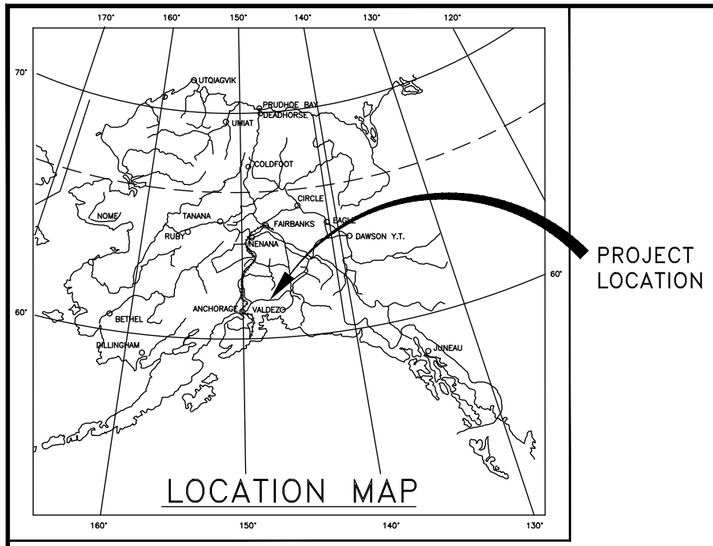
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	A1	43

CDS ROUTE: 139700 MILEPOINT: 8.66 TO 18.75



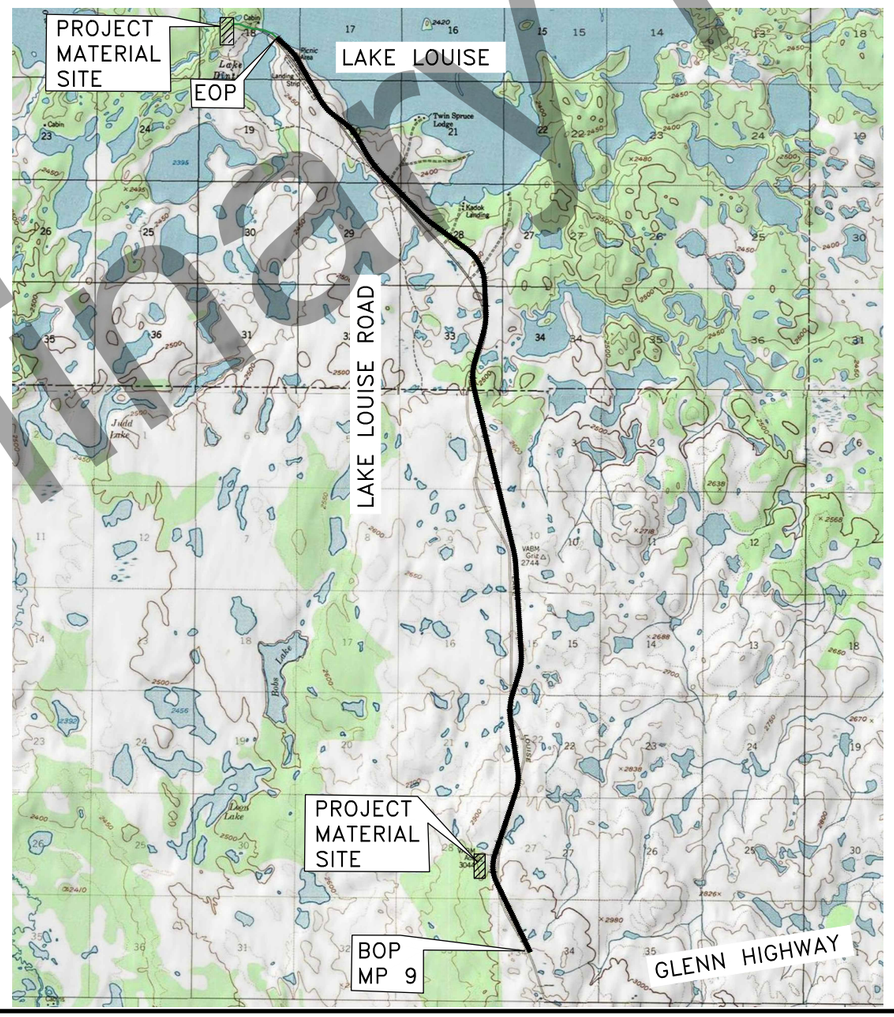
STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

PROPOSED HIGHWAY PROJECT

0809007/NFHWY00481

LAKE LOUISE ROAD RESURFACING

GRADING, DRAINAGE, ASPHALT SURFACE TREATMENT



INDEX OF SHEETS

SHEET NO.	DESCRIPTION
A1	TITLE SHEET
A2	LEGEND & SHEET LAYOUT INDEX
A3	CONTROL DRAWING
B1–B2	TYPICAL SECTIONS
C1	ESTIMATE OF QUANTITIES & GENERAL NOTES
D1	SUMMARIES
E1–E7	CULVERT/DRAINAGE DETAILS & SUMMARY
F1–F9	PROFILE SHEETS
G1	APPROACH SUMMARY & DETAILS
H1–H3	SIGNING & STRIPING
Q1–Q10	EROSION SEDIMENT CONTROL PLANS
T1	TRAFFIC CONTROL PLANS (and/or DEVICES)
V1–V5	STANDARD PLANS

THE FOLLOWING STANDARD PLANS APPLY TO THIS PROJECT:
S–00.12, S–01.02, S–05.02, S–30.05, S–31.02

DESIGN DESIGNATIONS

ADT (2019)	130
ADT (2035)	130
PERCENT TRUCKS (T)	12%
DIRECTIONAL SPLIT (D)	50/50
DESIGN SPEED (V)	45 MPH

PROJECT SUMMARY

WIDTH OF PAVEMENT	24 FEET
LENGTH OF GRADING	10 MILES
LENGTH OF PAVING	10 MILES
LENGTH OF PROJECT	10 MILES

GUANGYAN GRIFFIN, P.E., PROJECT MANAGER
ERIK BRUNNER, DESIGNER

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
&
PUBLIC FACILITIES

APPROVED BY:

_____ DATE _____

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

ACCEPTED FOR CONSTRUCTION:

_____ DATE _____

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

Preliminary Plans

HWYS TITLE SHEET
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\A1 title-A1 Thu, May/13/21 01:59pm

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	A2	A2

	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

MISCELLANEOUS 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

UTILITY EASEMENT LINE PUE

TEMPORARY EASEMENT LINE (TCP OR TCE) TCP

ACCESS OR SECTION LINE EASEMENT ACCESS EASEMENT

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.

	EXISTING	PROPOSED
SANITARY SEWER (FLOW DIRECTION →)	SS	SS
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, S-11, P-11, P-10, 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	T
TELEPHONE PEDESTAL		
BURIED CABLE MARKER		
PIPELINE MARKER OR VALVE		
CATCH BASIN OR DROP INLET		
MANHOLE	MH	MH
SANITARY SEWER CLEAN OUT		

	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		
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	
SEPTIC PIPE	S, MW	
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
SIGNAL FACE, VEHICULAR	42	42
SIGNAL FACE, BACKPLATE	42	42
SIGNAL FACE, LEFT TURN, BACKPLATE	43	43
SIGNAL FACE, PEDESTRIAN		
LOOP DETECTOR	33	73
VIDEO DETECTOR	2	2
RADAR DETECTOR	4	4A
OPTICOM DETECTOR	1	1
PEDESTRIAN PUSH BUTTON	1	1
SIGNAL POST W/O MAST ARM		1
SIGNAL POLE W/MAST ARM		4
SIGNAL CONTROLLER		
LOAD CENTER		
LUMINAIRE		2
RIGID METAL CONDUIT		

ABBREVIATIONS:

APPROX	APPROXIMATELY
CABC	CRUSHED ASPHALT BASE COURSE
℄	CENTERLINE
CY	CUBIC YARD
E	EAST, EASTING
ELE, ELEV	ELEVATION
EHD,	ENHANCED HYDRAULIC DESIGN
FT. '	FOOT, FEET
H	HORIZONTAL
HW/D	HEADWATER TO DIAMETER RATIO
IE	INVERT ELEVATION
IN, "	INCH, INCHES
L	LENGTH OF CURVE
L.C.L	LEFT OF CENTERLINE
LT	LEFT
LVC	LENGTH OF VERTICAL CURVE
MAX	MAXIMUM
MIN	MINIMUM
N	NORTH, NORTHING
NO.	NUMBER
NTS	NOT TO SCALE
O.C.	ON CENTER
PC	POINT OF CURVATURE
POT	POINT ON TANGENT
PST	PERFORATED STEEL TUBE
PT	POINT OF TANGENCY
PVI	POINT OF VERTICAL INTERSECTION
R	RADIUS
R.C.L	RIGHT OF CENTERLINE
RT	RIGHT
S	SOUTH
SQ. FT.	SQUARE FOOT
STA	STATION
T	TANGENT
TCE	TEMPORARY CONSTRUCTION EASEMENT
TS	TUBE STEEL
TYP	TYPICAL
V	VERTICAL
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
W	WEST
WWR	WELDED WIRE REINFORCEMENT
Ø	DIAMETER

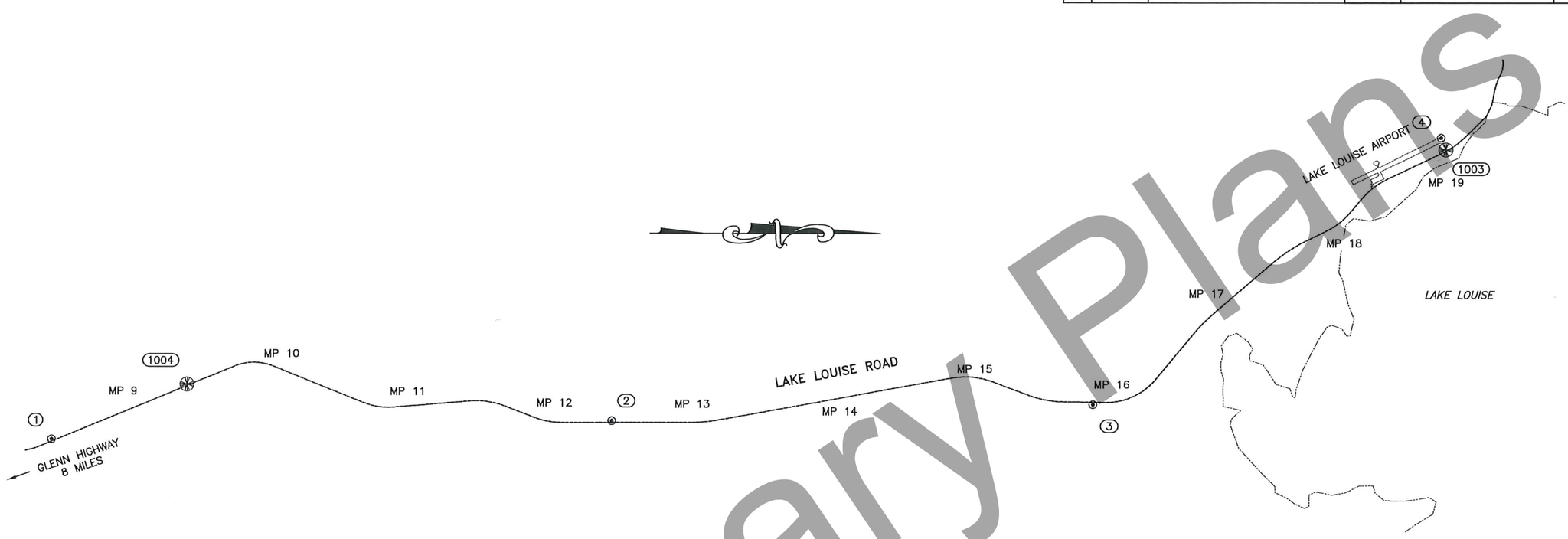
A2 LEGEND - HWYS
LEGEND & ABBREVIATIONS

STATE OF ALASKA 49TH — Guangyan Tu Griffin C.E. 11229 — REGISTERED PROFESSIONAL ENGINEER

Preliminary Plans

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\A2 Legend-A2 Legend - HWYS Legend & Abbreviations Thu, May/13/21 01:59pm

NO.	DATE	REVISION	STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
			ALASKA	NFHWY00481	2021	A3	A3



GENERAL NOTES

1. VERIFY HORIZONTAL AND VERTICAL CONTROL PRIOR TO USE. ON MULTI YEAR PROJECTS, VERIFY ALL CONTROL ON A SEASONAL BASIS.

2. BACKGROUND MAPPING IS SHOWN FOR ORIENTATION PURPOSES ONLY. THIS SHEET DOES NOT PURPORT TO DEPICT RIGHT OF WAY.

3. ALL DISTANCES SHOWN ARE GROUND DISTANCES, IN U.S. SURVEY FEET.

4. THIS PROJECT IS LOCATED ENTIRELY WITHIN THE LAKE LOUISE LOW DISTORTION PROJECTION (LDP), A LOW DISTORTION PROJECTION CREATED BY THE ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES.

LAKE LOUISE LDP DEFINITION:
LINEAR UNIT: U.S. SURVEY FOOT
DATUM: NAD83(2011)
PROJECTION: OBLIQUE MERCATOR (RECTIFIED SKEW ORTHOMORPHIC)
LATITUDE OF LOCAL ORIGIN: 64°17'00"N
LONGITUDE OF LOCAL ORIGIN: 142°07'00"W
FALSE NORTHING: −21,225,679.33 SFT
FALSE EASTING: 11,387,772.50 SFT
ORIGIN SCALE: 0.999021 (EXACT)
AZIMUTH ANGLE: −25°00'00

5. THE BASIS OF COORDINATES IS THE NAD83(2011)(EPOCH:2010.0000) OPUS AVERAGED POSITION OF SET CONTROL POINT 4 "LOUISE AIR", A REBAR AND CAP STAMPED "LOUISE AIR LS-116491 2020"

6. BASIS OF BEARING IS LAKE LOUISE LDP.

7. THE BASIS OF ELEVATION IS THE OPUS AVERAGED GEOID12A (NAVD88) ELEVATION OF 2470.78 FT AT POINT 4 "LOUISE AIR".

CONTROL MONUMENTS

POINT NO.	NORTHING	EASTING	ELEVATION	LATITUDE	LONGITUDE	DESCRIPTION
1	29669.65	378250.50	3135.49	N62° 09' 46.5100"	W146° 29' 59.8044"	REBAR CAP SET LOUISE 8.3 S14471 2020
2	49587.97	377582.35	2696.78	N62° 13' 01.6906"	W146° 30' 42.3728"	REBAR CAP SET LOUISE 12.4 S14471 2020
3	66699.47	376986.79	2484.33	N62° 15' 49.3505"	W146° 31' 19.5336"	REBAR CAP SET LOUISE 15.8 S14471 2020
4	79025.04	367501.92	2470.78	N62° 17' 43.9805"	W146° 34' 57.4084"	REBAR CAP SET LOUISE AIR S14471 2020
1003	79194.76	367920.40	2468.27	N62° 17' 45.9324"	W146° 34' 48.8296"	PRIM MON FND AKDOT/PF GPS NO.21 1989
1004	34495.94	376292.63	3087.54	N62° 10' 32.6013"	W146° 30' 47.8382"	PRIM MON FND AKDOT/PF GPS NO.23 1989

LEGEND

- PRIMARY MONUMENT FOUND
- REBAR AND CAP SET

GRAPHIC SCALE

0 2000 4000 6000 8000 10000
SCALE 1"=2000'

SURVEY CONTROL

6

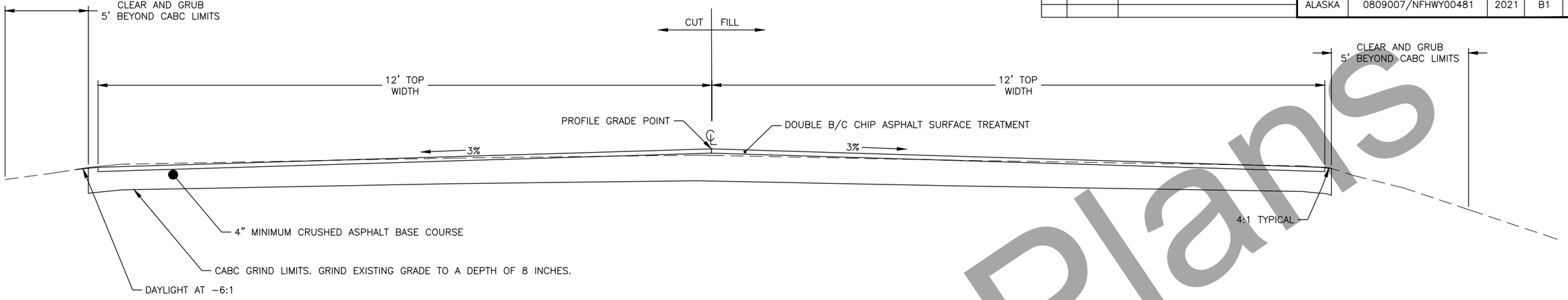
STATE OF ALASKA
LS-14471
REGISTERED PROFESSIONAL LAND SURVEYOR

Preliminary Plans

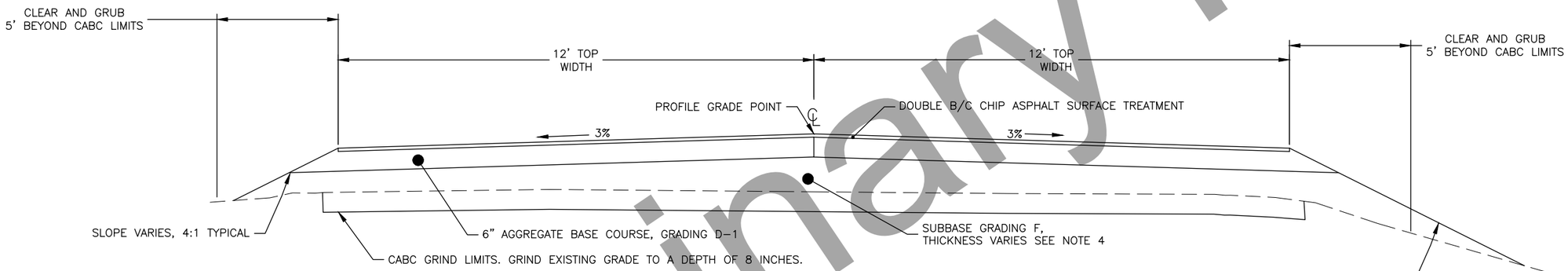
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
K:\20_Projects\Lake Louise MP 9_19 NFHWY00481\5-CAD Drawings\2-Control\NFHWY00481_Control-A3 Wed, Apr/28/21 11:42am

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	B1	B1



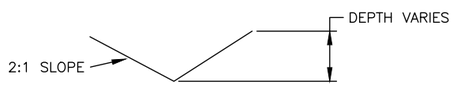
CABC ONLY TYPICAL SECTION



GRADE ADJUSTMENT TYPICAL SECTION

TYPICAL SECTION NOTES

1. SEED DISTURBED AREAS.
2. 4:1 TYPICAL FILL SLOPE, 2:1 MAXIMUM.
3. DESIGN CENTERLINE AND PROFILE ARE APPROXIMATE, THE INTENT IS TO PROVIDE A SMOOTH PROFILE UPON PROJECT COMPLETION.
4. CONSTRUCT CABC TYPICAL SECTION IN AREAS WHERE GRADE ADJUSTMENT IS PLUS OR MINUS SIX INCHES BASED ON THE APPROXIMATE DESIGN PROFILE.
5. CONSTRUCT GRADE ADJUSTMENT TYPICAL SECTION IN AREAS WHERE GRADE ADJUSTMENT IS MORE THAN SIX INCHES AND ASPHALTIC LAYER RECYCLING IS NOT NECESSARY BASED ON THE APPROXIMATE DESIGN PROFILE.
6. MATCH EXISTING FILL SLOPES AT CULVERT INSTALLATION LOCATIONS



SPECIAL DITCH

1. CONSTRUCT "V" DITCH AND GRADE TO DRAIN PONDED WATER TOWARD NEAREST CULVERT OR NATURAL DRAINAGE POINT WITHIN RIGHT OF WAY.
2. SURVEY TO ESTABLISH NECESSARY GRADE IS SUBSIDIARY.
3. 6 INCH DITCH DEPTH AT EACH DITCHING LOCATION START POINT.
4. DITCH MAY BE TERMINATED AT NATURAL DRAINAGE POINT IF ONE IS ENCOUNTERED.

DITCHING SUMMARY		
SIDE	Start	End
RIGHT	508+90	509+70
LEFT	528+46	532+50
RIGHT/LEFT	611+97	620+00

Preliminary Plans

TYPICAL SECTIONS 1 OF 2

STATE OF ALASKA 49TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\TYPICAL SECTIONS-TYPICAL SECTIONS 1 OF 2 Thu, May/13/21 01:59pm

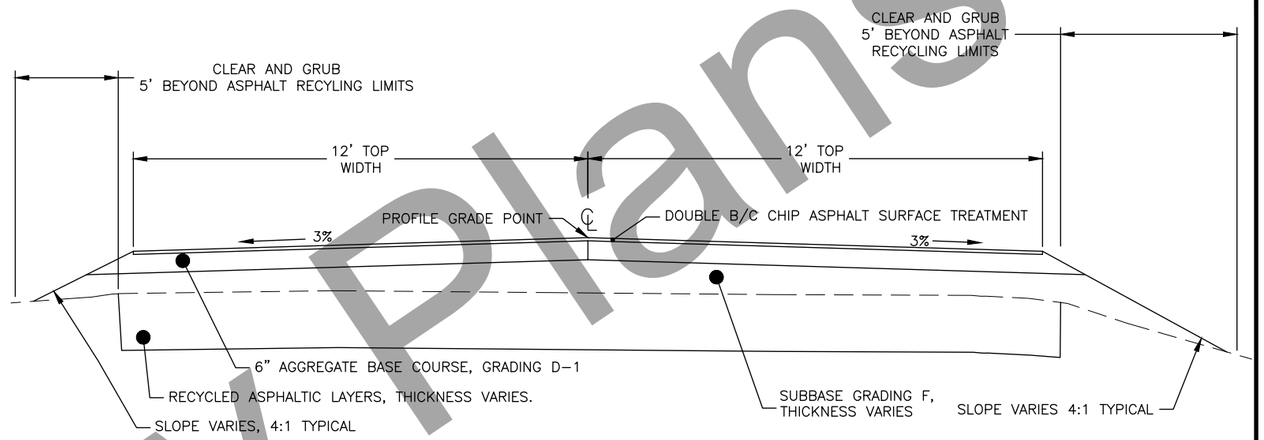
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	B2	40

ASPHALTIC LAYER RECYCLING STATIONS

STA. START	STA. END	LENGTH(FT.)	DEPTH TO LOWEST LAYER (FT.)	APPROXIMATE VOLUME(CY)	COMMENTS
474+65	476+70	205	1.25	246.8	
478+60	480+10	150	1.33	192.1	
504+30	504+50	40	1	38.5	
510+30	512+55	225	1.33	288.2	
513+90	514+30	60	1.25	72.2	
515+50	516+55	105	1.5	151.7	
525+25	525+85	60	1.25	72.2	
528+45	528+85	40	1	38.5	PARTIAL PIPE DIG
533+45	535+25	160	1.1	169.5	
552+65	553+25	60	1	57.8	
558+65	559+65	100	1.1	105.9	
560+45	561+25	80	1.25	96.3	
567+50	568+90	140	1.25	168.5	
571+25	571+45	20	1	19.3	
595+65	596+25	60	1	57.8	
607+85	608+65	80	2.5	192.6	
615+85	616+85	100	1.5	144.4	
620+85	626+05	520	1.67	836.2	
650+85	651+45	60	1.8	104.0	
653+65	654+85	120	1.9	219.6	
661+25	662+45	120	1.9	219.6	
671+45	673+65	220	1.5	317.8	
677+25	679+05	180	1.2	208.0	
689+85	690+25	40	1.5	57.8	
690+85	693+25	240	1.5	346.7	
695+65	696+05	40	2	77.0	
698+25	703+05	480	1.75	808.9	
709+85	710+05	20	1.5	28.9	
712+05	712+20	20	2	38.5	
763+85	765+05	120	1.5	173.3	
766+85	768+25	140	1.85	249.4	
778+65	785+45	680	2.5	1637.0	*
791+65	792+65	100	1.5	133.3	
793+25	793+65	40	1.5	53.3	
796+45	797+05	60	2.5	133.3	
803+85	814+45	1060	1.1	1036.4	
815+45	817+05	160	2	284.4	
822+45	829+25	680	1.25	755.6	
830+05	830+85	80	1.12	79.6	
832+25	832+45	20	1	17.8	
833+05	834+05	100	1.3	115.6	
835+65	842+85	720	1.1	704.0	
913+85	916+85	300	1.5	400.0	
923+45	924+45	100	2.5	222.2	
925+25	926+45	120	1.1	117.3	
947+65	948+05	40	1.5	53.3	
986+85	990+05	320	1.5	426.7	
TOTALS		7905		10330.9	

* EXCLUDE WITH DESIGN PROFILE, BURY EXISTING MATERIAL.



ASPHALTIC LAYER RECYCLING TYPICAL SECTION

NOTES

1. PROCESS EXISTING ASPHALTIC LAYERS TO THE LOWEST ASPHALT LAYER OR TO 18" BELOW THE EXISTING GRADE WHICHEVER IS LESS.
2. MATCH EXISTING TOP WIDTHS AND SLOPES AT CULVERT INSTALLATION LOCATIONS.

Preliminary Plans

STATE OF ALASKA 49TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

TYPICAL SECTIONS 2 OF 2

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
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NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	C1	C1

ESTIMATE OF QUANTITIES

ITEM NO.	PAY ITEM	PAY UNIT	QUANTITY
201.0009.0000	CLEARING AND GRUBBING	LUMP SUM	ALL REQUIRED
202.0017.0000	REMOVAL OF CULVERT PIPE	EACH	26
203.0003.0000	UNCLASSIFIED EXCAVATION	CUBIC YARD	5,000
203.0006.0000	BORROW	TON	3,000
203.2008.0000	SPECIAL DITCH	LINEAR FOOT	2,120
203.2060.0000	ASPHALTIC LAYER RECYCLING	STATION	79
204.0001.0000	STRUCTURE EXCAVATION	CUBIC YARD	16,200
204.2004.0000	EMBEDMENT MATERIAL	TON	3,200
301.0001.00D1	AGGREGATE BASE COURSE, GRADING D–1	TON	22,000
304.0001.000F	SUBBASE, GRADING F	TON	17,200
308.2000.0000	CRUSHED ASPHALT BASE COURSE	STATION	453
405.2002.0000	DOUBLE B/C CHIP AST	SQUARE YARD	141,900
602.0001.0060	STRUCTURAL PLATE PIPE 60" DIAMETER, 10 GAGE	LINEAR FOOT	207
602.0001.0084	STRUCTURAL PLATE PIPE 84" DIAMETER, 10 GAGE	LINEAR FOOT	86
602.0001.0108	STRUCTURAL PLATE PIPE 108:" DIAMETER, 10 GAGE	LINEAR FOOT	160
602.2000.0000	STRUCTURAL PLATE PIPE 60" DIAMETER, 10 GAGE, STATE FURNISHED	CONTINGENT SUM	ALL REQUIRED
602.2000.0000	STRUCTURAL PLATE PIPE 84" DIAMETER, 10 GAGE, STATE FURNISHED	CONTINGENT SUM	ALL REQUIRED
602.2000.0000	STRUCTURAL PLATE PIPE 108:" DIAMETER, 10 GAGE, STATE FURNISHED	CONTINGENT SUM	ALL REQUIRED
603.0001.0024	CSP 24 INCH	LINEAR FOOT	343
603.0001.0036	CSP 36 INCH	LINEAR FOOT	1,532
603.0001.0048	CSP 48 INCH	LINEAR FOOT	69
603.2016.0000	CLEAN CULVERT	EACH	5
611.0001.0001	RIPRAP, CLASS I	CUBIC YARD	210
613.0002.0000	CULVERT MARKER POST	EACH	54
615.0001.0000	STANDARD SIGN	SQUARE FOOT	200.75
615.0006.0000	SALVAGE SIGN	EACH	10
616.0002.0050	THAW PIPE $\frac{1}{2}$ INCH DIAMETER	EACH	27
618.0005.0000	SEEDING	LUMP SUM	ALL REQUIRED
628.2000.0000	FISH PASSAGE SUBSTRATE	LUMP SUM	ALL REQUIRED
630.0003.0002	GEOTEXTILE, REINFORCEMENT– TYPE 2	SQUARE YARD	605
631.0002.0001	GEOTEXTILE, EROSION CONTROL, CLASS 1	SQUARE YARD	309
639.2000.0000	APPROACH	EACH	28
639.2001.0000	PULLOUT	EACH	4
640.0001.0000	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQUIRED
640.0004.0000	WORKER MEALS AND LODGING, OR PER DIEM	LUMP SUM	ALLREQUIRED
641.0001.0000	EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM	ALL REQUIRED
641.0003.0000	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM	ALL REQUIRED
641.0004.0000	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	CONTINGENT SUM	ALL REQUIRED
641.0006.0000	WITHHOLDING	CONTINGENT SUM	ALL REQUIRED
641.0007.0000	SWPPP MANAGER	LUMP SUM	ALL REQUIRED
642.0001.0000	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED
642.0013.0000	THREE PERSON SURVEY PARTY	CONTINGENT SUM	ALL REQUIRED
643.0002.0000	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED
643.0025.0000	TRAFFIC CONTROL	CONTINGENT SUM	ALL REQUIRED
644.0001.0000	FIELD OFFICE	LUMP SUM	ALL REQUIRED
644.0002.0000	FIELD LABORATORY	LUMP SUM	ALL REQUIRED
644.0006.0000	VEHICLE	LUMP SUM	ALL REQUIRED
644.0015.0000	NUCLEAR TESTING EQUIPMENT STORAGE SHED	LUMP SUM	ALL REQUIRED
645.0001.0000	TRAINING PROGRAM, 1 TRAINEES/APPRENTICES	LABOR HOUR	????

FILL THE POND LOCATED PROJECT RIGHT BETWEEN 655+80 AND 657+05 WITH EXCESS UNCLASSIFIED EXCAVATION CONTAINING NO ASPHALTIC MATERIALS. THE PURPOSE OF THIS FILL IS TO MOVE THE PONDED WATER AWAY FROM ITS CURRENT ENCROACHMENT INTO THE ROAD EMBANKMENT.

LUMP SUM ESTIMATING FACTORS

ITEM NO.	DESCRIPTION	VALUE
201.0009.0000	CLEARING AND GRUBBING	12.5 ACRES
618.0005.0000	SEEDING	12.5 ACRES
628.2000.0000	FISH PASSAGE SUBSTRATE	RIPRAP, CLASS I 311CY, AGGREGATE BASE COURSE, GRADING D–1 126 TON

ESTIMATING FACTORS

ITEM NO.	DESCRIPTION	VALUE
203.0006.0000	BORROW	2 TONS/CUBIC YARD
203.0022.0000	ASPHALTIC LAYER RECYCLING	23,000 SQUARE YARD
204.2004.0000	EMBEDMENT MATERIAL	2 TONS/CUBIC YARD
301.0003.00D1	AGGREGATE BASE COURSE, GRADING D–1	2 TONS/CUBIC YARD
308.2000.0000	CRUSHED ASPHALT BASE COURSE	148,000 SQUARE YARD
304.0001.000F	SUBBASE, GRADING F	2 TONS/CUBIC YARD
405.2002.0000	CRS–2P ASPHALT FOR FIRST AGGREGATE LAYER	0.70 GALLONS/SQUARE YARD
405.2002.0000	CRS–2P ASPHALT FOR SECOND AGGREGATE LAYER	0.60 GALLONS/SQUARE YARD
405.2002.0000	GRADE B AGGREGATE FOR SURFACE TREATMENT	50 POUNDS/SQUARE YARD
405.2002.0000	GRADE C AGGREGATE FOR SURFACE TREATMENT	40 POUNDS/SQUARE YARD

POINTS

STATION	NORTHING	EASTING	OFFSET	ELEVATION	DESCRIPTION
BOP 467+50	32479.0609	377174.8053	0		
553+92.89	40596.9022	376749.7519	–114.2768		SPIKE SET
566+11.59	41731.3690	377042.1000	–72.84	2886.10	SPIKE SET
602+05.60	4330.4825	376850.6457	–82.49	2728.15	SPIKE SET
623+31.78	47344.0121	377521.6388	–80.30	2730.76	SPIKE SET
645+93.25	49587.9688	377582.3514	–62.95	2696.78	REBAR CAP SET
694+74.40	54433.9961	377289.5814	–69.61	2647.34	SPIKE SET
721+98.69	57135.4470	376918.0549	47.43	2604.42	SPIKE SET
774+33.72	62283.0210	376044.6129	38.80	2524.22	SPIKE SET
801+29.04	64843.4756	376832.1333	44.26	2502.24	SPIKE SET
819+84.35	66699.4682	376986.7876	82.70	2484.33	REBAR CAP SET
909+19.78	73507.7939	371539.5597	–50.46	2461.24	SPIKE SET
949+43.04	76569.0211	368991.3690	–263.40	2473.63	SPIKE SET
998+24.02	80690.1457	366520.6794	–28.28		PK SET
EOP	80763.8722	366433.5926	0	2364.28	

Preliminary Plans

PLANS DEVELOPED BY:: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451–2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9–19_Resurface1\6 Design\4 C3D\1 Plots\C1–ESTIMATE OF QUANTITIES Mon, May/17/21 02:44pm

ESTIMATE OF QUANTITIES

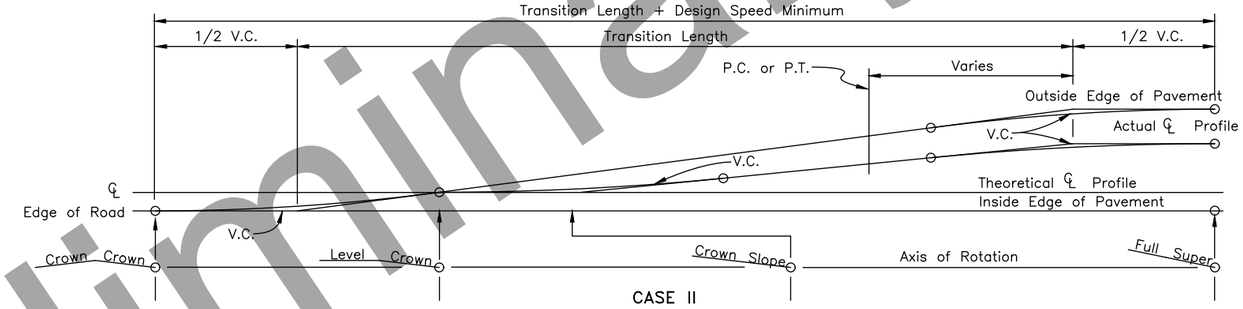
STATE OF ALASKA
49 TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	D1	D1

SUPERELEVATION SUMMARY

CURVE	RADIUS	BEGIN TRANSITION	TRANSITION LENGTH	CURVE PC	BEGIN FULL SUPERELEVATION	SUPERELEVATION RATE %	END FULL SUPERELEVATION	CURVE PT	TRANSITION LENGTH	END TRANSITION	REMARKS
1	1890	505+95	160	507+23.73	507+55	4	521+65	521+87.83	90	522+55	
2	2344.23	555+20	145	556+39.88	556+65	3.6	567+05	567+25.87	145	568+50	
3	2893	593+00	145	594+13.14	594+35	3	606+90	607+08.06	135	608+25	
4	2850	617+10	130	618+19.04	618+40	3	628+35	628+54.94	135	629+70	
5	5250	673+50	85	674+21.72	674+35	3	683+30	683+43.17	90	684+20	
6	2759	766+95	140	768+09.41	768+35	3.2	782+30	782+48.56	135	783+65	
7	3864	794+80	130	795+78.84	795+95	3	809+65	809+77.22	135	810+85	
8	2328	822+55	150	823+77.63	824+05	3.6	844+40	844+61.44	145	845+85	
9	5860.5	864+85	90	865+59.13	865+75	3	874+95	875.06.85	90	875+85	
10	5716	902+30	85	903+00.82	903+15	3	917+80	917+89.75	85	918+65	
11	2820	923+70	135	924+83.27	925+05	3.2	936+85	937+02.11	135	938+20	
12	2783	940+90	140	942+04.66	942+30	3.2	954+10	954+27.99	135	955+45	
13	2575.25	974+95	140	976+11.55	976+35	3.4	980+40	980+57.84	140	981+80	
14	6677.6		NONE	980+57.84		NORMAL CROWN		980+12	NONE		NORMAL CROWN
15	600	993+45	200	995+04.45	995+45	6	996+70	995+04.45	200	998+70	



CASE II

PAVEMENT REVOLVED ABOUT INSIDE EDGE

TO BE USED WHERE DRAINAGE IS THE GOVERNING CONSIDERATION

1. LOCATION OF TRANSITION LENGTH RELATIVE TO HORIZONTAL CURVES WILL BE SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
2. USE CASE II FOR SUPERELEVATION TRANSITION
3. MINIMUM VERTICAL CURVE LENGTH IN FEET SHALL BE THE NUMERICAL VALUE OF THE DESIGN SPEED IN M.PH.
4. SUPERELEVATION SHALL BE BUILT INTO THE SUBGRADE AND CARRIED THROUGH THE SHOULDERS.
5. WIDENING FOR GUARDRAIL OF CURVATURE WILL NOT CHANGE THE AXIS OF ROTATION.

Preliminary Plans

SUPERELEVATION SUMMARY

STATE OF ALASKA 49TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\SUPERELEVATION-SUPERELEVATION SUMMARY Thu, May/13/21 01:59pm

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	E1	E7

CORRUGATED METAL PIPE SUMMARY 603.0001*

INLET STA.	INLET OFFSET	INLET INVERT	OUTLET STA.	OUTLET OFFSET	OUTLET INVERT	48" LENGTH (FT)	36" LENGTH (FT)	24" LENGTH (FT)	THAW PIPE	MARKER POST	REMARKS	AS-BUILT CENTERLINE LOCATION		
												STATION	LATITUDE	LONGITUDE
473+93	47.5	3073.5	473+93	-46.5	3073.0		94		1	2	CROSSING			
483+69	37	3077.5	483+69		3077.0		74		1	2	CROSSING			
509+70	32	FIELD FIT	509+70	-32	FIELD FIT		70		1	2	NEW INSTALL, CROSSING			
528+48	-60.5	2933.8	528+40	67	2931.0		128		1	2	CROSSING			
598+89.5	-33.25	2717.5	598+90	26.75	2717			60	1	2	CROSSING, EHD OVERFLOW			
598+94	-34.5	2713.5	598+94	34	2713	69			1	2	CROSSING EHD			
601+86	-22	2721.5	601+40	-22	2720			46			APPROACH LT			
657+49.5	-38	2641.1	657+52.5	42	2640.5		78		1		CROSSING, EHD OVERFLOW			
684+38	29	2632.5	684.40	-41	2631.75		70		2	2	CROSSING,EXTRA THAW PIPE			
717+79	32.5	2604.5	718+32.5	-39.5	2601.5		90		1	2	CROSSING			
735+63.5	44	2581	735+61	-52	2579		96		1	2	CROSSING			
755+95	48	2536.0	755+95	-58.5	2528		107		1	2	CROSSING			
790+73	38	2476.0	790+75	-68	2472		106		1	2	CROSSING			
797+10	36.5	2506.5	796+61	39.7	2506			50			APPROACH RT			
812+05	30	2474.0	812+08	-39.5	2471.5		71		1	2	CROSSING			
826+71	-33	2453.8	826+70.5	4	2452.8		81		1	2	CROSSING			
846+86	-36.5	2349.5	846+88	34.5	2349		71		1	2	CROSSING			
888+9.5	-55	2318.5	888+03	61	2416			116	1	2	CROSSING, EHD OVERFLOW			
890+71.5	45.9	2437	890.06	47.3	2436			66			APPROACH RT			
916+97	-31.5	2450.5	916+96	31.5	2450		63		1	2	CROSSING			
923+75	37	2448	923+76	-48	2442		85		1	2	CROSSING			
932+51	-51	2418.5	932+80	44	2415.5		100		1	2	CROSSING			
953+67	-27	2444.4	953+74	60	2437.2		88		1	2	CROSSING			
962+74	-28.5	2423.8	962+75	31	2418		60		1	2	CROSSING			
					PROJECT TOTAL	69	1532	338	22	40				

* ALL CSP CULVERTS SHALL BE 12 GAGE MINIMUM.

CULVERT REMOVAL SUMMARY

STATION	DIAMETER (INCHES)	LENGTH (FEET)	TYPE	APP. COVER (FEET)
473+93	24	96	CROSSING	11
483+67	24	74	CROSSING	5
528+45	24	120	CROSSING	5
598+86	24"	71	CROSSING	4.5
598+96	24"	69	CROSSING	7
601+65	18	45	APPROACH LT	2.5
611+97	36	83	CROSSING	9
656+18	18	60	CROSSING	3
657+55	24	86	CROSSING	5
684+38	24	71	CROSSING	7
718+05	24	90	CROSSING	5
735+62	24	96	CROSSING	6
755+94	24	107	CROSSING	13
790+75	24	106	CROSSING	9
797+85	24	50	APPROACH RT	1
812+06	24	72	CROSSING	6
826+70	24	82	CROSSING	6.5
846+87	24	72	CROSSING	5
861+98	48	159	CROSSING	26
888+15	36	124	CROSSING	20
890+40	18	66	APPROACH RT	4
916+98	24	64	CROSSING	2
923+77	24	85	CROSSING	5
932+60	24	100	CROSSING	11
953+70	24	88	CROSSING	6
962+76	24	81	CROSSING	5

STRUCTURAL PLATE PIPE LENGTHS 602.0001

LOCATION	60" DIAMETER, 10 GAGE LENGTH(FT)	84" DIAMETER, 10 GAGE LENGTH (FT)	108" DIAMETER, 10 GAGE LENGTH (FT)	MARKER POSTS	THAW PIPES
611+97	83			2	1
657+56		86		2	2
861+96			160	2	1
888+14	124			2	1
TOTALS	207	86	160	8	5

CULVERT NOTES:

1. THE CONTRACTOR SHALL ENTER AS-BUILT LOCATIONS FOR ALL CULVERTS IN THE CULVERT SUMMARY TABLE. COORDINATES SHALL BE LOCATED AT THE INTERSECTION OF THE CULVERT AND ROAD CENTERLINE. USE NAD83 DATUM FORMATTED TO DECIMAL DEGREES TO A PRECISION OF 5 DECIMAL PLACES (DD°.DDDDD). THIS WORK IS SUBSIDIARY TO 642 SERIES PAY ITEMS.
2. ALL CSP CULVERTS INSTALLED SHALL HAVE ALUMINUM-COATED STEEL. SEE STD SPEC SECTION 707-2.01.
3. STAKE CULVERTS TO FIT FIELD CONDITIONS AND AS DIRECTED BY THE ENGINEER.
4. MINIMUM ALLOWABLE CULVERT CROSS SLOPE IS 0.5%, UNLESS NOTED OTHERWISE ON THE PLANS.
5. FOLLOW MANUFACTURER'S INSTALLATION SPECIFICATIONS IN ALL CULVERT INSTALLATIONS, EXCEPT THAT 24 INCHES SHALL BE USED FOR MINIMUM COVER SPECIFICATION.
6. CULVERTS SHALL BE NOT BE INSTALLED IN WATER.
7. CULVERT LENGTHS ARE APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
8. IN AREAS OF POOR FOUNDATION, SUBEXCAVATE BENEATH CULVERTS TO PROVIDE ADEQUATE FOUNDATION, AS DIRECTED BY THE ENGINEER.
9. CULVERTS SHALL NOT BE INSTALLED IN WINTER CONDITIONS.
10. ALL CULVERTS SHALL HAVE A MINIMUM CAMBER EQUAL TO 1% OF THE LENGTH OF THE PIPE.
11. NO CULVERT SHALL BE PLACED UNTIL THE BEDDDING IT WILL LAY ON HAS BEEN APPROVED BY THE ENGINEER.

CLEAN CULVERT SUMMARY

LOCATION	DIAMETER	LENGTH
512+71	24"	83
561+07	24"	64
633+10	24"	97
642+95	24"	66
723+00	24"	78-ISH NO SURVEY

CULVERT SUMMARY

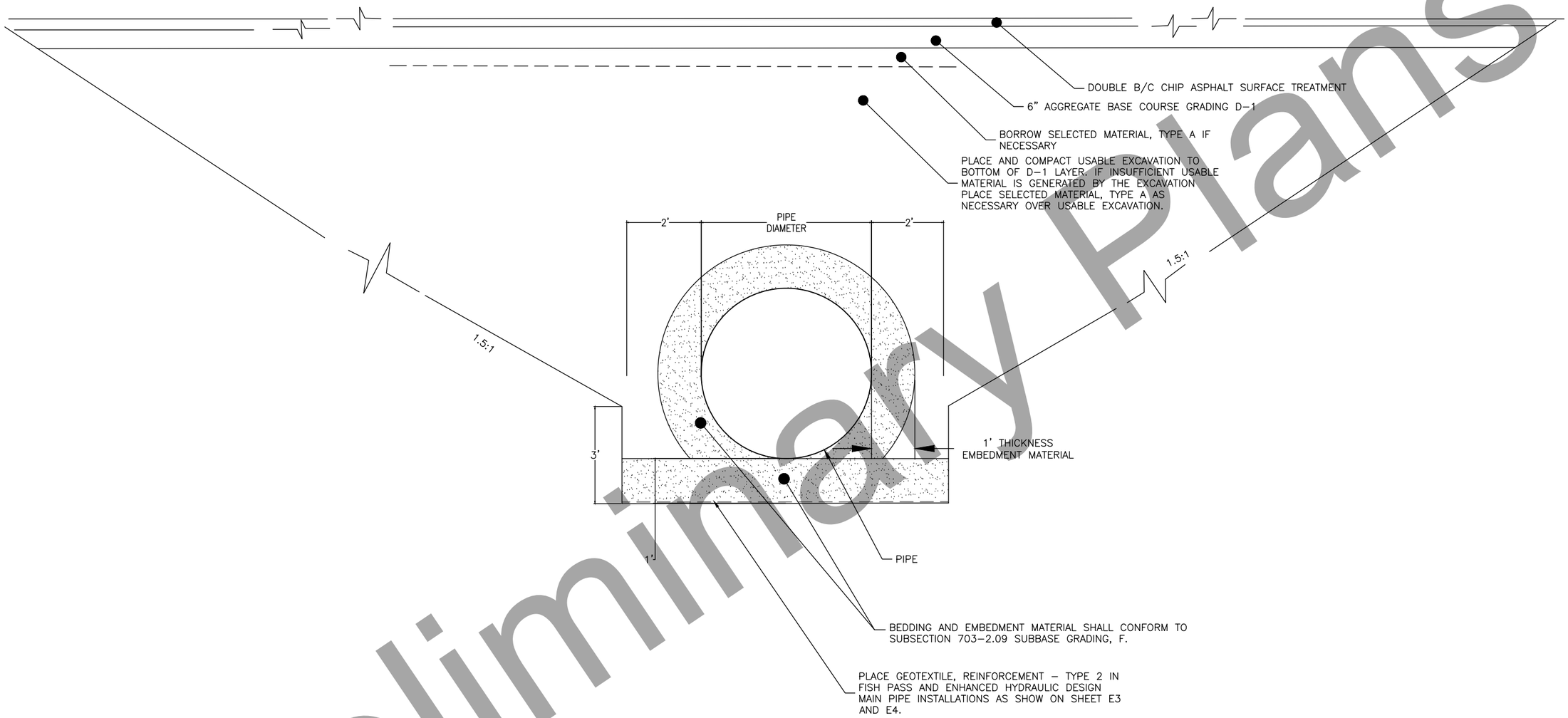
STATE OF ALASKA 49TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

Preliminary Plans

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\Pipe Tables-CULVERT SUMMARY Thu, May/13/21 01:59pm

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	E2	E7



Preliminary Plans

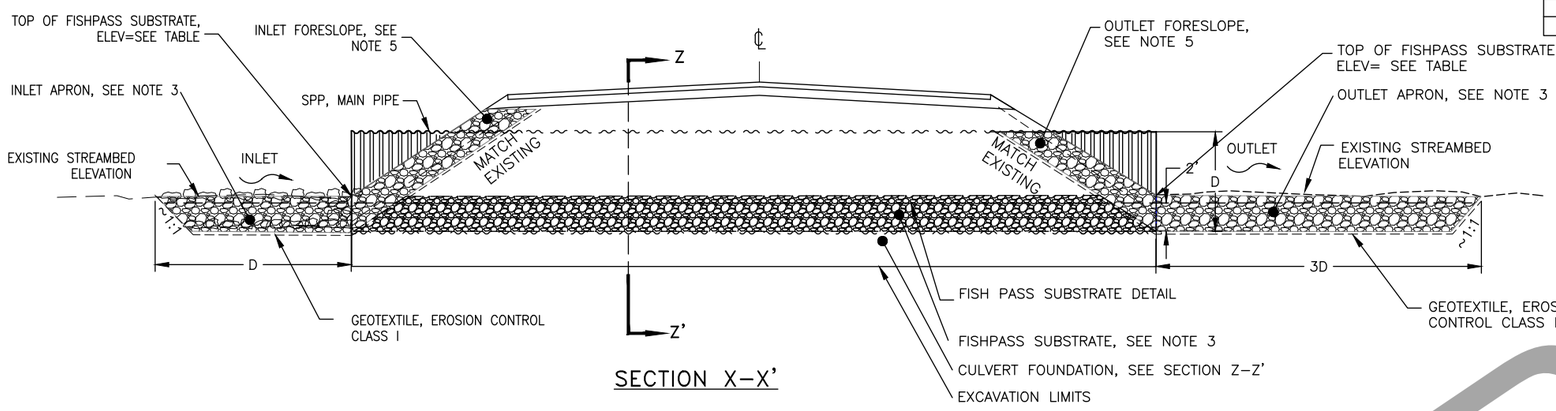
CULVERT FOUNDATION

STATE OF ALASKA 49TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

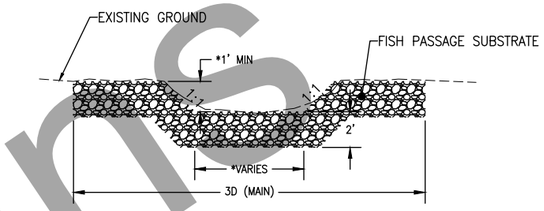
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\CULVERT FOUNDATION-CULVERT FOUNDATION Mon, May/17/21 02:17pm

NO.	DATE	REVISION

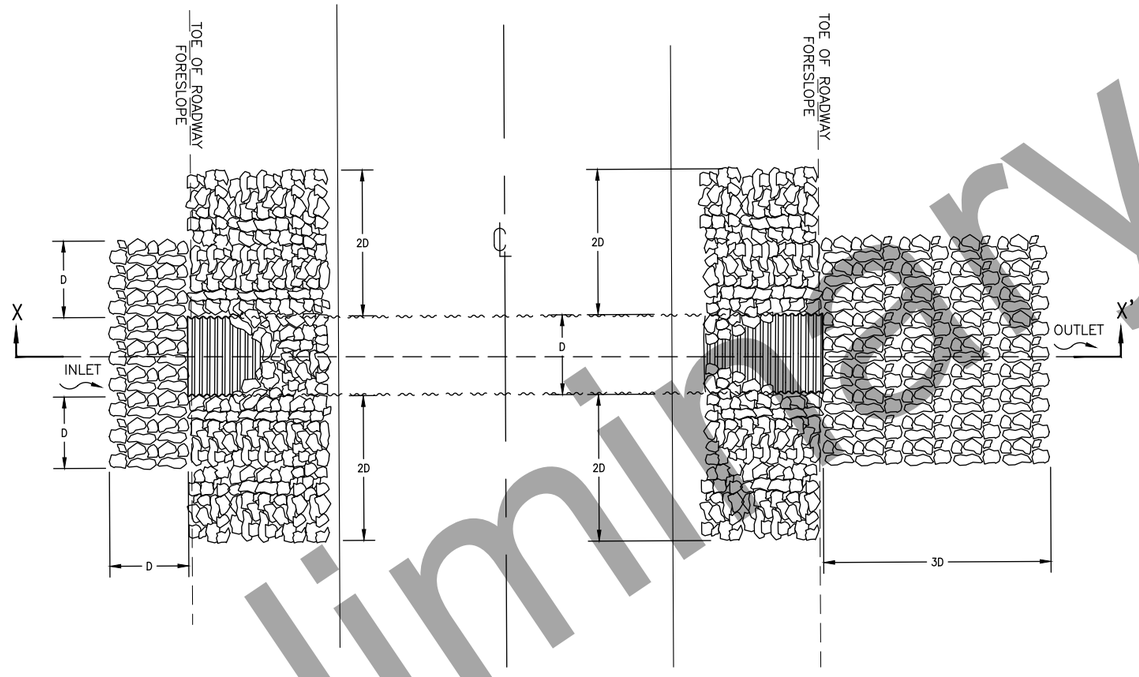
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	E3	E7



SECTION X–X'

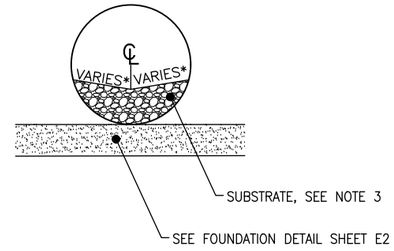


INLET AND OUTLET CHANNEL SECTION



PLAN VIEW

TOP OF FISH PASS SUBSTRATE SHAPE:
* 657+56 FLAT
* 861+96 4.5:1 SLOPED V CHANNEL



SECTION Z–Z'
FISH PASS SUBSTRATE DETAIL

FISH PASSAGE CULVERT NOTES:

1. SET MAIN PIPE INVERTS TO ELEVATIONS IN FISH PASS PIPE INSTALLATION TABLE.
2. BEDDING AND EMBEDMENT MATERIAL SHALL CONFORM TO SUBSECTION 703–2.09 SUBBASE GRADING, F.
3. CONSTRUCT FISH PASSAGE SUBSTRATE TO THE THICKNESS INDICATED IN THE FISH PASS PIPE INSTALLATION SUMMARY TABLE, SHAPING THE TOP AS INDICATED IN SECTION Z–Z' WITHIN THE PIPE THE AND INLET/OUTLET APRONS WITH RIPRAP, CLASS I AND FILL VOIDS WITH CRUSHED AGGREGATE D–1. SHAPE INLET AND OUTLET DIMENSIONS TO MATCH EXISTING AS CLOSELY AS PRACTICAL. SEE SPECIAL PROVISION 628.
4. MINIMUM SPACING BETWEEN OVERFLOW PIPES AND MAIN PIPE IS 4 FT EDGE SEPARATION.
5. ARMOR INLET AND OUTLET FORESLOPES WITH 2' THICK RIPRAP, CLASS I. EXTEND RIPRAP ON INLET FORESLOPE TO 3' ABOVE TOP OF PIPE OR TOP OF EMBANKMENT WHICHEVER IS LESS. EXTEND RIPRAP ON OUTLET FORESLOPE TO TOP OF CULVERT.
6. INSTALL IN EXCAVATION ABSENT OF STANDING WATER.
7. CONDUCT A STRUCTURAL PLATE PIPE AS–BUILT SURVEY TO VERIFY CONSTRUCTION AS DESIGNED. EACH PHASE OF SPP CONSTRUCTION SHALL BE SURVEYED PRIOR TO PROCEEDING TO THE NEXT PHASE. PIPE INVERT ELEVATIONS, FISH PASSAGE SUBSTRATE ELEVATIONS AND RIPRAP ELEVATIONS SHALL BE PROVIDED TO THE DEPARTMENT PRIOR TO BEGINNING A SUBSEQUENT PHASE OF CONSTRUCTION. THIS WORK IS SUBSIDIARY.
8. VERIFY ANY ADDITIONAL REQUIREMENTS IN THE RESPECTIVE ADF&G HABITAT PERMITS PRIOR TO BEGINNING CONSTRUCTION.

FISH PASS PIPE INSTALLATION SUMMARY TABLE

DESCRIPTION	MATERIAL	DIAMETER(IN)	LENGTH (FT)	INLET STA & OFFSET	OUTLET STA & OFFSET	INLET ELEV.(FT)	OUTLET ELEV.(FT)	INLET TOP OF SUBSTATE ELEV.	OUTLET TOP OF SUBSTRATE ELEV.	CL AS–BUILT LAT/LONG IN DECIMAL DEGREES
MP 12.6 S.P.P.	10 GAGE STEEL	84	86	657+58.5 –45.5	657+62.58 40	2637.3	2636.7	2639.8	2639.2	
MP 12.6 OVERFLOW	12 GAGE STEEL	36	78	657+49.5 –38	657+52.5 40	2641.1	2640.5	N/A	N/A	
MP 16.7 S.P.P	10 GAGE STEEL	108	160	861+96 –80	861+96 80	2411.0	2408.5	2414.5	2412.0	

STATE OF ALASKA 49TH
LUKE J. BOLES
C.E. 11520
REGISTERED PROFESSIONAL ENGINEER

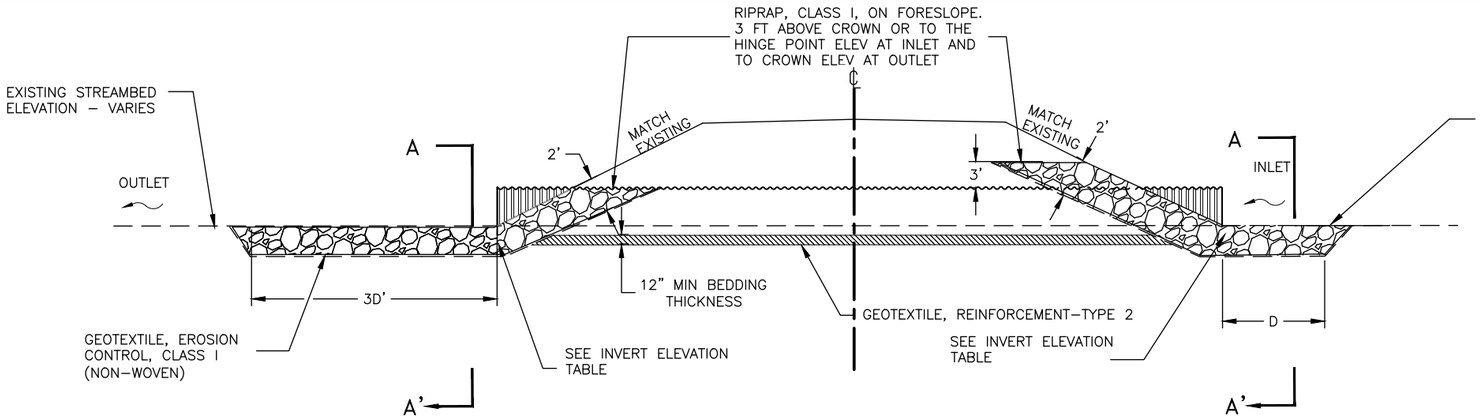
FISH PASS CULVERT DETAILS

Preliminary Plans

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\2 Drawings\FISHY STUFF\Fish Drawing-FISH PASS CULVERT DETAILS Mon, May/17/21 02:10pm

NO.	DATE	REVISION

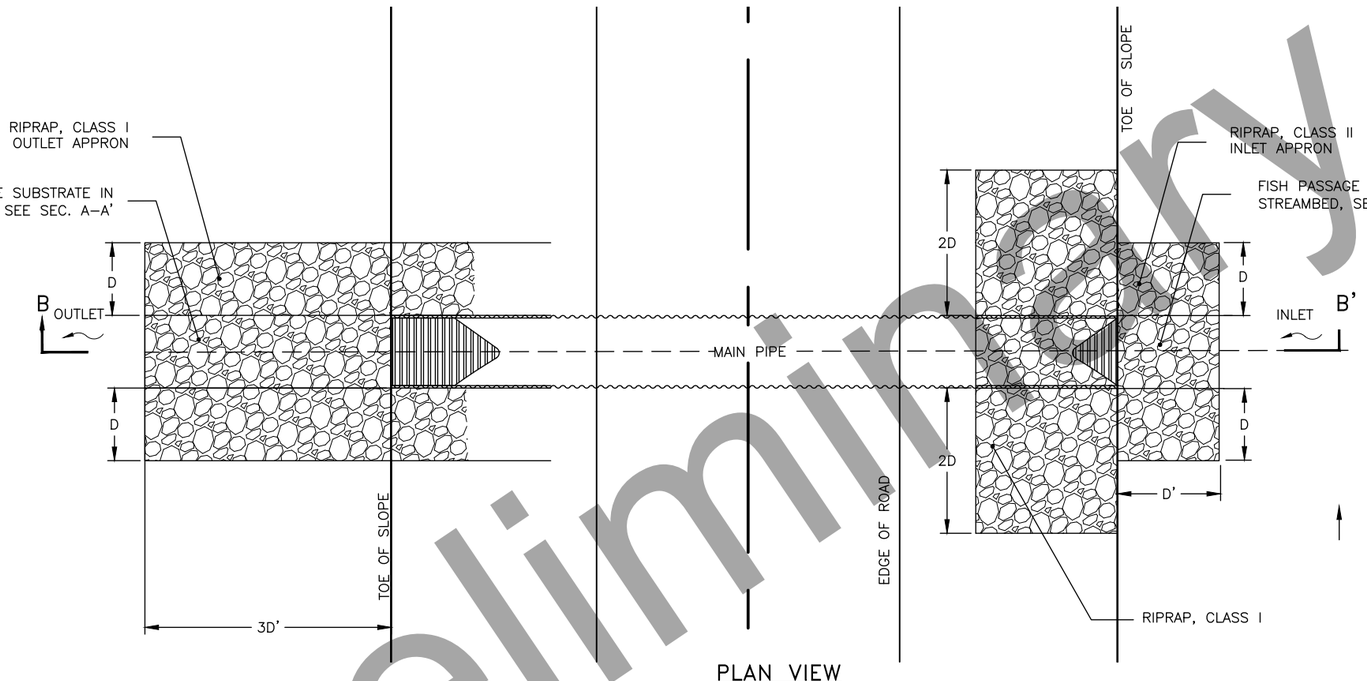
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	E4	E7



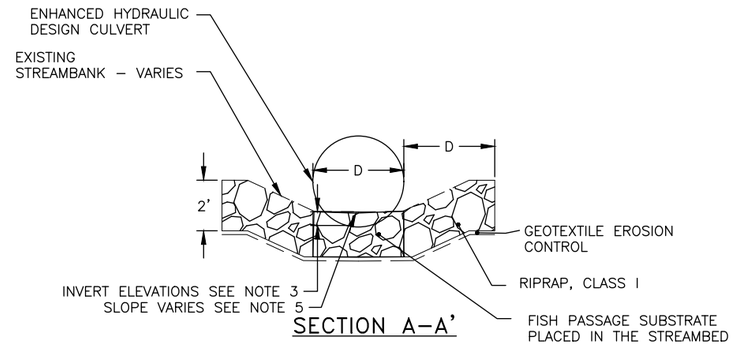
ENHANCED HYDRAULIC DESIGN (EHD) CULVERT NOTES:

1. D = DIAMETER FOR ROUND CULVERTS
2. EHD CULVERTS ARE FISH PASSAGE CULVERTS THAT WILL BE INSTALLED IN LOWER PRIORITY FISH STREAMS.
3. THE CULVERT INVERTS SHALL BE SET AT ELEVATIONS IN CULVERT SUMMARY TABLES, APPROXIMATELY ONE (1.0) FOOT BELOW THE STREAMBED ELEVATION (DEPRESSED/EMBEDDED) ON EHD CULVERTS.
4. PLACE FISH PASSAGE SUBSTRATE IN RIPRAP INLET & OUTLET APRON CHANNELS AS SPECIFIED ON THE ENHANCED HYDRAULIC DESIGN CULVERT DETAIL SHEET(S), AND PER SPECIAL PROVISION 628.
5. SHAPE APRON INLET AND OUTLET CHANNELS TO MATCH EXISTING CREEK CHANNEL CROSS SECTION, OR AS SPECIFIED ON THE PLANS. AT STA 888+14 CREATE A V–SHAPED, LOW–FLOW CHANNEL IN THE INLET AND OUTLET APRONS OF EHD CULVERT.
6. FISH PASSAGE SUBSTRATE NEED NOT BE PLACED INSIDE THE ENTIRE LENGTH OF THE EHD CULVERT DEPRESSED INVERT. CREATE A RAMP, COMPOSED OF FISH PASSAGE SUBSTRATE, ON THE INSIDE OF THE CULVERT AT INLET AND OUTLET.
7. FISH PASSAGE SUBSTRATE CONSISTS OF RIPRAP CLASS I WITH VOIDS FILLED WITH AGGREGATE BASE COURSE GRADING D–1, AS SPECIFIED IN SPECIAL PROVISION 628.

SECTION B–B'



PLAN VIEW



SECTION A–A'

EHD CULVERT INSTALLATION SUMMARY TABLE

DESCRIPTION	MATERIAL	LOCATION	DIAMETER(IN)	LENGTH (FT)	INLET OFFSET	OUTLET OFFSET	INLET ELEVATION(FT)	INLET ELEVATION(FT)	CL AS–BUILT LAT/LONG IN DECIMAL DEGREES
MP 11.5 MAIN PIPE	10 GAGE CSP	598+94	48	69	–35.5	32.75	2713.5	2713.0	
MP 11.8 PIPE	10 GAGE SPP	611+98	60	83	40	43	2708.4	2707.9	
MP 17.2 MAIN PIPE	10 GAGE SPP	888+14	60	124	–51	46	2413.3	2410.7	

Preliminary Plans

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451–2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9–19_Resurface1\6 Design\4 C3D\1 Plots\EnhancedV2–ENHANCED HYDRAULIC DESIGN CULVERT DETAILS Mon, May/17/21 02:10pm

ENHANCED HYDRAULIC DESIGN CULVERT DETAILS

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	E5	E7

HYDROLOGIC AND HYDRAULIC SUMMARY

LAKE LOUISE MILEPOST 11.5 – STA 598+94 UNNAMED CREEK– 48" DIA. X 70FT CMP

BASIN AREA (SQ.MI.)	Q_{fish}(cfs)	Q_2 (cfs)	Q_5 (cfs)	Q_{50} (cfs)	Q_{100} (cfs)
0.12	0.2	2.4	5.1	14.5	18.1
HEADWATER ELEVATION @Q_{50} IS 2716.7 FT, HEADWATER ELEVATION @Q_{100} IS 2717.3 FT.					
ROAD OVERTOPS AT APPROXIMATELY 53.4 CFS, HW/D @ 1 = 19.3CFS					
CULVERT PURPOSE: EHD/CROSS DRAINAGE					

HYDROLOGIC AND HYDRAULIC SUMMARY

LAKE LOUISE MILEPOST 11.8 – STA 611+97 UNNAMED CREEK– 60" DIA. X 83FT CMP

BASIN AREA (SQ.MI.)	Q_{fish}(cfs)	Q_2 (cfs)	Q_5 (cfs)	Q_{50} (cfs)	Q_{100} (cfs)
0.3	0.5	5.1	10.6	28.7	35.5
HEADWATER ELEVATION @Q_{50} IS 2711.5 FT, HEADWATER ELEVATION @Q_{100} IS 2711.8 FT.					
ROAD OVERTOPS AT APPROXIMATELY 191 CFS, HW/D @ 1 = 75 CFS					
CULVERT PURPOSE: EHD/CROSS DRAINAGE					

HYDROLOGIC AND HYDRAULIC SUMMARY

LAKE LOUISE MILEPOST 17.2 – STA 888+14 UNNAMED CREEK– 60" DIA. X 124FT SPP

BASIN AREA (SQ.MI.)	Q_{fish}(cfs)	Q_2 (cfs)	Q_5 (cfs)	Q_{50} (cfs)	Q_{100} (cfs)
1.2	1.8	15.2	29.9	75.8	92.5
HEADWATER ELEVATION @Q_{50} IS 2418.2 FT, HEADWATER ELEVATION @Q_{100} IS 2418.7 FT.					
ROAD OVERTOPS AT APPROXIMATELY 317 CFS, HW/D @ 1 = 80 CFS					
CULVERT PURPOSE: EHD/CROSS DRAINAGE					

HYDROLOGIC AND HYDRAULIC SUMMARY

LAKE LOUISE MILEPOST 12.6 – STA 657+56 UNNAMED CREEK– 84" DIA. X 86FT SPP

BASIN AREA (SQ.MI.)	Q_{fish}(cfs)	Q_2 (cfs)	Q_5 (cfs)	Q_{50} (cfs)	Q_{100} (cfs)
1.2	2.0	16.4	32	80.3	97.8
HEADWATER ELEVATION @Q_{50} IS 2643.4 FT, HEADWATER ELEVATION @Q_{100} IS 2643.9 FT.					
ROAD OVERTOPS AT APPROXIMATELY 187.9 CFS, HW/D @ 1 = 112 CFS					
CULVERT PURPOSE: FISH PASSAGE/CROSS DRAINAGE					

HYDROLOGIC AND HYDRAULIC SUMMARY

LAKE LOUISE MILEPOST 16.7 – STA 861+96 UNNAMED CREEK– 108" DIA. X 160FT SPP

BASIN AREA (SQ.MI.)	Q_{fish}(cfs)	Q_2 (cfs)	Q_5 (cfs)	Q_{50} (cfs)	Q_{100} (cfs)
6.0	10.5	62.8	115	266	318
HEADWATER ELEVATION @Q_{50} IS 2420.5 FT, HEADWATER ELEVATION @Q_{100} IS 2421.4 FT.					
ROAD OVERTOPS AT APPROXIMATELY 724 CFS, HW/D @ 1 = 235 CFS					
CULVERT PURPOSE: FISH PASSAGE/CROSS DRAINAGE					

Preliminary Plans

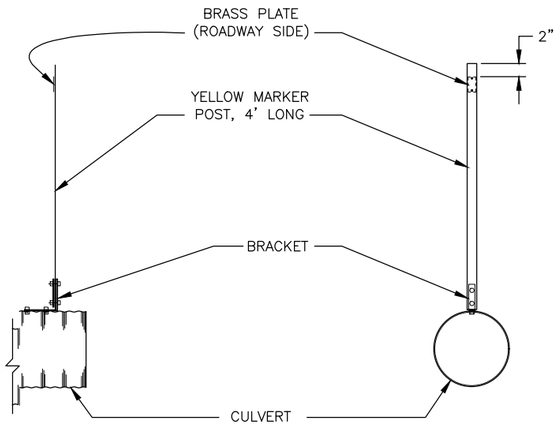
HYDRAULIC SUMMARY TABLES

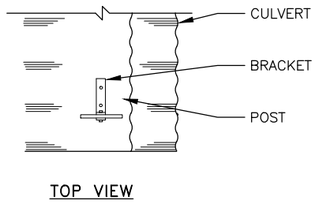
STATE OF ALASKA 49TH
LUKE J. BOLES
C.E. 11520
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\2 Drawings\FISHY STUFF\Fish Drawing-HYDRAULIC SUMMARY TABLES Mon, May/17/21 02:10pm

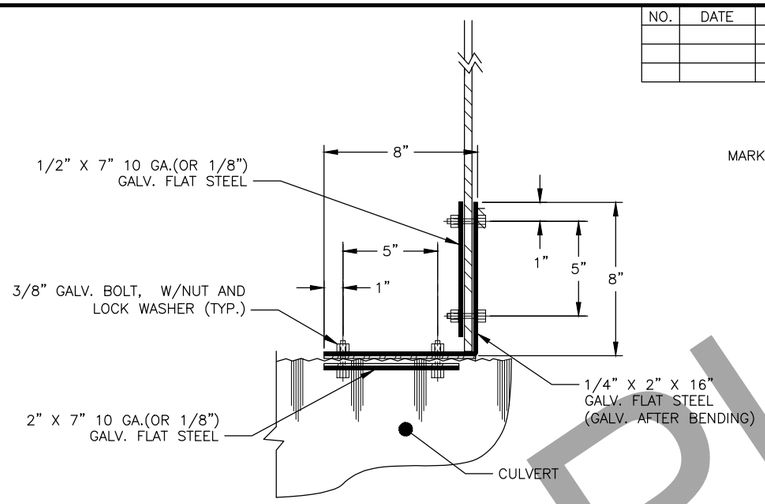
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	E6	E7





CULVERT MARKER POST DETAIL



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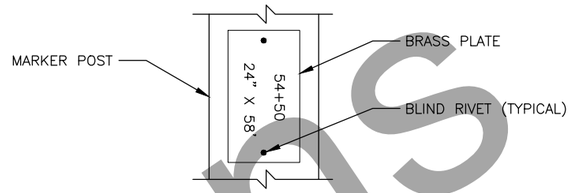
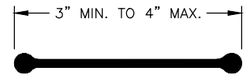


STAMP STATION AND PIPE SIZE, USING 3/8" HIGH MINIMUM LETTERS INTO A 2"X4"X 0.064" THICK BRASS PLATE. FASTEN PLATE TO THE SIDE FACING THE ROADWAY WITH TWO 1/8" BRASS BLIND RIVETS.

BRASS PLATE DETAIL



POST DETAIL
CROSS-SECTION VIEW

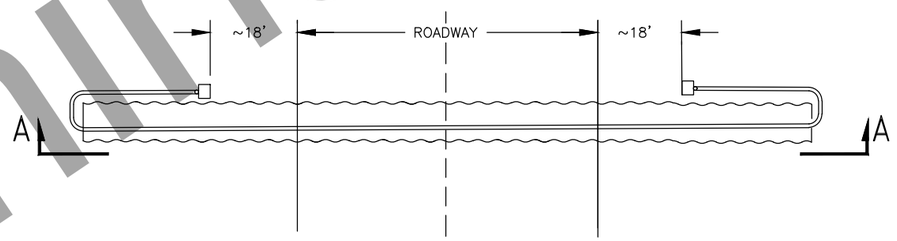
CULVERT MARKER POST DETAILS

CULVERT MARKER POSTS NOTES:

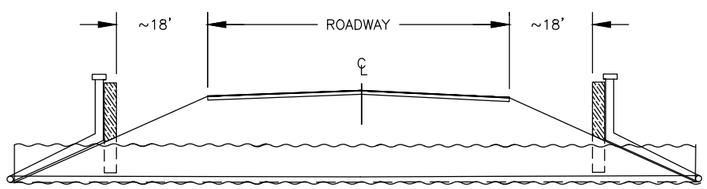
1. DRILL ALL BOLT HOLES. COAT HOLES WITH ZINC RICH PAINT. FLAME CUTTING SHALL NOT BE PERMITTED.
2. GASKET MATERIAL SHALL BE PLACED BETWEEN DISSIMILAR METALS. GASKET MATERIAL SHALL BE APPROVED PRIOR TO INSTALLATION.

THAW PIPE NOTES:

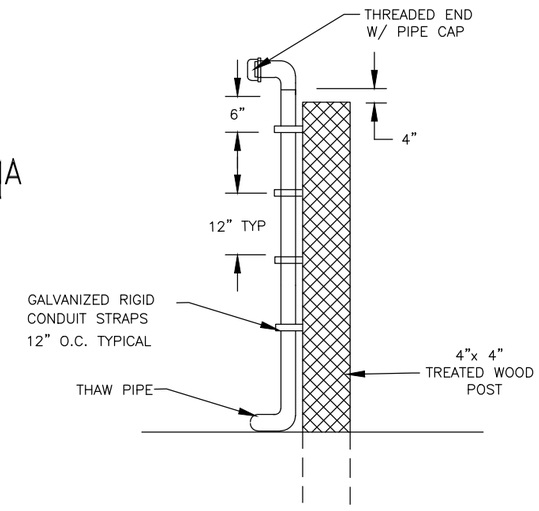
1. INSTALL 1/2 INCH THAW PIPE ALONG THE BOTTOM OF THE CULVERT. THAW PIPES SHALL LAY FREELY WITH NO PIPE HANGERS OR ATTACHMENTS. SEE CULVERT SUMMARY FOR THAW PIPE LOCATIONS.
2. ALL THAW PIPES SHALL RUN THE ENTIRE LENGTH OF THE CULVERT AND HAVE NO JOINTS OR COUPLINGS WITHIN 30" OF INSIDE OF CULVERT ENDS.
3. FIELD BEND ALL CORNERS, WITHOUT KINKS 180' AROUND CULVERT ENDS FROM INSIDE TO OUTSIDE OF THE CULVERT WITH NO GREATER THAN 1' RADIUS. FITTINGS MAY BEGIN ON OUTSIDE OF THE CULVERT AFTER COMING BACK AT LEAST 6" PAST CULVERT ENDS.
4. THAW PIPES SHALL BE WATER TIGHT AND ABLE TO HOLD ANTIFREEZE. USE THREAD SEALANT ON FITTINGS AND CAP THAW PIPE ENDS.
5. NEATLY RUN THAW PIPES ALONG CULVERT OR EMBANKMENT TO TERMINATION BY SECURELY MOUNTING 5' ABOVE THE GROUND ON PRESSURE TREATED SUPPORT POSTS OF HEM-FIR, NO. 2 OR BETTER. USE AMMONIACAL COPPER ZINC ARSENATE (ACZA) OR CHROMATED COPPER ARSENATE (CCA) PRESERVATIVES ON SUPPORT POSTS. PRESSURE TREAT IN ACCORDANCE WITH AASHTO M133.
6. FASTEN THAW PIPE TO SUPPORT POSTS WITH GALVANIZED RIGID CONDUIT STRAPS AND 2" LONG GALVANIZED LAG SCREWS AT MAX. 12" CENTERS.
7. SUPPORT POSTS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER AT MINIMUM 18' FROM THE EDGE OF PAVEMENT.
8. INSTALL STAND PIPE ON INLET AND OUTLET END.
9. CHARGE/FILL THE THAW PIPE WITH NON-TOXIC BIODEGRADABLE ANTIFREEZE RATED TO -60 DEGREES FAHRENHEIT. THIS IS SUBSIDIARY TO 616.0002.0050 PAY ITEM.



PLAN



SECTION A-A



STAND PIPE

CULVERT MARKER & THAWPIPE

Preliminary Plans

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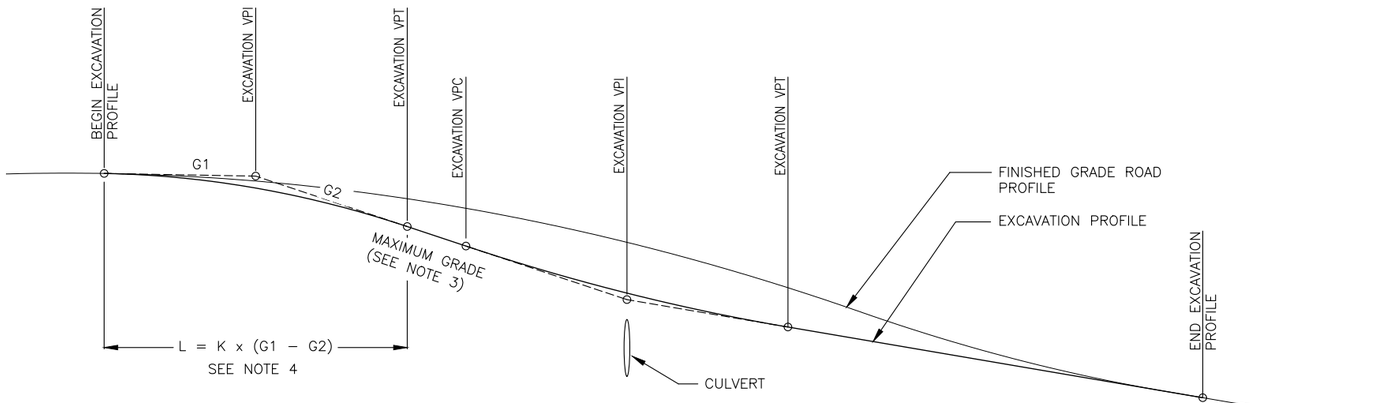
NO.	DATE	REVISION

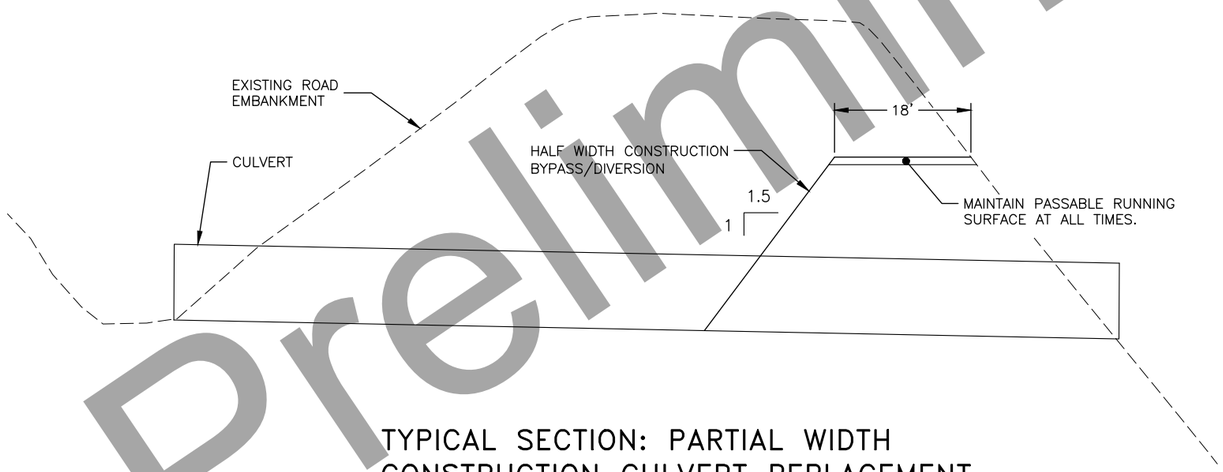
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	E7	E7



CULVERT EXCAVATION PROFILE

CULVERT EXCAVATION NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND SUBMITTING THE EXCAVATION PROFILE AND HORIZONTAL ALIGNMENT TO THE ENGINEER FOR APPROVAL PRIOR TO BEGINNING CULVERT EXCAVATION WORK.
2. HORIZONTAL AND VERTICAL GEOMETRY MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER TO ADJUST FOR EXISTING CONDITIONS
3. THE MAXIMUM ALLOWABLE VERTICAL GRADE IS 10%
4. DETERMINE THE MINIMUM ALLOWABLE LENGTH OF VERTICAL CURVE (L) BY MULTIPLYING THE ALGEBRAIC DIFFERENCE IN GRADES (G1–G2) BY THE APPLICABLE RATE OF VERTICAL CURVATURE RATE (K) GIVEN BELOW:
   - 4.1. FOR CREST VERTICAL CURVES K = 19
   - 4.2. FOR SAG VERTICAL CURVES K = 37
5. MAINTAIN 2 FEET OR GREATER OF COVER OVER THE TOP OF CULVERTS
6. OBTAIN THE ENGINEER'S APPROVAL ON ALL TRAFFIC CONTROL PLANS PRIOR TO EXCAVATING FOR NEW CULVERTS
7. ALL WORK AND RESOURCES REQUIRED TO DEVELOP EXCAVATION PROFILES AND HORIZONTAL ALIGNMENTS ARE SUBSIDIARY TO SERIES 602 AND 603 SERIES PAY ITEMS



TYPICAL SECTION: PARTIAL WIDTH CONSTRUCTION CULVERT REPLACEMENT

Preliminary Plans

CULVERT EXCAVATION PROFILE

STATE OF ALASKA 49 TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

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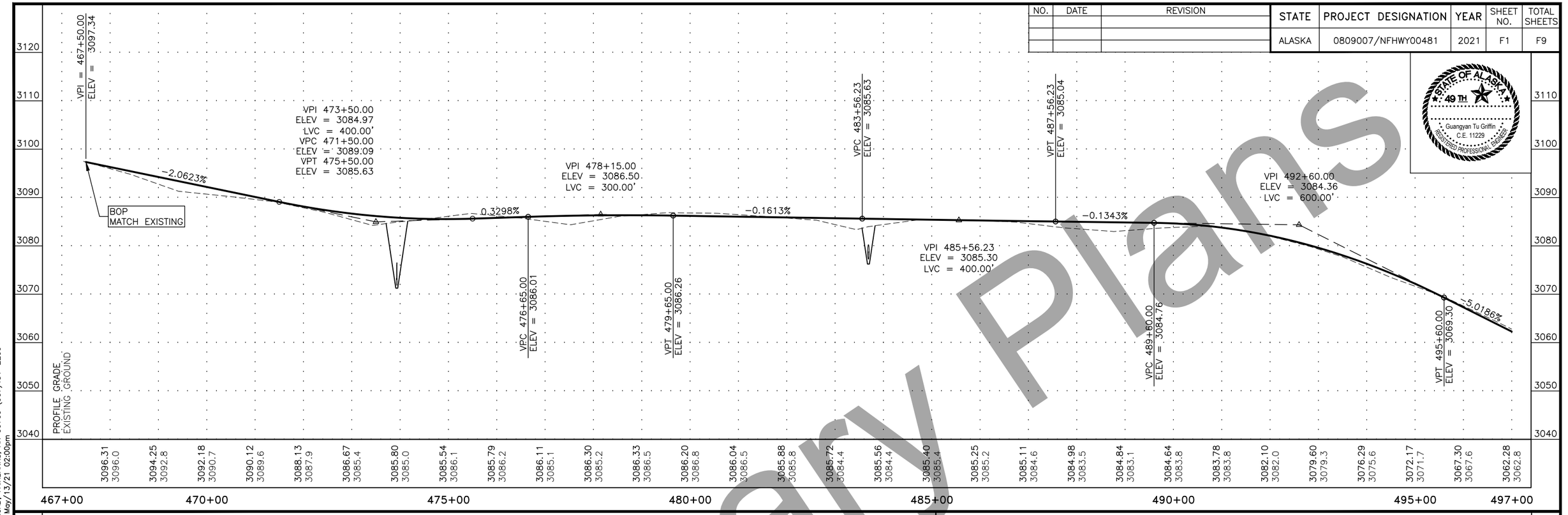
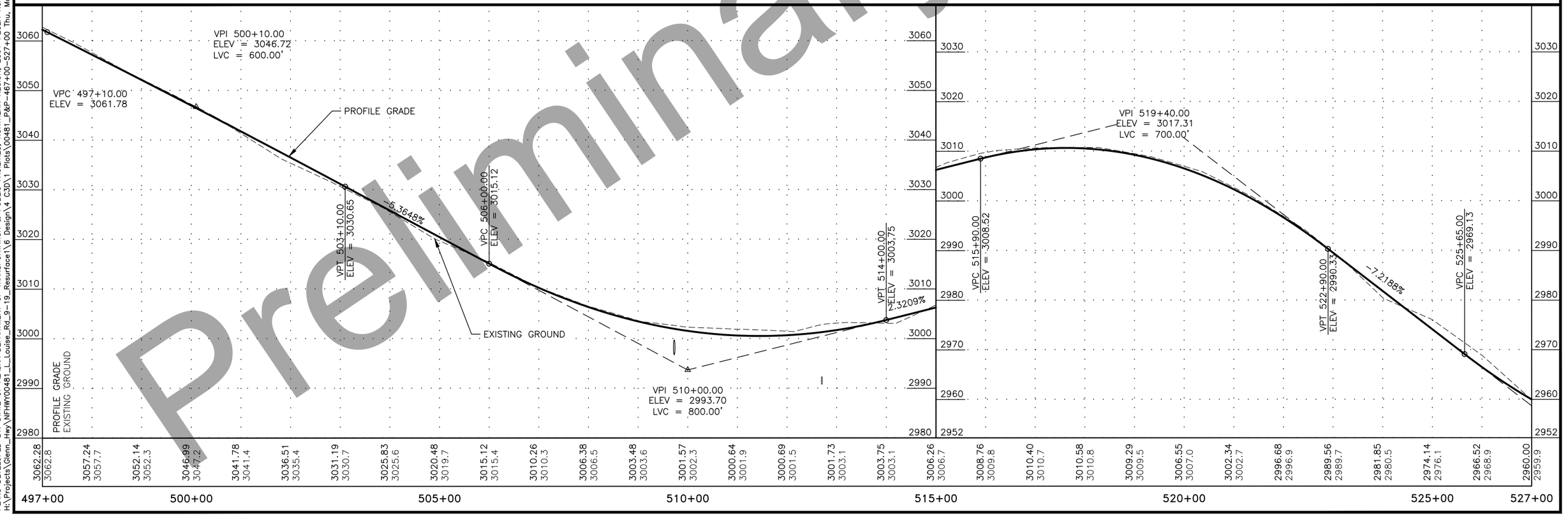
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	F1	F9





Preliminary Plans

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H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\00481_P&P_467+00-527+00 Thu, May/13/21 02:00pm

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
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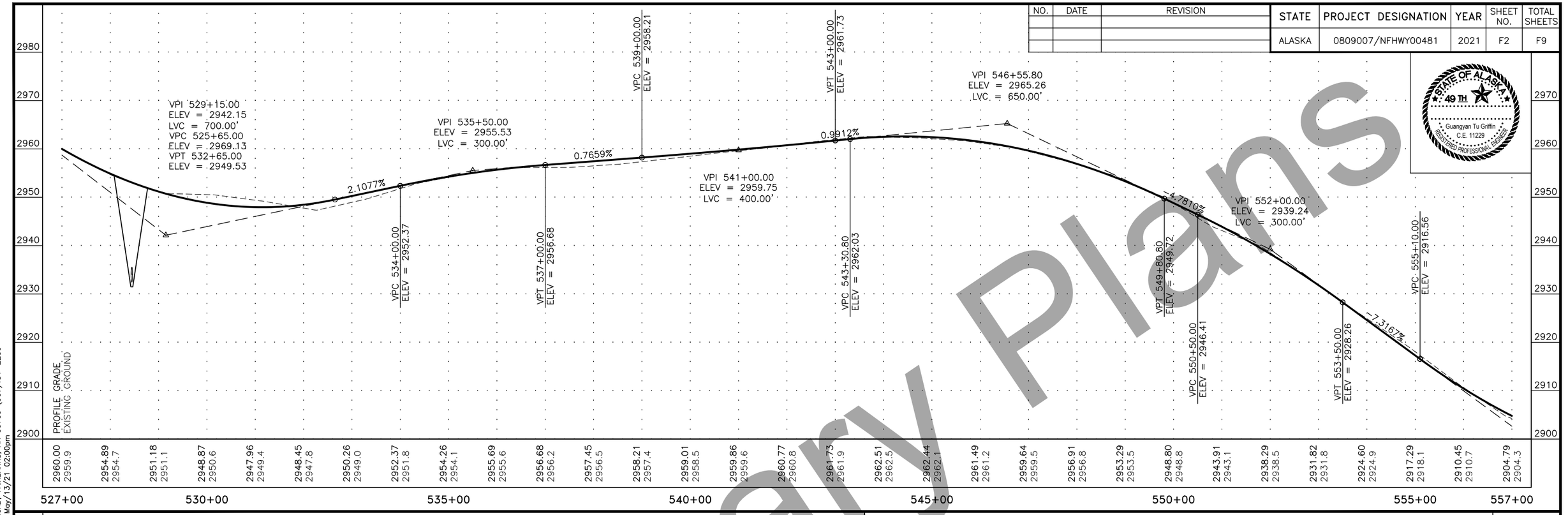

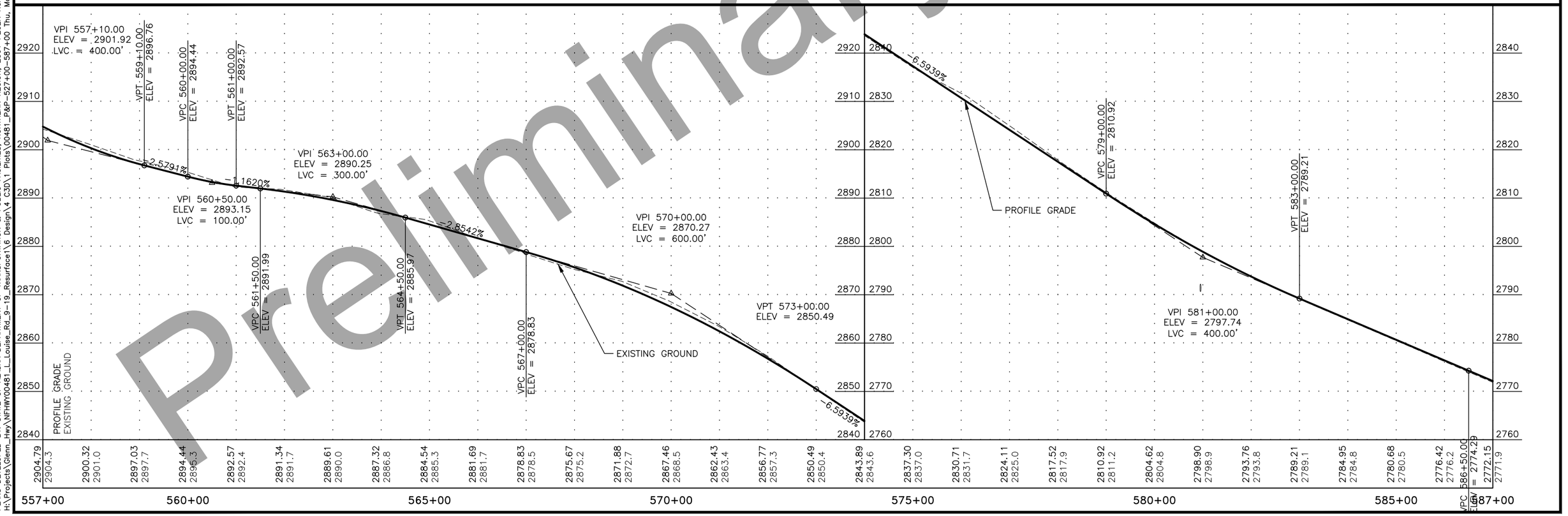

STATE OF ALASKA
49 TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

Preliminary Plans

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NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
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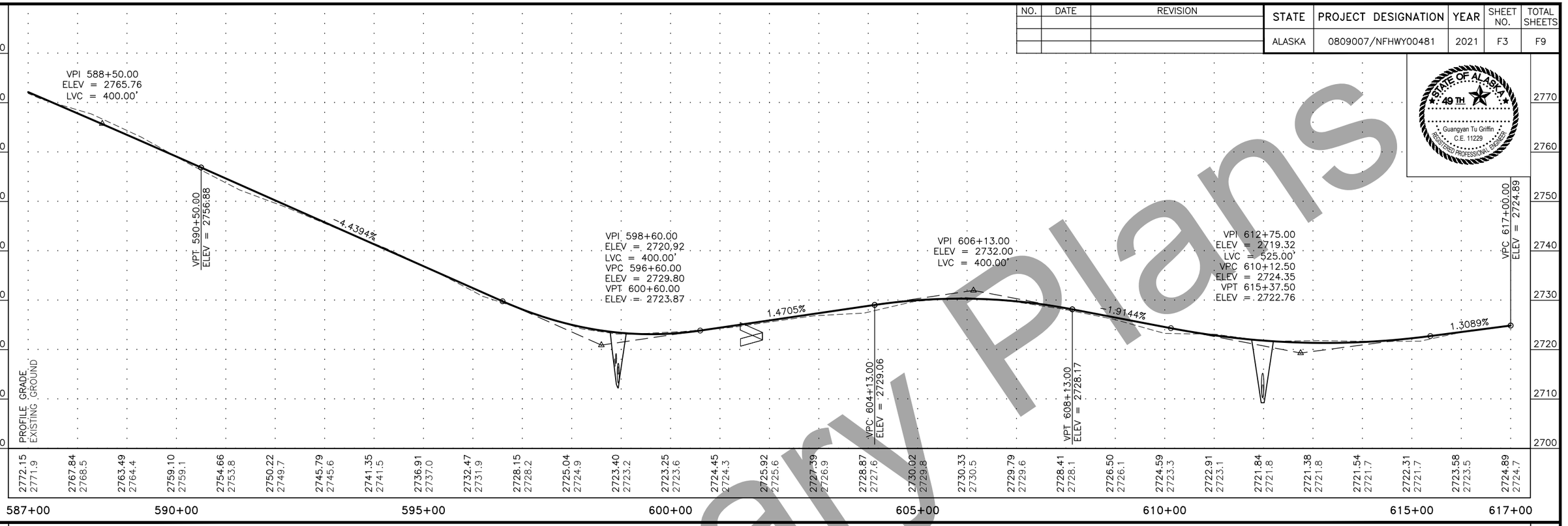

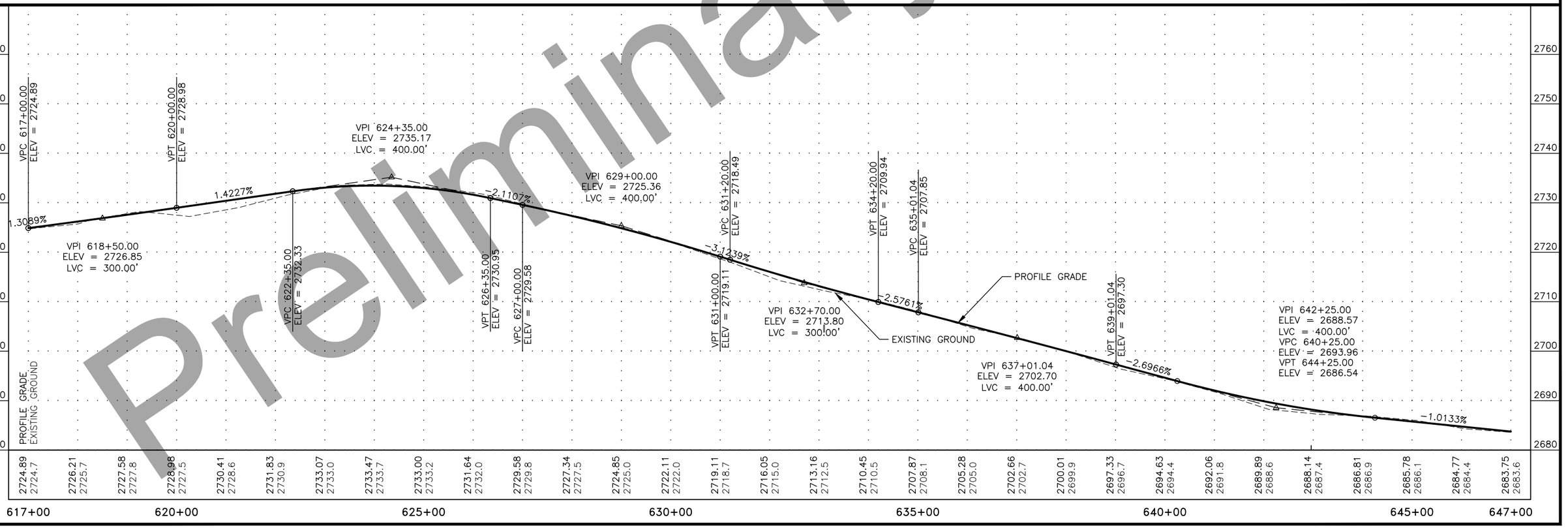

Preliminary Plans

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NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
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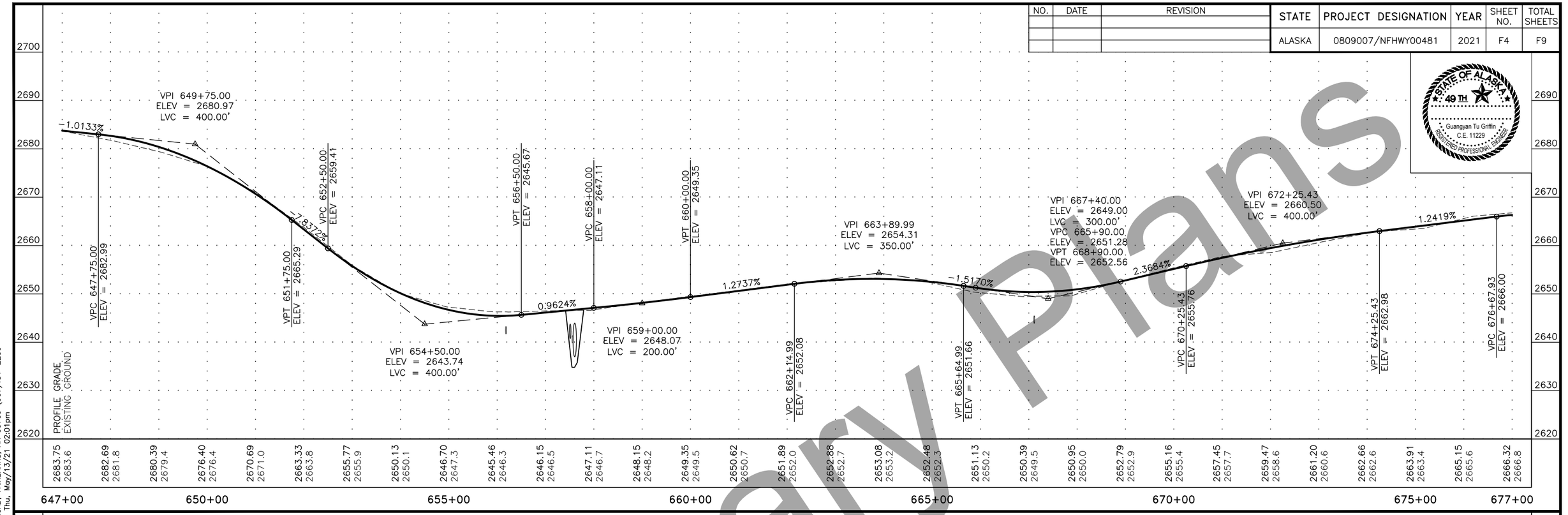

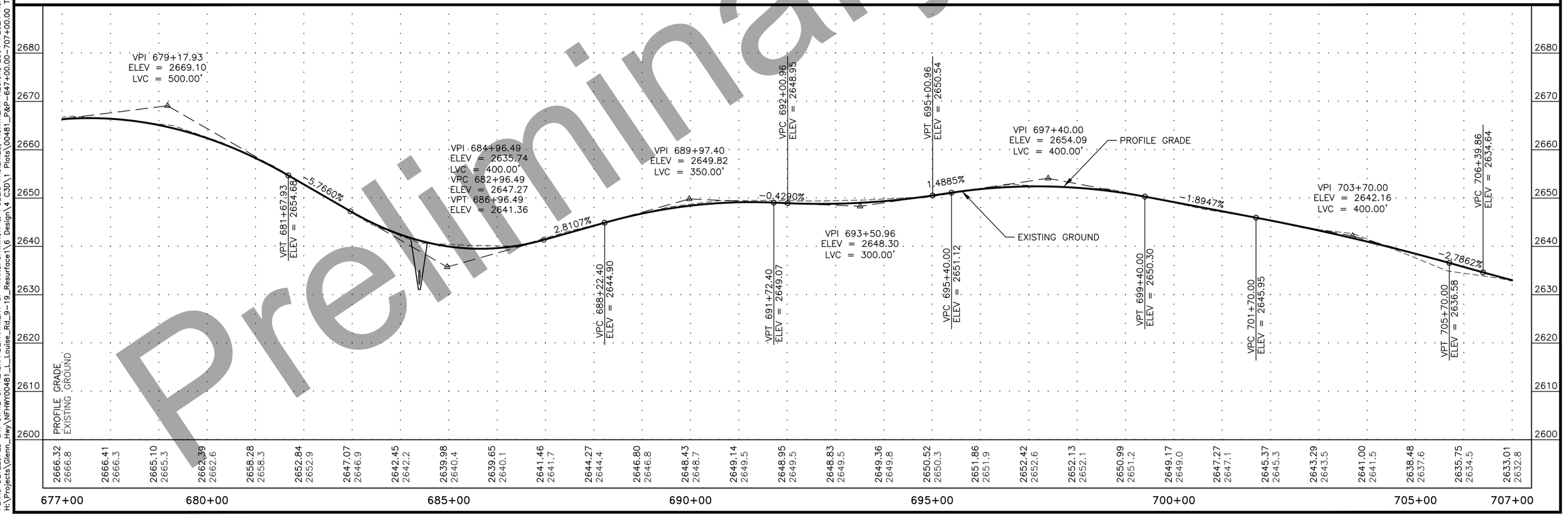

Preliminary Plans

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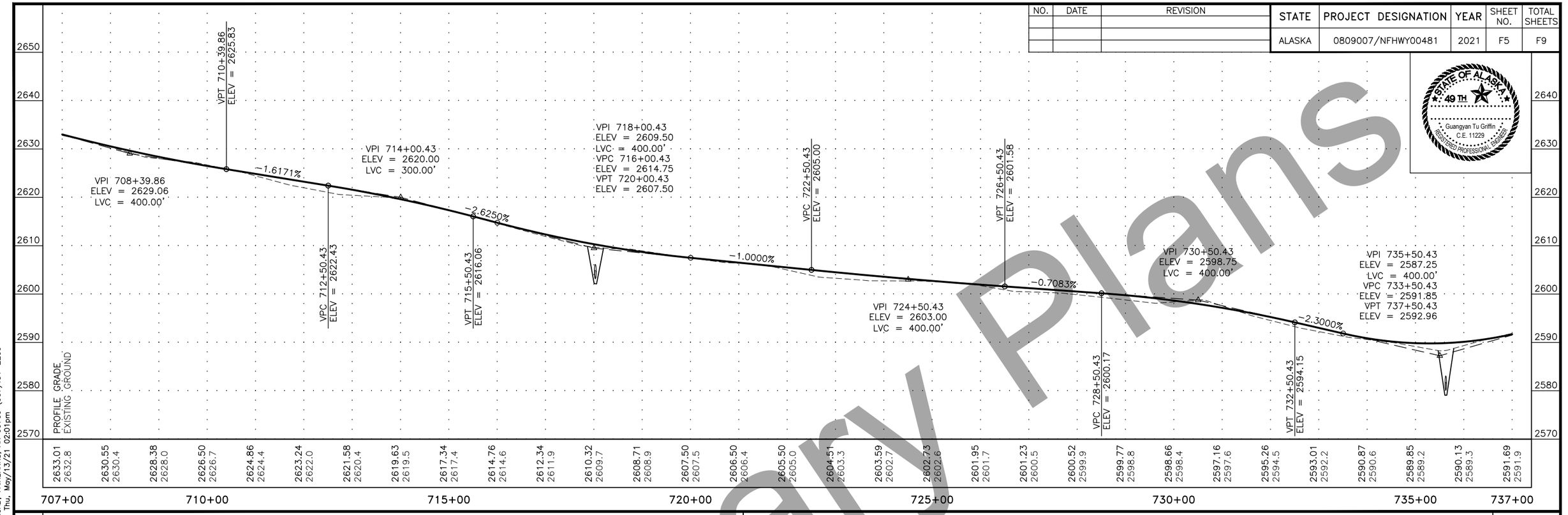
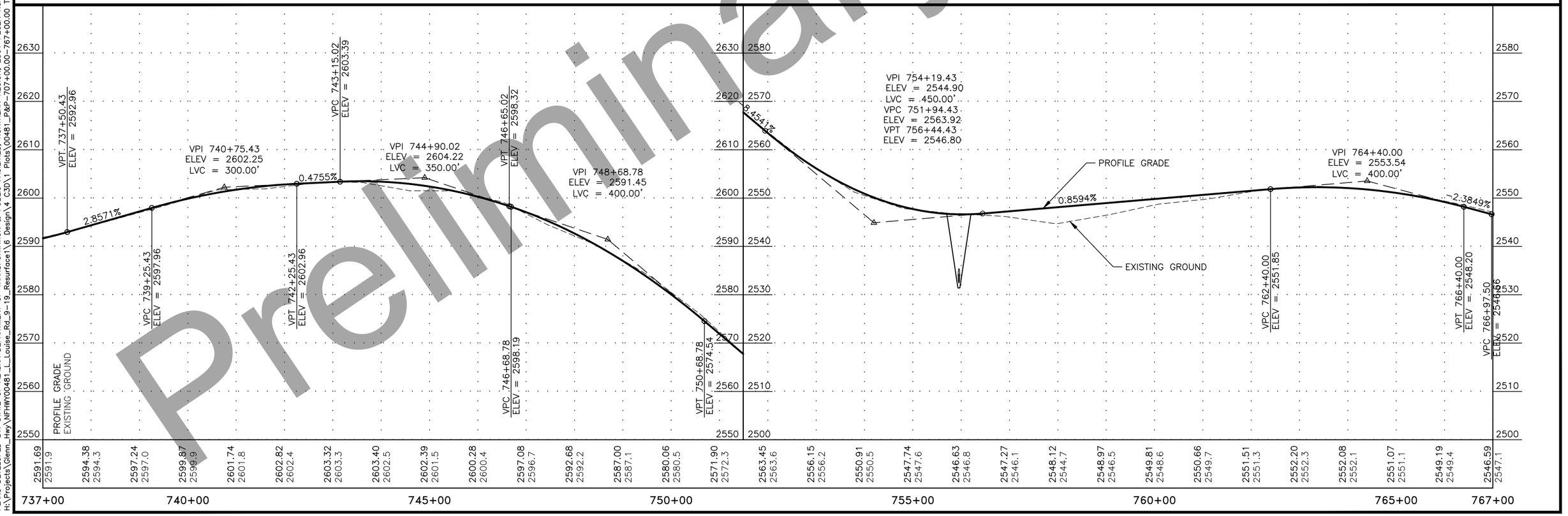
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	F5	F9





Preliminary Plans

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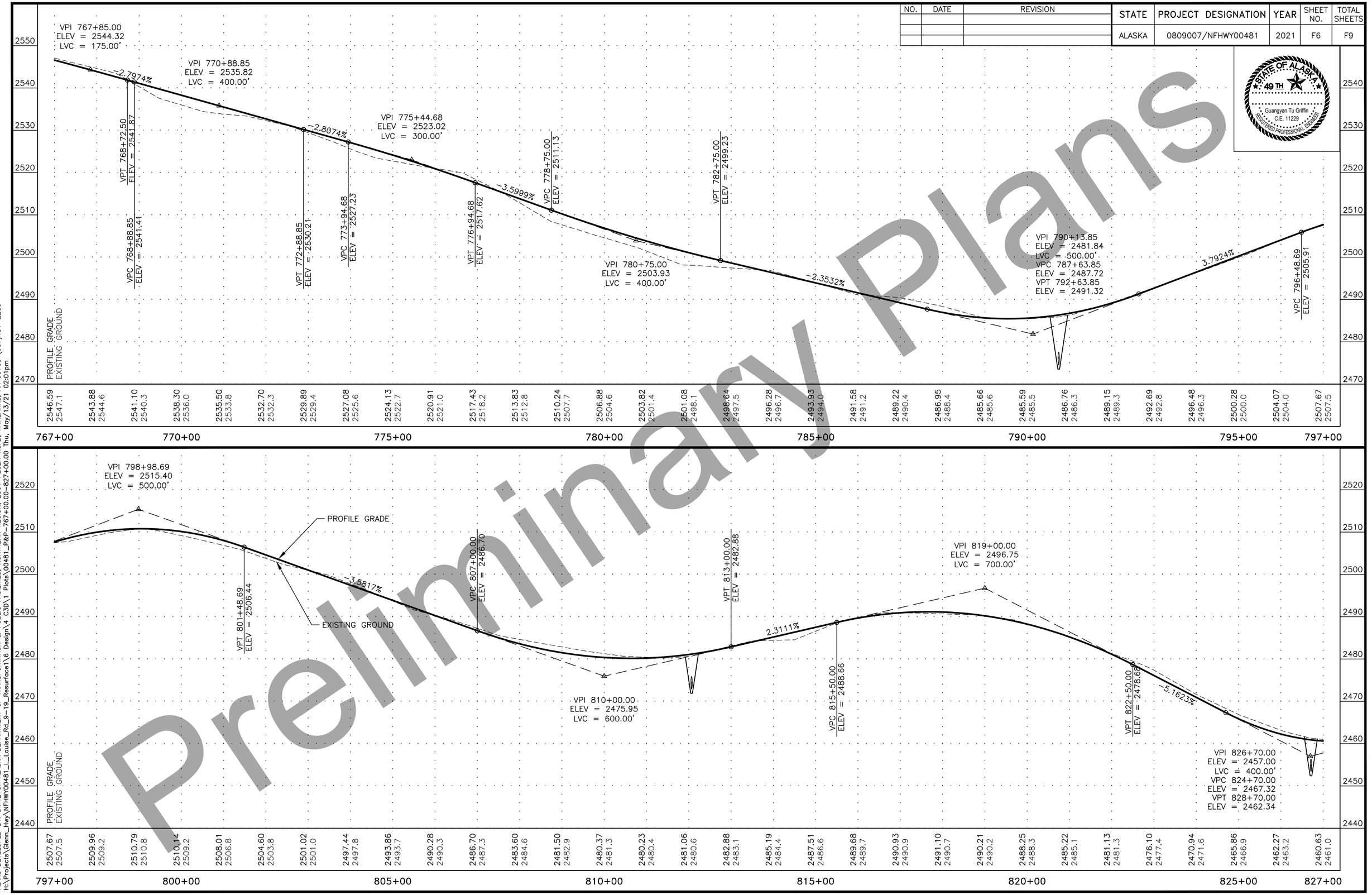
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	F6	F9



Preliminary Plans

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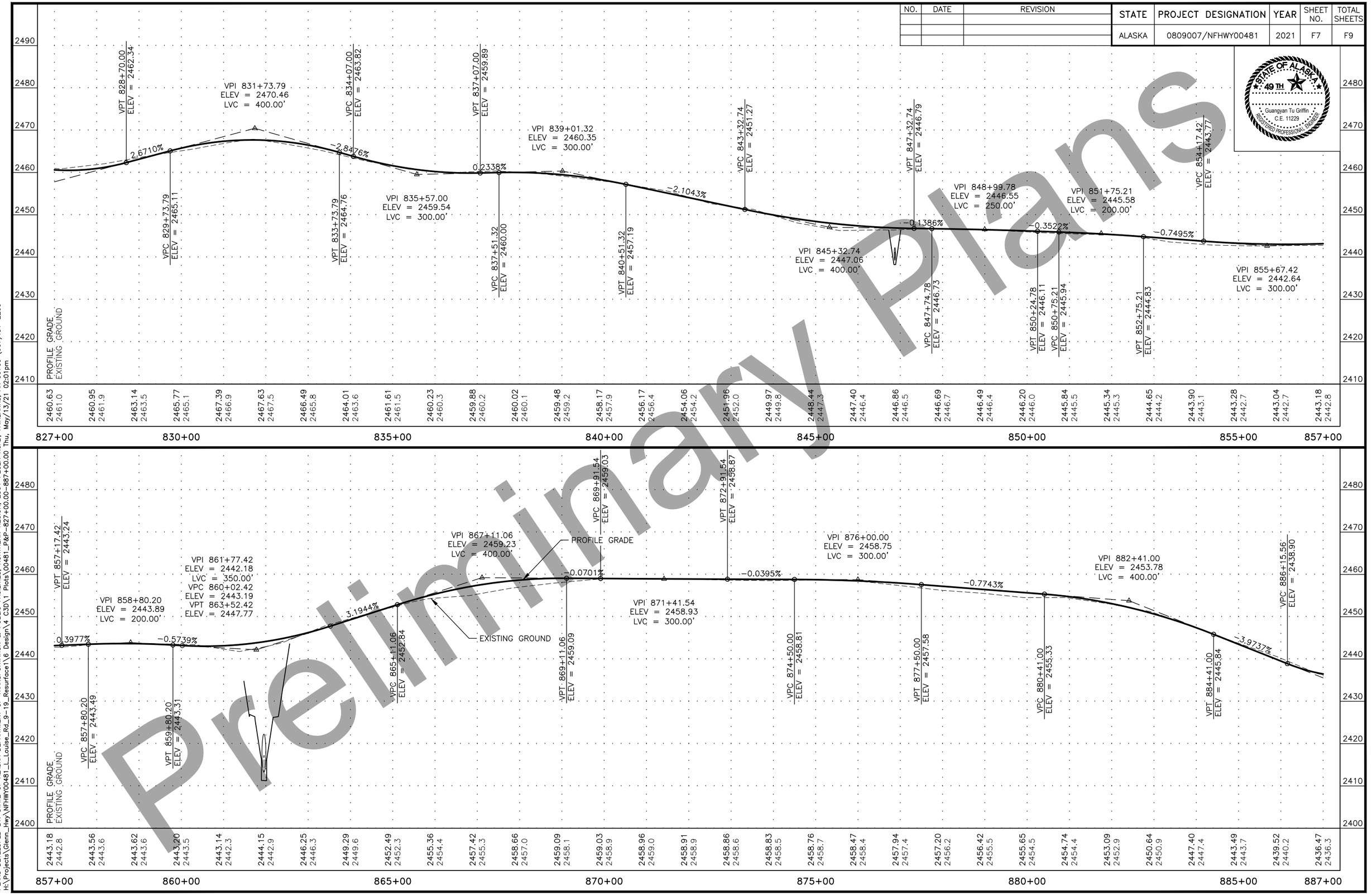
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	F7	F9



Preliminary Plans

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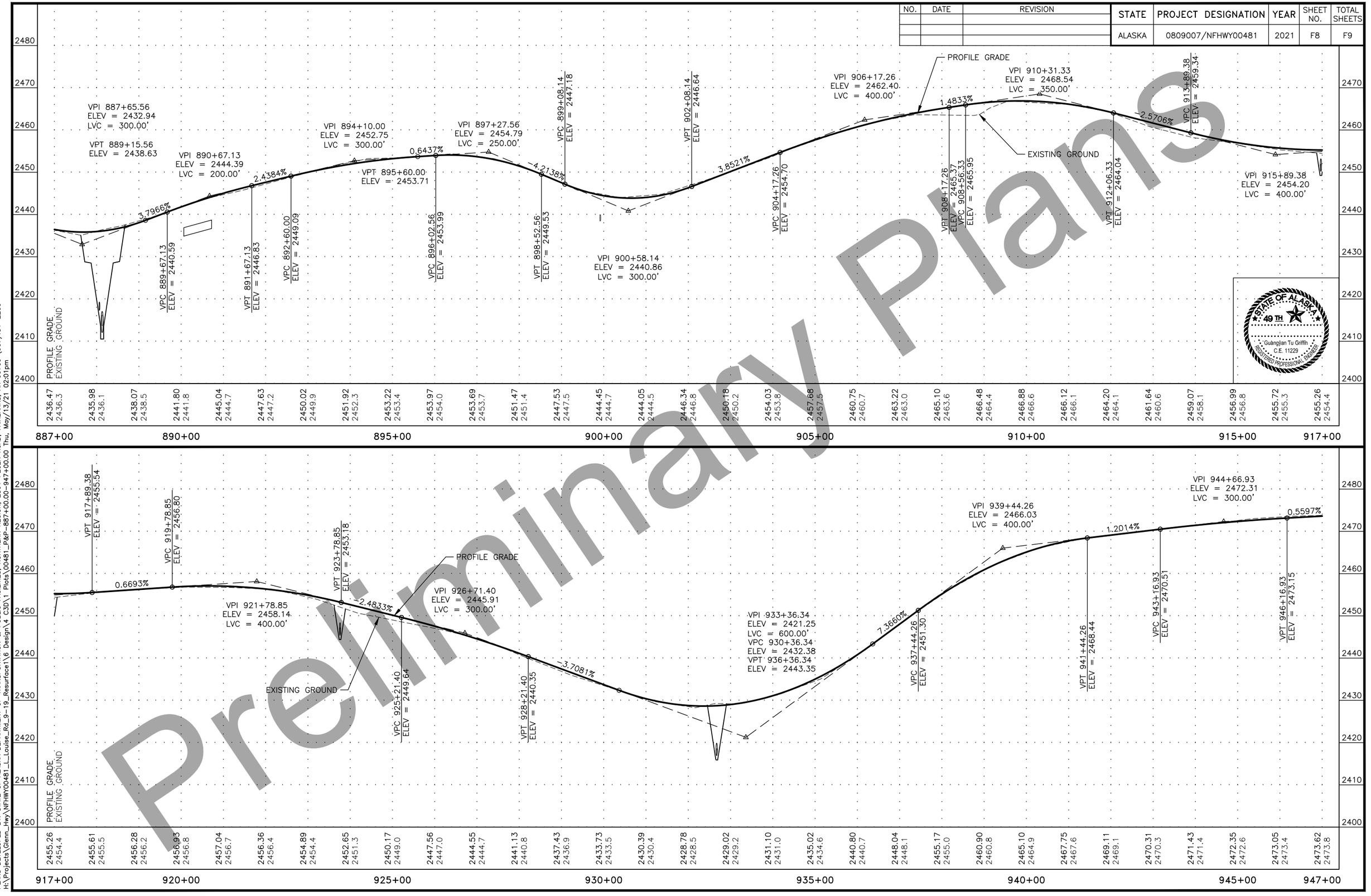
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	F8	F9



STATE OF ALASKA 49TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

Preliminary Plans

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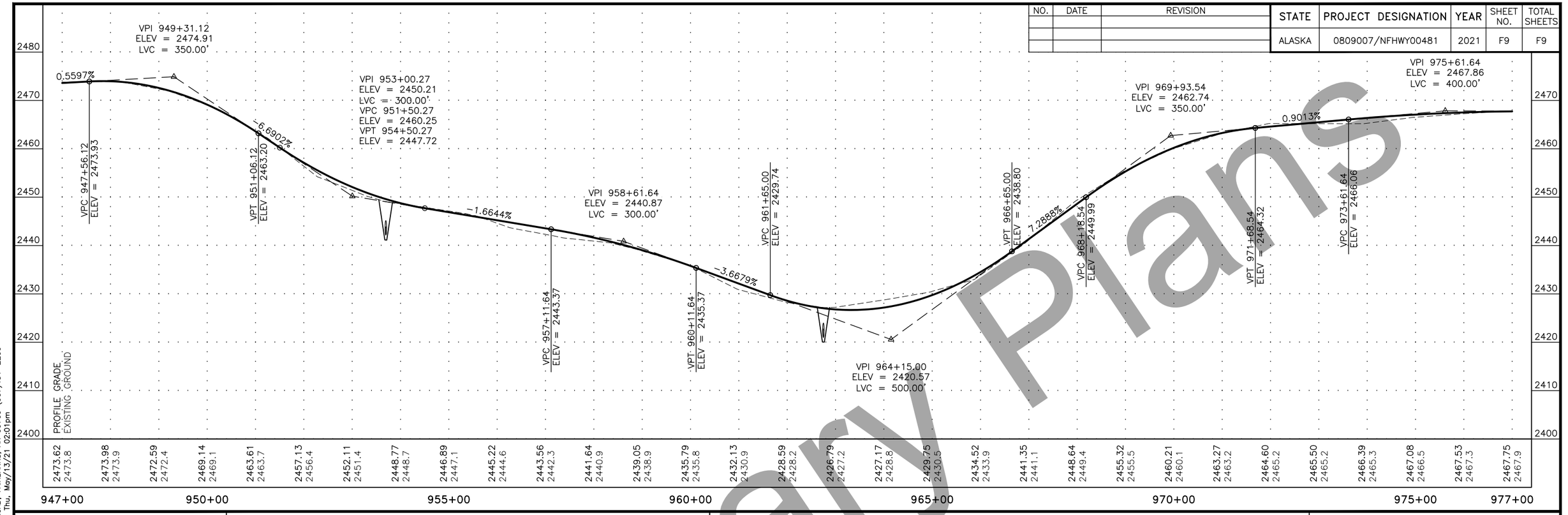
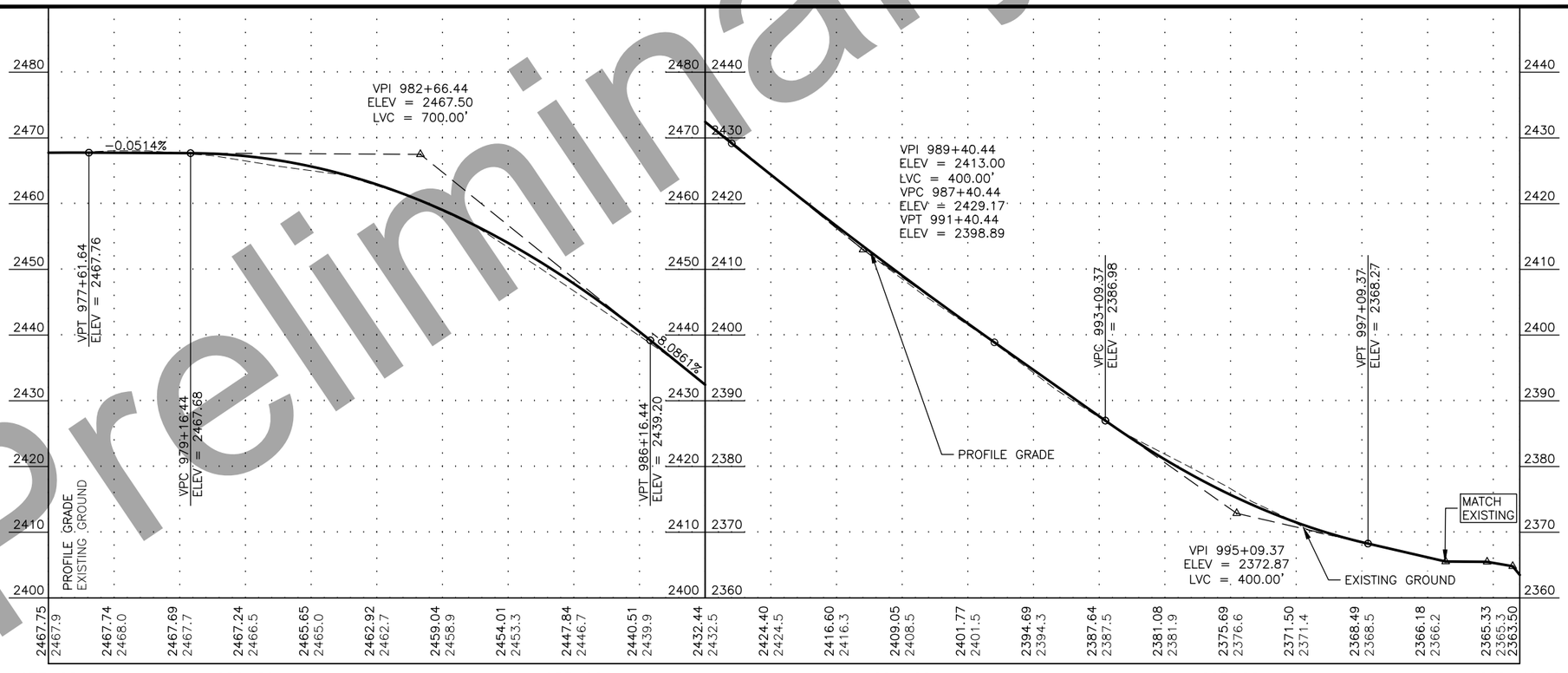
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	F9	F9





Preliminary Plans

STATE OF ALASKA
49TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY:: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface\6 Design\4 C3D\1 Plots\00481_P&P_947+00.00-999+40.49 May/13/21 02:01pm

NO.	DATE	REVISION

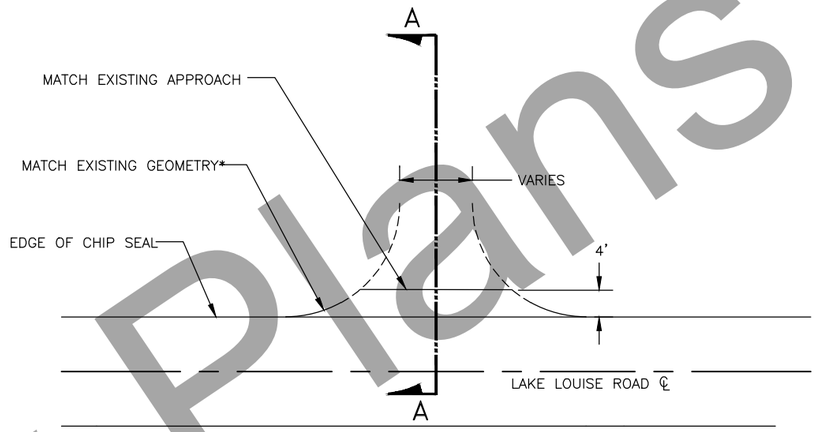
STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	G1	G1

APPROACH SUMMARY	
STATION	CL OFFSET
493+27	LT
515+92	LT
553+70	LT
601+65	RT
601+65*	LT
662+35	RT
694+82	LT
705+54	LT
714+75	LT
721+29	RT
743+05	RT
747+25	LT
774+10	RT
796+88	RT
799+00	RT
814+63	LT
822+81	LT
831+00	LT
831+75	RT
857+30	LT
858+50	LT
858+60	RT
865+54	RT
890+40	RT
909+35	LT
948+22	LT
977+50	LT
994+94	RT

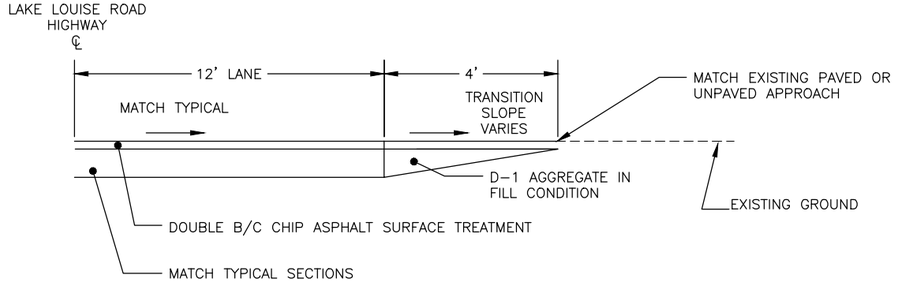
PULLOUT SUMMARY	
MIDPOINT STATION	CL OFFSET
491+50	LT
820+00	RT
856+00	LT
997+00	LT

MATCH EXISTING PULLOUT TRANSITION GEOMETRY AND LENGTH OF PULLOUT WITH TRANSITION WIDENING.

* WIDEN THE 601+65 PROJECT LEFT DRIVEWAY AND APPROACH 5 FEET TOWARD THE NORTH, PARALLEL TO EXISTING DRIVEWAY. WIDEN THE DRIVEWAY TO AN OFFSET FROM CENTERLINE OF 75 FEET. MATCH EXISTING DRIVEWAY PROFILE. CONSTRUCT DRIVEWAY WIDENING OF USABLE EXCAVATION AND SURFACE WITH 4 INCHES OF AGGREGATE BASE COURSE, GRADING D1.



APPROACH PLAN DETAIL



A–A TRANSITION FOR APPROACHES AND PULLOUTS

Preliminary Plans

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_1_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\APPROACHES-APPROACHES & PULLOUTS Mon, May/17/21 02:55pm

APPROACHES & PULLOUTS

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
1	469+02		X	D14-100	ADOPT A HIGHWAY	30 X 24	X		5.00		S	PST	2.5	1	
				D14-100	PERKS PLACE	24 X 12			2.00						
2	475+33	X			45 MPH	24 X 30			5.00		N	PST	2.5	1	
3	482+82		X	D9-105	PARKING	24 X 24			4.00		S	PST	2.5	1	
				D9-301	DIRECTIONAL ARROW	24 X 6			1.00						
4	485+32		X	R2-1	45 MPH	30 X 24	X		5.00		S	PST	2.5	1	
5	498+40	X		D9-105	PARKING	24 X 24			4.00		N	PST	2.5	1	
		X		D9-301	DIRECTIONAL ARROW	24 X 6			1.00						
6	519+60	X		D14-100	ADOPT/PERKS PLACE	30 X 24	X		5.00		S	PST	2.5	1	
		X		D14-100	PERKS PLACE	24 X 12			2.00						
7	521+00	X		D10-202	MP 10	14 X 27			2.63		N/S	PST	2.5	1	
8	544+30		X	W7-1	HILL	24 X 24			4.00		S	PST	2.5	1	
			X	W7-2B	TRUCKS USE LOWER GEAR	24 X 18			3.00						
9	571+60		X	D10-202	MP 11	14 X 27			2.63		N/S	PST	2.5	1	
10	596+17		X	D9-105	PARKING	24 X 24			4.00		S	PST	2.5	1	
			X	D9-301	DIRECTIONAL ARROW	24 X 6			1.00						
11	601+92		X		LAKE ACCESS SIGNS										DO NOT DISTURB
12	611+10	X		D9-105	PARKING	24 X 24			4.00		N	PST	2.5	1	
		X		D9-301	DIRECTIONAL ARROW	24 X 6			1.00						
13	623+75		X	D10-202	MP 12	14 X 27			2.63		N/S	PST	2.5	1	
14	724+97		X	D10-202	MP13	14 X 27			2.63		N/S	PST	2.5	1	
15	725+00		X	D10-202	MP14	14 X 27			2.63		N/S	PST	2.5	1	
16	727+15		X	I-222	ENTERING MATSU BOROUGH	42 X 30		X	8.75		S	TS	3	2	SEE NOTE 14
17	727+15		X		WELCOME LAKE LOUISE COMMUNITY										REMOVE AND DISPOSE
18	727+15		X		CRIME WATCH						S	PST	2.5	1	RE-USE EXISTING
19	729+28	X		I-223	LEAVING MATSU BOROUGH	42 X 30		X	8.75		N	TS	3	2	SEE NOTE 14
20	791+78		X	D10-103	MP15	14 X 27			2.63		N/S	PST	2.5	1	
21	793+26		X	D9-230	TRANSFER SITE	24 X 36			6.00		S	PST	2.5	1	
22	794+27	X		W11-104	CARIBOU XING NEXT 20	36 X 36	X		9.00		N	PST	2.5	1	
23	798+07	X			CRIME WATCH						N	PST	2.5	1	RE-USE EXISTING
24	798+07		X		CRIME WATCH						S	PST	2.5	1	RE-USE EXISTING
25	803+64	X		D9-230	TRANSFER SITE	36 X 24	X		6.00		N	PST	2.5	1	
						SUBTOTAL = 105.25									

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	H1	H3

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
26	810+28	X			45 MPH	24 X 30			5.00		N	PST	2.5	1	
27	812+83		X	D9-105	PARKING	24 X 24			4.00		N	PST	2.5	1	
28	823+98		X		N+S JANS LAKE										DO NOT DISTURB
29	826+77		X	W11-7	HORSE CROSSING	30 X 30	X		6.25		S	PST	2.5	1	
30	826+97		X	W11-6	SNOW CROSSING	30 X 30	X		6.25		S	PST	2.5	1	
31	827+34		X	D10-202	MP 16	14 X 27			2.63		N/S	PST	2.5	1	
32	828+78	X		D9-105	PARKING	24 X 24			4.00		N	PST	2.5	1	
33	869+69		X		CONNOR LAKE										DO NOT DISTURB
			X		ARROW										DO NOT DISTURB
			X		PUBLIC ACCESS										DO NOT DISTURB
34	877+11	X		W11-6	SNOW MOBILE	24 X 24			4.00		N	PST	2.5	1	
35	877+53		X	D10-202	MP 17	14 X 27			2.63		N/S	PST	2.5	1	
36	879+42		X	W2-2R	SIDE ROAD	36 X 36	X		9.00		S	PST	2.5	1	
37	889+68		X	D7-100	L.L. STATE REC AREA	30 X 96		X	20.00		S	TS	3	2	
38	890+65		X	R1-1	STOP	30 X 30	X		6.25		E	PST	2.5	1	
39	929+89		X	D10-202	MP18	14 X 27			2.63		N/S	PST	2.5	1	
40	944+21		X	I-5	AIRPORT	24 X 24			4.00		S	PST	2.5	1	
			X	D9-301	DIRECTIONAL ARROW	24 X 6			1.00						
41	947+96		X	R1-1	STOP	30 X 30	X		6.25		E	PST	2.5	1	
42	972+96		X		PUBLIC BOAT LAUNCH	X					S	PST	2.5	1	REUSE EXISTING
43	978+31		X	D10-202	MP19	14 X 27			2.63		N/S	PST	2.5	1	
44	983+82		X	W14-101	END ROAD 1000 FT	36 X 36	X		9.00		S	PST	2.5	1	
						SUBTOTAL = 95.50									
						PROJECT TOTAL = 200.75									

Preliminary Plans

NOTES:

1. REMOVE AND SALVAGE ALL UNLISTED ADOPT A HIGHWAY SIGNS WITHIN PROJECT LIMITS. PROVIDE SALVAGED ADOPT A HIGHWAY SIGNS TO TAZLINA M&O.

POST TYPE LEGEND:

PST = PERFORATED STEEL TUBE
TS = TUBE STEEL (SQUARE STRUCTURAL STEEL TUBING)
W_X_ = WIDE FLANGE

STATE OF ALASKA 49TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

SIGNING SUMMARY

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\SIGNSUM_new-SIGNING SUM Thu, May/13/21 02:02pm

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	H2	H3

SIGNING NOTES

1. REMOVE AND DISPOSE OF ALL EXISTING SIGN FOUNDATIONS WITHIN THE PROJECT LIMITS, EXCEPT THOSE DESIGNATED FOR REINSTALLATION, SALVAGE OR OTHERWISE NOTED. ALL SALVAGED SIGN PANELS REMOVED AND NOT DESIGNATED FOR REINSTALLATION, SHALL BE DELIVERED TO TAZLINA MAINTENANCE STATION LOCATED AT MP110 ON THE RICHARDSON HIGHWAY.
2. SALVAGE ALL ADOPT A HIGHWAY SIGN PANELS.
3. INSTALL MILEPOST SIGNS (D10-203 SERIES) IN ACCORDANCE WITH STANDARD STANDARD PLAN S-05.02, EXCEPT WITH A 15 TO 30 FOOT OFFSET REDUCE THE OFFSET AS NECESSARY SO THE BOTTOM OF THE SIGN IS NO MORE THAN 15 FEET ABOVE THE GROUND. THE SIGN OFFSET SHALL NOT BE LESS THAN THE OFFSETS SHOWN IN S-05.02.
4. MOUNTING HEIGHTS ARE PER STANDARD PLAN S-05.02 UNLESS OTHERWISE NOTED.
5. DETERMINE POST LENGTHS IN THE FIELD. DO NOT EXTEND POSTS ABOVE TOP OF SIGN.
6. INSTALL PST SIGN POSTS WITH SLEEVE TYPE SOIL EMBEDMENT. EMBED PST IN SLEEVE 12"-24" PER STANDARD PLAN S-30.05. ATTACH THE SIGN POST TO THE SLEEVE USING GALVANIZED 3/8" BOLT, NUT, SPLIT LOCK WASHER AND TWO FLAT WASHERS.
7. 1/4" X 1 1/2" ALUMINUM ALLOY 6061-T6 BAR MAY ALSO BE USED TO FABRICATE SIGN BRACES AS SHOWN ON STANDARD PLAN S-01.02.
8. ATTACH ALL SIGNS TO THEIR SUPPORTS WITH 3/8" BOLTS, EXCEPT ATTACH UNFRAMED SIGNS TO PST POSTS WITH ALUMINUM DRIVE RIVETS. WIND WASHERS ARE NOT REQUIRED WITH DRIVE RIVETS. INCLUDE SPLIT LOCK WASHERS WHEN BOLTS ARE USED.
9. ALL FASTENER HARDWARE SHALL MEET THE REQUIREMENTS OF THE "FASTENER SPECIFICATION TABLE" ON SHEET H2.
10. MAINTAIN EXISTING SIGNS UNTIL NEW SIGNS ARE INSTALLED. DO NOT LEAVE DUPLICATE OR CONFLICTING SIGNING UP AT ANY TIME.
11. ALL SIGNS NOTED FOR REMOVAL AND REINSTALLATION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE IF THEY ARE DAMAGED DURING THE RELOCATION EFFORT.
12. LOCATE AND PROTECT ALL NEW AND EXISTING UNDERGROUND UTILITIES, INCLUDING BUT NOT LIMITED TO: PIPELINES, INTERCONNECT CABLES, SIGNAL SYSTEMS, LIGHTING SYSTEMS, STORM AND SANITARY SEWERS, WATER SYSTEMS, AND TELEPHONE AND ELECTRICAL CABLES, PRIOR TO INSTALLING SIGN POSTS. NOT ALL EXISTING UTILITIES MAY BE SHOWN ON THE PLANS.
13. INSTALL WEATHER TIGHT CAPS ON ALL TS POSTS.
14. INSTALL FRANGIBLE COUPLING SYSTEMS IN ACCORDANCE WITH STANDARD PLAN S-31.02.
15. HINGED JOINTS WITH FRANGIBLE FUSE PLATES ARE REQUIRED ON ALL MULTIPLE POST SIGNS WITH FRANGIBLE COUPLING SYSTEMS. THE HINGE LOCATION ON ALL POSTS SHALL BE THE SAME DISTANCE BELOW THE SIGN, INSTEAD OF THE 6" MINIMUM SHOWN ON STANDARD PLAN S-31.02. SEE MANUFACTURER'S SPECIFICATION FOR HINGE LOCATION BELOW SIGN.
16. THE 4" MOUNTING AREA ON MILEPOST SIGNS (D10-203 SERIES) SHALL BE BARE ALUMINUM. THIS ELIMINATES THE OPTION OF INSTALLING GREEN REFLECTIVE SHEETING IN THIS AREA AS NOTED IN THE ASDS.
17. STOP (R1-1) SIGN LOCATIONS MAY NEED ADJUSTMENT IN THE FIELD. THE ENGINEER WILL APPROVE FINAL LOCATIONS.
18. CLEARING , AS DIRECTED BY THE ENGINEER MAY BE REQUIRED TO ENSURE ADEQUATE VISIBILITY OF SIGNS. THIS WORK IS SUBSIDIARY TO PAY ITEM 615.0001.0000.

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.

Preliminary Plans

SIGNING NOTES

STATE OF ALASKA 49TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\SIGNSUM_new-SIGNING NOTES Thu, May/13/21 02:02pm

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	H3	H3

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INSET=0.0"

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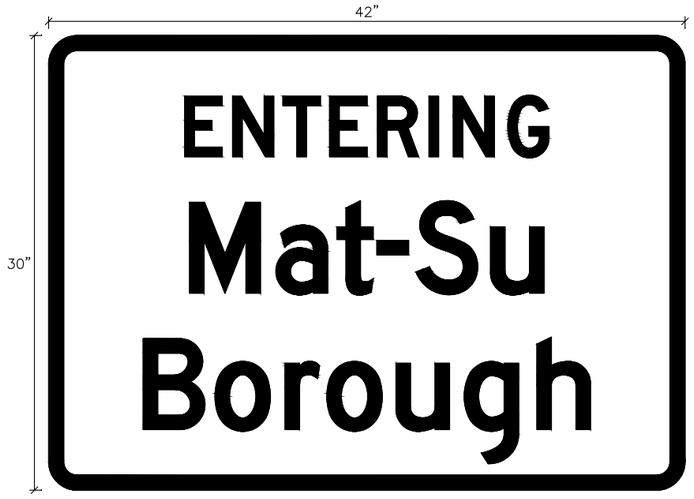
BORDER & LEGEND & SYMBOL: WHITE
BACKGROUND: BLUE

D9-230



BORDER
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COLORS
BORDER & LEGEND: WHITE
BACKGROUND: GREEN

I-222

BORDER
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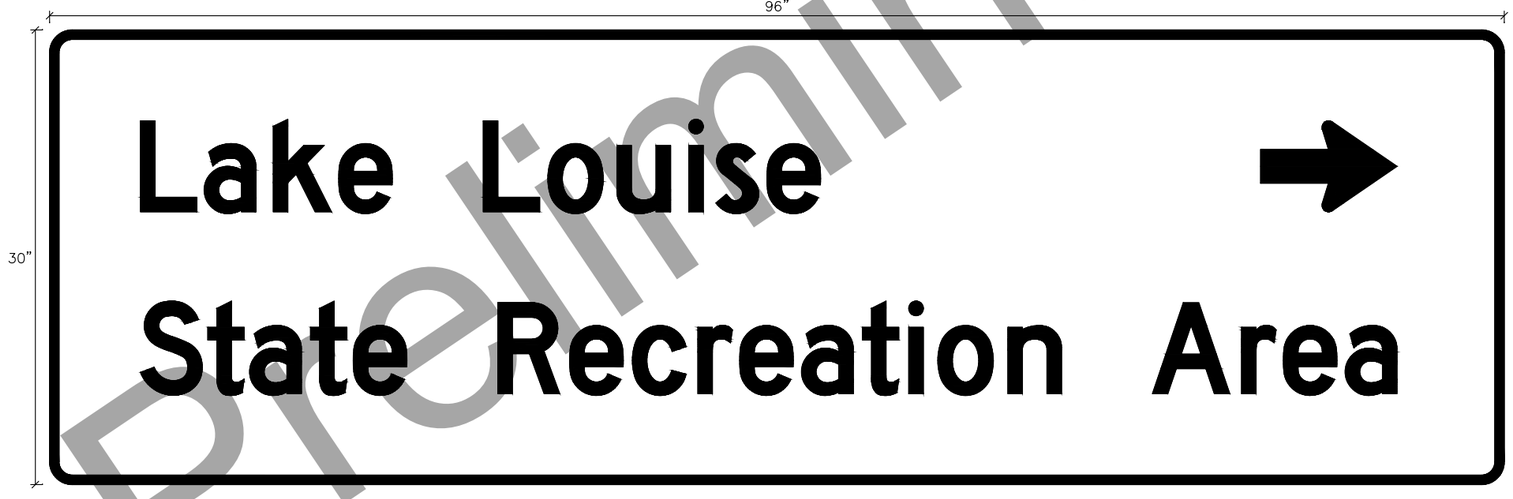
INSET=0.0"

COLORS
BORDER & LEGEND: WHITE
BACKGROUND: GREEN

I-223



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BORDER & LEGEND & SYMBOL: WHITE
BACKGROUND: BROWN

D7-100

SIGN DESIGN

STATE OF ALASKA 49TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

Preliminary Plans

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\NFHWY00481 GuideSign-SIGN DESIGN Thu, May/13/21 02:02pm

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	Q1	Q10

ESCP NOTES:

1. READ AND COMPLY WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 641 OF THE PROJECT SPECIFICATIONS.
2. INITIATE EROSION AND SEDIMENT CONTROLS PRIOR TO ANY EARTH DISTURBING ACTIVITIES.
3. ALL DISTURBED GROUND CAPABLE OF SUPPORTING VEGETATION SHALL BE RE-VEGETATED FOR FINAL STABILIZATION. FINAL STABILIZED AREAS NOT RE-VEGETATED SHALL BE 100% COVERED BY PERMANENT LOW-ERODIBLE MATERIAL. ATTAINMENT OF FINAL STABILIZATION SHALL BE AS APPROVED IN THE FIELD BY THE ENGINEER.
4. STOCKPILE AND STAGING LOCATIONS SHALL BE RECLAIMED TO THEIR ORIGINAL CONDITION AS APPROVED BY THE ENGINEER.
5. TEMPORARY BMP'S REQUIRED BY THIS ESCP WILL NOT BE MEASURED FOR PAYMENT AND ARE SUBSIDIARY TO PAY ITEM 641.0003.0000.
6. CONSTRUCTION ENTRANCE / EXITS MUST BE ESTABLISHED TO MINIMIZE OFF SITE IMPACTS.
7. IF EXCAVATION DEWATERING WILL OCCUR ON THE PROJECT, THE CONTRACTOR MUST COMPLY WITH THE EXCAVATION DEWATERING GENERAL PERMIT AKG0020000 AND SUBMIT A NOI AND A CERTIFIED BMP PLAN TO ADEC FOR APPROVAL BEFORE DEWATERING CAN BEGIN.
8. AVOID CLEARING BETWEEN MAY 1 AND JULY 15. IF CLEARING WILL HAPPEN IN THIS TIME FRAME, THEN A WALK THROUGH WILL NEED TO BE DONE TO ENSURE THAT NO ACTIVE NESTS ARE DISTURBED. IF AN ACTIVE NEST IS IDENTIFIED, THEN THE NEST SHALL BE MARKED AND AVOIDED UNTI LIT IS NO LONGER ACTIVE.

CULVERTS:

9. PROVIDE TEMPORARY INLET AND OUTLET PROTECTION FOR ALL CULVERTS IN THE PROJECT AREA PRIOR TO MAKING THEM OPERATIONAL INITIATING OR EARTH DISTURBING ACTIVITIES.
10. PERMANENT EHD AND FISH PASS CULVERT INLET AND OUTLET PROTECTION WILL BE RIPRAP APRONS.
11. SEED ALL DISTURBED AREAS CAPABLE OF SUPPORTING VEGETATION AS DIRECTED BY THE ENGINEER. THIS IS SUBSIDIARY

DITCH PROTECTION AND CONCENTRATED FLOWS:

12. DURING CONSTRUCTION ,PROTECT DITCHES TO LIMIT RELEASE OF SEDIMENT..PROVIDE TEMPORARY DITCH PROTECTION IN THE FORM OF VELOCITY CONTROLS IF NECESSARY.
13. EXPOSED MATERIAL OF NEW DITCHES CAPABLE OF SUPPORTING VEGETATION SHALL BE SEEDED FOR FINAL STABILIZATION.
14. WHEN POSSIBLE AVOID CONDITIONS WHICH PROMOTE CONCENTRATED FLOWS IF NOT POSSIBLE INSTALL VELOCITY CONTROL BMP'S.

PERIMETER CONTROL NOTES"

15. INSTALL PERIMETER CONTROL BEST MANAGMENT PRACTICES WHEN WITH 25 FEET OF SURFACE WATER AND ALONG WETLANDS WHERE A 25 FOOT VEGETATIVE BUFFER IS NOT RETAINED.
16. VEGETATIVE BUFFER IS THE PREFERRED PERIMETER PROTECTION FOR THIS PROJECT. SEE APPENDIX A FOR COE PERMIT.

HAULING:

17. ENSURE LOADS ARE STABLE OR COVERED SO NO MATERIAL ESCAPEMENT OCCURS DURING HAULING ACTIVITIES.

STOCKPILE PROTECTION:

18. PERIMETER CONTROL SHALL BE INSTALLED AROUND ERODIBLE STOCKPILES
19. BEST MANAGEMENT PRACTICESS MAY HAVE TO BE REMOVED AND REPLACED EACH SHIFT.
20. COVER MUST BE USED ON STOCKPILES IN ACCORDANCE WITH SUBSECTION 641-3.01.5 TO PROVIDE ADDITIONAL EROSION PROTECTION.

IN WATER WORK:

21. ALL IN WATER WORK MUST BE ISOLATED FROM FLOWING WATER.

TIMING OF BEST MANAGEMENT PRACTICE INSTALLATION:

22. INSTALL EROSION AND SEDIMENT CONTROL BMP'S AS NECESSARY PRIOR TO THE START OF CONSTRUCTION TO MINIMIZE EROSION FROM DISTURBED SURFACES AND CAPTURE SEDIMENT ONSITE.
23. INSTALL TEMPORARY PERIMETER CONTROL BMP'S BEFORE ANY UP-GRADIENT SOIL DISTURBANCE OCCURS.
24. BEGIN INSTALLATION OF DISSIPATION MEASURES WITHIN 24 HOURS OF PLACEMENT OF CULVERTS AND COMPLETE IN A CONTINUOUS OPERATION.

WINTER SHUTDOWN:

25. IF FINAL STABILIZATION IS NOT ACHIEVED BEFORE WINTER SHUTDOWN, EXPOSED GROUND, INCLUDING BUT NOT LIMITED TO EMBANKMENT SLOPES AND STOCKPILES, SHALL BE TEMPORARILY STABILIZED FRO SPRING BREAK-UP AND UNTIL PERMANENT STABILIZATION IS ACHIEVED. ALL STABILIZATION AND OTHER EROSION CONTROL MEASURES NECESSARY FOR WINTER SHUTDOWN ARE SUBSIDIARY TO PAY ITEM 641.0003.0000.

DEWATERING:

26. DEWATERING WILL BE DONE BY THE APPROVED WATER HANDLING PLAN AND IS SUBSIDIARY TO 602.2012.1000 ALUMINUM STRUCTURAL PLATE PIPE

HAULING:

27. ENSURE LOADS ARE STABLE AND COVERED SO THAT NO MATERIAL ESCAPEMENT OCCURS DURING HAULING ACTIVITIES.

ENVIRONMENTAL INFORMATION:

- RECEIVING WATER BODIES: UN-NAMED CREEKS AND ADJACENT WETLANDS
- IMPAIRED WATER BODIES: NONE
- TOTAL MAXIMUM DAILY LOAD (TMDL) WATERS: NONE
- THREATENED AND ENDANGERED SPECIES: NONE.
- HISTORIC & CULTURAL RESOURCE PRESENCE: NONE.
- FISH & WILDLIFE ESSENTIAL HABITAT: SEE ALASKA DEPARTMENT OF FISH&GAME PERMITS IN APPENDIX A
- WETLANDS: SEE PERMIT IN APPENDIX A
- CONTACT THE PROJECT ENGINEER WITH QUESTIONS/CONCERNS REGARDING ENVIRONMENTAL ISSUES OR PERMIT INFORMATION.

THREATENED AND ENDANGERED SPECIES
NONE

IF EAGLE NEST(S) ARE IDENTIFIED BY DOT&PF OR THE CONTRACTOR STAFF WITHIN $\frac{1}{2}$ MILE OF CONSTRUCTION ACTIVITIES, THE PROJECT ENGINEER SHALL BE INFORMED AND THE ENGINEER SHALL CONSULT THE USFWS FOR MEASURES TO PROTECT THE NEST(S) FROM DISTURBANCES.

PROJECT AREA	91.5 ACRES
DISTURBED AREA	30 ACRES
PRE-CONSTRUCTION IMPERVIOUS AREA	141,900
POST-CONSTRUCTION IMPERVIOUS AREA	141,900
PRE-CONSTRUCTION RUNOFF COEFFICIENT	0.7
POST-CONSTRUCTION RUNOFF COEFFICIENT	0.7

NOTE: THESE CALCULATIONS DO NOT INCLUDE MATERIAL SITES OR ACCESS ROADS TO THOSE SITES.

GENERAL SITE INFORMATION:

- SITE FUNCTION: ROAD
- CLIMATE: AVERAGE ANNUAL TOTAL PRECIPITATION = 12.14 INCHES (WESTERN REGIONAL CLIMATE CENTER, FOR LAKE SUSITNA)
- MATERIAL SITES: M.S. 809-010-5, M.S 809-005-5, M.S. 809-004-5

Preliminary Plans

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\ESCP SHEET 1-ESCP SHEET 1 OF 10 Mon, May/17/21 03:00pm

ESCP SHEET 1 OF 10

STATE OF ALASKA
49 TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	Q2	Q10

Preliminary Plans

R/W

CONSTRUCTION ENTRANCE/EXIT

4700+000

4775+000

4780+000

4785+000

490+00

4935+000

R/W

R/W

R/W

Replace

Replace

"O" 467+00.00 POT

"O" 467+41.03 PI

LEGEND:

PERIMETER CONTROL

INLET PROTECTION

OUTLET PROTECTION

FLOW DIRECTION

WETLANDS

0 200.0004 400.0008 Feet

5000+000

5005+000

5100+000

5115+000

5120+000

5125+000

5300+000

R/W

R/W

R/W

R/W

"O" 507+23.73 PC

MP 10.0

"O" 521+87.83 PT

Save

Replace

Ditching

MATCH "O" 499+00 LINE

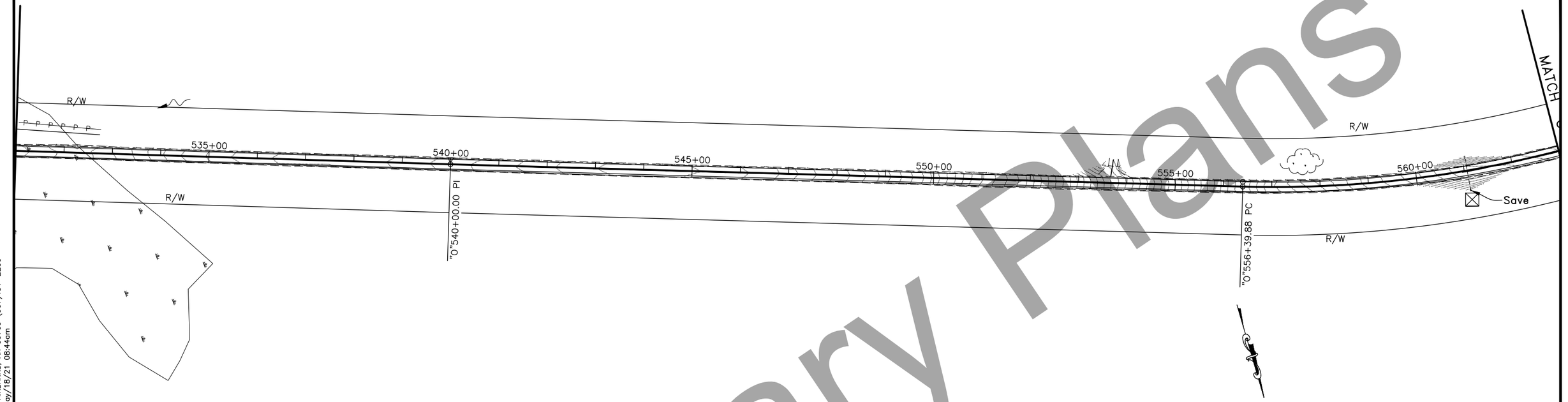
MATCH "O" 531+00 LINE

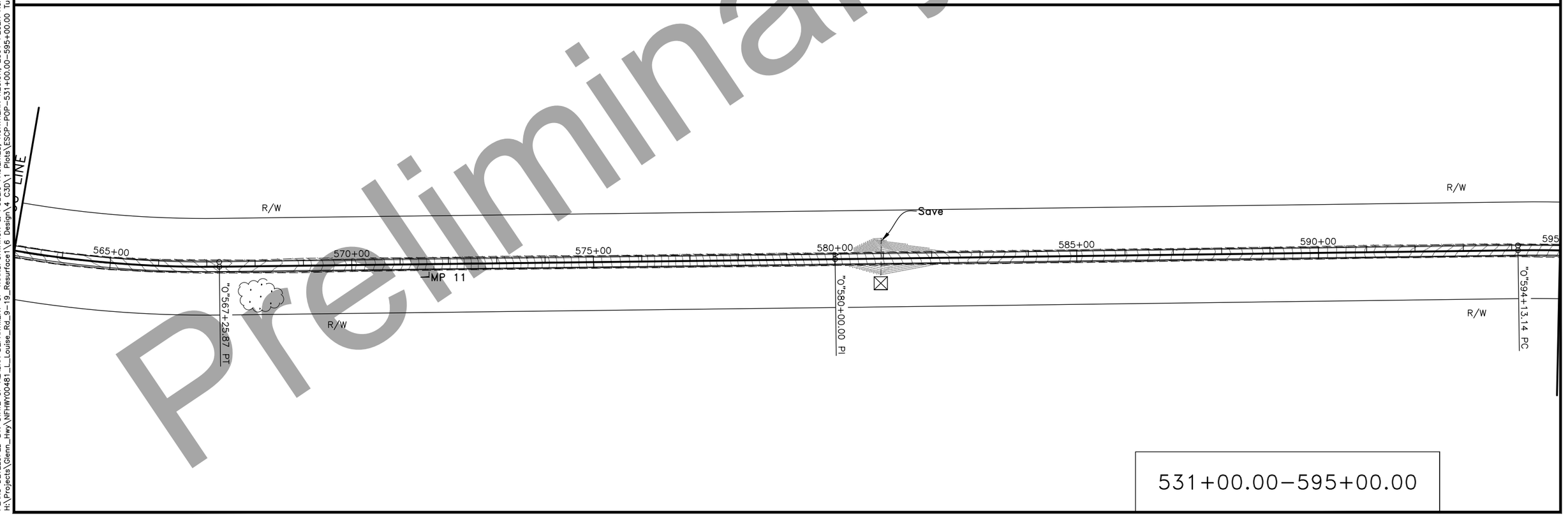
467+00.00–531+00.00

PLANS DEVELOPED BY:: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\ESCP-POP-467+00.00-531+00.00 Tue, May/18/21 08:44am

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	Q3	Q10





531+00.00–595+00.00

Preliminary Plans

PLANS DEVELOPED BY:: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface\6 Design\4 C3D\1 Plots\ESCP-POP-531+00.00-595+00.00 Tue, May/18/21 08:44am

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	Q4	Q10

Preliminary Plans

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface\6 Design\4 C3D\1 Plots\ESCP-POP-595+00.00-659+00.00 Tue, May/18/21 08:44am

595+00 LINE

R/W

600+00

Replace

Save

605+00

"O"607+08.06 PT

610+00

"O"612+00.04 PI

Replace

615+00

620+00

"O"618+19.04 PC

625+00

MATCH

MP 12

REPLACE
ENHANCED HYDRAULIC DESIGN

630+00

635+00

"O"628+54.94 PT

Save

640+00

"O"640+00.43 PI

Save

645+00

650+00

655+00

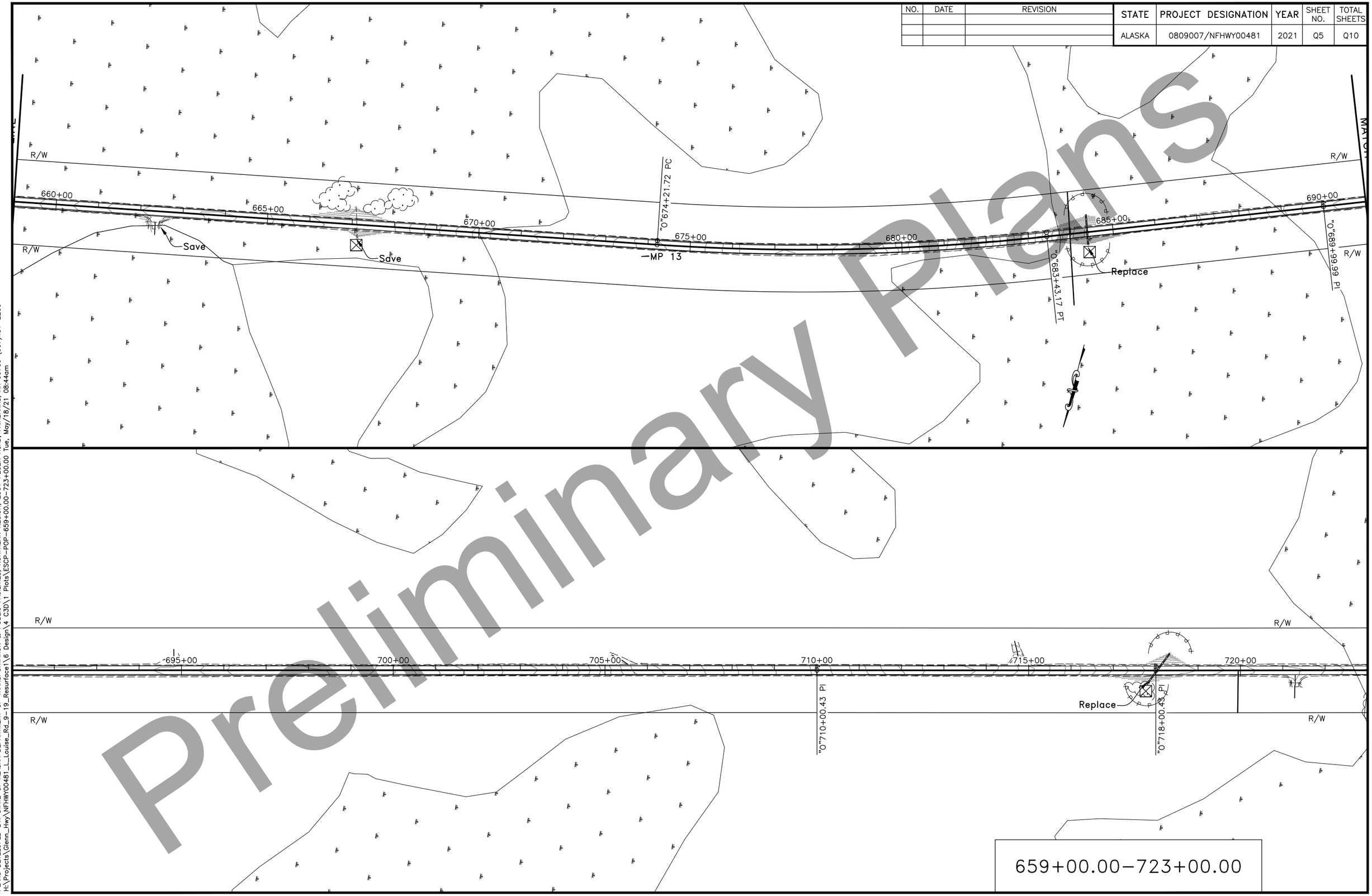
FILL POND

Fish Pass

595+00.00–659+00.00

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	Q5	Q10



Preliminary Plans

PLANS DEVELOPED BY:: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_1_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\ESCP-POP-659+00.00-723+00.00 Tue, May/18/21 08:44am

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	Q6	Q10

Preliminary Plans

PLANS DEVELOPED BY:: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_1_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\ESCP-POP-723+00.00-787+00.00 Tue, May/18/21 08:44am

R/W

725+00

730+00

735+00

740+00

745+00

750+00

755

MP 14

"O" 727+00.43 PI

"O" 735+62.91 PI

Replace

"O" 742+00.43 PI

R/W

R/W

"O" 755+00 LINE

760+00

765+00

770+00

775+00

MP 15

780+00

785+00

R/W

R/W

"O" 768+09.41 PC

"O" 782+48.56 PT

"O" 786+00.39 PI

R/W

MATCH "O" 78

Replace

723+00.00–787+00.00

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
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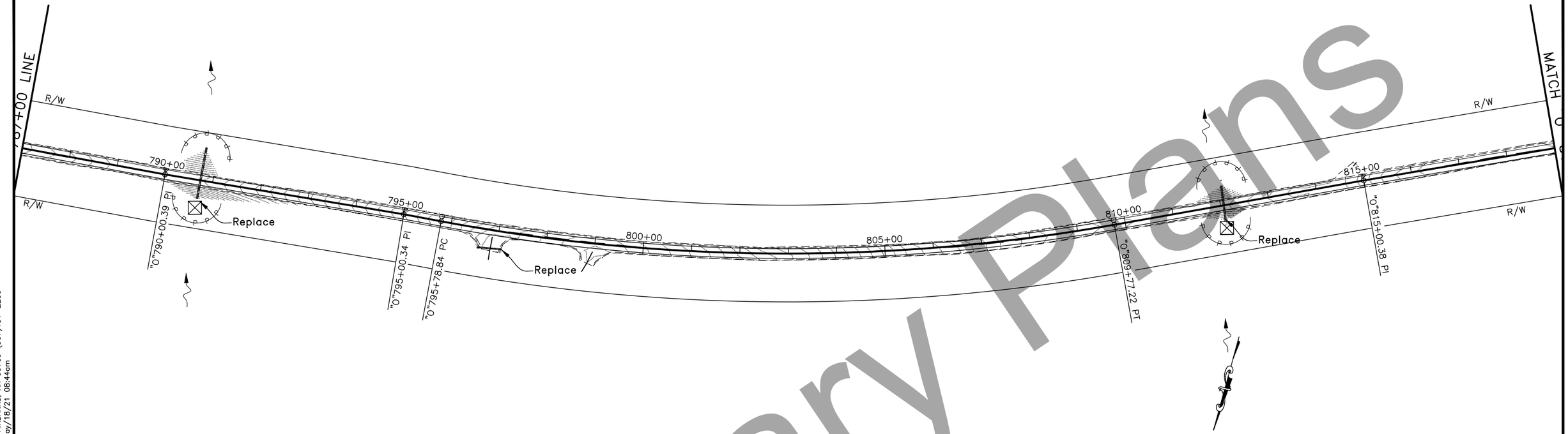

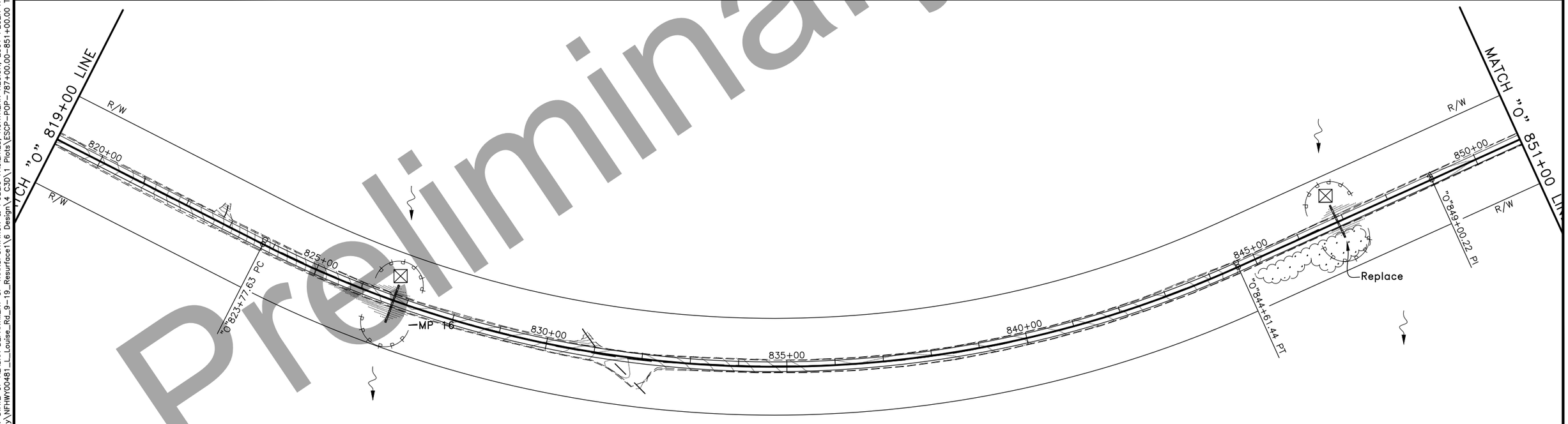

787+00.00–851+00.00

Preliminary Plans

PLANS DEVELOPED BY:: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_1_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\ESCP-POP-787+00.00-851+00.00 Tue, May/18/21 08:44am

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
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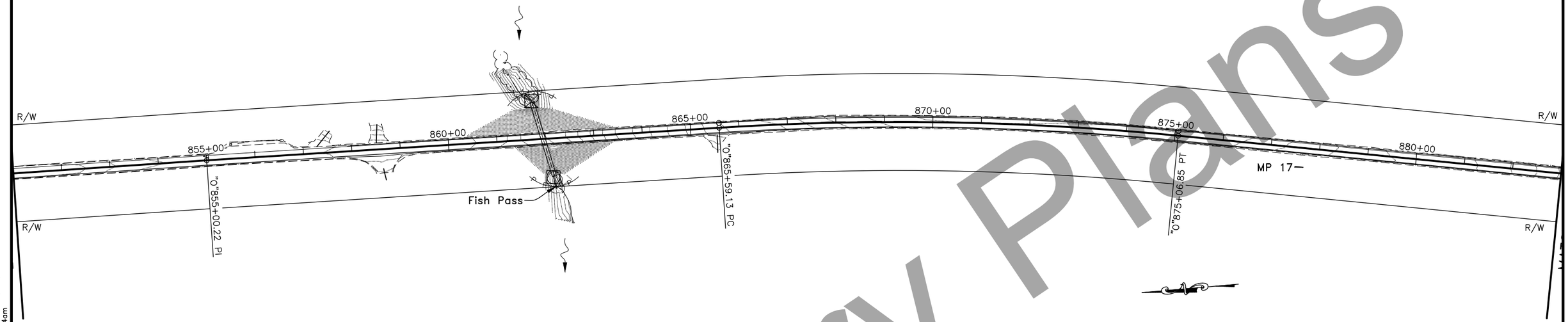
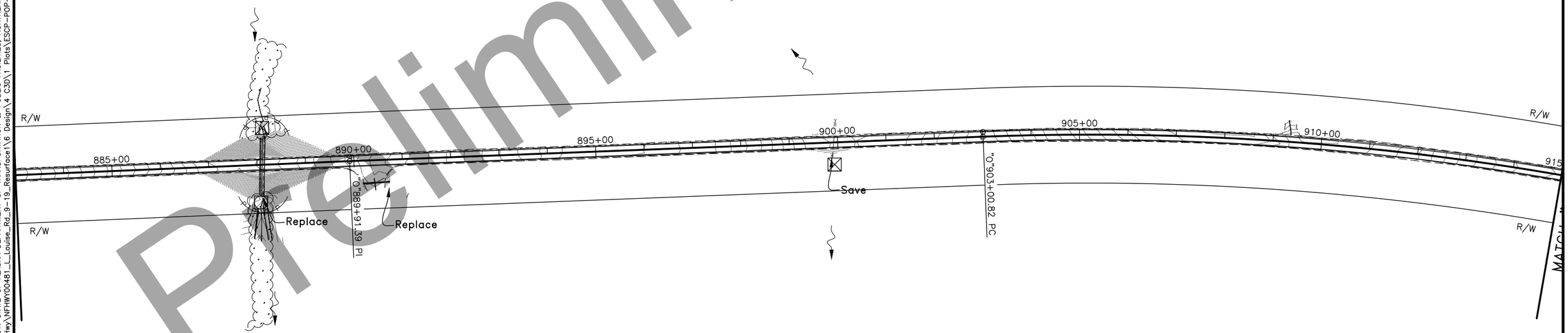




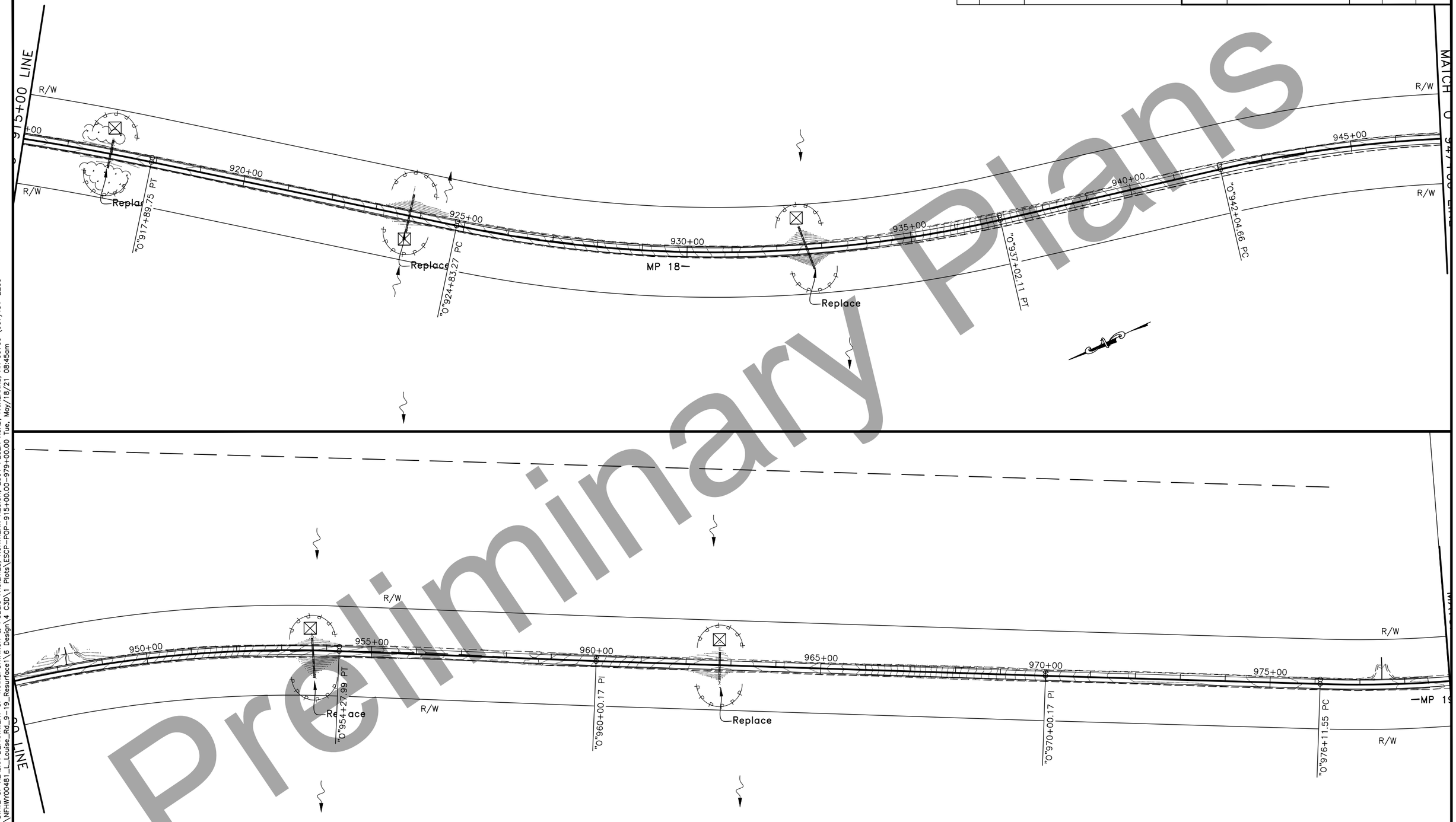
851+00.00–915+00.00

Preliminary Plans

PLANS DEVELOPED BY:: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface1\6 Design\4 C3D\1 Plots\ESCP-POP-851+00.00-915+00.00 Tue, May/18/21 08:44am

NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	Q9	Q10



915+00.00–979+00.00

Preliminary Plans

PLANS DEVELOPED BY:: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
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NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
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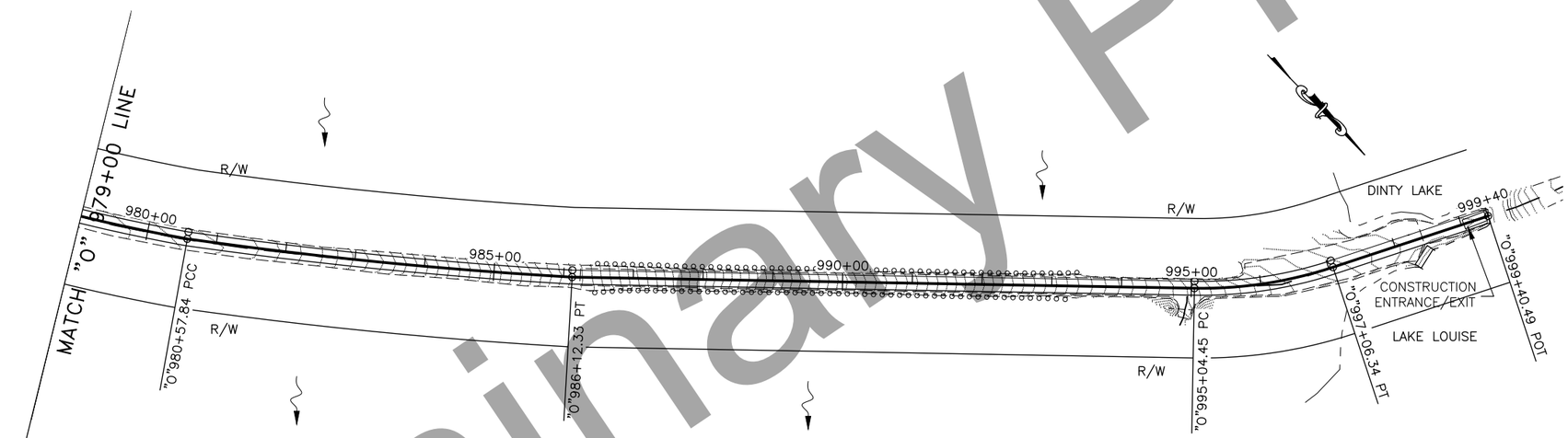

Preliminary Plans

979+00–999+40

PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
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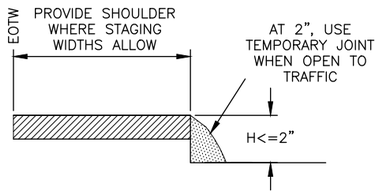
NO.	DATE	REVISION

STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	0809007/NFHWY00481	2021	T1	T1

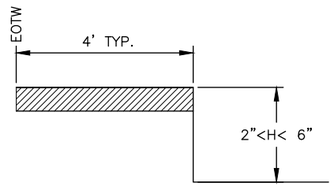
VERTICAL DROP-OFFS



CASE A

DROP-OFFS ≤2 INCHES
(PAVED SURFACES ONLY)

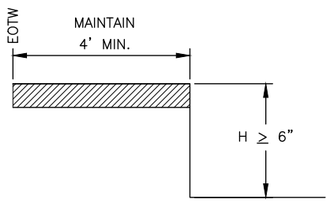
1. USE "UNEVEN LANES" (W8-11) SIGNS FOR ALL DROP-OFFS IN BETWEEN TRAFFIC LANES
2. LEAVE NO DROP-OFFS > 1.5" IN THE TRAFFIC LANE OR ACTIVE WHEEL TRACK



CASE B

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

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



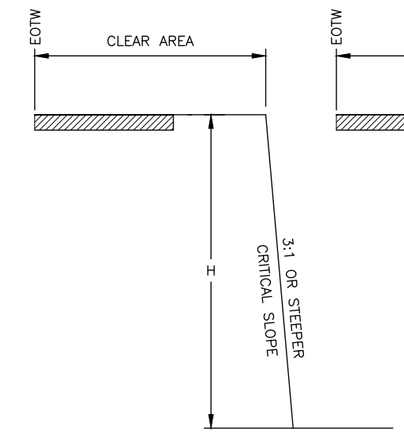
CASE C

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

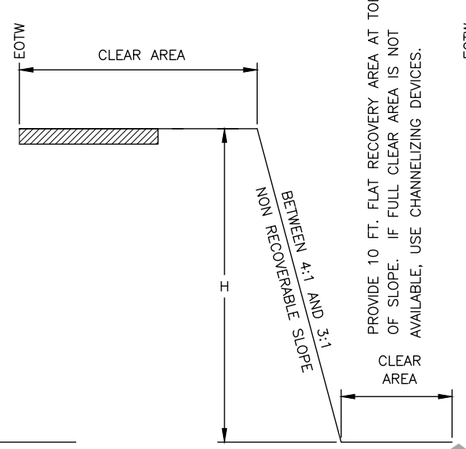
1. PLACE DRUMS OR TYPE II BARRICADES FOR DROP-OFFS ≤ 24" WITHIN THE CLEAR AREA.
2. PROVIDE PORTABLE CONCRETE BARRIERS FOR DROP-OFFS > 24" WITHIN 15 FEET OF THE EOTW. USE DRUMS OR TYPE II BARRICADES IF BEYOND 15 FEET.

FILL SLOPES

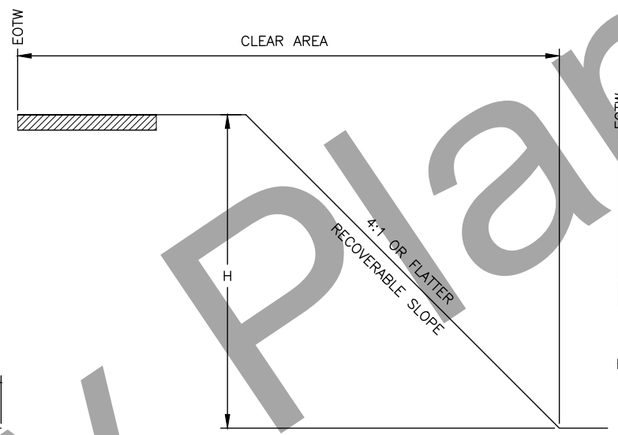
STEEPER THAN OR EQUAL TO 3:1



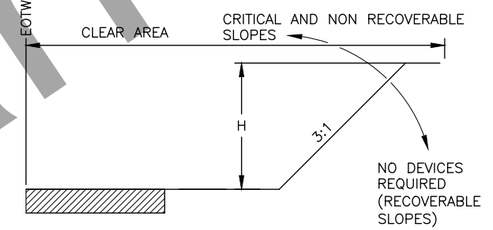
BETWEEN 4:1 AND 3:1



FLATTER THAN OR EQUAL TO 4:1



CUT SLOPES



EOTW = EDGE OF TRAVELED WAY

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 SECTIONS, OR 2' BEHIND CURB	15' DITCH CONDITIONS, OR 2' BEHIND CURB	15' DITCH CONDITIONS, 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:
   - A) CONNECT TO A PORTABLE CRASH CUSHION, OR
   - B) PROVIDE A CONCRETE BARRIER WITH THRIE BEAM TRANSITION TO W-BEAM GUARDRAIL, TREATED WITH A PARALLEL TERMINAL (SEE SECTION 710).
   - 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
   - D) BURY IN THE BACKSLOPE.
6. TERMINATE THE RUNS OF TEMPORARY W-BEAM GUARDRAIL USING THE FOLLOWING METHODS:
   - A) PROVIDE A PARALLEL TERMINAL (SEE SECTION 710)
   - 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
   - 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:
   - A) CONSTRUCTION SLOPES ARE RECOVERABLE, AND
   - B) SLOPES ARE SMOOTH AND COMPACTED, AND
   - C) REQUIRED CLEAR AREA IS PROVIDED

REVISIONS

DESCRIPTION	BY	DATE
CREATED	GG	11/20/03
CLARIFIED DETAILS	CA	01/31/06
UPDATED ET-PLUS NOMENCLATURE	CFJ	02/02/10
UPDATED 6A	CMA	07/18/11
NATIONAL CAD STDS	SP	02/13/15
NOTE TO DESIGNERS & MINOR CHANGES	SP	12/05/18

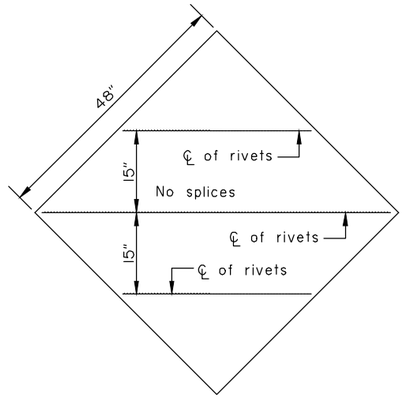
STATE OF ALASKA 49TH
Guangyan Tu Griffin
C.E. 11229
REGISTERED PROFESSIONAL ENGINEER

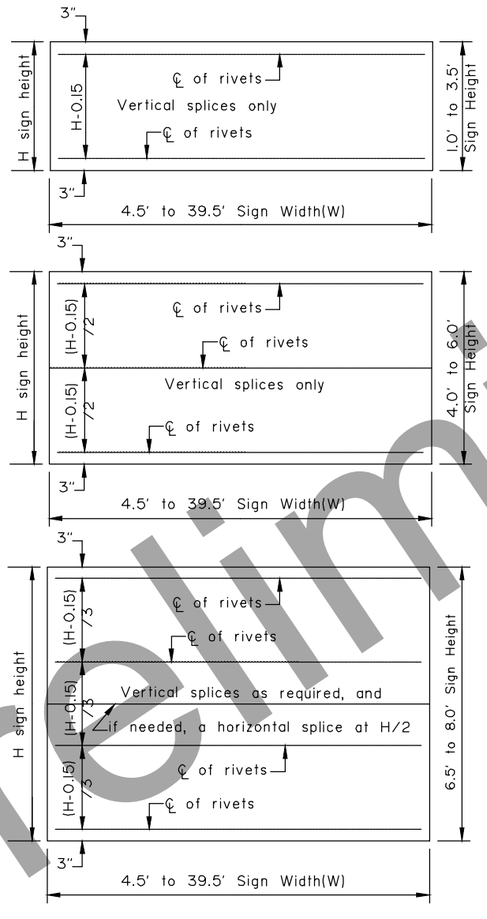
TRAFFIC CONTROL DEVICES

Preliminary Plans

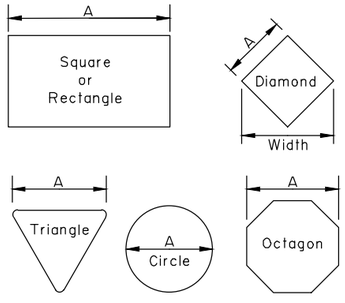
PLANS DEVELOPED BY: STATE OF ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES, NORTHERN REGION, 2301 PEGER ROAD, FAIRBANKS, AK 99709 (907)451-2200
H:\Projects\Glenn_Hwy\NFHWY00481_L_Louise_Rd_9-19_Resurface\6 Design\4 CSD\1 Plots\TSM107-TRAFFIC CONTROL DEVICES Thu, May/13/21 02:03pm

S-00.12 | SHEET | of |





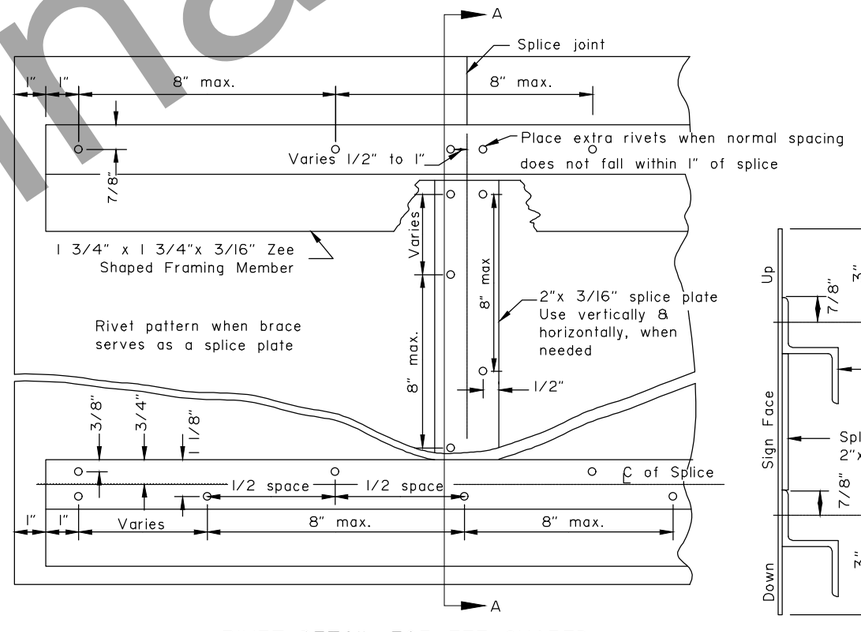
WIND FRAMING LOCATIONS



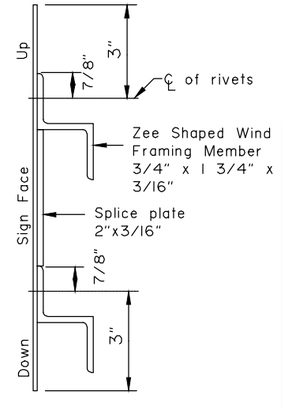
Maximum size unframed signs using 0.125" thick aluminum sheeting.	
Sign Shape	A
Squares, Shields, and Route Markers	48"
Rectangles	48"
Diamonds	48"
Triangles	48"
Rounds and Octagons	48"

Install wind framing on all signs that exceed the dimensions listed.

LIGHT SIGNS



RIVET DETAIL FOR ZEE SHAPED WIND FRAMING & SPLICE PLATE



SECTION A-A

Note: Drawing not to scale

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.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

SIGN FRAMING

Adopted as an Alaska Standard Plan by: Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

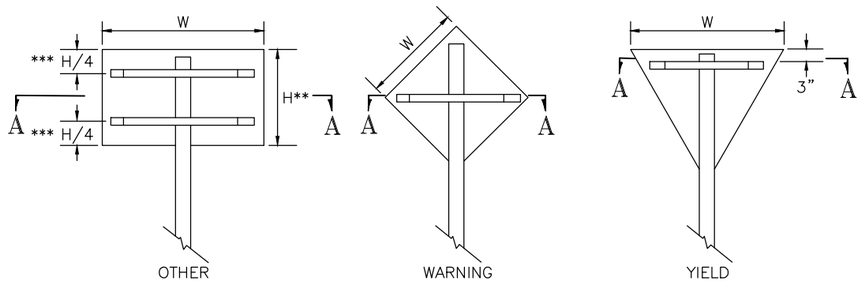
Last Code and Stds. Review
By: WTH Date: 7/8/2020

Next Code and Standards Review date: 7/8/2030

S-00.12

Preliminary Plans

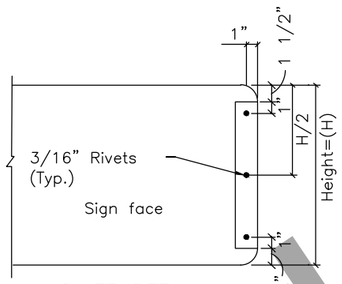
S-01.02 SHEET | of |



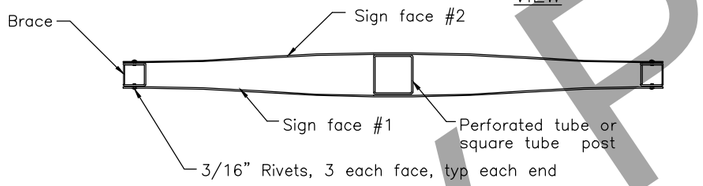
*** Use one brace when H ≤ 18"
Use two braces when 18"< H < 48"
Use three braces when H ≥ 48"

** Position of brace may be varied to match Predrilled mounting holes in panel

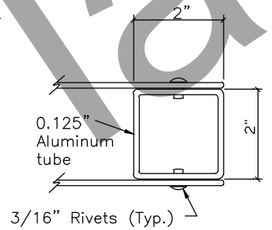
SIGN BRACING PLACEMENT



RIVET DETAIL
ELEVATION
VIEW

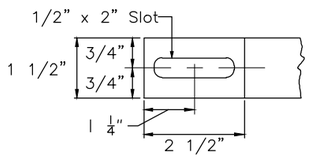


PLAN VIEW

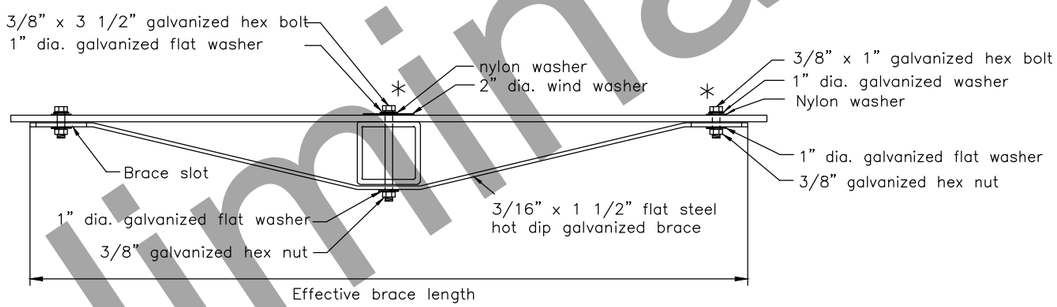


END BRACE DETAIL

SMALL STREET NAME SIGN (D3-1, D3-1A, D3-1D) BRACING DETAILS



DETAIL OF BRACE SLOT
Elevation view



TUBE POST SIGN BRACING SECTION A-A
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

Note: Drawing not to scale

State of Alaska DOT&PF
ALASKA STANDARD PLAN

BRACING FOR SIGNS
MOUNTED ON SINGLE POST

Adopted as an Alaska Standard Plan by: Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: WTH Date: 7/8/2020

Next Code and Standards Review date: 7/8/2030

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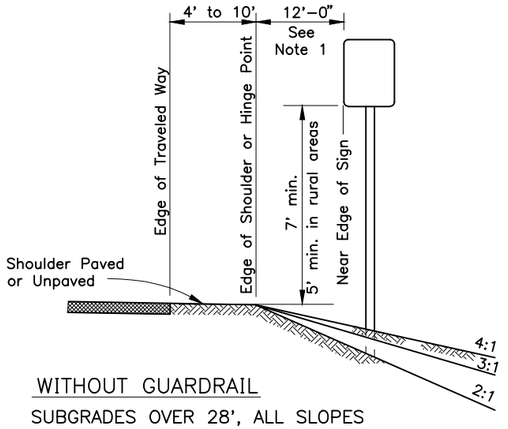
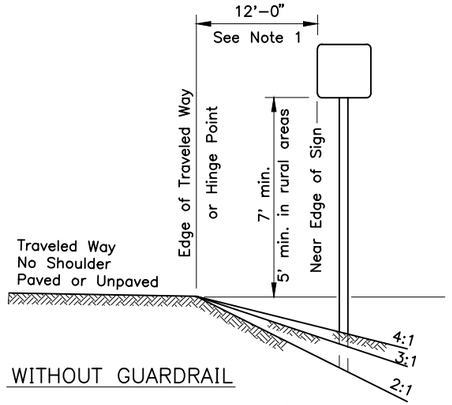


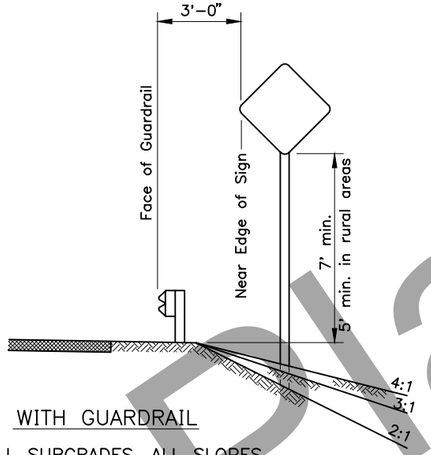
WITHOUT GUARDRAIL

SUBGRADES OVER 28', ALL SLOPES



WITHOUT GUARDRAIL

SUBGRADES 24' TO 28', ALL SLOPES

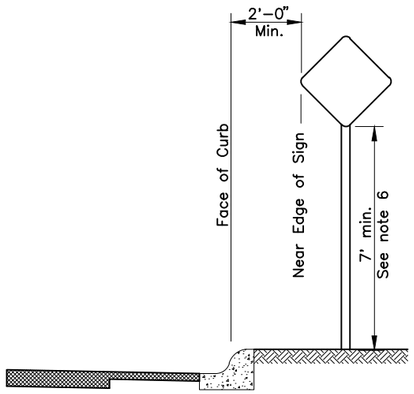


WITH GUARDRAIL

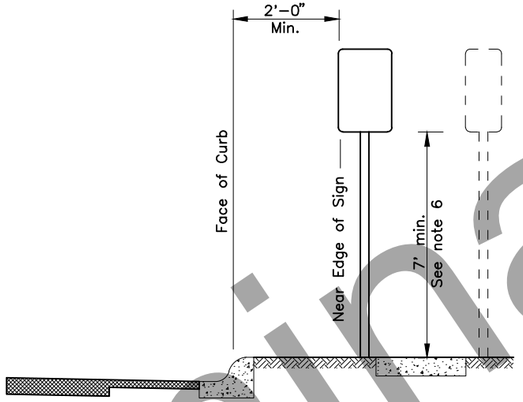
ALL SUBGRADES, ALL SLOPES

GENERAL NOTES

1. Unless shown otherwise on the plans, the standard sign offset is 12'. The minimum is 6' where shoulder width is 6' or greater.
2. Add 6" to mounting height on unpaved roads.
3. If signs extend over bike paths, the minimum vertical clearance is 8' 0".
4. 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.
5. When multiple hinged sign supports are used, mount hinges at least 7' above the ground.
6. Minimum mounting height is 7'-0" where parking or pedestrian movements are likely to occur, or where sings extend over sidewalks.
7. For construction signs in rural areas, mounting height shall be 7' minimum.

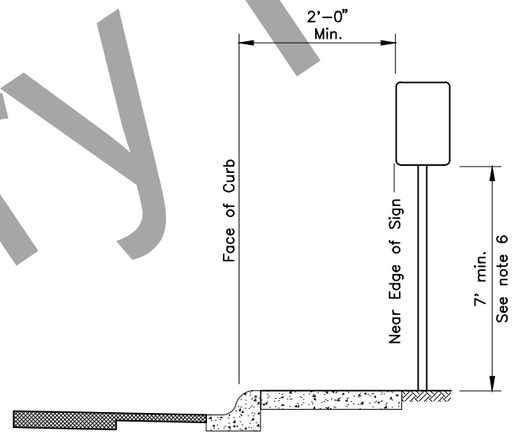


CURB WITHOUT SIDEWALK

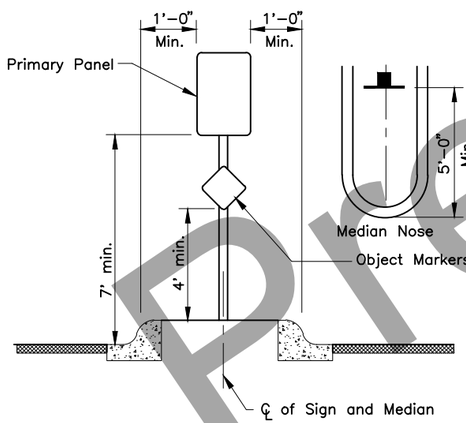


CURB WITH PARKWAY AND SIDEWALK

(If R/W width permits, signs should be placed behind sidewalk.)

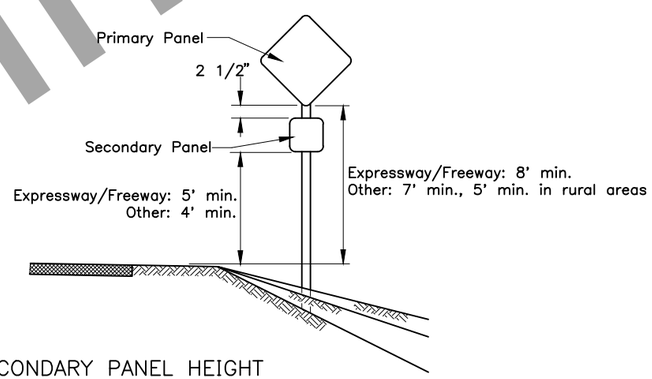


CURB WITH SIDEWALK WITHOUT PARKWAY



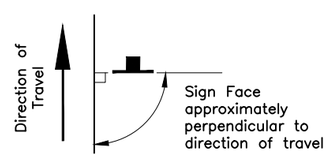
RAISED MEDIANS

Minimum 4' Width for Signing



SECONDARY PANEL HEIGHT

ALL TWO PANEL MOUNTING



SIGN POSITIONING

State of Alaska DOT&PF
ALASKA STANDARD PLAN

POST MOUNTED SIGN
OFFSET AND HEIGHT

Adopted as an Alaska Standard Plan by: Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLK Date: 7/8/2020

Next Code and Standards Review Date: 7/8/2030

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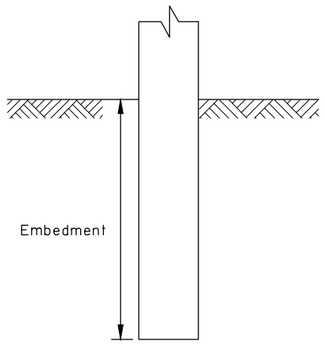
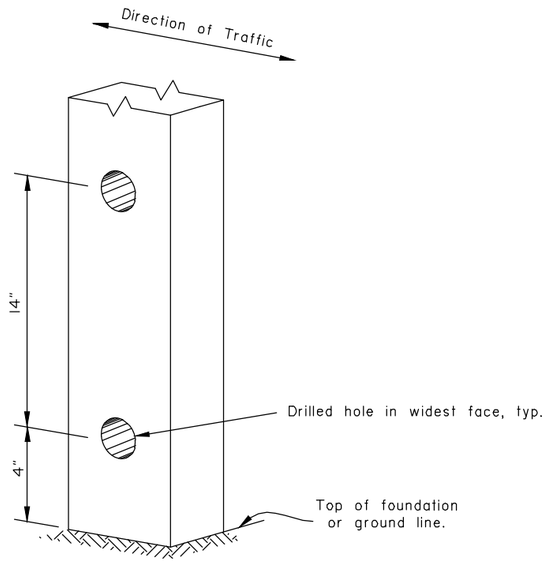
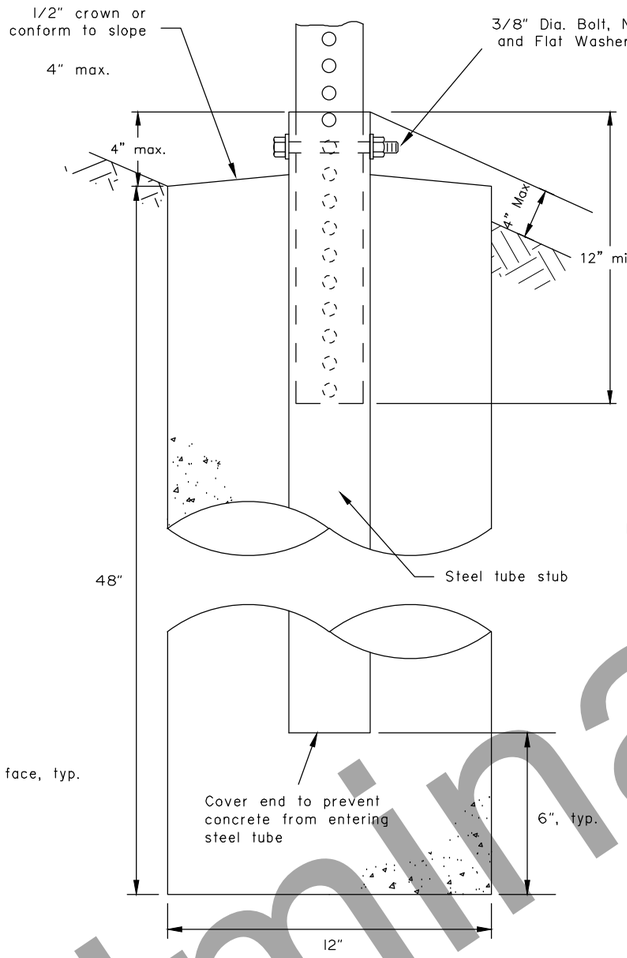
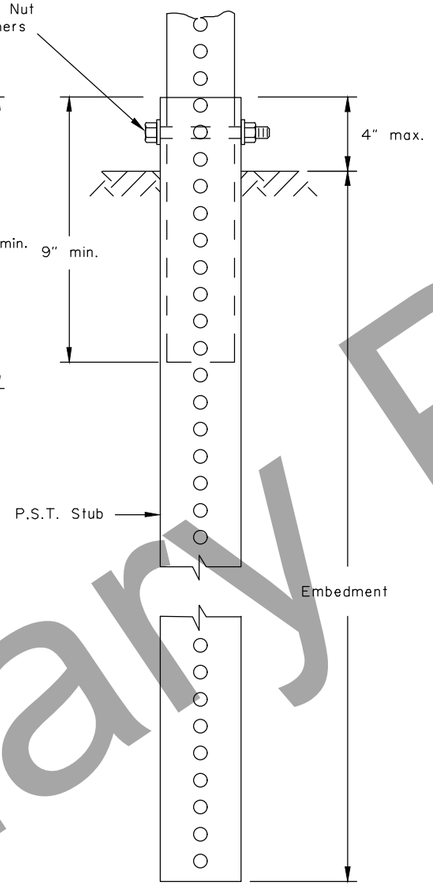






SLEEVE TYPE
CONCRETE FOUNDATION



SLEEVE TYPE*
SOIL EMBEDMENT

GENERAL NOTES:

1. Sign shall be placed symmetrically around posts and refer to Standard Plan 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. Concrete shall be class B.
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.

SIGN POST SPACING NOTES:

1. Install sign support in accordance with the table below, 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 tables below 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 Plan S-31 for frangible couplings, hinges, and foundations for tube and W-shape sign supports.

WOOD SIGN POSTS			
SIZE	HOLE DIA.	EMBEDMENT*	NO. OF POSTS WITHIN 7 Ft. PATH
4"x4"	NONE	4'-1"	2
4"x6"	1 1/2"	5'-3"	2
6"x6"	1 1/2"	4'-9"	1
6"x8"	3"	4'-9"	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"	4'-8"	2
1 3/4" x 1 3/4"	4'-6"	2
2" x 2"	4'-3"	2
2 1/4" x 2 1/4"	5'-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

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	

TUBE SIGN POST SPACING

Note: Drawing not to scale

State of Alaska DOT&PF
ALASKA STANDARD PLAN

LIGHT SIGN STRUCTURE
POST EMBEDMENT

Adopted as an Alaska Standard Plan by: Carolyn Morehouse
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: WTH Date: 7/8/2020

Next Code and Standards Review date: 7/8/2030

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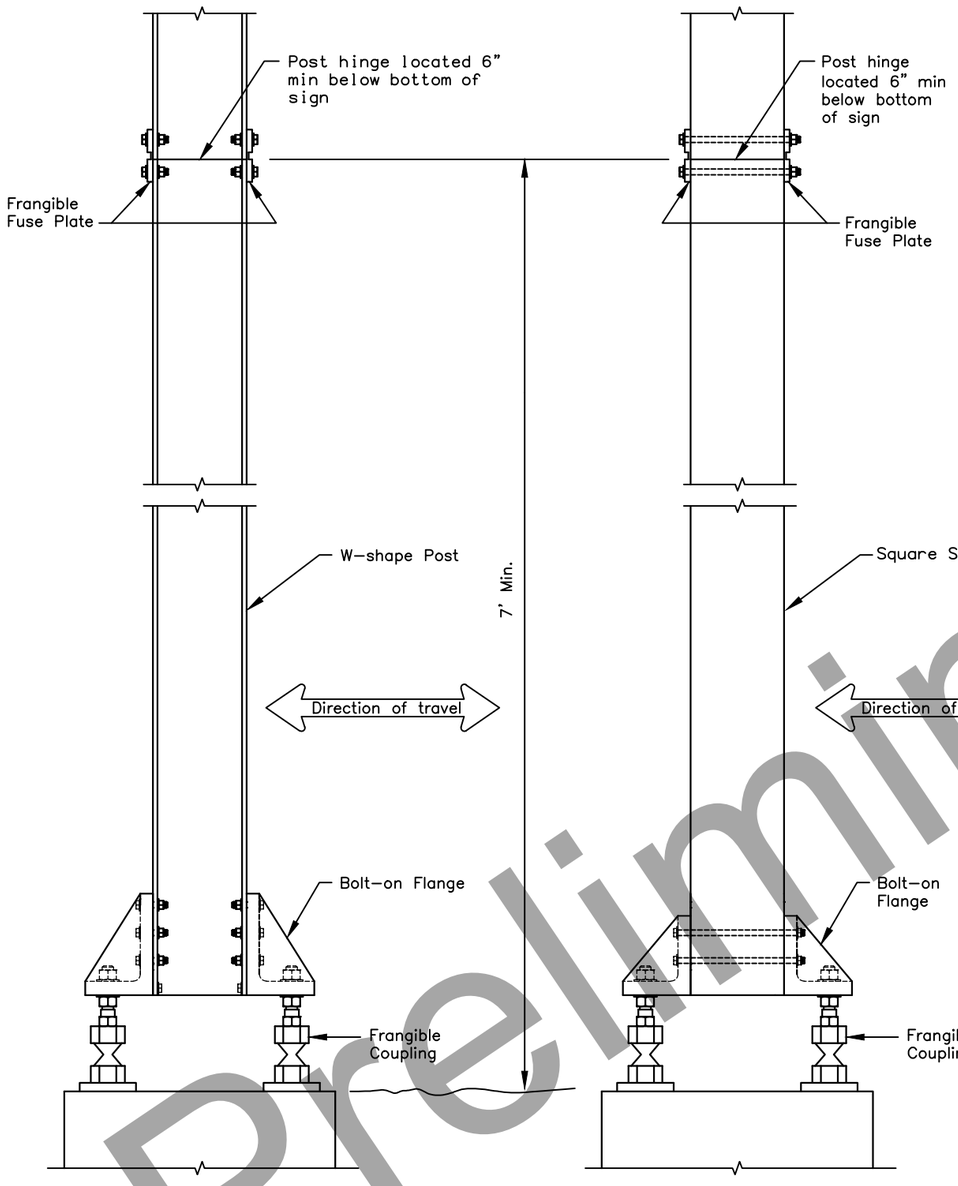
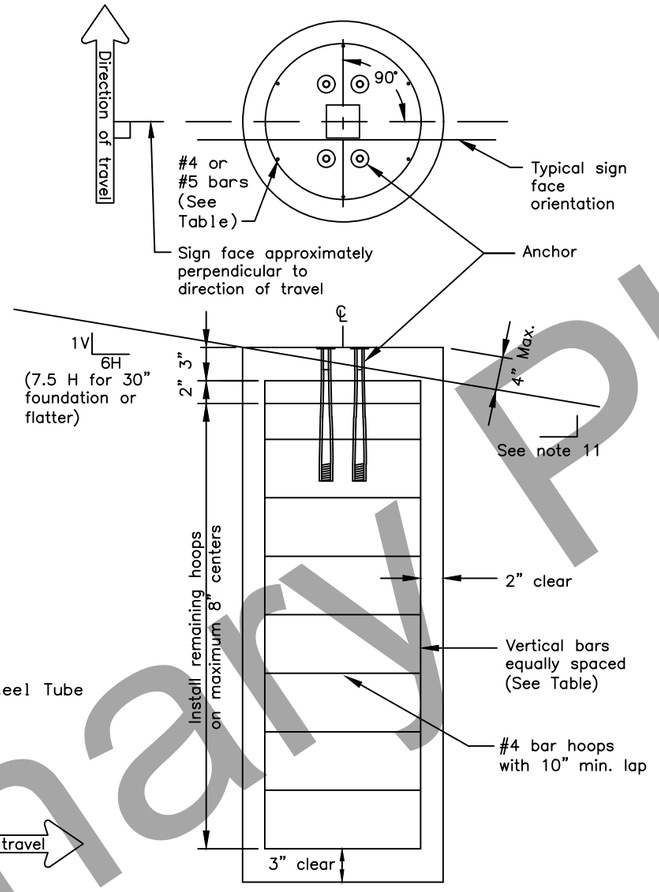
NOTE:
Install hinges when more than one post is used to support a sign. Do not install hinges on single post installations.



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"	6'–0"	0.39	7	#5	5'–6"	10	#4	1'–2"
3" TUBE	1'–6"	6'–0"	0.39	7	#5	5'–6"	10	#4	1'–2"
3 1/2" TUBE	1'–6"	6'–0"	0.39	7	#5	5'–6"	10	#4	1'–2"
4" TUBE	2'–6"	6'–0"	1.09	8	#8	5'–6"	10	#4	2'–2"
4 1/2" TUBE	2'–6"	6'–0"	1.09	8	#8	5'–6"	10	#4	2'–2"
5" TUBE	2'–6"	6'–0"	1.09	8	#8	5'–6"	10	#4	2'–2"
W6 x 9	2'–6"	6'–0"	1.09	8	#8	5'–6"	10	#4	2'–2"
W6 x 12	2'–6"	6'–0"	1.09	8	#8	5'–6"	10	#4	2'–2"
W6 x 15	3'–0"	6'–6"	1.70	8	#11	6'–0"	12	#4	2'–8"
W6 x 30	3'–0"	7'–6"	1.96	8	#11	7'–0"	13	#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 compliant frangible couplings designed to break away safely when struck from any direction. There is no MASH compliant device at this time. See SPDR report for more info.
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, B or W concrete conforming to Sections 501 or 550 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.
11. Special grading detail and/or shielding may be required to maintain 4" maximum clear distance.

State of Alaska DOT&PF
ALASKA STANDARD PLAN

SIGN POST BASE AND FOUNDATION

Adopted as an Alaska Standard Plan by: *Carolyn Morehouse*
Carolyn Morehouse, P.E.
Chief Engineer

Adoption Date: 7/17/2020

Last Code and Stds. Review
By: KLK, MJM Date: 7/8/2020

Next Code and Standards Review Date: 7/8/2030

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Preliminary Plans