TYPE 3 BARRICADE
- DEVICE

REWAK DRIVE CLOSURE PLAN

NO STAMP REQUIRED

02/21/2020

PLANS DEVELOPED BY: KINNEY ENGINEERING, LLC 3909 Arctic Blvd, Suite 400 Anchorage, Alaska 99503 (907) 346-2373 CERT. OF AUTH. NO. AELC 1102
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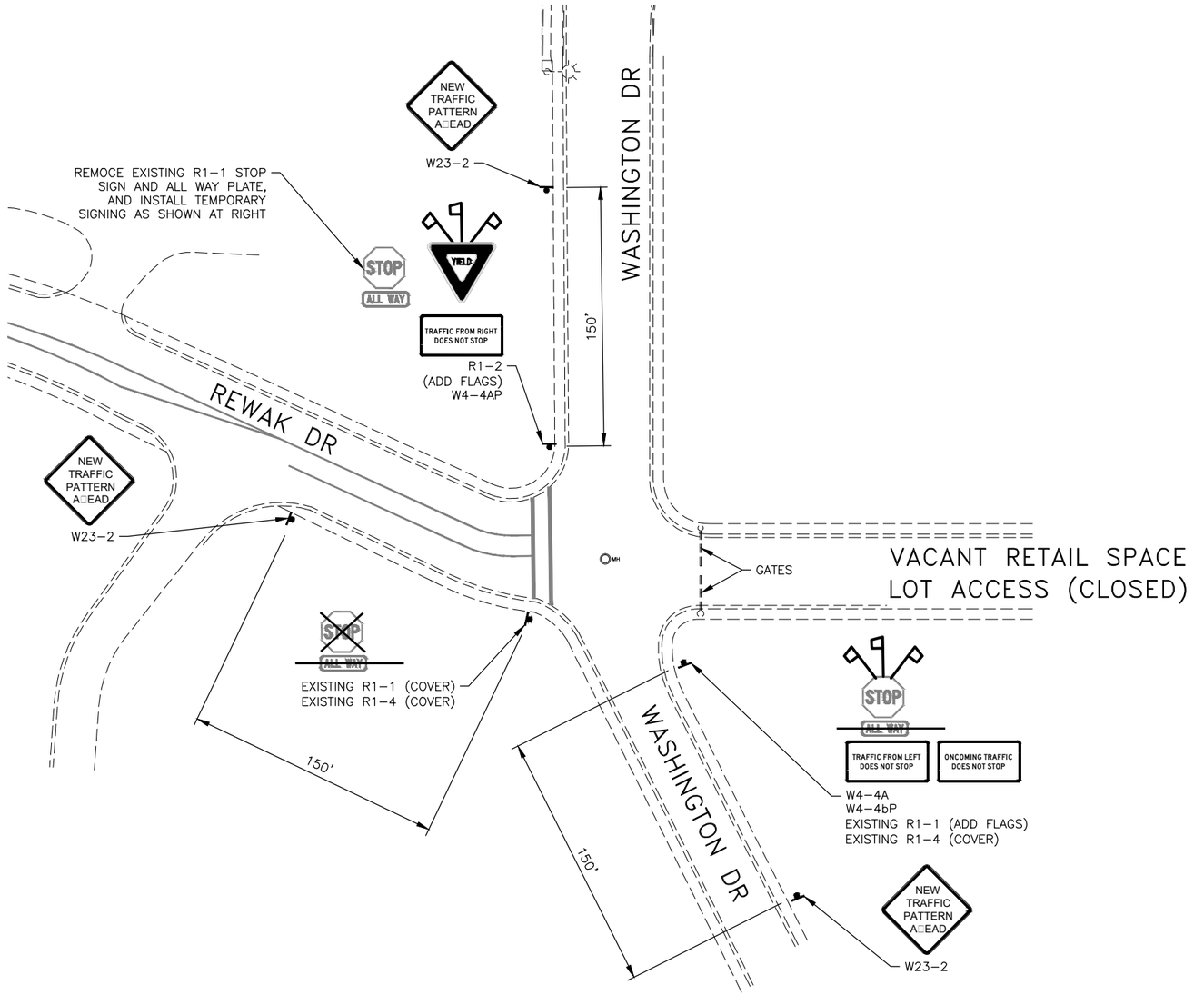
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T19	T25



REWAK DRIVE CLOSURE PLAN

NO STAMP REQUIRED

02/21/2020

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STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T20	T25

STANDARD SIGNS SUMMARY

UNIVERSITY AVENUE CLOSURE PLANS

			UNIVERSITY AVENUE CLOSURES		OFF SITE INTERSECTION MODIFICATIONS						UNIVERSITY AVENUE PEDESTRIAN DETOUR	REWAK DRIVE
			UNIVERSITY AVE NORTH AND SOUTH OF AIRPORT WAY	AIRPORT WAY LANE CLOSURES AND SHIFT	JOHANSEN EXPRESSWAY AT PEGER ROAD	PEGER ROAD AT JOHANSEN EXPRESSWAY SPUI LANE CLOSURES	WESTBOUND AIRPORT WAY AT PEGER ROAD (RIGHT TURN)	SOUTHBOUND PEGER ROAD AT AIRPORT WAY (RIGHT TURN)	EASTBOUND AIRPORT WAY AT PEGER ROAD (LEFT TURN)	NORTHBOUND PARKS HIGHWAY OFF RAMP AT GEIST ROAD		
SIGN NUMBER	SIGN LEGEND	SIZE (WxH)	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
W1-6R	RIGHT ARROW	48 x 24	2	2								1
W1-6L	LEFT ARROW	48 x 24	3	2								
W1-7	DOUBLE ARROW	48 x 24		2								
W3-5	SPEED LIMIT 35 AHEAD	36 x 36		4								
W4-2L	LEFT LANE CLOSURE	36 x 36		4								
W4-2R	RIGHT LANE CLOSURE	36 x 36	1	4	2							
W4-3R	ADDED LANE	36 x 36			2	2						
W4-4ap	TRAFFIC FROM LEFT DOES NOT STOP	24 x 12										1
W4-4ap	TRAFFIC FROM RIGHT DOES NOT STOP	24 x 12										1
W4-4bp	ONCOMING TRAFFIC DOES NOT STOP	24 x 12										1
W6-3	TWO WAY TRAFFIC	36 x 36		2								
W12-1	DOUBLE DOWN ARROWS	24 x 24	1			2						
W20-1	ROAD WORK AHEAD	36 x 36	2	8	2	2						
W20-2	DETOUR AHEAD	36 x 36	1									
W20-3	ROAD CLOSED AHEAD	36 x 36	4	2								2
W20-5	RIGHT LANE CLOSED AHEAD	36 x 36	1		2							
W20-5	LEFT LANE CLOSED 1000 FT	36 x 36		2								
W20-5	RIGHT LANE CLOSED 1000 FT	36 x 36		2								
W23-2	NEW TRAFFIC PATTERN AHEAD	36 x 36					2	1	4	1		3
R1-2	YIELD	30 x 30										1
R2-1	SPEED LIMIT 35	30 x 36		4								
R3-1	NO RIGHT TURN	24 x 24	2									1
R3-2	NO LEFT TURN	24 x 24	2									2
R3-3	NO TURNS	24 x 24		2								
R3-5L	MANDATORY LEFT TURN	30 x 36							1			
R3-6R	RIGHT/THRU LANE	30 X 36					1	1				
R3-6L	LEFT/THRU LANE	30 X 36							1			
R3-7R	RIGHT LANE MUST TURN RIGHT	30 x 30	2									
R3-8SLR	LEFT-THRU-RIGHT LANE	30 x 36								1		
R3-8L/SL/S/R	LEFT/LEFT-THRU/THRU/RIGHT	66 X 30							1			
R3-8L/S/SR/R	LEFT/THRU/RIGHT-THRU/RIGHT	66 X 30					1	1				
R3-8L/LSR/R	LEFT/LEFT-THRU-RIGHT/RIGHT	48 x 30								1		
R9-9	SIDEWALK CLOSED	24 x 12									7	
R9-11	SIDEWALK CLOSED AHEAD CROSS HERE	24 x 12									1	
R9-11a	SIDEWALK CLOSED CROSS HERE	24 x 12									1	
R10-11C	NO TURN ON RED EXCEPT FROM RIGHT LANE	42 X 30					1	1				
R11-2	ROAD CLOSED	48 x 30	5	4								3
R11-4	ROAD CLOSED TO THRU TRAFFIC	60 x 30	1									1
R11-102	LANE CLOSED	48 x 30				2						
M3-1	NORTH	24 x 12	1									
M3-3	SOUTH	24 x 12	1									
M4-9R	DETOUR (RIGHT)	30 x 24	8	1								3
M4-9L	DETOUR (LEFT)	30 x 24	8	1								3
M4-9a (RIGHT)	BIKE/PEDESTRIAN DETOUR (RIGHT)	30 x 24									9	
M4-9a (LEFT)	BIKE/PEDESTRIAN DETOUR (LEFT)	30 x 24									8	
M4-103	DETOUR (UP)	30 x 24	4	2								

STANDARD SIGN SUMMARY

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T21	T25

SPECIAL SIGNS SUMMARY

			UNIVERSITY AVENUE CLOSURE PLANS									
			UNIVERSITY AVENUE CLOSURES		OFF SITE INTERSECTION MODIFICATIONS						UNIVERSITY AVENUE PEDESTRIAN DETOUR	REWAK DRIVE
			UNIVERSITY AVE NORTH AND SOUTH OF AIRPORT WAY	AIRPORT WAY LANE CLOSURES AND SHIFT	JOHANSEN EXPRESSWAY AT PEGER ROAD	PEGER ROAD AT JOHANSEN EXPRESSWAY SPUI LANE CLOSURES	WESTBOUND AIRPORT WAY AT PEGER ROAD (RIGHT TURN)	SOUTHBOUND PEGER ROAD AT AIRPORT WAY (RIGHT TURN)	EASTBOUND AIRPORT WAY AT PEGER ROAD (LEFT TURN)	NORTHBOUND PARKS HIGHWAY OFF RAMP AT GEIST ROAD		
SIGN NUMBER	SIGN LEGEND	SIZE (WxH)	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
SPECIAL	UNIVERSITY AVE (4" SERIES B LETTERING)	36 x 12	16									
SPECIAL	REWAK DR (4" SERIES C LETTERING)	30 x 12										6
SPECIAL	UNIVERSITY AVE (3" SERIES B LETTERING)	30 x 8									12	
SPECIAL	UNIVERSITY CLOSED AT REWAK DR USE MITCHELL EXPWY	90 X 42	1									
SPECIAL	UNIVERSITY CLOSED AT REWAK DR USE PEGER RD	120 x 54	1									
SPECIAL	UNIVERSITY CLOSED AT AIRPORT WAY USE PEGER RD	90 x 42	2									
SPECIAL	UNIVERSITY CLOSED AT AIRPORT WAY USE PARKS HWY	90 x 42	2									
SPECIAL	UNIVERSITY CLOSED AT GOLDIZEN AVE USE PEGER RD	120 x 54	1									
SPECIAL	UNIVERSITY CLOSED AT GOLDIZEN AVE USE GEIST RD	120 x 54	1									
SPECIAL	UNIVERSITY CLOSED AT GOLDIZEN AVE USE JOHANSEN EXPWY	90 x 42	2									
SPECIAL	UNIVERSITY CLOSED AT REWAK DR USE PARKS TO GEIST	114 x 54	1									
SPECIAL	UNIVERSITY AVE CLOSED AT REWAK DR	66 x 42	1									
SPECIAL	UNIVERSITY CLOSED AT AIRPORT WAY USE MITCHELL EXPWY	114 x 54	1									
SPECIAL	EAST REWAK DR CLOSED USE AIRPORT WAY	78 x 42										2
SPECIAL	EAST REWAK DR CLOSED USE UNIVERSITY	66 x 42										1
SPECIAL	REWAK DR CLOSED AHEAD USE WASHINGTON	72 x 42										1
SPECIAL	GERAGHTY AVE ACCESS	36 x 18		2								
SPECIAL	SAFEWAY BUSINESS AREA	42 x 18		2								

SPECIAL SIGNS SUMMARY

NO STAMP REQUIRED

02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T22	T25

TRAFFIC CONTROL DEVICE SUMMARY

	UNIVERSITY AVENUE CLOSURE PLANS									
	UNIVERSITY AVENUE CLOSURES		OFF SITE INTERSECTION MODIFICATIONS							
DEVICE	UNIVERSITY AVE NORTH AND SOUTH OF AIRPORT WAY	AIRPORT WAY LANE CLOSURES AND SHIFT	JOHANSEN EXPRESSWAY AT PEGER ROAD	PEGER ROAD AT JOHANSEN EXPRESSWAY SPUI LANE CLOSURES	WESTBOUND AIRPORT WAY AT PEGER ROAD (RIGHT TURN)	SOUTHBOUND PEGER ROAD AT AIRPORT WAY (RIGHT TURN)	EASTBOUND AIRPORT WAY AT PEGER ROAD (LEFT TURN)	NORTHBOUND PARKS HIGHWAY OFF RAMP AT GEIST ROAD	UNIVERSITY AVENUE PEDESTRIAN DETOUR	REWAK DRIVE
	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
TYPE III BARRICADES	24	16	4	8					6	10
DRUMS/TYPE II BARRICADES	25	90	15							10
CHANNELIZING DEVICES	50	50	50	35						20
ARROW BOARD	1	2	1							

PAVEMENT MARKINGS

MARKING TYPE	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY	QUANTITY
TEMPORARY PAVEMENT ARROW	3	6			3	1	3	3		
TEMPORARY 4" STRIPE (LF)		3200			100	100	200			200
REMOVAL OF PAVEMENT MAKINGS (LF)		6800			100	100	200			200

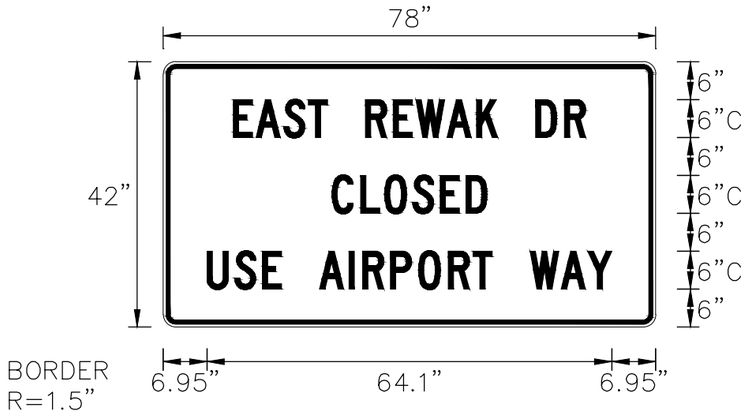
TRAFFIC CONTROL DEVICES, AND PAVEMENT MARKING SUMMARY

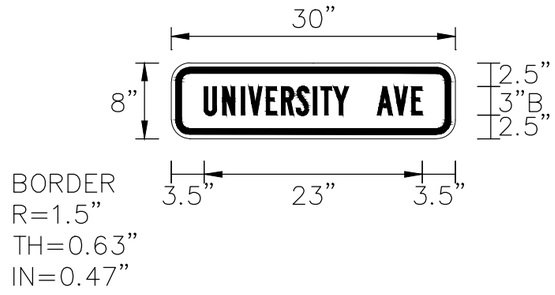
NO STAMP REQUIRED

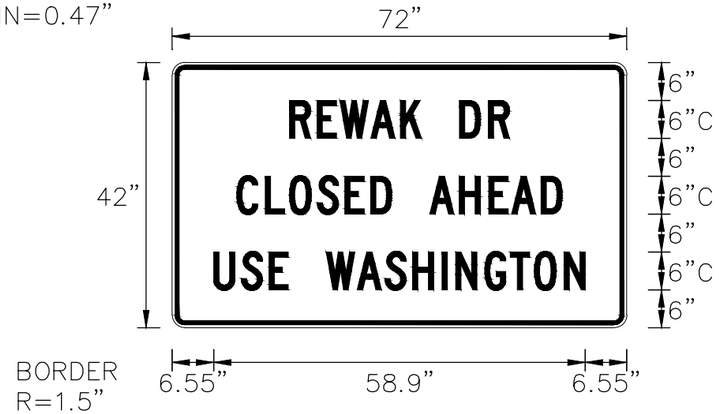
02/21/2020

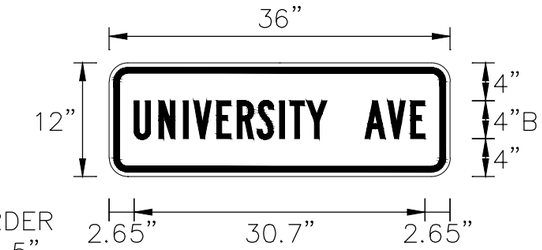
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T23	T25

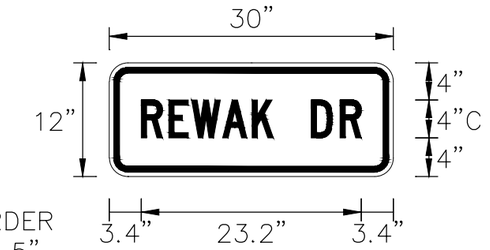
SPECIAL SIGNS – UNIVERSITY AVENUE AT AIRPORT ROAD INTERSECTION CLOSURES AND REWAK DRIVE SEGMENT CLOSURE

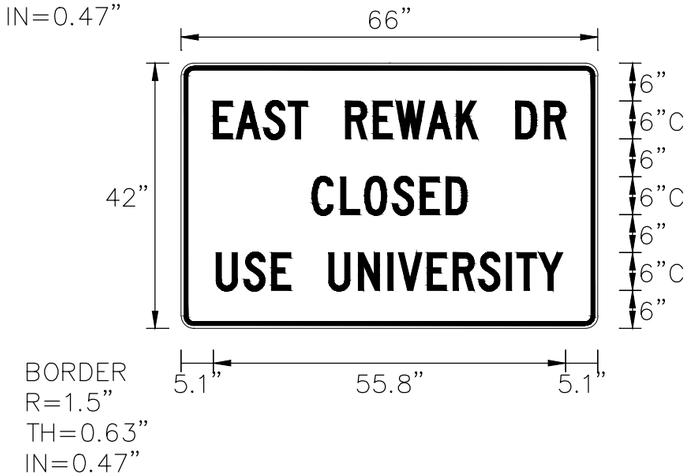


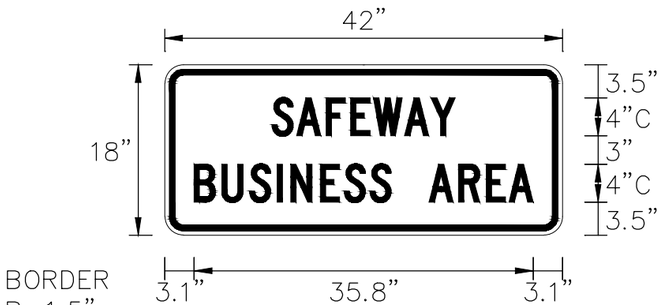












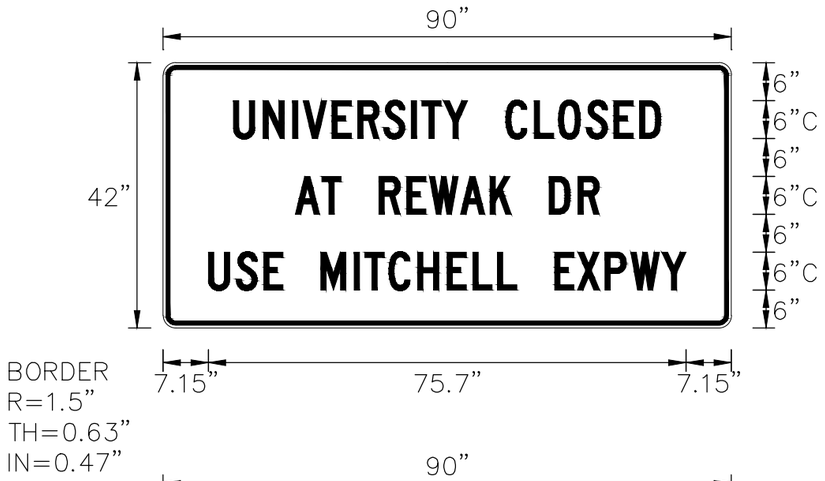
SPECIAL CONSTRUCTION SIGNS

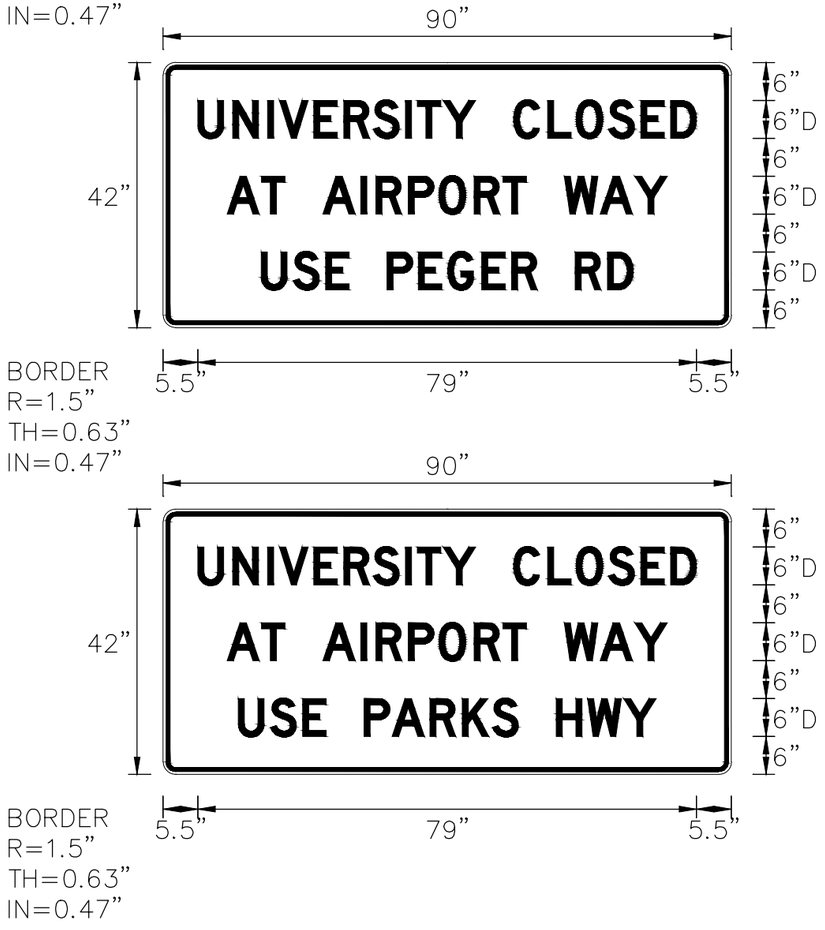
NO STAMP REQUIRED

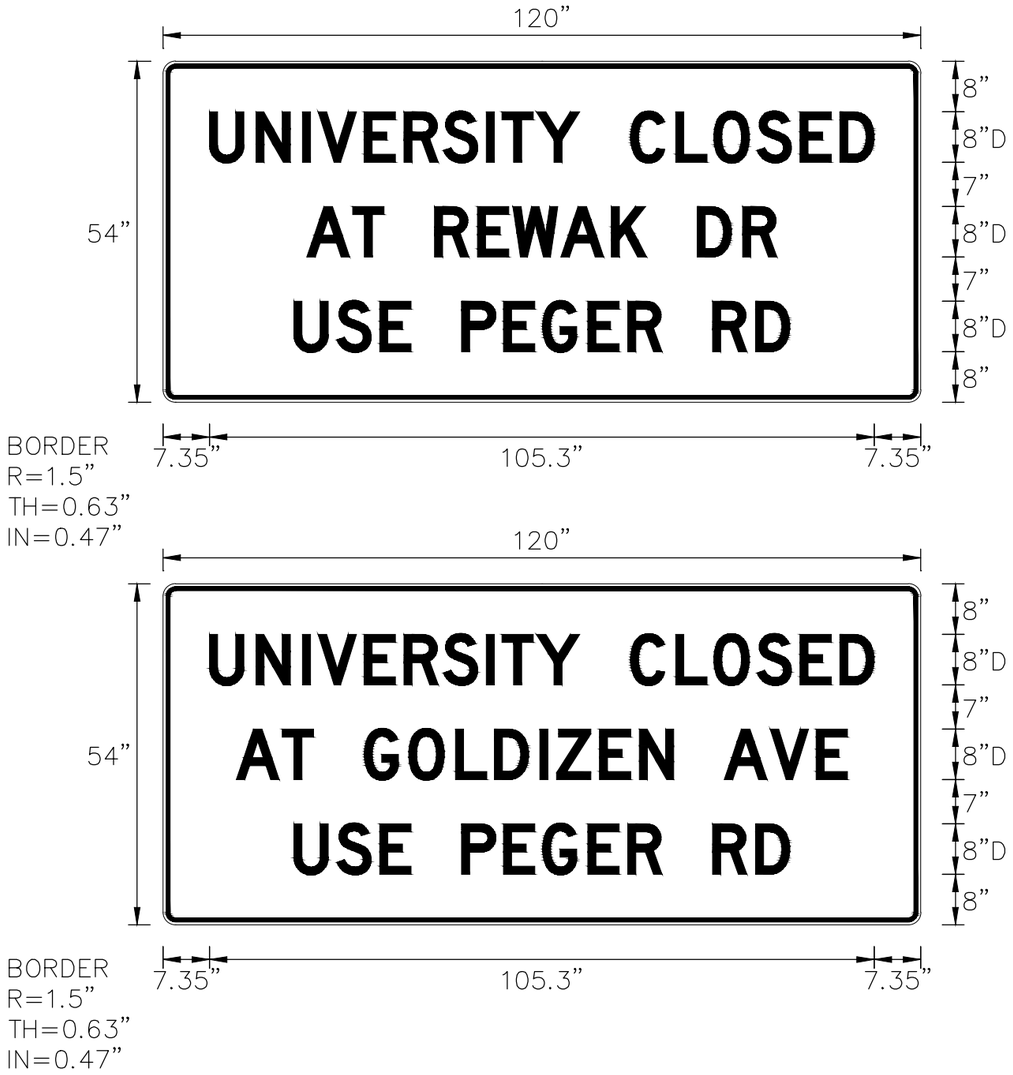
02/21/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T24	T25

SPECIAL SIGNS – UNIVERSITY AVENUE AT AIRPORT ROAD INTERSECTION CLOSURES AND REWAK DRIVE SEGMENT CLOSURE







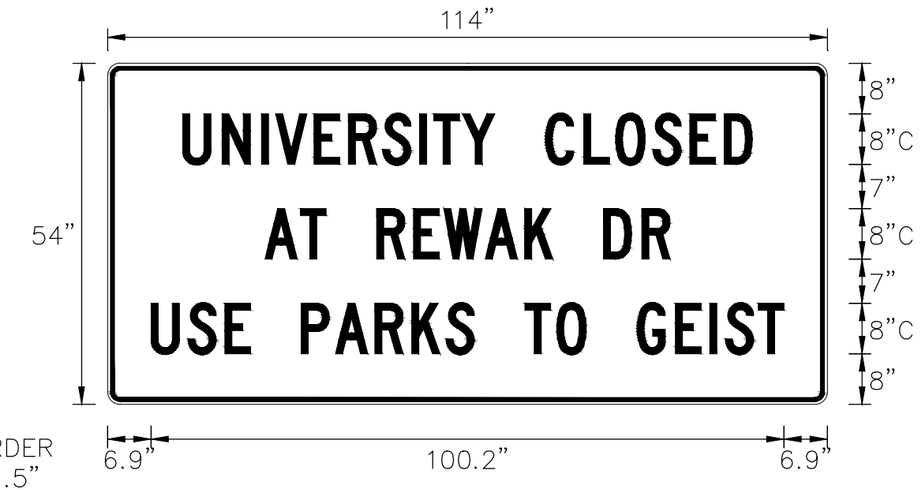
SPECIAL CONSTRUCTION SIGNS

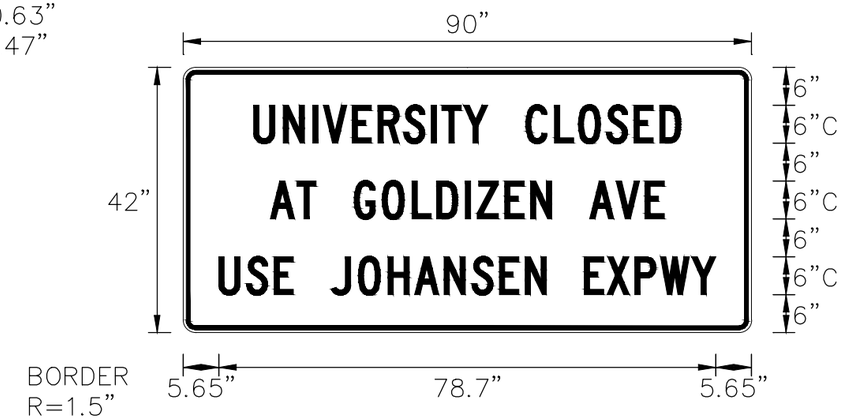
NO STAMP REQUIRED

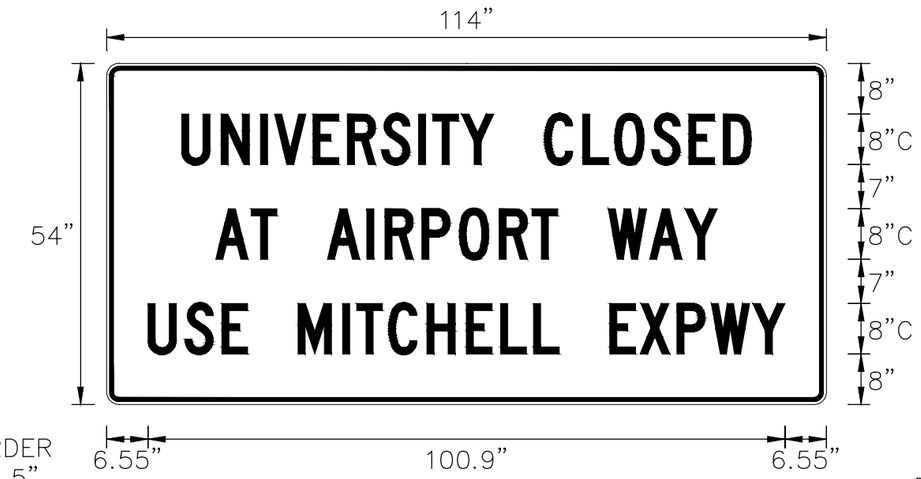
02/21/2020

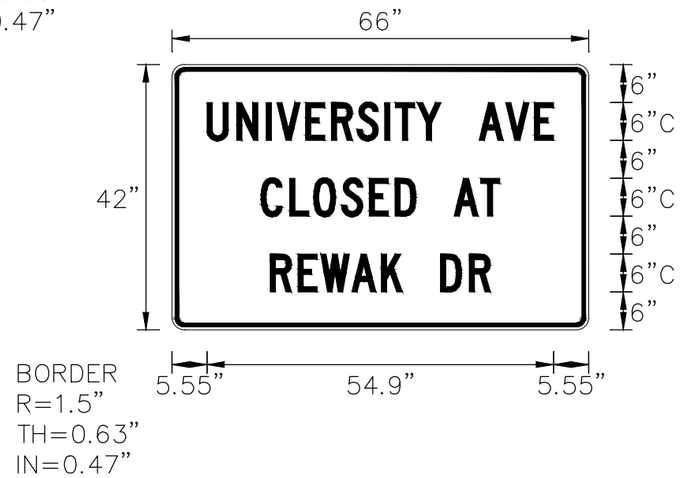
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	T25	T25

SPECIAL SIGNS – UNIVERSITY AVENUE AT AIRPORT ROAD INTERSECTION CLOSURES AND REWAK DRIVE SEGMENT CLOSURE









SPECIAL CONSTRUCTION SIGNS

NO STAMP REQUIRED

02/21/2020

PLANS DEVELOPED BY: KINNEY ENGINEERING, LLC 3909 Arctic Blvd, Suite 400 Anchorage, Alaska 99503 (907) 346-2373 CERT. OF AUTH. NO. AELC 1102
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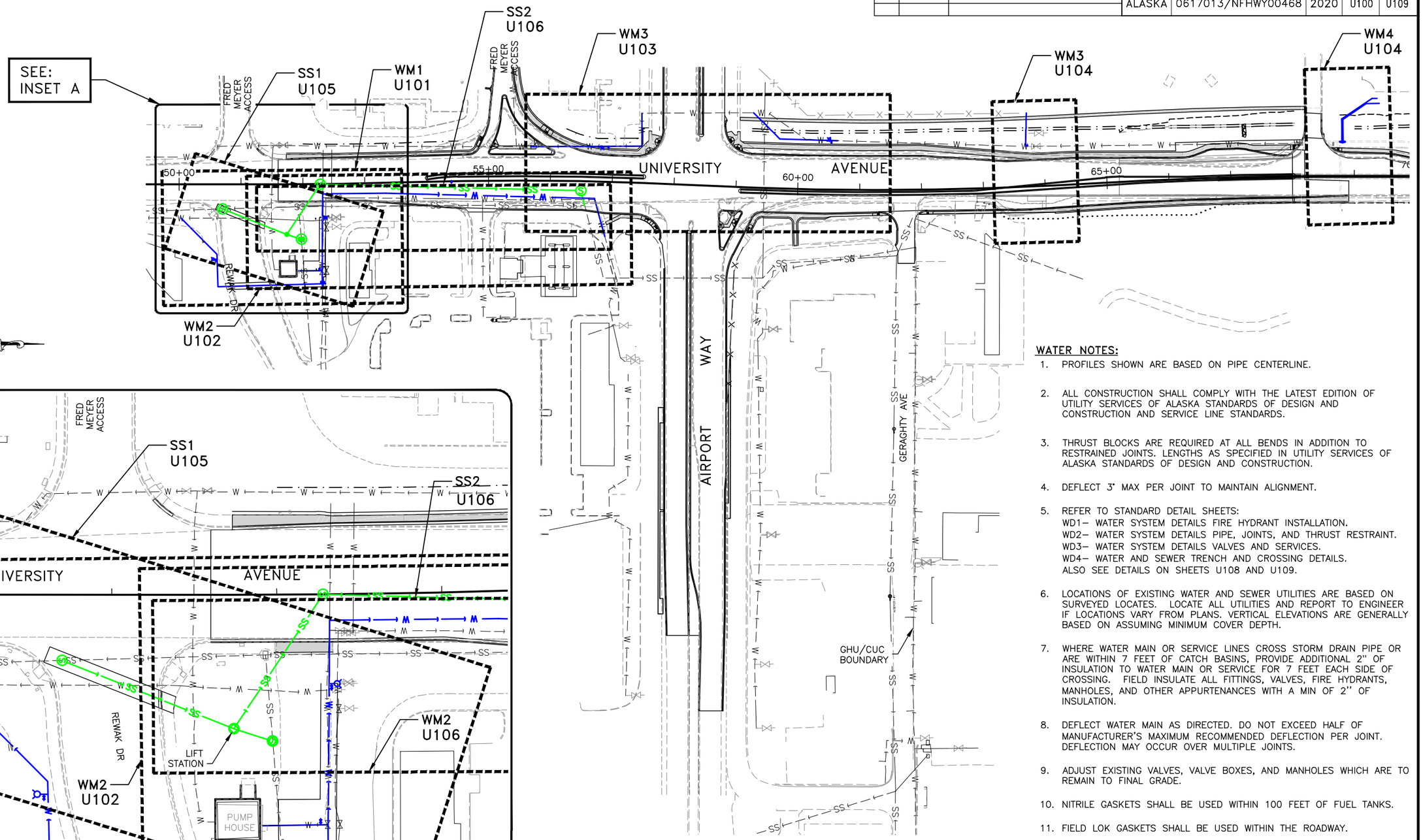
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U100	U109



INSET A

WATER NOTES:

1. PROFILES SHOWN ARE BASED ON PIPE CENTERLINE.
2. ALL CONSTRUCTION SHALL COMPLY WITH THE LATEST EDITION OF UTILITY SERVICES OF ALASKA STANDARDS OF DESIGN AND CONSTRUCTION AND SERVICE LINE STANDARDS.
3. THRUST BLOCKS ARE REQUIRED AT ALL BENDS IN ADDITION TO RESTRAINED JOINTS. LENGTHS AS SPECIFIED IN UTILITY SERVICES OF ALASKA STANDARDS OF DESIGN AND CONSTRUCTION.
4. DEFLECT 3° MAX PER JOINT TO MAINTAIN ALIGNMENT.
5. REFER TO STANDARD DETAIL SHEETS:
   WD1– WATER SYSTEM DETAILS FIRE HYDRANT INSTALLATION.
   WD2– WATER SYSTEM DETAILS PIPE, JOINTS, AND THRUST RESTRAINT.
   WD3– WATER SYSTEM DETAILS VALVES AND SERVICES.
   WD4– WATER AND SEWER TRENCH AND CROSSING DETAILS.
   ALSO SEE DETAILS ON SHEETS U108 AND U109.
6. LOCATIONS OF EXISTING WATER AND SEWER UTILITIES ARE BASED ON SURVEYED LOCATES. LOCATE ALL UTILITIES AND REPORT TO ENGINEER IF LOCATIONS VARY FROM PLANS. VERTICAL ELEVATIONS ARE GENERALLY BASED ON ASSUMING MINIMUM COVER DEPTH.
7. WHERE WATER MAIN OR SERVICE LINES CROSS STORM DRAIN PIPE OR ARE WITHIN 7 FEET OF CATCH BASINS, PROVIDE ADDITIONAL 2" OF INSULATION TO WATER MAIN OR SERVICE FOR 7 FEET EACH SIDE OF CROSSING. FIELD INSULATE ALL FITTINGS, VALVES, FIRE HYDRANTS, MANHOLES, AND OTHER APPURTENANCES WITH A MIN OF 2" OF INSULATION.
8. DEFLECT WATER MAIN AS DIRECTED. DO NOT EXCEED HALF OF MANUFACTURER'S MAXIMUM RECOMMENDED DEFLECTION PER JOINT. DEFLECTION MAY OCCUR OVER MULTIPLE JOINTS.
9. ADJUST EXISTING VALVES, VALVE BOXES, AND MANHOLES WHICH ARE TO REMAIN TO FINAL GRADE.
10. NITRILE GASKETS SHALL BE USED WITHIN 100 FEET OF FUEL TANKS.
11. FIELD LOK GASKETS SHALL BE USED WITHIN THE ROADWAY.
12. ALL ABANDONED EXISTING WATER MAINS TO BE ABANDONED IN PLACE BY REMOVING A STICK OF PIPE AND FOAMING THE OPEN END OF THE PIPE WITH 2' OF POLYURETHANE INSULATION

LEGEND

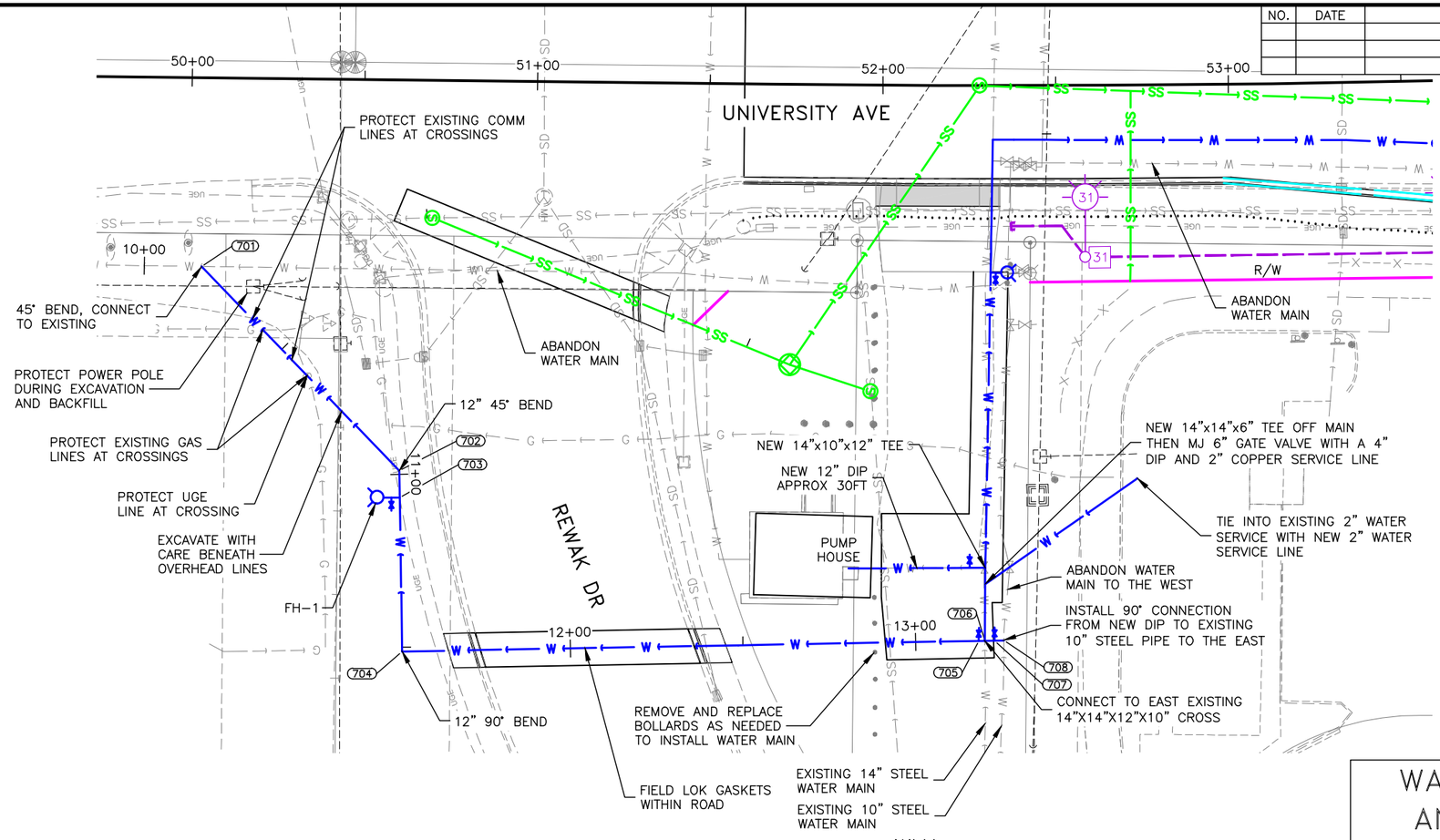
WATER AND SEWER #
SHEET #

WATER AND SEWER SHEET LAYOUT INDEX

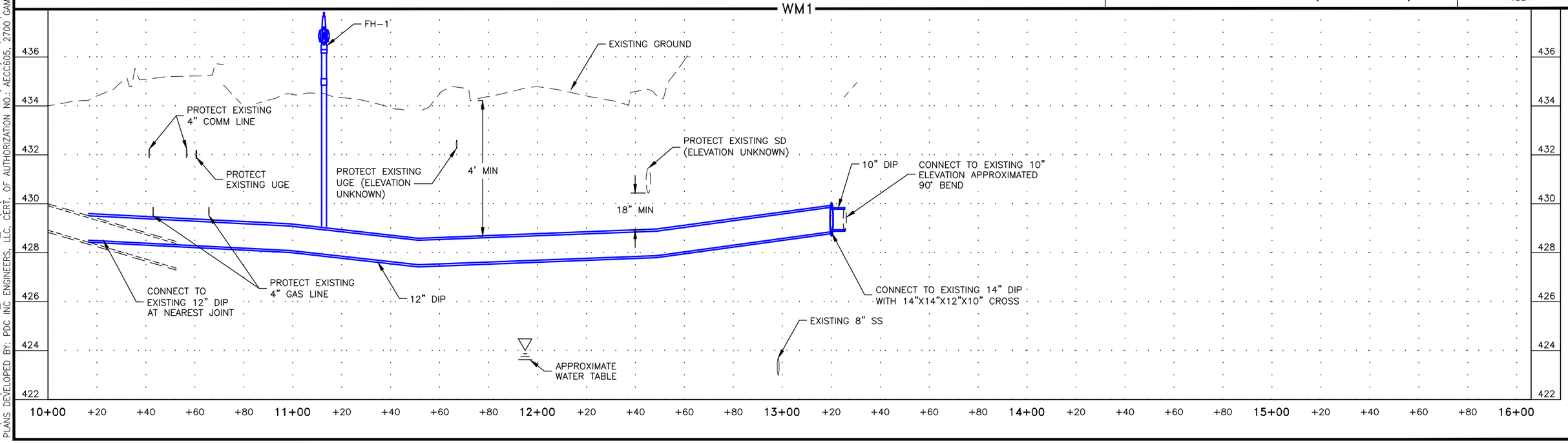
STATE OF ALASKA 49TH
KAREN ANN BRADY
3/23/2020
CE 11523
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U101	U109



WATER AND SEWER PLAN AND PROFILE (1 OF 6)



STATE OF ALASKA 49TH
Karen Ann Brady
KAREN ANN BRADY
3/23/2020
CE 11523
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U102	U109

UNIVERSITY AVENUE

ABANDONED EXISTING WATER MAINS
PROTECT EXISTING COMM LINES AT CROSSINGS
PROTECT EXISTING STORM DRAIN AT CROSSINGS
EXCAVATE WITH CARE BENEATH OVERHEAD LINES
10" 90° BEND
PROTECT UGE LINE AT CROSSING
FH-2
PROTECT EXISTING GAS LINES AT CROSSINGS
NEW 12" DIP APPROX 30FT
PROTECT EXISTING SANITARY SEWER PIPE
TIE IN AT FIRST JOINT FROM PUMPHOUSE
NEW 14"x14"x6" TEE OFF MAIN THEN MJ 6" GATE VALVE WITH A 4" DIP AND 2" COPPER SERVICE LINE
TIE INTO EXISTING 2" WATER SERVICE WITH NEW 2" WATER SERVICE LINE
ABANDONED WATER SERVICE
ABANDON EXISTING DIP WATER MAINS TO THE WEST
PROPOSED 12" WATER MAIN SEE U101
CONNECT TO EAST EXISTING 14"X14"X12"X10" CROSS
10" 78.75° BEND
TIE INTO EXISTING 10" DIP
R/W

52+00 53+00 54+00 55+00 56+00 57+00 11+00 12+00 13+00 14+00 15+00 16+00 16+56

WATER AND SEWER PLAN AND PROFILE (2 OF 6)

STATE OF ALASKA 49TH
KAREN ANN BRADY
3/23/2020
CE 11523
REGISTERED PROFESSIONAL ENGINEER

WM2

FH-2
EXISTING GRADE
PROPOSED GRADE
PROPOSED STORM DRAIN, PROTECT AT CROSSING
DEMOLISH ABANDONED EXISTING STORM DRAIN AT CROSSING
PROPOSED STORM DRAIN, PROTECT AT CROSSING
CONNECT TO EXISTING 14" DIP WITH 14"X14"X12"X10" CROSS
EXISTING UGE
EXISTING 12" SD PROTECT AT CROSSING
NITRILE GASKETS SHALL BE USED STA 14+60 TO STA 15+60.
CONNECT TO EXISTING 10" DIP
10"X14"X14" TEE
PROTECT EXISTING GAS LINE
PROPOSED 4" ACS, PROTECT AT CROSSING
4' MIN
12" MIN
18" MIN
CONNECT 2" WATER SERVICE
ABANDON EXISTING SANITARY SEWER PIPE
10" 45° BEND
10" DIP
14" DIP
EXISTING 8" SS
APPROXIMATE WATER TABLE
PROPOSED 10" SANITARY SEWER PIPE

440 438 436 434 432 430 428 426 424 422

10+00 +20 +40 +60 +80 11+00 +20 +40 +60 +80 12+00 +20 +40 +60 +80 13+00 +20 +40 +60 +80 14+00 +20 +40 +60 +80 15+00 +20 +40 +60 +80 16+00 +20

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U103	U109

THRUST BLOCK
45° BEND
14+00
CONNECT TO EXISTING 14" DIP
THRUST BLOCK
CONNECT TO EXISTING 14" DIP
90° BEND
13+00
R/W
CONNECT TO EXISTING 14" DIP
FH-4
45° BEND
15+00
16+00
CONNECT TO EXISTING 14" DIP
FH-3
11+00
12+00
10+00
90° BEND
UNIVERSITY AVENUE
56+00
57+00
58+00
59+00
60+00
61+00
15+00
16+00
R/W
AIRPORT WAY
WM3

WATER AND SEWER PLAN AND PROFILE (3 OF 6)

STATE OF ALASKA
49 TH
KAREN ANN BRADY
REGISTERED PROFESSIONAL ENGINEER
Karen Ann Brady
3/23/2020
CE 11523

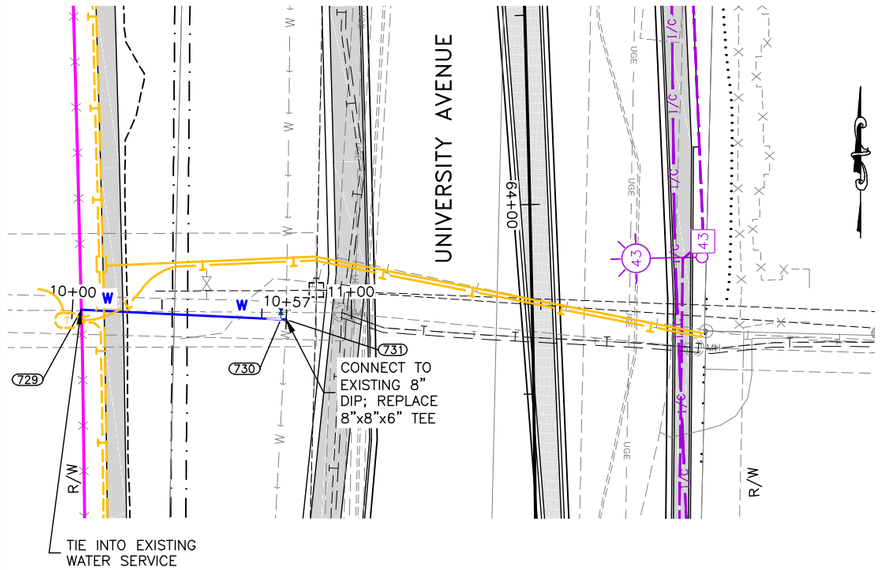
FH-3
FINISH GRADE
EXISTING GROUND
EXISTING SD
EXISTING ACS DUCT BANK
EXISTING ACS
EXISTING SD
CONNECT TO EXISTING 14" DIP
NEW 24" CSP SD
18" MIN
EXISTING ACS DUCT BANK
12" MIN
4' MIN
NEW 24" CSP SD
18"MIN
ROTATE 90° BEND TO MAKE TRANSITION
PROTECT EXISTING DUCT BANK PARALLEL TO WATER MAIN
BENDS BY DEFLECTION LIMITATIONS IN SPECIFICATIONS
14" DIP
14" 22.5° BEND
EXISTING 24" CASING
14" DIP
CONNECT TO EXISTING
14" 11.25° BEND
BENDS BY DEFLECTION SEE NOTE 8, SHEET U100
ABANDONED 10" WOODSTAVE SEWER
ADD SERVICE TAP IN TOP OF PIPE TO BLEED AIR DURING CONSTRUCTION/TESTING
24" MIN
FH-4
ACS DUCT BANK
NEW 24" CSP SD
18" MIN
CONNECT TO EXISTING 14" DIP
14" 11.25° BEND
14" DIP

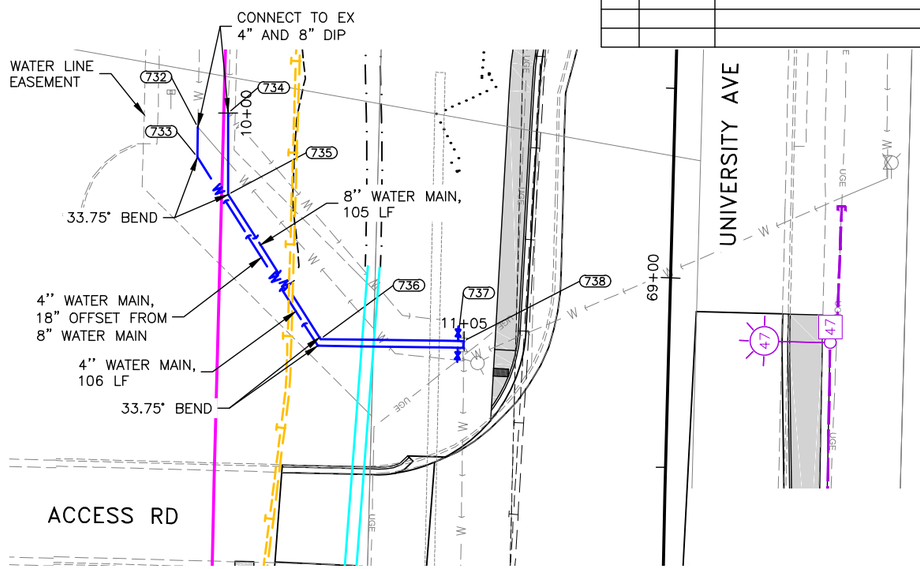
438 436 434 432 430 428 426 424 422

10+00 +25 +50 +75 11+00 +25 +50 +75 12+00 +25 +50 +75 13+00 +25 +50 +75 14+00 +25 +50 +75 15+00 +25 +50 +75 16+00

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U104	U109





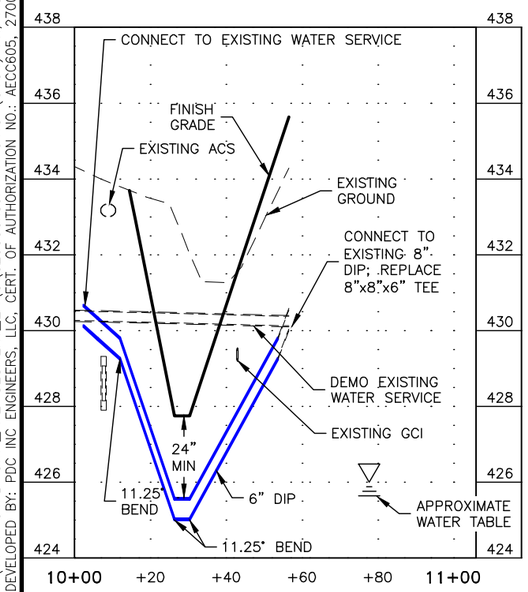
NOTES:

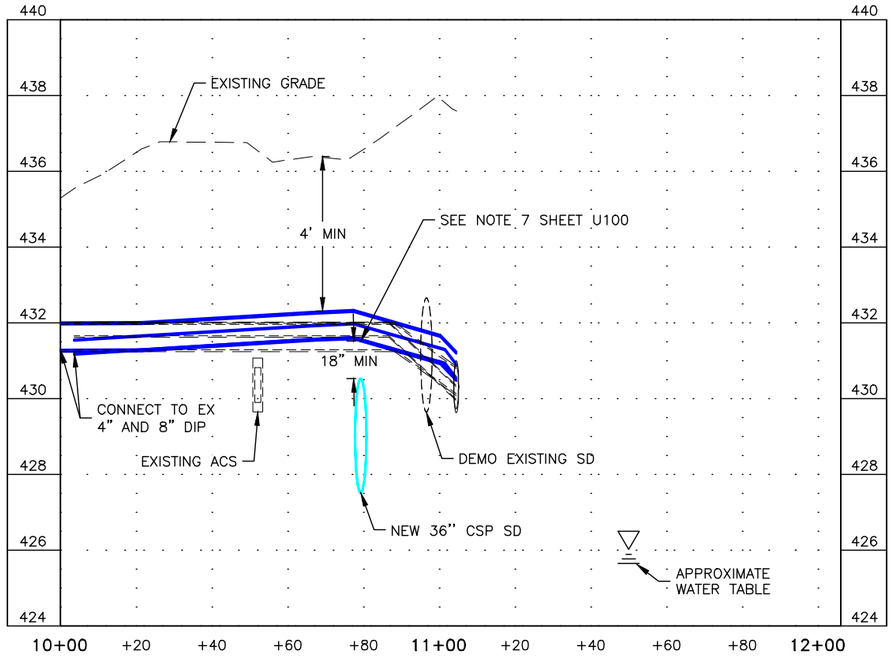
1. NOTE TO CONTRACTOR – VERIFY ELEVATION OF EXISTING WATER LINES AND PROVIDE TO ENGINEER. IF ELEVATION OF EXISTING WATER LINES ARE NOT IN CONFLICT WITH PROPOSED 36" CSP CULVERT, NEW MAINS WILL NOT BE INSTALLED. PROVIDE MIN 6" OF INSULATION BETWEEN CULVERT AND EXISTING WATER LINES FOR 10–FEET EITHER SIDE OF CROSSING.

WATER AND SEWER PLAN AND PROFILE (4 OF 6)

STATE OF ALASKA 49TH
KAREN ANN BRADY
CE 11523
3/23/2020
REGISTERED PROFESSIONAL ENGINEER

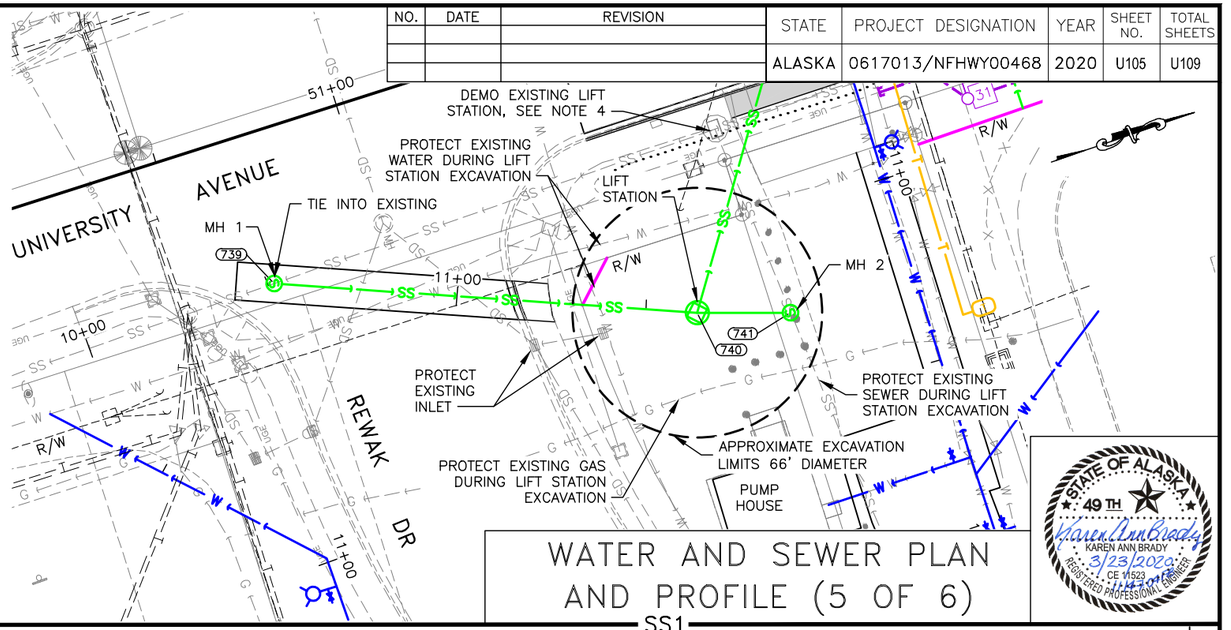
WM4





NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U105	U109



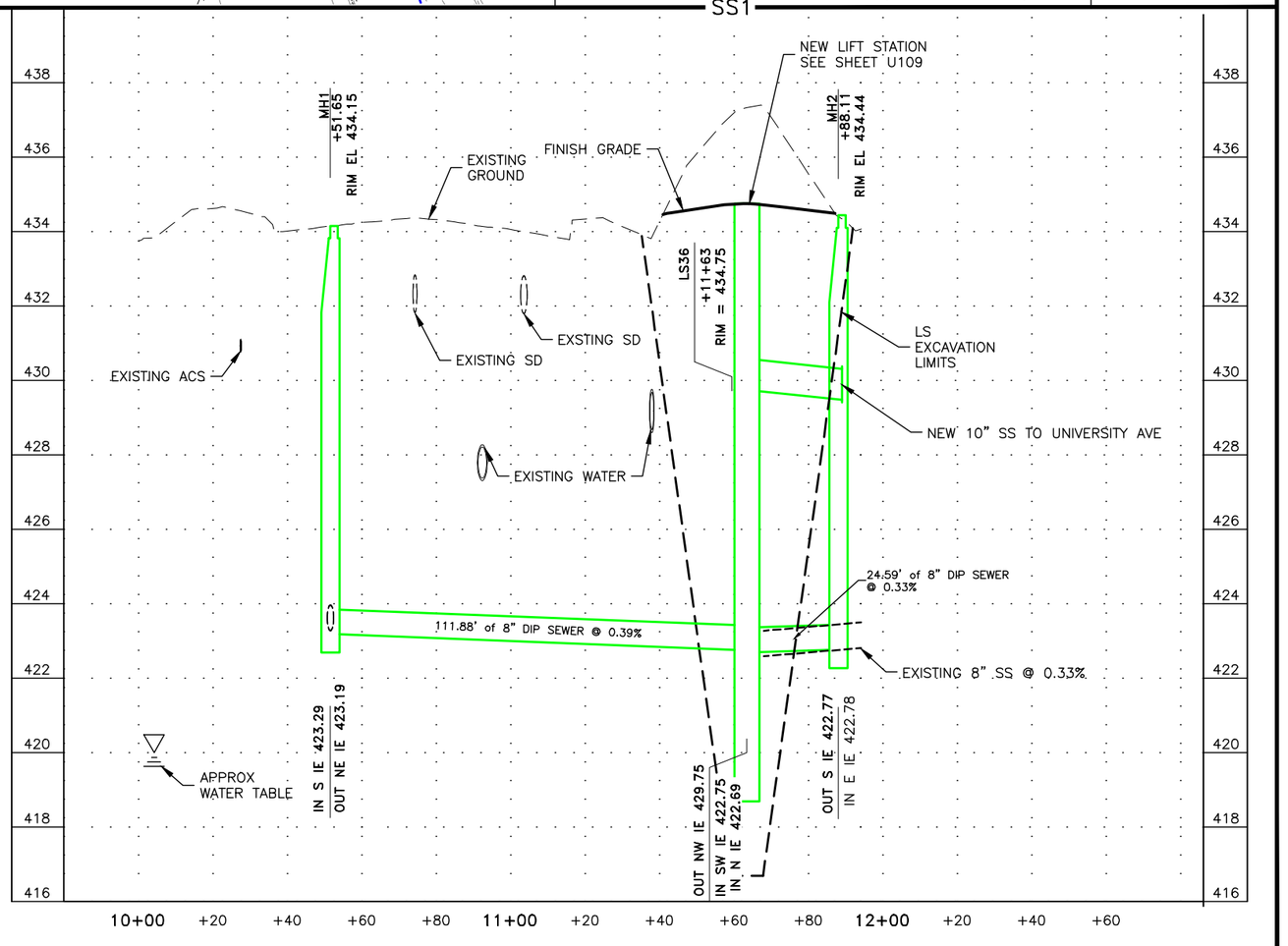
NOTES

1. ALL EXISTING SEWER MAINS TO BE ABANDONED MUST BE PLUGGED AND GROUTED.
2. ALL EXISTING MANHOLES TO BE ABANDONED MUST BE DEMOED AND FILLED IN.
3. CONTRACTOR IS RESPONSIBLE TO MAKE SURE ALL SERVICE LINES ARE PROPERLY RECONNECTED AND WORKING.
4. THERE ARE EXITING ABANDONED SERVICES ALONG ALIGNMENT THAT ARE NOT REQUIRED TO BE CONNECTED TO. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO CONNECT THE PROPER SERVICE LINES.

LIFT STATION NOTES

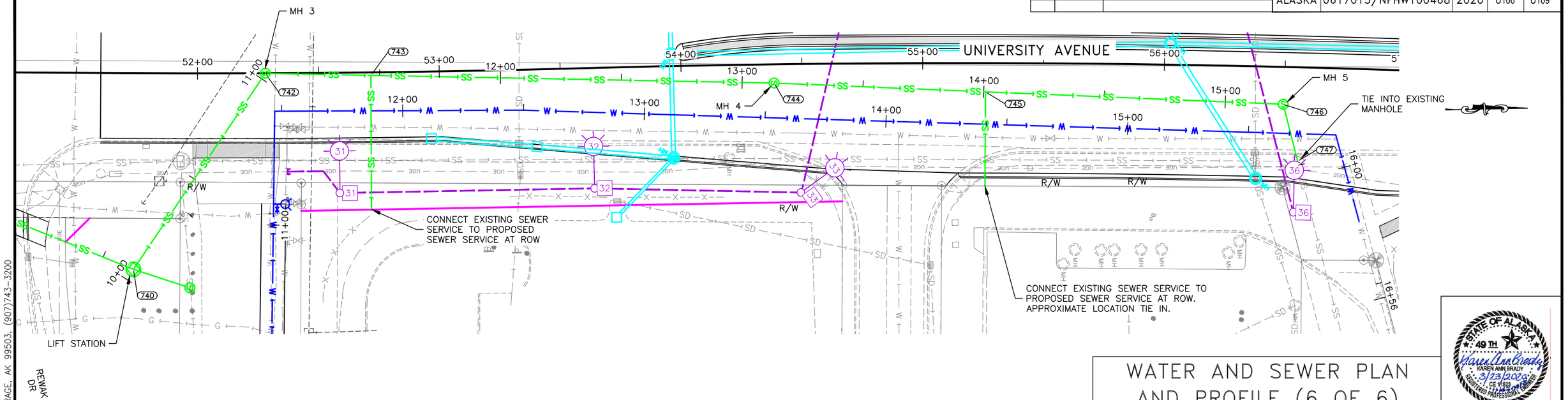
1. SEE LIFT STATION DETAIL ON SHEET.
2. ALL PUMPING, CONTROLS, INTERIOR PIPING, AND ELECTRICAL EQUIPMENT WILL BE PROVIDED "BY OTHERS". SEE SPECIFICATIONS SECTION 626 SANITARY SEWER SYSTEM.
3. HATCH AND LID ARE INCLUDED IN LIFT STATION CONSTRUCTION.
4. DEMOLITION OF EXISTING LIFT STATION SHALL INCLUDE:

   4.1. DEMO OF ALL INTERIOR PIPING, EQUIPMENT, ELECTRICAL, AND VENTS
   4.2. DRILL HOLES IN BASE OF EXISTING LIFT STATION
   4.3. FILL PIPES IN/OUT OF LIFT STATION WITH GROUT FOR AT LEAST THE FIRST 2 FEET.
   4.4. DEMO TOP 4 FEET OF LIFT STATION STRUCTURE.
   4.5. FILL REMAINDER OF STRUCTURE WITH COMPACTED GRAVEL.
   4.6. REMOVE AND DISPOSE OF DEMOLISHED ITEMS IN ACCORDANCE WITH SECTION 202 REMOVAL OF STRUCTURES AND OBSTURCTIONS.

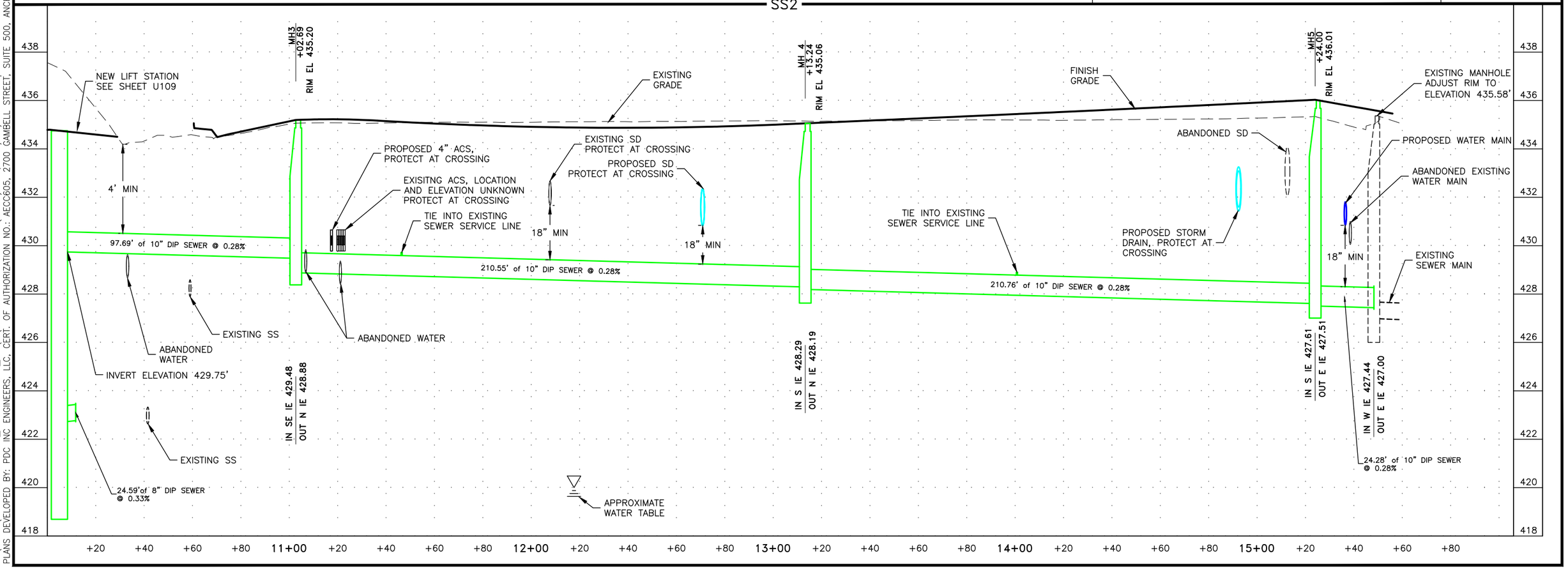


NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U106	U109



WATER AND SEWER PLAN AND PROFILE (6 OF 6)



STATE OF ALASKA 49TH
Karen Ann Brady
KAREN ANN BRADY
3/23/2020
CE 11623
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U107	U109

POINT TABLE

POINT NO.	DESCRIPTION	STATION	NORTHING	EASTING
701	TIE INTO EXISTING 12" WATER MAIN 12" 45° BEND	10+16.54	63740.86	18212.43
702	12" 45° BEND	10+98.91	63797.24	18272.48
703	FIRE HYDRANT #1, HYDRANT TEE	11+06.70	63797.24	18280.28
704	12" 90° BEND	11+51.28	63797.24	18324.85
705	12" GATE VALVE	13+18.29	63964.25	18324.42
706	14"X14"X12"X10" CROSS	10+02.00	63966.06	18324.43
707	10" GATE VALVE	10+02.07	63968.77	18324.42
708	TIE INTO EXISTING 10" WATER MAIN 10" 90° BEND	10+02.14	63971.49	18324.42
709	14"X14"X6" TEE TO MJ 6" GATE VALVE WITH 4" DIP AND 2" SERVICE LINE	10+18.49	63966.52	18307.95
710	14"X10"X12" TEE – TO PUMP HOUSE	10+23.11	63966.50	18303.33
711	14" GATE VALVE	10+23.12	63961.91	18303.16
712	TIE INTO PUMP HOUSE	10+22.56	63927.03	18302.94
713	FIRE HYDRANT #2, HYDRANT TEE	11+08.65	63969.37	18217.84
715	10" 90° BEND	11+47.08	63970.67	18179.42
716	ANGLE POINT – 2° DEFLECTION	12+49.34	64072.91	18181.15
717	10" 78.75° BEND	15+86.12	64409.24	18198.50
718	TIE INTO EXISTING 10" WATER MAIN	16+23.20	64418.13	18234.51
719	TIE INTO EXISTING 14" WATER MAIN	10+00.00	64309.44	18112.05
720	FIRE HYDRANT #3, HYDRANT TEE	11+14.92	64424.33	18114.55
721	14" GATE VALVE	11+24.92	64434.33	18114.77
722	14" 90° BEND	11+78.99	64488.39	18115.94
723	TIE INTO EXISTING 14" WATER LINE 90° BEND	12+32.13	64489.94	18062.81
724	TIE INTO EXISTING 14" WATER LINE 45° BEND	14+12.50	64670.26	18066.88

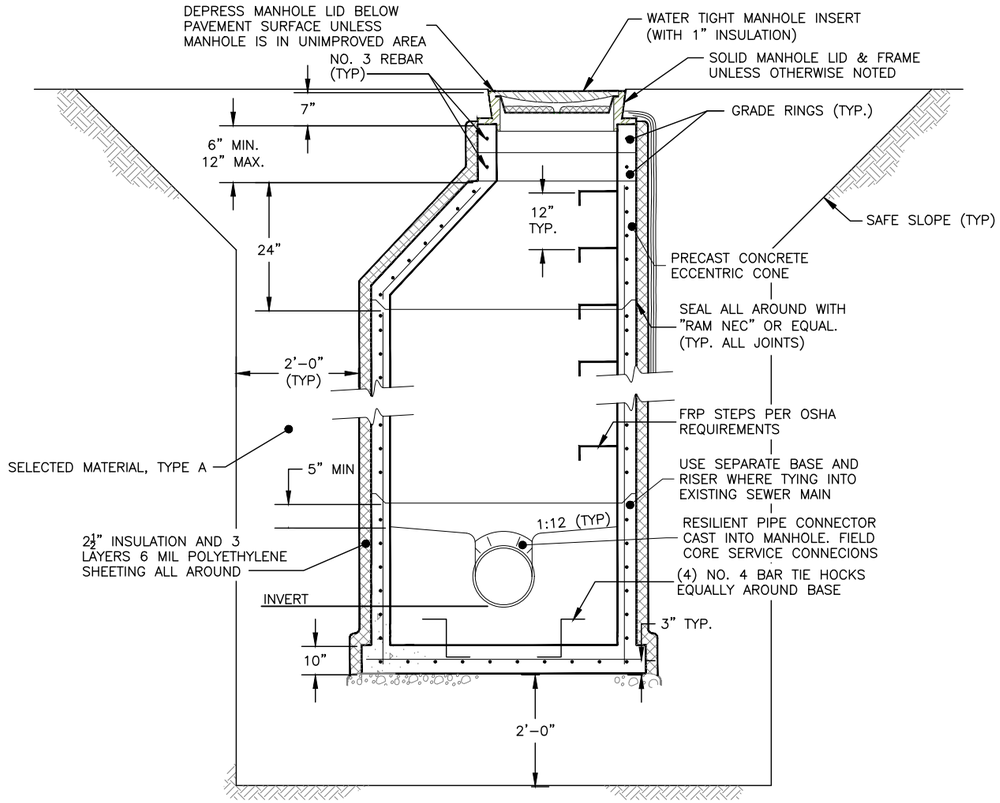
POINT TABLE

POINT NO.	DESCRIPTION	STATION	NORTHING	EASTING
725	14" 45° BEND	14+72.35	64711.40	18110.35
726	FIRE HYDRANT #4, HYDRANT TEE	15+52.30	64791.23	18114.81
727	10" GATE VALVE	15+55.95	64794.81	18116.03
728	TIE INTO EXISTING 14" WATER MAIN	15+65.78	64804.68	18115.72
729	TIE INTO EXISITNG 6" SERVICE LINE	10+02.36	65110.70	18079.06
730	6" GATE VALVE	10+55.09	65108.06	18131.72
731	8"X8"X6" TEE – TIE INTO EXISTING	10+56.51	65107.97	18133.27
732	TIE INTO EXISTING 4" WATER MAIN	10+03.66	65677.83	18070.65
733	4" 33.75° BEND	10+11.57	65669.92	18070.53
734	TIE INTO EXISTING 8" WATER MAIN	10+00.00	65681.50	18078.70
735	8" 33.75° BEND	10+21.43	65660.06	18078.70
736	8" 33.75° BEND	10+66.74	65621.88	18103.08
737	8" GATE VALVE	11+02.96	65621.41	18139.31
738	TIE INTO EXISTING 14" WATER MAIN	11+04.46	65621.34	18140.80
739	MANHOLE #1– TIE INTO EXISTING	10+51.65	63808.03	18199.47
740	NEW LIFT STATION	10+05.00	63910.85	18243.57
741	MANHOLE #2 – TIE INTO SERVICE	11+88.11	63934.07	18251.68
742	MANHOLE #3	11+02.69	63967.07	18163.67
743	TIE INTO 4" CARLS JR SEWER SERVICE	11+46.41	64010.75	18165.43
744	MANHOLE #4	13+13.24	64177.45	18172.14
745	TIE INTO 4" GAS STATION SEWER SERVICE	14+00.74	64264.78	18177.64
746	MANHOLE #5	15+24.00	64387.79	18185.38
747	TIE INTO EXISTING MANHOLE	15+48.28	64393.27	18209.04

SUMMARY TABLE

STATE OF ALASKA 49TH KAREN ANN BRADY 3/23/2020 CE 11523 REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U108	U109

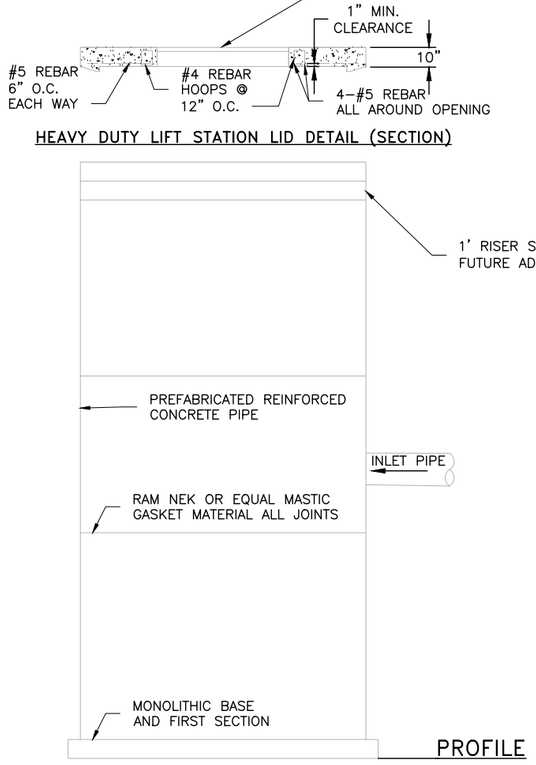


48" MANHOLE DETAIL
NTS

WATER AND SEWER
DETAILS (1 OF 2)

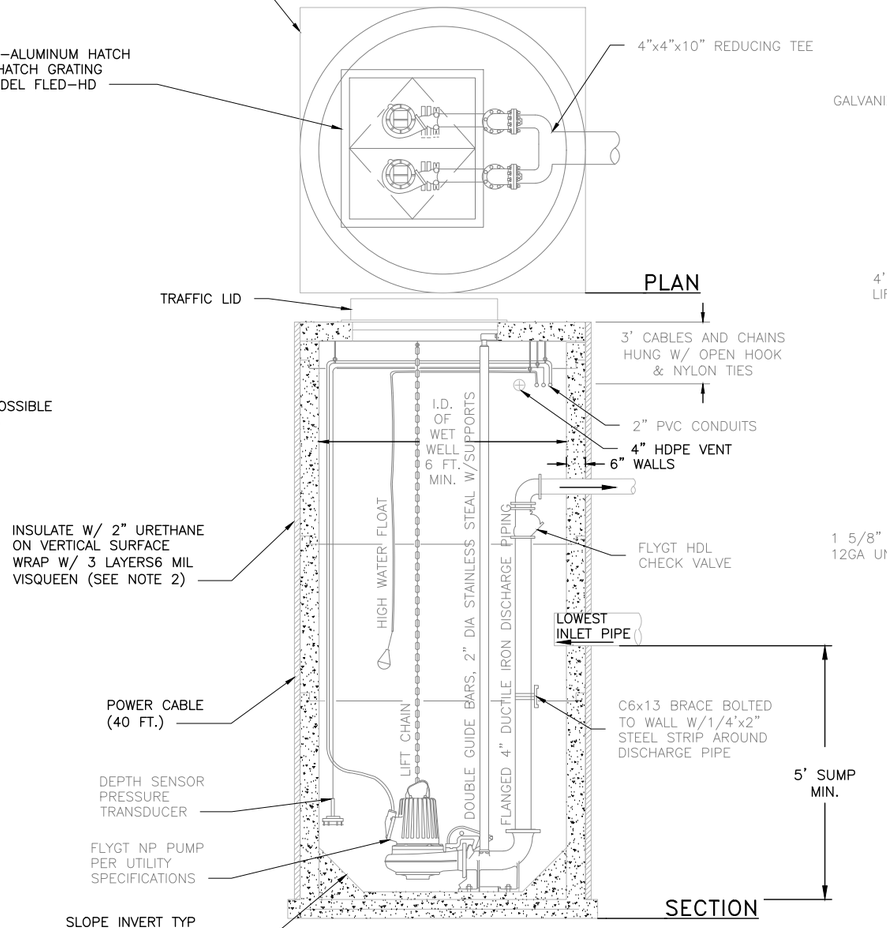
STATE OF ALASKA
49 TH
KAREN ANN BRADY
CE 11523
REGISTERED PROFESSIONAL ENGINEER
2/21/2020

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U109	U109



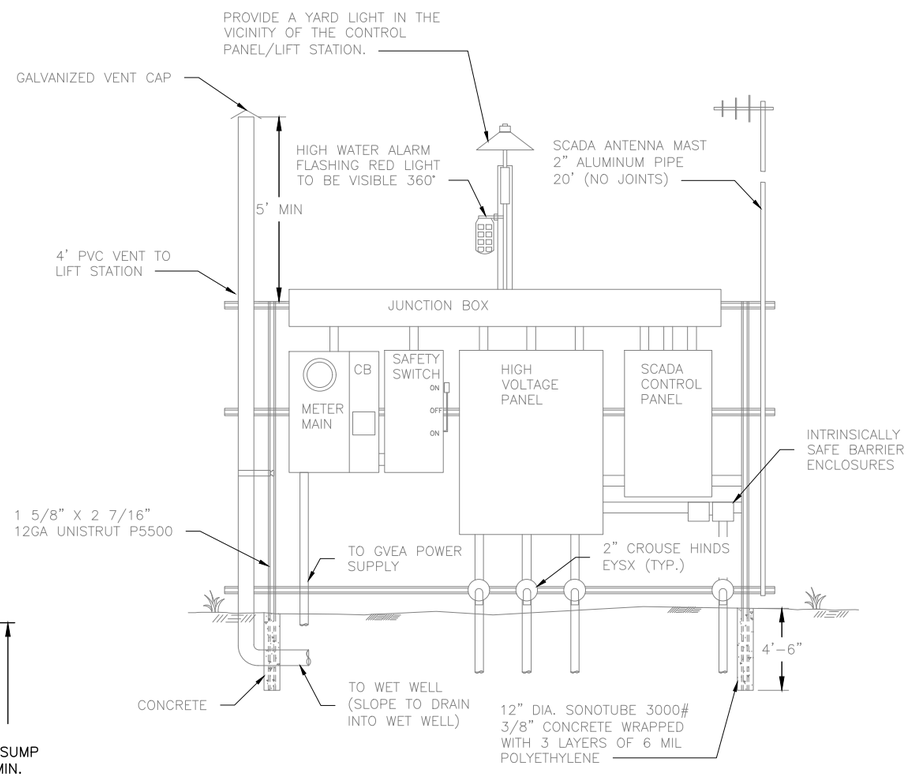
HEAVY DUTY LIFT STATION LID DETAIL (SECTION)

PROFILE

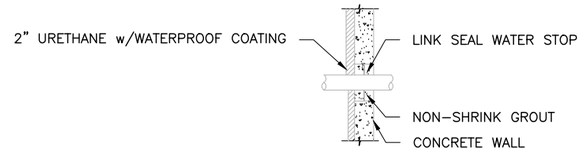


SECTION

A LIFT STATION DETAILS
NOT TO SCALE



B CONTROL PANEL
NOT TO SCALE



C PIPE PENETRATION DETAIL
NOT TO SCALE

REINFORCING NOTES

1. REINFORCING IN PRECAST RISERS TO BE A SINGLE LINE OF STEEL FABRIC HAVING A MINIMUM SECTIONAL AREA OF 0.18 SQ. IN. PER FOOT OF MANHOLE HEIGHT.
2. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL IN AREA TO THAT IN THE RING SECTION.

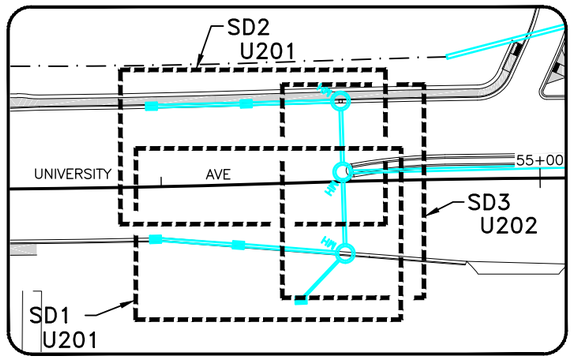
NOTES

1. ALL BRACKETS, RAILS, CHAINS, AND HARDWARE INSIDE WET WELL SHALL BE STAINLESS STEEL UNLESS NOTED OTHERWISE.
2. 2" INSULATION AND 3 LAYERS OF 6 MIL POLYETHYLENE SHEETING ALL AROUND (TYP). WATER PROOF COATING OF INSULATION REQUIRED AT OR BELOW WATER TABLE.

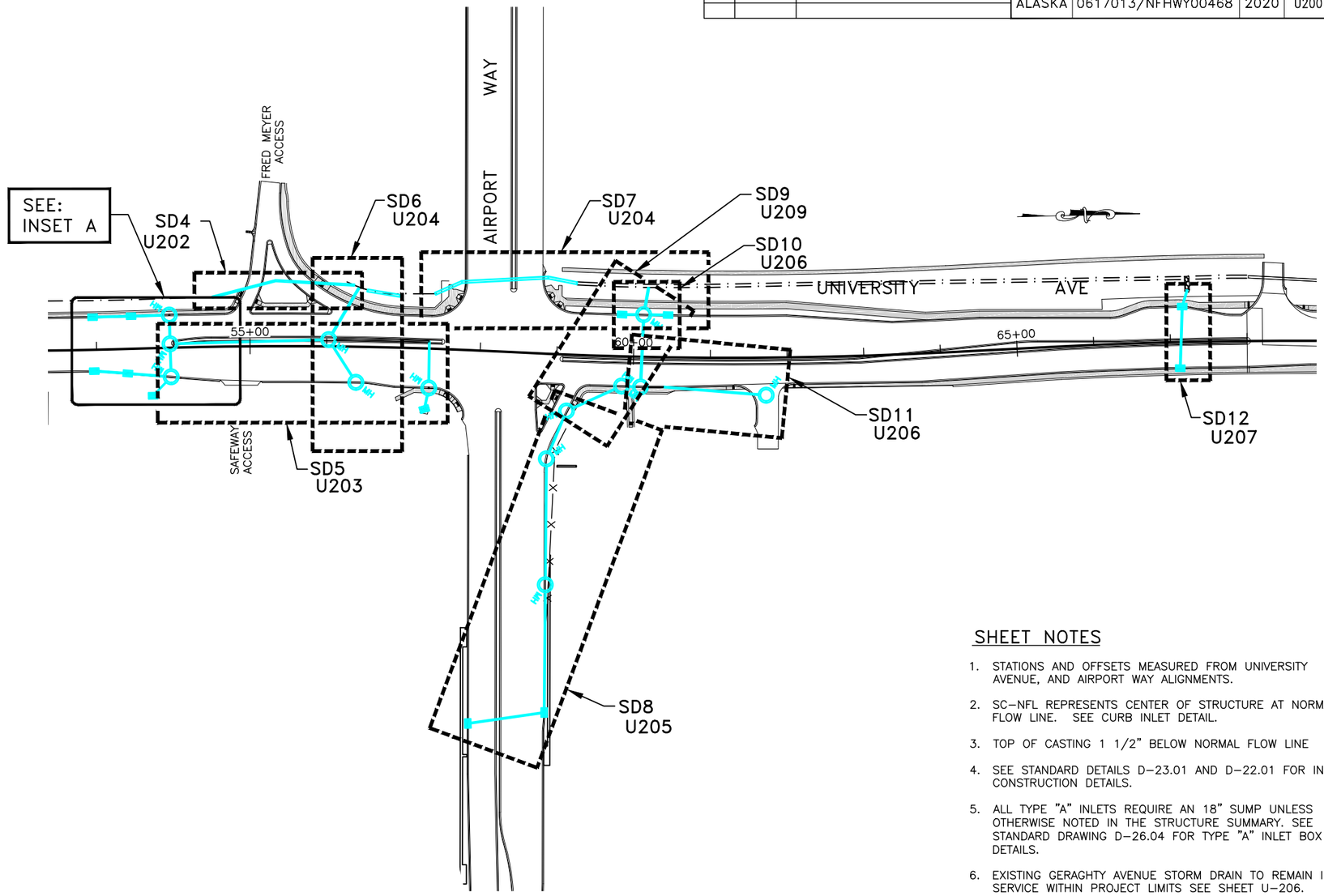
STATE OF ALASKA 49TH
KAREN ANN BRADY
2/21/2020
CE 11523
REGISTERED PROFESSIONAL ENGINEER

WATER AND SEWER DETAILS (2 OF 2)

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U200	U209



INSET A



SHEET NOTES

1. STATIONS AND OFFSETS MEASURED FROM UNIVERSITY AVENUE, AND AIRPORT WAY ALIGNMENTS.
2. SC–NFL REPRESENTS CENTER OF STRUCTURE AT NORMAL FLOW LINE. SEE CURB INLET DETAIL.
3. TOP OF CASTING 1 1/2" BELOW NORMAL FLOW LINE
4. SEE STANDARD DETAILS D–23.01 AND D–22.01 FOR INLET CONSTRUCTION DETAILS.
5. ALL TYPE "A" INLETS REQUIRE AN 18" SUMP UNLESS OTHERWISE NOTED IN THE STRUCTURE SUMMARY. SEE STANDARD DRAWING D–26.04 FOR TYPE "A" INLET BOX DETAILS.
6. EXISTING GERAGHTY AVENUE STORM DRAIN TO REMAIN IN SERVICE WITHIN PROJECT LIMITS SEE SHEET U–206.

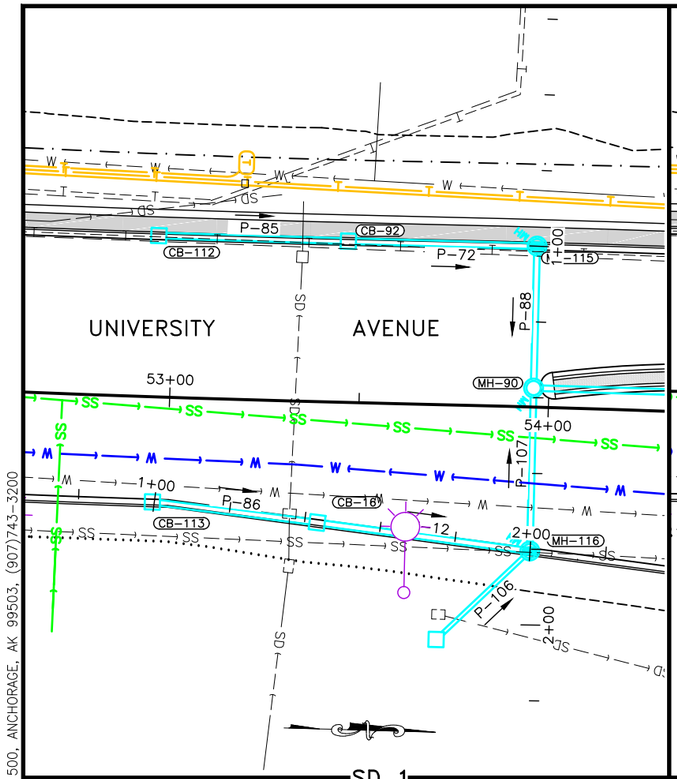
LEGEND

STORM DRAIN #
SHEET #

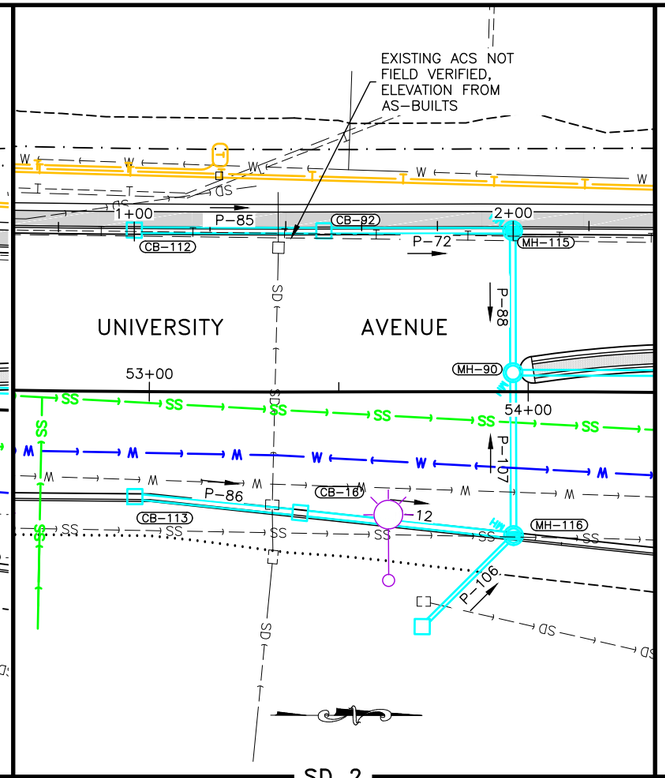
STORM DRAIN SHEET
LAYOUT INDEX

STATE OF ALASKA
49 TH
ANNE MARIE NELSON
2/21/2020
CE 12840
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U201	U209



SD 1



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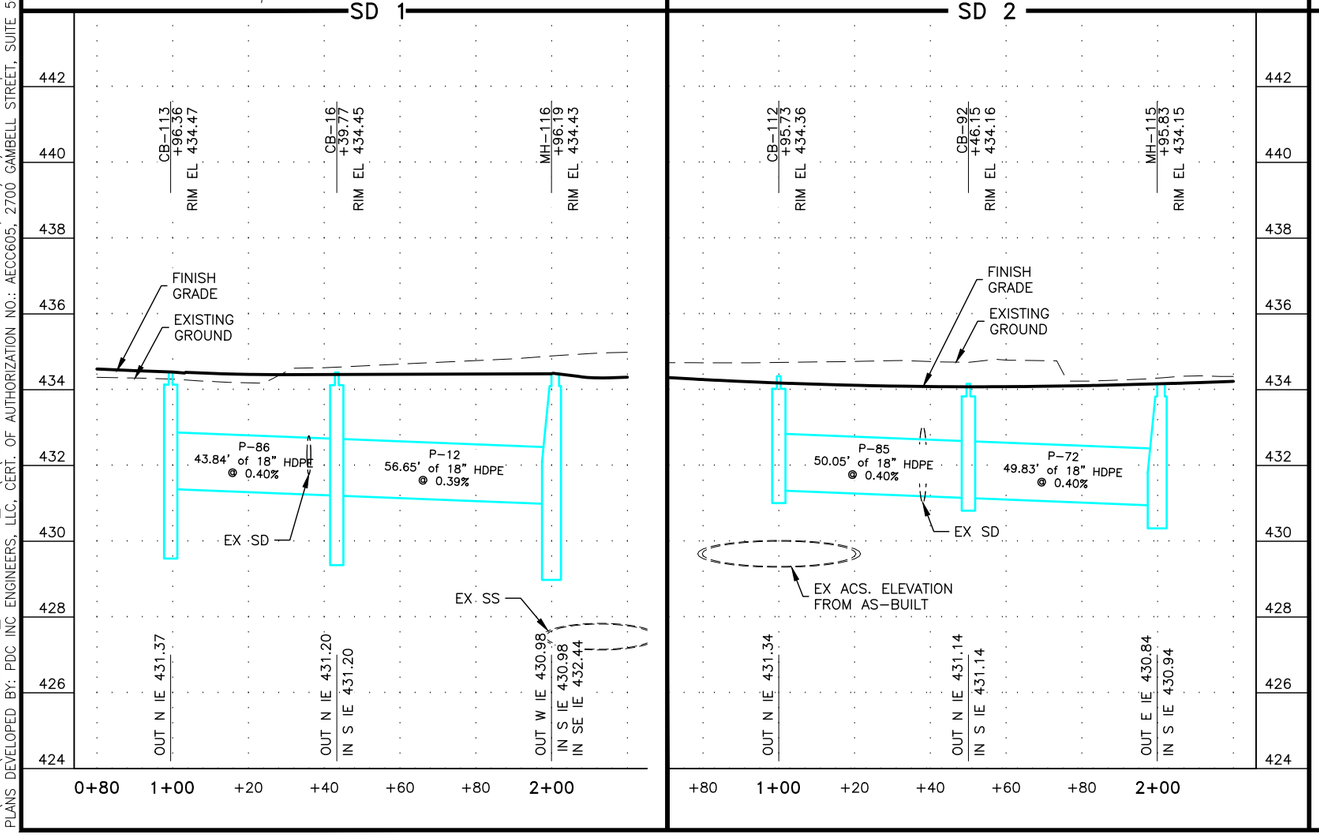
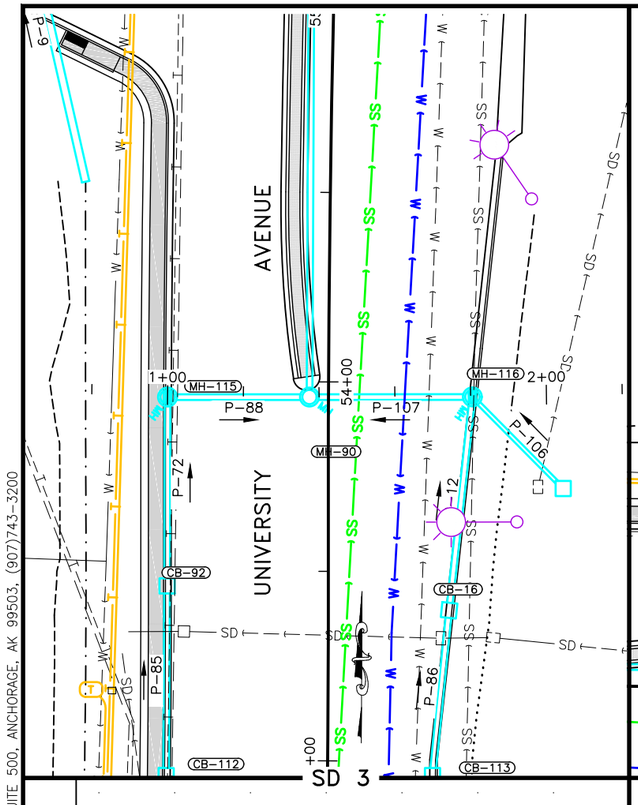
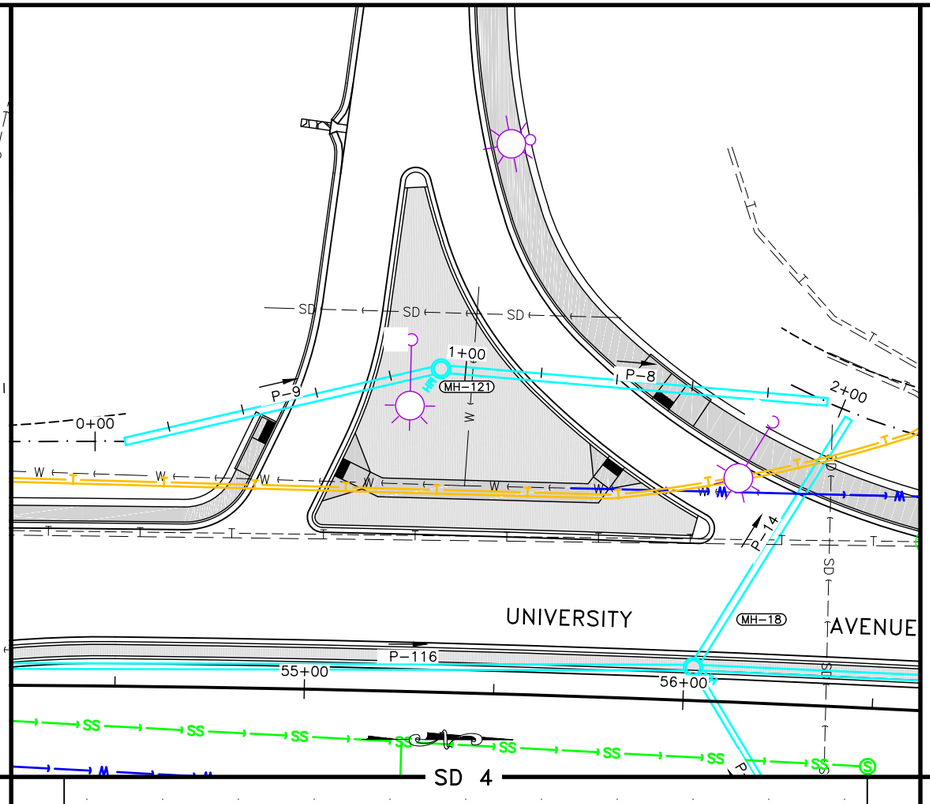


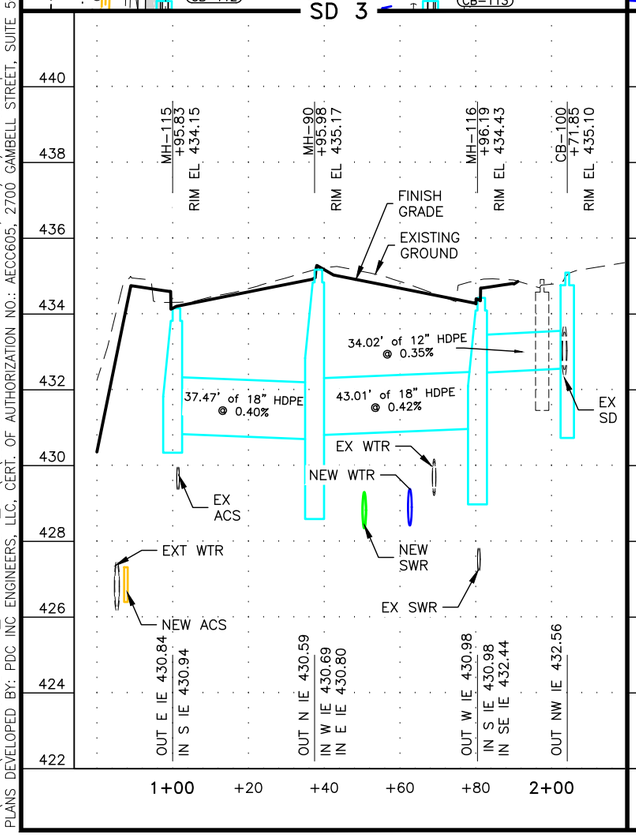
STORM DRAIN PLAN AND PROFILE (1 OF 7)

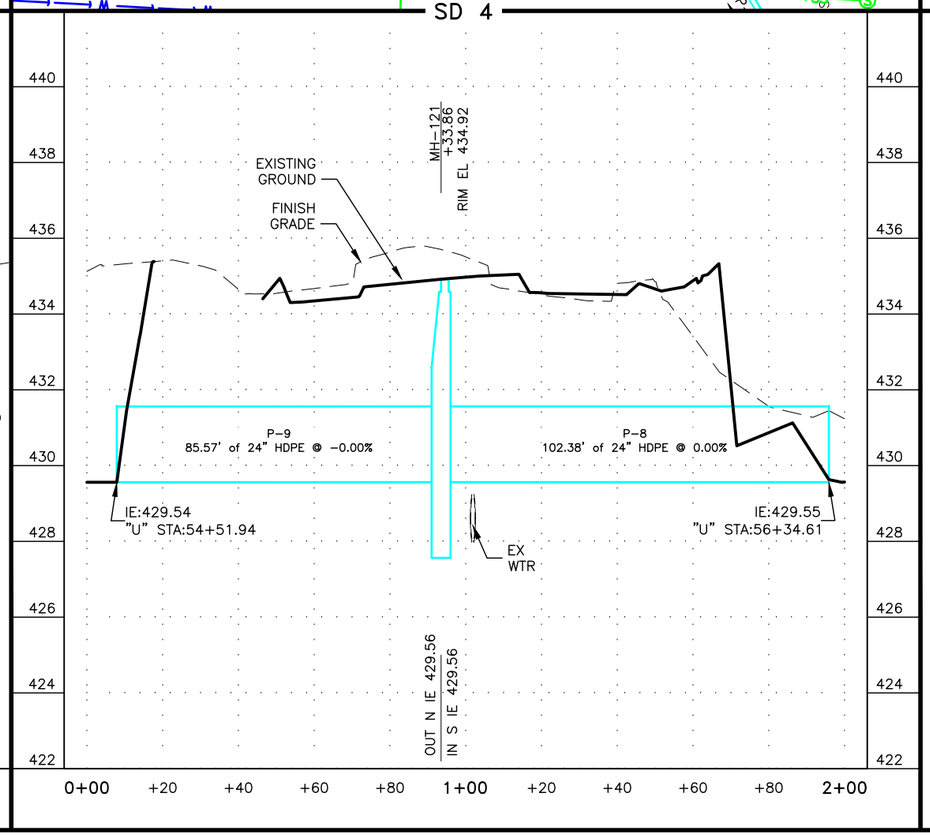
STATE OF ALASKA 49TH
ANNE MARIE NELSON
2/21/2020
CE 12840
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U202	U209









STORM DRAIN PLAN AND PROFILE (2 OF 7)

STATE OF ALASKA 49TH
ANNE MARIE NELSON
2/21/2020
CE 12840
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U203	U209

UNIVERSITY AVENUE

AIRPORT WAY

CONNECT TO EXISTING STORM DRAIN PIPE

SD 5

STORM DRAIN PLAN AND PROFILE (3 OF 7)

STATE OF ALASKA 49 TH
ANNE MARIE NELSON
2/21/2020
CE 12840
REGISTERED PROFESSIONAL ENGINEER

FINISH GRADE
EXISTING GROUND

MH-90 +95.98 RIM EL 435.17
OUT N IE 430.59
IN W IE 430.69
IN E IE 430.80

MH-18 +02.38 RIM EL 436.70
OUT NW IE 429.96
IN S IE 429.76
IN N IE 431.74
IN NE IE 431.48

MH-157 +38.76 RIM EL 435.36
OUT SW IE 431.76
IN SW IE 431.86

MH-92 +33.27 RIM EL 437.44
OUT S IE 432.26
IN E IE 432.26

MH-20 +34.68 RIM EL 436.11
OUT W IE 432.53
IN E IE 432.53

P-104 65.96' of 18" HDPE @ 0.43%

P-116 206.68' of 18" HDPE @ 0.40%

P-16 131.10' of 18" HDPE @ 0.39%

P-15 60.75' of 18" HDPE @ 0.45%

P-46 28.14' of 18" HDPE @ 0.41%

EX SD

EX ACS

EX ACS. MAY NEED TO MODIFY CONC CAP FOR SD CROSSING

EX ACS

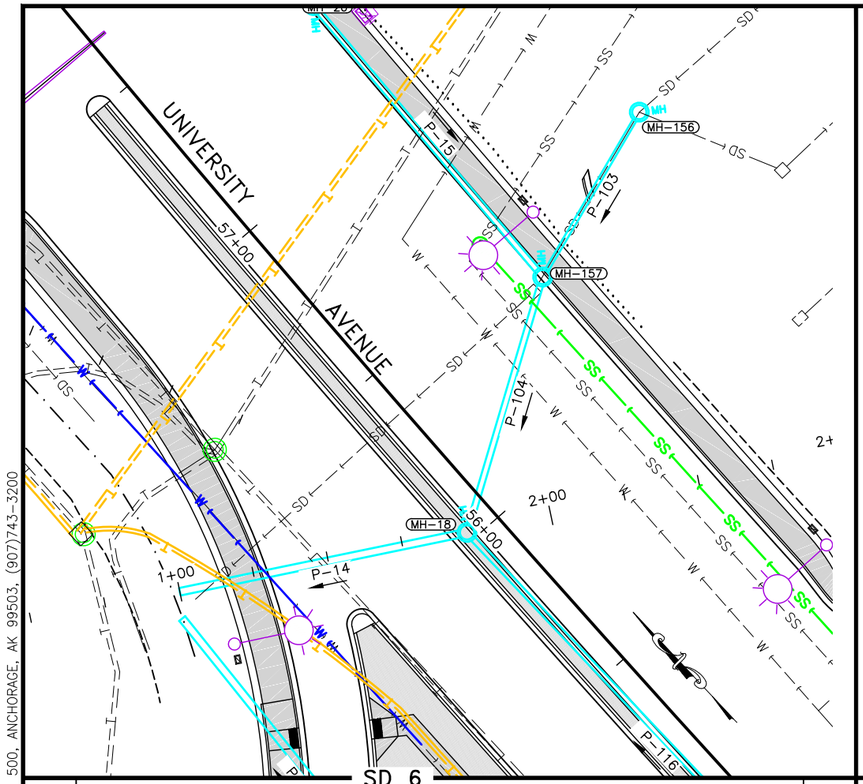
IE:432.63
"U" STA:57+30.29
CONNECT TO EXISTING CATCH BASIN

440 438 436 434 432 430 428 426 424 422

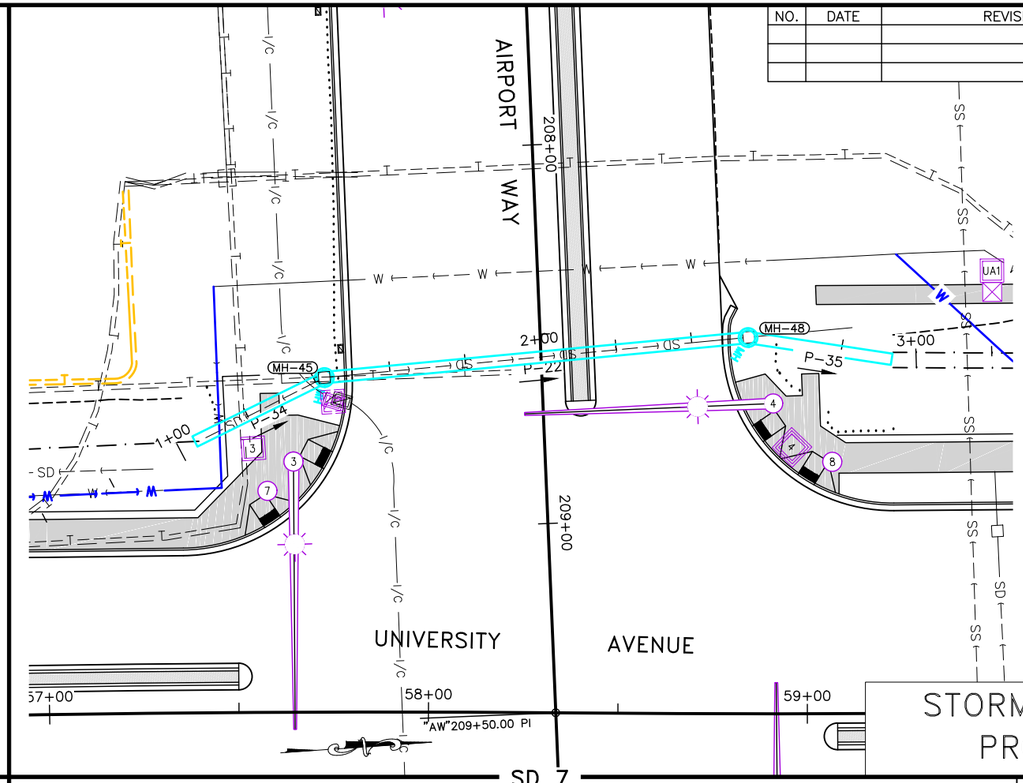
0+60 1+00 +50 2+00 +50 3+00 +50 4+00 +50 5+00 +50 6+00 +50

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U204	U209

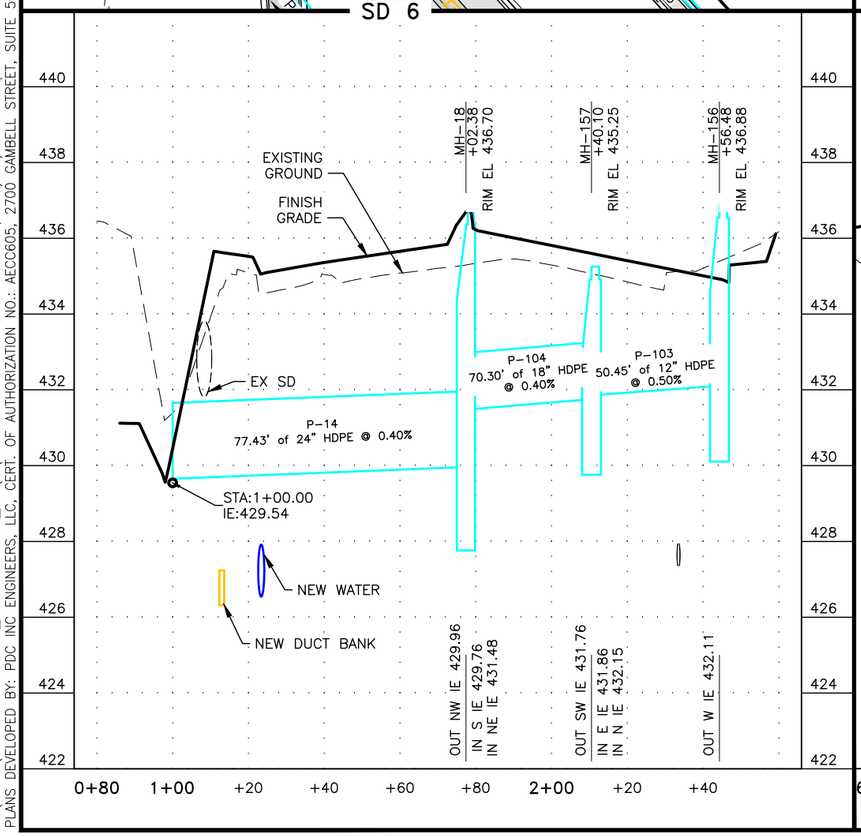


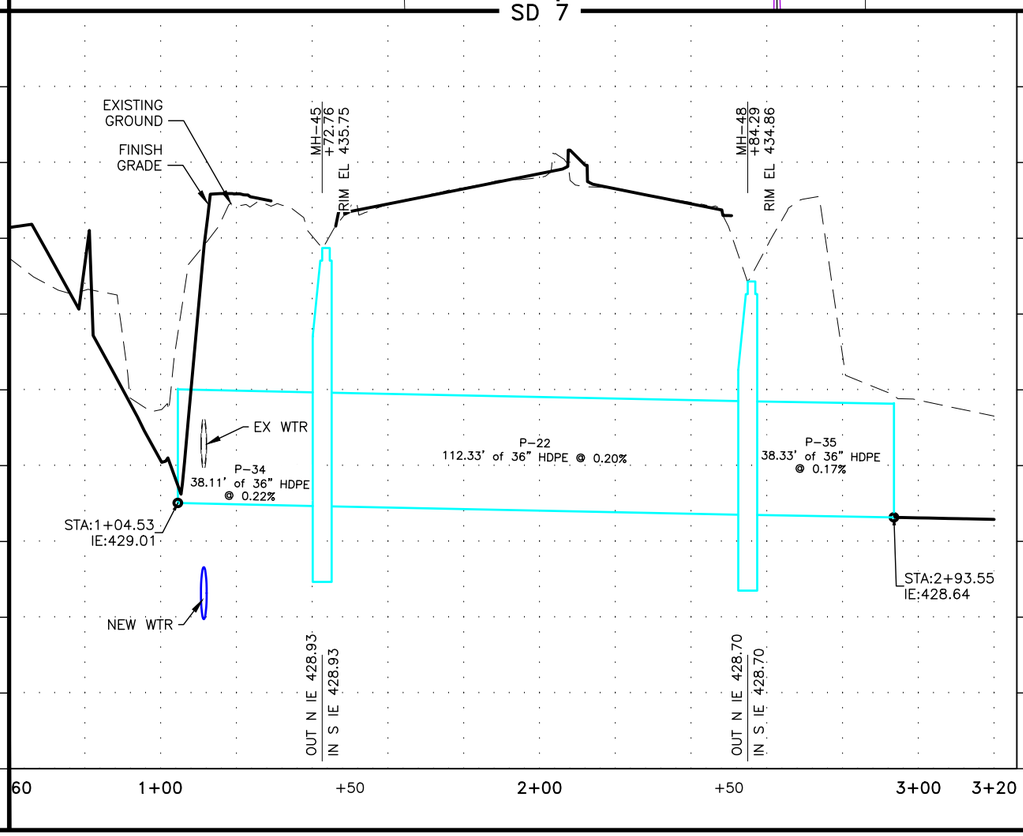
SD 6



SD 7

STORM DRAIN PLAN AND PROFILE (4 OF 7)





NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U205	U209

AIRPORT WAY

CB-24

CB-25

MH-30

MH-26

MH-91

P-19

P-20

P-111

P-21

ABANDONED 10" WOODSTAVE SEWER

MATCHLINE SHEET U206

SD 8

STORM DRAIN PLAN AND PROFILE (5 OF 7)

STATE OF ALASKA
49 TH
ANNE MARIE NELSON
2/7/2020
CE 12840
REGISTERED PROFESSIONAL ENGINEER

CB-24 +34.43 RIM EL 435.95

CB-25 +20.00 RIM EL 436.10

MH-30 +53.64 RIM EL 436.38

MH-26 +89.43 RIM EL 436.90

MH-91 +27.11 RIM EL 436.42

EXISTING GROUND

FINISH GRADE

P-19
100.51' of 18" HDPE @ 0.44%

P-20
166.36' of 18" HDPE @ 0.45%

P-111
164.22' of 18" HDPE @ 0.45%

P-21
67.55' of 18" HDPE @ 0.46%

OUT N IE 432.14

OUT W IE 431.69
IN S IE 431.69

OUT W IE 430.95
IN E IE 430.95

OUT NW IE 430.21
IN E IE 430.21

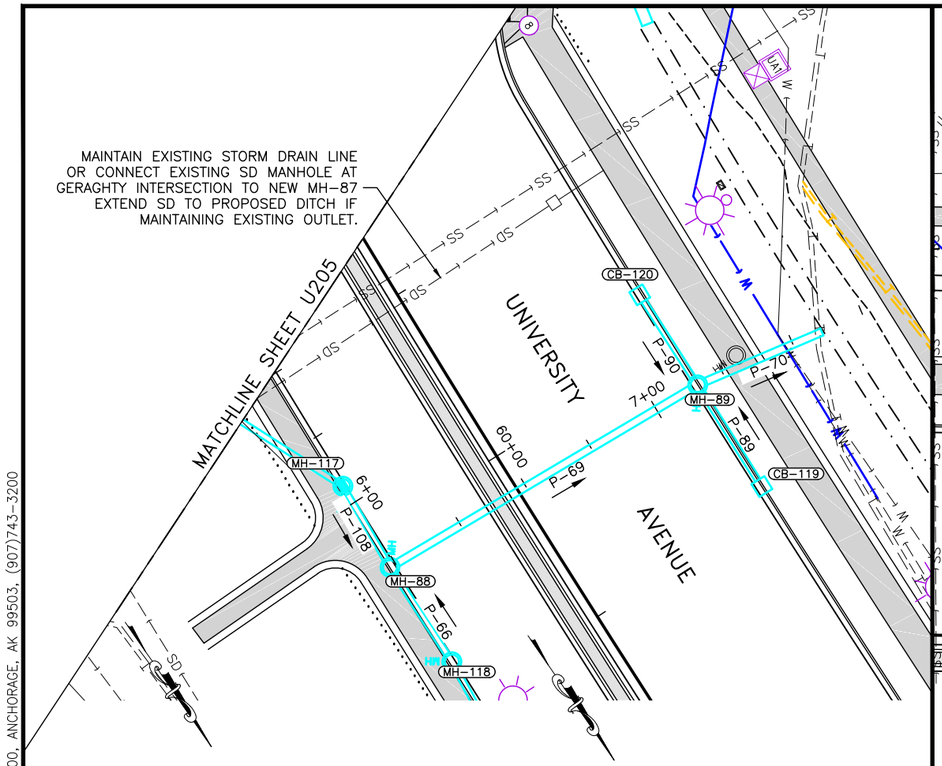
OUT NW IE 429.90
IN SE IE 429.90

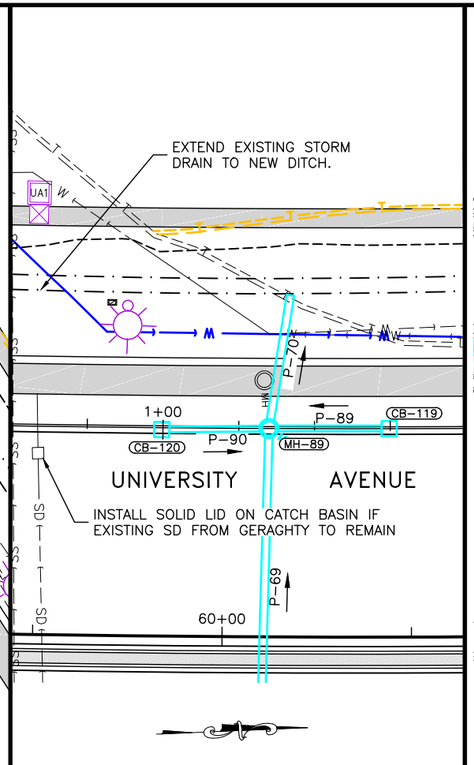
MATCHLINE SHEET U206

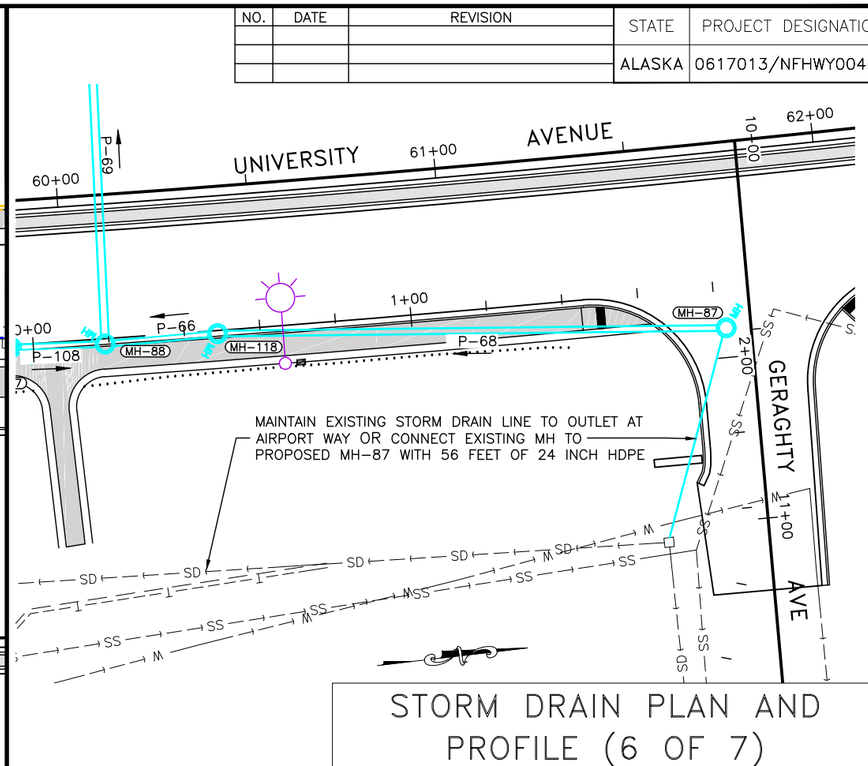
440 438 436 434 432 430 428 426 424 422

0+00 +20 +40 +60 +80 1+00 +20 +40 +60 +80 2+00 +20 +40 +60 +80 3+00 +20 +40 +60 +80 4+00 +20 +40 +60 +80 5+00

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U206	U209



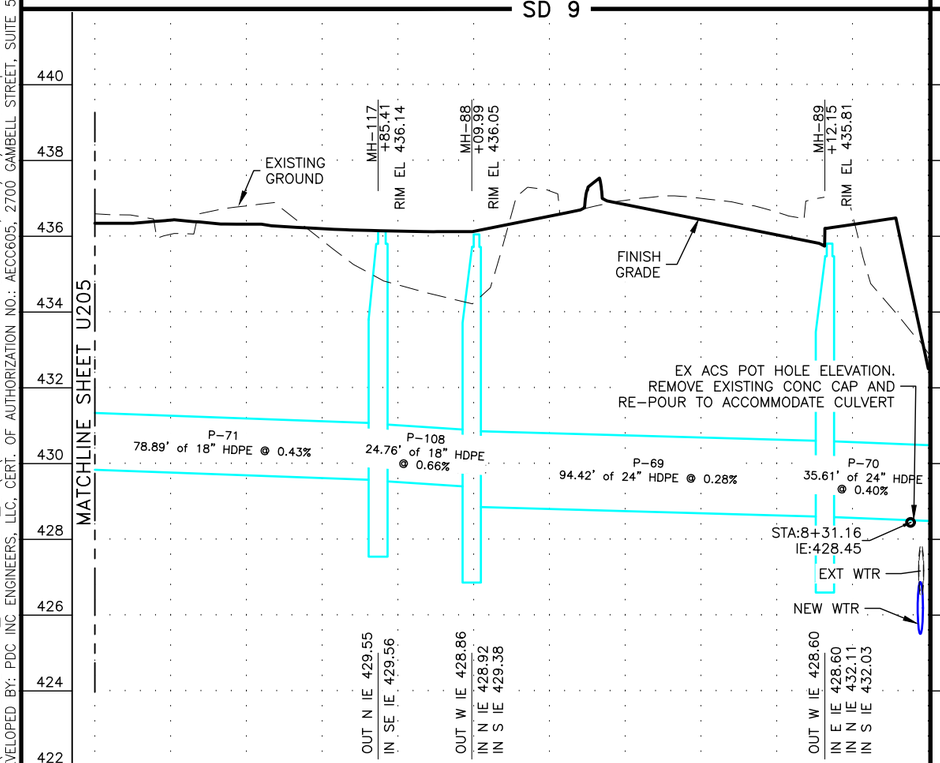




STORM DRAIN PLAN AND PROFILE (6 OF 7)

STATE OF ALASKA 49 TH
ANNE MARIE NELSON
2/7/2020
CE 12840
REGISTERED PROFESSIONAL ENGINEER

SD 9



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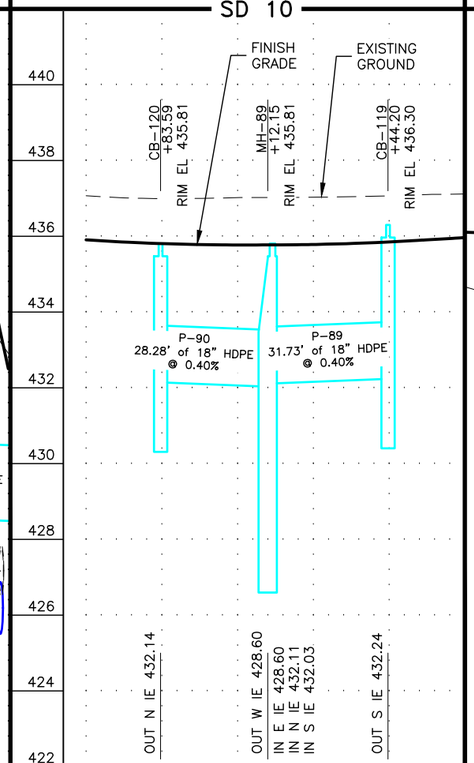

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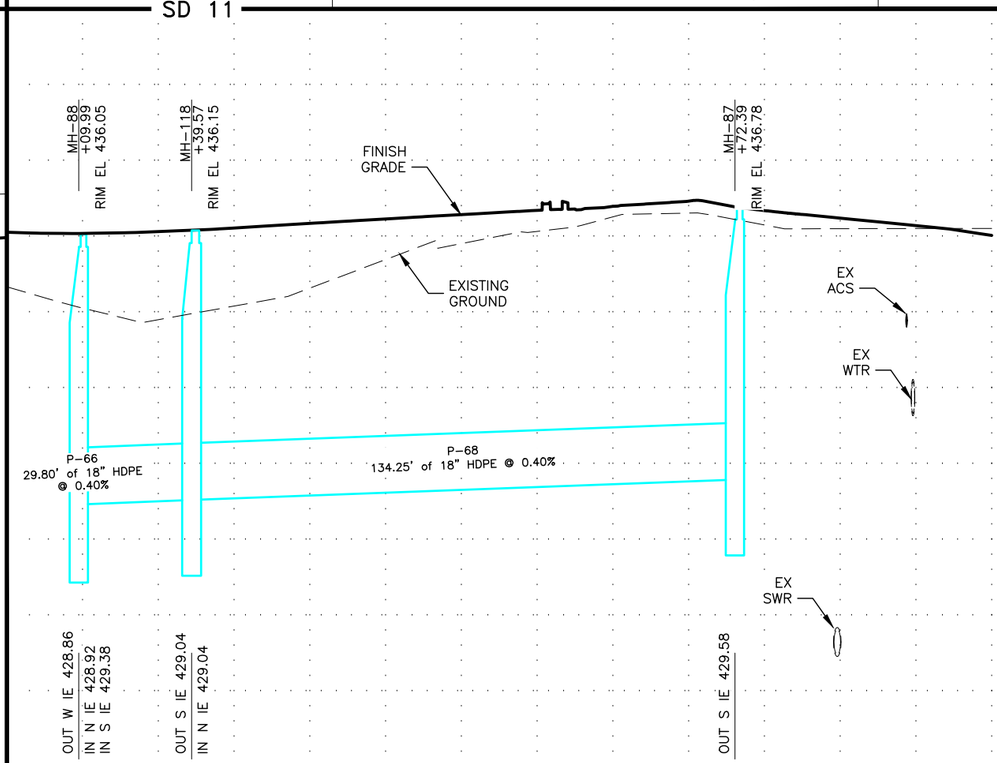
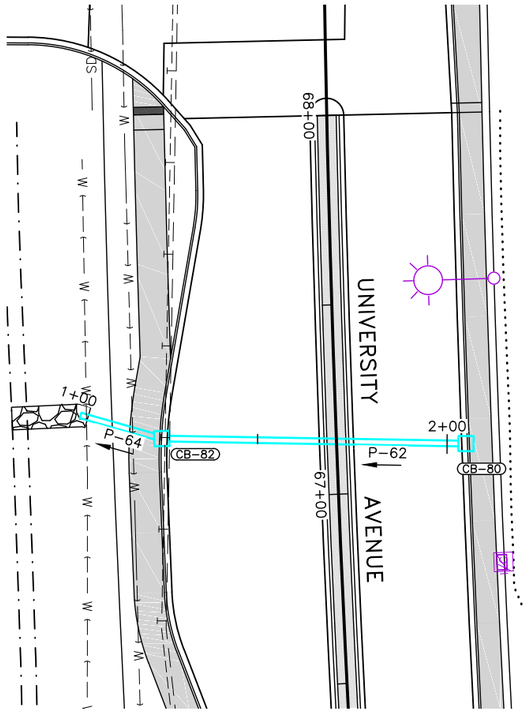
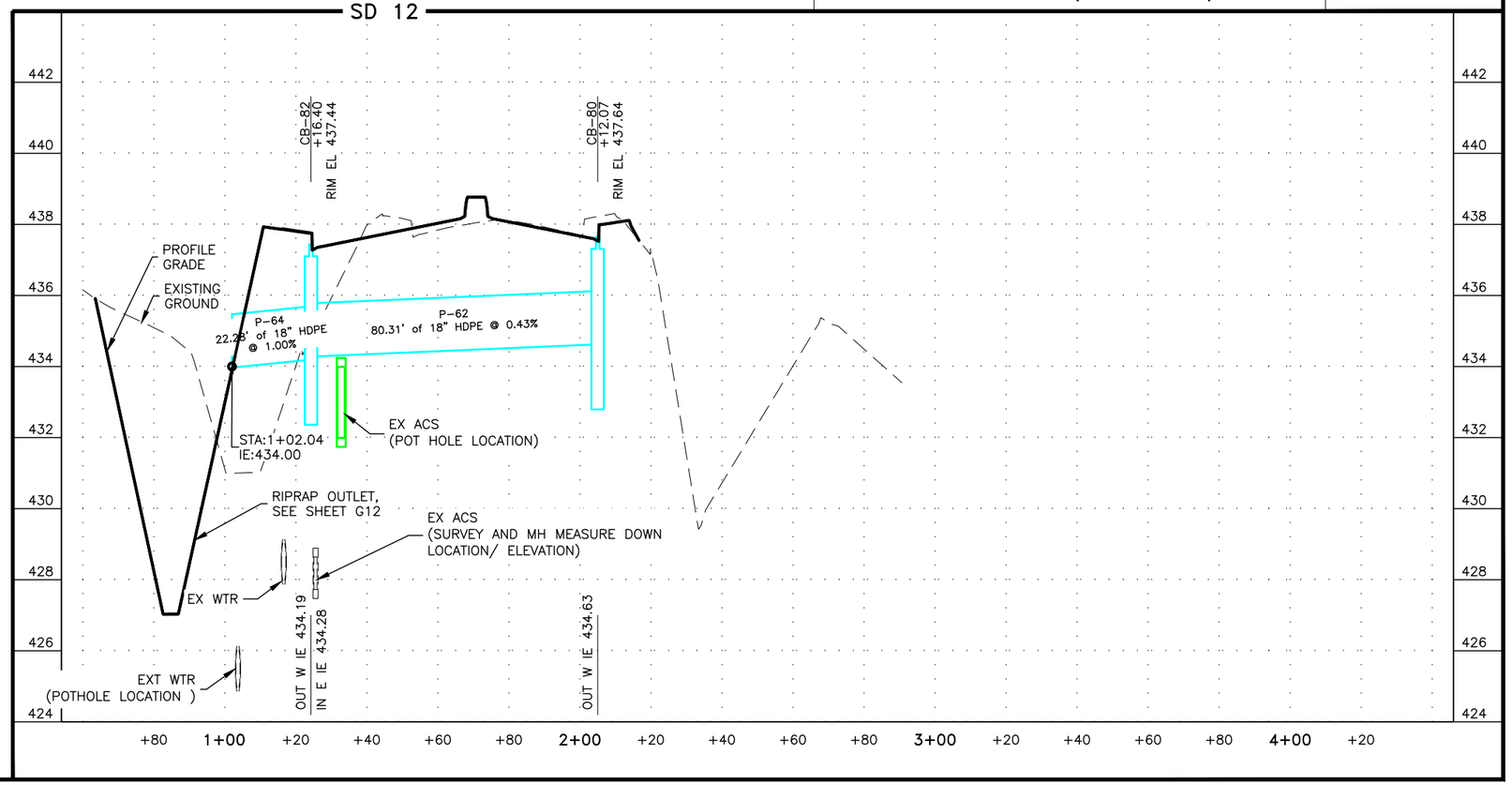


NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U207	U209



STORM DRAIN PLAN AND PROFILE (7 OF 7)

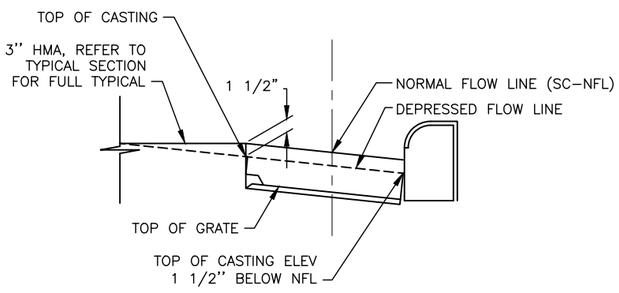


STATE OF ALASKA
49 TH
ANNE MARIE NELSON
2/7/2020
CE 12840
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U208	U209

STRUCTURE SUMMARY

NAME:	TYPE	STATION	OFFSET	SC–NFL	TOC	PIPES IN INVERTS	PIPES OUT INVERTS	SUMP	COVER	REMARKS
CB–16	INLET, TYPE A	53+39.77	31.88 R	434.45	434.175	(P–86) 431.20' S	(P–12) 431.20' N	1.5	STD CURB INLET AND FRAME	
CB–24	INLET, TYPE A	214+34.43	49.08 R	435.95	435.825		(P–19) 432.14' N	1.5	VALLEY GUTTER GRATE	
CB–25	INLET, TYPE A	214+20.00	50.38 L	436.10	435.975	(P–19) 431.69' S	(P–20) 431.69' W	1.5	GUTTER GRATE	
CB–62	INLET, TYPE A	57+29.75	79.02 R	434.72	435.534		(P–46) 432.64' W	1.5	STD CURB INLET AND GRATE	CONNECT TO EXISTING PIPE
CB–80	INLET, TYPE A	67+12.07	34.14 R	437.54	437.415		(P–62) 434.63' W	1.5	STD CURB INLET AND GRATE	
CB–82	INLET, TYPE A	67+16.40	46.05 L	437.44	437.285	(P–62) 434.28' E	(P–64) 434.19' W	1.5	STD CURB INLET AND GRATE	
CB–92	INLET, TYPE A	53+46.15	42.57 L	434.08	434.03	(P–85) 431.14' S	(P–72) 431.14' N	0.0	SD CURB INLET AND GRATE	
CB–100	INLET, TYPE A	53+71.85	62.00 R	434.92	––		(P–106) 432.56' NW	1.5	FIELD INLET	
CB–112	INLET, TYPE A	52+95.73	42.59 L	434.16	434.23		(P–85) 431.34' N	0.0	STD CURB INLET AND GRATE	
CB–113	INLET, TYPE A	52+96.36	27.72 R	434.47	434.345		(P–86) 431.37' N	1.5	STD CURB INLET AND GRATE	
CB–119	INLET, TYPE A	60+44.20	55.05 L	436.30	436.175		(P–89) 432.24' S	1.5	STD CURB INLET AND GRATE	
CB–120	INLET, TYPE A	59+83.59	54.53 L	435.81	436.135		(P–90) 432.14' N	1.5	STD CURB INLET AND GRATE	
MH–18	STORM SEWER MANHOLE, 48 INCH	56+02.38	8.72 L	436.70		(P–116) 429.76' S (P–16) 431.74' N (P–104) 431.48' NE	(P–14) 429.96' NW	1.5	SOILD LID	
MH–20	STORM SEWER MANHOLE, 48 INCH	57+34.68	51.31 R	436.11	435.715	(P–46) 432.53' E	(P–15) 432.53' W	1.5	STD CURB INLET AND GRATE	
MH–26	STORM SEWER MANHOLE, 48 INCH	210+89.43	52.87 L	436.90	436.775	(P–111) 430.21' E	(P–21) 430.21' NW	1.5	STD CURB INLET AND GRATE	
MH–30	STORM SEWER MANHOLE, 48 INCH	212+53.64	51.63 L	436.38	436.255	(P–20) 430.95' E	(P–111) 430.95' W	1.5	GUTTER GRATE	
MH–45	STORM SEWER MANHOLE, 48 INCH	57+72.76	88.28 L	435.75	––	(P–34) 428.93' S	(P–22) 428.93' N	1.5	FIELD INLET GRATE	
MH–48	STORM SEWER MANHOLE, 48 INCH	58+84.29	99.28 L	434.86		(P–22) 428.70' S	(P–35) 428.70' N	1.5	FIELD INLET GRATE	
MH–87	STORM SEWER MANHOLE, 48 INCH	61+72.39	48.97 R	436.78			(P–68) 429.58' S	1.5	SOLID LID	
MH–88	STORM SEWER MANHOLE, 48 INCH	60+09.99	39.40 R	436.05	435.925	(P–66) 428.92' N (P–108) 429.38' S	(P–69) 428.86' W	1.5	STD CURB INLET AND GRATE	
MH–89	STORM SEWER MANHOLE, 48 INCH	60+12.15	55.00 L	436.21	436.085	(P–69) 428.60' E (P–89) 432.11' N (P–90) 432.03' S	(P–70) 428.60' W	1.5	STD CURB INLET AND GRATE	
MH–90	STORM SEWER MANHOLE, 48 INCH	53+95.98	5.00 L	435.17	––	(P–88) 430.69' W (P–107) 430.80' E	(P–116) 430.59' N	1.5	SOLID LID	
MH–91	STORM SEWER MANHOLE, 48 INCH	59+15.36	73.54 R	436.42	436.295	(P–21) 429.90' SE	(P–71) 429.90' NW	1.5	STD CURB INLET AND GRATE	



CURB INLET DETAIL

SHEET NOTES

1. STATIONS AND OFFSETS MEASURED FROM UNIVERSITY AVE OR GERAGHTY AVE ALIGNMENT.
2. SC–NFL REPRESENTS CENTER OF STRUCTURE AT NORMAL FLOW LINE. SEE CURB INLET DETAIL.
3. TOP OF CASTING 1 1/2" BELOW NORMAL FLOW LINE
4. SEE STANDARD DRAWING D–23.01 AND D–22.01 FOR INLET CONSTRUCTION DETAILS.
5. LADDER RUNGS ARE NOT REQUIRED IN STORM DRAIN MANHOLES.

STATE OF ALASKA 49TH
ANNE MARIE NELSON
2/21/2020
CE 12840
REGISTERED PROFESSIONAL ENGINEER

SUMMARY TABLE
(1 OF 2)

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U209	U209

STRUCTURE SUMMARY

NAME:	TYPE	STATION	OFFSET	SC-NFL	TOC	PIPES IN INVERTS	PIPES OUT INVERTS	SUMP	COVER	REMARKS
MH-92	STORM SEWER MANHOLE, 48 INCH	57+33.27	9.43 L	437.44		(P-15) 432.26' E	(P-16) 432.26' S	1.5	SOLID LID	
MH-115	STORM SEWER MANHOLE, 48 INCH	53+95.83	42.47 L	434.15	434.025	(P-72) 430.94' S	(P-88) 430.84' E	0.0	STD CURB INLET AND GRATE	
MH-116	STORM SEWER MANHOLE, 48 INCH	53+96.19	38.01 R	434.43	434.263	(P-12) 430.98' S (P-106) 432.44' SE	(P-107) 430.98' W	1.5	STD CURB INLET AND GRATE	
MH-117	STORM SEWER MANHOLE, 48 INCH	59+85.41	38.67 R	436.14	436.01	(P-71) 429.56' SE	(P-108) 429.55' N	1.5	STD CURB INLET AND GRATE	
MH-118	STORM SEWER MANHOLE, 48 INCH	60+39.57	38.80 R	436.15	436.029	(P-68) 429.04' N	(P-66) 429.04' S	1.5	STD CURB INLET AND GRATE	
MH-121	STORM SEWER MANHOLE, 48 INCH	55+33.86	85.35 L	434.92		(P-9) 429.56' S	(P-8) 429.56' N	1.5	FIELD INLET	
MH-157	STORM SEWER MANHOLE, 48 INCH	56+38.76	46.37 R	435.36	435.125	(P-103) 431.86' SW	(P-104) 431.76' SW	1.5	STD CRUB INLET AND GRATE	

PIPE SUMMARY

NAME	SIZE (IN)	MATERIAL	SLOPE	START INVERT	END INVERT	LENGTH (FT)	REMARKS
P-8	24	HDPE	0.00%	429.56'	429.56'	102	
P-9	24	HDPE	-0.00%	429.56'	429.56'	86	
P-12	18	HDPE	0.39%	431.20'	430.98'	57	
P-14	24	HDPE	0.40%	429.96'	429.65'	77	
P-15	18	HDPE	0.45%	432.53'	432.26'	61	
P-16	18	HDPE	0.39%	432.26'	431.74'	131	
P-19	18	HDPE	0.44%	432.14'	431.69'	101	
P-20	18	HDPE	0.45%	431.69'	430.95'	166	
P-21	18	HDPE	0.46%	430.21'	429.90'	68	
P-22	36	HDPE	0.20%	428.93'	428.70'	112	
P-34	36	HDPE	0.22%	429.01'	428.93'	38	
P-35	36	HDPE	0.17%	428.70'	428.64'	38	
P-46	18	HDPE	0.41%	432.64'	432.53'	28	
P-62	18	HDPE	0.43%	434.63'	434.28'	80	
P-64	18	HDPE	1.00%	434.19'	433.97'	22	
P-66	18	HDPE	0.40%	429.04'	428.92'	30	
P-68	18	HDPE	0.40%	429.58'	429.04'	134	
P-69	24	HDPE	0.28%	428.86'	428.60'	94	
P-70	24	HDPE	0.40%	428.60'	428.46'	36	
P-71	18	HDPE	0.43%	429.90'	429.56'	79	
P-72	18	HDPE	0.40%	431.14'	430.94'	50	
P-85	18	HDPE	0.40%	431.34'	431.14'	50	
P-86	18	HDPE	0.40%	431.37'	431.20'	44	
P-88	18	HDPE	0.40%	430.84'	430.69'	37	
P-89	18	HDPE	0.40%	432.24'	432.11'	32	
P-90	18	HDPE	0.40%	432.03'	432.14'	28	
P-103	12	HDPE	-230911.16%	-0.50'	431.86'	432	
P-104	18	HDPE	0.43%	431.76'	431.48'	66	
P-106	12	HDPE	0.35%	432.56'	432.44'	34	
P-107	18	HDPE	0.42%	430.80'	430.98'	43	
P-108	18	HDPE	0.66%	429.55'	429.38'	25	
P-111	18	HDPE	0.45%	430.95'	430.21'	164	
P-116	18	HDPE	0.40%	430.59'	429.76'	207	

SUMMARY TABLE
(2 OF 2)

STATE OF ALASKA
49 TH
ANNE MARIE NELSON
2/21/2020
CE 12840
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U300	U308

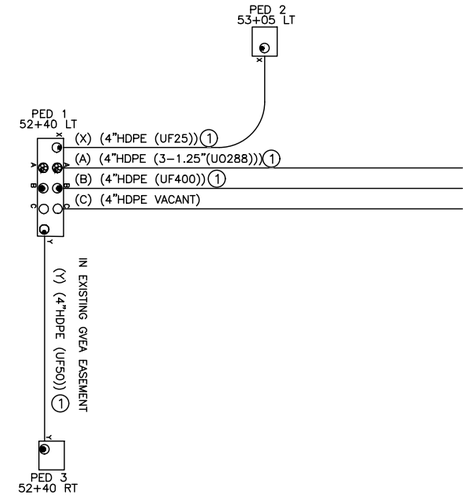
NOTES:

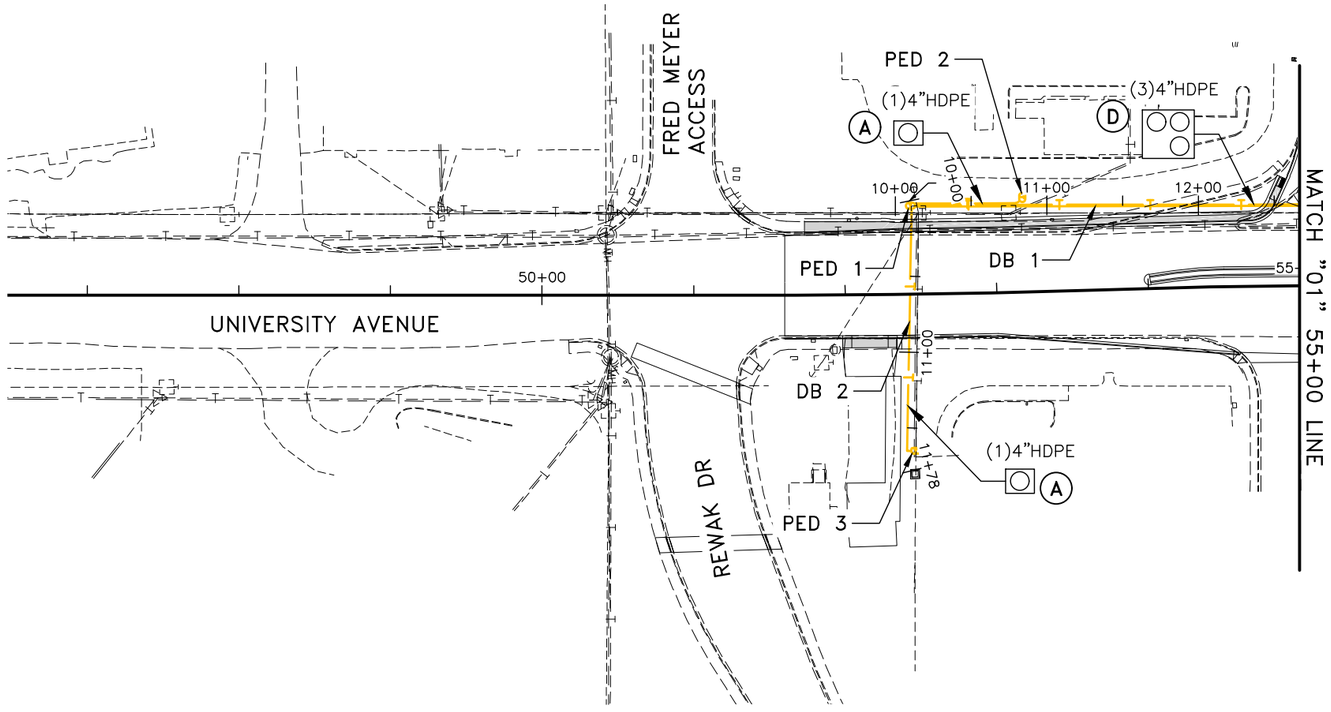
① CABLE INSTALLATION NOT IN CONTRACT (NIC)

LEGEND:

———— PROPOSED CONDUIT

— — — — EXISTING CONDUIT INSTALLED IN 2019





DUCT BANK LAYOUT
(1 OF 3)

STATE OF ALASKA
49TH
Judy Anne C. Anunciacion
2/21/2020
CE-129413
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U301	U308

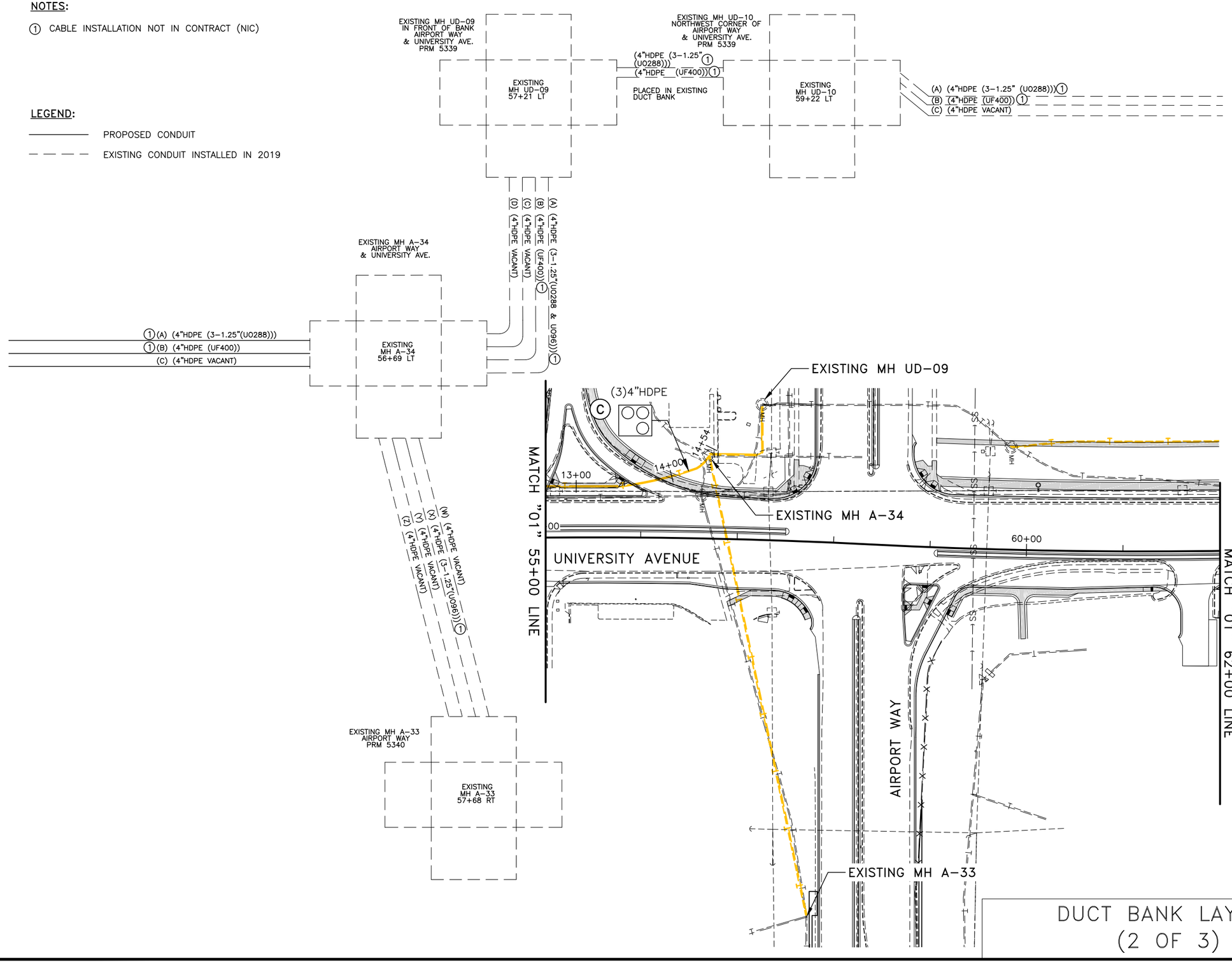
NOTES:

① CABLE INSTALLATION NOT IN CONTRACT (NIC)

LEGEND:

——— PROPOSED CONDUIT

– – – – EXISTING CONDUIT INSTALLED IN 2019



DUCT BANK LAYOUT
(2 OF 3)

STATE OF ALASKA
49TH
Judy Anne C. Anunciacion
2/21/2020
CE-12941
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U302	U308

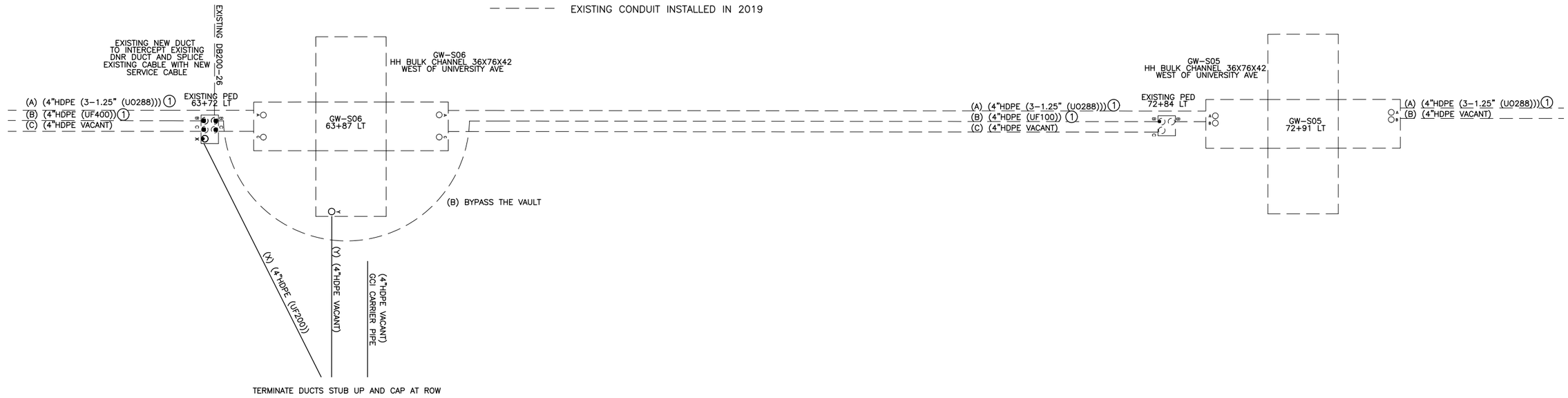
NOTES:

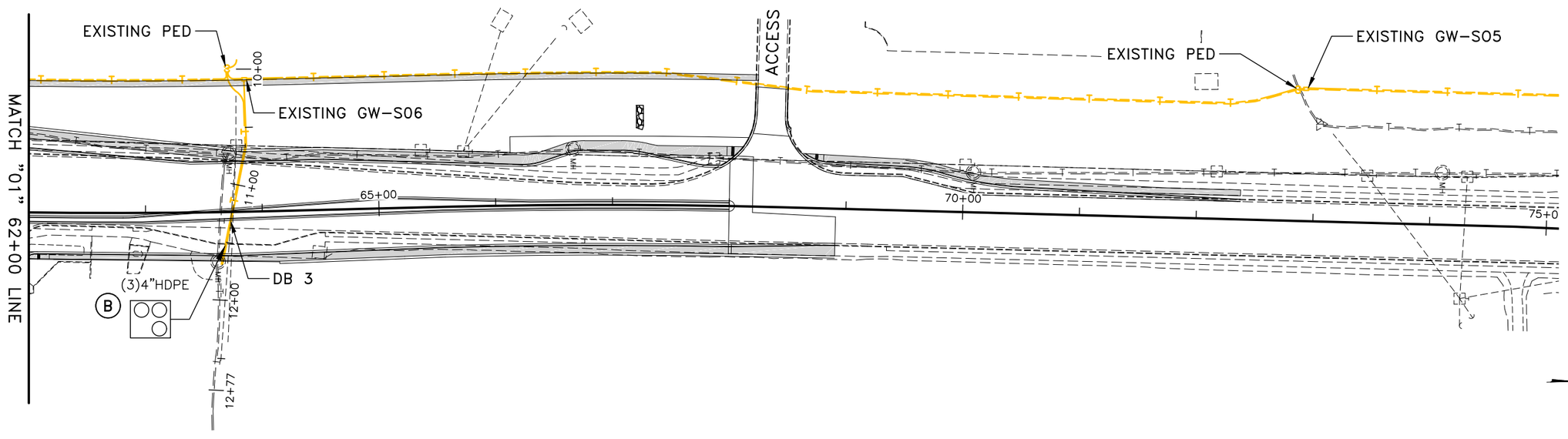
① CABLE INSTALLATION NOT IN CONTRACT (NIC)

LEGEND:

PROPOSED CONDUIT

EXISTING CONDUIT INSTALLED IN 2019





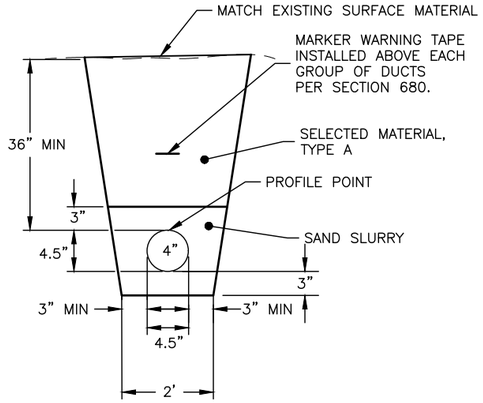
DUCT BANK LAYOUT
(3 OF 3)

STATE OF ALASKA
49TH
Judy Anne C. Anunciacion
2/21/2020
CE-12941 3
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U303	U308

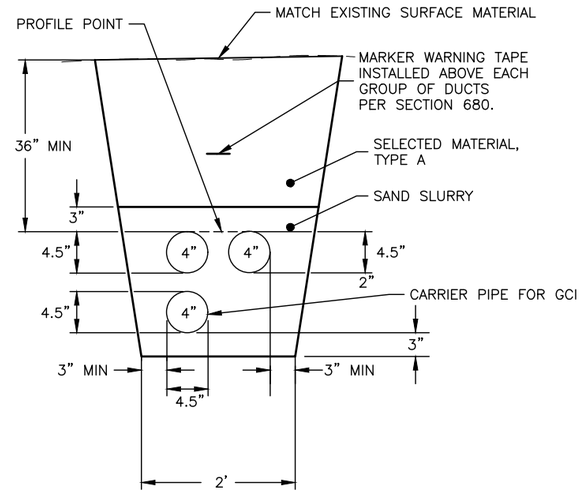
NOTES:

1. DUCT BANK SHALL BE INSTALLED WITHIN THE RIGHT–OF–WAY.
2. DUCT PLACEMENT CAN SHIFT WITHIN THE TRENCH SECTION, MAINTAIN MINIMUM SEPARATION BETWEEN DUCT EDGE AND TRENCH EDGE.



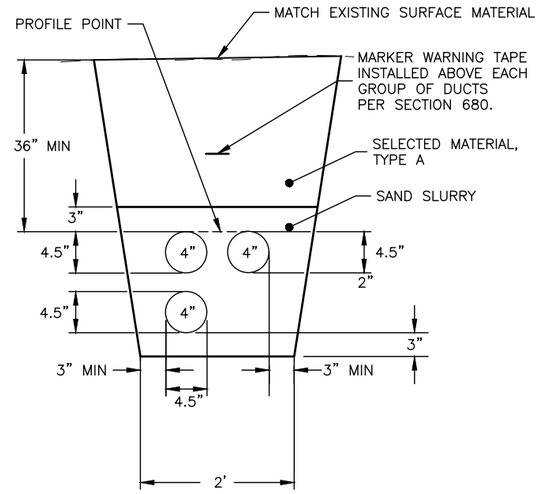
A (1) 4" HDPE CONDUITS

"DB1" 10+10.00 TO "DB1" 10+83.75
"DB2" 10+03.06 TO "DB2" 11+65.53



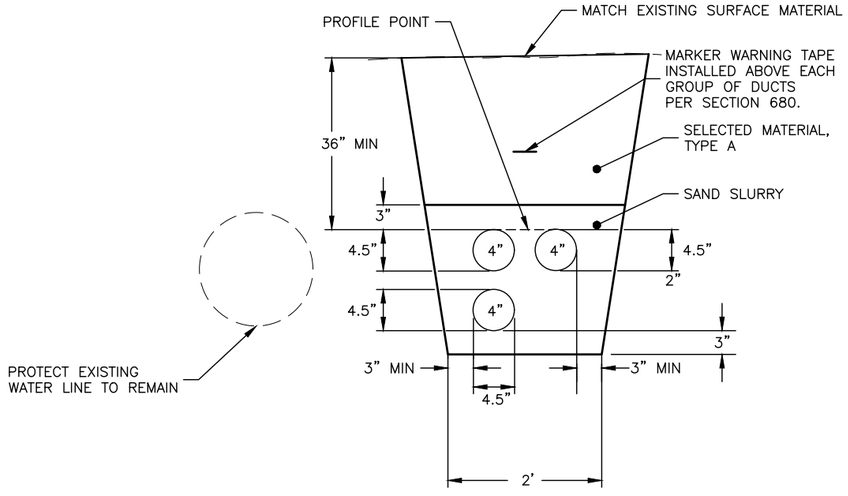
B COMMON COMMUNICATIONS TRENCH (3) 4" HDPE CONDUITS

"DB3" 10+02.60 TO "DB3" 12+67.11



C (3) 4" HDPE CONDUITS

"DB1" 13+46.53 TO "DB1" 14+45.39



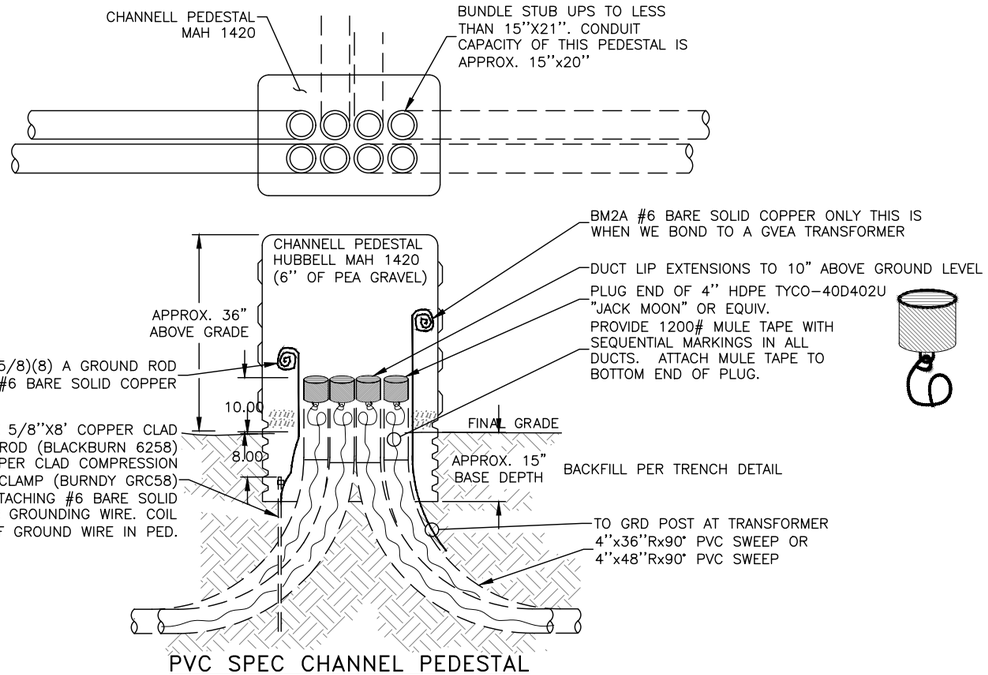
D (3) 4" HDPE CONDUITS AND EXISTING WATER LINE

"DB1" 10+10.00 TO "DB1" 13+46.53

DUCT BANK TYPICAL TRENCH SECTION

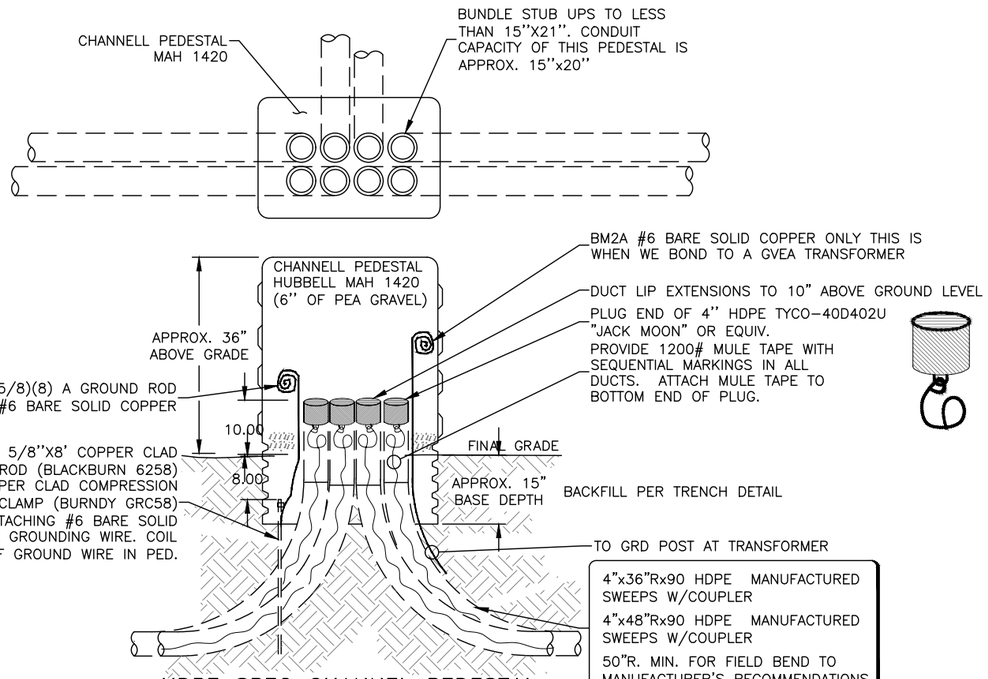
STATE OF ALASKA 49TH
Judy Anne C. Anunciacion
2/21/2020
CE-12941
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U304	U308



PVC SPEC CHANNEL PEDESTAL

CALL LOCATE: 1-800-478-3121
2 WORKING DAYS PRIOR TO CONSTRUCTION
FOR UNDERGROUND SERVICES LOCATING

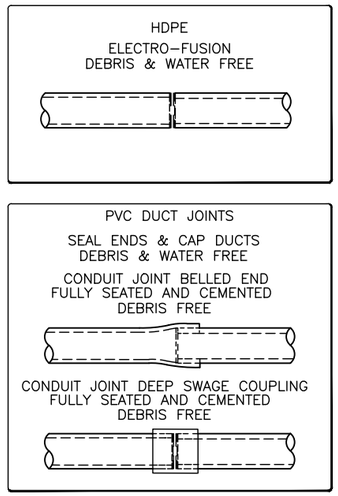


HDPE SPEC CHANNEL PEDESTAL

CALL LOCATE: 1-800-478-3121
2 WORKING DAYS PRIOR TO CONSTRUCTION
FOR UNDERGROUND SERVICES LOCATING

CHANNELL PEDESTAL NOTE:

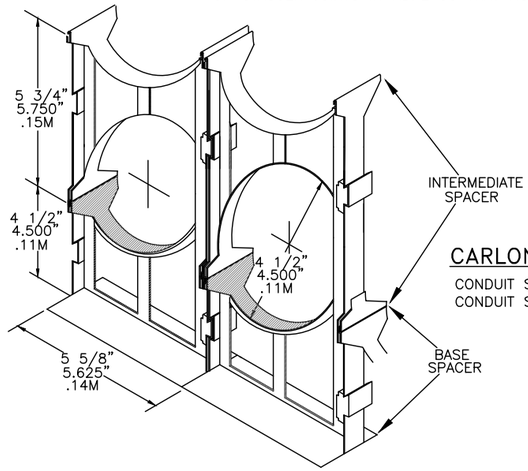
1. COLOR OF PEDESTAL SHALL BE STANDARD COLOR GREEN.



DUCT JOINT DETAILS

CARLON PLASTIC SPACER DETAIL NOTES

1. INSTALL CARLON PLASTIC DUCT SPACERS AT 4 FOOT INTERVALS MINIMUM
2. INSTALL CONTRACTOR PROVIDED POLY BANDING AT EVERY THIRD SPACER MINIMUM
3. STAGGER JOINTS IN HDPE SO THAT NO TWO JOINTS ARE CLOSER THAN 2 FEET



CARLON PLASTIC DUCT SPACERS:

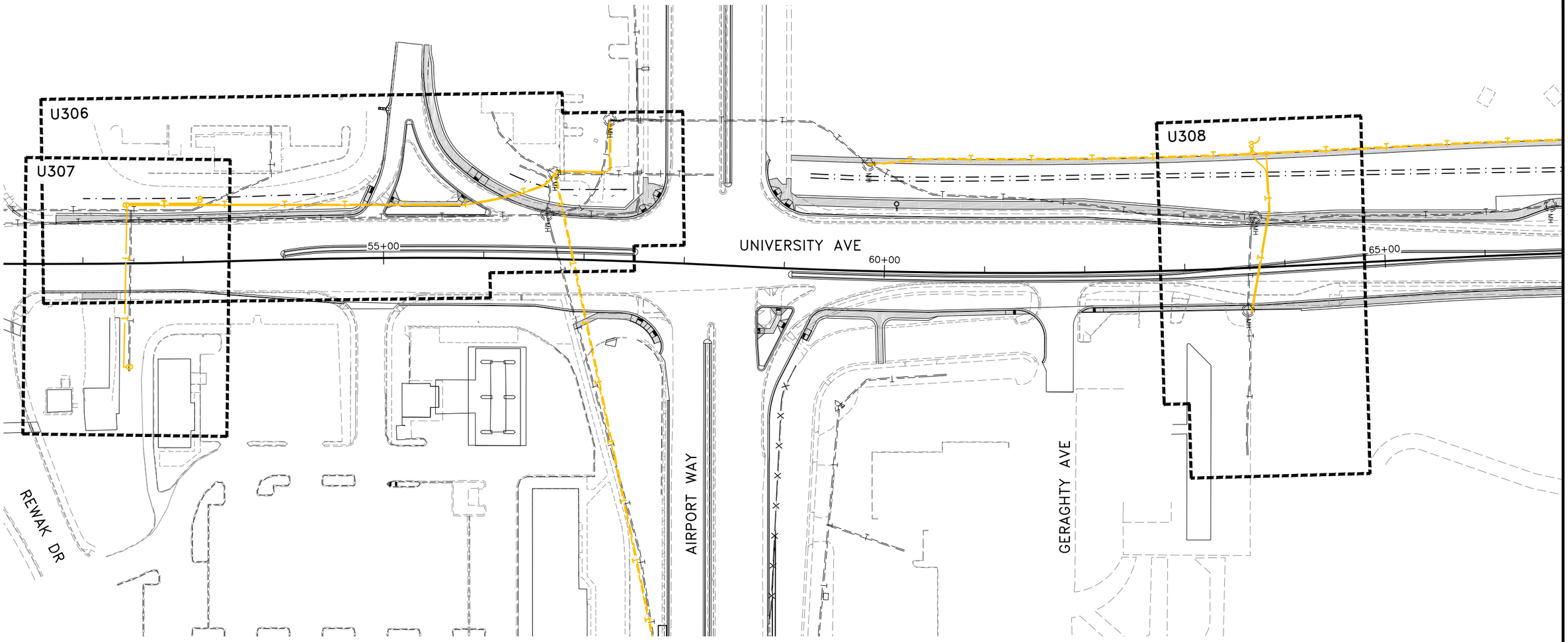
CONDUIT SPACER BASE 4" CARLON #S288NLN
CONDUIT SPACER INTERMEDIATE 4" CARLON #S289NLN

CONDUIT SPACING DETAIL

DETAILS

STATE OF ALASKA
49TH
Judy Anne C. Anuncacion
2/21/2020
CE-129413
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U305	U308



DUCT BANK SHEET INDEX

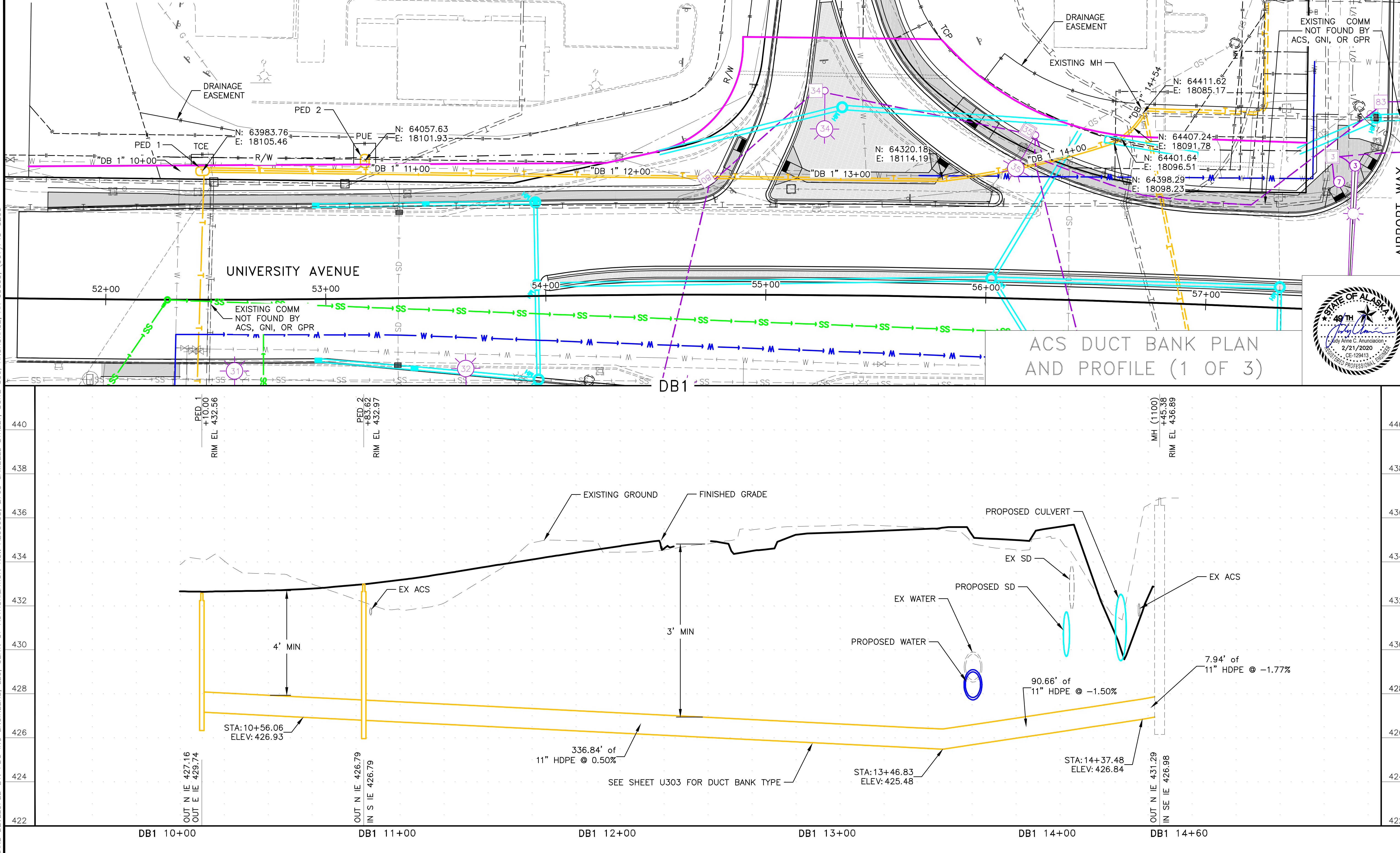
STATE OF ALASKA
49TH
Judy Anne C. Anunciacion
2/21/2020
CE-12941
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U306	U308

NOTES:
1. PROFILES ARE BASED ON PIPE CENTERLINE.
2. D.B. DIA. IS EFFECTIVE HEIGHT OF DUCT BANK CONDUIT GROUP.

ACS DUCT BANK PLAN AND PROFILE (1 OF 3)



UNIVERSITY AVENUE
AIRPORT WAY
DRAINAGE EASEMENT
PED 2
PED 1
TCE
PUE
R/W
TCP
N: 63983.76
E: 18105.46
N: 64057.63
E: 18101.93
N: 64320.18
E: 18114.19
N: 64411.62
E: 18085.17
N: 64407.24
E: 18091.78
N: 64401.64
E: 18096.51
N: 64398.29
E: 18098.23
"DB 1" 10+00
"DB 1" 11+00
"DB 1" 12+00
"DB 1" 13+00
"DB 1" 14+00
"DB 1" 14+54
EXISTING MH
EXISTING COMM NOT FOUND BY ACS, GNI, OR GPR
52+00
53+00
54+00
55+00
56+00
57+00
DB1
PED 1 +10.00 RIM EL 432.56
PED 2 +83.62 RIM EL 432.97
MH (1100) +45.38 RIM EL 436.89
EXISTING GROUND
FINISHED GRADE
PROPOSED CULVERT
EX SD
PROPOSED SD
EX WATER
PROPOSED WATER
EX ACS
4' MIN
3' MIN
STA:10+56.06
ELEV: 426.93
336.84' of
11" HDPE @ 0.50%
SEE SHEET U303 FOR DUCT BANK TYPE
STA:13+46.83
ELEV: 425.48
90.66' of
11" HDPE @ -1.50%
STA:14+37.48
ELEV: 426.84
7.94' of
11" HDPE @ -1.77%
OUT N IE 427.16
OUT E IE 429.74
OUT N IE 426.79
IN S IE 426.79
OUT N IE 431.29
IN SE IE 426.98
440
438
436
434
432
430
428
426
424
422
DB1 10+00
DB1 11+00
DB1 12+00
DB1 13+00
DB1 14+00
DB1 14+60

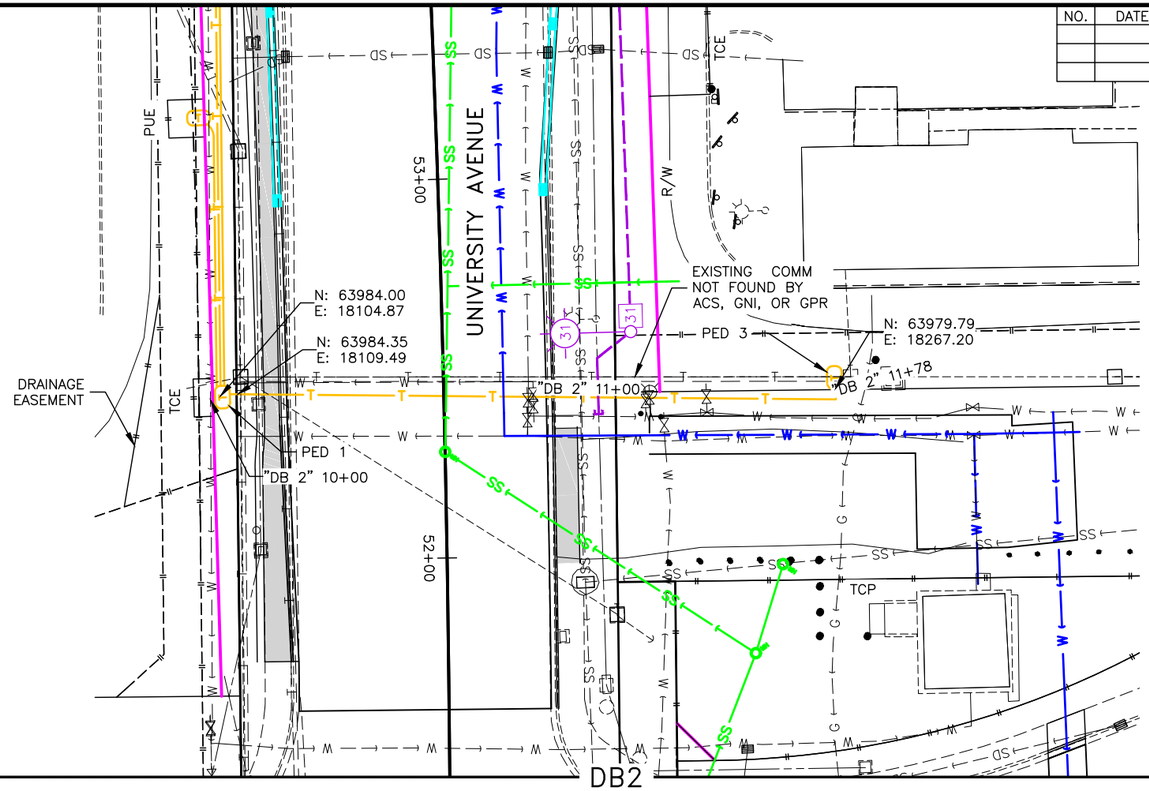
STATE OF ALASKA 49TH Judy Anne C. Anunciacion CE-129413 2/21/2020 REGISTERED PROFESSIONAL ENGINEER

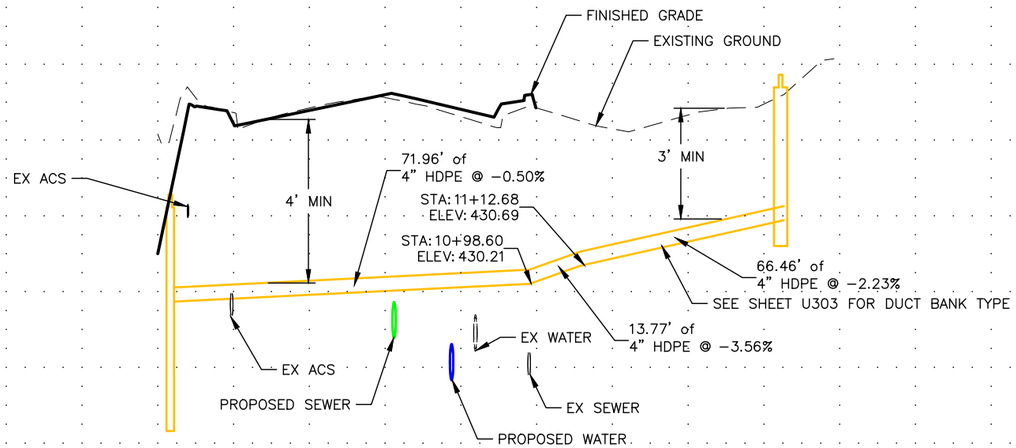
P:\2011\11147.04FB-UNIV_AVE-SEGMENT_2A\C\c2011cnst11147.04fb-U-306 Fri, Feb/21/20 09:38am
PLANS DEVELOPED BY: PDC INC ENGINEERS, LLC, CERT. OF AUTHORIZATION NO.: AECC605, 2700 GAMBELL STREET, SUITE 500, ANCHORAGE, AK 99503, (907)743-3200

NOTES:

1. PROFILES ARE BASED ON PIPE CENTERLINE.
2. D.B. DIA. IS EFFECTIVE HEIGHT OF DUCT BANK CONDUIT GROUP.

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U307	U308





ACS DUCT BANK PLAN AND PROFILE (2 OF 3)

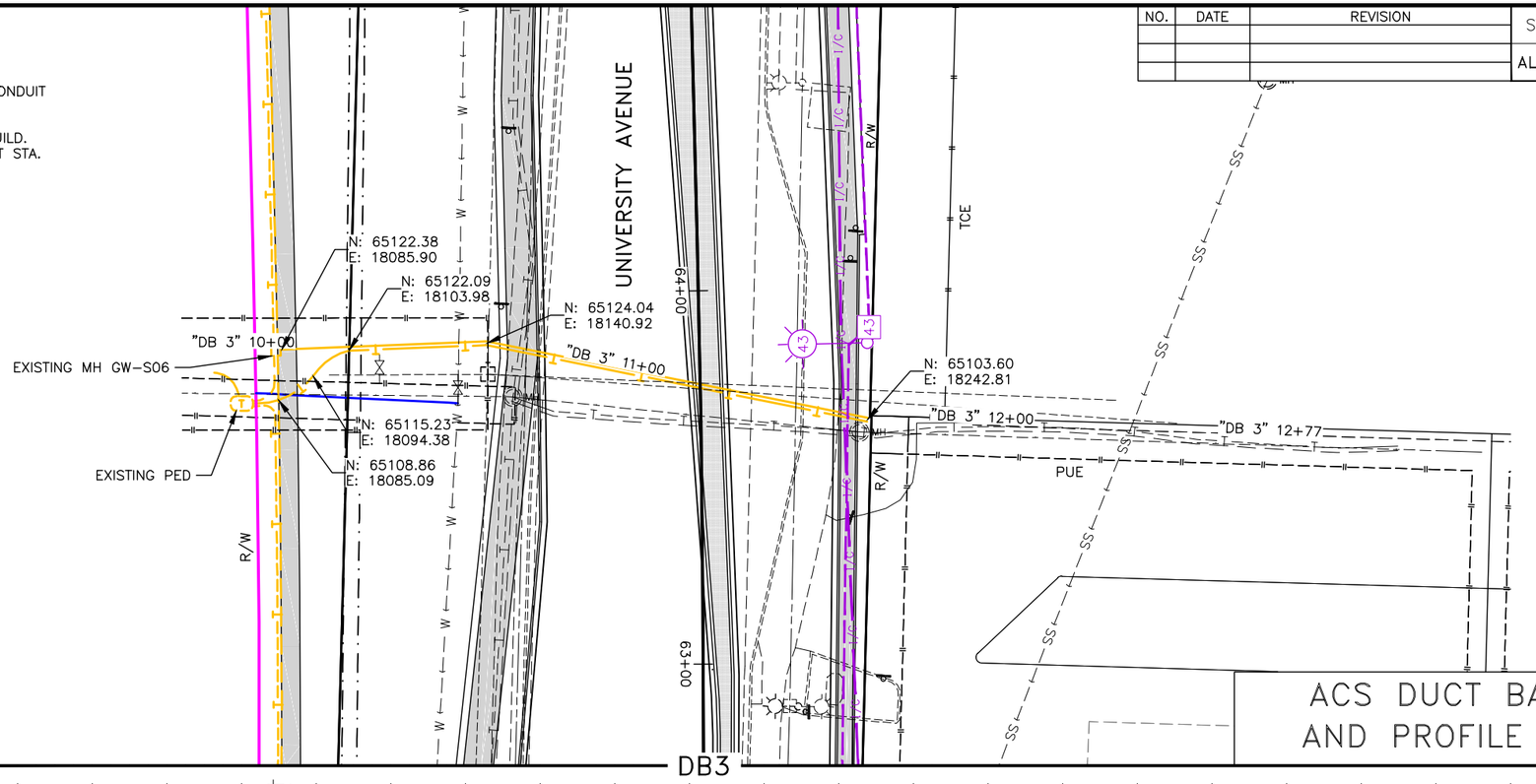
STATE OF ALASKA
49TH
Judy Anne C. Anunciacion
2/21/2020
CE-129413
REGISTERED PROFESSIONAL ENGINEER

NOTES:

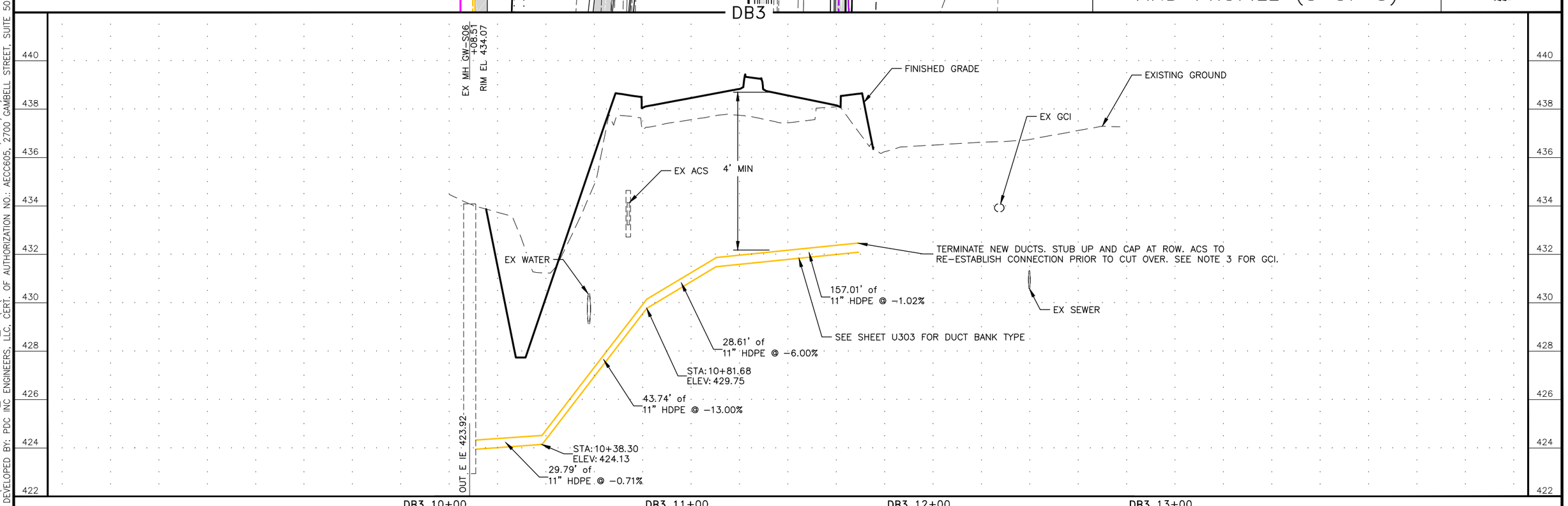
1. PROFILES ARE BASED ON PIPE CENTERLINE.
2. D.B. DIA. IS EFFECTIVE HEIGHT OF DUCT BANK CONDUIT GROUP.
3. STUB UP AND CAP GCI CONDUIT FOR FUTURE BUILD. CONDUIT TO BEGIN ADJACENT TO POWER POLE AT STA. 63+59. TERMINATE NEW DUCT AT ROW. GCI TO RE-ESTABLISH CONNECTION PRIOR TO CUT OVER.

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U308	U308



DB3



ACS DUCT BANK PLAN AND PROFILE (3 OF 3)

STATE OF ALASKA
49TH
Judy Anne C. Anunciacion
2/21/2020
CE-12941
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	U400	U404

ABBREVIATIONS

A	AMPERES
AC	ALTERNATING CURRENT
ACS	ALASKA COMMUNICATION SYSTEM
AIC	AMPS INTERRUPTING CAPACITY
AL	ALUMINUM
AK	ALASKA
AMP	AMPERES
ANC	ANCHOR
ARRC	ALASKA RAILROAD CORPORATION
ASMBLY	ASSEMBLY
AT	AMP TRIP
AWG	AMERICAN WIRE GUAGE
BCU	BARE COPPER WIRE
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CU	COPPER
CUC	COLLEGE UTILITIES CORPORATION
DEG	DEGREE
DIA	DIAMETER
DISC	DISCONNECT
DNR	DEPARTMENT OF NATURAL RESOURCES
DOT	DEPARTMENT OF TRANSPORTATION
EA	EACH
EGC	EQUIPMENT GROUNDING CONDUCTOR
EMT	ELECTRICAL METALLIC TUBING
FLA	FULL LOAD AMPS
FT	FEET
FU	FUSE
GCI	GENERAL COMMUNICATION INC
GEC	GROUNDING ELECTRODE CONDUCTOR
GHU	GOLDEN HEART UTILITIES
GND	GROUND OR GROUNDED
GVEA	GOLDEN VALLEY ELECTRIC ASSOCIATION
HBH	HEADBOLT HEATER
ID	IDENTIFICATION
KVA	KILOVOLT AMPERES
LBS	POUNDS
LT	LEFT
LV	LOW VOLTAGE
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
N	NEUTRAL, NORTH
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE; NFPA 70
NESC	NATIONAL ELECTRICAL SAFETY CODE
NTS	NOT TO SCALE
OH	OVERHEAD
P	POLE
PE	POLYETHYLENE
PH	PHASE
PRI	PRIMARY
QTY	QUANTITY
RMC	RIGID METAL CONDUIT (HOT-DIPPED GALVANIZED)
RMS	ROOT MEAN SQUARED
REQ'D	REQUIRED
RSD	RESIDENTIAL
RT	RIGHT
SEC	SECONDARY
SPEC	SPECIFICATION
SVC	SERVICE
SVD	SERVICE DISCONNECT
TEL	TELEPHONE
TYP	TYPICAL
UAF	UNIVERSITY OF ALASKA FAIRBANKS
UG	UNDERGROUND
V	VOLTS
VA	VOLT AMPERES
W	WATT, WEST or WIRE
WH	WATTHOUR
XFMR	TRANSFORMER
#	NUMBER

NOT ALL ABBREVIATIONS ARE USED

SYMBOLS - DASHED INDICATES DEMO OR SALVAGE

	POWER POLE LINE
	JOINT USE POWER & TELEPHONE
	STUB POLE (POWER OR TELEPHONE)
	TELEPHONE PEDESTAL
	SIGNAL CONTROLLER
	LOAD CENTER
	ELECTRICAL SERVICE
	LUMINAIRE

WORK DESIGNATIONS

	GVEA
	PROJECT ELECTRICAL CONTRACTOR
	EXISTING EQUIPMENT

LINETYPES

DEMO OR SALVAGE	PROPOSED	
——— – – ———OHE———	———OHE———	ELECTRICAL LINE (OVERHEAD)
——— — — — —UGE———	———UGE———	ELECTRICAL LINE (UNDERGROUND)

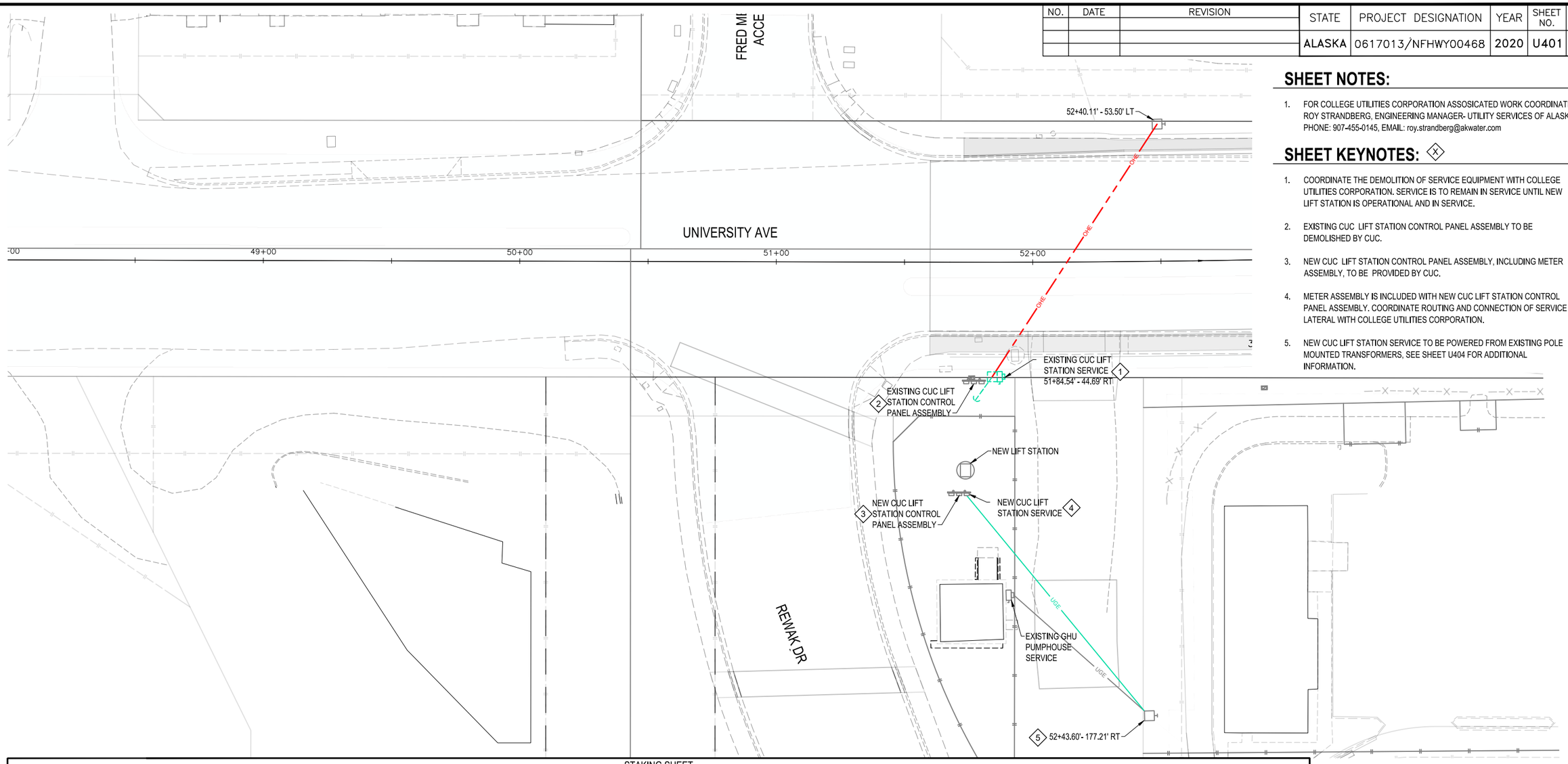
GENERAL ELECTRICAL NOTES:

1. COMPLY WITH NFPA 70, NATIONAL ELECTRICAL CODE 2017 EDITION; NECA 1, STANDARD FOR GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION; AND NATIONAL ELECTRICAL SAFETY CODE 2012 EDITION.
2. ELECTRICAL COMPONENTS, DEVICES, ASSEMBLIES, AND ACCESSORIES ARE REQUIRED TO BE LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AND MARKED FOR INTENDED USE.
3. DRAWINGS SHOW THE GENERAL LOCATIONS OF THE ELECTRICAL FEATURES ONLY, UNLESS OTHERWISE INDICATED. MAKE MINOR RELOCATIONS AS REQUIRED FOR PROJECT CONDITIONS WHEN NECESSARY TO PRESENT SYMMETRICAL APPEARANCE OR TO AVOID INTERFERENCE WITH OTHER INSTALLATIONS.
4. ALL DETAILS/ASSEMBLIES INDICATED IN STAKING SHEETS REFERENCES GVEA STANDARD DETAILS, RUS BULLETIN 1728F-804, 2005 "SPECIFICATIONS AND DRAWINGS FOR 12.47KV LINE CONSTRUCTION" AND RUS BULLETIN 1728F-806, 2000 "SPECIFICATIONS AND DRAWINGS FOR UNDERGROUND ELECTRIC DISTRIBUTION", GVEA STANDARD DETAILS TAKE PRECEDENCE OVER RUS DEATILS, MODIFICATIONS TO RUS DETAILS/ASSEMBLIES ARE LOCATED IN THE DETAIL SECTION OF THIS PROJECT'S DESIGN AND ARE DESIGNATED WITH AN "XX" AFTER THE STANDARD RUS DETAILS/ASSEMBLIES DESIGNATION.
5. WORK INDICATED IN DRAWINGS IS LIMITED TO SECONDARY DISTRIBUTION.
6. COORDINATE ELECTRICAL SERVICE WORK AND SERVICE OUTAGES WITH OWNERS. TO MINIMIZE ELECTRICAL OUTAGES, SERVICE WORK SHALL BE PERFORMED TO THE FULLEST EXTENT POSSIBLE BEFORE DE-ENERGIZING SERVICE.
7. ALL NEW SECONDARY OVERHEAD SERVICE DROPS ARE TO BE SLACK SPANS.

STATE OF ALASKA 49TH
Michael Gonzales-Smith
Feb 07, 2020
EE-141832
REGISTERED PROFESSIONAL ENGINEER

ELECTRICAL DETAIL

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U401	U404



SHEET NOTES:

1. FOR COLLEGE UTILITIES CORPORATION ASSOSICATED WORK COORDINATE WITH ROY STRANDBERG, ENGINEERING MANAGER- UTILITY SERVICES OF ALASKA: PHONE: 907-455-0145, EMAIL: roy.strandberg@akwater.com

SHEET KEYNOTES: ⟨X⟩

1. COORDINATE THE DEMOLITION OF SERVICE EQUIPMENT WITH COLLEGE UTILITIES CORPORATION. SERVICE IS TO REMAIN IN SERVICE UNTIL NEW LIFT STATION IS OPERATIONAL AND IN SERVICE.
2. EXISTING CUC LIFT STATION CONTROL PANEL ASSEMBLY TO BE DEMOLISHED BY CUC.
3. NEW CUC LIFT STATION CONTROL PANEL ASSEMBLY, INCLUDING METER ASSEMBLY, TO BE PROVIDED BY CUC.
4. METER ASSEMBLY IS INCLUDED WITH NEW CUC LIFT STATION CONTROL PANEL ASSEMBLY. COORDINATE ROUTING AND CONNECTION OF SERVICE LATERAL WITH COLLEGE UTILITIES CORPORATION.
5. NEW CUC LIFT STATION SERVICE TO BE POWERED FROM EXISTING POLE MOUNTED TRANSFORMERS, SEE SHEET U404 FOR ADDITIONAL INFORMATION.

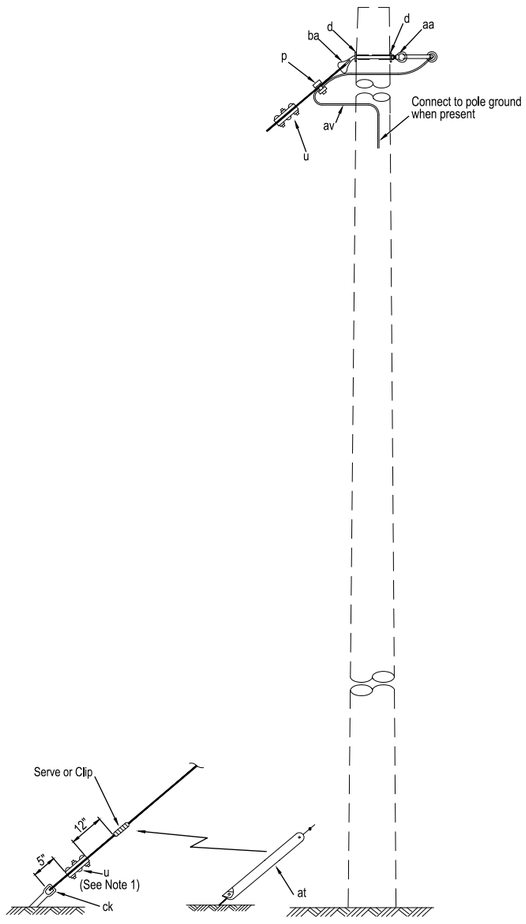
STAKING SHEET

ID #	EXIST RETIRE ADD SALVAGE NEW	POLE								Underground			SECONDARY					GUY & ANCHOR								Misc. Parts				Remarks
		Back Span (Ft)	From Pole	To Pole	Line Angle		Poles			Qty.	Asmbly	FT	Qty.	Asmbly	Conductor			# of guy anc.	No.	Guy Unit 'E'	Min. Lead or Span (Ft)	Lead N-pos (Ft)	Guy Strand		Anchor Unit 'F'	Qty	Description	Qty	Description	
					Deg.	Dir.	Height (Ft)	Class	Burial Depth (Ft)						#	AWG	Type						Dia. (in)	Grade						
52+40.11'-53.50'LT	RETIRE												1	J3.1B																
EXISTING CUC LIFT STAION SERVICE	RETIRE	118	52+40.11'-53.50'LT										1	J3.1B	1	#2	QUADRUPLEX	1	1	E1.1XX			-	-	F3.10					
" "	RETIRE						35	-	-				1	Q2.1XX												1	CONDUIT RISER	1	SVC ASSEMBLY	EXISTING METER NO. 324788
52+43.60'-177.21'RT	EXIST												1	UM5XX	-	-														
EXISTING GHU PUMPHOUSE SERVICE	EXIST	91	52+43.60'-177.21'RT										1	UR2XX	-	-												1	SVC ASSEMBLY	EXISTING METER NO. 324427
52+43.60'-177.21'RT	NEW																									1	2" RMC CONDUIT RISER			ATTACH NEW RISER TO EXISTING UTILITY POLE AND EXISTING STANDOFF BRACKET, COORDINATE WORK WITH GVEA.
NEW CUC LIFT STAION SERVICE	NEW	109	52+43.60'-177.21'RT										1	UR2XX	4	#2	XHHW									1	2" RMC CONDUIT			

STATE OF ALASKA
49 TH
Michael Gonzales-Smith
Feb 07, 2020
EE-141832
REGISTERED PROFESSIONAL ENGINEER

ELECTRICAL SECONDARY RELOCATION PLANS

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U402	U404



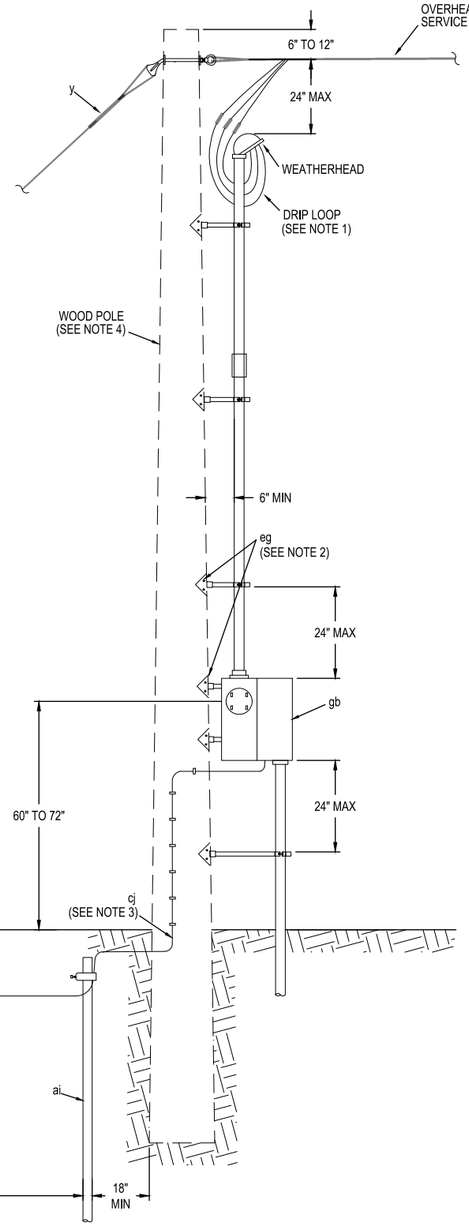
ITEM	QTY	MATERIAL
c	1	BOLT, MACHINE, 5/8" x REQ'D LENGTH
d	2	WASHER, 3" SQUARE, CURVED
p		CONNECTORS, GUY BOND AND AS REQ'D
u	2	DEADEND FOR GUY STRAND (SEE NOTE 1)
ba	1	ANGLE THIMBLE EYEBOLT
y		GUY WIRE AS REQ'D (SEE NOTE 3)
at	1	GUY MARKER
av		JUMPERS, AS REQ'D
ck	1	CLAMP, ANCHOR BONDING
aa	1	GALVANIZED OVAL EYENUT

NOTES:

1. OTHER ACCEPTED AND EQUIVALENT GUY DEADEND (ITEM "u") MATERIAL MAY BE SUBSTITUTED FOR THE ONES SHOWN.
2. SOME TYPES OF GUY ATTACHMENTS USE 2 BOLTS AND WASHER OR LAG SCREW (ITEM "j"), CHANGE MATERIALS ACCORDINGLY.
3. SPECIFY GUY WIRE SIZE, TYPE AND REQUIRED LENGTH.

1 / U402 E1.1XX: SINGLE DOWN GUY

SCALE: NTS



ITEM	QTY	MATERIAL
y	1	DOWN GUY
eg		STANDOFF BRACKET & CONDUIT SUPPORT, QTY AS REQ'D
gb	1	SERVICE ASSEMBLY
cj	1	GROUNDING ELECTRODE CONDUCTOR
ai	1	GROUNDING ELECTRODE, 3/4" x 10' COPPER CLAD

NOTES:

1. PROVIDE DRIP LOOP TO MINIMIZE MOISTURE INTO SERVICE RISER. PROVIDE A MINIMUM VERTICAL DISTANCE OF 6 INCHES FROM THE WEATHERHEAD TO THE BOTTOM OF DRIP LOOP.
2. THE INITIAL SECTION OF STRAIGHT RISER CONDUIT SHALL HAVE TWO STAND-OFF BRACKETS, SUBSEQUENT SECTIONS REQUIRE ONLY ONE BRACKET. BOTTOM-MOST BRACKET SHALL BE 8 FEET MINIMUM ABOVE FINISHED GRADE PER NESC 217.A.2.C.
3. STAPLE GROUNDING ELECTRODE CONDUCTOR EVERY 6 INCHES. STAPLES SHALL BE COPPER CLAD.
4. POLE BASE BELOW GRADE TO BE WRAPPED WITH THREE LAPS OF POLYETHYLENE SHEETING TO RESIST FROST JACKING.

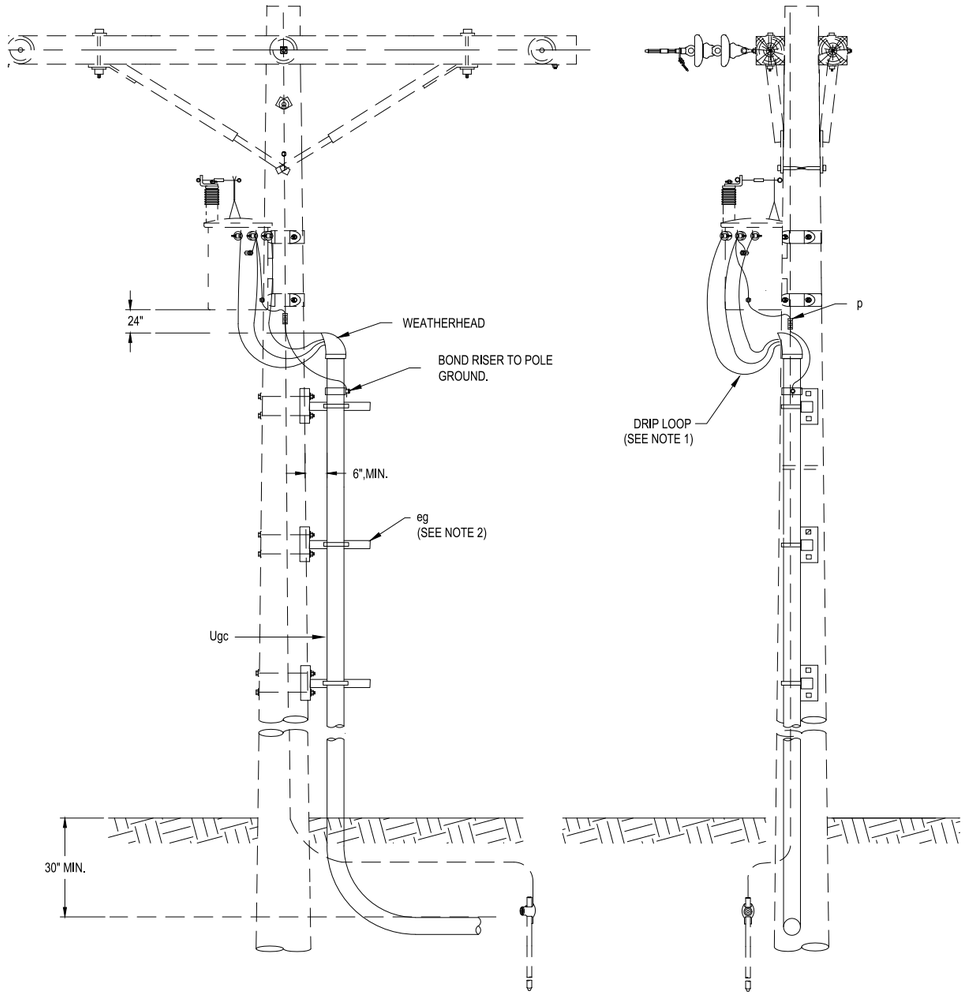
2 / U402 Q2.1XX: POLE TYPE SERVICE ASSEMBLY

SCALE: NTS

ELECTRICAL DETAILS

STATE OF ALASKA 49TH
Michael Gonzales-Smith
Feb 07, 2020
EE-141832
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U403	U404



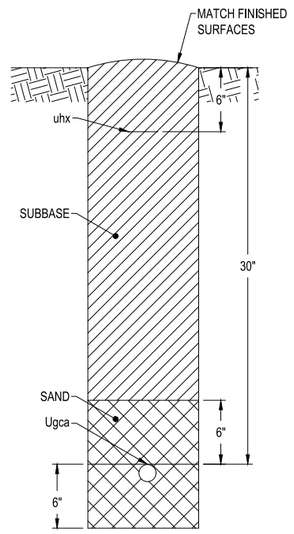
ITEM	QTY	MATERIAL
p		CONNECTORS, AS REQ'D
Ugc		RMC RISER, DIAMETER AND LENGTH AS REQ'D
eg		STANDOFF BRACKET & CONDUIT SUPPORT, QTY AS REQ'D

NOTES:

1. PROVIDE DRIP LOOP TO MINIMIZE MOISTURE INTO SERVICE RISER. PROVIDE A MINIMUM VERTICAL DISTANCE OF 6 INCHES FROM THE WEATHERHEAD TO THE BOTTOM OF DRIP LOOP.
2. STANDOFF TO BE A MINIMUM 15 INCHES. PROVIDE ONE MINIMUM PER SECTION OF CONDUIT.

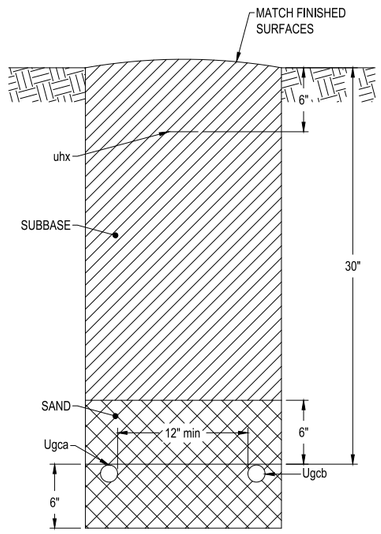
1 / U403 UM5XX: SECONDARY CABLE TERMINAL POLE

SCALE: NTS



UR2

TRENCHING UNIT
ONE CONDUIT



UR2-1

TRENCHING UNIT
POWER AND TELEPHONE CCONDUIT

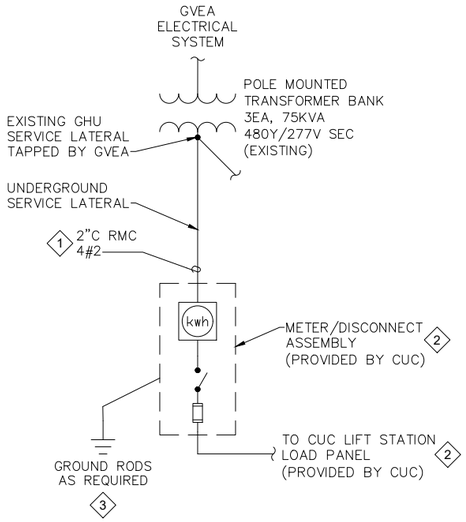
ITEM	QTY	MATERIAL
uhx		MARKER TAPE
Ugca		POWER CONDUIT, DIAMETER AND LENGTH REQ'D
Ugcb		TELECOM CONDUIT, DIAMETER AND LENGTH REQ'D

2 / U403 UR2XX: TRENCHES FOR CONDUITS

SCALE: NTS

ELECTRICAL DETAILS

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	U404	U404



1 / U404 NEW CUC LIFT STATION ONE-LINE DIAGRAM

SCALE: NTS

SHEET KEYNOTES: ⟨X⟩

1. SERVICE LATERAL CONDUCTOR SIZED ACCORDING TO NEC LOAD CALCULATION SUPPLIED BY CUC, CONTACT CUC FOR ADDITIONAL INFORMATION.
2. EQUIPMENT LOCATED ON "NEW CUC LIFT STATION CONTROL PANEL ASSEMBLY", SEE SHEET U401 ADDITIONAL INFORMATION.
3. GROUNDING ELECTRODE SYSTEM PROVIDED BY CUC.

ELECTRICAL
ONE-LINE DIAGRAM

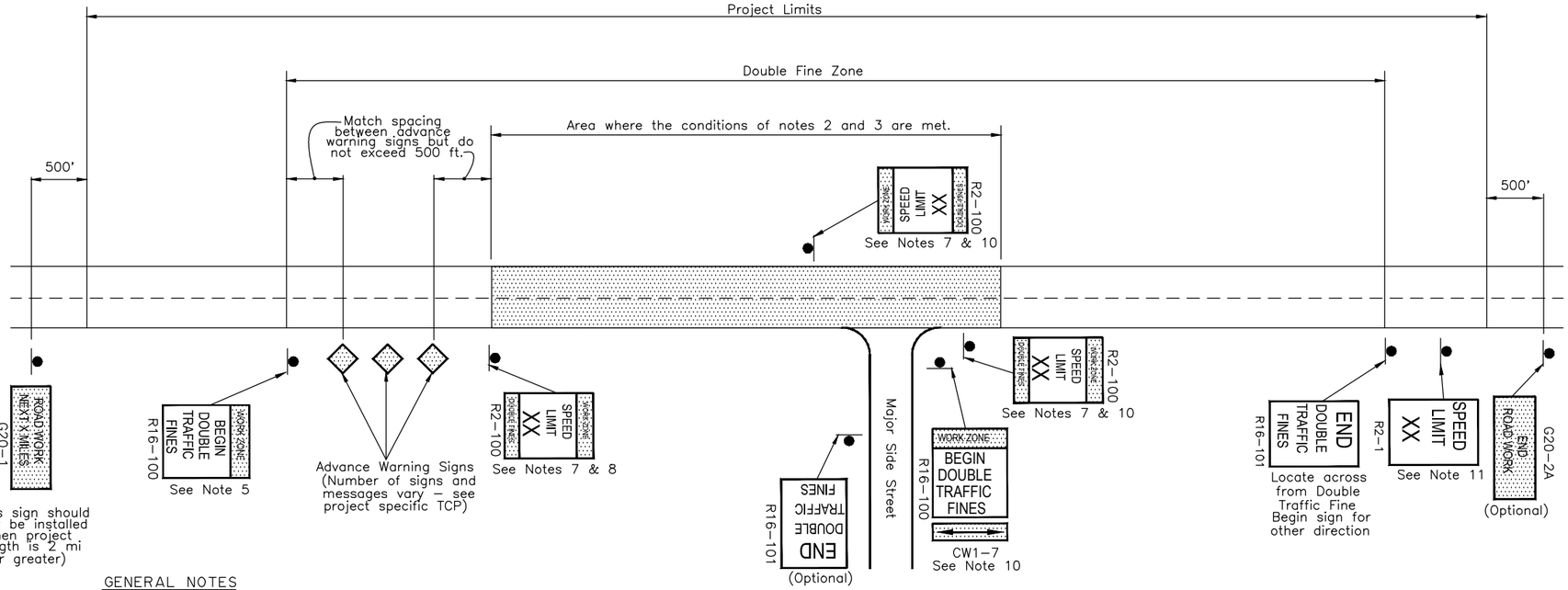
STATE OF ALASKA
49 TH
Michael Gonzalez-Smith
Feb 07, 2020
EE-141832
REGISTERED PROFESSIONAL ENGINEER

(Brian Lewis) KE#: 00245
Feb 7, 2020 - 4:47:41 PM
FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_V_C-04.12.DWG PLOTTED: Feb 7, 2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	V1	V37

C-04.12

SHEET 1 of 1



GENERAL NOTES

1. Signs are shown for one direction only (with one exception). Signs for the other direction mirror those shown.
2. Double fine signs shall be used only where one or more of the following conditions exist:
   a. Active work areas (where road workers and/or machines are presently working on or adjacent to a road)
   b. Detours on new temporary roads built for that purpose (this does not include detours on existing streets)
   c. Sections of paved roads where pavement has been removed.
   d. Roads being paved where unmatched asphalt lifts result in a vertical lip between lanes.
3. Double fine signs shall be confined to the areas where the above conditions exist, with the following exceptions:
   a. If the project is 2 miles or shorter in length, the entire project may be posted for double fines when the above conditions exist on any part of the project.
   b. When the above conditions exist at multiple locations separated by less than 2 miles, the locations and the intervening segments may be posted as a single double fine zone.
4. Double fine signs shall be removed or covered when work activity ceases for more than two days and conditions b, c, or d of note 2 are not met.
5. The R16-100 "BEGIN" sign may be used in place of the first advance warning sign. However, when this is done, the appropriate advance warning sign must be reinstalled when the double fine sign is taken down or covered.
6. When a double fine zone is longer than 2 miles, work zone speed limit signs shall be posted at spacings not greater than 2 miles within the double fine zone.
7. "Work zone speed limit signs", as used here, refer either to 1) R2-100 signs or 2) standard R2-1 regulatory speed limit signs with CW20-102 "DOUBLE FINES" plates mounted below.
8. The limit shown on work zone speed limit signs shall be either the existing limit before construction or, if a work zone speed limit order has been approved in accordance with ADOT&PF Procedure 05.05.020 PDR, a reduced limit.
9. All existing regulatory speed limit signs within double fine zones shall either be replaced with R2-100 signs or supplemented with CW20-102 plates.
10. Signs shall be installed at major intersections within the double fine zone to warn entering drivers of double fines. This may be done with a R16-100 sign with a CWI-7 arrow panel on the side street or with two work zone speed limit signs on the main street on either side of the intersection. Use of R16-100 signs on side streets eliminates the need for "Road Work Ahead" signs on those streets. If the speed limit has been reduced, the two work zone speed limit signs are mandatory.
11. At the end of each double fine zone, install an R2-1 sign showing the speed limit for the road beyond the double fine zone.

REVISIONS		
Date	Description	By
6/11/99	Revised Notes	KJS
2/28/03	Rev. Notes & Sign No's	KJS

State of Alaska
Department of Transportation
& Public Facilities

LOCATION OF DOUBLE TRAFFIC FINE SIGNS

C-04.12

STANDARD DRAWING
C-04.12

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

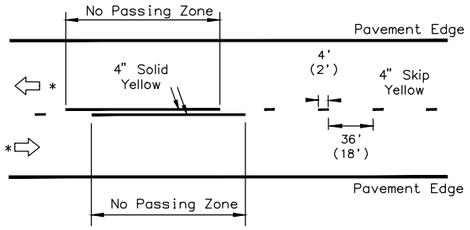
(Brian Lewis) KE#: 00245

Feb 7, 2020 - 4:47:46 PM

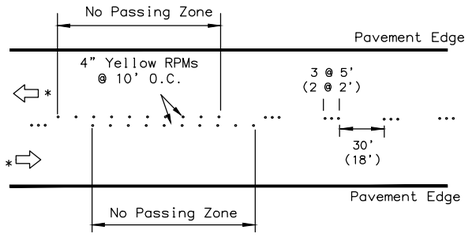
FILE: Z:\PROJECTS\00245_UNIV_AVE\PHASE_2_PHASE_2-SEG-2A\DWGS\C\SHEETS\63213_V_C-05.20.DWG PLOTTED:

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	V2	V37

C-05.20



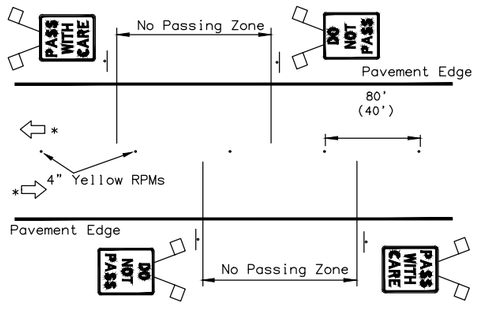
Striping



Temporary Raised Pavement Markers

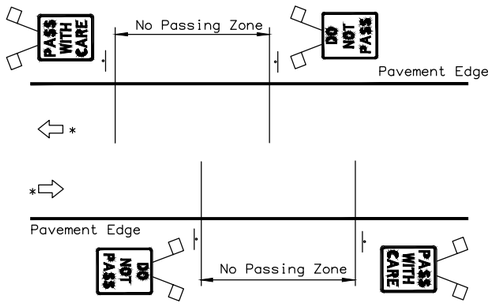
DETAIL A

Two-lane road: No Passing Zones indicated with pavement markings.



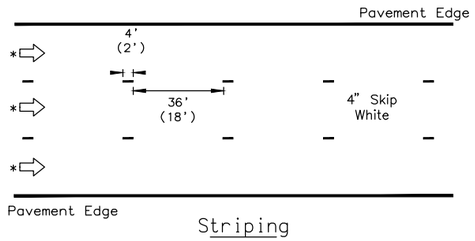
DETAIL B

Two-lane road: No Passing Zones indicated by signs only. Raised pavement markers for centerline delineation.

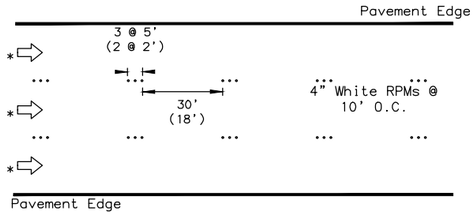


DETAIL C

Two-lane road: No Passing Zones indicated by signs only (see Note 2c). No centerline delineation.



Striping



Temporary Raised Pavement Markers

DETAIL D

Multilane one-way road: Lane dividing lines

* Direction of Travel

GENERAL NOTES:

1. Final pavement markings conforming to Part 3 of the Alaska Traffic Manual should be installed before paved roads are open to public travel. If that is not practical, install interim pavement markings as shown on this drawing. Maintain interim pavement markings until final pavement markings are installed.

2. No interim pavement markings are required:
   a. on projects that will not have permanent markings when finished.
   b. in work zones that are open to public travel for no more than one work shift during daytime or for no more than one hour at night.
   c. where DO NOT PASS and PASS WITH CARE signs are installed on two lane roads as shown in Detail C, no pavement markings are required:
      1) for 3 days if seasonal ADT is above 2000, or
      2) for 1 month if seasonal ADT is below 2000.

3. Interim pavement markings should not be in place longer than 14 calendar days before being replaced with permanent markings conforming to Part 3 of the Alaska Traffic Manual unless the Engineer provides written approval.

4. Where R4-1 DO NOT PASS signs are used, install at the beginning of no passing zones and at no more than 1500' spacings within no passing zones.

5. Install high level warning devices on all DO NOT PASS and PASS WITH CARE signs.

6. Offset temporary markings 8"-12" from the future location of permanent markings if applied on the same lift of pavement.

7. Dimensions in parenthesis apply to curves with a radius of 1000 feet or less or where posted speed limit is 30 mph or less.

REVISIONS		
Date	Description	By
4/28/10	RPM spacing, signs	KJS

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

INTERIM
PAVEMENT MARKINGS

C-05.20

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

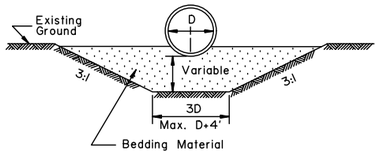
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STANDARD DRAWING
C-05.20

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V3	V38

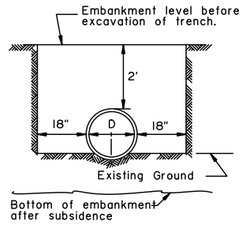
D-01.02

SHEET | of |

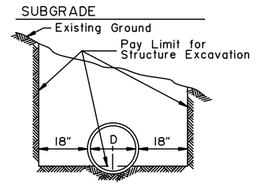


TYPE "A"
FOUNDATION STABILIZATION

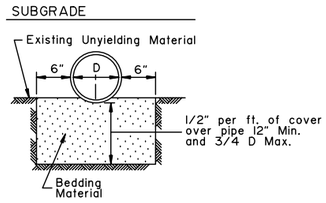
To be used in unstable areas as directed by the Engineer.



TYPE "B"



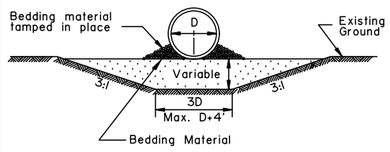
TYPE "C"



TYPE "D"
ROCK OR UNYIELDING MATERIAL

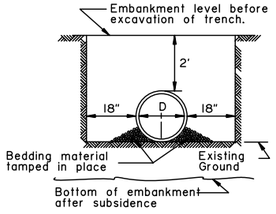
GENERAL NOTES:

1. Sidefill shall be placed and compacted with care under haunches of pipe and shall be brought up evenly and simultaneously on both sides of pipe to 1 foot above the top of the full length of the pipe.
2. Alternate installation methods may only be used when specified or approved by the Engineer.

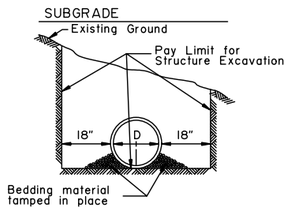


'ALTERNATE'
TYPE "A"
FOUNDATION STABILIZATION

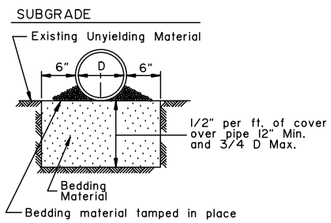
To be used in unstable areas as directed by the Engineer.



'ALTERNATE'
TYPE "B"

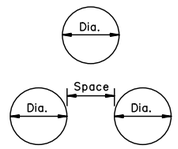


'ALTERNATE'
TYPE "C"



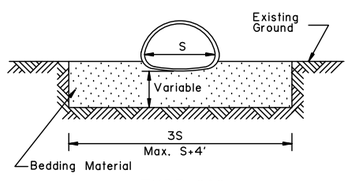
'ALTERNATE' TYPE "D"
ROCK OR UNYIELDING MATERIAL

D = Nominal Pipe Diameter



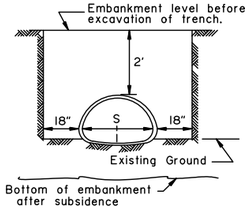
MULTIPLE INSTALLATIONS	
Dia.	Minimum Space Between Pipes
0" - 42"	24"
48" & Over	1/2 Dia. of pipe or 3', whichever is less.

CULVERT PIPE

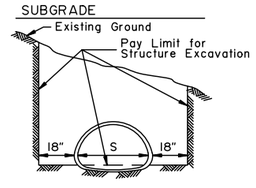


TYPE "A"
FOUNDATION STABILIZATION

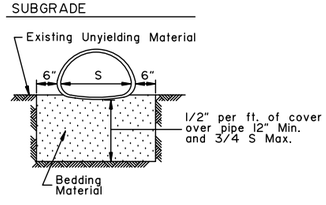
To be used in unstable areas as directed by the Engineer.



TYPE "B"

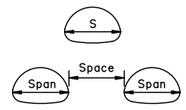


TYPE "C"



TYPE "D"
ROCK OR UNYIELDING MATERIAL

S = Nominal Pipe Arch Span



MULTIPLE INSTALLATIONS	
Dia.	Minimum Space Between Pipes
0" - 42"	24"
48" & Over	1/2 Span of pipe arch or 3', whichever is less.

ARCH

REVISIONS		
Date	Description	By
12/1/87	Delete ref. to Specs.	Gdo
4/1/93	Delete All. Arch	Gdo

State of Alaska
Department of Transportation
& Public Facilities

CULVERT PIPE & ARCH INSTALLATION DETAILS

D-01.02

STANDARD DRAWING
D-01.02

STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V4	V38

D-04.21

GENERAL NOTES:

1. All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
2. The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
3. No more than one type of pipe may be used on any single installation or installation grouping.
4. All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
5. See Standard Drawing "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
6. Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the top of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflecton.
7. These tables have been developed for an H-20 live load and for compacted soil weighing 120 lbs. per cubic foot or less. If compacted soil cover exceeds 120 lbs. per cubic foot, the contractor shall use the depth of cover shown in the plans for the specific pipe. Where compacted soil cover exceeds 120 lbs. per cubic foot and no specific cover requirements are provided in the plans, the contractor shall determine the required minimum pipe cover in accordance with Section 12 of the 2000 AASHTO "LRFD Bridge Design Specifications".

CORRUGATED CIRCULAR ALUMINUM PIPE

Minimum & Maximum Cover For 2 2/3" x 1/2" Aluminum Pipe

GAGE	0.060"		0.075"		0.105"		0.135"		0.164"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
12	12	100+	12	100+	12	100+	12	100+	12	100+
15	12	94	12	100+	12	100+	12	100+	12	100+
18	12	75	12	94	12	100+	12	100+	12	100+
21	12	65	12	82	12	100+	12	100+	12	100+
24	12	56	12	71	12	99	12	100+	12	100+
27	12	48	12	63	12	89	12	100+	12	100+
30			12	56	12	79	12	100+	12	100+
36			12	47	12	66	12	85	12	100+
42			12	55	12	56	12	73	12	100+
48			12	47	12	49	12	63	12	78
54					15	43	15	56	15	69
60							15	50	15	62
66							18	44	18	56
72									18	45

Minimum & Maximum Cover For 3" x 1" Aluminum Pipe

GAGE	0.060"		0.075"		0.105"		0.135"		0.164"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
30	12	52	12	65						
36	12	43	12	54	12	100+	12	100+	12	100+
42	12	36	12	46	12	65	12	100+	12	100+
48	12	32	12	40	12	57	12	73	12	100+
54	15	28	15	35	15	50	12	65	12	100+
60	15	25	15	32	15	45	15	58	15	72
66	18	23	18	28	18	41	18	53	18	65
72	18	21	18	26	18	37	18	48	18	59
78			21	24	21	34	21	44	21	55
84					21	31	21	41	21	57
90					24	29	24	38	21	47
96					24	27	24	36	24	44
102							24	33	24	41
108							24	31	24	39
114									24	37
120									24	35

Minimum & Maximum Cover For 9" x 2 1/2" Aluminum Structural Plate Pipe*

GAGE	0.100"		0.125"		0.150"		0.175"		0.200"		0.225"		0.250"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
60	12	29 31	12	38 45	12	49 60	12	58 70	12	58 81	12	58 92	12	58 100+
66	12	26 28	12	35 41	12	44 54	12	53 64	12	53 74	12	53 84	12	53 94
72	13	24 25	12	32 37	12	41 50	12	48 58	12	48 67	12	48 77	12	48 86
78	14	22 23	12	29 35	12	37 46	12	45 54	12	45 62	12	45 71	12	45 79
84	15	20 22	13	27 32	12	35 42	12	41 50	12	41 58	12	41 66	12	41 73
90	16	19 20	14	25 30	13	32 40	12	39 47	12	39 54	12	39 61	12	39 68
96	17	18 19	15	24 28	14	30 37	13	36 44	12	36 50	12	36 57	12	36 64
102	18	17 18	16	22 26	15	29 35	14	34 41	13	34 47	13	34 54	13	34 60
108	19	16 17	17	21 25	16	27 33	14	32 39	14	32 45	14	32 51	14	32 57
114	20	15 16	18	20 23	16	25 31	15	30 37	15	30 42	15	30 48	15	30 54
120	21	14 15	19	19 22	17	24 30	16	29 35	15	29 40	15	29 46	15	29 51
126	22	13 14	20	18 21	18	23 28	17	27 33	16	27 38	16	27 44	16	27 49
132	23	13 14	21	17 20	19	22 27	18	26 32	17	26 37	17	26 42	17	26 47
138	24	12 13	22	16 19	20	21 26	18	25 30	18	25 35	18	25 40	18	25 44
144	25	12 12	22	16 18	21	20 25	19	24 29	18	24 33	18	24 38	18	24 43
150			23	15 18	21	19 24	20	23 28	19	23 32	19	23 36	19	23 41
156			24	14 17	22	18 23	21	22 27	20	22 31	20	22 35	20	22 39
162					23	18 22	21	21 26	21	21 30	21	21 34	21	21 38
168					24	17 21	22	20 25	21	20 29	21	20 33	21	20 36
174					25	17 20	23	20 24	22	20 28	22	20 31	22	20 35
180							24	19 23	23	19 27	23	19 30	23	19 34

*Longitudinal seams use (5 1/3) 3/4" dia. bolts per foot.

58
100+

Upper figure for pipe with aluminum bolts.
(FOR TABLE ABOVE ONLY.)
Lower figure for pipe with galvanized steel bolts.

CORRUGATED ALUMINUM PIPE-ARCH

Minimum & Maximum Cover For 2 2/3" x 1/2" Aluminum Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft) 2 Tons Corner Bearing Pressure	Max. Cover (Ft) 3 Tons Corner Bearing Pressure ⊘
17 x 13	3	0.060	12	13	20
21 x 15	3	0.060	12	12	19
24 x 18	3	0.060	12	11	16
28 x 20	3	0.075	12	10	16
35 x 24	3	0.075	12	9	14
42 x 29	3 1/2	0.105	12	7	13
49 x 33	4	0.105	15	6	12
57 x 38	5	0.135	15	6	12
64 x 43	6	0.135	18	6	12
71 x 47	7	0.164	18	6	12

Minimum & Maximum Cover For 3" x 1" Aluminum Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft) 2 Tons Corner Bearing Pressure	Max. Cover (Ft) 3 Tons Corner Bearing Pressure ⊘
40 x 31	5	0.075	30	8	12
46 x 36	6	0.075	24	8	13
53 x 41	7	0.075	24	8	13
60 x 46	8	0.075	24	13	20
66 x 51	9	0.075	18	13	20
73 x 55	12	0.075	18	16	24
81 x 59	14	0.105	18	14	22
87 x 63	14	0.105	18	13	20
95 x 67	16	0.105	18	12	18
103 x 71	16	0.135	24	11	17
112 x 75	18	0.164	24	10	16
117 x 79	18	0.164	24	10	15

Minimum & Maximum Cover For 9" x 2Ð " Aluminum Structural Plate Pipe-Arch*

Span x Rise (Ft-In x Ft-In)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (ft)	Max. Cover in Feet For Soil Bearing Capacity of: 2 Tons/ft²	3 Tons/ft²
5 - 11 x 5 - 5	31.8	0.100	2	24**	24**
6 - 11 x 5 - 9	31.8	0.100	2	22**	22**
7 - 3 x 5 - 11	31.8	0.100	2	20**	20**
7 - 9 x 6 - 0	31.8	0.100	2	28**	18**
8 - 5 x 6 - 3	31.8	0.100	2	17**	17**
9 - 3 x 6 - 5	31.8	0.100	2	15**	15**
10 - 3 x 6 - 9	31.8	0.100	2	14**	14**
10 - 9 x 6 - 10	31.8	0.100	2	13**	13**
11 - 5 x 7 - 1	31.8	0.100	2	12**	12**
12 - 7 x 7 - 5	31.8	0.125	2	14	16**
12 - 11 x 7 - 6	31.8	0.150	2	13	14**
13 - 1 x 8 - 2	31.8	0.150	2	13	18**
13 - 11 x 8 - 5	31.8	0.150	2	12	17**
14 - 8 x 9 - 8	31.8	0.175	2	12	18
15 - 4 x 10 - 0	31.8	0.175	2	11	17
16 - 1 x 10 - 4	31.8	0.200	2	10	16
16 - 9 x 10 - 8	31.8	0.200	2.17	10	15
17 - 3 x 11 - 0	31.8	0.225	2.25	10	15
18 - 0 x 11 - 4	31.8	0.255	2.25	9	14
18 - 8 x 11 - 8	31.8	0.250	2.33	9	14

*Longitudinal seams use (5 1/3) 3/4" dia. bolts per foot.
**Fill limited by the seam strength of the bolts. 3/4" dia. bolts per foot.

METAL THICKNESSES & GAGES	
ALUMINUM	GAGE NO. (For Info Only)
0.060	16
0.075	14
0.105	12
0.135	10
0.164	8

⊘ This column shall not be used unless specified on the plans or approved by the Regional Geotechnical Engineer.

REVISIONS		
Date	Description	By
8/10/00	Pipe Tables & G. Notes.	DFD
10/31/03	Pipe Table Updates & New Sheet 4	LRG

Sheet 1 of 4

State of Alaska
Department of Transportation & Public Facilities

PIPE AND ARCH TABLES

D-04.21

STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

STANDARD DRAWING
D-04.21 (1 OF 4)

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V5	V38

D-04.21

Minimum & Maximum Cover For 2 2/3" x 1/2" Steel Pipe

GAGE	0.064"		0.079"		0.109"		0.138"		0.168"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
12	12	100+	12	100+	12	100+	12	100+	12	100+
15	12	100+	12	100+	12	100+	12	100+	12	100+
18	12	100+	12	100+	12	100+	12	100+	12	100+
21	12	100+	12	100+	12	100+	12	100+	12	100+
24	12	100+	12	100+	12	100+	12	100+	12	100+
27	12	100+	12	100+	12	100+	12	100+	12	100+
30	12	99	12	100+	12	100+	12	100+	12	100+
36	12	83	12	100+	12	100+	12	100+	12	100+
42	12	71	12	88	12	100+	12	100+	12	100+
48	12	62	12	77	12	100+	12	100+	12	100+
54			12	66	12	93	12	100+	12	100+
60					12	79	12	100+	12	100+
66					12	68	12	88	12	100+
72							12	75	12	93
78									12	79
84									12	66

Minimum & Maximum Cover For 3" x 1" Steel Pipe

GAGE	0.064"		0.079"		0.109"		0.138"		0.168"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
36	12		12		12	100+	12	100+	12	100+
42	12		12		12	100+	12	100+	12	100+
48	12		12	76	12	100+	12	100+	12	100+
54	12	63	12	79	12	100+	12	100+	12	100+
60	12	56	12	71	12	99	12	100+	12	100+
66	12	52	12	64	12	90	12	100+	12	100+
72	12	47	12	59	12	82	12	100+	12	100+
78	12	44	12	54	12	77	12	98	12	100+
84	12	41	12	51	12	71	12	92	12	100+
90	12	37	12	47	12	67	12	86	12	100+
96	12	35	12	44	12	62	12	80	12	98
102	18	33	18	42	18	59	18	76	18	93
108			18	40	18	55	18	71	18	87
114			18	36	18	51	18	66	18	80
120			18	34	18	46	18	61	18	75
126					18	44	18	56	18	70
132					18	41	18	53	18	64
138					18	37	18	49	18	60
144							18	44	18	55
150									18	52

Minimum & Maximum Cover For 5" x 1" Steel Pipe*

GAGE	0.064"		0.079"		0.109"		0.138"		0.168"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
36	12	81	12	90	12	100+	12	100+	12	100+
42	12	71	12	77	12	100+	12	100+	12	100+
48	12	62	12	68	12	100+	12	100+	12	100+
54	12	56	12	70	12	98	12	100+	12	100+
60	12	50	12	63	12	88	12	100+	12	100+
66	12	46	12	57	12	80	12	100+	12	100+
72	12	42	12	52	12	73	12	95	12	100+
78	12	39	12	48	12	68	12	87	12	100+
84	12	36	12	45	12	63	12	81	12	99
90	12	33	12	42	12	59	12	76	12	93
96	12	31	12	39	12	55	12	71	12	87
102	18	29	18	37	18	52	18	67	18	82
108			18	35	18	49	18	63	18	77
114			18	32	18	45	18	58	18	71
120			18	30	18	41	18	54	18	66
126					18	39	18	50	18	62
132					18	36	18	47	18	57
138					18	33	18	43	18	53
144							18	39	18	49
150									19	47

*Table for pipe with helical lockseams or helical welded seams ONLY.

Minimum & Maximum Cover For 6" x 2" Steel Structural Plate Pipe**

GAGE	ALL	0.111"	0.140"	0.170"	0.188"	0.218"	0.249"	0.280"
Dia. (In)	Min. (In)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)	Max. (Ft)
60	12	46	68	90	100+	100+	100+	100+
66	12	42	62	81	93	100+	100+	100+
72	12	38	57	75	86	100+	100+	100+
78	12	35	52	69	79	95	100+	100+
84	12	33	49	64	73	88	100+	100+
90	12	31	45	60	68	82	97	100+
96	12	29	43	56	64	77	91	100+
102	18	27	40	52	60	73	86	94
108	18	25	38	50	57	69	81	88
114	18	24	36	47	54	65	77	84
120	18	23	34	45	51	62	73	80
126	18	22	32	42	49	59	69	76
132	18	21	31	40	46	56	66	72
138	18	20	29	39	44	54	63	69
144	18	19	28	37	43	51	61	66
150	24	18	27	36	41	49	58	64
156	24	17	26	34	39	47	56	61
162	24	17	25	33	38	46	54	59
168	24	16	24	32	36	44	52	57
174	24	16	23	31	35	42	50	55
180	24	15	22	30	34	41	48	53
186	24	15	22	29	33	40	47	51
192	24		21	28	32	38	45	50
198	30		20	27	31	37	44	48
204	30		20	26	30	36	43	47
210	30		19	25	29	35	41	45
216	30			25	28	34	40	44
222	30			24	27	33	39	43
228	30			23	27	32	38	42
234	30			23	26	31	37	41
240	30				25	31	36	40
246	36				25	30	35	39
252	36					29	34	38
258	36					28	34	37
264	36					28	33	36
270	36					27	32	35
276	36						31	34
282	36						31	34
288	42						30	33
294	42							32
300	42							32
306	42							31
312	42							30

**Longitudinal seams use (4) 3/4" dia. bolts per foot.

GENERAL NOTES

1. All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
2. The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
3. No more than one type of pipe may be used on any single installation or installation grouping.
4. All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
5. See Standard Drawing "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
6. Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the top of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflecton.
7. These tables have been developed for an H-20 live load and for compacted soil weighing 120 lbs. per cubic foot or less. If compacted soil cover exceeds 120 lbs. per cubic foot, the contractor shall use the depth of cover shown in the plans for the specific pipe. Where compacted soil cover exceeds 120 lbs. per cubic foot and no specific cover requirements are provided in the plans, the contractor shall determine the required minimum pipe cover in accordance with Section 12 of the 2000 AASHTO "LRFD Bridge Design Specifications".

CORRUGATED CIRCULAR STEEL PIPE

CORRUGATED STEEL PIPE-ARCH

Minimum & Maximum Cover For 2 2/3" x 1/2" Steel Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft) 2 Tons Corner Bearing Pressure	Max. Cover (Ft) 3 Tons Corner Bearing Pressure ⊘
17 x 13	3	0.064	12	16	18
21 x 15	3	0.064	12	15	14
24 x 18	3	0.064	12	15	13
28 x 20	3	0.064	12	15	11
35 x 24	3	0.064	12	15	7
42 x 29	3 1/2	0.064	12	15	7
49 x 33	4	0.079	12	15	6
57 x 38	5	0.109	12	15	8
64 x 43	6	0.109	12	15	9
71 x 47	7	0.138	12	15	10
77 x 52	8	0.168	12	15	10
83 x 57	9	0.168	12	15	10

Minimum & Maximum Cover For 3" x 1" Steel Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft) 2 Tons Corner Bearing Pressure	Max. Cover (Ft) 3 Tons Corner Bearing Pressure ⊘
40 x 31	5	0.079	12	25	12
46 x 36	6	0.079	12	25	13
53 x 41	7	0.079	12	25	13
60 x 46	8	0.079	15	25	13
66 x 51	9	0.079	15	25	13
73 x 55	12	0.079	18	24	16
81 x 59	14	0.079	18	21	17
87 x 63	14	0.079	18	20	16
95 x 67	16	0.079	18	20	17
103 x 71	16	0.079	18	20	15
112 x 75	18	0.079	21	20	16
117 x 79	18	0.109	21	19	15
128 x 83	18	0.138	24	19	14
137 x 87	18	0.138	24	19	13
142 x 91	18	0.138	24	19	12
150 x 96	18	0.138	30	19	
157 x 96	18	0.138	30	19	
164 x 105	18	0.138	30	19	
171 x 110	18	0.138	30	19	

Minimum & Maximum Cover For 5" x 1" Steel Pipe-Arch

Span x Rise (In. x In.)	Corner Radius (In)	Minimum Gage (In)	Min. Cover (In)	Max. Cover (Ft) 2 Tons Corner Bearing Pressure	Max. Cover (Ft) 3 Tons Corner Bearing Pressure ⊘
40 x 31	5	0.109	12	25	12
46 x 36	6	0.109	15	25	13
53 x 41	7	0.109	15	25	13
60 x 46	8	0.109	18	25	13
66 x 51	9	0.109	18	25	13
73 x 55	12	0.109	18	24	16
81 x 59	14	0.109	18	21	17
87 x 63	14	0.109	18	20	16
95 x 67	16	0.109	18	20	17
103 x 71	16	0.109	18	20	15
112 x 75	18	0.109	21	20	16
117 x 79	18	0.109	21	19	15
128 x 83	18	0.109	24	19	14
137 x 87	18	0.109	24	19	13
142 x 91	18	0.109	24	19	12
150 x 96	18	0.138	30	19	
157 x 96	18	0.138	30	19	
164 x 105	18	0.138	30	19	
171 x 110	18	0.138	30	19	

NS = Not Suitable

Minimum & Maximum Cover For 6" x 2" Steel Structural Plate Pipe-Arch**

Span x Rise (Ft-In x Ft-In)	Corner Radius (In)	Minimum Gage (In)	2 Tons Corner Bearing Pressure Min. Cover (In)	2 Tons Corner Bearing Pressure Max. Cover (Ft)	3 Tons Corner Bearing Pressure ⊘ Min. Cover (In)	3 Tons Corner Bearing Pressure ⊘ Max. Cover (Ft)
6-1 x 4-7	18	0.111	18	16	12	24
7-0 x 5-1	18	0.111	18	14	12	21
7-11 x 5-7	18	0.111	18	13	12	19
8-10 x 6-1	18	0.111	24	11	18	17
9-9 x 6-7	18	0.111	24	10	18	15
10-11 x 7-1	18	0.111	24	9	18	14
11-10 x 7-7	18	0.111	24	7	18	13
12-10 x 8-4	18	0.111	30	6	24	12
14-1 x 8-9	18	0.111	30	5	24	11
15-4 x 9-3	18	0.111	NS	NS	24	10
15-10 x 9-10	18	0.111	NS	NS	24	9
16-7 x 10-1	18	0.111	NS	NS	24	9
13-3 x 9-4	31	0.111	24	13	24	17
14-2 x 9-10	31	0.111	24	12	24	16
15-4 x 10-4	31	0.111	24	11	24	15
16-3 x 10-10	31	0.111	24	11	24	14
17-2 x 11-4	31	0.111	30	10	30	13
18-1 x 11-10	31	0.111	30	10	30	12
19-3 x 12-4	31	0.111	30	9	30	13
19-11 x 12-10	31	0.140	30	9	30	13
20-7 x 13-2	31	0.140	36	7	36	13

**Longitudinal seams use (4) 3/4" dia. bolts per foot.

⊘ This column shall not be used unless specified on the plans or approved by the Region Geotechnical Engineer.

METAL THICKNESSES & GAGES

STEEL ZINC COATED	STEEL UNCOATED	GAGE NO. (For Info Only)
0.064	0.0598	16
0.079	0.0747	14
0.109	0.1047	12
0.138	0.1345	10
0.168	0.1644	8
0.188	0.1838	7
0.218	0.2145	5
0.249	0.2451	3
0.280	0.2758	1

REVISIONS		
Date	Description	By
8/10/00	Pipe Tables & G. Notes.	DFD
10/31/03	Pipe Table Updates & New Sheet 4.	LRG

Sheet 2 of 4

State of Alaska
Department of Transportation & Public Facilities

PIPE AND ARCH TABLES

D-04.21

STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

STANDARD DRAWING
D-04.21 (2 OF 4)

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V6	V38

D-04.21

Maximum Cover for Type S Corrugated Polyethelene Pipe	
Size (in.)	Max. Cover (ft.)
12	30.0
15	30.0
18	30.0
24	30.0
30	30.0
36	30.0
40	20.0
48	20.0

GENERAL NOTES

1. All materials and workmanship shall be in accordance with the State of Alaska Standard Specifications for Highway Construction.

2. For foundation and structural backfill details see Standard Drawing "Culvert Pipe & Arch Installation Details".

3. Pipe cover height is measured from top of the pipe to top of rigid pavement, or to the top of subgrade for flexible pavement. In all cases the minimum cover shall be no less than 2 ft. Where loads traverse the culvert during construction minimum cover shall be no less than 4 ft.

REVISIONS		
Date	Description	By
10/31/03	New Sheet 4.	LRG

Sheet 3 of 4

State of Alaska
Department of Transportation
& Public Facilities

PIPE AND ARCH TABLES

D-04.21

STANDARD DRAWING
D-04.21 (3 OF 4)

STATE OF ALASKA 49 TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V7	V38

D-04.21

Minimum & Maximum Cover For Aluminum Spiral Rib Circular Pipe*

GAGE	0.060"		0.075"		0.105"		0.135"	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
12	24	35	24	50				
18	24	34	24	49				
24	24	25	24	36	24	63	24	82
30	24	19	24	28	24	50	24	65
36	24	15	24	24	24	41	24	54
42			24	19	24	35	24	46
48			24	17	24	30	24	40
54			24	14	24	27	24	35
60			24	12	24	24	24	30

*¾ x ¾ x 7½ in. or ¾ x 1 x 11½ in. Corrugations

Minimum & Maximum Cover For Aluminum Spiral Rib Pipe-Arch*

		Soil Corner Bearing Capacity of 2 Tons/ s.f.		
		0.060"	0.075"	0.105"
Span x Rise (In. x In.)	Min. Cover (In.)	Max. Cover (ft.)	Max. Cover (ft.)	Max. Cover (ft.)
20 x 16	12	13		
23 x 19	12	14		
27 x 21	12	13		
33 x 26	12	13		
40 x 31	12	13		
46 x 36	12	14		
53 x 41	18		13	
60 x 46	18		20	
66 x 51	18		21	
73 x 55	18			21
81 x 59	18			17
87 x 63	18			17
95 x 67	18			17

*¾ x ¾ x 7½ in. or ¾ x 1 x 11½ in. Corrugations

ALUMINUM SPIRAL RIB PIPE

STEEL SPIRAL RIB PIPE

Minimum & Maximum Cover For Steel and Aluminized Steel Spiral Rib Circular Pipe*

GAGE	0.064"		0.079"		0.109"		0.138"**	
Dia. (In)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)	Min. (In)	Max. (Ft)
18	12							
24	12	51	12	72	12	121		
30	12	41	12	58	12	97		
36	12	34	12	48	12	81		
42	12	29	12	41	12	69		
48	12	26	12	36	12	61		
54	18	23	18	32	18	54		
60	18	21	18	29	18	49	18	73
66	18	19	18	26	18	44	18	65
72			18	24	18	40	18	59
78			24	22	24	37	24	55
84			24	21	24	35	24	52
90					24	32	24	47
96					24	30	24	44
102					30	29	30	43
108					30	27	30	41

*¾ x ¾ x 7½ in. or ¾ x 1 x 11½ in. Corrugations

**¾ x ¾ x 7½ in. Corrugations Only.

Minimum & Maximum Cover For Steel Spiral Rib Arch-Pipe*

		Soil Corner Bearing Capacity of 2 Tons/ s.f.		
		0.064"	0.079"	0.109"
Span x Rise (In. x In.)	Min. Cover (In.)	Max. Cover (ft.)	Max. Cover (ft.)	Max. Cover (ft.)
20 x 16	12	13		
23 x 19	12	14		
27 x 21	12	13		
33 x 26	12	13		
40 x 31	12	13		
46 x 36	12	14		
53 x 41	18		13	
60 x 46	18		20	
66 x 51	18		21	
73 x 55	18			21
81 x 59	18			17
87 x 63	18			17
95 x 67	18			17

*¾ x ¾ x 7½ in. or ¾ x 1 x 11½ in. Corrugations

GENERAL NOTES

1. All material and workmanship shall be in accordance with the State of Alaska, Standard Specifications for Highway Construction.
2. The contractor shall select only pipes that meet specific height of cover criteria shown on the plans or in the special provisions.
3. No more than one type of pipe may be used on any single installation or installation grouping.
4. All structural plate pipes shall be placed on a pre-shaped foundation conforming to the depth of the bottom plates with clearance for assembling to the adjacent plates allowed.
5. See Standard Drawing "Culvert Pipe & Arch Installation Details" for foundation and structural backfill details.
6. Minimum cover shall be measured from the top of pipe to the top of rigid pavement or to the top of flexible pavement subgrade. In all cases, the minimum cover shall not be less than 12". Minimum cover during construction shall be that required to protect the pipe from damage or deflecton.
7. These tables have been developed for an H-20 live load and for compacted soil weighing 120 lbs. per cubic foot or less. If compacted soil cover exceeds 120 lbs. per cubic foot, the contractor shall use the depth of cover shown in the plans for the specific pipe. Where compacted soil cover exceeds 120 lbs. per cubic foot and no specific cover requirements are provided in the plans, the contractor shall determine the required minimum pipe cover in accordance with Section 12 of the 2000 AASHTO "LRFD Bridge Design Specifications".

REVISIONS		
Date	Description	By
8/10/00	Pipe Tables & G. Notes.	DFD
10/31/03	New Sheet 4.	LRG

Sheet 4 of 4

State of Alaska
Department of Transportation
& Public Facilities

PIPE AND ARCH TABLES

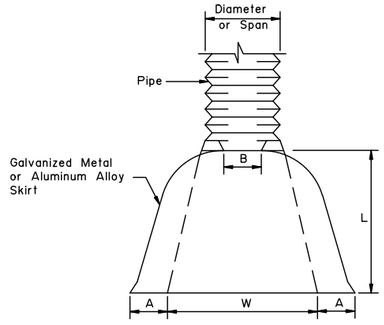
D-04.21

STANDARD DRAWING
D-04.21 (4 OF 4)

STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

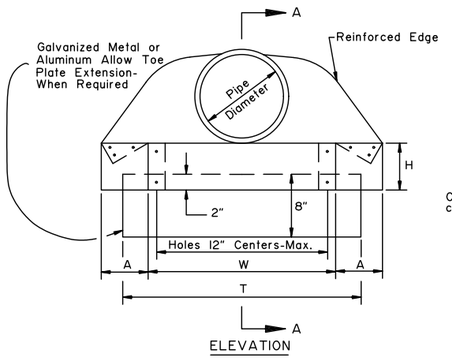
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V8	V38

D-06.10



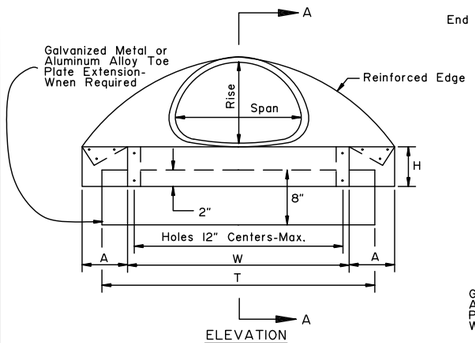
PLAN

ROUND AND PIPE ARCH



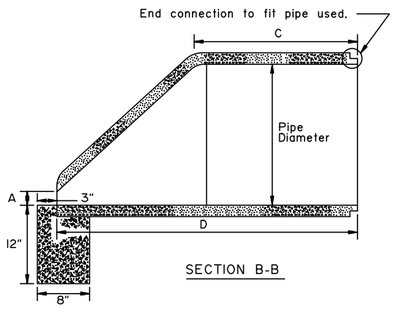
ELEVATION

ROUND PIPE



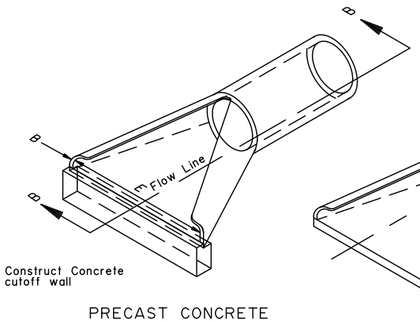
ELEVATION

PIPE ARCH

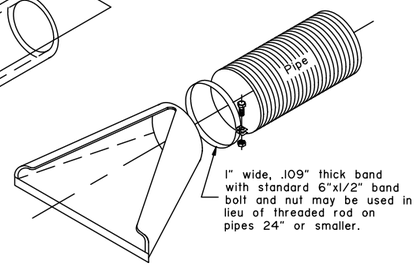


SECTION B-B

MINIMUM DIMENSIONS					
Pipe Diameter	A	B	C	D	E
12"	4"	1 3/4"	24"	46"	24"
18"	9"	2"	25"	50"	36"
24"	9 1/2"	2 1/2"	30"	72"	48"
30"	12"	3"	20"	73"	60"
36"	15"	3 3/8"	35"	97"	72"
42"	21"	3 3/4"	35"	98"	78"
48"	24"	4 1/4"	26"	98"	84"
54"	27"	4 5/8"	33"	99"	82"

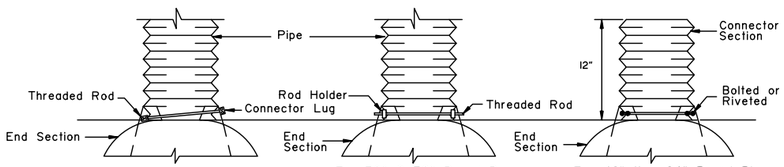


PRECAST CONCRETE END SECTION



ROUND PIPE									
Pipe Diam. Inches	Thickness For Aluminum	Thk. for Galv. Metal	Dimension Inches A 1" Tol.	B Max.	H 1" Tol.	L 1 1/2" Tol.	W 2" Tol.	T 2" Tol.	Skirt	Approx. Slope
12"	0.060	0.064	6"	6"	6"	21"	24"	34"	1 Pc.	2 1/2
15"	0.060	0.064	7"	8"	6"	26"	30"	40"	1 Pc.	2 1/2
18"	0.060	0.064	8"	10"	6"	31"	36"	46"	1 Pc.	2 1/2
21"	0.060	0.064	9"	12"	6"	36"	42"	52"	1 Pc.	2 1/2
24"	0.075	0.064	10"	13"	6"	41"	48"	58"	1 Pc.	2 1/2
30"	0.075	0.079	12"	16"	8"	51"	60"	70"	1 Pc.	2 1/2
36"	0.105	0.079	14"	19"	9"	60"	72"	94"	2 Pc.	2 1/2
42"	0.105	0.109	16"	22"	11"	69"	84"	106"	2 Pc.	2 1/2
48"	0.105	0.109	18"	27"	12"	78"	90"	112"	2 Pc.	2 1/4
54"	0.105	0.109	18"	30"	12"	84"	102"	122"	2 Pc.	2 1/4
60"	0.135	0.109	18"	33"	12"	87"	114"	134"	3 Pc.	2 1/4
66"	0.135	0.109	18"	36"	12"	87"	120"	142"	3 Pc.	2 1/4
72"	0.135	0.109	18"	39"	12"	87"	126"	146"	3 Pc.	2 1/4
78"	— —	0.109	18"	42"	12"	87"	132"	152"	3 Pc.	1 1/4
84"	— —	0.109	18"	45"	12"	87"	138"	158"	3 Pc.	1 1/6

PIPE-ARCH											
Pipe-Arch Dimension Inches Span	Rise	Thickness for Aluminum	Thk. for Galv. Metal	Dimension Inches A 1" Tol.	B Max.	H 1" Tol.	L 1 1/2" Tol.	W 2" Tol.	T 2" Tol.	Skirt	Approx. Slope
17"	13"	0.060	0.064	7"	9"	6"	19"	30"	40"	1 Pc.	2 1/2
21"	15"	0.060	0.064	7"	10"	6"	23"	36"	46"	1 Pc.	2 1/2
24"	18"	0.060	0.064	8"	12"	6"	28"	42"	52"	1 Pc.	2 1/2
28"	20"	0.075	0.064	9"	14"	6"	32"	48"	58"	1 Pc.	2 1/2
35"	24"	0.075	0.079	10"	16"	6"	39"	60"	70"	1 Pc.	2 1/2
42"	29"	0.105	0.079	12"	18"	8"	46"	75"	85"	1 Pc.	2 1/2
49"	33"	0.105	0.109	13"	21"	9"	53"	85"	103"	2 Pc.	2 1/2
57"	38"	0.105	0.109	18"	26"	12"	63"	90"	114"	2 Pc.	2 1/2
64"	43"	0.105	0.109	18"	30"	12"	70"	102"	130"	2 Pc.	2 1/4
71"	47"	0.135	0.109	18"	33"	12"	77"	114"	144"	3 Pc.	2 1/4
77"	52"	0.135	0.109	18"	36"	12"	84"	120"	158"	3 Pc.	2 1/4
83"	57"	0.135	0.109	18"	39"	12"	90"	126"	170"	3 Pc.	2 1/4

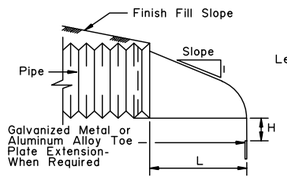


For 12" thru 24" Round Pipe with Annular Corrugations

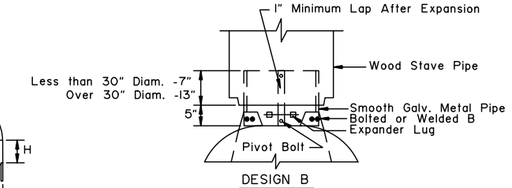
For 30" & 36" Round Pipe and 18"x11" thru 58"x36" Pipe Arch with Annular Corrugations.

For 42" thru 84" Round Pipe and 65"x40" thru 85"x54" Pipe Arch with Annular Corrugations and All Helically Corrugated Pipe and Pipe Arch.

DESIGN A



SECTION A-A



DESIGN B

METAL END SECTION CONNECTED TO WOOD STAVE PIPE

GENERAL NOTES:

1. Toe plate extensions will be required only when provided for on the plans. When required, the toe plate extensions shall be punched with holes to match those in lip of skirt and fastened with 3/8 inch or larger galvanized nuts and bolts and shall be the same gage as the end section.
2. Galvanized Metal or Aluminum Alloy End Sections may be used on Wood Stave and Plastic Pipe.
3. All 3 piece bodies shall have 12 gage sides and 10 gage center panels. Multiple panel bodies shall have lap seams which are to be tightly joined by 3/8" galvanized rivets or bolts.

REVISIONS		
Date	Description	By
3/1/83	Arch Dimensions	WJF/HK
8/10/00	Note 2	DFD

Sheet 1 of 3

State of Alaska
Department of Transportation & Public Facilities

CULVERT END SECTIONS

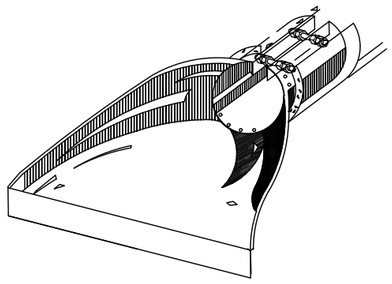
D-06.10

STANDARD DRAWING
D-06.10 (1 OF 2)

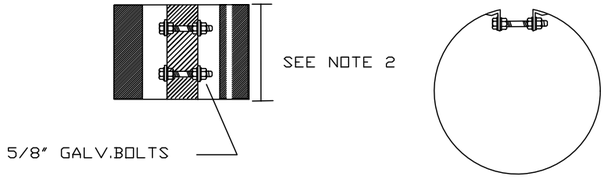
STATE OF ALASKA 49 TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V9	V38

D-06.10



FOR CONNECTING CONCRETE PIPE OR CORRUGATED POLYETHYLENE PIPE TO METAL END SECTION.



GENERAL NOTES

1. See general notes on sheet 1 of 3.
2. See sheet 1 of 3 for metal end section dimensions.
3. Insert bolts, washers and rivets shall be galvanized. Insert thickness is the same as the end section.
4. Use culvert inserts only at inlet.

METAL INSERTS FOR USE WITH CORRUGATED PLASTIC PIPE AND METAL END SECTIONS

REVISIONS		
Date	Description	By

Sheet 2 of 3

State of Alaska
Department of Transportation
& Public Facilities

CULVERT END SECTIONS

D-06.10

STANDARD DRAWING
D-06.10 (2 OF 2)

STATE OF ALASKA
49 TH
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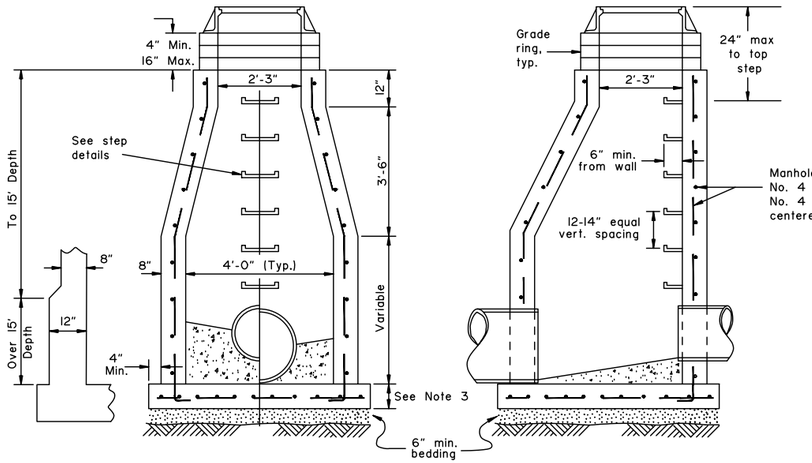
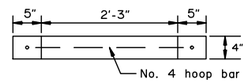
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V10	V38

D-20.05

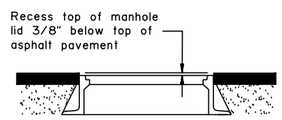
SHEET | of |



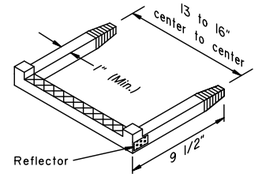
CAST-IN-PLACE MANHOLE



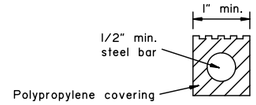
GRADE RING



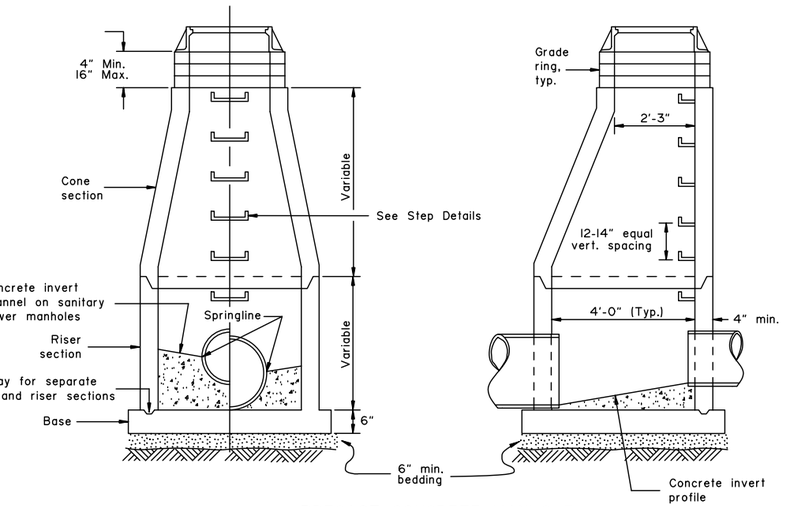
MANHOLE IN PAVEMENT



STEP DETAIL

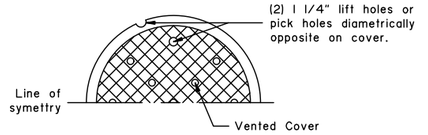


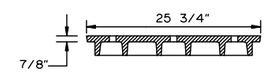
STEP CROSS SECTION



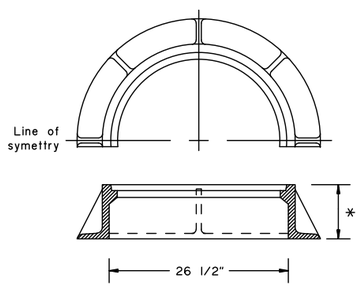
PRECAST CONCRETE MANHOLE

Reinforcement not shown for clarity
See Note 6





MANHOLE COVER



MANHOLE FRAME

MANHOLE FRAME & COVER MINIMUM WEIGHT		
* Depth	6"	380 lbs
	7"	400 lbs
	8"	440 lbs
	9"	470 lbs
	10"	500 lbs

GENERAL NOTES:

1. Either precast or cast-in-place manholes may be used.
2. Details for manhole frame, cover and step are generic in nature and may vary from shown depending on manufacturer
3. Use 8" thick cast-in-place concrete bases for depths less than 15' and 12" thick bases for depths 15' or greater.
4. Manhole frames shall have a depth of 6" unless otherwise indicated on the plans.
5. Step requirements:
   a. 18" max. vertical clearance to bottom of manhole or concrete invert.
   b. 3" minimum embedment.
   c. 1,500 lb. min. pullout force.
   d. ASTM A-615 grade 60 steel bar.
   e. Injection molded polypropylene covering meeting ASTM D-41010
   f. Slip resistant foot tread with "wings" to prevent feet from sliding off the edge.
   g. Reflectors at step corners
6. Reinforcement for precast manhole sections shall meet AASHTO M 199.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

MANHOLES, FRAME AND COVER

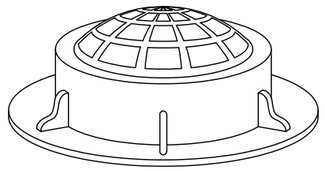
D-20.05

STANDARD DRAWING
D-20.05

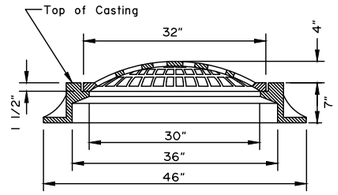
STATE OF ALASKA 49 TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V11	V38

D-22.01

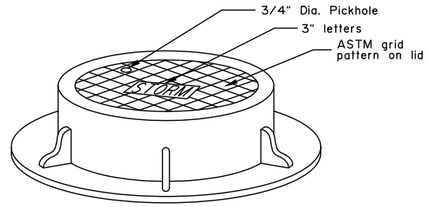


Surround field inlets with a 24" wide rock rubble collar 10" deep, 3" maximum size rock.



FIELD INLET FRAME & GRATE

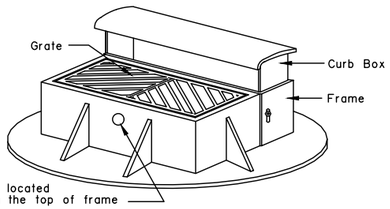
To be supplied for storm drain manholes where field inlets are specified.
Field inlet frame and grate shall have a Minimum total weight of 525 lb.



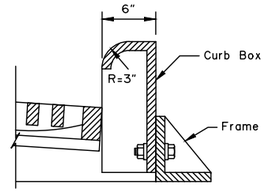
MANHOLE LID FRAME AND GRATE

NOTES:

1. Details shown are to indicate general design only. Dimensions and design may vary among the manufacturers, except that inlet grate shall be within ¼"± of dimensions shown on this drawing.
2. Manhole lids shall be 32" in diameter and may be used with field inlet frames.
3. Type A field inlet frame inside dimensions shall be 24" x 36". Lugs will not protrude outside the concrete surface of the inlet box.
4. Grates shall be bicycle safe. Where high capacity grates are called for on the plans, they shall conform to Std. Dwg. D-25.
5. Frame and grate casting types are identified by the following abbreviations:
   C.I. = Curb Inlet
   F.I. = Field Inlet
   M.H. = Manhole
6. Flowline depression shall conform to Std. Dwg. D-23 for an on grade or sag point conditions.
7. These are the default frames and grates to be used unless shown otherwise on the drainage plans or drainage structure summary.

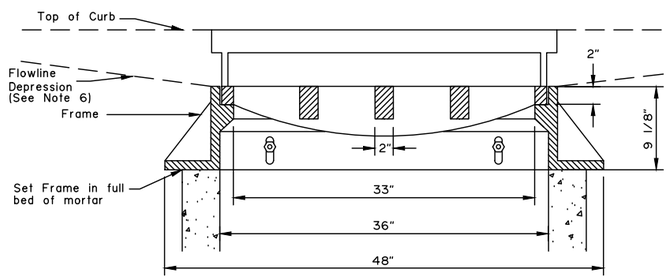


NOTE:
Curb Box, Grate and frame shall have a minimum total weight of 725 lb.

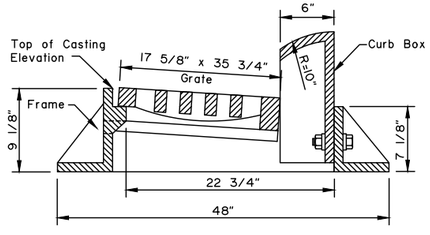


SIDE VIEW
MOUNTABLE CURB AND GUTTER

REQUIRED FRAME AND GRATES (See Note 7)			
STRUCTURE	INLET TYPE	CURB TYPE	TYPE FRAME AND GRATE
INLET BOX, TYPE A	Curb	Mountable	Standard Curb Inlet
	Curb	Expressway	Mountable Curb Inlet
	Curb	Rolled Curb	Depressed Inlet
	Field	------	Field Inlet
STORM DRAIN MANHOLES, TYPE I, II AND III	Curb	Mountable	Mountable Curb Inlet
	Curb	Expressway	Expressway Curb Inlet
	Curb	Rolled Curb	Depressed Inlet
	Field	------	Field Inlet
	Manhole Lids	------	Field Inlet Frame, Solid MH. Lid



FRONT VIEW



SIDE VIEW
EXPRESSWAY CURB AND GUTTER

CURB INLET FRAME AND GRATE

To be supplied for storm drain manholes Type I, Type II and Type III where curb inlets are specified.

NOT TO SCALE

REVISIONS		
Date	Description	By
10/31/03	Misc. Revisions/ Corrections	LRG

Sheet 1 of 1

State of Alaska
Department of Transportation & Public Facilities

STORMDRAIN MANHOLE FRAME AND GRATE DETAILS

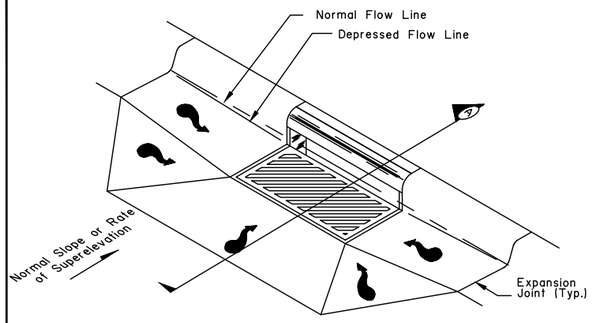
D-22.01

STANDARD DRAWING
D-22.01

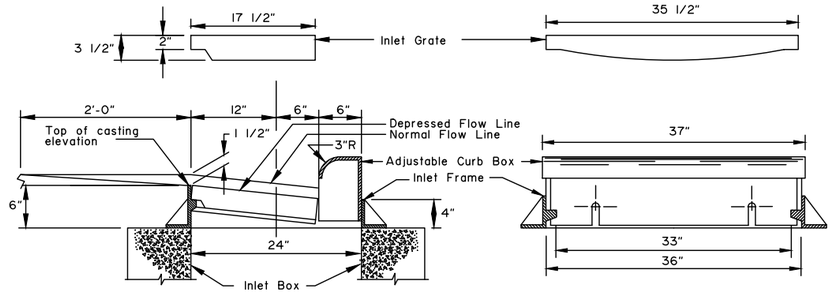
STATE OF ALASKA 49 TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V12	V38

D-23.01



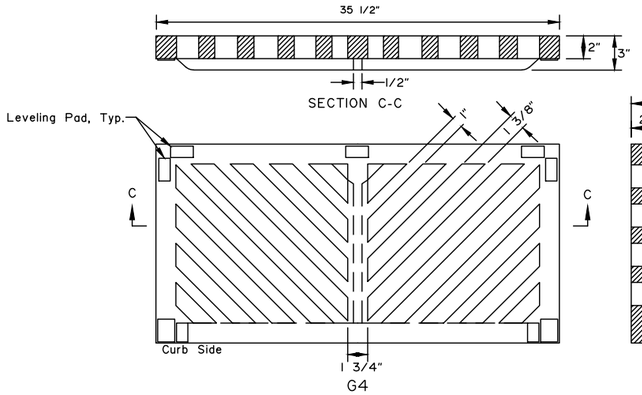
STANDARD CURB INLET INSTALLATION

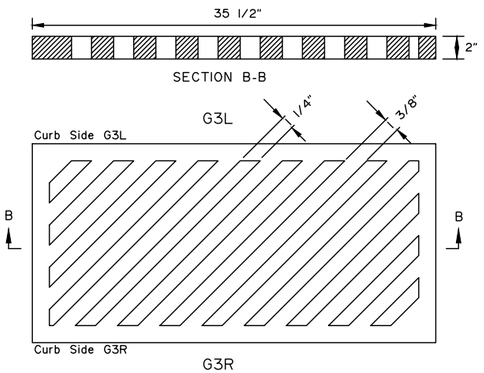


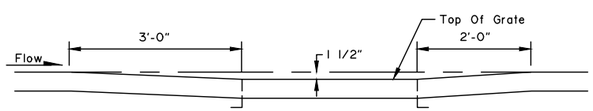
SECTION A

GENERAL NOTES:

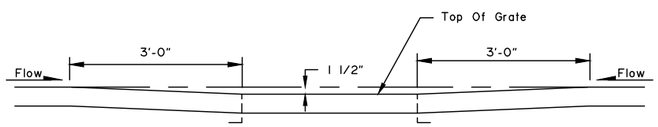
1. Details shown are to indicate general design only. Dimensions and design may vary among the manufacturers.
2. Minimum casting weight shall be 330 lbs for Curb Inlet Frame with Curb Box and 200 lbs. for Inlet Grate.
3. The outside dimensions of Inlet Grate shall be 35 1/2" x 17 1/2" and all grates shall be inter-changeable.
4. Minimum drainage area of Inlet Grate shall be 255 square inches.
5. Inlet Grate type G-3R or G-3L shall be used in all cases except where drainage is from both directions, in which case type G-4 shall be used.







ON GRADE



AT LOW POINT

DEPRESSION IN FLOW LINE AT INLET CONSTRUCTION DETAILS

NOT TO SCALE

REVISIONS		
Date	Description	By
10/31/03	Misc. Minor Corrections	LRG

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

CURB INLET BOX
FRAME & GRATE

D-23.01

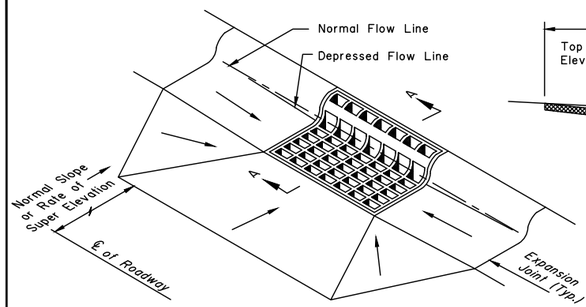
STANDARD DRAWING
D-23.01

STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

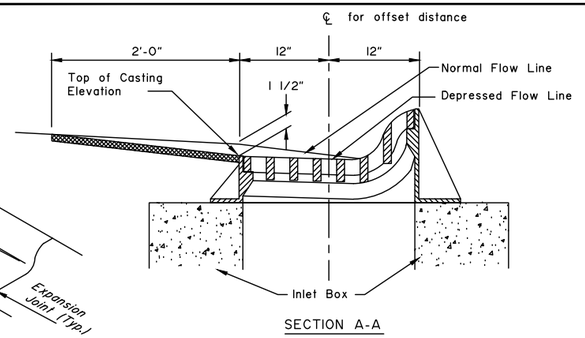
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V13	V38

D-24.00

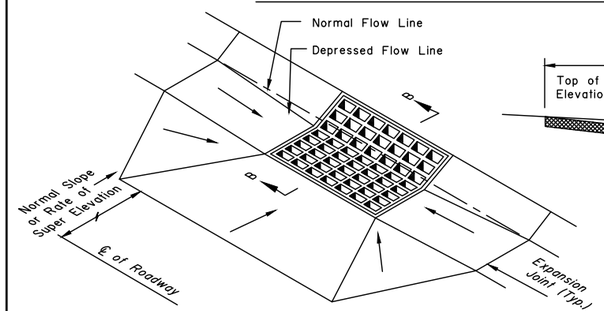
SHEET 1 of 1



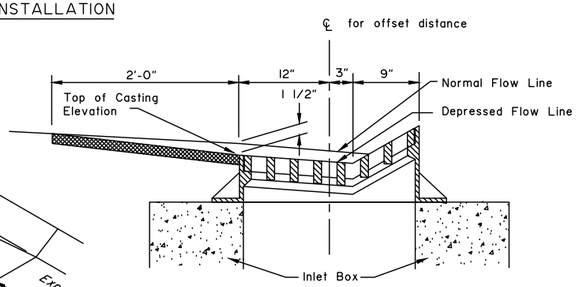
MOUNTABLE CURB INLET INSTALLATION



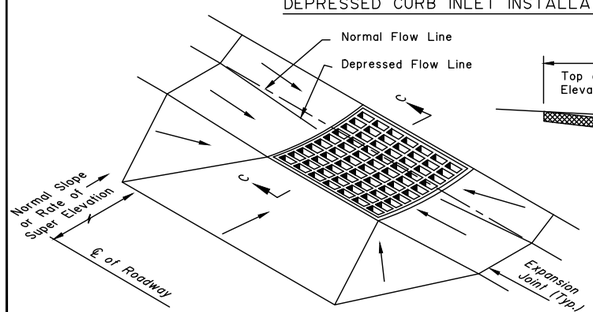
SECTION A-A



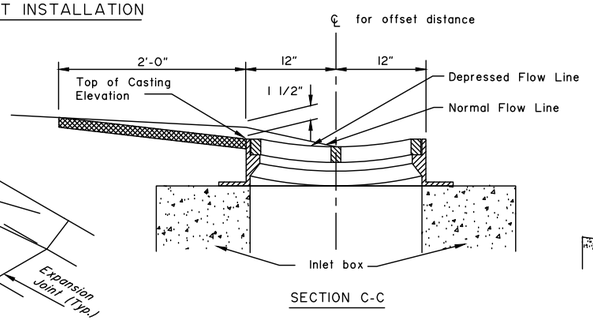
DEPRESSED CURB INLET INSTALLATION



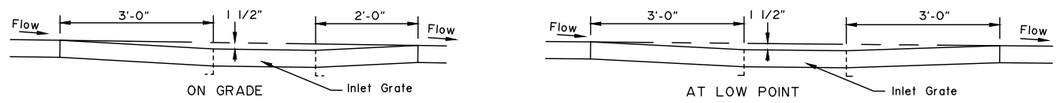
SECTION B-B



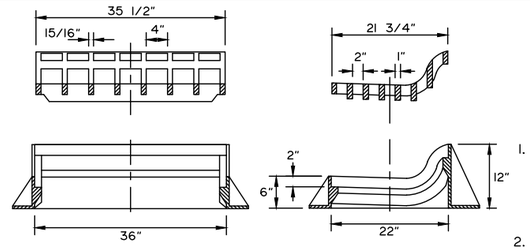
GUTTER INLET INSTALLATION



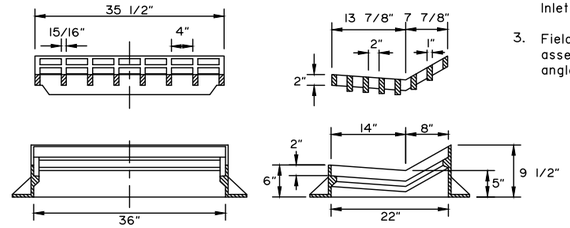
SECTION C-C



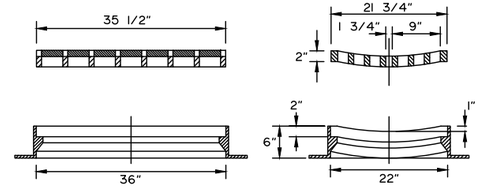
DEPRESSION IN FLOW LINE AT INLET CONSTRUCTION DETAILS



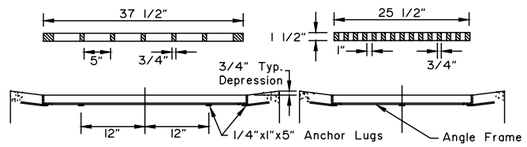
MOUNTABLE CURB INLET FRAME AND GRATE



DEPRESSED CURB INLET FRAME AND GRATE



GUTTER INLET FRAME AND GRATE



NOTE: All Angle Frame shall have Anchor Lugs

FIELD INLET FRAME AND GRATE

GENERAL NOTES:

1. Details shown are to indicate general design only. Dimensions and design may vary among the manufacturers. Except inlet grate outside dimension shall be as shown on this drawing.
2. Minimum casting weight shall be 550lbs. for Curb Inlet Frame and Grate, 450lbs. for Gutter Inlet Frame and Grate, and 300lbs. for Field Inlet Frame and Grate.
3. Field Inlet Frame may be welded assembly of L 1 3/4"xl 3/4"xl/4" angle equivalent to ASTM A-36 steel.

REVISIONS		
Date	Description	By

State of Alaska
Department of Transportation & Public Facilities

INLET FRAMES AND GRATES

D-24.00

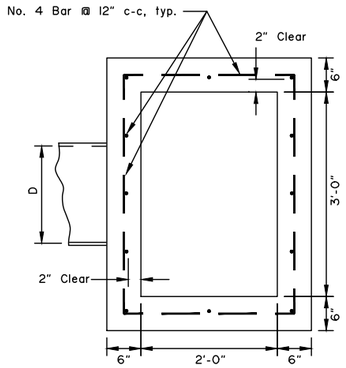
STANDARD DRAWING
D-24.00

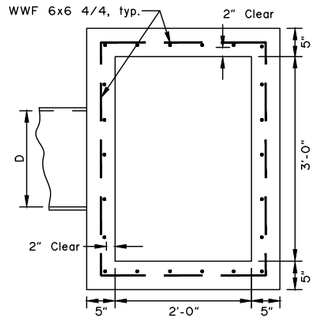
STATE OF ALASKA 49 TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

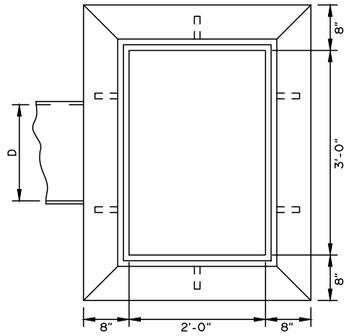
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V14	V38

D-26.04

SHEET | of |

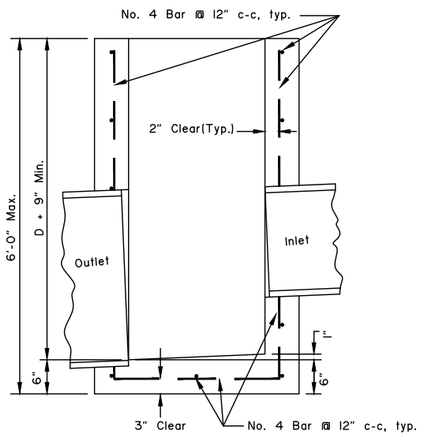




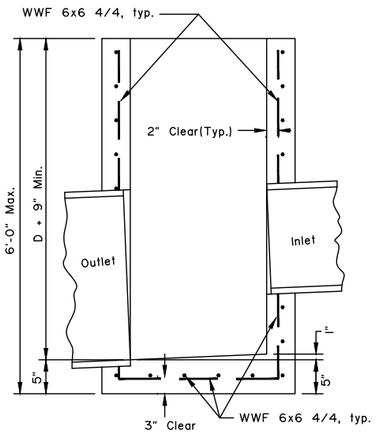


GENERAL NOTES:

1. Install inlet boxes parallel to the curb line.
2. The plans will indicate which inlet boxes require a sump.
3. Shape floors to drain.
4. Use Grade 40 minimum reinforcing steel.
5. The plans will indicate which inlet boxes require sumps.

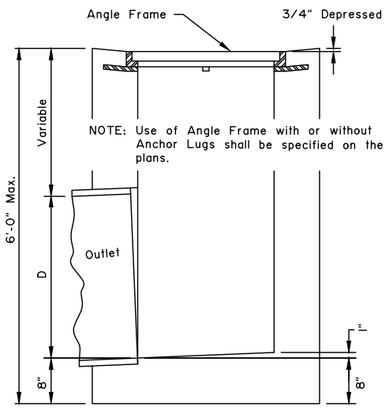


REINFORCED
CAST IN PLACE



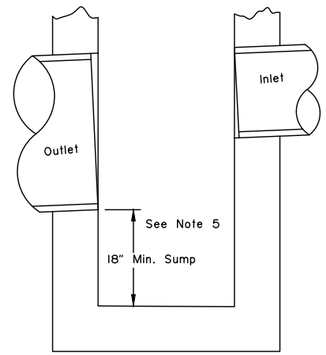
PRECAST

TYPE "A" CONCRETE INLET BOXES



FIELD INLET BOX
CAST* IN PLACE

* May be Precast or Reinforced Cast-In-Place Box.



SUMP DETAIL

NOT TO SCALE

State of Alaska DOT&PF
ALASKA STANDARD PLAN

**TYPE "A"
INLET BOX**

D-26.04

STANDARD DRAWING
D-26.04

STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

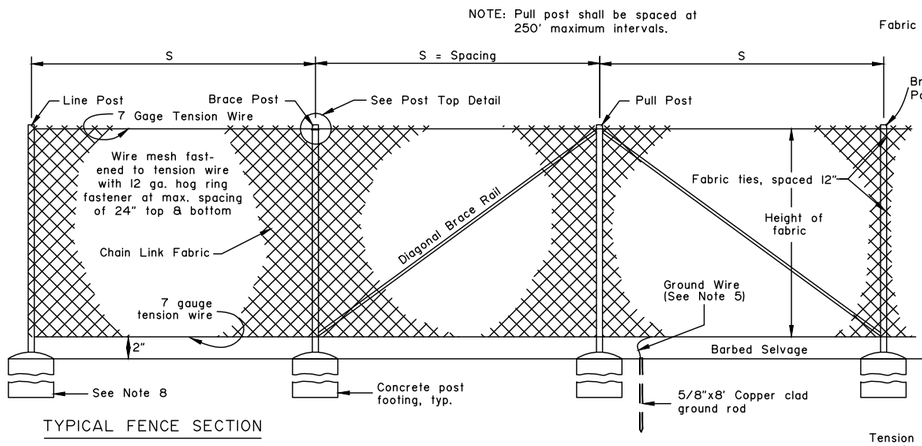
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V15	V38

F-01.03

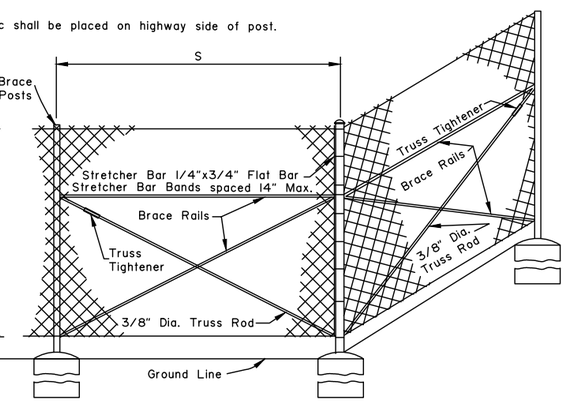
SHEET | of |

NOTE: Pull post shall be spaced at 250' maximum intervals.

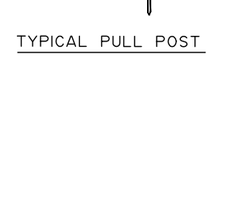
Fabric shall be placed on highway side of post.



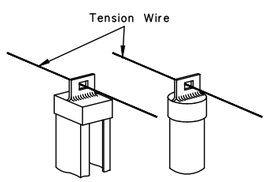
TYPICAL FENCE SECTION



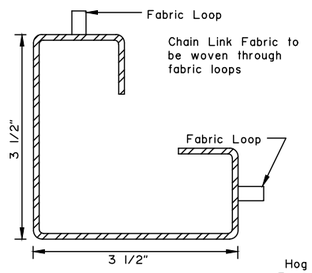
TYPICAL CORNER OR TERMINAL POST



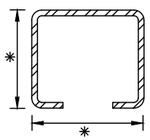
TYPICAL PULL POST



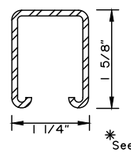
LINE POST TOPS



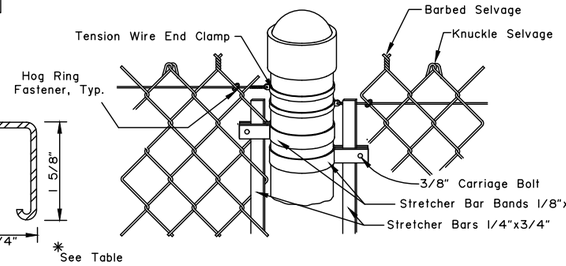
ROLL FORMED POST



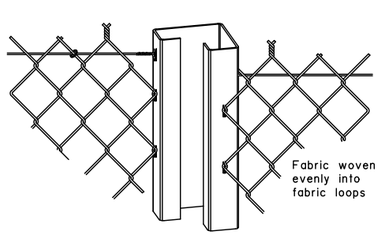
C POST



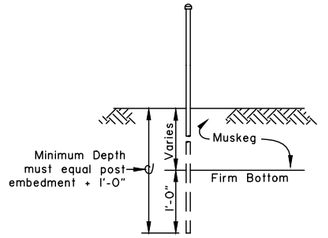
ROLL FORMED BRACE



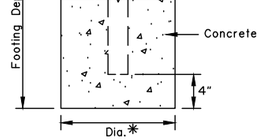
PIPE STYLE POST TOP



ROLL FORMED POST TOP



POST SETTING IN MUSKEG AREAS



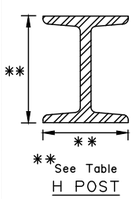
CONCRETE POST FOOTING

GENERAL NOTES:

1. Use equal pole spacing (S). Maximum pole spacing is 10 feet unless directed otherwise by the Engineer.
2. Securely fasten post tops to post.
3. Securely fasten brace rails and truss rods to post with brace bands.
4. Provide truss rods with a tensioning adjusting mechanism.
5. Attach ground wire to fence fabric with a split bolt.
6. Stretch fabric to a smooth uniform appearance.
7. Details shown indicate general design and dimensions may vary among manufacturers.
8. Set line, pull, corner, and terminal posts in concrete footings unless in muskeg or shown otherwise in the plans.

FABRIC HEIGHT	POST								ALTERNATE POST	
	END-CORNER-PULL						LINE-BRACE		LINE-BRACE	
	PIPE		SQUARE TUBE		ROLL FORMED		FOOTING		PIPE		C POST		FOOTING		H POST	
	SIZE	WT/FT.	SIZE	WT/FT.	SIZE	WT/FT.	DEPTH	DIA.	SIZE	WT/FT.	SIZE	WT/FT.	DEPTH	DIA	SIZE	WT/FT.
3'	2"	3.65#	2" x 2"	4.31#	3 1/2"x3 1/2"	4.84#	40"	10"	1 1/2"	2.72#	1 7/8"x1 5/8"	2.28#	28"	10"	1 7/8"x1 5/8"	2.72#
4'	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
5'	2"	3.65#	2" x 2"	4.31#	3 1/2"x3 1/2"	4.84#	40"	10"	1 1/2"	2.72#	1 7/8"x1 5/8"	2.28#	28"	10"	1 7/8"x1 5/8"	2.72#
6'	2 1/2"	5.79#	2 1/2"x2 1/2"	5.59#	3 1/2"x3 1/2"	4.84#	48"	15"	2"	3.65#	2 1/4"x1 45/64"	2.64#	40"	12"	2 1/4"x2"	4.1#
7'	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"	"
8'	2 1/2"	5.79#	2 1/2"x2 1/2"	5.59#	3 1/2"x3 1/2"	4.84#	48"	15"	2"	3.65#	2 1/4"x1 45/64"	2.64#	40"	12"	2 1/4"x2"	4.1#

TOP OR BRACE RAIL						
PIPE		ROLL FORMED		H POST		
SIZE	WT/FT.	SIZE	WT/FT.	SIZE	WT/FT.	
1 1/4"	2.27#	1 5/8"	1.35#	1 1/2"x 1 5/16"	2.27#	
"	"	"	"	"	"	
"	"	"	"	"	"	
"	"	"	"	"	"	
"	"	"	"	"	"	
"	"	"	"	"	"	



H POST

REVISIONS		
Date	Description	By
2/01/15	8' Ground rod fix	LRG
1/16/17	Remove concrete class	LRG

State of Alaska DOT&PF

CHAIN LINK FENCE

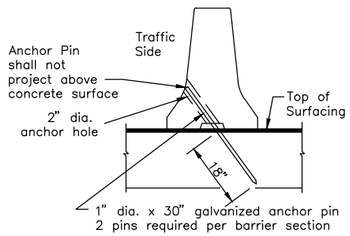
F-01.03

STANDARD DRAWING
F-01.03

STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

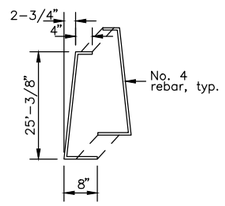
G-46.12

SHEET 1 of 2

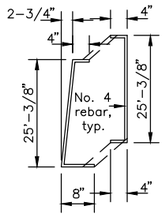


ANCHORING DETAIL

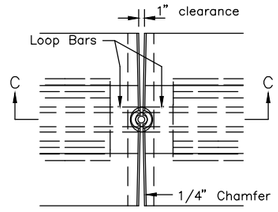
(Anchor when required by plans or as directed)



MEDIAN BARRIER STIRRUP



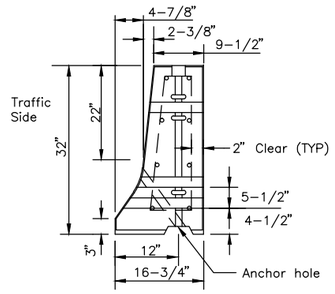
SHOULDER BARRIER STIRRUP



PLAN

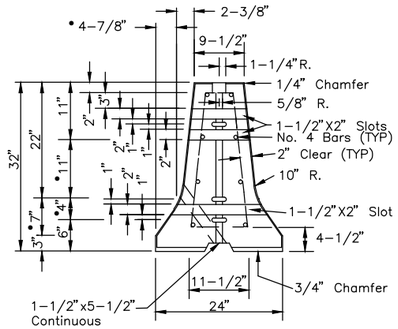
For details not shown see End Views A–A and B–B

CONNECTING PIN AND LOOP CONNECTION

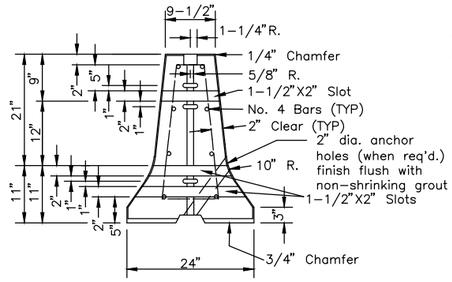


SHOULDER BARRIER

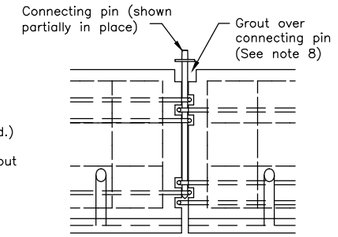
Note:
Dimensions marked with a dot • are to the Intersection point of the barrier slopes.



END VIEW A–A



END VIEW B–B

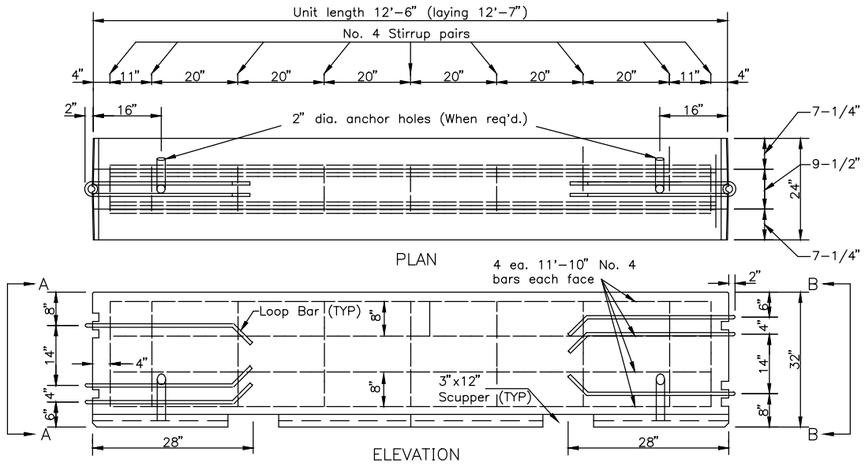


SECTION C–C

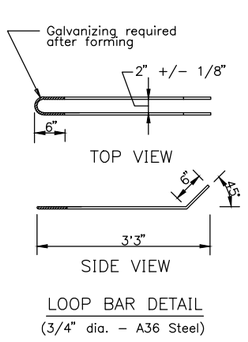
For details not shown see End Views A–A and B–B

GENERAL NOTES

1. Barriers may be used for temporary and permanent applications.
2. Provide 36" unobstructed smooth deflection area behind barrier for unanchored applications. Provide 12" unobstructed smooth deflection area behind barrier for anchored applications.
3. When anchored, install anchor pins on the side facing traffic. Precast barrier used as permanent median barrier in medians less than 8' in width shall be anchored to the roadway. When anchored in medians, install anchor pins on both sides of the barrier.
4. Provide 2" clearance between all metal reinforcement and the nearest face of concrete unless otherwise shown.
5. Normal use of precast barrier units is restricted to curvatures with radii greater than 770'.
6. Use narrow base shoulder barrier only at locations with full height backfill or equivalent structural support placed behind barrier.
7. When scuppers are not required plug them with a minimum 2" of grout.
8. Concrete grout for grouting over pins, pinning holes or grouting of scuppers shall be a non-shrinking grout, weak in strength and of thick consistency.
9. This precast concrete barrier is NCHRP 350 TL-3 approved.

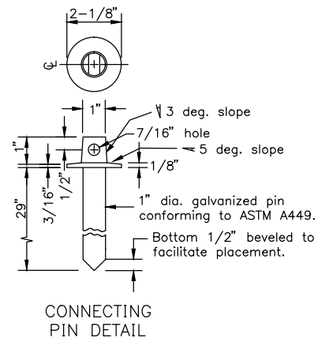


MEDIAN BARRIER



LOOP BAR DETAIL

(3/4" dia. – A36 Steel)



CONNECTING PIN DETAIL

REVISIONS		
Date	Description	By
4/28/10	Correct dims, Note 1	KJS
1/16/17	Minor corrections	LRG

State of Alaska DOT&PF

PRECAST CONCRETE "F" SHAPE BARRIER

G-46.12

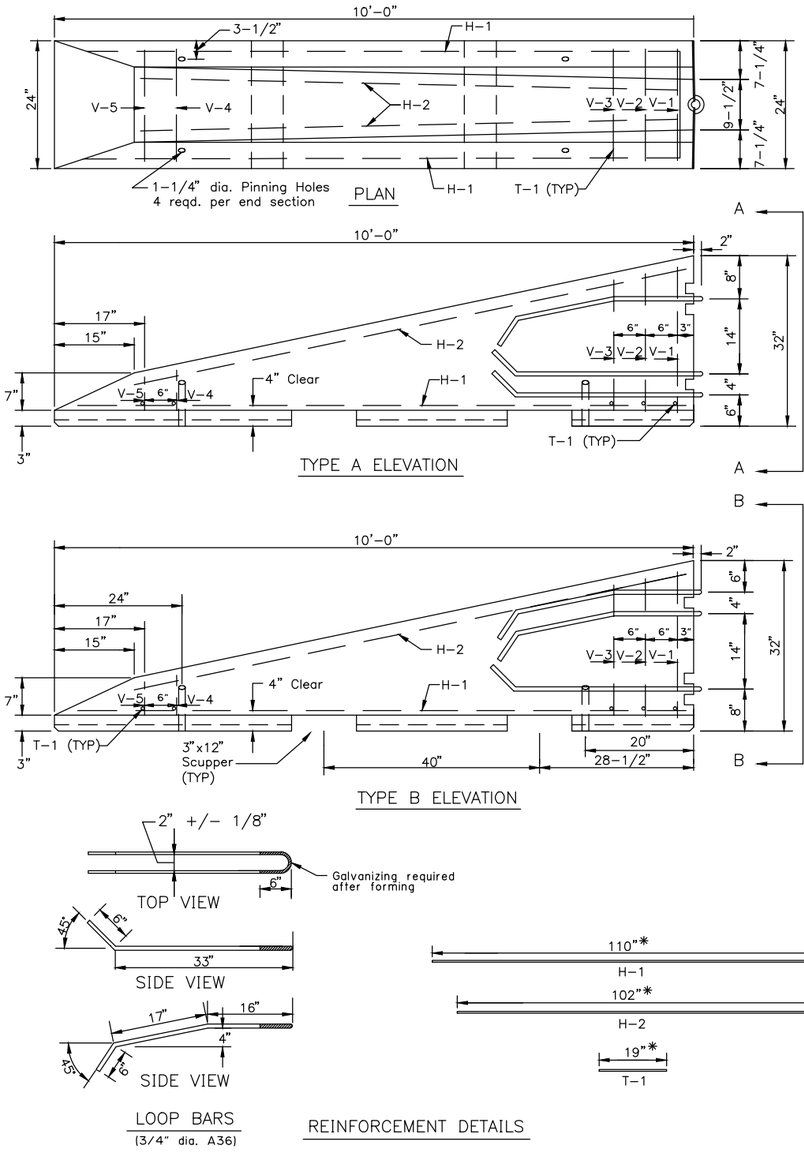
PLANS DEVELOPED BY: KINNEY ENGINEERING, LLC

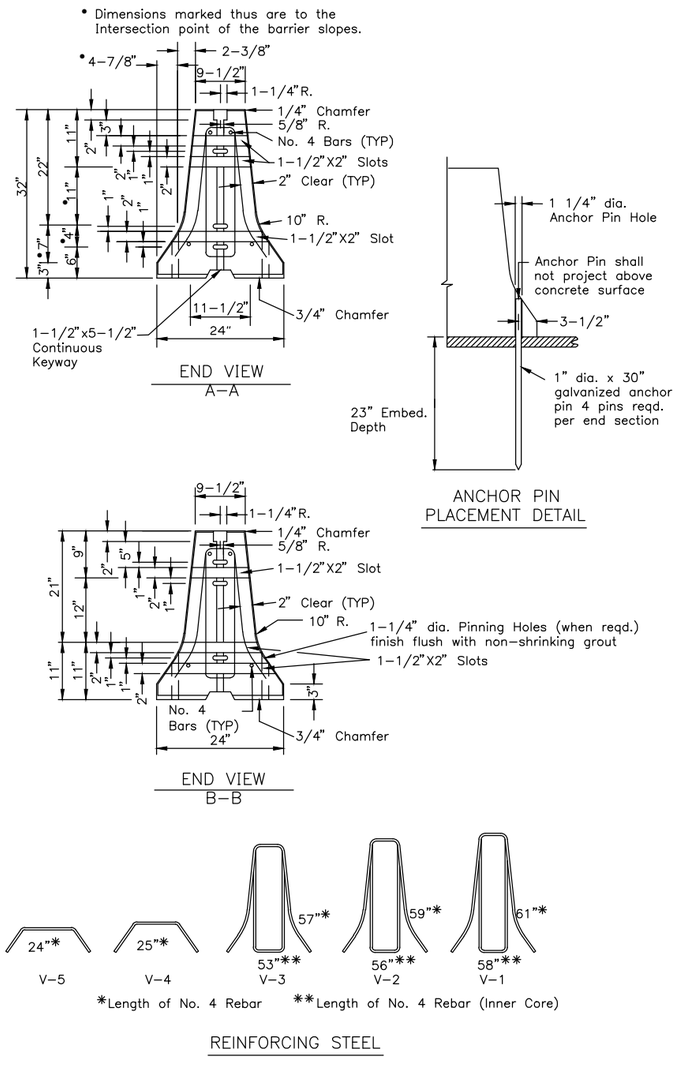
STATE OF ALASKA — IAIN S. MCPHERSON — CE-13131 — REGISTERED PROFESSIONAL ENGINEER

2/7/2020

STANDARD DRAWING
G-46.12 1 OF 2

G-46.12





GENERAL NOTES

1. Use tapered end sections only where:
   a. Barriers terminate outside the clear zone, or
   b. The regulatory speed limit is 25 MPH or below, or 30 MPH if the Engineer determines NCHRP 350 or MASH compliant end treatments are unfeasible.
2. Provide a minimum of two inches clear cover for reinforcing steel bars except as shown otherwise.
3. Galvanize all exposed hardware in accordance with AASHTO M 232.
4. Provide reinforcing steel bars conforming to AASHTO M 31, grade 60.
5. Provide anchor pins and anchor pins conforming to ASTM A36 steel.
6. Provide four anchor pins per unit.

REVISIONS		
Date	Description	By
4/28/10	Correct Dimensioning	KJS
1/16/17	Revised Concrete	LRG

State of Alaska DOT&PF

PRECAST CONCRETE "F" SHAPE BARRIER TAPERED END SECTION

G-46.12

STANDARD DRAWING G-46.12 2 OF 2

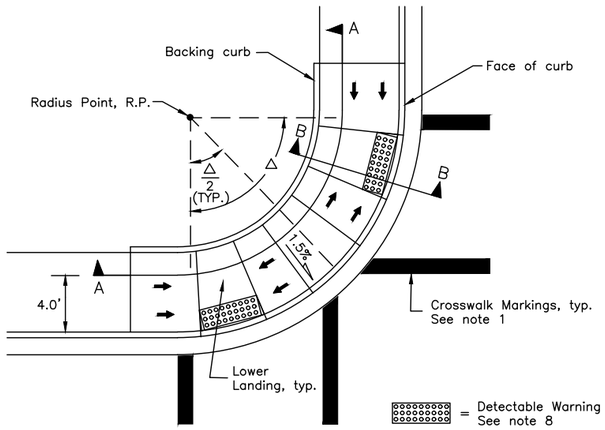
PLANS DEVELOPED BY: KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V17	V38

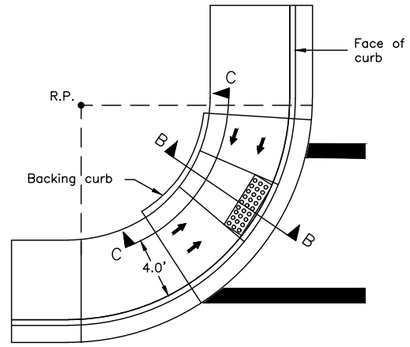
I-21.11

SHEET 1 of 1

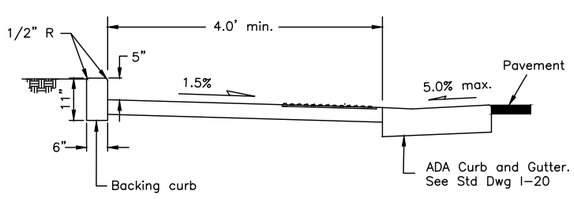


= Detectable Warning Tile See note 8

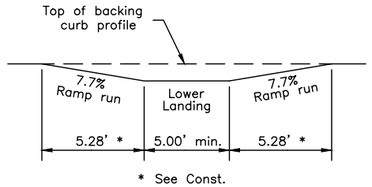
TWO CROSSING DIRECTIONS
At corner



ONE CROSSING DIRECTION
At corner – generic location shown

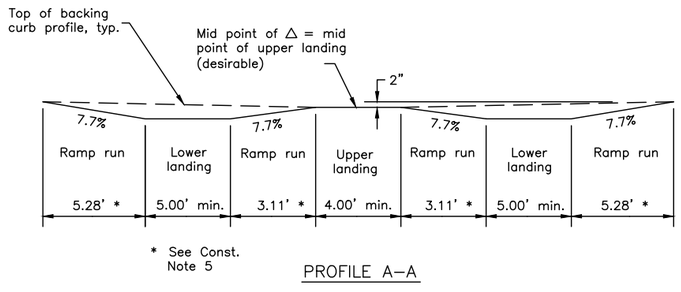


SECTION B–B



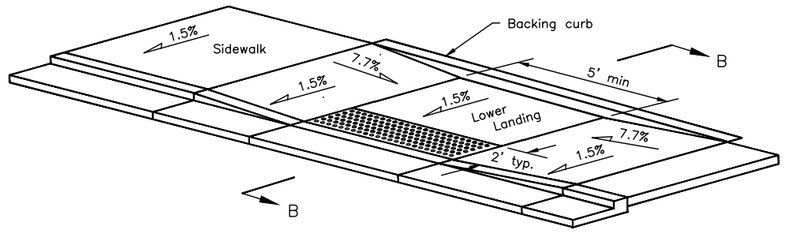
* See Const. Note 5

PROFILE C–C



* See Const. Note 5

PROFILE A–A



MID–BLOCK

Note: Drawing not to scale

CONSTRUCTION NOTES:

1. See plans for ramp type at specific locations. See striping plans for crosswalk layouts.
2. Construct ramp runs and landings of concrete, regardless of whether the sidewalk is asphalt or concrete.
3. When one parallel curb ramp will serve two directions, use the One Crossing Direction detail and refer to the striping plans for crosswalk layouts.
4. Ramp run lengths are shown for a flat sidewalk grade. For other sidewalk grades, increase or decrease ramp and flare lengths to maintain the slopes shown.
5. Construct ramp slopes at a nominal 7.7% grade, or flatter. Ramp slopes may be increased to a maximum of 8.3% when site conditions warrant it. Ramp lengths should be increased to keep grades under the 8.3% maximum, but are not required to exceed 15.0 feet. The resulting ramp grade at a 15.0 foot ramp length is acceptable even if it exceeds 8.3%.
6. Construct sidewalk cross slopes at 1.5% nominal (1.0% min. and 2.0% max).
7. Provide a coarse broomed finish running perpendicular to the curb on ramp runs and upper landings and parallel to the curb on lower landings.
8. Install 24" detectable warning tiles meeting Section 705.1 of the 2006 ADA Standards for Transportation Facilities for the full width of the ramp.
9. Maximum cross slope on lower landings is 2.0% as measured in any direction. Maximum cross slope on ramps is 2.0% measured perpendicular to the ramp run.
10. Provide 4" minimum thick concrete on ramps and landings.

DESIGN NOTES

1. Parallel curb ramps are typically used when the sidewalk is at least 4' wide but can not be constructed wide enough for perpendicular ramps.
2. When one curb ramp is installed in a curb radius to serve both directions of pedestrian traffic, construct it in accordance with the One Crossing Direction detail.
3. Locate lower landings within the inner edges of marked crosswalks or, if crosswalks are not marked, within the area a standard marked crosswalk would enclose. See Standard Drawing T–23 for standard crosswalk layout.
4. Avoid drainage grates within marked crosswalks or, if crosswalks aren't marked, within the area a standard marked crosswalk would enclose. If a drainage grate is located directly in the pedestrian accessible route (e.g. a wheel chair must pass over it), install a grate meeting the requirements of Section 302.3 of the 2006 ADA Standards.
5. These details are compliant with the 2006 ADA Standards for Transportation Facilities, except for the 15' maximum ramp length noted in Construction Note 5, which is from the Draft 2011 PROWAG.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

PARALLEL CURB RAMP

I-21.11

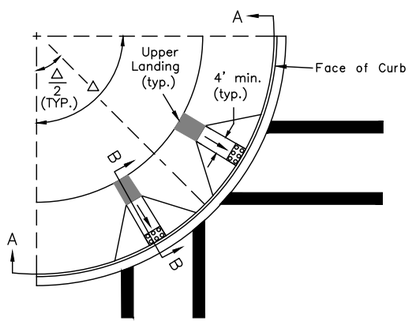
STANDARD DRAWING
I–21.11

STATE OF ALASKA 49 TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

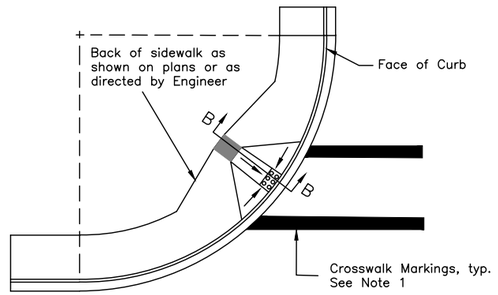
NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	0617013/NFHWY00468	2020	V18	V38

I-22.11

SHEET 1 of 1

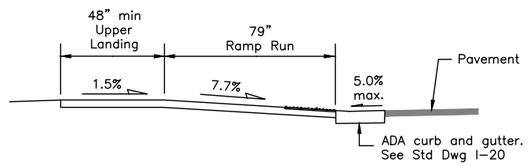


TWO CROSSING DIRECTIONS
At corner

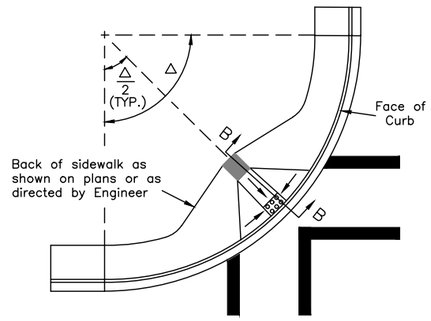


ONE CROSSING DIRECTION
At corner

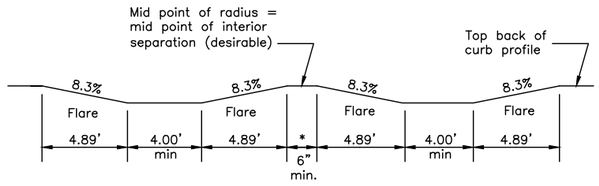
= Detectable Warning Tile See Note 9



SECTION B-B

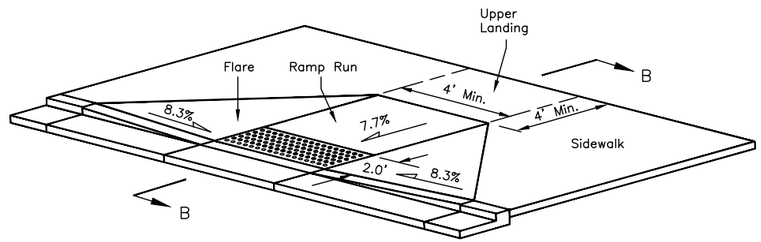


ONE RAMP – TWO DIRECTIONS
At corner



PROFILE A-A

* This dimension is adjustable depending on the curb radius and location of ramps



MID-BLOCK

Note: Drawing not to scale

CONSTRUCTION NOTES

1. See plans for ramp type at specific locations. See striping plans for crosswalk layouts.
2. Construct ramp runs perpendicular to the curb face.
3. Construct ramp runs, flares, and upper landings of concrete, regardless of whether the sidewalk is asphalt or concrete.
4. Ramp run and flare lengths are shown for a flat sidewalk grade. For other sidewalk grades, increase or decrease ramp and flare lengths to maintain the slopes shown.
5. Construct ramp slopes at a nominal 7.7% grade, or flatter. Ramps slopes may be increased to a maximum of 8.3% when site conditions warrant it. Ramp lengths should be increased to keep grades under the 8.3% maximum, but are not required to exceed 15.0 feet. The resulting ramp grade at a 15.0 foot ramp length is acceptable even if it exceeds 8.3%.
6. Construct flare slopes at 8.3% (measured parallel to the curb line adjacent to the top back of curb) or flatter, and sidewalk cross slopes at a nominal 1.5% (1.0% min., 2.0% max). Do not construct flare slopes steeper than 10.0%, or sidewalk cross slopes steeper than 2.0%,
7. Provide a coarse broomed finish running parallel to the curb on ramp runs and flares.
8. When approved by the Engineer, flares may be replaced with a curb at locations where access to the side of a ramp run is blocked by poles, utility boxes, other obstructions, or by a non-accessible surface such as a dirt planter strip. See Standard Drawing I-20 for details.
9. Install 24" detectable warning tiles for the full width of the ramp. Provide tiles with truncated domes meeting Section 705.1 of the 2006 ADA Standards for Transportation Facilities.
10. Maximum cross slope on upper landings, measured in any direction, is 2.0%. Maximum cross slope on ramps is 2.0% measured perpendicular to the ramp run.
11. Provide 4" minimum thick concrete on ramps, flares and landings

DESIGN NOTES

1. When marked crosswalks are used, a 4'x4' landing area at the bottom of ramps must fall within the inner edges of the crosswalk markings. See Section 406.6 of the 2006 ADA Standards.
2. Avoid drainage grates within marked crosswalks, or if crosswalks are not marked, within the area a standard marked crosswalk would enclose. If a drainage grate is located directly in the pedestrian accessible route (e.g. a wheelchair use must necessarily pass over it), install a grate meeting the requirements of Section 302.3 of the 2006 ADA Standards.
3. These details are compliant with the 2006 ADA Standards for Transportation Facilities, except for the 15' maximum ramp slope noted in Construction Note 5, which is from the Draft 2011 PROWAG.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

PERPENDICULAR CURB RAMP

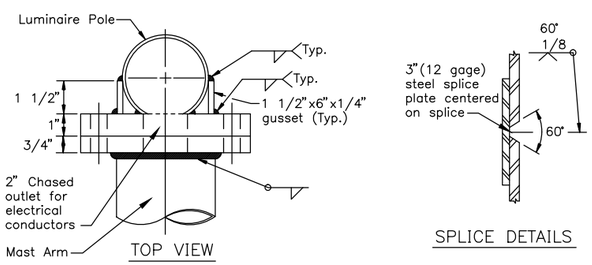
I-22.11

STANDARD DRAWING
I-22.11

STATE OF ALASKA 49TH
Heather D. Estabrook
2/7/2020
CE-11130
REGISTERED PROFESSIONAL ENGINEER

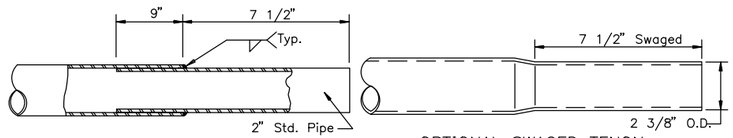
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	V19	V37

L-03.10



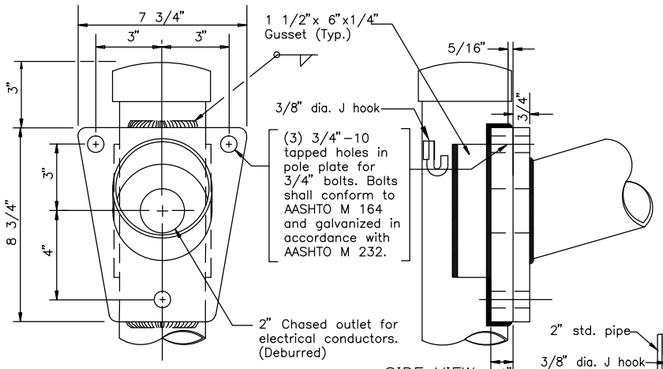
TOP VIEW

SPLICE DETAILS



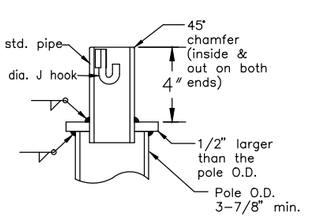
TENON OPTIONAL SWAGED TENON

END OF MAST ARM DETAIL

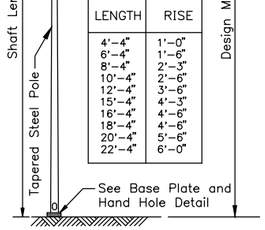


FRONT VIEW SIDE VIEW

MAST ARM CONNECTION DETAIL

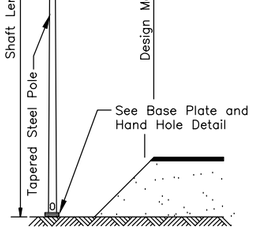


OFFSET LIGHTING STANDARD POLE TOP DETAIL
(CUTAWAY FOR CLARITY)

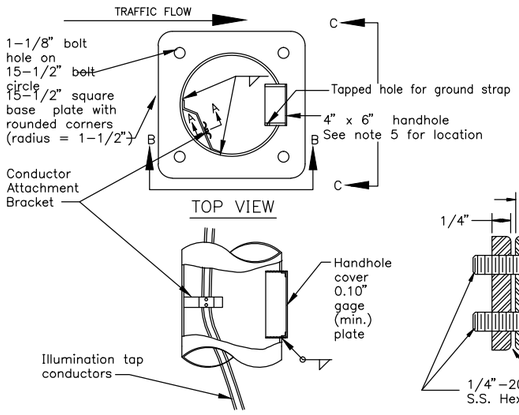


MAST ARM DATA	
LENGTH	RISE
4'–4"	1'–0"
6'–4"	1'–6"
8'–4"	2'–3"
10'–4"	2'–6"
12'–4"	3'–6"
15'–4"	4'–3"
16'–4"	4'–6"
18'–4"	4'–6"
20'–4"	5'–6"
22'–4"	6'–0"

ELECTROLIER ELEVATION
COBRA HEAD

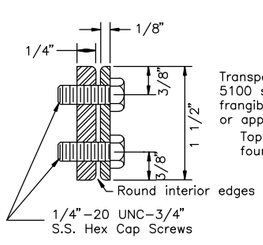


ELECTROLIER ELEVATION
OFFSET

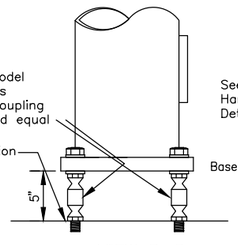


TOP VIEW

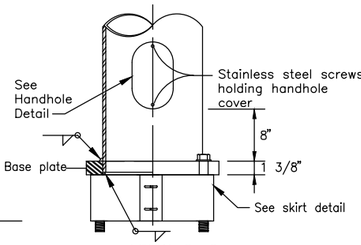
BASE PLATE AND HAND HOLE DETAIL



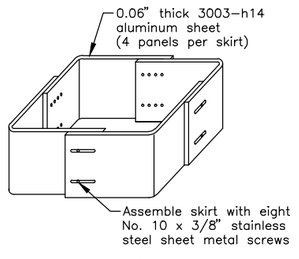
SECTION A–A



VIEW B–B



VIEW C–C



SKIRT DETAIL

GENERAL NOTES

1. Design and fabricate all shafts to support a mast arm 22' long with luminaire. Assume each offset fixture weighs 60 lbs. and has an effective projected area of 2.8 SF. Assume each Cobra head weighs 55 lbs. and has an effective projected area of 1.2 square feet. With this dead load, limit the angular rotation of the pole top to 1° 40' maximum.
2. Weld size to be determined by manufacturer.
3. Mounting height, if specified in the plans, refers to the height of luminaire above the roadway. Adjust each pole's shaft length to maintain this difference in elevation whenever slope and/or offset varies.
4. Minimum outside diameter at the top of pole equals 3–7/8". Pole diameter shall taper uniformly from the top of pole to the base plate, with a maximum taper rate of 0.15" per foot.
5. Mast arm rise may vary ±0.5ft from the values listed in the table.
6. Locate the handhole at 90 degrees to the mast arm on the side of pole downstream from traffic flow.
7. Furnish all poles with a j–hook to support the illumination tap conductors. Furnish all mast arm poles with a removable raintight cap.
8. Frangible couplings shall be NCHRP 350, Test Level 3 compliant and have no measured torque requirement.
9. Frangible couplings shall be installed into flush mounted female anchors so that no fixed hardware extends above the foundation top.
10. Install all components of the breakaway support system in accordance with the manufacturer's written instructions.
11. Fabricate the skirt from four pieces of 0.06" thick 3003 h–14 aluminum sheet. Bend each plate to provide corners with a 3/4" radius. Assemble the skirt with #10 x 3/8" self tapping stainless screws or pop rivets. The assembled skirt measures about 12–7/8" square.

REVISIONS		
Date	Description	By

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

LIGHTING STANDARD

2/28/03

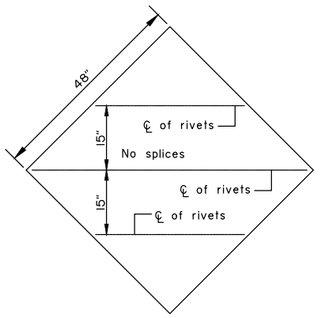
L–03.10

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STANDARD DRAWING
L–03.10

S-00.11



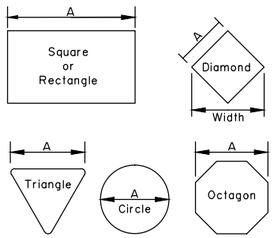
TUBE SIGN POST SPACING								
Sign Width (feet)	No. of Posts	Distance Between Posts	Sign Overhang	Post Type				Notes
				P.S.T.	Wood	Steel Tube	W-Shape	
0.5 to 4.0	1	-	0.5W	X	X	X		See Note 2.
4.5 to 10.0	2	0.6W	0.2W	X	X	X		See Note 3.
10.5 to 11.0	2	6	Varies	X	X	X		See Note 3.
11.5 to 13.0	2	8	Varies				X	
13.5 to 20.0	2	0.6W	0.2W				X	
20.5 to 22.5	3	8	Varies				X	
23.0 to 29.5	3	0.35W	0.15W				X	
30.0 to 31.5	4	8	Varies				X	
32.0 to 40.0	4	0.25W	0.125W				X	

SIGN POST SPACING NOTES:

1. Install sign support in accordance with the table above, unless otherwise required by plans or specifications.
2. Exceptions:
   a. Use one post for all E5-1 gore signs, regardless of width.
   b. Use one 2.5" P.S.T. for all STOP signs, with or without street name signs.
3. Supports placed within 7' of each other must be acceptable for that use. See Standard Drawing S-30 for the sizes of wood posts and P.S.T.s that may be used within 7'. See Manufacturer's documentation for breakaway couplings and tubes that may be used within 7'.
4. See Standard Drawing S-31 for frangible couplings, hinges, and foundations for tube and W-shape sign supports.

GENERAL NOTES

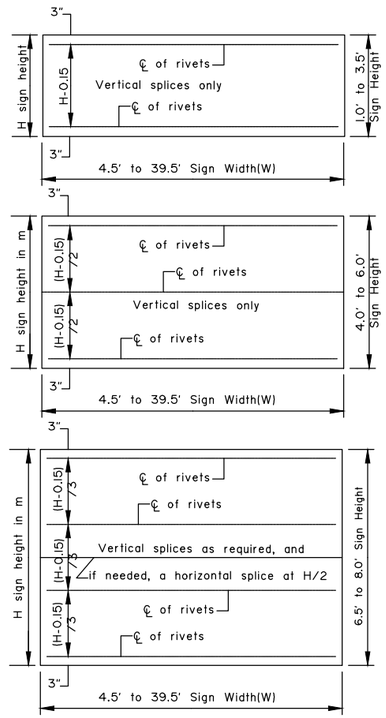
1. See the standard specifications for the aluminum alloys that you may use for sign sheeting and wind framing members.
2. Fabricate all signs from 0.125" thick aluminum sheeting.
3. Sign fabricators may use alternates to the zee shaped framing member with approval of the engineer, if the frame manufacturer certifies their design equals or exceeds the strength of the zee shaped design.
4. Install one piece wind framing members on all signs up to 23.5' wide. Use one splice in each wind frame on all signs wider than 23.5'. Locate splices at least 18" from all posts and panel edges. Stagger splices in adjacent framing members at least 8.0' apart.
5. Attach wind framing members with rivets or with an engineer approved, double sided, high strength, adhesive tape. Clean and handle sheeting and framing members and apply tape in accordance with the tape manufacturer's written instructions. Install two rivets in both ends of each framing member.
6. Use 3/16" diameter rivets conforming to aluminum alloy 6061-T6 for cold driven rivets, or aluminum alloy 6061-T43 for hot driven rivets.
7. Sign fabricators may use sign panels extruded with integral framing with approval of the engineer, if the manufacturer certifies their design equals or exceeds the strength of the 0.125" thick panel with framing attached to it.
8. Frame all signs taller than 8.0' with five wind framing members located (H-0.15)/4 spaces. If needed, make a horizontal splice at the middle wind frame.
9. Do not use round pipes for sign supports.



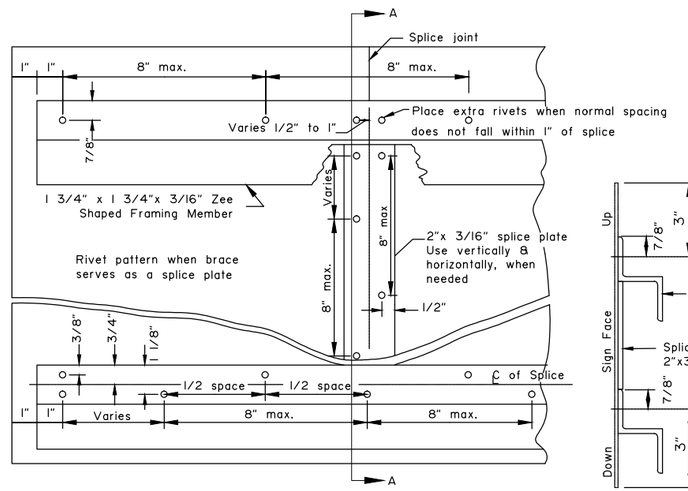
Maximum size unframed signs using 0.125" thick aluminum sheeting.	
Sign Shape	A
Squares, Shields, and Route Markers	48"
Rectangles	48"
Diamonds	48"
Triangles	48"
Rounds and Octagons	48"

Install wind framing on all signs that exceed the dimensions listed.

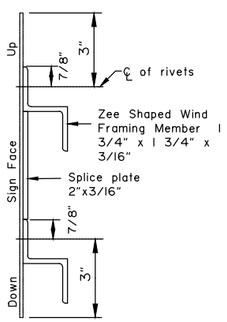
LIGHT SIGNS



WIND FRAMING LOCATIONS



RIVET DETAIL FOR ZEE SHAPED WIND FRAMING & SPLICE PLATE



SECTION A-A

REVISIONS		
Date	Description	By
4/28/10	Delete pipe, rev notes	KJS

Sheet 1 of 1

State of Alaska
Department of Transportation & Public Facilities

SIGN FRAMING AND POST SPACING

S-00.11

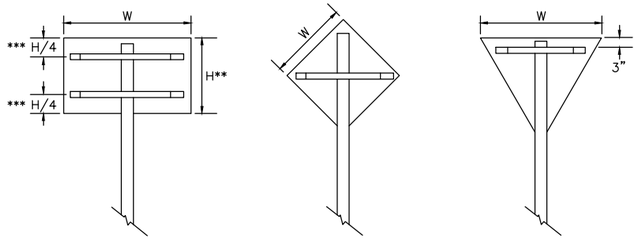
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STANDARD DRAWING
S-00.11

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	V21	V37

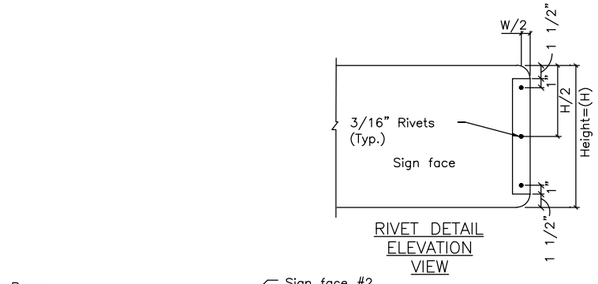
S-01.01



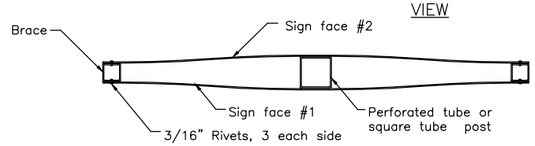
*** Use one brace when H ≤ 18"
Use two braces when 18"< H < 48"
Use three braces when H ≥ 48"

** Position of brace may be varied to match Predrilled mounting holes in panel

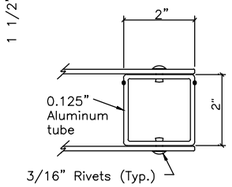
SIGN BRACING PLACEMENT



RIVET DETAIL ELEVATION VIEW

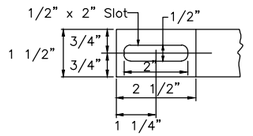


PLAN VIEW

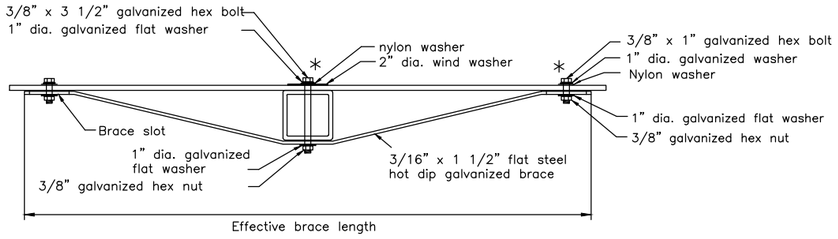


END BRACE DETAIL

SMALL STREET NAME SIGN (D3-1, D3-1A, D3-1D) BRACING DETAILS



DETAIL OF BRACE SLOT
Elevation view



TUBE POST SIGN BRACING
Plan view

* Adjust location of bracing so that bolts and washers will miss the sign legend

Sign Width(W)	Effective Brace Length		
	Warning	Yield	Other
30"	36"	24"	24"
36"	42"	30"	30"
42"	48"	–	36"
48"	Two posts	36"	42"

< 30" No bracing required and use square tube

DRAWING NOT TO SCALE

REVISIONS		
Date	Description	By
1/16/17	Bolt size & type	LRG

State of Alaska DOT&PF

BRACING FOR SIGNS MOUNTED ON SINGLE POST

S-01.01

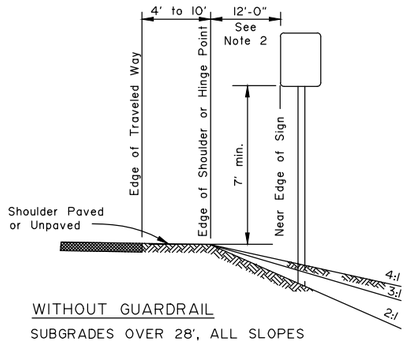
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STANDARD DRAWING
S-01.01

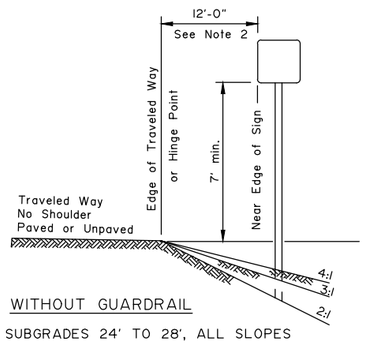
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	V22	V37

S-05.01



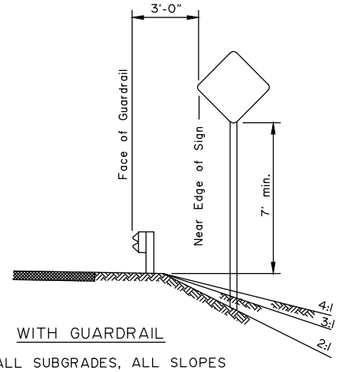
WITHOUT GUARDRAIL

SUBGRADES OVER 28', ALL SLOPES



WITHOUT GUARDRAIL

SUBGRADES 24' TO 28', ALL SLOPES

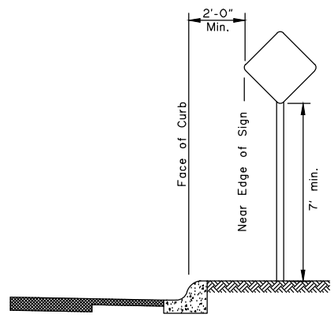


WITH GUARDRAIL

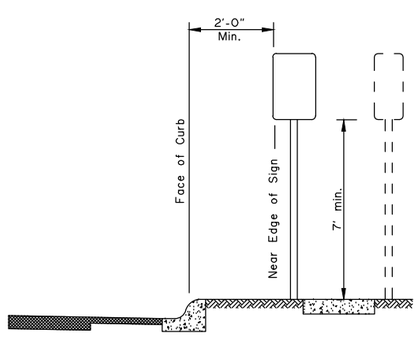
ALL SUBGRADES, ALL SLOPES

GENERAL NOTES

1. Unless shown otherwise on the plans, the standard sign offset is 12'. The minimum is 6'.
2. If signs extend over sidewalks, the minimum vertical clearance is 7'-0".
3. Add 6" to mounting height on unpaved roads.
4. If signs extend over bike paths, the minimum vertical clearance is 8' 0".
5. When signs are placed 30' or more from the edge of traveled way, mount them with the bottom of the sign at least 5' above the road surface at the near edge of the road.
6. When multiple hinged sign supports are used, mount hinges at least 7' above the ground.

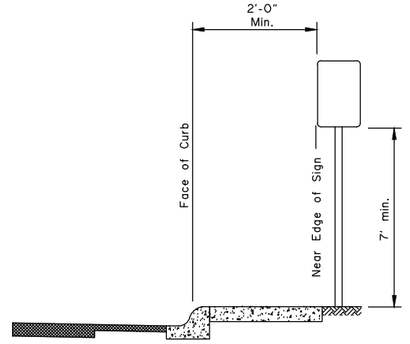


CURB WITHOUT SIDEWALK

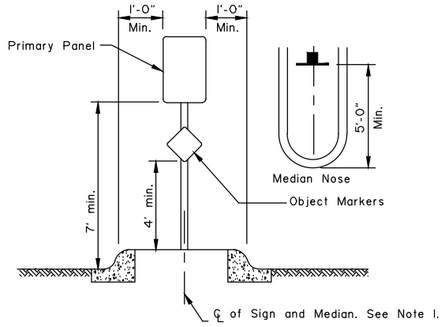


CURB WITH PARKWAY AND SIDEWALK

(If R/W width permits, signs should be placed behind sidewalk.)

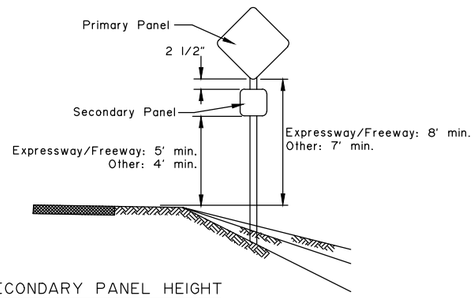


CURB WITH SIDEWALK WITHOUT PARKWAY



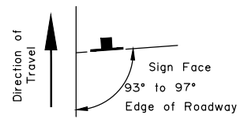
RAISED MEDIANS

Minimum 4' Width for Signing



SECONDARY PANEL HEIGHT

ALL TWO PANEL MOUNTING



SIGN POSITIONING

REVISIONS		
Date	Description	By
4/3/01	Revised Sign Heights	KJS

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

POST MOUNTED SIGN
OFFSET AND HEIGHT

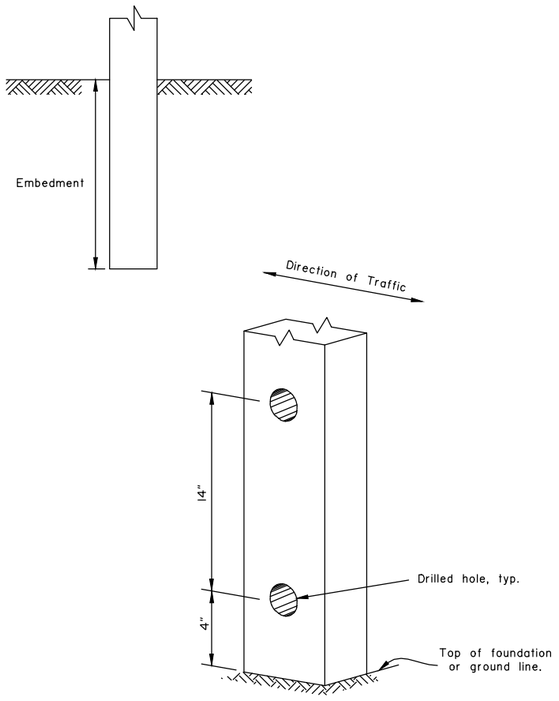
S-05.01

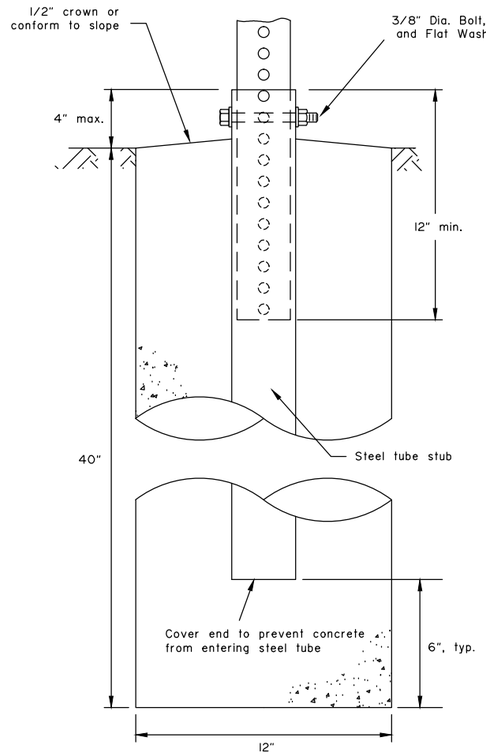
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

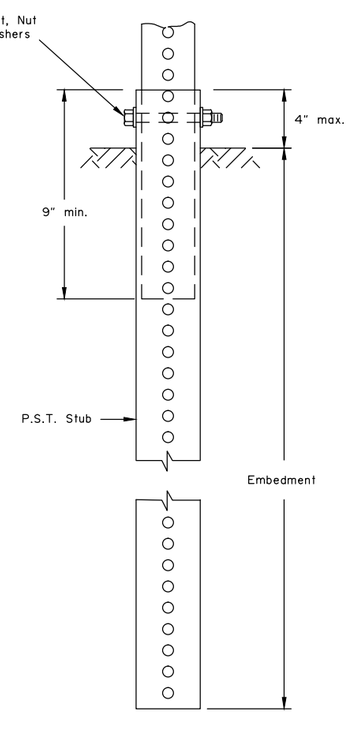
STANDARD DRAWING
S-05.01

S-30.04





SLEEVE TYPE
CONCRETE FOUNDATION



SLEEVE TYPE*
SOIL EMBEDMENT

WOOD SIGN POSTS			
SIZE	HOLE DIA.	EMBEDMENT*	NO. OF POSTS WITHIN 7 Ft. PATH
4"x4"	NONE	36"	2
4"x6"	1 1/2"	36"	2
6"x6"	1 1/2"	40"	1
6"x8"	3"	48"	1

* Embedment depth applies in both strong and weak soil.

WOOD POSTS

PERFORATED STEEL TUBES (P.S.T.)		
POST SIZE	Embedment Depth	No. of P.S.T.s permitted within 7 ft path
1 1/2" x 1 1/2"	3'-0"	2
1 3/4" x 1 3/4"	3'-0"	2
2" x 2"	3'-6"	2
2 1/4" x 2 1/4"	4'-0"	1
2 1/2" x 2 1/2"	4'-6"	1

* Use 3"x3"x3/16" Stub for 2 1/2"x2 1/2" PST Applications.

PERFORATED STEEL TUBE (PST) POSTS

GENERAL NOTES:

1. Refer to Std Dwg S-00 for sign framing details.
2. See plans for type of post, size and embedment type.
3. To maintain crashworthiness, install no more than the number of P.S.T.s or wood posts specified in the tables within 7' of each other.
4. Do not install wood posts larger than 6"x8".
5. Do not use the supports on this drawing for multiple support signs if supports are separated by more than 7 feet.
6. Treat all field cuts and field drilled holes in wood posts in accordance with Section 730-2.04 of the Standard Specifications.

REVISIONS		
Date	Description	By
4/2/01	Revised PST table Added Note 3	KJS
2/12/02	Revised wood posts	KJS
1/16/17	Rev. note 1, et. al.	LRG

State of Alaska DOT&PF

LIGHT SIGN STRUCTURE
POST EMBEDMENT

S-30.04

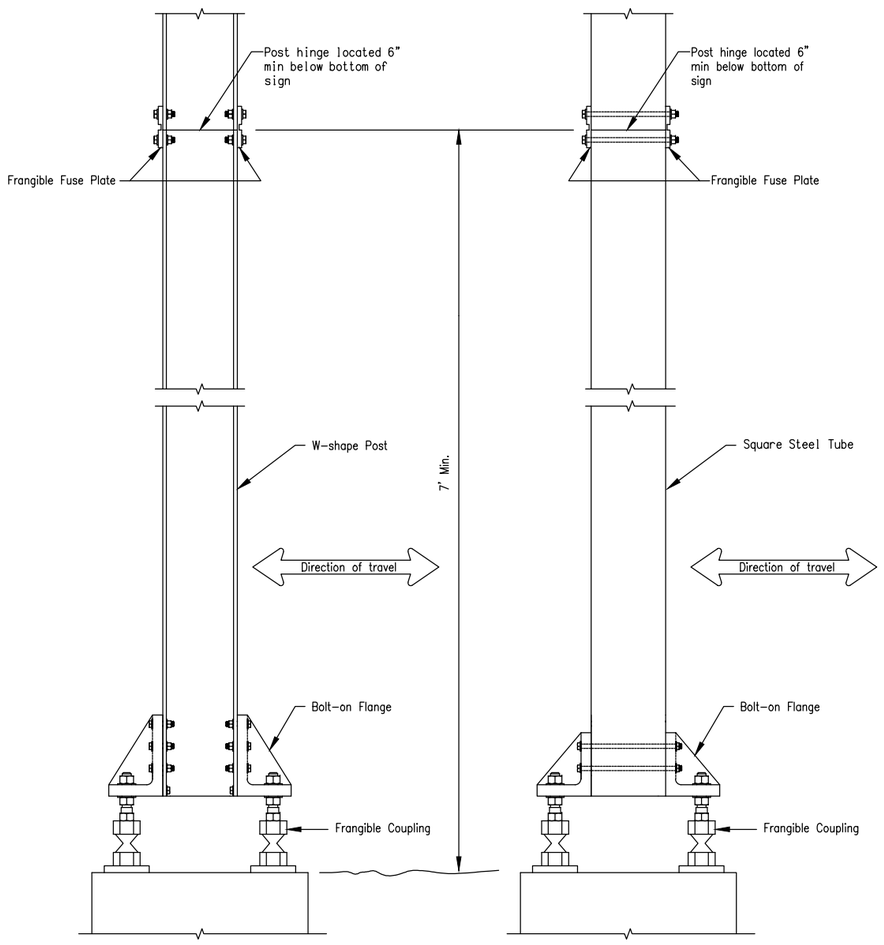
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STANDARD DRAWING
S-30.04

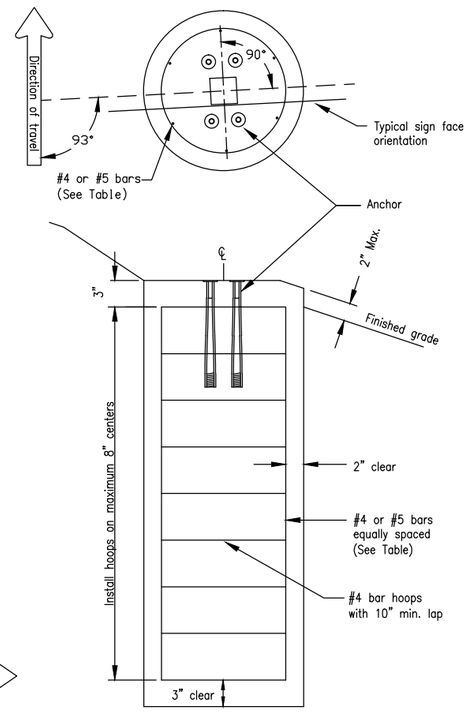
S-31.01

NOTE:
Install hinges when more than one post is used to support a sign. Do not install hinges on single post installations.



FRANGIBLE COUPLING SYSTEM FOR W-SHAPE POST

FRANGIBLE COUPLING SYSTEM FOR SQUARE STEEL TUBES



SIGN POST FOUNDATION

See Table for depth and diameter

POST SIZE & TYPE	FOUNDATION *			REINFORCEMENT					
	DIA.	MIN. DEPTH	CY^3 CONC.	VERTICAL BARS			HOOPS		
				QTY.	SIZE	LGTH.	QTY.	SIZE	DIA.
2 1/2" TUBE	1'-6"	4'-0"	0.26	6	#4	3'-6"	7	#4	1'-2"
3" TUBE	1'-6"	4'-0"	0.26	6	#4	3'-6"	7	#4	1'-2"
3 1/2" TUBE	1'-6"	4'-6"	0.30	6	#4	4'-0"	8	#4	1'-2"
4" TUBE	2'-6"	4'-0"	0.72	7	#5	3'-6"	7	#4	2'-2"
4 1/2" TUBE	2'-6"	4'-6"	0.81	7	#5	4'-0"	8	#4	2'-2"
5" TUBE	2'-6"	5'-6"	1.00	7	#5	5'-0"	9	#4	2'-2"
W6 x 9	2'-6"	4'-0"	0.95	8	#5	3'-6"	7	#4	2'-2"
W6 x 12	2'-6"	4'-6"	1.07	8	#5	4'-0"	8	#4	2'-2"
W6 x 15	3'-0"	6'-6"	1.69	8	#5	6'-0"	11	#4	2'-8"
W6 x 30	3'-0"	7'-6"	1.95	8	#5	7'-0"	12	#4	2'-8"

FOUNDATION TABLE

* Foundations sized for use where there are no loose, high moisture, or fine grained soils.

GENERAL NOTES

1. Furnish sign posts with NCHRP 350 or MASH compliant FHWA-approved frangible couplings designed to break away safely when struck from any direction. The frangible couplings shall not have specific installation torque requirements.
2. Furnish frangible coupling systems with bolt-on flanges.
3. Details on this sheet illustrate only the general components of a frangible coupling system, and are not intended to specify a particular product.
4. Install frangible fuse plates as specified by the manufacturer and hinged joints when multiple posts are used to support a sign. Do not use round pipes.
5. Install the components of the breakaway system, including hinges, in accordance with the written instructions of the system manufacturer.
6. Use Class A concrete conforming to section 501 of the Standard Specifications. Furnish ASTM A615 grade 60 steel bars for concrete reinforcement conforming to AASHTO M31.
7. Spiral reinforcing steel may be substituted for hoops in concrete foundation. Spiral option shall consist of #3 plain spiral with 6" pitch with three flat turns at the top and one flat turn at the bottom.
8. Install the concrete anchors using a rigid template. Locate the anchors on centers and within tolerances specified by the manufacturer.
9. Install the anchors in fresh concrete as recommended by the manufacturer. Adjust the template's final position until it is level. Remove and replace all foundations that need more than 2 shims under any 1 coupling or more than a total of 3 shims under any pair of couplings to plumb the post.
10. Drill the holes for attaching brackets before the sign posts are hot dip galvanized. Test fit templates in the holes to ensure the brackets can be installed square to the posts.

REVISIONS		
Date	Description	By
4/28/10	Delete pipe, Add hinge	KJS

Sheet 1 of 1

State of Alaska
Department of Transportation
& Public Facilities

SIGN POST BASE AND FOUNDATION

S-31.01

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

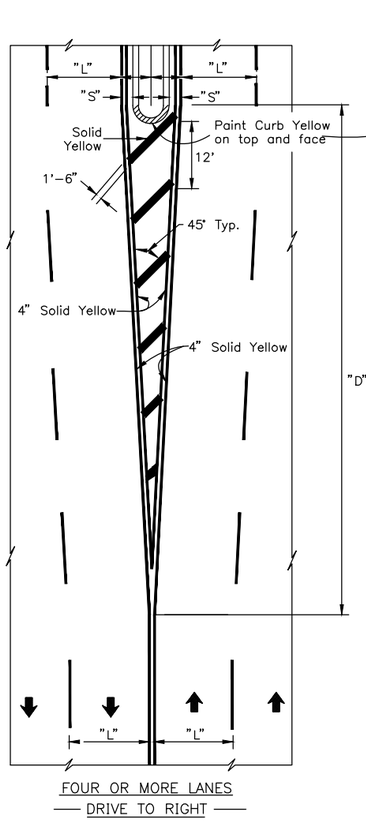
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STANDARD DRAWING
S-31.01

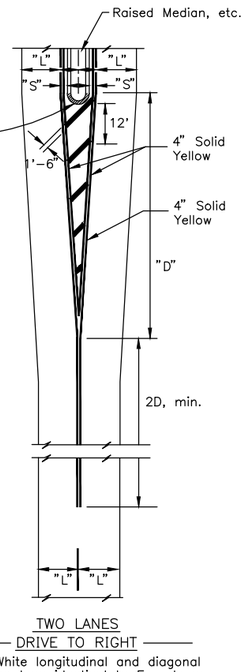
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	V25	V37

T-20.04

SHEET 1 of 1

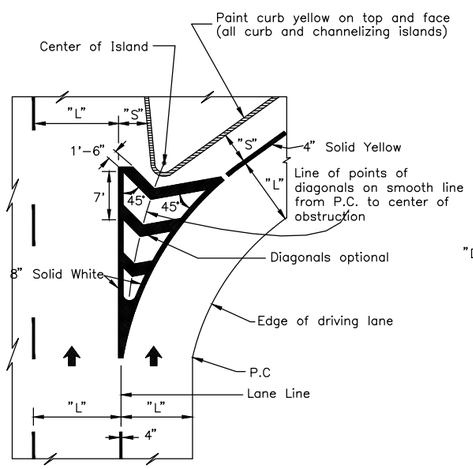


FOUR OR MORE LANES
DRIVE TO RIGHT

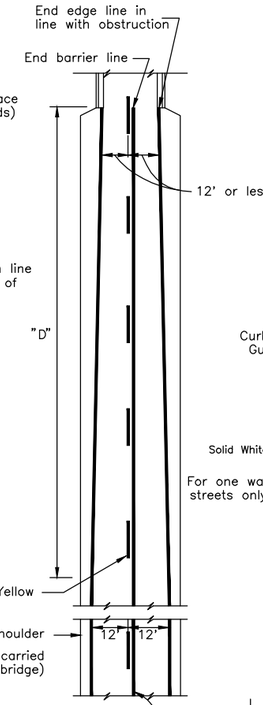


TWO LANES
DRIVE TO RIGHT

White longitudinal and diagonal markers identical to Four Lane Arrangement.



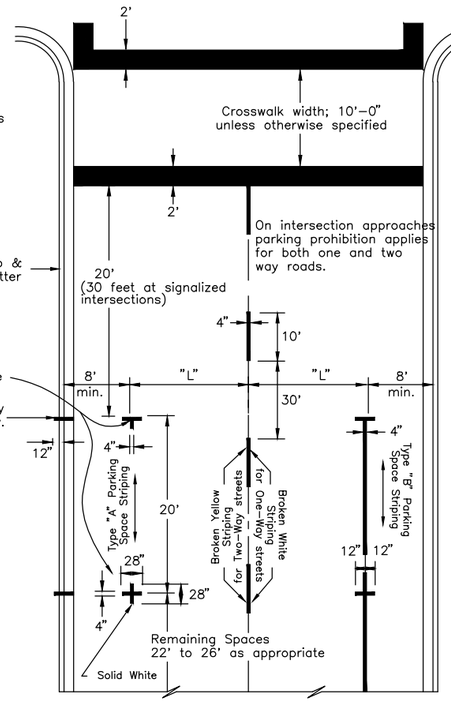
CHANNELIZING ISLAND



4" Solid yellow barrier line (500 foot length)

Note: On bridges over 24' wide use standard pavement markings. Barrier lines not used unless otherwise required.

EDGE LINE TRANSITION TO NARROW BRIDGE AND APPROACH BARRIER LINE



CENTERLINES FOR TWO LANE TWO WAY URBAN ROADS–PARKING LIMIT LINES

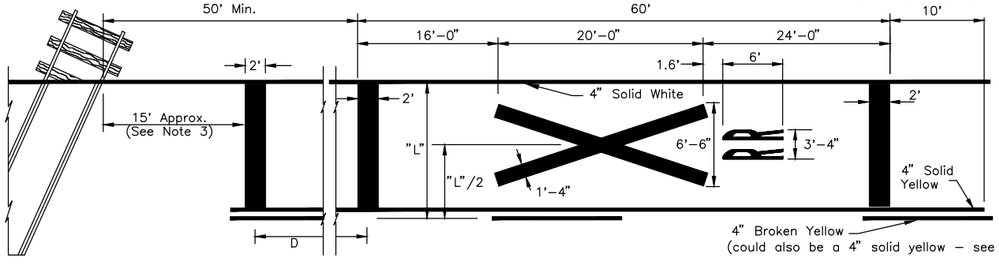
APPROACH TO OBSTRUCTIONS

NOTES: "D" = Speed limit (mph) X "S" (offset width in feet) or as indicated on the plans. Minimum "D" = 100 feet urban, 200 feet rural.

RAILROAD CROSSING NOTES:

1. All markings solid while unless indicated otherwise.
2. On 4–lane roadways place railroad crossing approach markings in each lane of the approach.
3. Locate Stop Bar 15' from railroad track or 8' from gate, if present.
4. Place edge lines and lane lines on a uni–directional approach in a normal manner except that the lane line(s) shall be solid 4" white in lieu of broken for a distance of (D+60') in advance of the stop bands.

POSTED LIMIT	D
30 M.P.H.	225'
40	350'
50	475'
60	625'



APPROACH TO RAILROAD CROSSING ON 2 LANE 2 WAY HIGHWAY

GENERAL NOTES:

1. "S"= offset distance as shown on the plans, otherwise 1 to 2 feet.
2. "L"= driving lane width.
3. See the Alaska Traffic Manual for additional guidance and/or restrictions on the use of traffic control devices.

NOT TO SCALE

State of Alaska DOT&PF

PAVEMENT MARKING APPLICATIONS

T-20.04

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

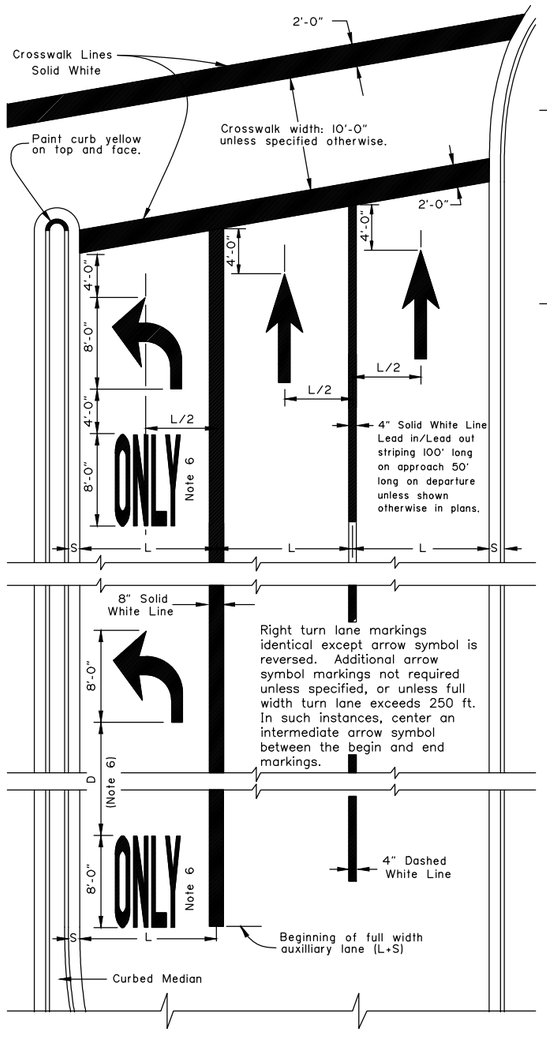
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STANDARD DRAWING
T–20.04

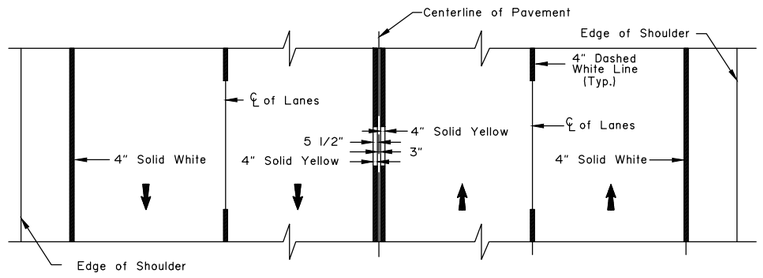
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	V26	V37

T-21.03

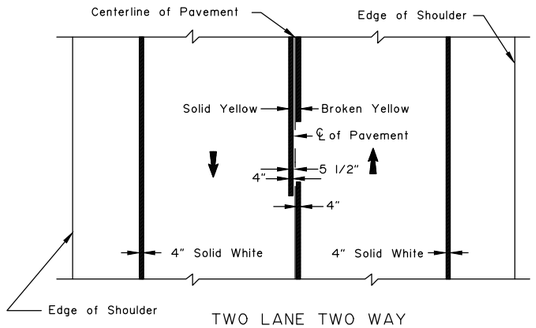
SHEET | of |



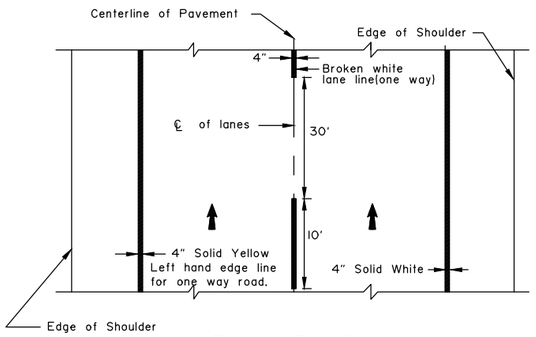
APPROACH TO INTERSECTION



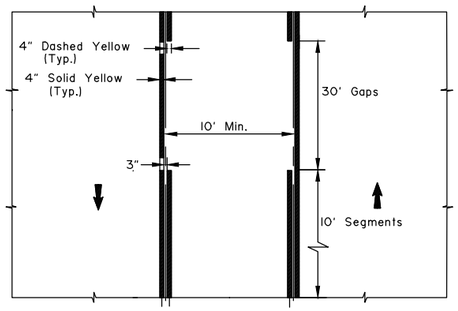
FOUR LANE TWO WAY



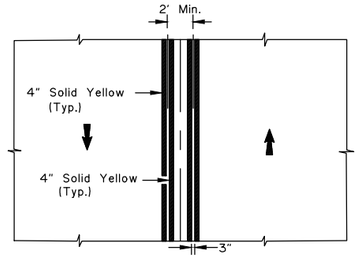
TWO LANE TWO WAY



TWO LANE ONE WAY



TWO-WAY LEFT TURN LANE



STRIPED MEDIAN

GENERAL NOTES:

1. All markings white unless indicated otherwise.
2. Lengths of stripe and gap for lane and center lines identical.
3. Lane lines for auxiliary lanes are unbroken solid lines.
4. "L" = driving lane width.
5. "S" = shy distance as shown on plans, otherwise 1 to 2 feet.
6. ONLY markings are required where through lanes change to turn lanes. In other cases, apply ONLY markings as indicated on plans.
7. See ALASKA TRAFFIC MANUAL for additional instruction on the use of TRAFFIC CONTROL DEVICES.
8. 6. Adjust distance D between ONLY and Turn Arrow based on SPEED vs. D table.

SPEED	D
25 or less	35'
30	45'
35	50'
40	60'
45	65'
50	75'
55 or more	80'

REVISIONS		
Date	Description	By
1/1/86	Arrow Dimension	Gdo
1/1/96	Intersect Note	Gdo
4/28/10	Details, labels, notes	KJS

State of Alaska
Department of Transportation
& Public Facilities

PAVEMENT MARKING APPLICATIONS

T-21.03

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

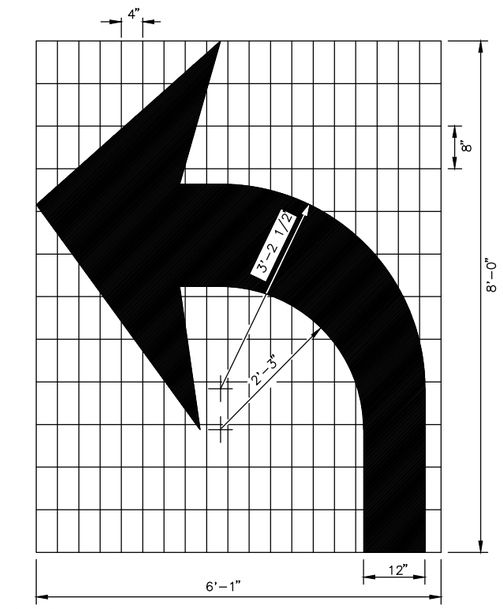
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STANDARD DRAWING
T-21.03

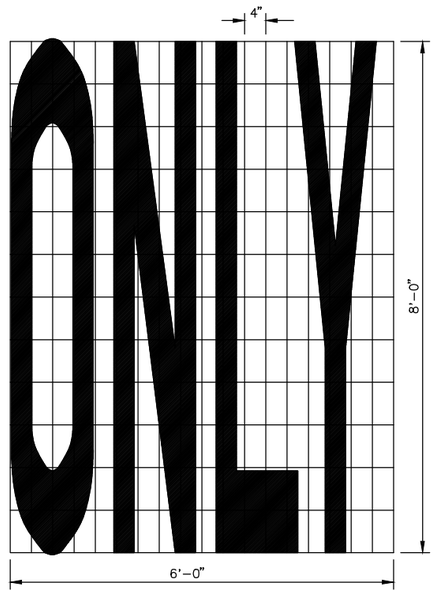
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	V27	V37

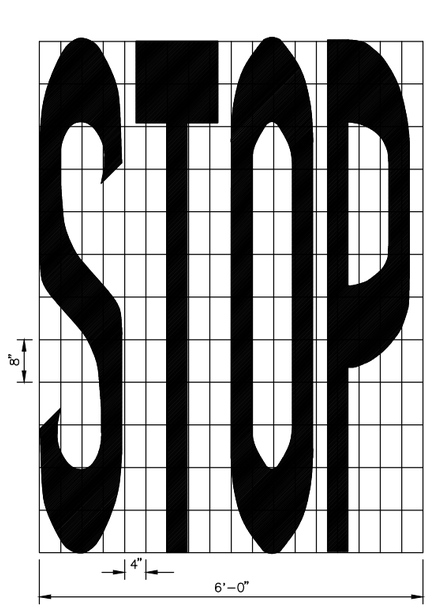
T-22.04

SHEET 1 of 1

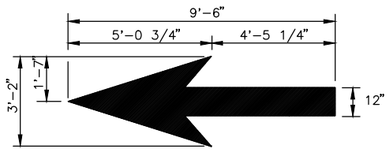


Right turn auxilliary lane usage markings identical except arrow symbol is reversed.

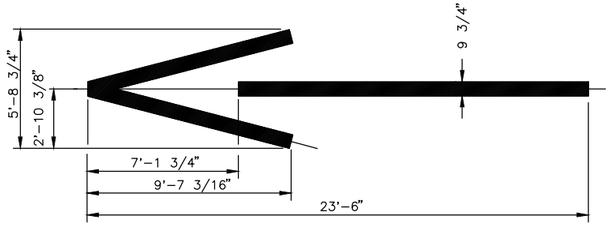




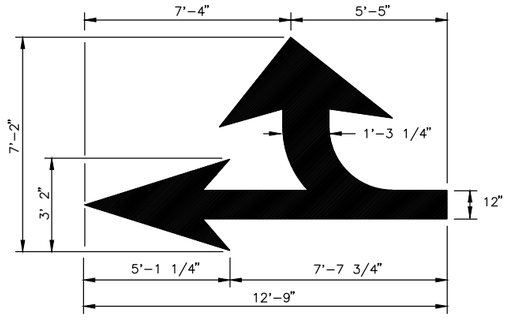
LAYOUT TEMPLATES FOR STENCILS



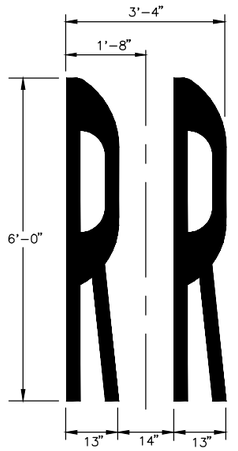
STRAIGHT AHEAD ARROW



WRONG WAY ARROW



COMBINATION ARROW



RAILROAD SYMBOL

GENERAL NOTES:

1. All symbols shown shall be white and reflectorized in accordance with the Special Provisions.
2. See the Alaska Sign Design Specifications (ASDS) for lettering and symbols for pavement marking details not provided on this drawing.

REVISIONS		
Date	Description	By
12/11/18	Revise RR Symbol	SP

State of Alaska DOT&PF

PAVEMENT MARKING SYMBOL DIMENSIONS

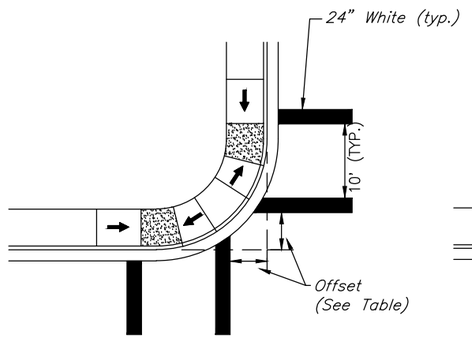
T-22.04

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

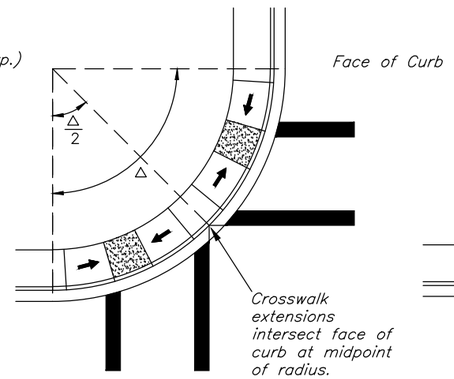
STANDARD DRAWING
T-22.04

T-23.00



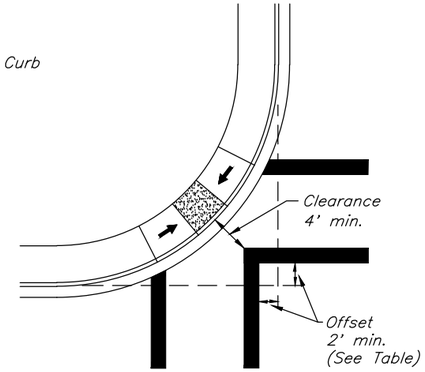
CASE 1

Dual Curb Ramps
Radius ≤ 25'



CASE 2

Dual Curb Ramps
25' < Radius ≤ 50'



CASE 3

Single Central Curb Ramp
25' ≤ Radius ≤ 50'
(Not Recommended)

CASE 1	
Crosswalk Offset From Face of Curb	
Radius (ft.)	Offset (ft.)
5	5
10	6
15	7
20	8
25	9

CASE 3	
Crosswalk Offset From Face of Curb	
Radius (ft)	Offset (ft)
25	2
30	3
35	5
40	6
45	8
50	9

NOTES.

1. The crosswalk locations shown assume a 90–degree intersection – adjust as necessary on skewed intersections to ensure that crosswalk landings (for parallel curb ramps) or ramp runs (for perpendicular curb ramps) fall within the inner edges of crosswalk stripes. If Case 3 (not recommended) is used, the layout should also be adjusted to provide at least the minimum clearance while maximizing the offset.
2. Although border crosswalks are shown, these details apply to ladder crosswalks also. When used, the outside of 10' wide ladder crosswalks should coincide with the inside of border crosswalks as shown here.
3. Border crosswalks should be used at traffic signals or on approaches controlled by stop signs. At other locations, ladder crosswalks should be used.
4. If only one crosswalk connects with a curb radius, it should be located as if there were two connecting crosswalks.
5. These details apply to parallel (shown) as well as perpendicular curb ramps.
6. Case 3, the layout for a single central curb ramp, should be used only when installing two ramps is not feasible. It should not be used for radii under 25 feet. See plans for ramp layout at particular locations.
7. Radius is measured to the face of curb.

REVISIONS		
Date	Description	By

State of Alaska
Department of Transportation
& Public Facilities

CROSSWALK LOCATION
AT INTERSECTIONS

T-23.00

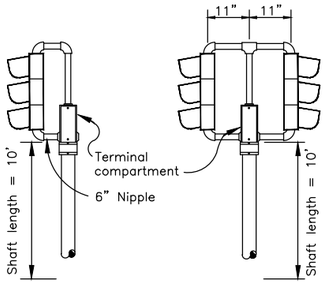
STANDARD DRAWING
T-23.00

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

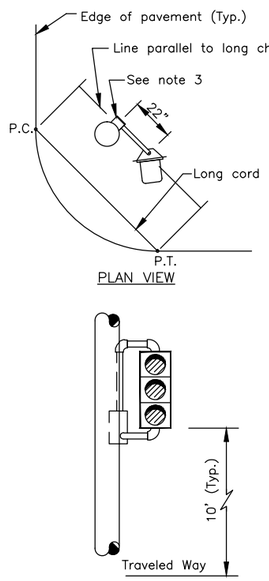
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	V29	V37

T-30.11

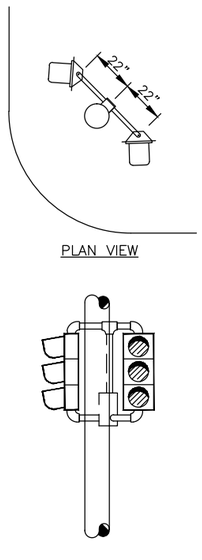


T-1 T-2



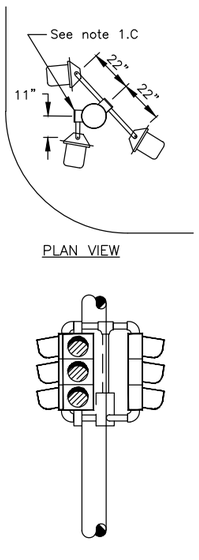
PLAN VIEW

S-1
Use a one way, L.O.D. frame for installing one face



PLAN VIEW

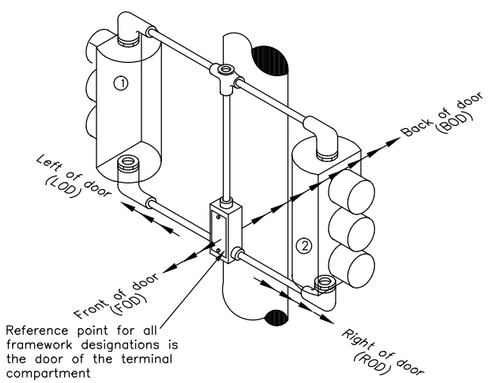
S-2
Use a two way frame for installing two faces



PLAN VIEW

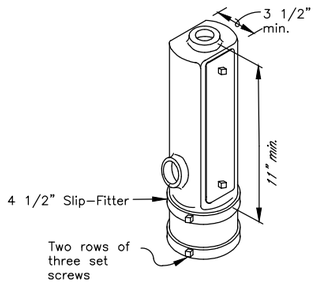
S-3
Use two frames for installing three faces: a two way and a one way R.O.D.

POST MOUNTED SIGNALS
(Shown without backplate)

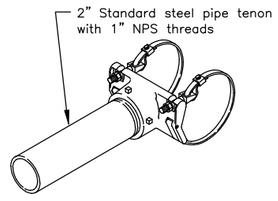


FRAMEWORK DESCRIPTION
Head no. ① offset L.O.D.
Head no. ② offset R.O.D.

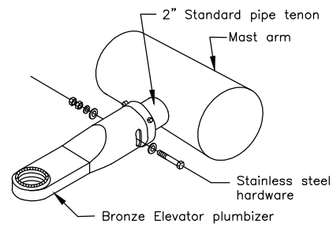
SIDE MOUNTED SIGNAL FRAMES WITH VEHICULAR SIGNALS
(Shown without backplates)



TERMINAL COMPARTMENT WITH SLIP FITTER
(See notes 1.C. and 2)



CLAMP ASSEMBLY FOR FIELD INSTALLED PLUMBIZER MOUNT
(See notes 4 and 8)



ELEVATOR PLUMBIZER
(See note 1.A.)

GENERAL NOTES

1. Install the signal faces in the plans as detailed on this sheet.
   A. Use elevator plumbizers to install faces on mast arms and whenever 2" pipe tenons are specified. Install the plumbizer between the red and yellow signal indications.
   B. Use signal frames to install signal faces on the sides of poles and on the tops of posts.
   C. Use a second signal frame to install the third face when three side mounted signal faces are shown.
2. Furnish all signal frames with terminal compartments.
3. Install one terminal compartment on the side of the pole opposite the midpoint of the radius. Position the terminal compartment at the location where a line parallel to the long cord (P.C. to P.T.) of the radius is tangent to the pole.
4. Field drill the holes needed for attaching all signal hardware. Remove burrs after drilling. Treat the bare steel surfaces in accordance with AASHTO M36.
5. Provide back plates sized for the number of signal sections and mounting type, so that no light is visible between the back plate and the signal face.
6. Attach all back plates using stainless steel rivets with large flange button heads. Install 3/16" diameter by 9/16" long stainless steel rivets that provide at least 535 lb. and 675 lb. shear and tensile strengths, respectively. Bore out the mounting hole in the back plates and signal heads to the diameter recommended by the rivet manufacturer.
7. Before installing the machine screws that secure the visors, coat the threads with an anti-seizing compound.
8. Furnish clamp assemblies for field-installed plumbizer mounts with stainless steel hardware, AB-3007-L as manufactured by Pelco Products, Inc., or approved equivalent. The tenon shall be a 6" length of 2" rigid metal conduit with 1" tapered threads on one end. Drill the tenon to accept the plumbizer through bolt and debur all openings. Coat the tenon threads with Z.R.C. Galvilite, Crown-Gold Calvanizing Compound, or approved equivalent.

REVISIONS		
Date	Description	By

Sheet 1 of 2

State of Alaska
Department of Transportation
& Public Facilities

TRAFFIC SIGNAL HARDWARE

T-30.11 Sheet 1

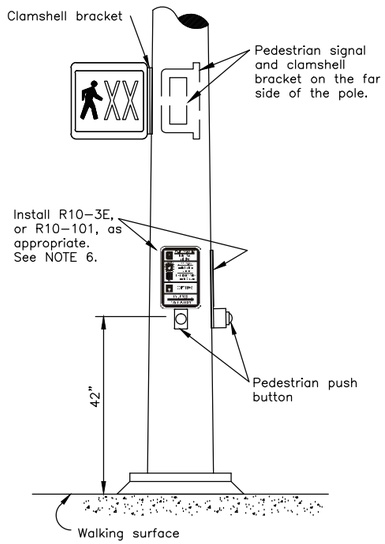
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

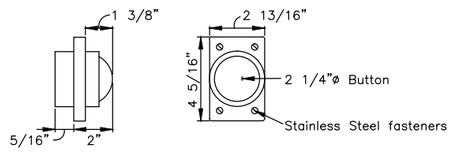
STANDARD DRAWING
T-30.11 1 OF 2

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	V30	V37

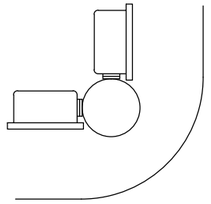
T-30.11



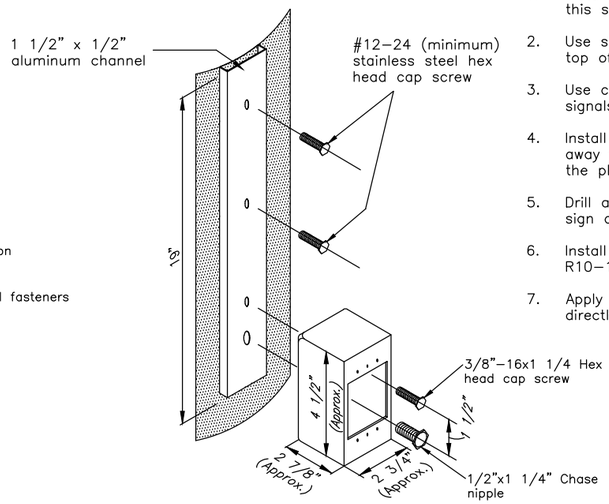
SIGNAL POLE MOUNTED PEDESTRIAN HARDWARE & SIGNAGE



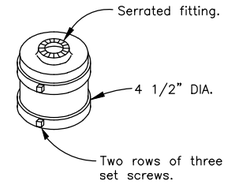
PEDESTRIAN PUSH BUTTON SWITCH



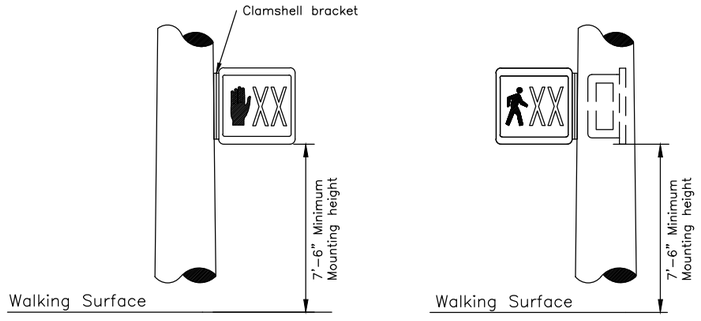
PLAN VIEW



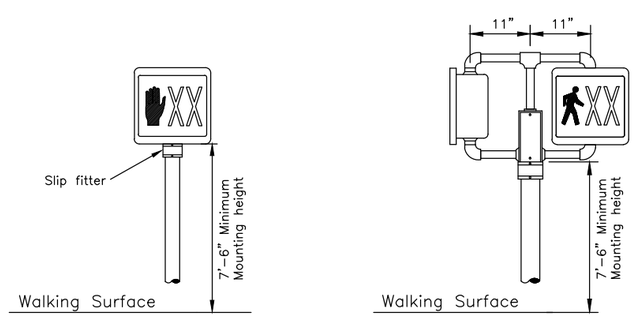
PEDESTRIAN PUSH BUTTON HOUSING



SLIP FITTER
(See note 2)



SIDE MOUNTED SIGNALS



POST MOUNTED SIGNALS

GENERAL NOTES

1. Install the signal faces in the plans as detailed on this sheet.
2. Use slip fitters to install pedestrian signals on the top of posts.
3. Use clamshell brackets to install all pedestrian signals except those that are post-top mounted.
4. Install pedestrian signals on the side of poles away from traffic, unless indicated otherwise in the plans.
5. Drill and tap the pole for all mounting holes for sign and pedestrian push button housing.
6. Install R10-3E if a push button is installed. Install R10-101 if no push button is installed.
7. Apply caint-seize compound to cap screws tapped directly into pole.

REVISIONS		
Date	Description	By
4/28/18	*Notes, signal, signage*	*KJS*

Sheet 2 of 2

State of Alaska
Department of Transportation & Public Facilities

TRAFFIC SIGNAL HARDWARE

T-30.11 Sheet 2

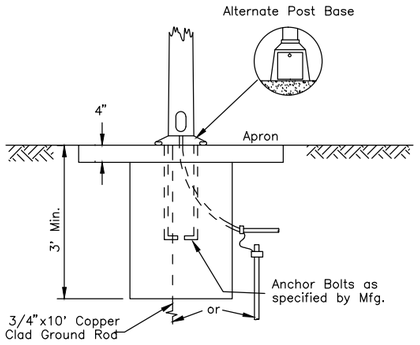
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

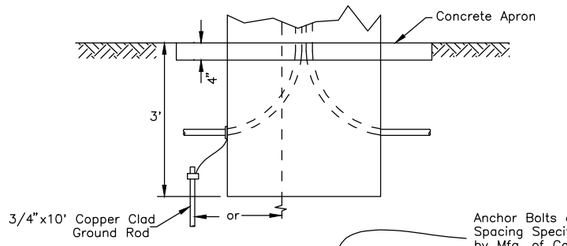
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

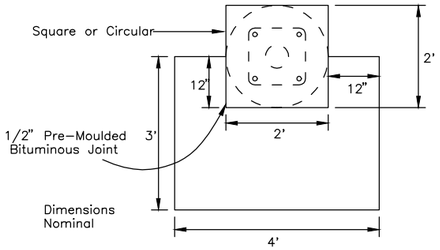
STANDARD DRAWING
T-30.11 2 OF 2

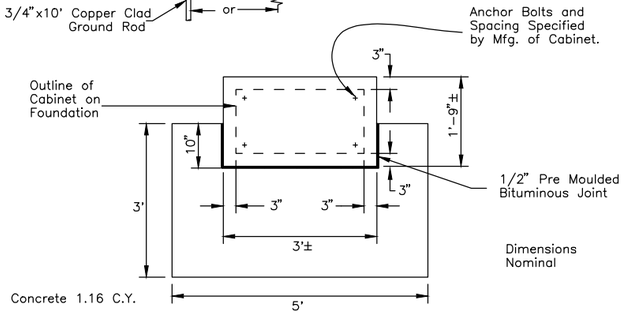
T-31.00

SHEET 1 of 1



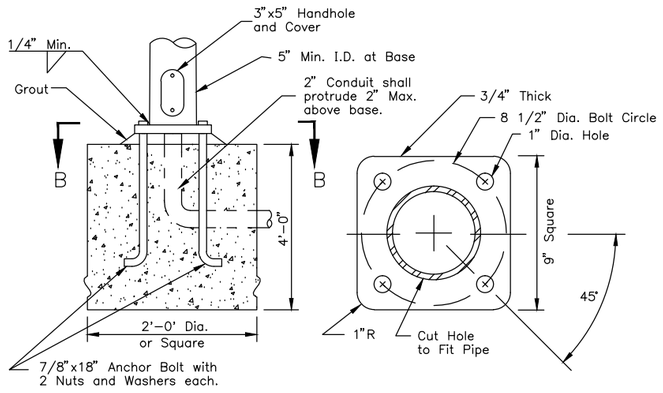


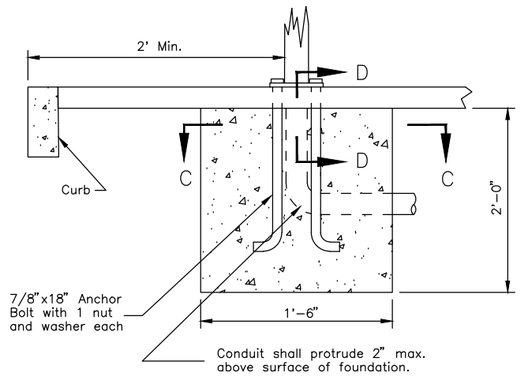


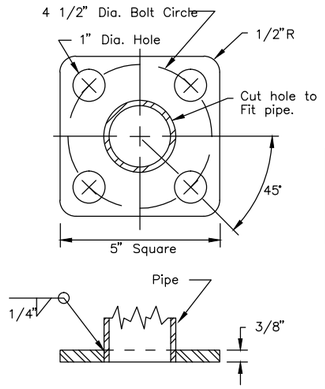


CONTROLLER BASE POST TYPE "C"

CONTROLLER BASE APRON TYPE "D"







SIGNAL BASE POST TYPE "A"

PUSH BUTTON BASE POST TYPE "B"

Use Class 'A' Concrete

GENERAL NOTES:

1. Install ground rod when continuous electrically secure system is not provided between controller and service ground.
2. Meter base shall not be installed in door of control cabinet.
3. Anchor bolts, nuts and washers shall be high strength steel and shall conform to A.S.T.M. A-325. Galvanizing of same shall conform to A.S.T.M. A-153.
4. Anchor bolts may be field cut and bent.
5. Damage to galvanized surfaces as a result of field drilling and or cutting shall be repaired in accordance with Federal Specifications TT-P-641.

REVISIONS		
Date	Description	By

State of Alaska
Department of Transportation & Public Facilities

TRAFFIC SIGNAL & ACCESSORIES FOUNDATION

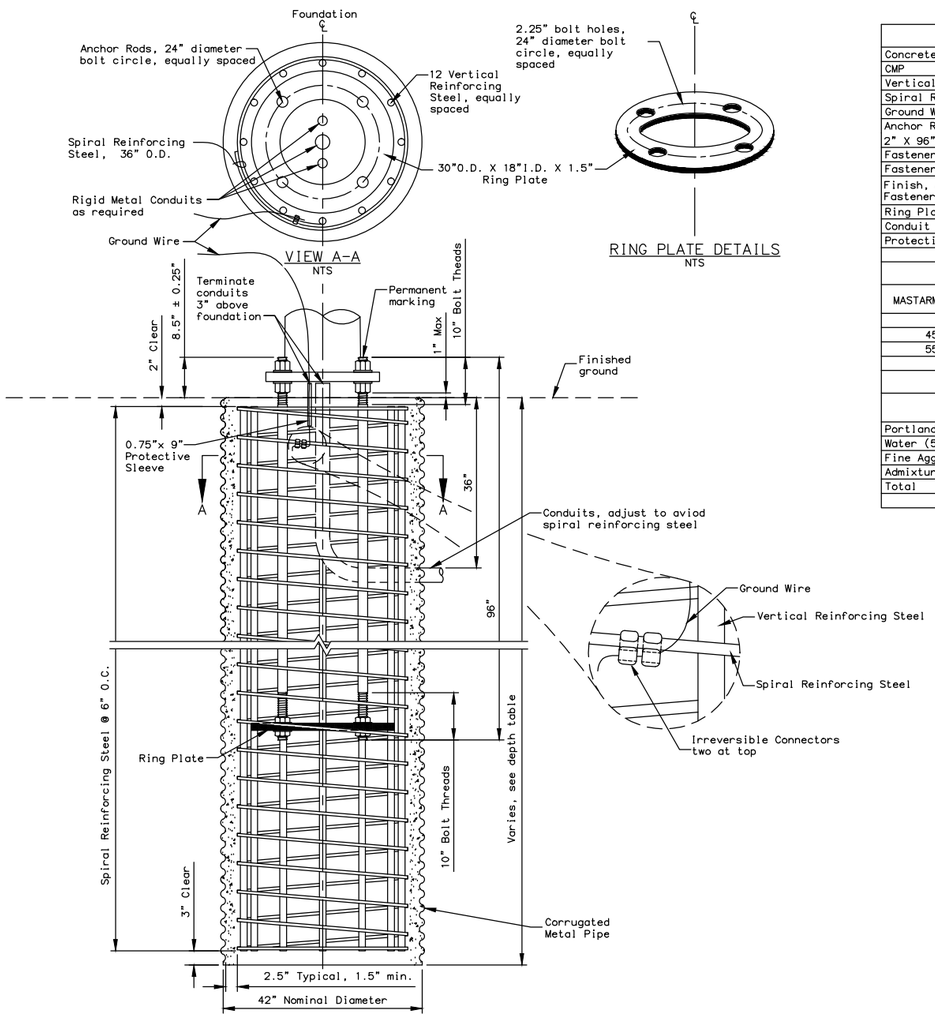
T-31.00

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STANDARD DRAWING
T-31.00

T-52.20



FOUNDATION DETAILS
NTS
(Skirt omitted for clarity)

MATERIAL REQUIREMENTS		
Concrete	Class A	f'c = 4000 psi
CMP	AASHTO M218	14 ga.
Vertical Reinforcing Steel	AASHTO M31 #11	GR 60
Spiral Reinforcing Steel	AASHTO M31 #5	GR 60
Ground Wire		#4 awg
Anchor Rods 2" X 96"	ASTM F1554 S2, S3, & S5	GR 105
Fasteners, Washers	AASHTO M293	
Fasteners, Nuts	AASHTO M292	
Finish, Anchor Rods & Fasteners	AASHTO M232	
Ring Plate	AASHTO M270	GR 36
Conduit	Sch 40	RMC
Protective Sleeve	Sch 40	PVC

DEPTH TABLE		
MASTARM(S) LENGTH (ft.)	FOUNDATION DEPTH BY APPLICATION (ft.)	
	SINGLE MASTARM	DOUBLE MASTARM
L <= 40	10	13
45 <= L <= 50	11	14
55 <= L <= 65	12	15

SAND SLURRY MIX DESIGN		
ITEM	BATCHING QUANTITIES PER CYD BATCH (lbs.)	APPLICABLE SPECS.
Portland Cement Concrete	188	701-2.01
Water (52.1 gal.)	435	712-2.01
Fine Aggregate SSD	3041	703-2.01
Admixture: Microair	2.0 oz.	711-2.02
Total	3664	

DESIGN NOTES:

Design Standard: 2001 Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals with 2006 Interim.

Design Load: 6,500 lbs axial, 6,500 lbs shear, 175,000 ft-lbs moment.

Construction Standards: Latest edition of the State Of Alaska Standard Specifications for Highway Construction with Special Provisions.

NOTES:

1. This foundation is approved for traffic signal applications in cohesionless soils with an N1-60 value of 10 or greater per AASHTO T-206, "Standard Penetration Test" (SPT). This foundation shall not be used if any of the following are encountered; water table above the bottom of foundation, very loose soils, organic soils or, cohesive soils (clay), or soils susceptible to frost jacking. If any of these conditions are encountered, stop foundation work and contact the Engineer.
2. Place foundation in drilled or excavated hole with centerline of foundation located at the station, offset, and elevation specified in plans. Set foundation flush with surrounding surface. Grade to drain away from foundation without exposing more than 4" of the foundation from the surrounding ground surface.
3. Form the foundation in corrugated metal pipe conforming to Subsection 707-2.01 of the Specifications.
4. Provide 1.5 extra turns at each end of the spiral reinforcing steel. Reinforcing steel shall not be spliced. Tie vertical reinforcing steel to each intersection of the spiral reinforcing steel.
5. Connect ground wire near the top spiral reinforcing steel with two irreversible connectors as shown. Fasten connectors according to the manufacturers' recommendations including the use of manufacturer specified tools. The ground wire may be bare solid, stranded, or braided copper. Protect ground wire with protective sleeve as shown and fill with silicon sealant.
6. The Ring Plate May be "built up" of multiple steel plates. The minimum thickness for any one plate is 0.5 inches. Fasten the ring plate to anchor rods with nuts and washers on both sides of ring plate as shown. Torque ring plate nuts to 600 ft-lbs.
7. Anchor rods are subject to Charpy V-Notch Impact Testing. Submit mill certifications for anchor rods, nuts and washers. Galvanize anchor rods full length. Provide permanent manufacturer's identification and permanent grade identification on each end of anchor rod by steel die stamp. Secure exposed anchor rods with a "ring plate" when not in service. Install anchor rods plumb. Anchor rods greater than 1:40 out-of-plumb will result in foundation rejection.
8. Complete all concrete work in conformance with Sections 501, 503, and 660 of the Specifications. Use a tube with a hopper head or other approved device when dropping concrete more than 5 feet per Subsection 501-3.08. Vibrate concrete during placement by mechanical vibration per Subsection 501-3.08. Ensure upper anchor rod threads are protected from contact with concrete during pour.
9. Backfill and compact according to Section 205, and Subsections 203-3.04 and 660-3.01 of the Specifications. Use select material, Type A or sand slurry as backfill material. Ensure area below foundation meets compaction requirements and is free of loose material and debris prior to concrete work.

REVISIONS		
Date	Description	By
05/31/12	Complete Modification	CMW

SHEET 1 OF 1

State of Alaska
Department of Transportation
& Public Facilities

CONCRETE 42" DIA.
SIGNAL POLE FOUNDATION

APPROVED

Date 05/31/12

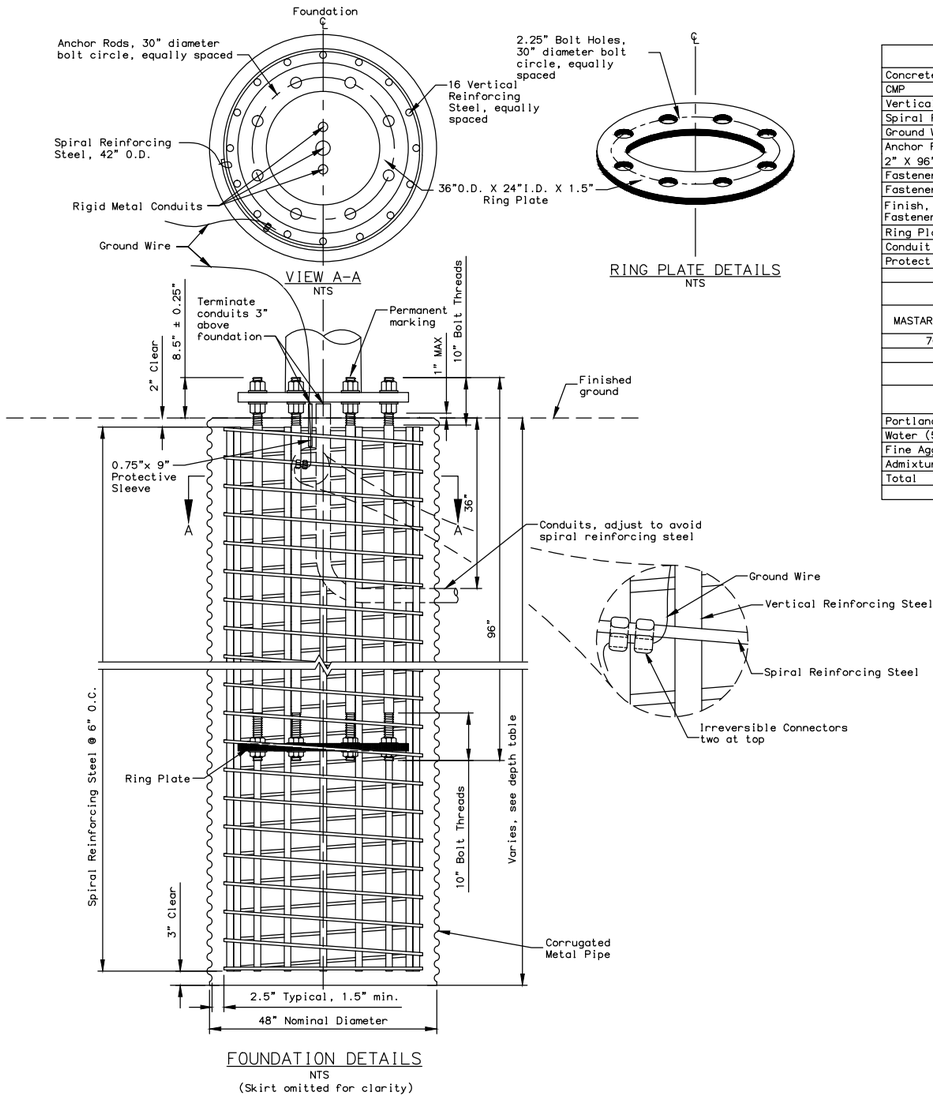
T-52.20

STANDARD DRAWING
T-52.20

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

T-53.00



FOUNDATION DETAILS
NTS
(Skirt omitted for clarity)

MATERIAL REQUIREMENTS		
Concrete	Class A	f'c = 4000 psi
CMP	AASHTO M218	14 ga.
Vertical Reinforcing Steel	AASHTO M31 #11	GR 60
Spiral Reinforcing Steel	AASHTO M31 #5	GR 60
Ground Wire		#4 awg
Anchor Rods 2" X 96"	ASTM F1554 S2, S3, & S5	GR 105
Fasteners, Washers	AASHTO M293	
Fasteners, Nuts	AASHTO M292	
Finish, Anchor Rods & Fasteners	AASHTO M232	
Ring Plate	AASHTO M270	GR 36
Conduit	Sch 40	RMC
Protective Sleeve	Sch 40	PVC

DEPTH TABLE		
MASTARM(S) LENGTH (ft.)	FOUNDATION DEPTH BY APPLICATION (ft.)	
	SINGLE MASTARM	DOUBLE MASTARM
70 <= L <= 75	12	15

SAND SLURRY MIX DESIGN		
ITEM	BATCHING QUANTITIES PER CYD BATCH (lbs.)	APPLICABLE SPECS.
Portland Cement Concrete	188	701-2.01
Water (52.1 gal.)	435	712-2.01
Fine Aggregate SSD	3041	703-2.01
Admixture: Microair	2.0 oz.	711-2.02
Total	3664	

DESIGN NOTES:

Design: 2001 Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals with 2006 Interim.

Design Load: 7,500 lbs axial, 7,500 lbs shear, 200,000 ft-lbs moment.

Construction Standard: Latest edition of the State Of Alaska Standard Specifications for Highway Construction with Special Provisions.

NOTES:

1. This foundation is approved for traffic signal applications in cohesionless soils with an N1-60 value of 10 or greater per AASHTO T-206, "Standard Penetration Test" (SPT). This foundation shall not be used if any of the following are encountered; water table above the bottom of foundation, very loose soils, organic soils, cohesive soils (clay), or soils susceptible to frost jacking. If any of these conditions are encountered, stop foundation work and contact the Engineer.
2. Place foundation in drilled or excavated hole with centerline of foundation located at the station, offset, and elevation specified in plans. Set foundations flush with surrounding surface. Grade to drain away from foundation without exposing more than 4" of the foundation from the surrounding ground surface.
3. Form the foundation in corrugated metal pipe conforming to Subsection 707-2.01 of the Specifications.
4. Provide 1.5 extra turns at each end of the spiral reinforcing steel. Reinforcing steel shall not be spliced. Tie vertical reinforcing steel to each intersection of the spiral reinforcing steel.
5. Connect ground wire near the top of spiral reinforcing steel with two irreversible connectors as shown. Fasten connectors according to the manufacturers' recommendations including the use of manufacturer specified tools. The ground wire may be bare solid, stranded, or braided copper. Protect ground wire with protective sleeve as shown and fill with silicon sealant.
6. The ring plate may be "built up" of multiple steel plates. The minimum thickness for any one plate is 0.5 inches. Fasten the ring plate to anchor rods with nuts and washers on both sides of ring plate as shown. Torque ring plate nuts to 600 ft-lbs.
7. Anchor rods are subject to Charpy V-Notch Impact Testing. Submit mill certifications for anchor rods, nuts and washers. Galvanize anchor rods full length. Provide permanent manufacturer's identification and permanent grade identification on each end of anchor rod by steel die stamp. Secure exposed anchor rods with a "ring plate" when not in service. Install anchor rods plumb. Anchor rods greater than 1:40 out-of-plumb will result in foundation rejection.
8. Complete all concrete work in conformance with Sections 501, 503, and 660 of the Specifications. Use a tube with a hopper head or other approved device when dropping concrete more than 5 feet per Subsection 501-3.08. Vibrate concrete during placement by mechanical vibration per Subsection 501-3.08. Ensure upper anchor rod threads are protected from contact with concrete during pour.
9. Backfill and compact according to Section 205, and Subsections 203-3.04 and 660-3.01 of the Specifications. Use select material, Type A or sand slurry as backfill material. Ensure area below foundation meets compaction requirements and is free of loose material and debris prior to concrete work.

REVISIONS		
Date	Description	By

SHEET 1 OF 1

State of Alaska
Department of Transportation
& Public Facilities

CONCRETE 48" DIA.
SIGNAL POLE FOUNDATION

APPROVED

Date 05/31/12

T-53.00

STANDARD DRAWING
T-53.00

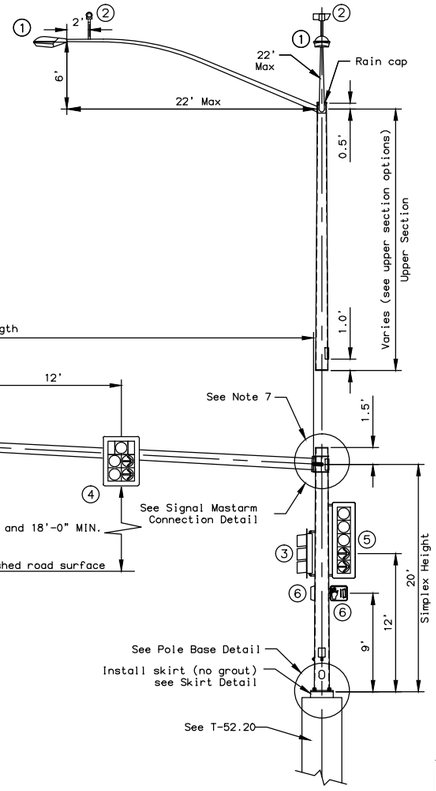
PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

T-56.00

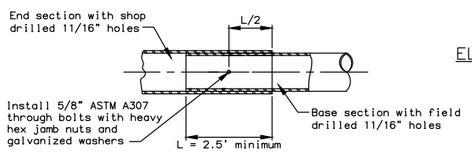
MASTARM DATA							
MASTARM		END SECTION			BASE SECTION		
Length (ft.)	Allowed Deflection Due To Galloping (in.)	Free End O.D. (in.)	Length (ft.)	Thick (in.)	Length (ft.)	Fixed End O.D. (in.)*	Thick (in.)
55	10.0	7.3	25.0	0.1793	33.34	14.6	0.375
60	10.0	7.3	25.0	0.1793	38.34	15.3	0.375
65	10.0	7.3	25.0	0.1793	43.34	16.0	0.375

*Fixed end diameter measured at connection to baseplate.

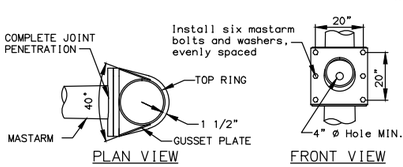


ELEVATION VIEW
NTS

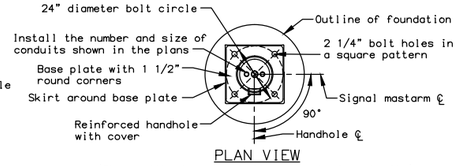
POLE DESIGN LOADING					
LOAD COMPONENT	HEIGHT (ft.)	WEIGHT (lbs.)	ICE AREA (sq ft.)	WIND AREA (FACE) (sq. ft.)	WIND AREA (SIDE) (sq. ft.)
1 = Luminaire	0.67	50	6.00	2.00	2.00
2 = Camera	0.50	20	2.00	0.50	1.00
3 = Signal	5.00	60	29.13	12.50	4.25
4 = Signal	5.33	100	46.26	20.44	4.25
5 = Signal	7.33	100	45.48	18.33	7.08
6 = Ped Head	1.33	25	6.83	2.00	0.67
7 = Sign	2.50	120	30.00	30.00	0.83



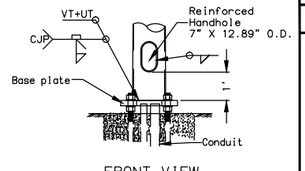
MASTARM SLIP SPLICE ELEVATION DETAIL
NTS



SIGNAL MASTARM CONNECTION DETAIL
NTS
(Elevation view of a ring stiffened built-up box)

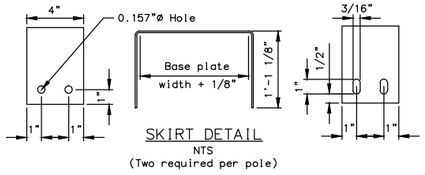


(Shown without anchor bolts and nuts for clarity)



(Skirt omitted for clarity)

POLE BASE DETAIL
NTS



SKIRT DETAIL
NTS
(Two required per pole)

MATERIAL REQUIREMENTS	
ALL ASSEMBLIES	
Steel Through 1/2" Thick	ASTM A572 or A595
Steel Over 1/2" Thick	AASHTO M270 F3 (50ksi)
Finish	AASHTO M111 & M232
Mastarm Bolts	AASHTO M164
Anchor Rods	See T-52.20
POLE (LOWER SECTION)	
Design Length	21.5'
Section Shape	Round
Simplex Height	20'
Fixed End Diameter	19.0" O.D.
Taper	0.14"/ft
Tube Thickness	0.375"
Base Plate	24" X 24" X 2.25"
Bolt Circle	24"
Signal Arm Plate	24" X 24" X 2.25"
Top Ring Thickness	0.375"
Bottom Ring Thickness	0.375"
Gusset Plate Thickness	0.375"
Handhole Cover Thickness	10 ga
Pole Skirt Thickness	10 ga
MASTARM	
Design Length	65'
Section Shape	Round
Taper	0.14"/ft
Tube Thickness	Mastarm Data
Mastarm Rise	3.0 Degrees
Base Plate	24" X 24" X 2.25"
Bolt Circle	6 Vertical O.C.
Mastarm Bolts	1.5" X 4.5"

NOTES:

1. Provide pole assemblies meeting the following design criteria; 2001 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, the latest edition of the Alaska Standard Specifications for Highway Construction including Standard Modifications and, Special Provisions. Design for a basic wind speed of 100 mph, Fatigue Category III, with galloping. Measure allowed deflection due to galloping at the free end of mastarm.
2. Provide poles to accommodate the maximum length shown in the Mastarm Data with the given loads, dimensions and material requirements.
3. This drawing shows loads (signs and signals) to be used by manufacturers when designing poles. It does not show actual loading of poles/mastarms on individual projects. This pole/mastarm design may be used without further analysis if the following conditions are met:
   - The guide sign (load #7) is attached to the mastarm base section and,
   - Not more than 4 traffic signals and/or signs are attached to the end section of the mastarm.

   If these conditions are not met, this standard pole/mastarm design may only be used if design computations are submitted that demonstrate conformance to design criteria (Note 1) using actual loads. Note: Devices with less than 1 square foot of projected area may be added to the mastarm without causing a need for additional design computations.
4. The manufacturer is to determine weld sizes. All welds and testing shall conform to the latest edition of the Structural Welding Code AWS D1.1. Provide visual test (VT) of 100% of all welds. Provide magnetic particle test (MT) of 100% of all fillet welds. Provide Radiographic (RT) or ultrasonic test (UT) of 100% of all complete joint penetration welds and a random 25% of all partial joint penetration longitudinal seam welds.
5. Fabricate pole tubes from no more than 2 pieces of steel. When using 2 pieces, place the longitudinal welded seams directly opposite one another.
6. Fabricate luminaire arms and connections according to Standard Drawing L-03.10.
7. Provide permanent tags on all pole sections per Section 740 Table 740-1 of the Specifications. Provide a rain cap when no upper section is specified.
8. The Department will reject damaged or defective poles for any of the following; variances from approved shop drawings, variances from material requirements, sections more than 2-percent out of round, sections bowed more than 1-inch throughout the length of the pole, mastarm, or segment and, damaged or dented finishes.
9. Drill a 1" maximum diameter hole at each traffic signal location. Orient the hole on the horizontal axis of mastarms.
10. Install pole plumb by ensuring the side opposite the mastarm is vertical in its final deflected position.
11. Align welded seams on adjacent sections of mastarms to form continuous straight seams the length of the mastarm. Mechanically force mastarm sections together for a snug fit.
12. Clean and remove dirt, burrs, mill scale, and excess galvanization on all faying surfaces and threaded parts before assembly. Lubricate the threads of all bolts and nuts with lubricant containing a visible dye. Tighten all bolts according to section 504 of the specifications.

REVISIONS		
Date	Description	By

SHEET 1 OF 2

State of Alaska
Department of Transportation & Public Facilities

SIGNAL POLE
WITH 55' TO 65' MASTARM?
LOWER SECTION

APPROVED

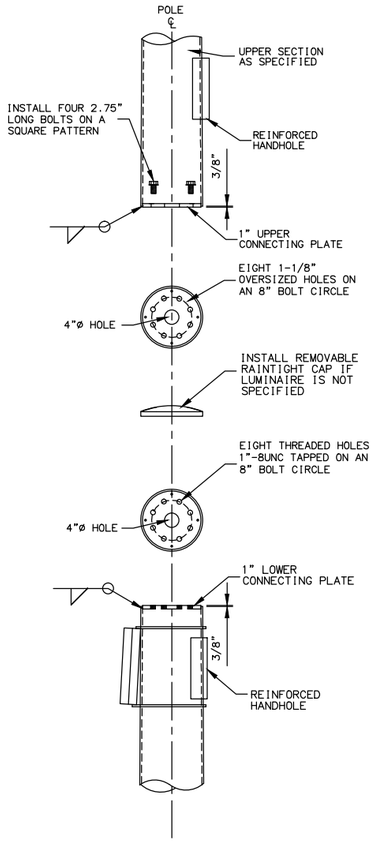
Date 05/31/12

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STANDARD DRAWING
T-56.00 1 OF 2

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0617013/NFHWY00468	2020	V35	V37

T-56.00



POLE CONNECTING DETAIL

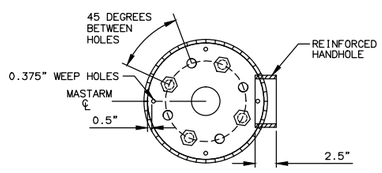
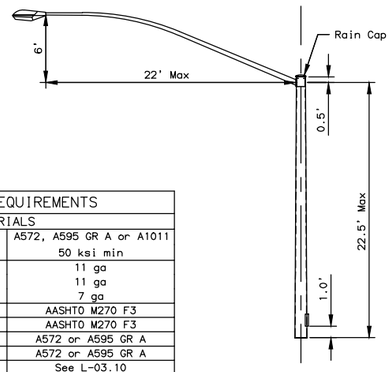
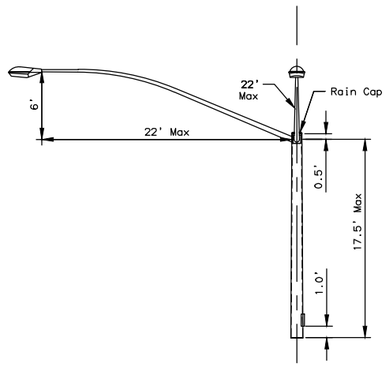


PLATE DETAILS

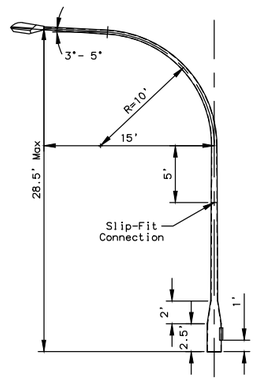
MATERIAL REQUIREMENTS	
MATERIALS	
Tube Material	A572, A595 GR A or A1011 50 ksi min
Single Luminaire Tube	11 ga
Double Luminaire Tube	11 ga
Davit Luminaire Tube	7 ga
Lower Connecting Plate	AASHTO M270 F3
Upper Connecting Plate	AASHTO M270 F3
Concentric Reducer	A572 or A595 GR A
Connection Tube	A572 or A595 GR A
Luminaire Arm Materials	See L-03.10
Upper Section Attachment Bolts	1"-8UNC / AASHTO M164
Luminaire Attachment Bolts	3/4"-10 / AASHTO M164
Slip-fit Through Bolt	5/8" / AASHTO M164
Finish	AASHTO M111 & M232
Handhole	7" X 12.89" O.D.
SINGLE LUMINAIRE	
Design Length	22.5'
Section Shape	Round
Fixed End Diameter	15.99" O.D.
Taper	0.14"/ft
Luminaire Arm Details	See L-03.10
DOUBLE LUMINAIRE	
Design Length	17.5'
Section Shape	Round
Fixed End Diameter	15.99" O.D.
Taper	0.14"/ft
Luminaire Arm Details	See L-03.10
DAVIT LUMINAIRE ARM	
Design Height	28.5'
Design Offset	15'
Radius	10'
Section Shape	Round
Fixed End Diameter	15.99" O.D.
Free End Diameter	2.375" O.D.
Taper	0.14"/ft
Concentric Reducer	7 ga
Connection Tube	7 ga



SINGLE LUMINAIRE

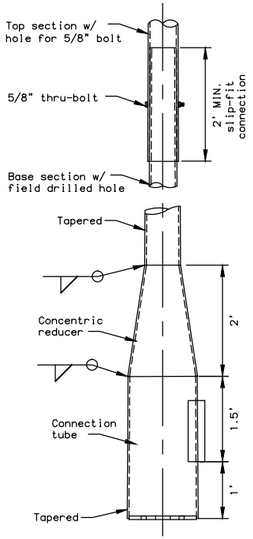


DOUBLE LUMINAIRE

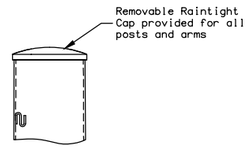


DAVIT LUMINAIRE

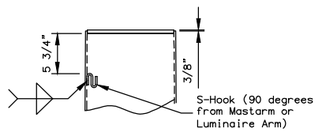
UPPER SECTION OPTIONS
NTS



DAVIT CONNECTION DETAIL
NTS



RAIN CAP DETAIL



LOWER SECTION POST TOP
NTS

REVISIONS		
Date	Description	By

SHEET 2 OF 2

State of Alaska
Department of Transportation
& Public Facilities

SIGNAL POLE
WITH 55' TO 65' MASTARM?
UPPER SECTION

APPROVED

Date 05/31/12

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

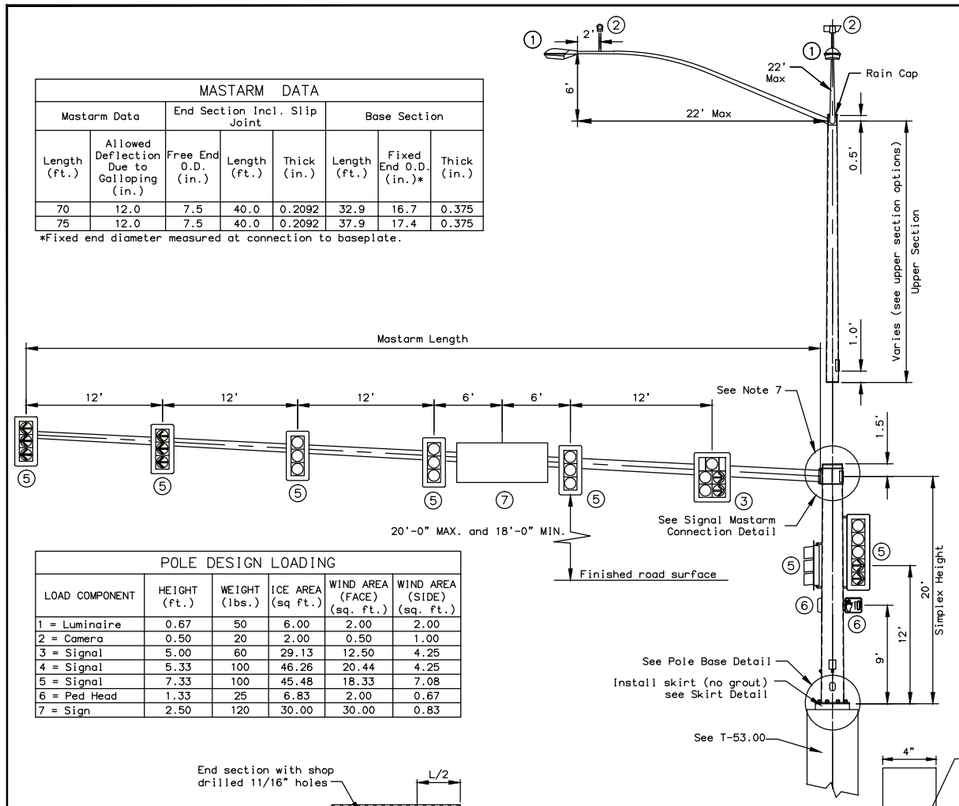
STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STANDARD DRAWING
T-56.00 2 OF 2

T-57.01

MASTARM DATA							
Mastarm Data		End Section Incl. Slip Joint			Base Section		
Length (ft.)	Allowed Deflection Due to Galloping (in.)	Free End O.D. (in.)	Length (ft.)	Thick (in.)	Length (ft.)	Fixed End O.D. (in.)*	Thick (in.)
70	12.0	7.5	40.0	0.2092	32.9	16.7	0.375
75	12.0	7.5	40.0	0.2092	37.9	17.4	0.375

*Fixed end diameter measured at connection to baseplate.



ELEVATION VIEW
NTS

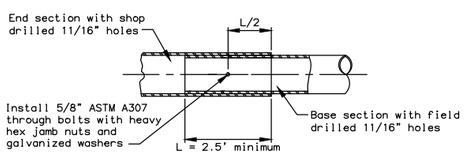
POLE DESIGN LOADING					
LOAD COMPONENT	HEIGHT (ft.)	WEIGHT (lbs.)	ICE AREA (sq ft.)	WIND AREA (FACE) (sq. ft.)	WIND AREA (SIDE) (sq. ft.)
1 = Luminaire	0.67	50	6.00	2.00	2.00
2 = Camera	0.50	20	2.00	0.50	1.00
3 = Signal	5.00	60	29.13	12.50	4.25
4 = Signal	5.33	100	46.26	20.44	4.25
5 = Signal	7.33	100	45.48	18.33	7.08
6 = Ped Head	1.33	25	6.83	2.00	0.67
7 = Sign	2.50	120	30.00	30.00	0.83

MATERIAL REQUIREMENTS	
ALL ASSEMBLIES	
Steel Through 1/2" Thick	ASTM A572 or A595
Steel Over 1/2" Thick	AASHTO M270 F3 (50ksi)
Finish	AASHTO M111 & M232
Mastarm Bolts	AASHTO M164
Anchor Rods	See T-53.00
POLE (LOWER SECTION)	
Design Length	21.5'
Section Shape	Round
Simplex Height	20'
Fixed End Diameter	21" O.D.
Taper	0.14"/ft
Tube Thickness	0.375"
Base Plate	36" O.D. X 2.25"
Bolt Circle	30"
Signal Arm Plate	26" X 26" X 2.25"
Top Ring Thickness	0.375"
Bottom Ring Thickness	0.375"
Gusset Plate Thickness	0.375"
Handhole Cover Thickness	10 ga
Pole Skirt Thickness	10 ga
MASTARM	
Design Length	75'
Section Shape	Round
Taper	0.14"/ft
Tube Thickness	Mastarm Data
Mastarm Rise	3.0 Degrees
Base Plate	26" X 26" X 2.25"
Bolt Circle	8 Vertical O.C.
Mastarm Bolts	1.5" X 4.5"

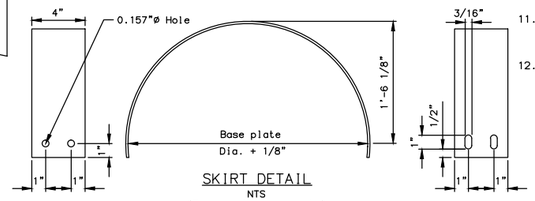
NOTES:

1. Provide pole assemblies meeting the following design criteria; 2001 AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals, the latest edition of the Alaska Standard Specifications for Highway Construction including Standard Modifications and, Special Provisions. Design for a basic wind speed of 100 mph, Fatigue Category III, with galloping. Measure allowed deflection due to galloping at the free end of mastarm.
2. Provide poles to accommodate the maximum length shown in the Mastarm Data with the given loads, dimensions and material requirements.
3. This drawing shows loads (signs and signals) to be used by manufacturers when designing poles. It does not show actual loading of poles/mastarms on individual projects. This pole/mastarm design may be used without further analysis if the following conditions are met:
   - The guide sign (load #7) is attached to the mastarm base section and,
   - Not more than 4 traffic signals and/or signs are attached to the end section of the mastarm.

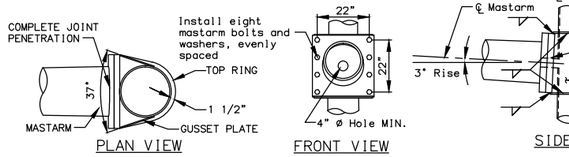
   If these conditions are not met, this standard pole/mastarm design may only be used if design computations are submitted that demonstrate conformance to design criteria (Note 1) using actual loads. Note: Devices with less than 1 square foot of projected area may be added to the mastarm without causing a need for additional design computations.
4. The manufacturer is to determine weld sizes. All welds and testing shall conform to the latest edition of the Structural Welding Code AWS D1.1. Provide visual test (VT) of 100% of all welds. Provide magnetic particle test (MT) of 100% of all fillet welds. Provide Radiographic (RT) or ultrasonic test (UT) of 100% of all complete joint penetration welds and a random 25% of all partial joint penetration longitudinal seam welds.
5. Fabricate pole tubes from no more than 2 pieces of steel. When using 2 pieces, place the longitudinal welded seams directly opposite one another.
6. Fabricate luminaire arms and connections according to Standard Drawing L-03.10.
7. Provide permanent tags on all pole sections per Section 740 Table 740-1 of the Specifications. Provide a rain cap when no upper section is specified.
8. The Department will reject damaged or defective poles for any of the following; variances from approved shop drawings, variances from material requirements, sections more than 2-percent out of round, sections bowed more than 1-inch throughout the length of the pole, mastarm, or segment and, damaged or dented finishes.
9. Drill a 1" maximum diameter hole at each traffic signal location. Orient the hole on the horizontal axis of mastarms.
10. Install pole plumb by ensuring the side opposite the mastarm is vertical in its final deflected position.
11. Align welded seams on adjacent sections of mastarms to form continuous straight seams the length of the mastarm. Mechanically force mastarm sections together for a snug fit.
12. Clean and remove dirt, burrs, mill scale, and excess galvanization on all faying surfaces and threaded parts before assembly. Lubricate the threads of all bolts and nuts with lubricant containing a visible dye. Tighten all bolts according to section 504 of the specifications.



MASTARM SLIP SPLICE ELEVATION DETAIL
NTS

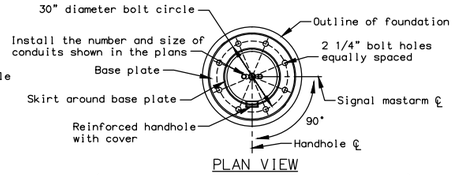


SKIRT DETAIL
NTS
(Two required per pole)

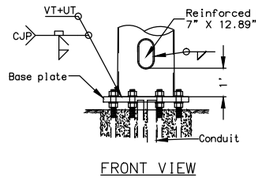


PLAN VIEW — FRONT VIEW — SIDE VIEW

SIGNAL MASTARM CONNECTION DETAIL
NTS
(Elevation view of a ring stiffened built-up box)



PLAN VIEW
(Shown without anchor bolts and nuts for clarity)



FRONT VIEW
(Skirt omitted for clarity)

POLE BASE DETAIL
NTS

REVISIONS		
Date	Description	By
07/15/14	Bolt circle leader corrected	CMW

SHEET 1 OF 2

State of Alaska
Department of Transportation & Public Facilities

SIGNAL POLE
WITH 70' TO 75' MASTARM?
LOWER SECTION

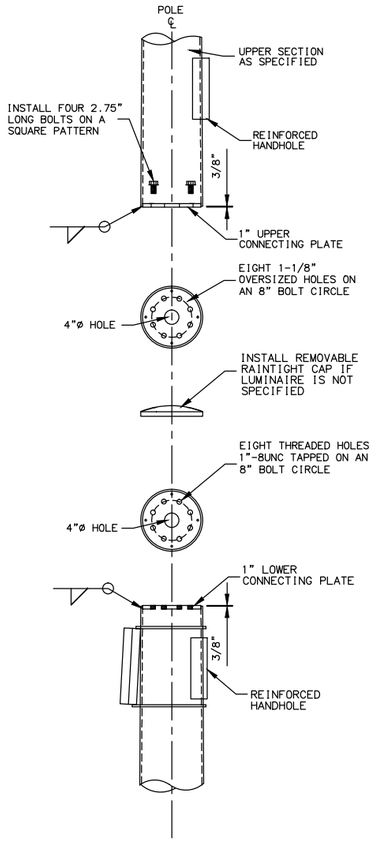
APPROVED
Date 07/15/14

PLANS DEVELOPED BY:
KINNEY ENGINEERING, LLC

STATE OF ALASKA
IAIN S. MCPHERSON
CE-13131
REGISTERED PROFESSIONAL ENGINEER
2/7/2020

STANDARD DRAWING
T-57.01

T-57.01



POLE CONNECTING DETAIL

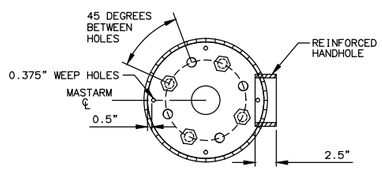
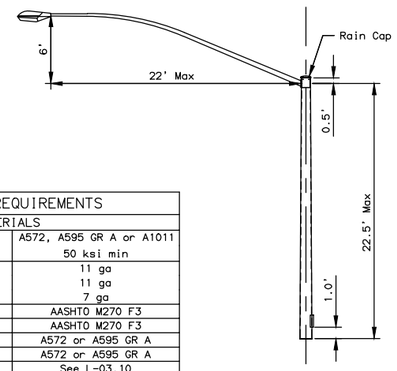
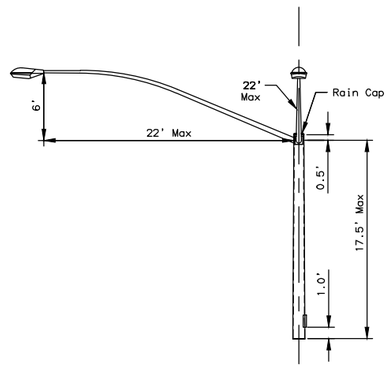


PLATE DETAILS

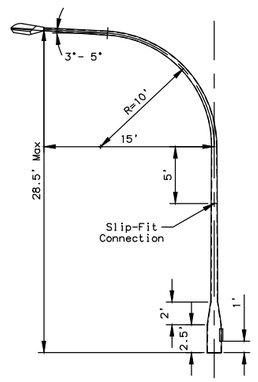
MATERIAL REQUIREMENTS	
MATERIALS	
Tube Material	A572, A595 GR A or A1011 50 ksi min
Single Luminaire Tube	11 ga
Double Luminaire Tube	11 ga
Davit Luminaire Tube	7 ga
Lower Connecting Plate	AASHTO M270 F3
Upper Connecting Plate	AASHTO M270 F3
Concentric Reducer	A572 or A595 GR A
Connection Tube	A572 or A595 GR A
Luminaire Arm Materials	See L-03.10
Upper Section Attachment Bolts	1"-8UNC / AASHTO M164
Luminaire Attachment Bolts	3/4"-10 / AASHTO M164
Slip-fit Through Bolt	5/8" / AASHTO M164
Finish	AASHTO M111 & M232
Handhole	7" X 12.89" O.D.
SINGLE LUMINAIRE	
Design Length	22.5'
Section Shape	Round
Fixed End Diameter	17.99" O.D.
Taper	0.14"/ft
Luminaire Arm Details	See L-03.10
DOUBLE LUMINAIRE	
Design Length	17.5'
Section Shape	Round
Fixed End Diameter	17.99" O.D.
Taper	0.14"/ft
Luminaire Arm Details	See L-03.10
DAVIT LUMINAIRE ARM	
Design Height	28.5'
Design Offset	15'
Radius	10'
Section Shape	Round
Fixed End Diameter	17.99" O.D.
Free End Diameter	2.375" O.D.
Taper	0.14"/ft
Concentric Reducer	7 ga
Connection Tube	7 ga



SINGLE LUMINAIRE

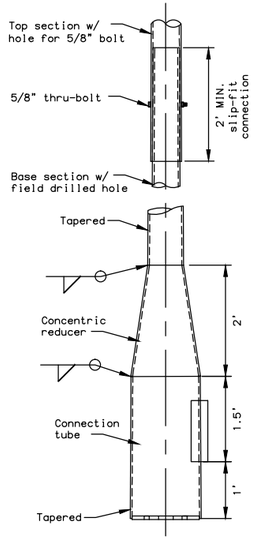


DOUBLE LUMINAIRE

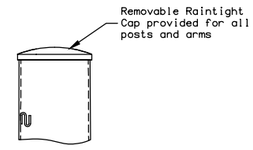


DAVIT LUMINAIRE

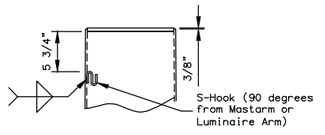
UPPER SECTION OPTIONS
NTS



DAVIT CONNECTION DETAIL
NTS



RAIN CAP DETAIL



LOWER SECTION POST TOP
NTS

REVISIONS		
Date	Description	By
07/15/14	Bolt circle leader corrected	CMW

SHEET 2 OF 2

State of Alaska
Department of Transportation
& Public Facilities

SIGNAL POLE
WITH 70' TO 75' MASTARM?
UPPER SECTION

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