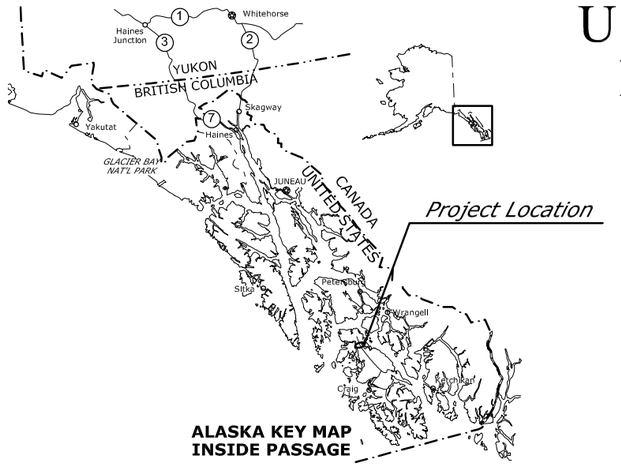
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	A.1

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



PLANS FOR PROPOSED PROJECT

AK PFH 43(10)

DEWEYVILLE TRAILHEAD TO NECK LAKE ROAD

TONGASS NATIONAL FOREST
PRINCE OF WALES ISLAND
ALASKA

LENGTH 10.967 MILES

See Sheet A.2 for Sheet Index

TYPE OF CONSTRUCTION:

Grading, pavement, base, drainage, and structures

DESIGN DESIGNATION:

ADT (2010)	*<400*
ADT (2030)	*<400*
V	*40 MPH*
e (max)	*0.060*

SPECIFICATION:

Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-03 US Customary Units

FEDERAL LANDS HIGHWAY
COMMITMENT TO EXCELLENCE

PLANS PREPARED FOR

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

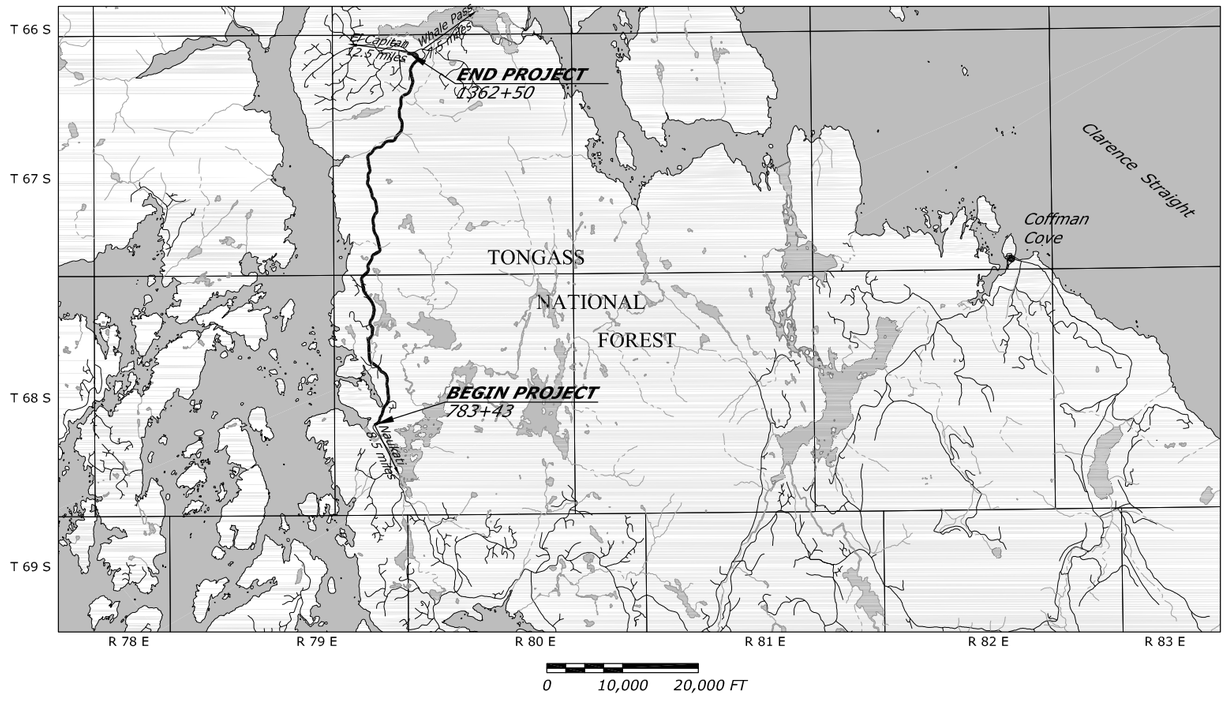
WESTERN FEDERAL LANDS HIGHWAY DIVISION
VANCOUVER, WASHINGTON

Plans Prepared by:

P N D
ENGINEERS, INC.

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER



Rev.3 9.10.2013

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\A1 Cover Sheet.dwg [USC] 10 September 2013 1:10 PM

RFI's Incorporated in Plan Set

RFI #	Sheets Changed
RFI 1	C.5, D.4
RFI 2	E.9
RFI 3	E.9
RFI 4	D.19, D.20
RFI 5	E.9
RFI 6	C.5, D.5
RFI 7	No Response
RFI 8	RFI 08.01
RFI 9	A.5, A.6
RFI 10	K.2
RFI 11	D.18, D.19
RFI 12	J.34
RFI 13	D.16, D.17
RFI 14	D.20
RFI 15	J.26
RFI 16	C.4
RFI 17	J.12, RFI-17.01

RFI #	Sheets Changed
RFI 18	J.28
RFI 19	G.9, G.20
RFI 20	Coordinate Table
RFI 21	RFI-21.01
RFI 22	J.20
RFI 23	J.14
RFI 24	J.12
RFI 25	J.13
RFI 26	C.6
RFI 27	Slab Detail
RFI 28	J.21
RFI 29	J.15
RFI 30	J.15
RFI 31	D.10, J.2
RFI 32	C.5
RFI 33	D.11
RFI 34	D.8, C.5

RFI #	Sheets Changed
RFI 35	C.4
RFI 36	C.5
RFI 37	--
RFI 38	D.3, D.4
RFI 39	C.5
RFI 40	D.14
RFI 41	As-Built
RFI 42	Grout
RFI 43	G.6
RFI 44	G.6
RFI 45	C.5
RFI 46	Grout Repair
RFI 47	D.21, D.22
RFI 48	D.14, J.3
RFI 49	D.14, J.3
RFI 50	D.5, J.2
RFI 51	D.10, J.2

RFI's Incorporated in Plan Set

RFI #	Sheets Changed
RFI 52	G.17
RFI 53	E.7
RFI 54	Section 552.10
RFI 55	RFI 55-1, G.4, G.5, G.15, G.16
RFI 56	F.1
RFI 57	D.12, J.2
RFI 58	G.3, G.14
RFI 59	E.3
RFI 60	D.22
RFI 61	Rebar Shop Drawings
RFI 62	M Sheets
RFI 63	Rebar Shop Drawings
RFI 64	C.4
RFI 65	Rebar Shop Drawings
RFI 66	J.4
RFI 67	Spec 634.01

RFI #	Sheets Changed
RFI 68	G.6, G.17
RFI 69	G.6, G.17
RFI 70	G.3, G.14
RFI 71	G.4, G.6
RFI 72	G.6, G.17
RFI 73	G.6
RFI 74	Additional Quarries
RFI 75	Spec. 552.10
RFI 76	G.17
RFI 77	G.6, G.17
RFI 78	J.9
RFI 79	G.6, RFI 79.01
RFI 80	G.7, G.18
RFI 81	D.23, K.07
RFI 82	G.6, G.9, G.17, G.20
RFI 83	G.8, G.19
RFI 84	--

RFI #	Sheets Changed
RFI 85	G.10, G.21
RFI 86	G.8, G.19
RFI 87	--
RFI 88	G.6, G.17
RFI 89	552.14.C
RFI 90	--
RFI 91	G.6, G.17
RFI 92	--
RFI 93	D.10, D.11
RFI 94	--
RFI 95	Section 301
RFI 96	--
RFI 97	G.7, G.18
RFI 98	G.6
RFI 99	--
RFI 100	--
RFI 101	--

RFI's Incorporated in Plan Set

RFI #	Sheets Changed	RFI #	Sheets Changed	RFI #	Sheets Changed
RFI 102	G.9, G.20	RFI #	--	RFI #	--
RFI 103	--	RFI #	--	RFI #	--
RFI 104	G.10, G.21	RFI #	--	RFI #	--
RFI 105	D.11, D.22, J.3, J.4	RFI #	--	RFI #	--
RFI 106	--	RFI #	--	RFI #	--
RFI 107	M.25, M.27	RFI #	--	RFI #	--
RFI 108	M.1	RFI #	--	RFI #	--
RFI #	--	RFI #	--	RFI #	--
RFI #	--	RFI #	--	RFI #	--
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RFI #	--	RFI #	--	RFI #	--
RFI #	--	RFI #	--	RFI #	--
RFI #	--	RFI #	--	RFI #	--

Plan Set Revisions

Revision #	Sheets Changed
Revision 1	A.1, A.2, B.1, C.1, C.3, C.4
Revision 2	A.1, A.2, J.1, J.16, J.17, J.18, J.28
Work Package 2	A.1, A.2, E.1-8, G.1-23, M.1-32
Revision 3	A.1, A.2, C.2, C.4-7, D.2, D.3, D.4, D.7, D.11, D.16-21, E.1, E.9, J.1-5, J.23, J.24, J.25, M.1, M.16-20, M.28, M.33
Revision #	--
Revision #	--
Revision #	--

Revision #	Sheets Changed
Revision #	--
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Revision #	--
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Revision #	--

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	A.2

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A.1 TITLE SHEET REV.3
A.2 INDEX TO SHEETS REV.3
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A.4 SHEET LAYOUT PLAN
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Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

SHEET INDEX

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Δ	total central angle
Δc	curve central angle
Ø	diameter
θs	spiral central angle
abut.	abutment
ADT	average daily traffic
AH	ahead
appr.	approach
BK	back
BM	bench mark
BP	balance point
br.	bridge
brg.	bearing
cc or c. to c.	center to center
℄	centerline
clr.	clear
CMP	corrugated metal pipe
col.	column
conc.	concrete
conn.	connection
constr. jt.	construction joint
cont.	continuous
CS	point of curve to spiral
ctrs.	centers
CUFT	cubic foot (feet)
culv.	culvert
CUYD	cubic yard(s)
D	diameter
DHV	design hourly volume
dia.	diameter
diag.	diagonal
diaph.	diaphragm
dist.	distance
drwg(s).	drawing(s)
E	east
e	superelevation rate
El. 94.16 ft	elevation with number
elev.	elevation
emb.	embankment
EP	edge of pavement
EQ or eq.	equation
ER	edge of road
EW	edge of water
exc.	excavation
exp. jt.	expansion joint
fin.	finish
flg.	flange
ft2	square foot
ft3	cubic foot (feet)
ftg.	footing
ga.	gage (gauge)
galv.	galvanized
hdwl.	headwall
hex.	hexagon
HW	high water
ID	inside diameter
jt.	joint
L	length of curve
lam.	lamination
lat.	latitude
LNFT	linear foot (feet)
long.	longitudinal
LPSM	lump sum
Ls	length of spiral
lt. or LT	left
LW	low water

M.L.	main line
M.P.	mile post
matl.	material
max.	maximum
MGAL	thousand gallon
min.	minimum
mon.	monument
N	north
NC	normal crown
o. c.	on center
o. to o.	out to out
OD	outside diameter
OG	original ground
PC	point of curve
PCC	point of compound curve
PCS	point of curve to spiral
PI	point of intersection
pl.	plate
POC	point on curve
POS	point on spiral
POT	point on tangent
PS	point of tangent to spiral
PSC	point of spiral to curve
PST	point of spiral to tangent
PT	point of tangent
pvmt.	pavement
R	radius
R.	range
R/W	right-of-way
rdwy.	roadway
reinf.	reinforcement
reqd.	required
rt. or RT	right
rte.	route
S	south
SADT	seasonal average daily traffic
SC	point of spiral to curve
sec.	section
shldr.	shoulder
SLRY	slurry unit
spa.	spacing, spaces or spaced
SQFT	square foot
SQYD	square yard
SRS	point of spiral to reverse spiral
SS	point of spiral to spiral (no curve)
ST	point of spiral to tangent
STA, Sta.	station
std.	standard
stgr.	stringer
stiff.	stiffener
struc.	structural
STS	point of spiral to tangent spiral
sym.	symmetrical
T	tangent distance
T.	township
TBM	temporary bench mark
thd.	thread
TS	point of tangent to spiral
Ts	tangent distance (spiraled curve)
typ.	typical
V	design speed
vph	vehicles per hour
VPI	vertical point of intersection
W	west
yd2	square yard
yd3	cubic yard(s)

NOTE:

1. Other symbols used in the plans will be shown in a legend on the appropriate plan sheet.

National Boundary

State Boundary

County Boundary

City Boundary

Township or Range Line

Section Line

Section Corner (Found, Projected)

¼ Section Line

¼ Section Corner (Found, Projected)

1/16 Section Line

1/16 Section Corner (Found, Projected)

Property Line w/Found Property Corner

Parcel Number

National Park Boundary

National Forest Boundary

National Wildlife Refuge Boundary

BLM Lands Boundary

Indian Reservation Boundary

Existing Roadway (Road, Paved, Gravel)

Railroad

Trail

Wattle

Silt Fence

Intermittent Drainage or Small Creek

Large Creek or River

Lake, Pond or Reservoir; Marshland

Spring or Seep

Treeline; Individual Trees

Material Source; Bore Hole; Test Pit

Spot Elevation; Coordinate Grid Tick

Above Ground Tank; Underground Tank

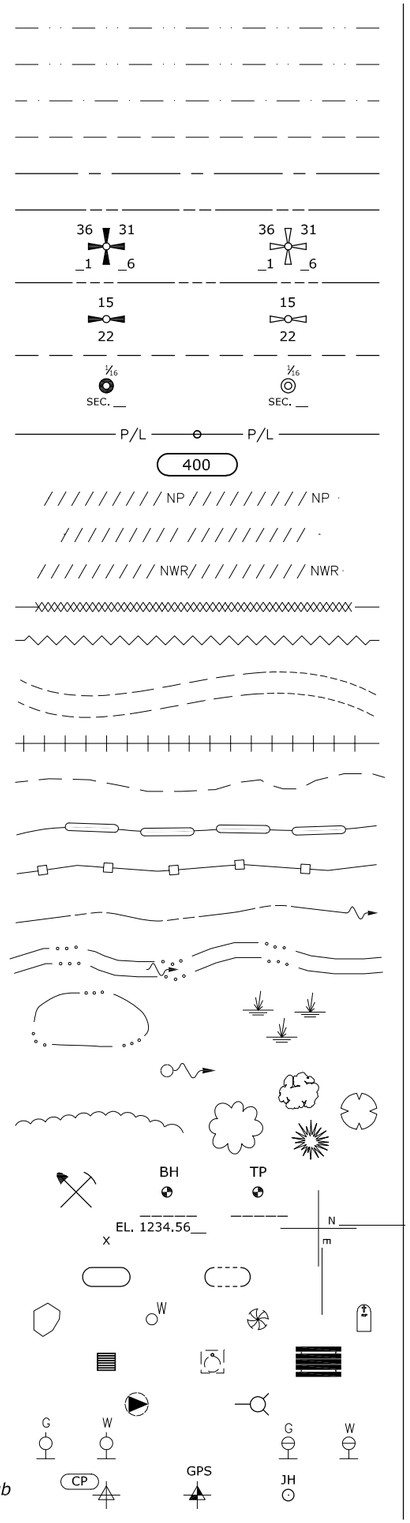
Boulder; Well; Satellite Dish; Grave

Cooking Grate; Garbage Can; Picnic Table

Flagpole; Fire Hydrant

Gas & Water Meter; Gas & Water Valve

Control Point (Terrestrial and GPS); Jump Hub



North Arrow

	EXISTING	PROPOSED
Slope Stake Limits	Top of Cut / Toe of Fill / Transition	
Fence		
Gate with Fence		
Cattleguard		
Guardrail		
Concrete Barrier		
Retaining Wall		wall face
Signs (single, double post; portable)		
Delineators		
Pipe Culvert (arrow shows flow)		
Pipe Culvert with End Sections		
Pipe Culvert with Headwall		
Pipe Culvert with Drop Inlet	DI	DI
Box Culvert		
Underdrain	UD	UD
Overhead/Above Ground Utilities	P	P
Underground Utilities	W	W

FM = force main, FO = fiber optic, G = gas, IRR = irrigation, O = oil, P = power, SA = sanitary sewer, SD = storm drain, SS = storm sewer, STEAM = steam, T = telephone, TV = CATV, W = water

Poles (Power, Telephone, Joint Use, Light, Support w/Anchor)

Miscellaneous Utility Features

EM = electric meter, T = telephone pedestal, TV = CATV pedestal, UP = transformer or junction box, WF = water fountain

Building		
Right-of-Way Line with Monument	R/W	R/W
Permanent Easement	P/E	P/E
Construction Easement	- no symbol -	C/E

Riprap

Obliterate Roadway

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	A.3

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

PLAN SYMBOLS AND ABBREVIATIONS

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

DETAIL APPROVED FOR USE 11/2001

REVISED: 9/2005 1/2007 10/2009

DETAIL W101-1

____NO_SCALE

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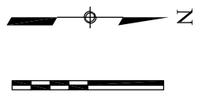
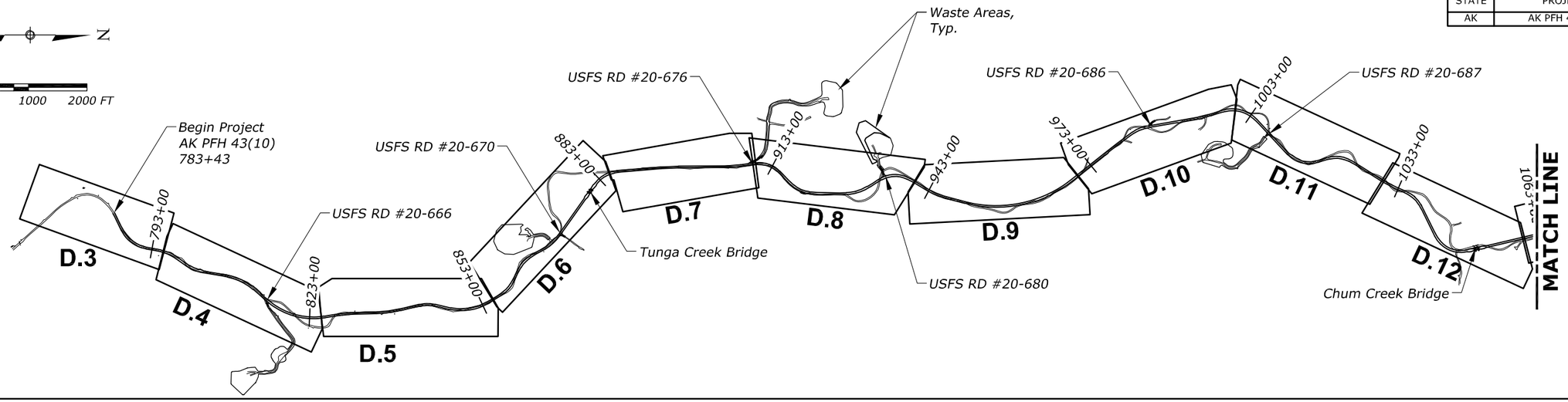
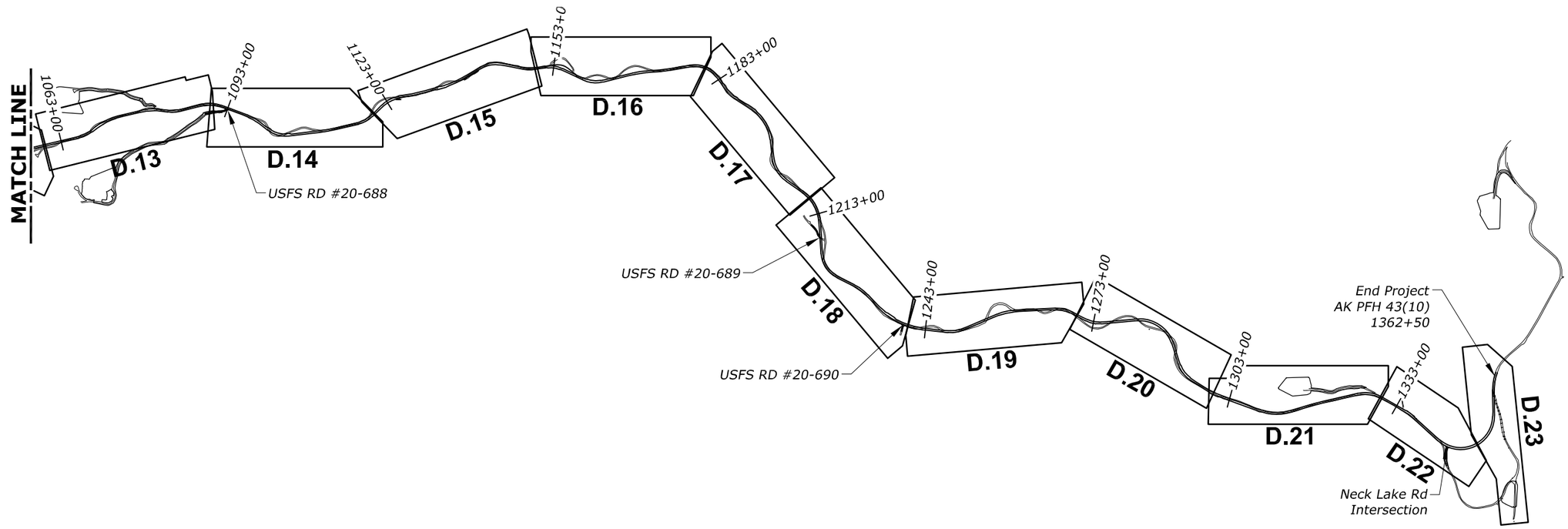
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	A.4







LEGEND

D.# *PLAN & PROFILE SHEET IDENTIFICATION*

RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

SHEET LAYOUT PLAN

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	A.5

Control points located by GPS - RTK

Coordinate Table				
Point #	Northing	Easting	Elevation	Description
1230	1,506,134.981	2,774,248.200	127.59	FndYPC_RTK
1232	1,506,814.914	2,774,463.133	114.02	FndYPC_RTK
1233	1,506,954.563	2,774,628.631	103.19	FndYPC_RTK
1236	1,508,223.993	2,775,136.241	111.66	FndYPC_RTK
1238	1,508,765.499	2,775,470.201	118.99	FndYPC_RTK
1239	1,509,021.267	2,775,609.981	100.76	FndYPC_RTK
1247	1,511,952.130	2,775,228.876	102.94	FndYPC_RTK
1248	1,512,415.078	2,774,940.428	103.65	FndYPC_RTK
1251	1,513,038.364	2,774,232.781	70.09	FndYPC_RTK
1252	1,513,262.168	2,773,964.517	52.19	FndYPC_RTK
1253	1,513,248.483	2,773,790.758	55.98	FndYPC_RTK
1254	1,513,065.931	2,773,577.680	79.08	FndYPC_RTK
1255	1,513,057.550	2,773,340.857	91.53	FndYPC_RTK
1259	1,513,806.716	2,772,944.094	110.69	FndYPC_RTK
1260	1,514,461.122	2,772,923.643	102.05	FndYPC_RTK
1261	1,515,106.507	2,772,856.019	118.54	FndYPC_RTK
1262	1,515,467.424	2,772,893.133	135.41	FndYPC_RTK
1264	1,516,239.924	2,772,880.654	146.78	FndYPC_RTK
1265	1,516,703.185	2,772,801.367	136.90	FndYPC_RTK
1272	1,518,680.156	2,773,233.631	178.80	FndYPC_RTK
1273	1,518,738.020	2,772,923.018	178.80	FndYPC_RTK
1274	1,518,913.406	2,772,876.068	177.06	FndYPC_RTK
1275	1,519,365.133	2,773,120.631	175.02	FndYPC_RTK
1276	1,519,634.694	2,773,340.452	198.61	FndYPC_RTK
1277	1,520,157.006	2,773,476.831	227.52	FndYPC_RTK
1278	1,520,822.779	2,773,658.537	223.48	FndYPC_RTK
1280	1,521,392.945	2,773,475.675	243.67	FndYPC_RTK
1281	1,521,839.736	2,773,229.948	226.74	FndYPC_RTK
1283	1,522,888.319	2,772,382.126	155.00	FndYPC_RTK
1284	1,522,948.494	2,772,198.680	139.59	FndYPC_RTK
1285	1,523,245.548	2,772,164.692	129.24	FndYPC_RTK
1286	1,523,505.772	2,772,279.863	121.14	FndYPC_RTK
1287	1,523,642.793	2,772,253.918	108.45	FndYPC_RTK
1289	1,524,405.972	2,771,964.915	88.88	FndYPC_RTK
1290	1,524,785.018	2,771,782.903	97.45	FndYPC_RTK
1291	1,525,030.112	2,771,956.189	108.75	FndYPC_RTK
1292	1,525,263.576	2,771,951.321	124.95	FndYPC_RTK
1293	1,525,355.749	2,772,061.350	133.22	FndYPC_RTK
1294	1,525,341.057	2,772,281.684	139.34	FndYPC_RTK
1295	1,525,519.695	2,772,411.672	147.97	FndYPC_RTK
1296	1,525,750.016	2,772,696.862	154.85	FndYPC_RTK
1298	1,526,633.000	2,772,581.725	145.73	FndYPC_RTK
1300	1,526,891.099	2,772,875.284	146.27	FndYPC_RTK
1301	1,527,022.357	2,772,966.494	149.50	FndYPC_RTK
1307	1,528,467.389	2,773,830.146	103.14	FndYPC_RTK
1308	1,528,448.959	2,774,196.037	110.87	FndYPC_RTK
1313	1,529,830.992	2,774,109.899	131.25	FndYPC_RTK
1315	1,530,402.634	2,773,917.302	157.74	FndYPC_RTK

Control points located by GPS - RTK

Coordinate Table				
Point #	Northing	Easting	Elevation	Description
1316	1,530,619.835	2,773,693.850	177.19	FndYPC_RTK
1317	1,531,032.368	2,773,568.565	200.41	FndYPC_RTK
1319	1,531,910.235	2,773,503.483	232.79	FndYPC_RTK
1320	1,532,525.836	2,773,334.993	239.38	FndYPC_RTK
1322	1,533,605.320	2,773,887.438	213.82	FndYPC_RTK
1323	1,533,734.271	2,773,918.196	215.03	FndYPC_RTK
1324	1,534,131.427	2,773,759.853	220.49	FndYPC_RTK
1325	1,534,440.314	2,773,831.807	224.78	FndYPC_RTK
1327	1,535,231.459	2,773,645.122	198.26	FndYPC_RTK
1328	1,535,419.865	2,773,322.706	192.11	FndYPC_RTK
1329	1,535,640.752	2,773,249.735	182.21	FndYPC_RTK
1330	1,535,976.269	2,773,237.604	168.35	FndYPC_RTK
1331	1,536,345.831	2,773,143.584	151.56	FndYPC_RTK
1332	1,536,570.325	2,772,980.373	155.72	FndYPC_RTK
1333	1,536,836.394	2,772,970.502	141.84	FndYPC_RTK
1334	1,537,373.070	2,772,643.384	103.48	FndYPC_RTK
1335	1,538,062.199	2,772,765.828	147.84	FndYPC_RTK
1337	1,538,922.407	2,772,943.517	218.62	FndYPC_RTK
1338	1,539,172.377	2,772,856.734	236.09	FndYPC_RTK
1339	1,539,448.897	2,772,936.631	254.48	FndYPC_RTK
1340	1,539,795.251	2,772,691.590	283.22	FndYPC_RTK
1342	1,540,706.784	2,772,708.474	296.74	FndYPC_RTK
1344	1,541,297.283	2,772,915.672	291.33	FndYPC_RTK
1345	1,541,395.198	2,773,168.426	288.15	FndYPC_RTK
1346	1,541,885.339	2,773,466.331	316.34	FndYPC_RTK
1347	1,542,182.904	2,773,897.265	326.43	FndYPC_RTK
1350	1,542,447.379	2,774,637.686	326.15	FndYPC_RTK
1351	1,542,881.251	2,775,026.868	328.75	FndYPC_RTK
1353	1,543,048.089	2,776,073.727	359.25	FndYPC_RTK
1354	1,543,163.799	2,776,254.448	360.51	FndYPC_RTK
1355	1,543,741.251	2,776,570.269	325.07	FndYPC_RTK
1358	1,544,695.337	2,777,222.581	334.13	FndYPC_RTK
1359	1,544,935.135	2,777,162.021	337.86	FndYPC_RTK
1360	1,545,214.474	2,777,280.759	330.90	FndYPC_RTK
1362	1,545,814.738	2,777,113.199	317.80	FndYPC_RTK
1363	1,545,930.388	2,776,845.532	307.53	FndYPC_RTK
1364	1,546,105.218	2,776,773.217	308.02	FndYPC_RTK
1366	1,546,659.886	2,776,878.048	288.59	FndYPC_RTK
1367	1,546,820.079	2,776,967.980	289.68	FndYPC_RTK
1368	1,547,199.986	2,776,862.167	294.12	FndYPC_RTK
1369	1,547,674.299	2,777,225.478	316.59	FndYPC_RTK
1371	1,548,139.701	2,777,019.448	319.38	FndYPC_RTK
1398	1,554,534.400	2,778,322.175	176.44	FndYPC_RTK
12231	1,506,590.583	2,774,343.801	119.81	FndACM2.5_RTK
12237	1,508,490.761	2,775,186.538	123.96	FndACM2.5_RTK
12246	1,511,658.367	2,775,275.171	126.08	FndACM2.5_RTK
12266	1,516,937.867	2,772,873.705	140.90	FndACM2.5_RTK
12268	1,517,503.428	2,773,332.341	162.29	FndYPC_RTK

Control points located by GPS - RTK

Coordinate Table				
Point #	Northing	Easting	Elevation	Description
12269	1,518,118.941	2,773,328.537	173.26	FndACM2.5_RTK
12271	1,518,531.514	2,773,399.381	186.87	FndACM2.5_RTK
12288	1,523,827.432	2,772,097.483	92.18	FndACM2.5_RTK
12321	1,533,491.418	2,773,653.496	224.87	FndACM2.5_RTK
12326	1,534,769.074	2,773,773.936	220.57	FndACM2.5_RTK
12349	1,542,274.196	2,774,541.258	327.92	FndACM2.5_RTK
12357	1,544,326.777	2,777,117.303	338.57	FndACM2.5_RTK
12361	1,545,638.798	2,777,183.750	314.90	FndACM2.5_RTK
12370	1,547,950.362	2,777,156.456	318.97	FndACM2.5_RTK
12901	1,532,840.662	2,773,459.057	233.60	FndACM2.5_RTK

RFI 9
Adjusted Control Points

Control points located by GPS - OPUS solution

Coordinate Table				
Point #	Northing	Easting	Elevation	Description
1202	1,554,890.821	2,779,795.722	181.23	SetSpkYPC_OPUS
1203	1,544,401.914	2,777,092.457	337.52	FndYPCPannelPt_OPUS
1217	1,524,323.825	2,772,598.969	272.85	FndPannelPt_OPUS
1223	1,503,812.524	2,774,378.526	31.69	FndYPC_OPUS
1229	1,505,866.814	2,774,092.125	135.28	FndYPC_OPUS
1245	1,511,413.686	2,775,335.706	127.87	FndYPC_OPUS
1267	1,517,190.138	2,773,199.158	157.79	FndYPC_OPUS
1282	1,522,308.645	2,772,863.499	189.87	FndYPC_OPUS
1302	1,527,256.781	2,773,016.757	140.65	FndYPC_OPUS
1314	1,530,023.221	2,773,982.697	139.86	FndYPC_OPUS
1318	1,531,528.321	2,773,425.749	227.39	FndYPC_OPUS
1336	1,538,553.363	2,772,678.165	186.43	FndYPC_OPUS
1341	1,540,232.261	2,772,813.080	295.72	FndYPC_OPUS
1343	1,541,094.119	2,772,738.083	289.14	FndYPC_OPUS
1356	1,544,119.116	2,777,007.151	338.50	FndYPC_OPUS
1399	1,554,590.401	2,777,940.355	185.64	FndYPC_OPUS

SURVEY NOTES:

1. Basis of coordinates are NAD 83, Alaska State Plane Zone 1 in U.S. survey feet.
2. Bearings are grid bearings based on NAD 83, Alaska state plane zone 1.
3. Coordinates were derived from static GPS observations utilizing Trimble R-8, R-8 model 2 and R-8 model 3 receivers and processed using N.G.S. online positioning user service. Static sessions were performed on control points at ½ to 1 mile intervals throughout the project with additional control points checked by RTK and conventional traverse methods as indicated on sheets A.5 & A.6.
4. Vertical datum is NAVD 88, elevations were derived by GPS static observations and processed using N.G.S. online positioning user service. Orthometric elevations were computed using Alaska geoid 2012A.
5. A mean scale factor must be applied to convert distances between grid and ground. To convert ground distances to grid multiply by 0.99992351 and to convert grid distance to ground multiply by 1.00007650.
6. Topographic information was derived from LIDAR data.
7. Field survey performed September 12, October 4 and December 1 & 2, 2012.
8. Difference in vertical datum between FH43 Road Improvements Segment III and this project is 111.2 feet based on control point 1229.

RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

SURVEY CONTROL TABLES AND NOTES

J:\2012\121088 FH43 Dewyville Trailhead to Neck Lake\E. Drawings\Civil\A5-A6 Survey Coordinate Tables and Notes.dwg [USC] 18 April 2013 4:13 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	A.6

Templin control roated, translated and adjusted, but not verified

Coordinate Table				
Point #	Northing	Easting	Elevation	Description
224	1,504,403.881	2,773,784.198	63.41	YPC
225	1,504,669.366	2,773,539.716	96.53	YPC
226	1,505,141.876	2,773,314.439	117.28	YPC
227	1,505,443.758	2,773,433.786	136.77	YPC
228	1,505,648.430	2,773,696.603	136.02	YPC
234	1,507,579.818	2,774,716.612	104.83	YPC
235	1,507,938.087	2,774,856.485	100.35	YPC
240	1,509,279.986	2,775,593.344	90.79	YPC
241	1,509,404.452	2,775,387.486	77.13	YPC
242	1,509,835.904	2,775,344.274	88.84	YPC
243	1,510,393.581	2,775,342.262	117.96	YPC
244	1,510,965.394	2,775,201.003	126.43	YPC
249	1,512,522.743	2,774,571.238	94.75	YPC
250	1,512,595.638	2,774,433.834	82.97	YPC
256	1,513,022.612	2,773,143.897	87.24	YPC
257	1,513,156.031	2,772,938.913	88.57	YPC
258	1,513,464.257	2,772,989.613	102.62	YPC
263	1,515,885.797	2,772,854.730	142.55	YPC
270	1,518,332.004	2,773,476.824	184.43	YPC
279	1,521,139.246	2,773,500.357	233.77	YPC
297	1,526,053.900	2,772,824.713	144.87	YPC
299	1,526,772.676	2,772,622.171	147.57	YPC
303	1,527,520.777	2,773,280.547	128.08	YPC
304	1,527,788.203	2,773,265.775	111.94	YPC
305	1,528,030.557	2,773,356.981	105.49	YPC
306	1,528,177.594	2,773,610.119	87.35	YPC
309	1,528,560.642	2,774,296.273	110.63	YPC
310	1,528,984.855	2,774,186.214	98.38	YPC
311	1,529,322.479	2,774,290.433	117.94	YPC
312	1,529,529.478	2,774,153.516	127.32	YPC
348	1,542,159.672	2,774,392.975	332.38	YPC
352	1,543,105.022	2,775,715.930	344.62	YPC
365	1,546,342.023	2,776,912.893	307.55	YPC

Control points located by conventional traverse

Coordinate Table				
Point #	Northing	Easting	Elevation	Description
2372	1,548,383.924	2,777,015.788	320.66	FndYPC_Trav
2373	1,548,605.365	2,777,196.173	336.91	FndYPC_Trav
2375	1,549,097.753	2,777,475.214	328.99	FndYPC_Trav
2376	1,549,074.135	2,777,809.219	329.79	FndYPC_Trav
2377	1,549,238.320	2,778,048.830	328.31	FndYPC_Trav
2378	1,549,748.018	2,778,358.610	327.69	FndYPC_Trav
2379	1,550,157.696	2,778,452.168	304.36	FndYPC_Trav
2380	1,550,698.917	2,778,681.719	312.32	FndYPC_Trav
2381	1,551,059.430	2,778,633.480	319.56	FndYPC_Trav
2383	1,552,334.758	2,778,318.803	338.68	FndYPC_Trav
2384	1,552,529.364	2,778,343.730	336.66	FndYPC_Trav
2385	1,553,117.672	2,778,679.255	298.71	FndYPC_Trav
2386	1,553,689.234	2,779,241.119	281.42	FndYPC_Trav
2388	1,553,894.951	2,779,861.666	253.81	FndYPC_Trav
2389	1,553,961.676	2,780,124.528	238.54	FndYPC_Trav
2390	1,554,095.061	2,780,279.366	226.15	FndYPC_Trav
2391	1,554,291.192	2,780,297.776	215.93	FndYPC_Trav
2392	1,554,614.799	2,780,196.330	207.11	FndYPC_Trav
2393	1,554,833.796	2,779,813.460	181.87	FndYPC_Trav
2394	1,554,952.473	2,779,696.919	179.84	FndYPC_Trav
2395	1,554,955.392	2,779,472.180	183.44	FndYPC_Trav
2396	1,554,722.674	2,779,105.812	181.71	FndYPC_Trav
2397	1,554,646.234	2,778,675.966	181.94	FndYPC_Trav
13374	1,548,889.841	2,777,245.180	337.66	FndACM2.5_Trav
13382	1,551,638.073	2,778,465.620	338.07	FndACM2.5_Trav
13387	1,553,692.118	2,779,481.602	276.30	FndACM2.5_Trav

RFI 9
Adjusted Control Points

RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

SURVEY CONTROL TABLES

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	B.1

SUMMARY OF QUANTITIES

Plan Sheet Section ------>		Section C Typical Sections	Section D Plan & Profile	Section E Approach Roads	Section F Safety Features	Section G Structures	Section I Waste Areas	Section J Drainage	ESTIMATED QUANTITIES	
DESCRIPTION	UNIT								PLAN	BID SCHEDULE
Superpave pavement	ton	29,803							29,803	
Aggregate base grading D	cuyd	28,251							28,251	
Aggregate subbase grading F	cuyd	56,550							56,550	
Shot rock backfill	cuyd	68,828							68,828	
Subexcavation	cuyd	29,194							29,194	
Clearing and grubbing	Acre		86.6						86.60	
Roadway Excavation	cuyd		255,298						255,298	
Rock Excavation	cuyd		345,685						345,685	
Embankment	cuyd		135,901						135,901	
Ditch lining	lf		39,779						39,779	
Special ditching	lf		5,485						5,485	
Guardrail	lf				4,312.5				4,312.5	
Terminal Sections (Flared)	each				26				26	
Bridge Rail Transitions	each				8				8	
24" Ø CPEP	lf							6,763	6,763	
30" Ø CPEP	lf							131	131	
36" Ø CPEP	lf							586	586	
48" Ø CPEP	lf							163	163	
60" Ø CAP	lf							250	250	
66" Ø CAP	lf							179	179	
72" Ø CMP	lf							229	229	
84" Ø CMP	lf							87	87	
96" Ø CMP	lf							390	390	
108" Ø CMP	lf							71	71	
10'-8"x6'-11Pipe Arch	lf							100	100	
11'-5"x7'-3" Pipe Arch	lf							101	101	
11'-10"x7'-7" Pipe Arch	lf							78	78	
14'-3"x9'-2" Pipe Arch	lf							116	116	

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49 TH
Douglas T. Kenley
CE-8176
5.30.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

SUMMARY OF QUANTITIES

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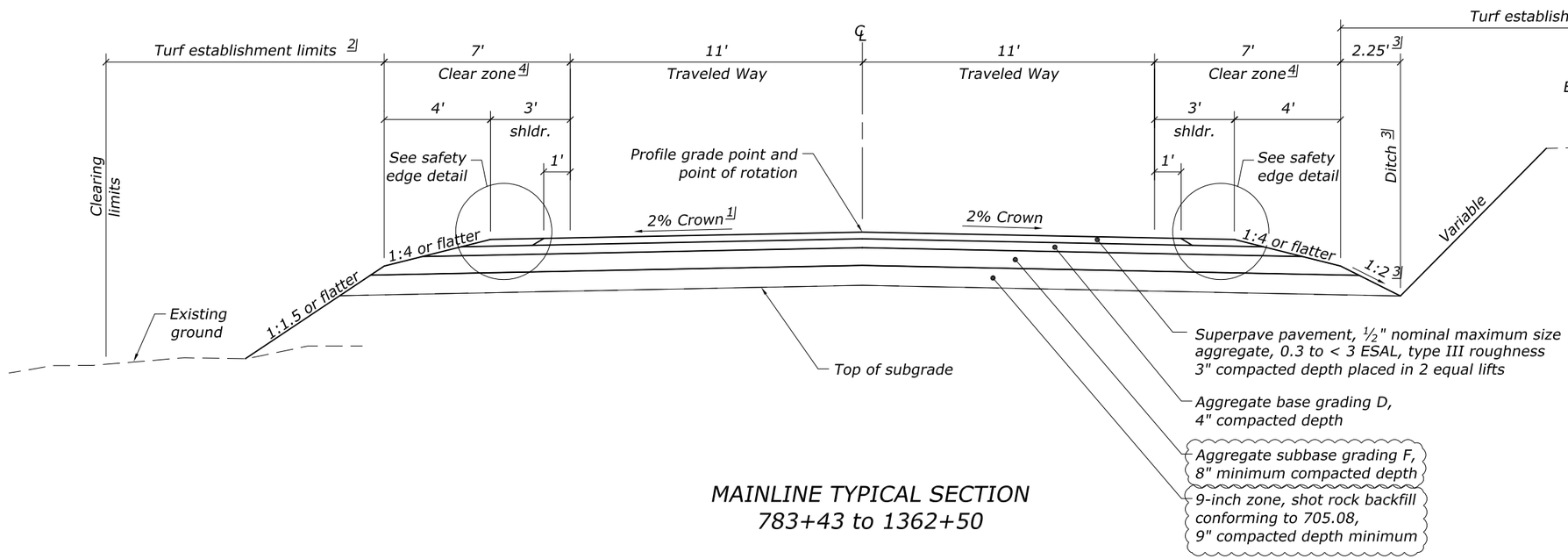
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	C.1



MAINLINE TYPICAL SECTION
783+43 to 1362+50

NOTE:

1. Remove all unsuitable material from within the roadway footprint including logs, stumps, and previously sidecast excavation.
2. Apply curve widening to the inside of curves See sheet C.7 for curve widening locations.

FOOTNOTE:

1] Superelevate roadway on curves at the rate 'e' as indicated on the plan and profile curve data.

2] Apply turf establishment to all disturbed non-rock slopes.

3] See plan and profile for station, offset, and invert elevation of special ditches that vary from the typical section. Extend the 1:2 foreslope as necessary to construct the line and grades of the special ditches shown on the plan and profile.

4] See clear zone flattening and widening detail on sheet C.2 for areas requiring additional width and/or slope flattening.

PAVEMENT STRUCTURE QUANTITIES

DESCRIPTION	UNIT	D.3	D.4	D.5	D.6	D.7	D.8	D.9	D.10	D.11	D.12	D.13	D.14	D.15	D.16	D.17	D.18	D.19	D.20	D.21	D.22	D.23	TOTALS
Superpave pavement	ton	594	1610	1484	1604	1163	1698	1462	1525	1565	1458	1526	1533	1646	1504	1632	1556	1464	1548	1538	990	703	29,803
Aggregate base grading D	cuyd	563	1507	1424	1504	1137	1566	1409	1451	1478	1406	1452	1456	1532	1437	1522	1472	1410	1466	1460	935	664	28,251
Aggregate subbase grading F	cuyd	1130	3013	2853	3007	2283	3126	2825	2906	2956	2820	2907	2916	3060	2878	3042	2945	2827	2934	2922	1871	1329	56,550
Shot rock backfill	cuyd	1370	3668	3473	3660	2779	3805	3438	3537	3599	3432	3538	3549	3725	3504	3702	3585	3441	3571	3557	2277	1618	68,828

PAVEMENT STRUCTURE QUANTITIES

DESCRIPTION	UNIT	ESTIMATING VALUE
Aggregate base grading D	cuyd	1.94 ton/cuyd
Superpave pavement ½" nominal maximum size aggregate, 0.3<3 ESAL, Type III roughness	ton	1.97 ton/cuyd
Aggregate Subbase Grading A	cuyd	1.95 ton/cuyd

Rev.1 5.15.13 CM-005
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STATE OF ALASKA
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CE-8176
5.30.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

MAINLINE TYPICAL SECTION AND QUANTITIES

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	RFI-21.01

RFI 21
Slope Flattening
and Sidecasting

NOTE:

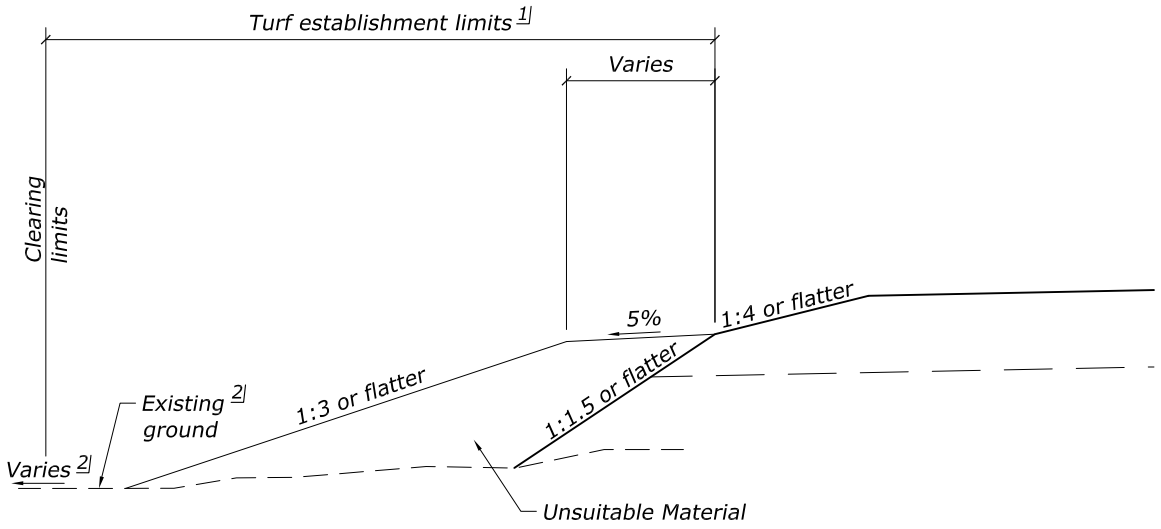
1. *Remove all unsuitable material from within the roadway footprint including logs, stumps, and previously sidecast excavation.*

2. *See C.1 for Mainline Typical Section.*

FOOTNOTE:

1] *Apply turf establishment to all disturbed non-rock slopes.*

2] *Existing grade shall be naturally sloping away from the toe of the flattened slope at a grade of no more that 1:10. Slope flattening is not permitted where ditching is constructed.*

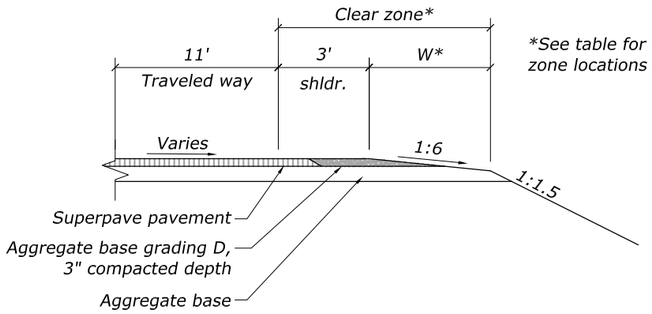


U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

SLOPE FLATTENING DETAIL

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\Figures\RFI 21 Figures.dwg [USC] 3 September 2013 10:10 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	C.2

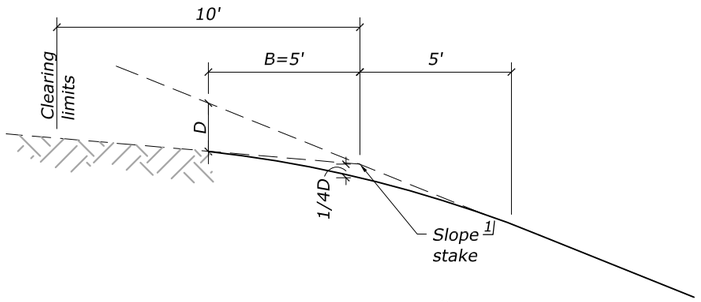


*See table for flattened clear zone locations and widths

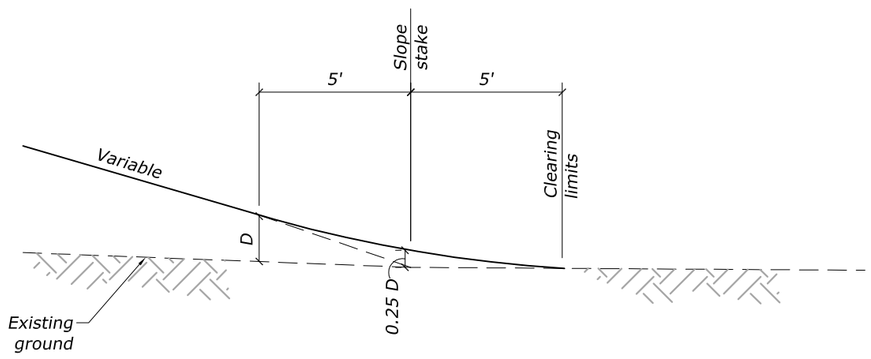
CLEAR ZONE FLATTENING & WIDENING

CLEAR ZONE FLATTENING AND WIDENING SUMMARY

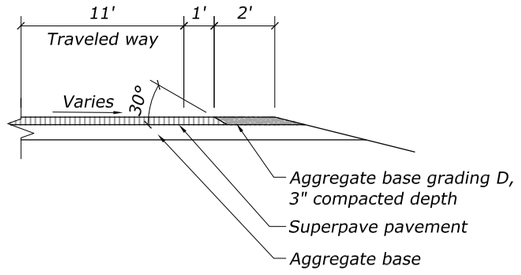
Start Station	End Station	Side	Width - W
851+00	855+00	Rt	4.0'
870+00	872+00	Rt	4.0'
997+00	999+20	Lt	4.0'
1001+00	1003+00	Lt	8.0'
1034+00	1036+50	Lt	4.0'
1071+00	1074+00	Lt	4.0'
1151+00	1154+50	Lt	8.0'
1191+50	1195+50	Lt	8.0'
1210+00 [3]	1215+00 [3]	Lt	4.0'
1279+50 [3]	1288+50 [3]	Lt	4.0'
1308+08	1313+50	Rt	4.0'
1352+00	1358+00	Rt	4.0'



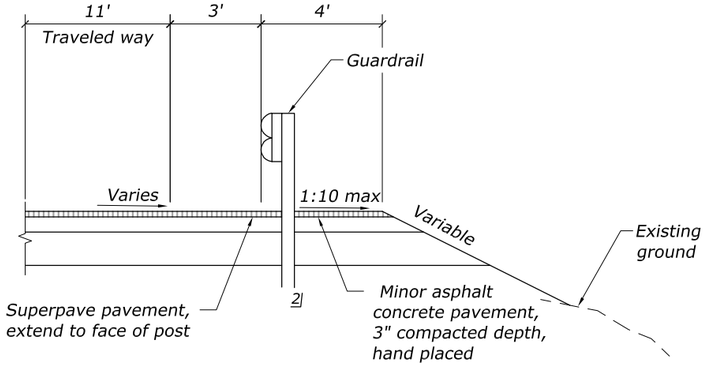
CUT SLOPE ROUNDING DETAIL [1]



FILL SLOPE ROUNDING DETAIL



SAFETY EDGE DETAIL



TYPICAL GUARDRAIL SECTION

FOOTNOTE:

[1] For soil cut heights less than "B" reduce "B" to the cut height dimension and reduce the front slope rounding proportionally. Cut height is based on height above bedrock.

[2] Provide superpave pavement for widened shoulders at guardrails per standard drawing 617-19.

[3] Station 1205+00 = Station 10000+00

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

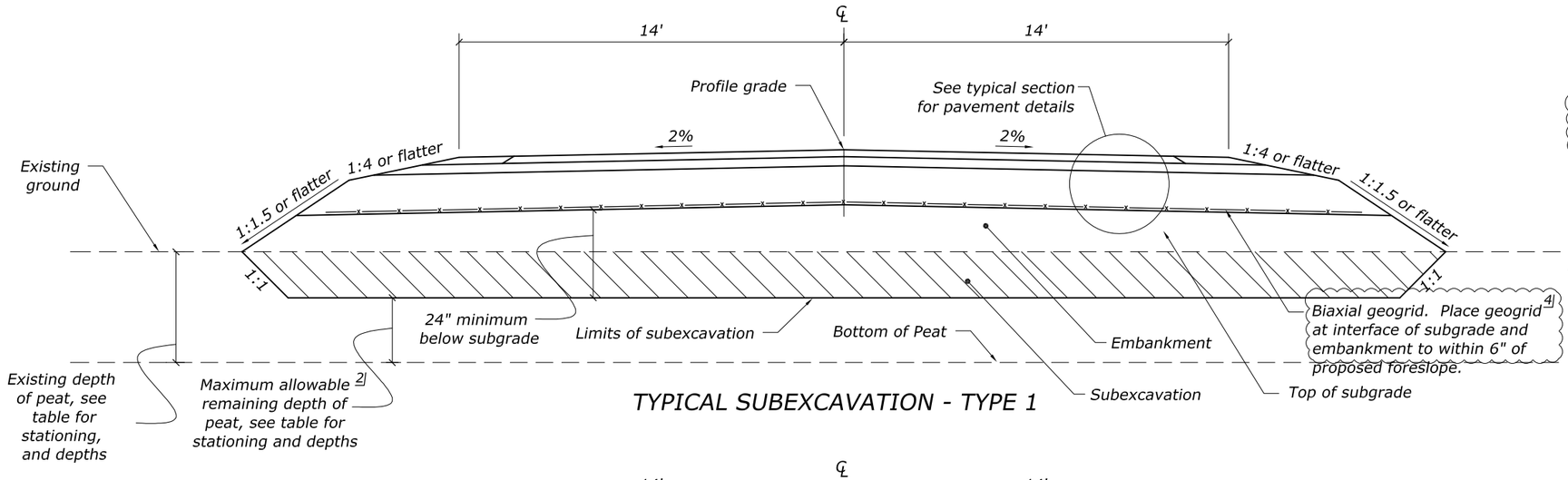
STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

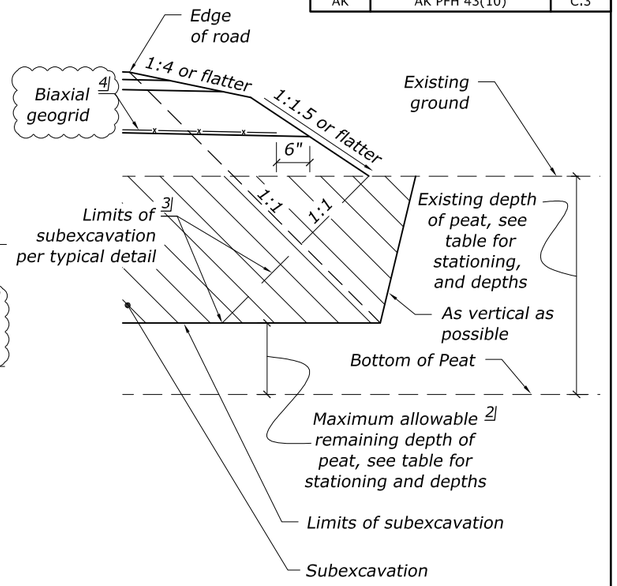
TYPICAL SECTIONS

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\C1-C7 Typical Section.dwg [USC] 10 September 2013 9:54 AM

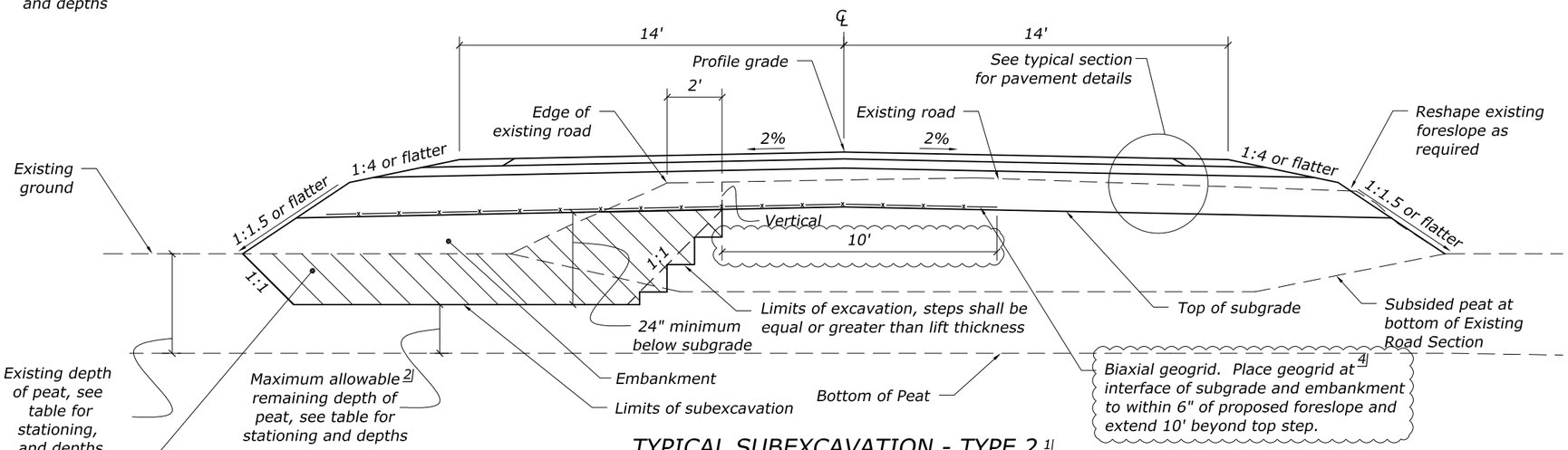
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	C.3



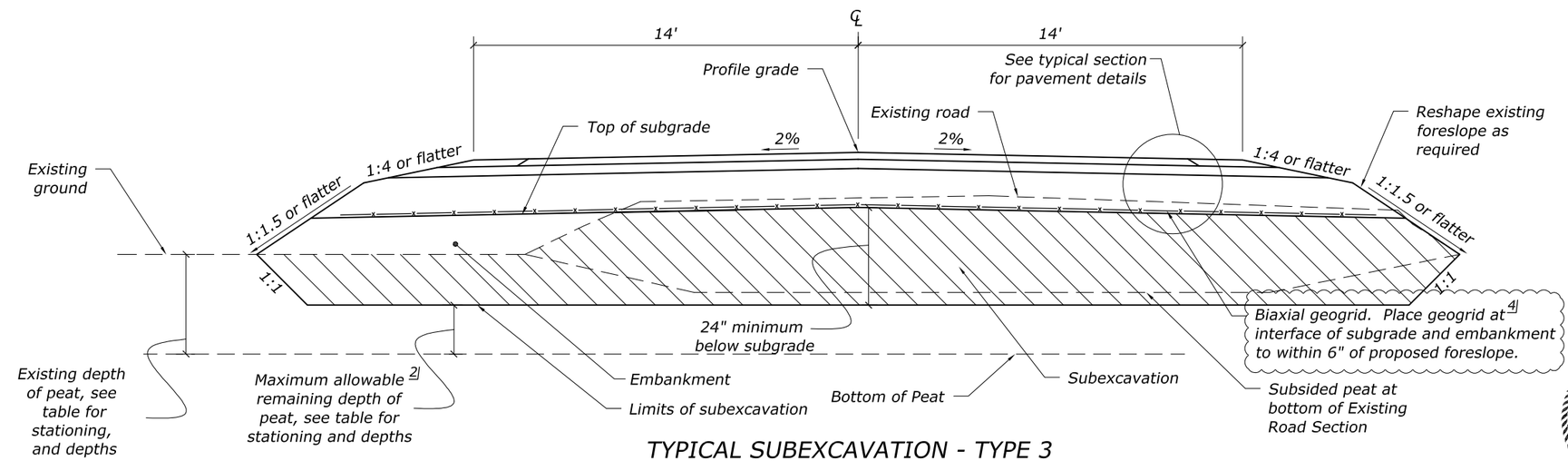
TYPICAL SUBEXCAVATION - TYPE 1



ALTERNATE LIMITS OF SUBEXCAVATION 3/



TYPICAL SUBEXCAVATION - TYPE 2 1/



TYPICAL SUBEXCAVATION - TYPE 3

NOTE:

1. Remove all unsuitable material from within the proposed roadway footprint including logs, stumps, and previously sidecast excavation.
2. See sheet K.2 for longitudinal subexcavation transitions that apply to all subexcavation types.

FOOTNOTE:

1/ Remove unsuitable material under the existing road. Extend subexcation of existing road as necessary to remove debris.

2/ If the embankment cannot be properly constructed over the remaining peat depth indicated in the table, peat shall be removed in its entirety.

3/ Use alternate detail in conjunction with typical subexcavation details 1,2, & 3 wherever it results in greater subexcavation limits.

4/ Extend biaxial geogrid 10 feet beyond longitudinal subexcavation transition.

Rev.1 5.15.13 CM-005
RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
5.30.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TYPICAL PEAT SUBEXCAVATION

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\C1-C7 Typical Section.dwg, C3, 5/30/2013 10:49:57 AM, Scott Abbett, 1:1

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\C1-C7 Typical Section.dwg [USC] 30 May 2013 8:31 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	C.4

PEAT SUBEXCAVATION SUMMARY

LOCATION [4]	TYPE [2]	EXISTING DEPTH (ft) [3]	ALLOWABLE MAXIMUM REMAINING DEPTH (ft)	NOTES	SUBEXCAVATION VOLUME (cuyd)	LOCATION	TYPE	EXISTING DEPTH (ft)	ALLOWABLE MAXIMUM REMAINING DEPTH (ft)	NOTES	SUBEXCAVATION VOLUME (cuyd)	LOCATION	TYPE	EXISTING DEPTH (ft)	ALLOWABLE MAXIMUM REMAINING DEPTH (ft)	NOTES	SUBEXCAVATION VOLUME (cuyd)
783+43 to 787+00	2/L&R	4	3		529	1018+20 to 1019+75	3	4	3		456	10030+20 to 10035+60	2/L	6-22/15	0	Sidecast	--- [7]
787+00 to 790+00	2/R	4	3		4	1024+00 to 1026+00	3	6	3		2401	10059+30 to 10060+00	1	2-12/8	N/A [6]	In excavation	--- [7]
790+00 to 793+00	2/L&R	4	3		269	1054+80 to 1055+50	1	3.5	3.5		0	10060+00 to 10060+40	1	6-10/9.5	3		--- [7]
804+70 to 805+60	2/L&R	1	1		0	1091+20 to 1095+60	3	8	3		3785	10060+40 to 10061+90	2/L&R	7	3	Transition [5]	--- [7]
821+90 to 824+25	1	3	3		0	1109+00 to 1111+00	2/R	2	2		0	10071+50 to 10074+20	2	3-6/5	2		--- [7]
835+00 to 849+20	2/R	2	2		0	9009+70 to 9012+70	1	5	N/A [6]	In excavation	--- [7]	10074+20 to 10075+00	2	6.5	2		--- [7]
871+50 to 872+50	2/R	5	3	Transition [5]	487	9012+70 to 9013+75	2/R	9	3	Transition [5]	--- [7]	10077+00 to 10078+30	1	1-9/5	N/A [6]	In excavation	--- [7]
872+50 to 873+50	1	6.5	3		541	9013+75 to 9016+50	3	3-12/9	3		--- [7]						
884+00 to 893+70	2/L&R	4	3		1460	9016+50 to 9018+00	3	9	3		--- [7]						
981+40 to 983+50	1	4.5	3		640	9020+00 to 9023+60	2/L&R	3-8/6	2		--- [7]						
983+50 to 985+00	2/R	3	3	Transition [5]	0	1202+40 to 1203+15	2/L&R	2.5	1.5		--- [7]						
1012+00 to 1014+50	2/R	2	3		0	10020+00 to 10024+80	3	5-10/8	3		--- [7]						

RFI 16
Peat Overlay Reports

RFI 35
Peat Overlay Reports

RFI 64
Peat Overlay Reports

FOOTNOTE:

1] *Not Used*

2] *For type 2 subexcavation, the side of the existing road where the subexcavation occurs is indicated by either L (left) or R (right) or both.*

3] *Estimated average depth of existing peat thickness, actual thickness encountered will vary. In areas where peat measurement varied significantly, depths are shown in the format of "range of depth/average depth."*

4] *Subexcavation locations are approximate and will vary. Actual limits shall be verified in the field during construction.*

5] *Transition from Type 2 to Type 1 subexcavation.*

6] *Proposed subgrade is below limits of peat.*

7] *Quantities to be reported on as-built drawings.*

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

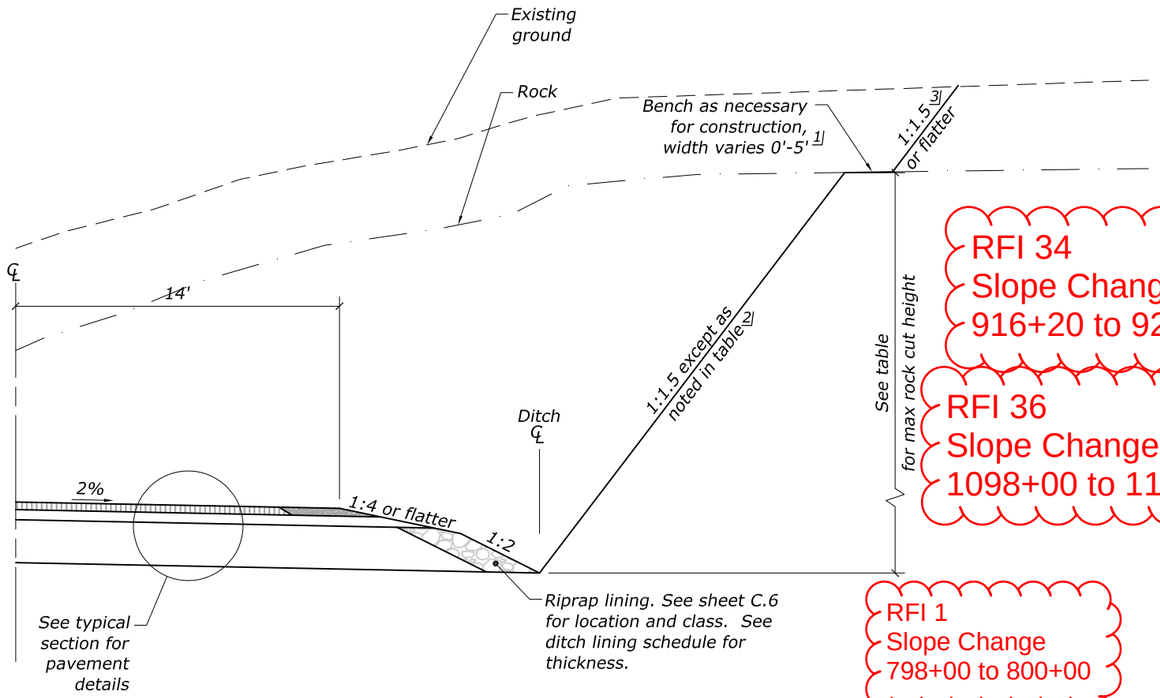
STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TYPICAL SUBEXCAVATION AND SUMMARY

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\C1-C7 Typical Section.dwg [USC] 10 September 2013 9:54 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	C.5



TYPICAL ROCK CUT SECTION

ROCK CUT SLOPE 2]	
LOCATION	SLOPE (V:H)
797+50 to 799+50 Rt	~~4:1~~ 2:1
816+50 to 820+00 Lt & Rt	~~4:1~~ 1.5:1
824+25 to 827+00 Lt & Rt	4:1
844+20 to 849+00 Lt	~~4:1~~ 1:1
876+00 to 878+90 Lt & Rt	4:1
916+20 to 925+50 Lt	~~4:1~~ 3/4:1
928+00 to 932+50 Rt	1:6
968+50 to 976+00 Lt	4:1
986+50 to 989+90 Lt & Rt	4:1
1036+50 to 1036+90 Rt	4:1
1098+00 to 1100+80 Rt	~~2:1~~ 1:1
1131+75 to 1133+95 Rt	~~4:1~~ 1:1
1132+90 to 1133+95 Lt	4:1
1160+00 to 1161+00 Rt 4]	4:1
1165+00 to 1168+50 Rt 4]	~~4:1~~ 1.5:1
1165+50 to 1168+50 Lt 4]	~~4:1~~ 1.5:1

RFI 34
Slope Change
916+20 to 925+50

RFI 36
Slope Change
1098+00 to 1100+80

RFI 1
Slope Change
798+00 to 800+00

RFI 6
Slope Change
844+20 to 849+00

RFI 32
Slope Change
1131+75 RT to 1133+95 RT

RFI 39
Slope Change
816+50 to 820+00

RFI 45
Slope Change
1165 to 1168

MAXIMUM ROCK CUT HEIGHTS	
CUT SLOPE (V:H)	MAX HEIGHT (ft)
4:1	30
2:1	50
1.33:1	80
1:1	120
1:1.5	n/a

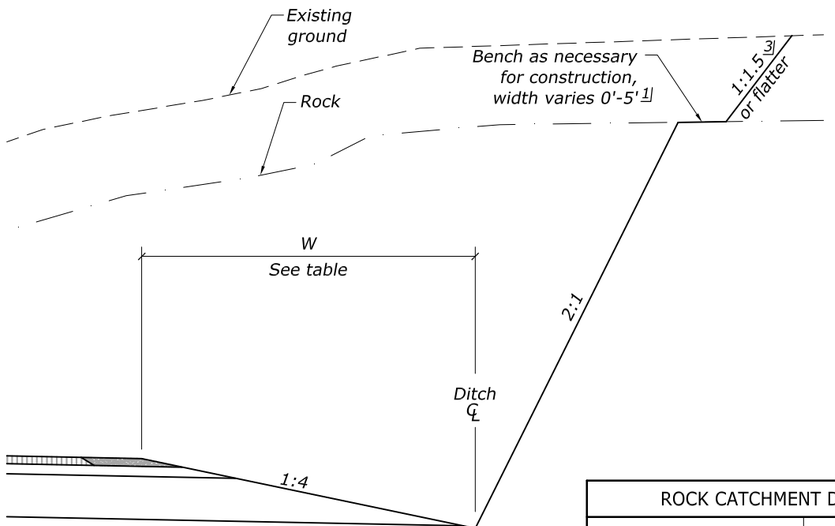
FOOTNOTE:

1] *When the rock cut slope is different than the cut slope of the overlying soil, a bench may occur due to discrepancies between the actual and assumed soil depths used for field staking.*

2] *The integrity of rock cut faces constructed steeper than 1:1.5 shall be verified by designer's geotechnical engineer. Details revisions may be required based on observed conditions.*

3] *Soil cuts are typically 1:1.5 except through soil layers greater than 8 feet thick which shall be 1:2 unless evaluated by the designer's geotechnical engineer and approved by FHWA. Additional slope flattening may be required through peat excavations or other saturated soils if encountered during construction and should be further evaluated by the designer's geotechnical engineer. If any staked cuts extend outside the Environmentally Cleared Area (ECA), an alternative design shall be provided to ensure the project footprint remains within the ECA.*

4] *Station 1157+00 = Station 9000+00*



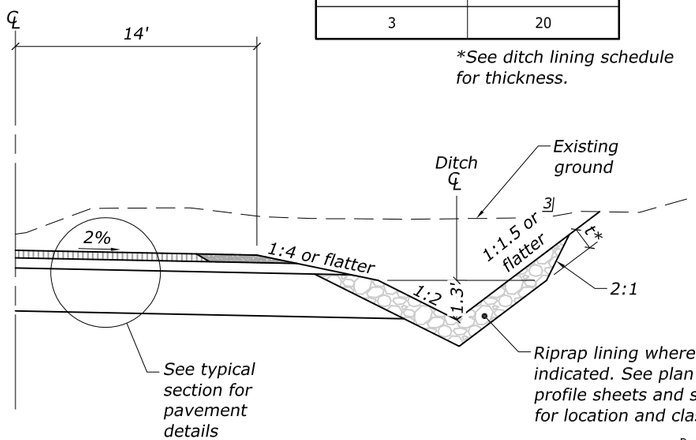
TYPICAL ROCK CATCHMENT SECTION

ROCK CATCHMENT DITCH	
LOCATION	WIDTH, W (FT)
1099+00 to 1100+00R	11

**Transition ditch 50' either side of stations shown*

DITCH LINING SCHEDULE	
RIPRAP CLASS	THICKNESS "t" (in)
2	9
3	20

**See ditch lining schedule for thickness.*



TYPICAL SOIL CUT SECTION

Rev.3 9.10.2013
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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TYPICAL CUT SECTIONS

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	C.6

DITCH LINING SCHEDULE [1] [2]

Start	End	Side	Class	Start	End	Side	Class	Start	End	Side	Class	Start	End	Side	Class	Start	End	Side	Class
790+74	792+14	Rt.	3	914+01	917+63	Rt.	3	1047+42	1050+00	Lt.	3	1157+50 [3]	1166+43 [3]	Rt.	3	1299+60	1305+67	Lt.	3
797+72	799+87	Lt.	3	914+13	917+50	Lt.	3	1053+91	1058+65	Rt.	3	1158+07 [3]	1162+11 [3]	Lt.	3	1307+35	1310+96	Lt.	3
800+00	801+25	Rt.	3	925+75	928+75	Lt.	3	1054+00	1054+95	Lt.	3	1164+50 [3]	1167+00 [3]	Lt.	3	1307+47	1310+03	Rt.	3
812+18	815+32	Lt.	3	927+44	928+00	Rt.	3	1056+00	1058+48	Lt.	3	1169+44 [3]	1173+28 [3]	Rt.	2	1316+63	1319+03	Rt.	3
813+60	815+07	Rt.	3	931+35	934+50	Lt.	3	1060+95	1064+40	Rt.	3	1175+66 [3]	1176+05 [3]	Rt.	2	1316+69	1318+41	Lt.	3
815+74	821+37	Lt.	3	931+35	934+50	Rt.	3	1061+09	1064+13	Lt.	3	1177+75 [3]	1178+07 [3]	Rt.	2	1328+68	1329+27	Lt.	2
815+75	821+66	Rt.	3	938+75	947+98	Lt.	3	1067+75	1070+75	Lt.	3	1185+60	1190+44	Rt.	3	1329+80	1335+25	Rt.	3
822+17	827+23	Lt.	3	939+19	947+38	Rt.	3	1067+75	1074+86	Rt.	3	1186+75	1189+60	Lt.	3	1330+25	1331+68	Lt.	3
822+28	826+85	Rt.	3	947+72	949+00	Rt.	3	1075+48	1080+28	Rt.	3	1211+35 [4]	1216+75 [4]	Rt.	3	1346+14	1356+70	Lt.	3
830+50	837+20	Lt.	3	959+26	960+50	Lt.	3	1077+09	1079+94	Lt.	3	1212+12 [4]	1217+07 [4]	Lt.	3	1351+41	1352+31	Rt.	3
831+02	832+80	Rt.	3	959+78	960+75	Rt.	3	1082+89	1083+60	Rt.	2	1222+33 [4]	1223+78 [4]	Rt.	2				
833+75	834+00	Rt.	3	963+25	981+18	Lt.	3	1083+34	1085+33	Lt.	2	1222+93 [4]	1223+73 [4]	Lt.	2				
835+07	835+91	Rt.	3	965+62	982+34	Rt.	3	1094+22	1098+50	Rt.	2	1228+49 [4]	1231+16 [4]	Lt.	3				
837+38	838+11	Rt.	3	985+50	989+85	Rt.	3	1097+86	1100+86	Lt.	3	1231+41 [4]	1233+20 [4]	Rt.	3				
848+73	850+92	Rt.	3	988+50	990+33	Lt.	3	1102+81	1106+36	Lt.	3	1232+75 [4]	1234+43 [4]	Lt.	3				
844+20	852+71	Lt.	3	996+02	997+11	Lt.	3	1110+63	1117+10	Rt.	2	1237+71 [4]	1240+32 [4]	Lt.	3				
859+53	864+82	Rt.	3	996+35	1001+84	Rt.	3	1113+60	1116+94	Lt.	3	1240+90 [4]	1241+67 [4]	Rt.	2				
859+92	865+80	Lt.	3	999+30	1001+17	Lt.	3	1121+92	1123+50	Rt.	3	1246+90 [4]	1248+05 [4]	Rt.	3				
865+96	866+75	Rt.	3	1003+12	1007+02	Rt.	3	1122+79	1123+06	Lt.	2	1247+64 [4]	1248+07 [4]	Lt.	3				
874+69	878+00	Rt.	3	1003+25	1006+73	Lt.	3	1124+75	1130+82	Rt.	3	1251+62 [4]	1254+31 [4]	Rt.	3				
874+97	878+00	Lt.	3	1019+61	1021+50	Rt.	3	1126+90	1127+11	Lt.	3	1251+80 [4]	1254+52 [4]	Lt.	3				
888+53	891+75	Lt.	3	1020+73	1021+47	Lt.	3	1134+73	1135+34	Lt.	3	1266+18 [4]	1268+92 [4]	Rt.	3				
888+71	889+48	Rt.	3	1028+82	1029+82	Lt.	2	1134+95	1136+42	Rt.	3	1267+38 [4]	1269+95 [4]	Lt.	3				
889+95	891+25	Rt.	3	1029+14	1031+13	Rt.	2	1136+51	1138+20	Lt.	3	1270+00 [4]	1271+50 [4]	Rt.	3				
896+93	899+50	Lt.	3	1032+01	1034+03	Rt.	3	1137+75	1139+16	Rt.	3	1270+50 [4]	1272+50 [4]	Lt.	3				
898+22	899+31	Rt.	3	1033+22	1034+27	Lt.	3	1143+50	1156+52	Rt.	3	1279+34 [4]	1281+93 [4]	Rt.	3				
908+61	910+40	Rt.	3	1045+54	1045+79	Lt.	3	1145+94	1150+25	Lt.	3	1279+75 [4]	1282+14 [4]	Lt.	3				
908+80	910+00	Lt.	3	1045+85	1053+00	Rt.	3	1151+27	1157+37	Lt.	3	1298+75	1300+57	Rt.	2				

RFI 26
Ditch Lining Material
See RFI for Gradation

FOOTNOTE:

[1] Lining location is also indicated on profile bands.

[2] Start and end stations are approximate and shall be field verified.

[3] Station 1157+00 = Station 9000+00

[4] Station 1205+00 = Station 10000+00

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

DITCH LINING SUMMARY

J:\2012\121088 FH43 Dewevylle Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\C1-C7 Typical Section.dwg [USC] 10 September 2013 9:54 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	C.7

NOTE:

1. *Transition curve widening within the superelevation runoff, beginning and ending at level crown (100 foot minimum length).*
2. *Paint centerline pavement markings on curves widening "W" achieve equal lane widths within the roadway. Maintain a constant shoulder width "S" throughout the curve widening area.*
3. *Curve widening based on WB-62 design vehicle, per 2011 AASHTO "green book"*

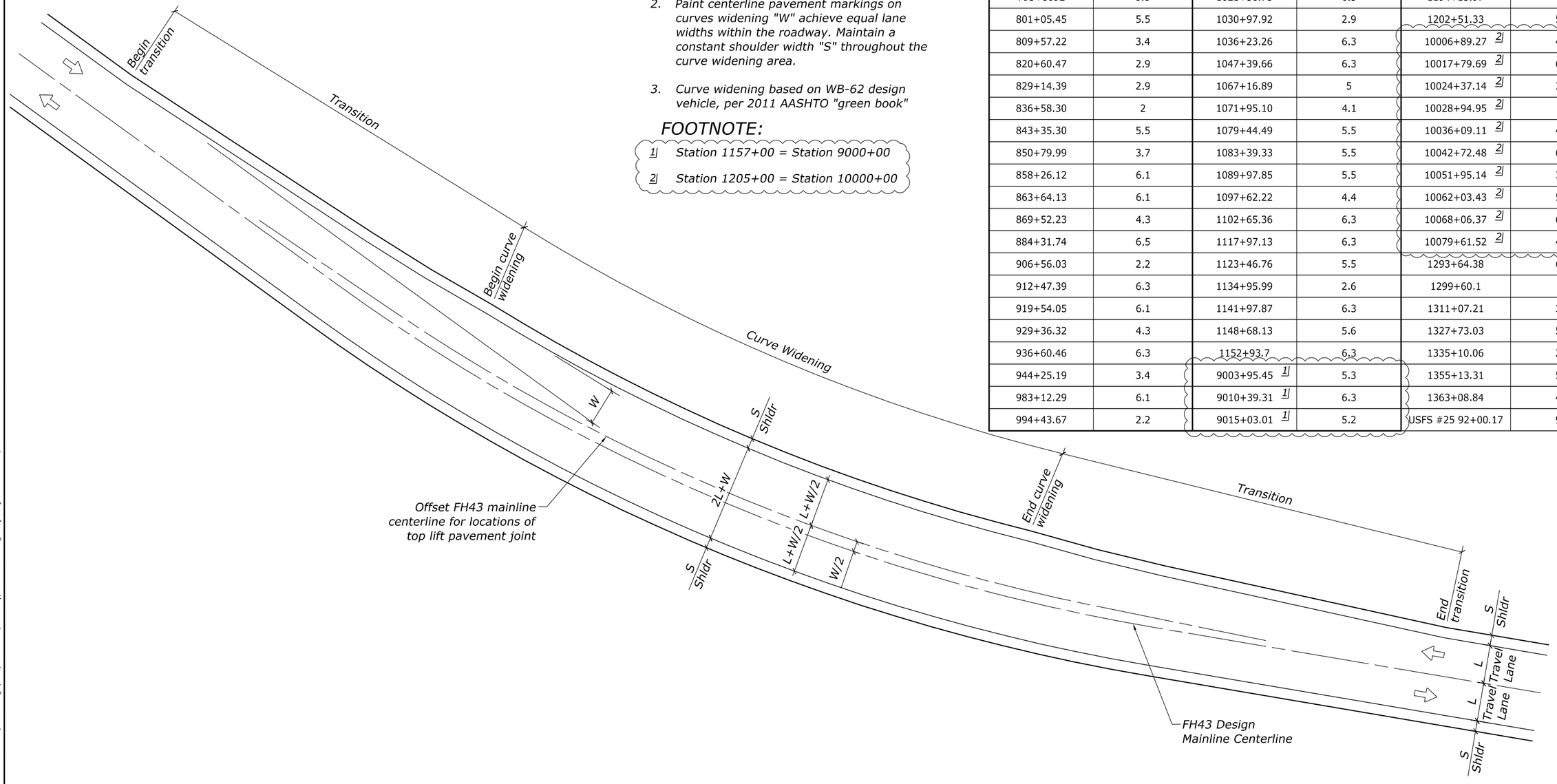
FOOTNOTE:

1/ *Station 1157+00 = Station 9000+00*

2/ *Station 1205+00 = Station 10000+00*

CURVE WIDENING TABLE FH43

PI STATION	WIDENING (ft)	PI STATION	WIDENING (ft)	PI STATION	WIDENING (ft)
780+37.65	6	1001+30.61	5.5	9023+54.27 1/	5.6
789+50.35	5.5	1015+16.02	6.3	1186+07.36	6.1
795+8092	5.5	1021+56.73	6.3	1194+15.97	4.3
801+05.45	5.5	1030+97.92	2.9	1202+51.33	5.5
809+57.22	3.4	1036+23.26	6.3	10006+89.27 2/	4.6
820+60.47	2.9	1047+39.66	6.3	10017+79.69 2/	6.3
829+14.39	2.9	1067+16.89	5	10024+37.14 2/	3.9
836+58.30	2	1071+95.10	4.1	10028+94.95 2/	4
843+35.30	5.5	1079+44.49	5.5	10036+09.11 2/	4.6
850+79.99	3.7	1083+39.33	5.5	10042+72.48 2/	6.3
858+26.12	6.1	1089+97.85	5.5	10051+95.14 2/	3.7
863+64.13	6.1	1097+62.22	4.4	10062+03.43 2/	5.5
869+52.23	4.3	1102+65.36	6.3	10068+06.37 2/	6.3
884+31.74	6.5	1117+97.13	6.3	10079+61.52 2/	4.5
906+56.03	2.2	1123+46.76	5.5	1293+64.38	6.1
912+47.39	6.3	1134+95.99	2.6	1299+60.1	4
919+54.05	6.1	1141+97.87	6.3	1311+07.21	3.9
929+36.32	4.3	1148+68.13	5.6	1327+73.03	5.5
936+60.46	6.3	1152+93.7	6.3	1335+10.06	2.6
944+25.19	3.4	9003+95.45 1/	5.3	1355+13.31	5.5
983+12.29	6.1	9010+39.31 1/	6.3	1363+08.84	4.2
994+43.67	2.2	9015+03.01 1/	5.2	USFS #25 92+00.17	9.7



CENTERLINE MODIFICATION FOR CURVES WITH WIDENING APPLIED ON INSIDE

Rev.3 9.10.2013
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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CURVE WIDENING

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\C1-C7 Typical Section.dwg [USC] 10 September 2013 9:54 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.1

ROADWAY QUANTITIES

DESCRIPTION	UNIT	D.3	D.4	D.5	D.6	D.7	D.8	D.9	D.10	D.11	D.12	D.13	D.14	D.15	D.16	D.17	D.18	D.19	D.20	D.21	D.22	D.23	TOTALS
Clearing and grubbing	ac	1.41	5.28	4.14	4.29	3.00	5.10	4.45	4.62	4.61	4.06	4.39	4.34	5.75	4.60	4.62	4.25	4.36	4.32	4.13	2.67	2.21	86.60
Roadway excavation	cuyd	5,261	21,976	8,587	10,964	3,164	16,607	20,212	13,395	13,228	14,859	9,070	10,396	17,119	9,421	11,004	15,174	17,689	11,593	12,862	6,321	6,396	255,298
Rock excavation	cuyd	10	26,356	18,852	22,087	1,859	62,048	6,281	19,092	14,749	5,088	12,335	16,948	15,109	39,304	11,405	6,109	19,382	28,467	2,480	7,578	10,146	345,685
Embankment construction	cuyd	838	4,553	4,818	6,740	5,271	3,581	4,880	11,431	12,336	8,659	5,915	6,317	13,427	4,773	7,102	3,483	6,738	9,654	8,353	2,922	4,110	135,901
Ditch lining	lf	140	2733	2285	1830	1154	1931	2998	3514	1488	2235	2695	2330	2387	3289	769	2103	1339	1013	1732	954	860	39,779
Special ditching	lf	75	723	82	249	55	396	0	0	75	189	0	0	189	126	583	474	1422	547	171	0	129	5,485

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TABULATION OF QUANTITIES

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\D1-D2 Tabulation of Plan Quantities.dwg [USC] 18 April 2013 3:32 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.2

EXISTING CULVERT REMOVAL

Station	Offset (Feet)	Side	Diameter (Inch)	Length (Feet)	Restore Stream Bed
790+58	7	L	18	36	
793+23	2	L	18	32	
797+01	14	R	18	31	
800+87	10	L	18	29	
811+76	3	R	18	34	
815+18	2	R	18	31	
827+74	22	L	18	31	
836+95	12	R	18	31	
839+07	18	R	18	42	
843+55	14	R	18	37	
851+15	146	R	18	36	
855+00	15	R	18	34	
857+03	4	L	18	39	
864+88	5	L	18	31	
870+59	25	L	18	32	
872+63	60	L	18	33	Yes
878+10	12	L	18	31	Yes
908+81	14	R	18	38	
910+60	8	L	18	36	
913+05	24	R	18	31	
931+63	33	L	18	36	Yes
964+97	33	L	18	40	
981+01	22	R	18	31	Yes
983+93	28	L	18	31	
992+66	97	R	18	35	
994+25	31	R	18	45	
996+69	5	L	18	34	
997+92	16	L	18	37	
999+01	1	R	18	34	Yes
1002+16	13	L	18	32	
1007+94	5	L	18	34	
1011+98	29	L	18	34	
1014+26	29	R	18	36	
1015+97	11	L	18	34	
1024+65	66	L	18	37	
1026+04	7	L	18	34	
1028+56	12	L	18	30	
1030+14	12	L	18	38	
1031+63	70	L	18	47	
1035+60	16	R	18	31	Yes
1040+03	0	R	18	29	Yes
1046+29	8	L	18	30	Yes
1048+86	15	L	18	30	
1052+21	7	L	18	28	
1055+23	111	L	18	41	Yes
1058+65	105	L	18	31	
1061+45	52	L	18	31	Yes
1068+07	10	R	18	33	
1073+46	15	L	18	38	
1077+46	19	L	18	39	
1081+39	15	L	18	33	
1083+14	3	R	18	42	
1087+22	7	L	18	39	
1094+08	9	L	18	32	
1094+94	2	R	18	34	
1098+21	41	R	18	30	Yes
1101+98	43	L	18	33	
1103+53	1	R	18	32	
1105+26	6	R	18	31	Yes
1108+72	15	R	18	41	Yes
1110+08	67	L	18	31	
1111+87	32	R	18	36	
1115+17	107	L	18	34	
1118+51	152	L	18	31	
1119+03	12	L	18	40	
1122+79	38	R	18	30	Yes
1125+01	97	R	18	40	
1128+13	65	L	18	33	
1131+05	45	R	18	41	
1132+57	12	R	18	36	Yes
1135+94	7	R	18	30	
1136+48	12	R	18	32	
1139+55	0	R	18	32	
1142+26	5	R	18	32	
1145+23	2	L	18	32	
1148+58	9	R	18	41	
1151+27	23	R	18	35	
1157+80	5	L	24	41	[2]
1158+65	27	L	24	45	[2]
1161+62	1	L	24	36	Yes [2]
1163+42	6	R	24	30	[2]
1166+00	7	L	24	41	Yes [2]
1169+49	65	L	24	41	Yes [2]
1173+26	6	L	24	37	[2]
1177+35	16	L	24	36	[2]
1180+02	193	L	24	55	[2]
1183+60	45	L	24	55	[2]
1186+16	15	L	24	44	
1188+61	6	L	24	31	
1193+02	12	L	24	33	
1195+25	6	R	24	44	
1197+48	45	L	24	31	
1201+82	0	L	24	37	
1202+94	6	R	24	31	
1205+55	29	L	24	29	Yes [3]
1207+56	9	L	24	34	[3]
1208+36	9	L	24	30	[3]
1211+98	24	L	24	46	[3]
1215+81	55	L	24	43	Yes [3]
1216+50	5	L	24	36	[3]
1217+29	10	R	24	33	[3]
1219+18	59	L	24	34	Yes [3]
1222+28	50	L	24	34	[3]
1225+19	0	R	24	42	[3]
1227+75	177	L	24	32	[3]
1231+95	147	L	24	32	[3]
1240+44	22	R	24	34	[3]
1243+36	2	R	24	44	Yes [3]
1249+84	78	L	24	33	[3]
1251+92	6	R	24	35	Yes [3]
1254+54	4	R	24	35	Yes [3]
1255+10	1	L	24	46	Yes [3]
1255+75	23	L	36	50	Yes [3]
1257+02	47	L	36	50	Yes [3]
1262+02	6	L	36	43	[3]
1265+46	10	L	36	46	[3]
1270+32	25	L	36	37	Yes [3]
1272+74	1	L	36	55	Yes [3]
1275+74	3	R	36	49	[3]
1278+51	11	R	36	40	Yes [3]
1279+33	15	L	48	50	Yes [3]
1285+55	48	R	48	48	[3]
1288+56	46	L	48	40	Yes [3]
1292+35	43	L	48	41	Yes
1294+59	687	L	96	47	
1297+35	7	L	60	50	
1302+20	2	L	60	50	
1306+72	81	L	60	63	
1308+44	127	L	60	60	
1311+67	23	R	60	61	
1315+58	4	R	66	41	
1322+60	13	L	72	61	
1336+71	18	R	72	42	
1340+22	29	L	84	74	
1342+01	6	L	84	90	
1342+01	687	L	96	47	
1351+86	350	R	18	36	
1361+00	0	R	18	29	

Culvert Removal Summary

Diameter (Inch)	Quantity	Total Length (Feet)
18	79	2709
24	35	1320
36	8	369
48	4	178
60	5	284
66	1	41
72	2	102
84	2	163
96	1	46

FOOTNOTE:

[1] See sheet K.4 for stream bed restoration at culvert removal location on existing road segments.

[2] Station 1157+00 = Station 9000+00

[3] Station 1205+00 = Station 10000+00

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WESTERN FEDERAL LANDS HIGHWAY DIVISION

TABULATION OF QUANTITIES

J:\2012\121088 FH43 Dewyville Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\D1-D2 Tabulation of Plan Quantities.dwg [USC]
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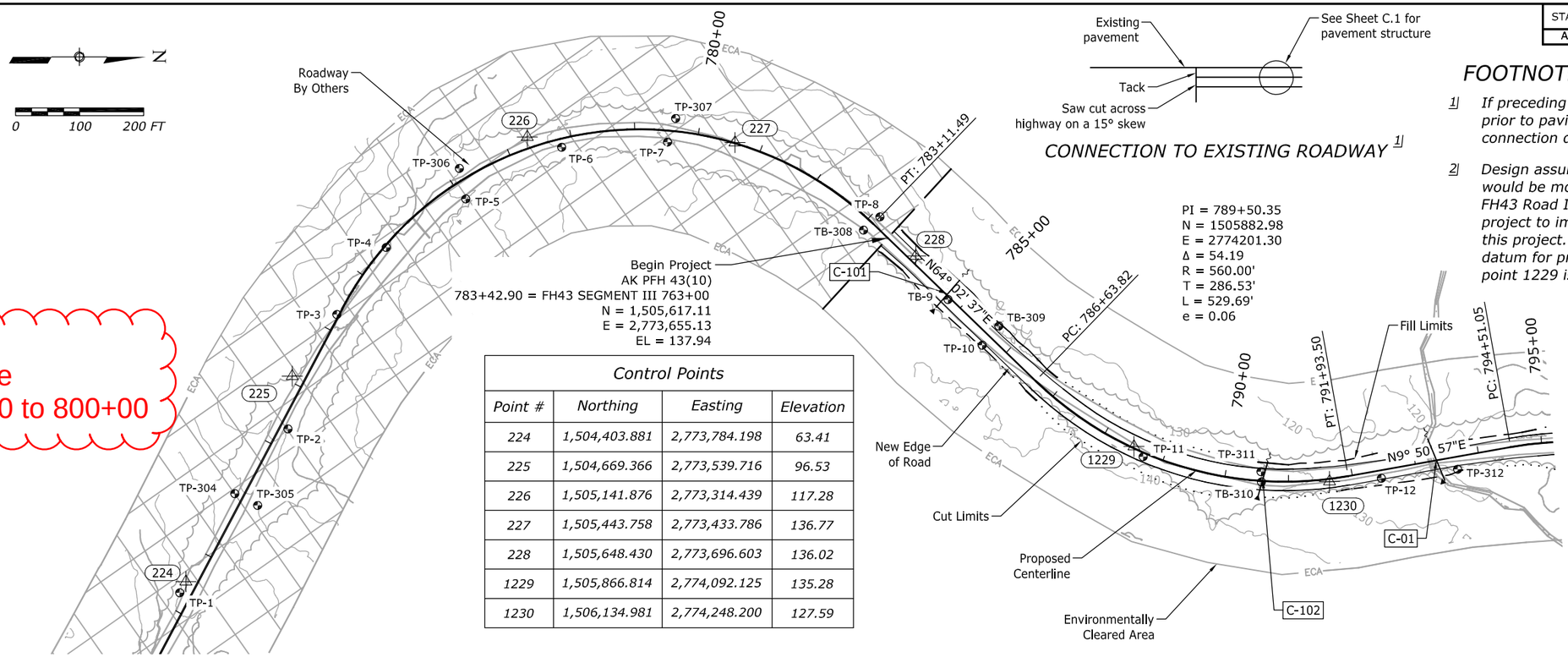
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.3



RFI 38
PVI Change
Sta. 790+00 to 800+00

Control Points

Point #	*Northing*	*Easting*	*Elevation*
224	*1,504,403.881*	*2,773,784.198*	*63.41*
225	*1,504,669.366*	*2,773,539.716*	*96.53*
226	*1,505,141.876*	*2,773,314.439*	*117.28*
227	*1,505,443.758*	*2,773,433.786*	*136.77*
228	*1,505,648.430*	*2,773,696.603*	*136.02*
1229	*1,505,866.814*	*2,774,092.125*	*135.28*
1230	*1,506,134.981*	*2,774,248.200*	*127.59*

CONNECTION TO EXISTING ROADWAY [1]

FOOTNOTE:

1] *If preceding project is not completed prior to paving this project, then provide connection detail similar to sheet D.23.*

2] *Design assumes the PVI at 781+62 would be modified in the preceding FH43 Road Improvements Segment III project to improve vertical alignment for this project. Difference in vertical datum for projects based on control point 1229 is assumed to be 111.2 feet.*

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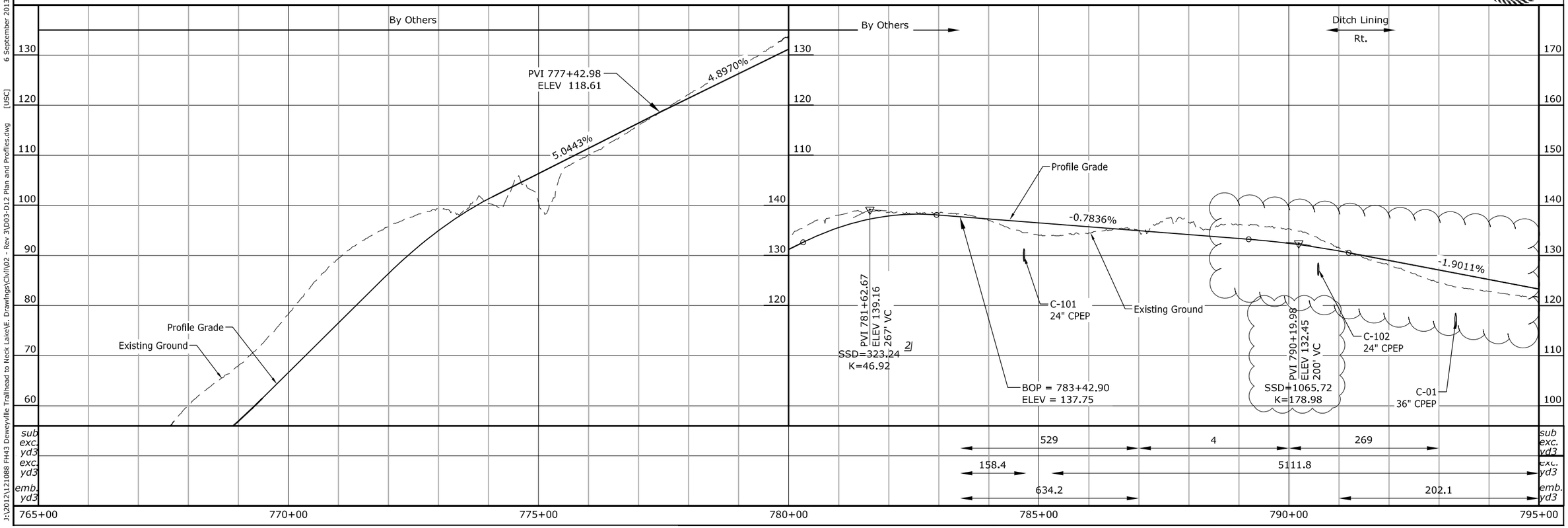

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.4

PI = 795+80.92
N = 1506547.00
E = 2774316.58
Δ = 26.11
R = 560.00'
T = 129.87'
L = 255.22'
e = 0.06

PI = 801+05.45
N = 1506975.21
E = 2774627.26
Δ = 26.34
R = 560.00'
T = 131.06'
L = 257.49'
e = 0.06

PI = 809+57.22
N = 1507819.58
E = 2774770.33
Δ = 32.53
R = 1000.00'
T = 291.72'
L = 567.70'
e = 0.048

PI = 820+60.47
N = 1508649.28
E = 2775521.17
Δ = 51.42
R = 1200.00'
T = 577.72'
L = 1076.84'
e = 0.044

0 100 200 FT

Remove Rockery Wall
Environmentally Cleared Area
Fill Limits
Proposed Centerline
New Edge of Road
Pullout, Typ.
Muskeg, Typ.
Existing Edge of Road
USFS RD #20-666
2 A 814+75 See E-2

C-103 C-104 C-105 C-106 C-107 C-108 C-109

TP-13 TP-14 TP-15 TP-16 TP-17 TP-18 TP-19 TP-20 TP-21 TP-22 TP-23 TP-24 TP-25
TP-316 TP-317 TP-318 TP-319 TP-320 TP-321 TP-323
HDTP-313 HDTP-314 HDTP-315 HDTP-320 HDTP-321
12231 1232 1233 234 235 1236 12237 1238 1239

N35° 57' 43"E
N9° 37' 01"E
N42° 08' 37"E

RFI 1
STA 797+00 - 800+00
2:1 Slope Change

RFI 38
PVI Change
Sta. 790+00 to 800+00

[Sta]; [Ditch offset]
[Inv elev]
Special ditch profile callout

Control Points

Point #	Northing	Easting	Elevation
12231	1,506,590.583	2,774,343.801	119.81
1232	1,506,814.914	2,774,463.133	114.02
1233	1,506,954.563	2,774,628.631	103.19
234	1,507,579.818	2,774,716.612	104.83
235	1,507,938.087	2,774,856.485	100.35

Control Points

Point #	Northing	Easting	Elevation
1236	1,508,223.993	2,775,136.241	111.66
12237	1,508,490.761	2,775,186.538	123.96
1238	1,508,765.499	2,775,470.201	118.99
1239	1,509,021.267	2,775,609.981	100.76

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Guardrail Lt.
K=105.86
Existing Ground
PVI 796+92.660
ELEV = 121.34
PVI 797+15.08
ELEV 119.23
300' VC
SSD=858.09
K=196.85
-3.4251%
PVI 800+93.48
ELEV 106.27
280' VC
Profile Grade
Existing Ground
-0.7800%
808+84; 3.40 Rt.
95.43
808+50; 0.08 Lt.
98.92
805+90; 0.0 Lt.
100.21
809+97; 0.0 Lt.
97.80
810+56; 0.0 Rt.
96.27
K=64.83
PVI 811+49.70
ELEV 98.03
340' VC
811+60; 4.14 Lt.
96.96
4.4643%
PVI 818+84.32
ELEV 130.83
660' VC
SSD=357.38
K=59.18
-6.6888%
Special Ditch Lt.
Special Ditch Rt.
Ditch Lining Lt.
Ditch Lining Rt.

sub exc. yd3		0				0	
exc. yd3	7141.1	1527.9		34750.4		4912.6	
emb. yd3	335.3	3442.6	71.9	328.6	331.3		

795+00 800+00 805+00 810+00 815+00 820+00 825+00

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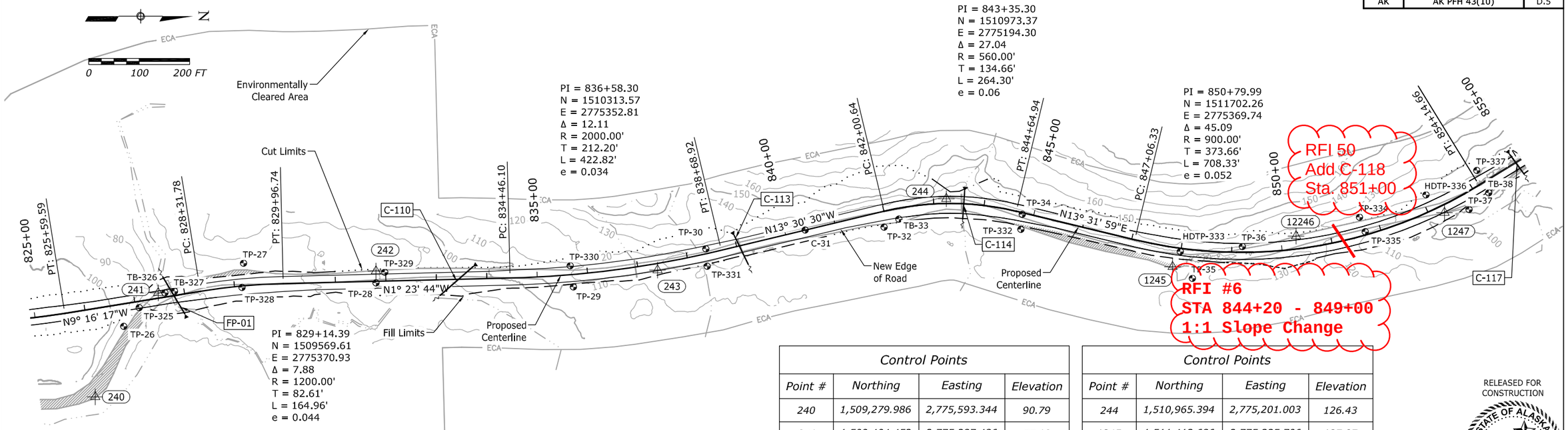
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.5



Control Points			
Point #	Northing	Easting	Elevation
240	1,509,279.986	2,775,593.344	90.79
241	1,509,404.452	2,775,387.486	77.13
242	1,509,835.904	2,775,344.274	88.84
243	1,510,393.581	2,775,342.262	117.96

Control Points			
Point #	Northing	Easting	Elevation
244	1,510,965.394	2,775,201.003	126.43
1245	1,511,413.686	2,775,335.706	127.87
12246	1,511,658.367	2,775,275.171	126.08
1247	1,511,952.130	2,775,228.876	102.94

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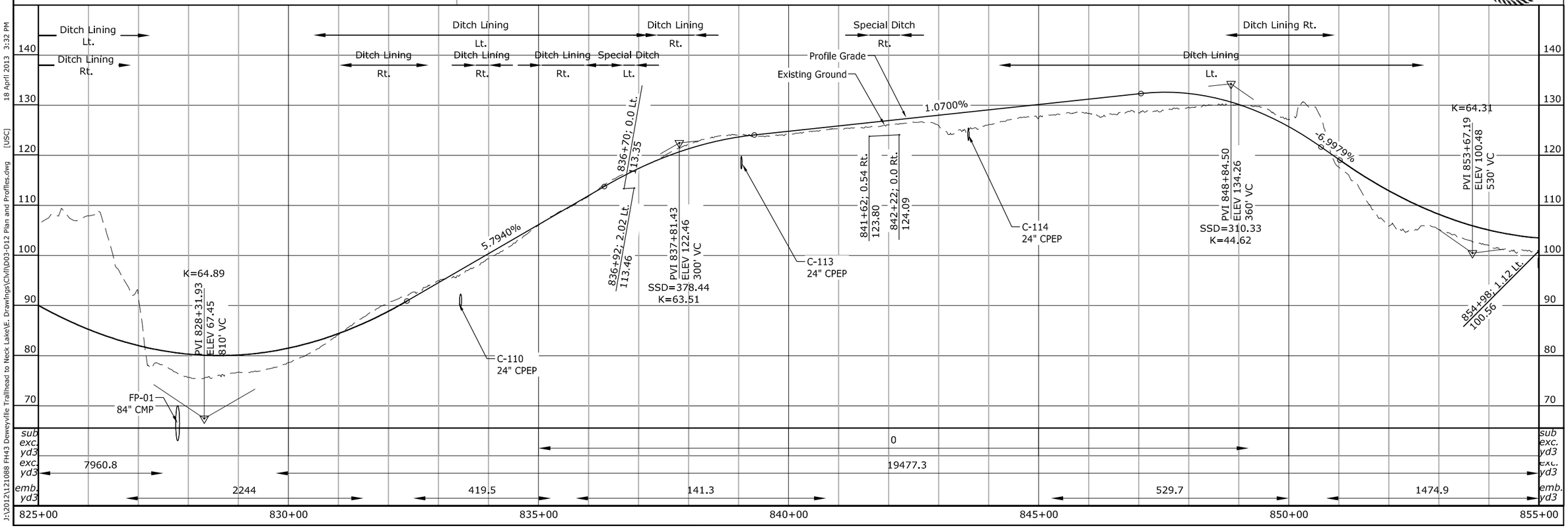

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.6

Control Points			
Point #	Northing	Easting	Elevation
1248	1,512,415.078	2,774,940.428	103.65
249	1,512,522.743	2,774,571.238	94.75
250	1,512,595.638	2,774,433.834	82.97
1251	1,513,038.364	2,774,232.781	70.09
1252	1,513,262.168	2,773,964.517	52.19
1253	1,513,248.483	2,773,790.758	55.98

Control Points			
Point #	Northing	Easting	Elevation
1254	1,513,065.931	2,773,577.680	79.08
1255	1,513,057.550	2,773,340.857	91.53
256	1,513,022.612	2,773,143.897	87.24
257	1,513,156.031	2,772,938.913	88.57
258	1,513,464.257	2,772,989.613	102.62
1259	1,513,806.716	2,772,944.094	110.69

0 100 200 FT

PI = 858+26.12
N = 1512371.25
E = 2774958.81
Δ = 33.14
R = 495.00'
T = 147.29'
L = 286.31'
e = 0.06

PI = 863+64.13
N = 1512604.69
E = 2774464.93
Δ = 35.35
R = 495.00'
T = 157.75'
L = 305.43'
e = 0.06

PI = 869+52.23
N = 1513126.09
E = 2774171.75
Δ = 25.43
R = 750.00'
T = 169.24'
L = 332.91'
e = 0.056

PI = 884+31.74
N = 1513982.54
E = 2772958.51
Δ = 50.04
R = 485.00'
T = 226.34'
L = 423.54'
e = 0.06

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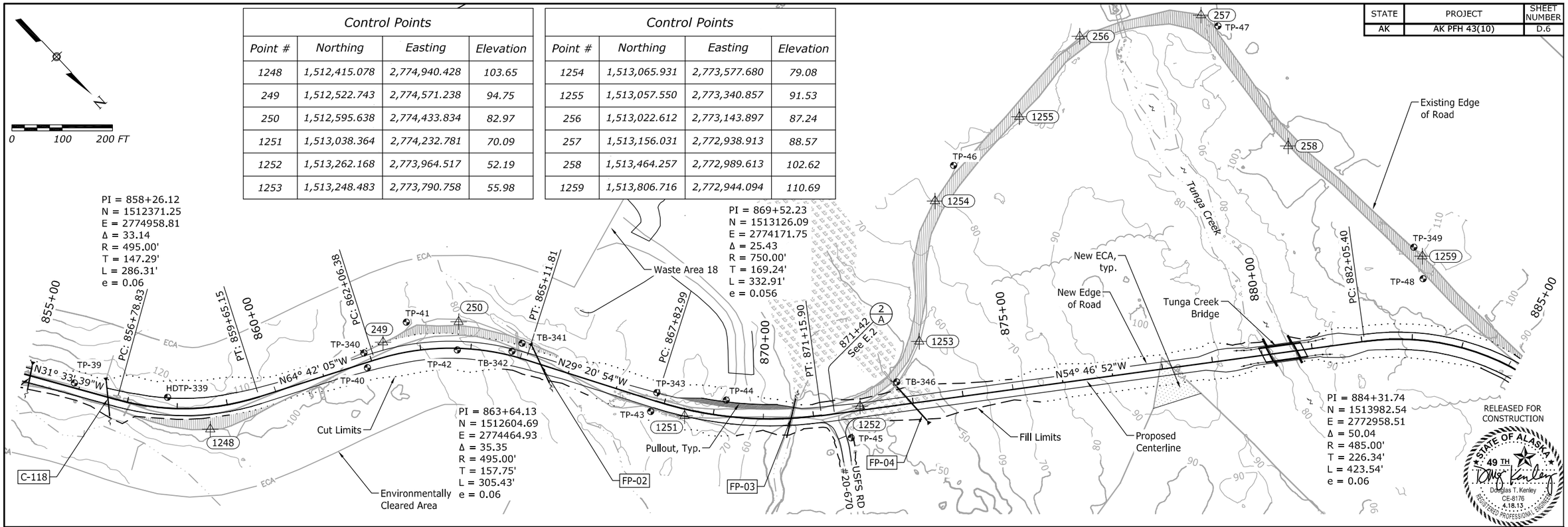
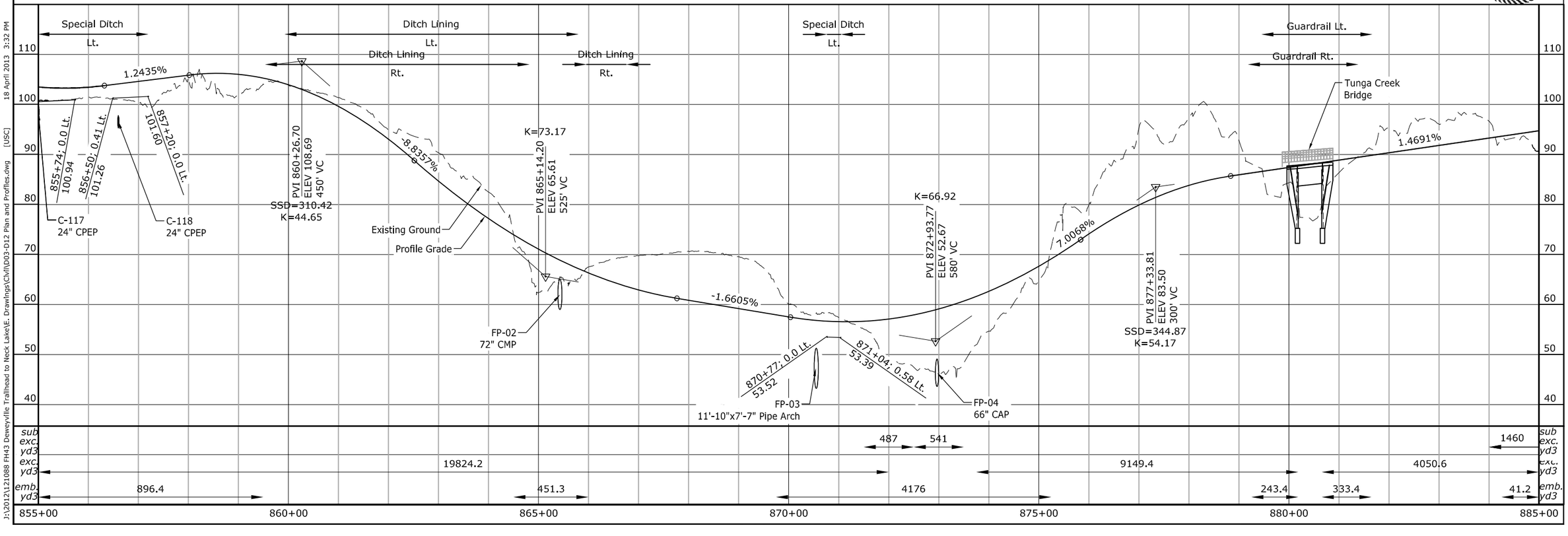
REGISTERED PROFESSIONAL ENGINEER





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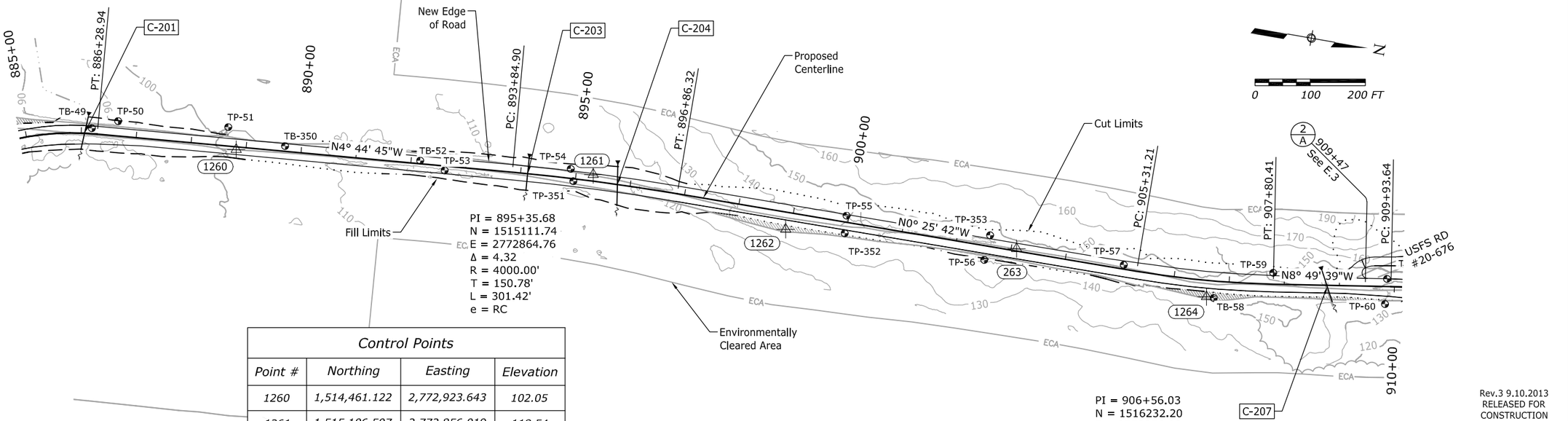
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.7

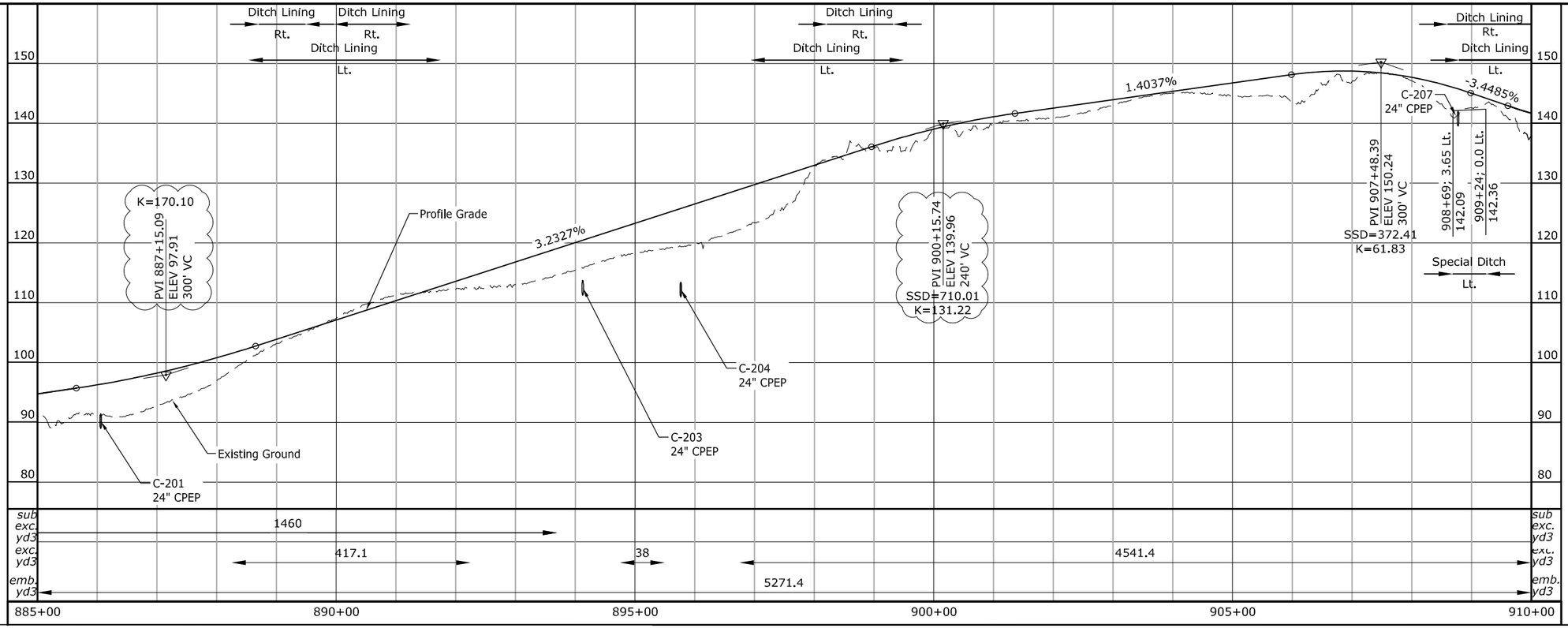


Control Points

Point #	*Northing*	*Easting*	*Elevation*
1260	*1,514,461.122*	*2,772,923.643*	*102.05*
1261	*1,515,106.507*	*2,772,856.019*	*118.54*
1262	*1,515,467.424*	*2,772,893.133*	*135.41*
263	*1,515,885.797*	*2,772,854.730*	*142.55*
1264	*1,516,239.924*	*2,772,880.654*	*146.78*

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH Douglas T. Kenley CE-8176 9.10.13 REGISTERED PROFESSIONAL ENGINEER



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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.8

Control Points			
Point #	Northing	Easting	Elevation
1265	1,516,703.185	2,772,801.367	136.90
12266	1,516,937.867	2,772,873.705	140.90
1267	1,517,190.138	2,773,199.158	157.79
12268	1,517,503.428	2,773,332.341	162.29
12269	1,518,118.941	2,773,328.537	173.26

Control Points			
Point #	Northing	Easting	Elevation
12271	1,518,531.514	2,773,399.381	186.87
1272	1,518,680.156	2,773,233.631	178.80
1273	1,518,738.020	2,772,923.018	178.80
1274	1,518,913.406	2,772,876.068	177.06

RFI 34
Slope Change to 1:1
Sta. 916+20 to 925+50

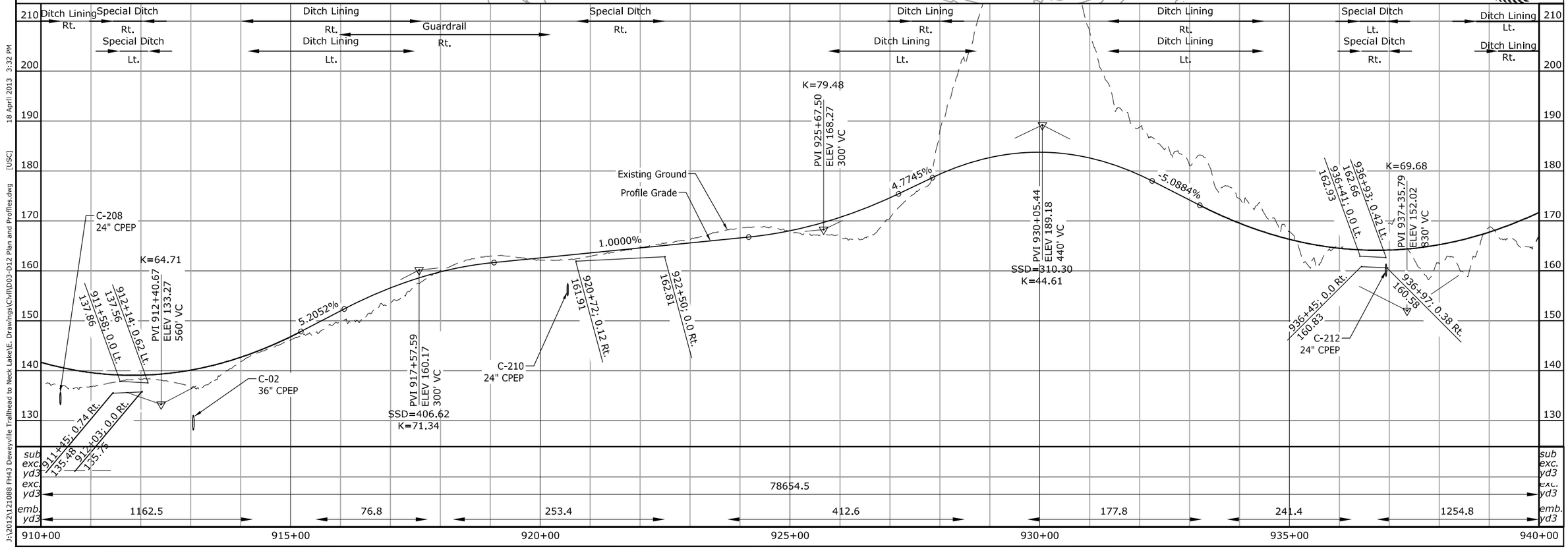
PI = 912+47.39
N = 1516817.00
E = 2772765.57
Δ = 55.24
R = 485.00'
T = 253.75'
L = 467.57'
e = 0.06

PI = 919+54.05
N = 1517331.77
E = 2773306.31
Δ = 45.16
R = 495.00'
T = 205.86'
L = 390.18'
e = 0.06

PI = 929+36.32
N = 1518335.34
E = 2773328.14
Δ = 35.45
R = 750.00'
T = 239.72'
L = 464.05'
e = 0.056

PI = 936+60.46
N = 1518946.97
E = 2772912.42
Δ = 65.11
R = 485.00'
T = 309.61'
L = 551.11'
e = 0.06

RELEASED FOR CONSTRUCTION
STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



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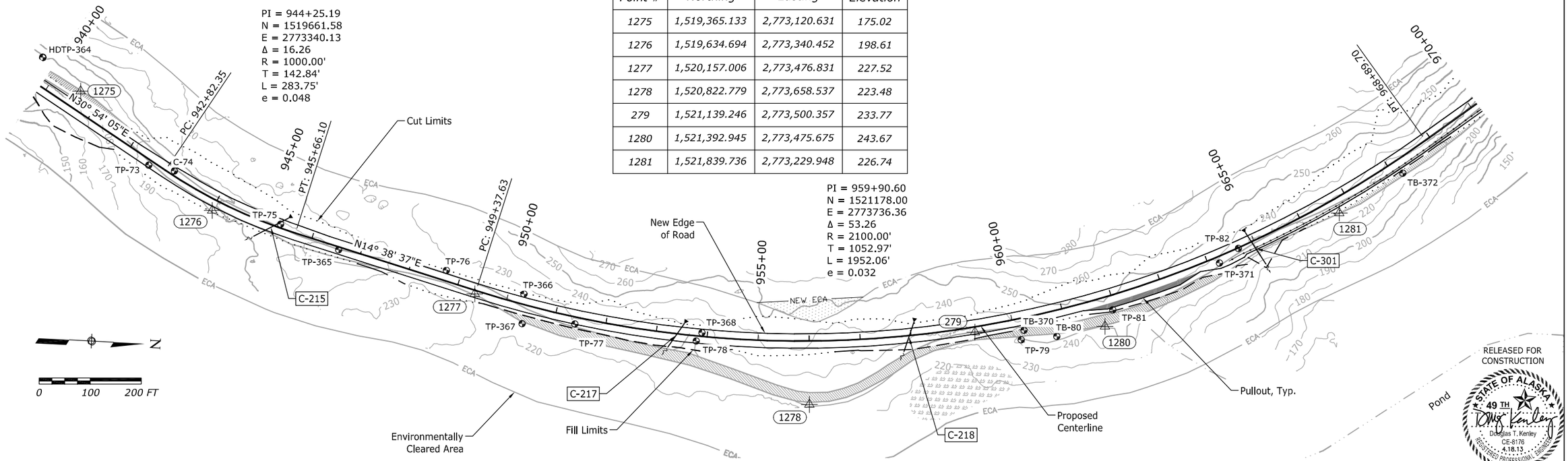
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.9

Control Points			
Point #	*Northing*	*Easting*	*Elevation*
1275	*1,519,365.133*	*2,773,120.631*	*175.02*
1276	*1,519,634.694*	*2,773,340.452*	*198.61*
1277	*1,520,157.006*	*2,773,476.831*	*227.52*
1278	*1,520,822.779*	*2,773,658.537*	*223.48*
279	*1,521,139.246*	*2,773,500.357*	*233.77*
1280	*1,521,392.945*	*2,773,475.675*	*243.67*
1281	*1,521,839.736*	*2,773,229.948*	*226.74*

PI = 944+25.19
N = 1519661.58
E = 2773340.13
Δ = 16.26
R = 1000.00'
T = 142.84'
L = 283.75'
e = 0.048

PI = 959+90.60
N = 1521178.00
E = 2773736.36
Δ = 53.26
R = 2100.00'
T = 1052.97'
L = 1952.06'
e = 0.032



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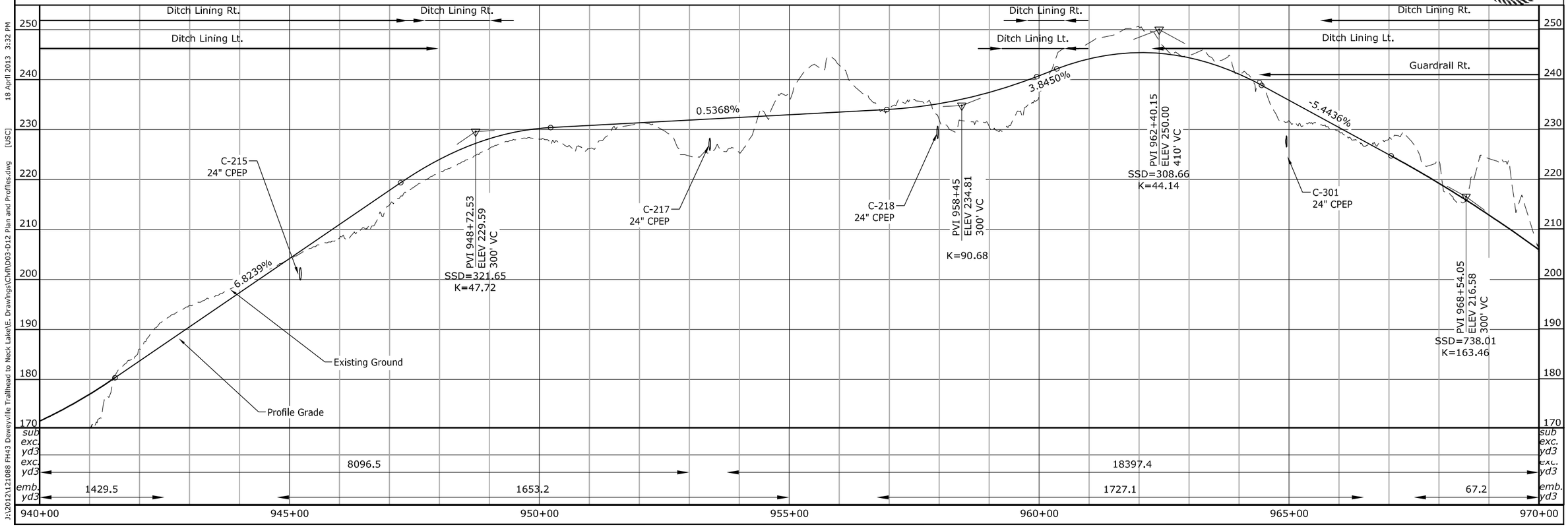
STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



	940+00	945+00	950+00	955+00	960+00	965+00	970+00
sub exc. yd3							
exc. yd3	8096.5				18397.4		
emb. yd3	1429.5		1653.2		1727.1	67.2	

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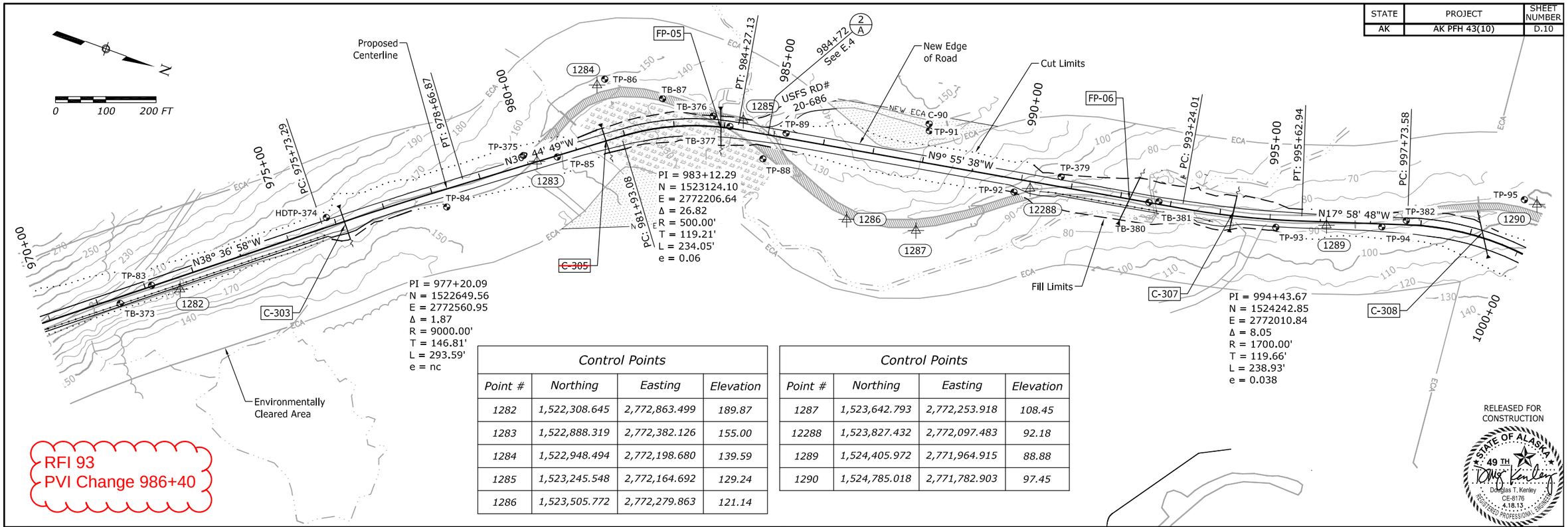
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.10



RFI 93
PVI Change 986+40

Control Points

Point #	Northing	Easting	Elevation
1282	1,522,308.645	2,772,863.499	189.87
1283	1,522,888.319	2,772,382.126	155.00
1284	1,522,948.494	2,772,198.680	139.59
1285	1,523,245.548	2,772,164.692	129.24
1286	1,523,505.772	2,772,279.863	121.14

Control Points

Point #	Northing	Easting	Elevation
1287	1,523,642.793	2,772,253.918	108.45
12288	1,523,827.432	2,772,097.483	92.18
1289	1,524,405.972	2,771,964.915	88.88
1290	1,524,785.018	2,771,782.903	97.45

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STATE OF ALASKA 49 TH
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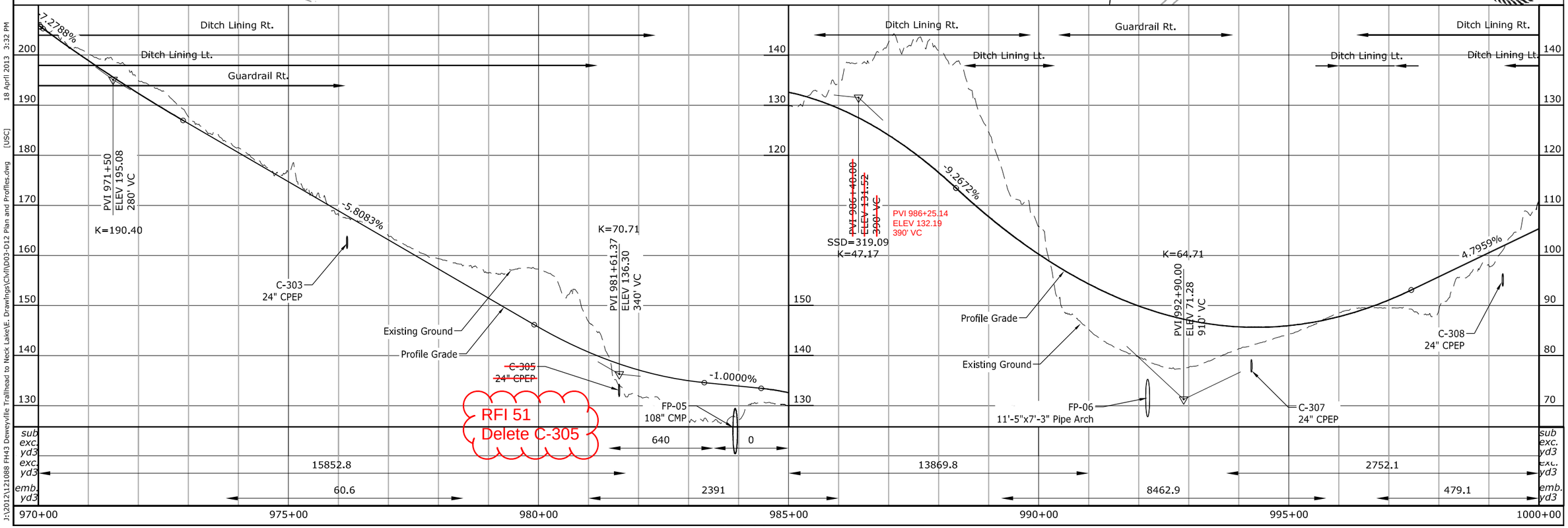
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.11

Control Points			
Point #	Northing	Easting	Elevation
1291	1,525,030.112	2,771,956.189	108.75
1292	1,525,263.576	2,771,951.321	124.95
1293	1,525,355.749	2,772,061.350	133.22
1294	1,525,341.057	2,772,281.684	139.34
1295	1,525,519.695	2,772,411.672	147.97
1296	1,525,750.016	2,772,696.862	154.85

Control Points			
Point #	Northing	Easting	Elevation
297	1,526,053.900	2,772,824.713	144.87
1298	1,526,633.000	2,772,581.725	145.73
299	1,526,772.676	2,772,622.171	147.57
1300	1,526,891.099	2,772,875.284	146.27
1301	1,527,022.357	2,772,966.494	149.50
1302	1,527,256.781	2,773,016.757	140.65

0 100 200 FT

PI = 1001+30.61
N = 1524896.62
E = 2771798.67
Δ = 65.04
R = 560.00'
T = 357.04'
L = 635.69'
e = 0.06

PI = 1015+16.02
N = 1525893.79
E = 2772870.26
Δ = 65.57
R = 485.00'
T = 312.39'
L = 555.05'
e = 0.06

PI = 1021+56.73
N = 1526567.48
E = 2772644.71
Δ = 50.64
R = 485.00'
T = 229.49'
L = 428.69'
e = 0.06

RFI 93
PVI Change
1006+60
1012+15

RFI 33
PVI Change
Sta. 1022+00

Rev.3 9.10.2013
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RFI 105
Delete C-315

ELEV 147.92

6 September 2013 2:01 PM [USC]
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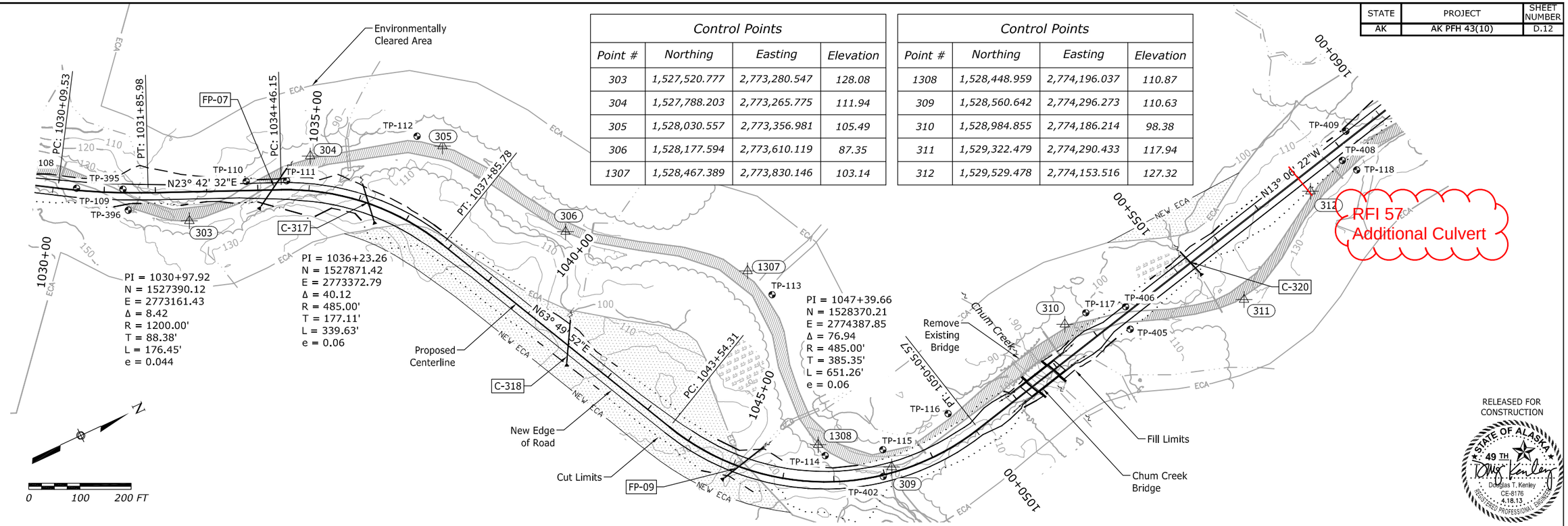
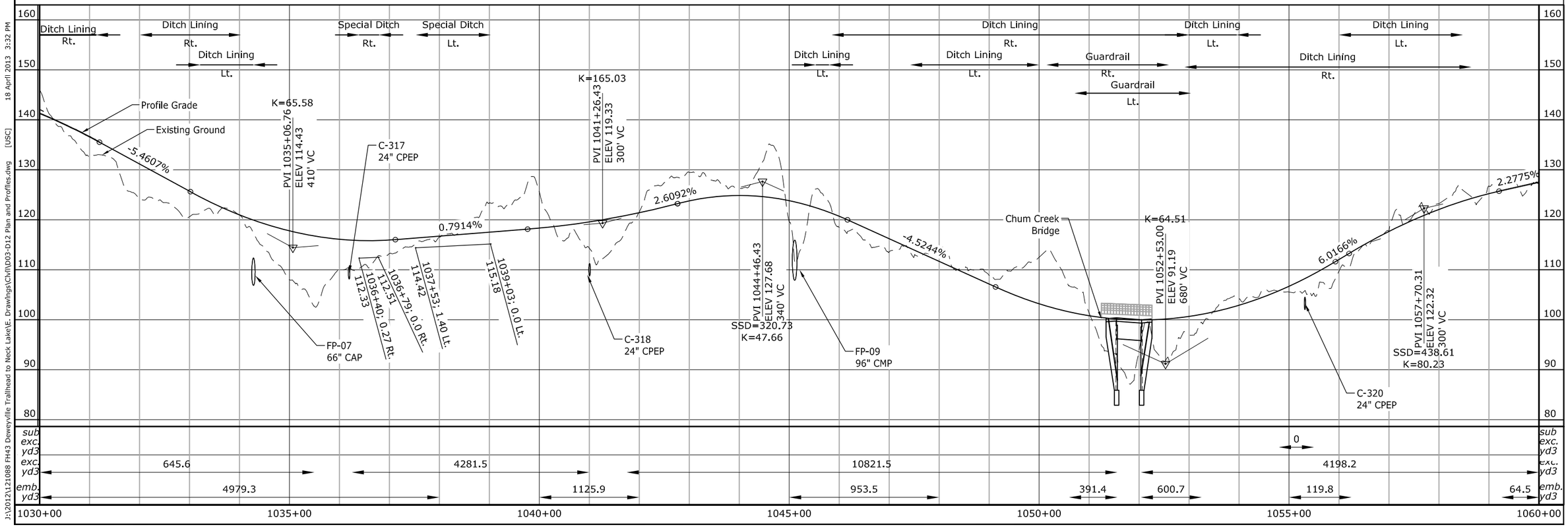
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.12

Control Points			
Point #	Northing	Easting	Elevation
303	1,527,520.777	2,773,280.547	128.08
304	1,527,788.203	2,773,265.775	111.94
305	1,528,030.557	2,773,356.981	105.49
306	1,528,177.594	2,773,610.119	87.35
1307	1,528,467.389	2,773,830.146	103.14

Control Points			
Point #	Northing	Easting	Elevation
1308	1,528,448.959	2,774,196.037	110.87
309	1,528,560.642	2,774,296.273	110.63
310	1,528,984.855	2,774,186.214	98.38
311	1,529,322.479	2,774,290.433	117.94
312	1,529,529.478	2,774,153.516	127.32





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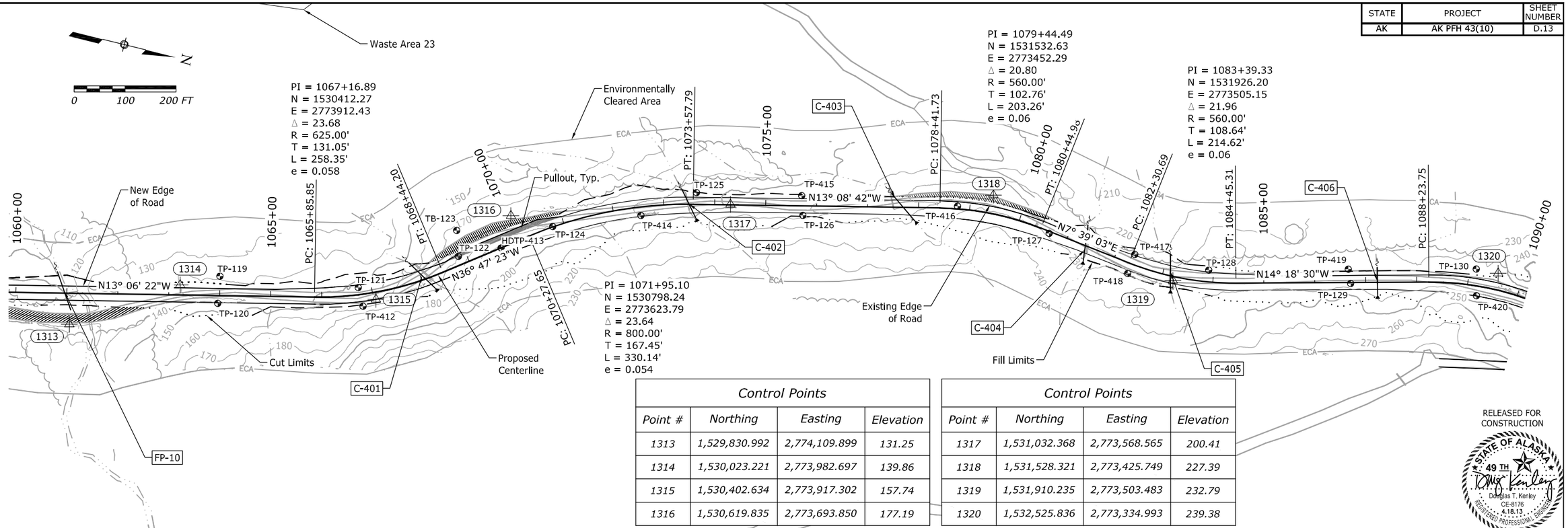
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.13

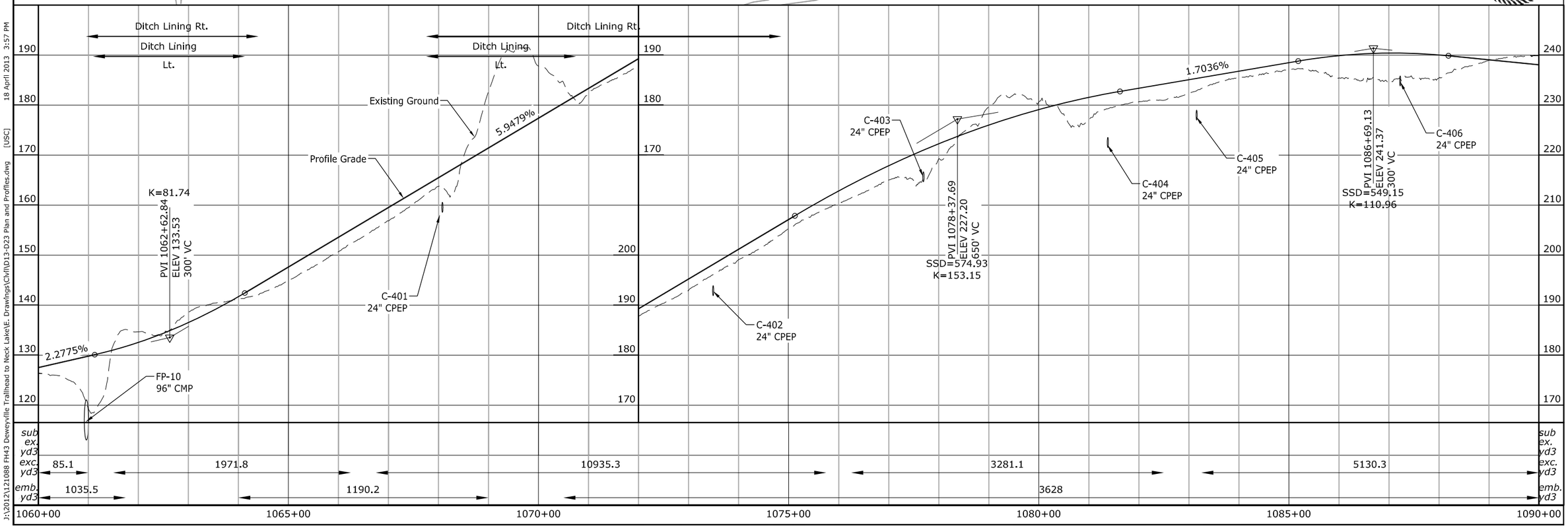


Control Points			
Point #	Northing	Easting	Elevation
1313	1,529,830.992	2,774,109.899	131.25
1314	1,530,023.221	2,773,982.697	139.86
1315	1,530,402.634	2,773,917.302	157.74
1316	1,530,619.835	2,773,693.850	177.19

Control Points			
Point #	Northing	Easting	Elevation
1317	1,531,032.368	2,773,568.565	200.41
1318	1,531,528.321	2,773,425.749	227.39
1319	1,531,910.235	2,773,503.483	232.79
1320	1,532,525.836	2,773,334.993	239.38

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



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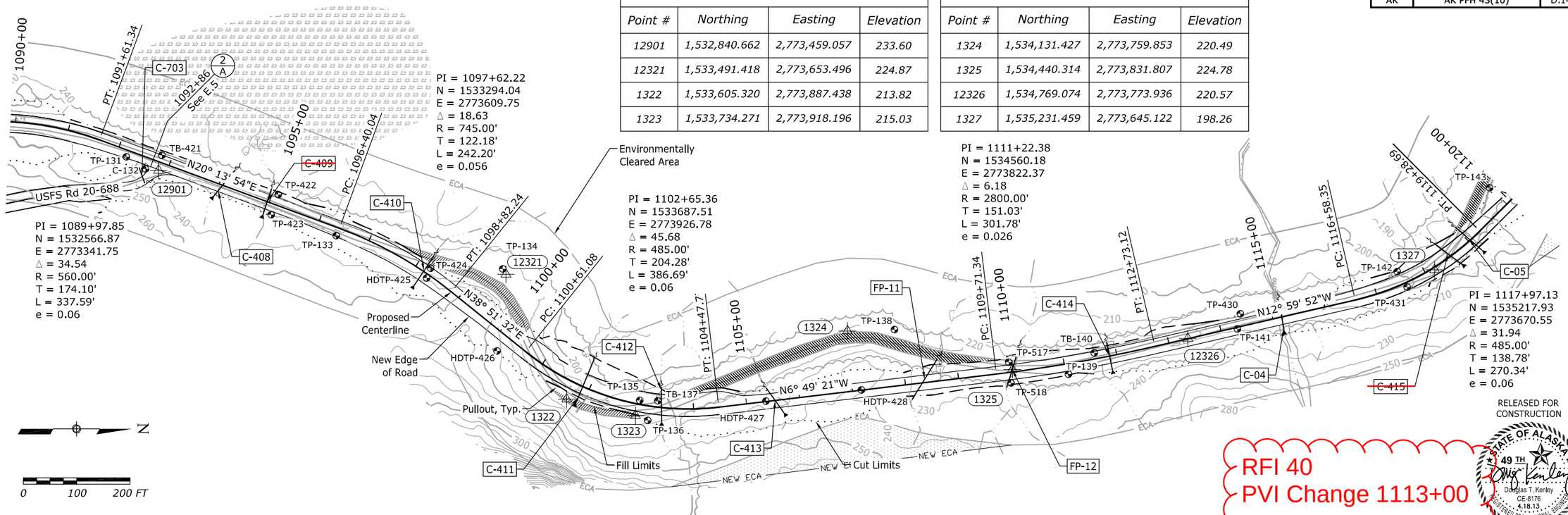
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.14

Control Points			
Point #	Northing	Easting	Elevation
12901	1,532,840.662	2,773,459.057	233.60
12321	1,533,491.418	2,773,653.496	224.87
1322	1,533,605.320	2,773,887.438	213.82
1323	1,533,734.271	2,773,918.196	215.03

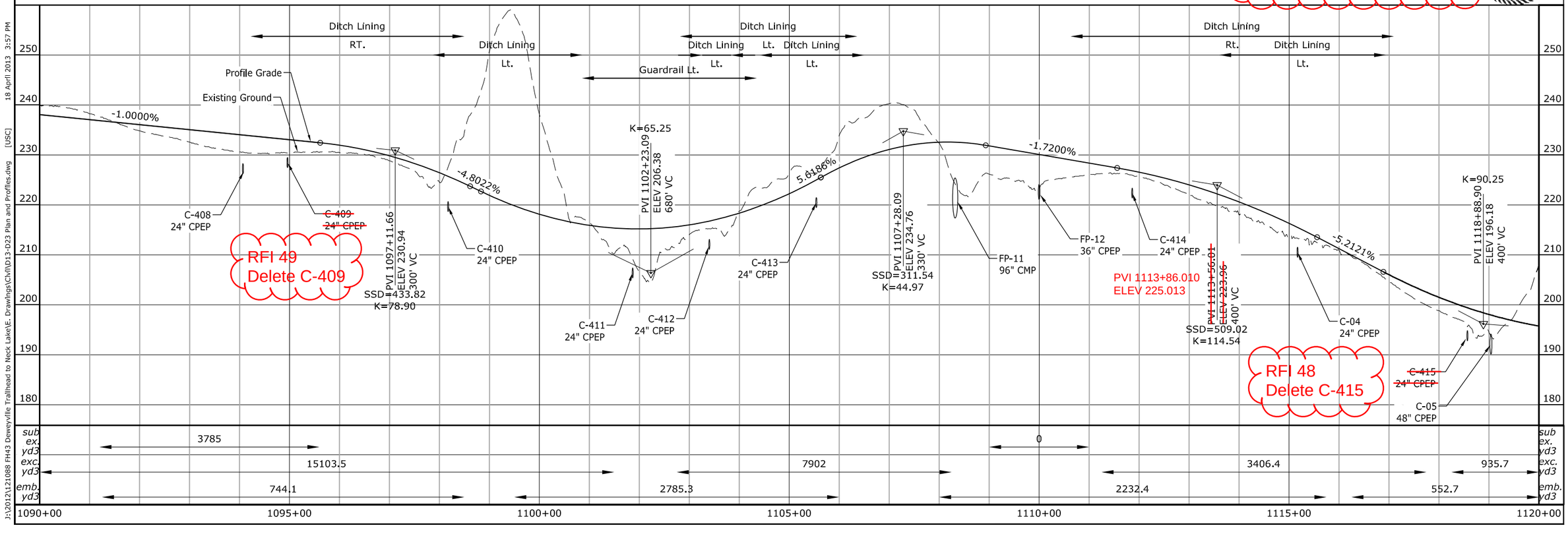
Control Points			
Point #	Northing	Easting	Elevation
1324	1,534,131.427	2,773,759.853	220.49
1325	1,534,440.314	2,773,831.807	224.78
12326	1,534,769.074	2,773,773.936	220.57
1327	1,535,231.459	2,773,645.122	198.26



RELEASED FOR CONSTRUCTION

RFI 40
PVI Change 1113+00

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



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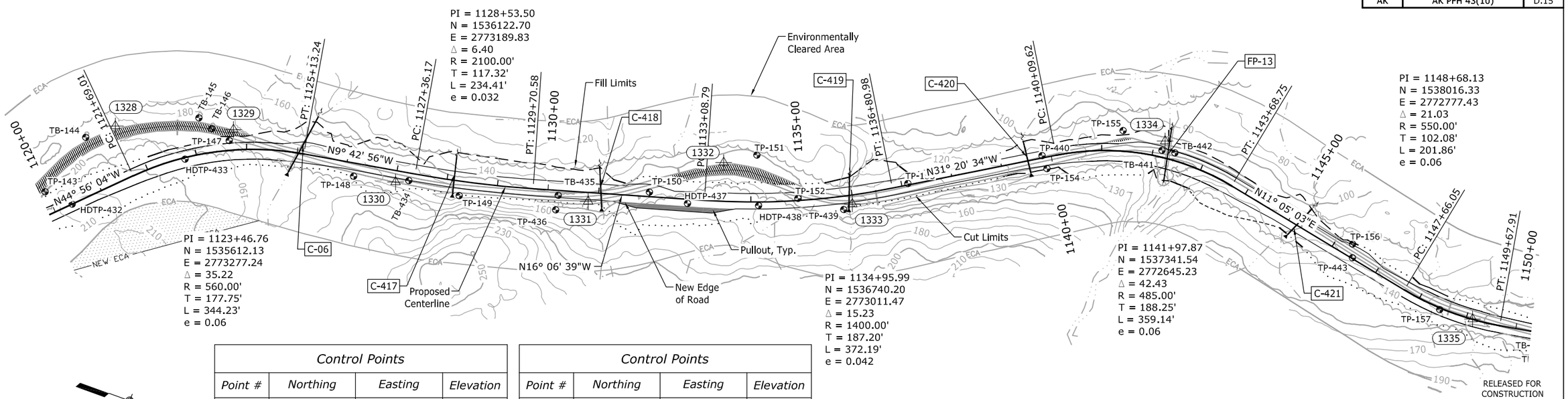
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.15



Control Points			
Point #	Northing	Easting	Elevation
1328	1,535,419.865	2,773,322.706	192.11
1329	1,535,640.752	2,773,249.735	182.21
1330	1,535,976.269	2,773,237.604	168.35
1331	1,536,345.831	2,773,143.584	151.56

Control Points			
Point #	Northing	Easting	Elevation
1332	1,536,570.325	2,772,980.373	155.72
1333	1,536,836.394	2,772,970.502	141.84
1334	1,537,373.070	2,772,643.384	103.48
1335	1,538,062.199	2,772,765.828	147.84

N

0 100 200 FT

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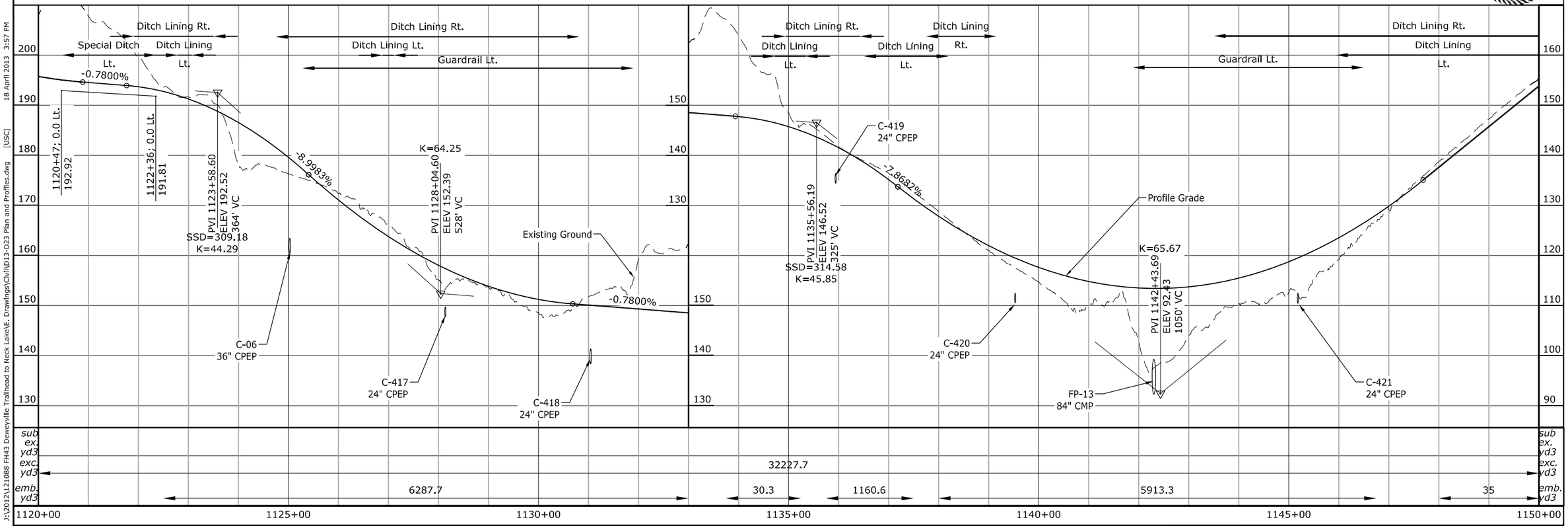
STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



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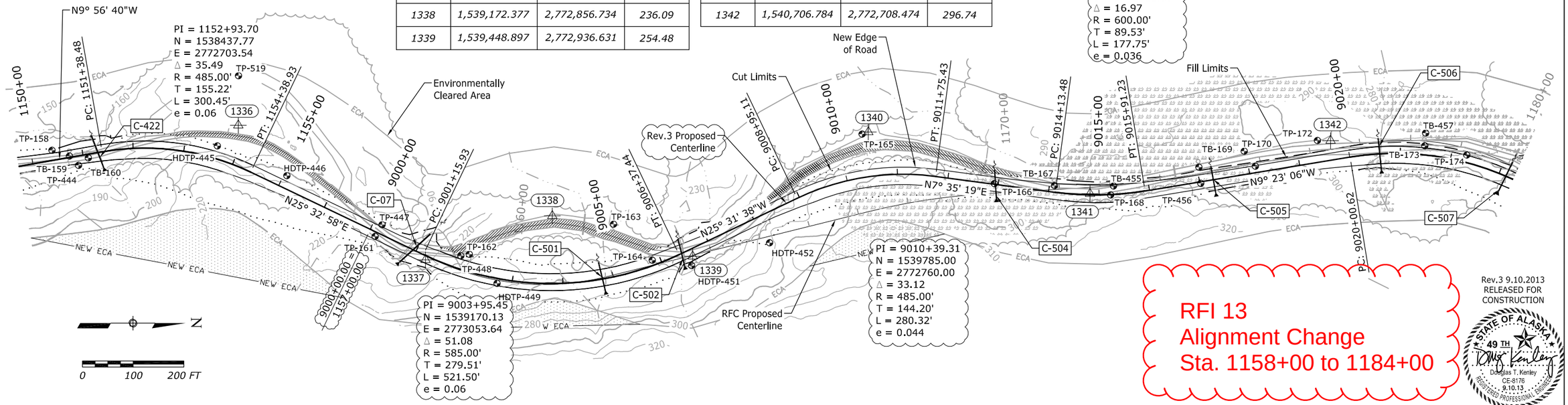
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.16

Control Points			
Point #	Northing	Easting	Elevation
1336	1,538,553.363	2,772,678.165	186.43
1337	1,538,922.407	2,772,943.517	218.62
1338	1,539,172.377	2,772,856.734	236.09
1339	1,539,448.897	2,772,936.631	254.48

Control Points			
Point #	Northing	Easting	Elevation
1340	1,539,795.251	2,772,691.590	283.22
1341	1,540,232.261	2,772,813.080	295.72
1342	1,540,706.784	2,772,708.474	296.74



RFI 13
Alignment Change
Sta. 1158+00 to 1184+00

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STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
9.10.13
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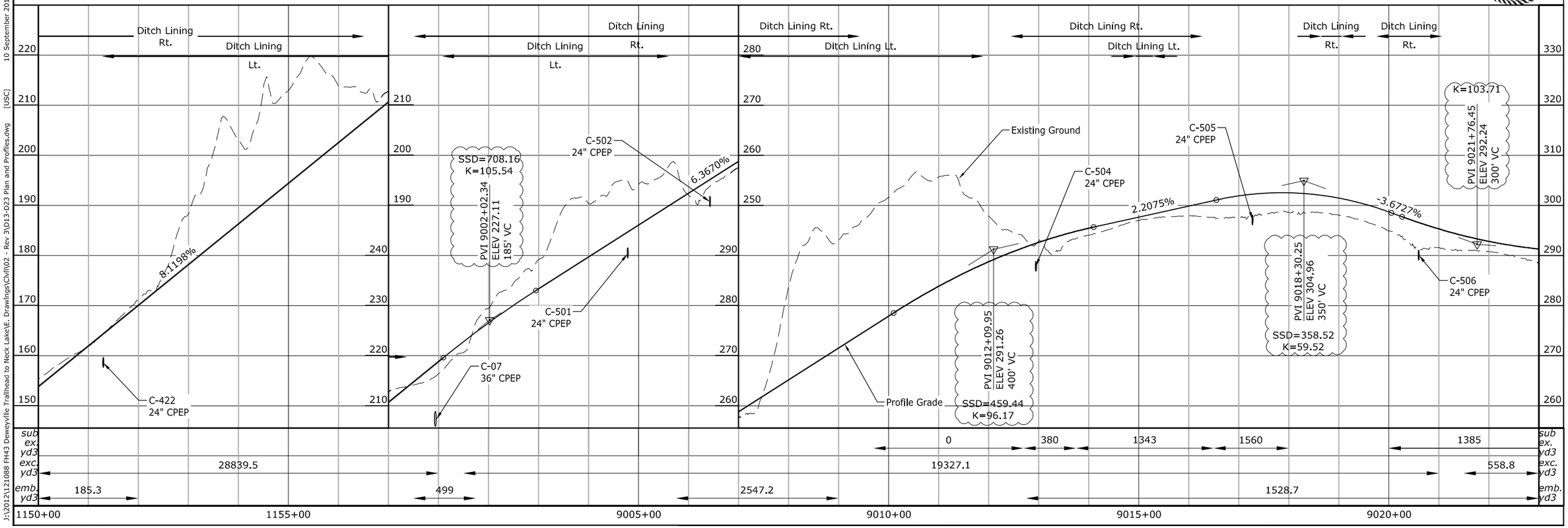

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.17

PI = 1186+07.36
N = 1541446.77
E = 2773208.49
△ = 23.66
R = 500.00'
T = 104.72'
L = 206.45'
e = 0.06

PI = 9023+54.27
N = 1541093.81
E = 2772683.28
△ = 65.48
R = 550.00'
T = 353.65'
L = 628.59'
e = 0.06

PI = 1194+15.97
N = 1542131.71
E = 2773643.84
△ = 52.72
R = 750.00'
T = 371.65'
L = 690.10'
e = 0.056

PI = 1202+51.33
N = 1542206.68
E = 2774529.23
△ = 50.28
R = 560.00'
T = 262.81'
L = 491.44'
e = 0.06

RFI 13
Alignment Change
Sta. 1158+00 to 1184+00

Rev.3 Proposed Centerline
RFC Proposed Centerline
Fill Limits
Environmentally Cleared Area
New Edge of Road
Cut Limits
Pullout, Typ.

N32° 26' 25"E
N56° 05' 51"E
N85° 09' 36"E
N34° 52' 44"E

Control Points			
Point #	Northing	Easting	Elevation
1343	1,541,094.119	2,772,738.083	289.14
1344	1,541,297.283	2,772,915.672	291.33
1345	1,541,395.198	2,773,168.426	288.15
1346	1,541,885.339	2,773,466.331	316.34

Control Points			
Point #	Northing	Easting	Elevation
1347	1,542,182.904	2,773,897.265	326.43
348	1,542,159.672	2,774,392.975	332.38
12349	1,542,274.196	2,774,541.258	327.92
1350	1,542,447.379	2,774,637.686	326.15

0 100 200 FT

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STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

Special Ditch Rt.
Ditch Lining RT.
Ditch Lining Lt.
Guardrail Lt.
Special Ditch Lt.
Special Ditch Lt.
Special Ditch Rt.

Profile Grade
Existing Ground
K=64.60
PVI 1186+34.82
ELEV 286.32
550' VC
PVI 1190+84.82
ELEV 321.12
350' VC
SSD=334.93
K=51.97
PVI 1202+85.63
ELEV 333.13
650' VC
SSD=931.26
K=365.17
-0.7800%
7.7341%
1.0000%
-0.7800%

C-507 24" CPEP
C-508 24" CPEP
FP-14 96" CMP
C-510 24" CPEP
C-511 24" CPEP
C-512 24" CPEP
FP-15 10'-8"x6'-11" Pipe Arch
C-514 24" CPEP
C-515 24" CPEP
C-516 24" CPEP

9025+53; 0.0 Rt. 285.74
1184+72; 5.36 Rt. 284.65
1197+81; 2.12 Lt. 325.22
1200+51; 0.0 Lt. 327.32
10004+62; 0.0 Rt. 324.41
10004+78; 0.0 Lt. 326.17

	9025+00	1185+00	1190+00	1195+00	1200+00	10005+00
sub ex. yd3	1385				80	
exc. yd3			18031.7		4376.4	
emb. yd3	22.5	1352.5	2573.5	191.3	1843.3	1114.3

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.18

RFI 11
Alignment Change
Sta. 1231+00 to 1242+00

Control Points			
Point #	Northing	Easting	Elevation
1351	1,542,881.251	2,775,026.868	328.75
352	1,543,105.022	2,775,715.930	344.62
1353	1,543,048.089	2,776,073.727	359.25
1354	1,543,163.799	2,776,254.448	360.51

Control Points			
Point #	Northing	Easting	Elevation
1355	1,543,741.251	2,776,570.269	325.07
1356	1,544,119.116	2,777,007.151	338.50
12357	1,544,326.777	2,777,117.303	338.57
1203	1,544,401.914	2,777,092.457	337.52

PI = 10006+89.27
N = 1543003.36
E = 2775084.57
Δ = 51.68
R = 750.00'
T = 363.17'
L = 676.43'
e = 0.056

PI = 10017+79.69
N = 1543071.90
E = 2776222.84
Δ = 59.90
R = 485.00'
T = 279.46'
L = 507.05'
e = 0.06

PI = 10024+37.14
N = 1543705.83
E = 2776541.03
Δ = 19.50
R = 850.00'
T = 146.06'
L = 289.30'
e = 0.052

N = 154[illegible]
E = 27772
Δ = 21.78
R = 700.00'
T = 134.67'
L = 266.10'
e = 0.056

PI = 10028+94.95
N = 1544024.93
E = 2776873.25
Δ = 18.01
R = 850.00'
T = 134.68'
L = 267.13'
e = 0.044

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0 100 200 FT

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.19

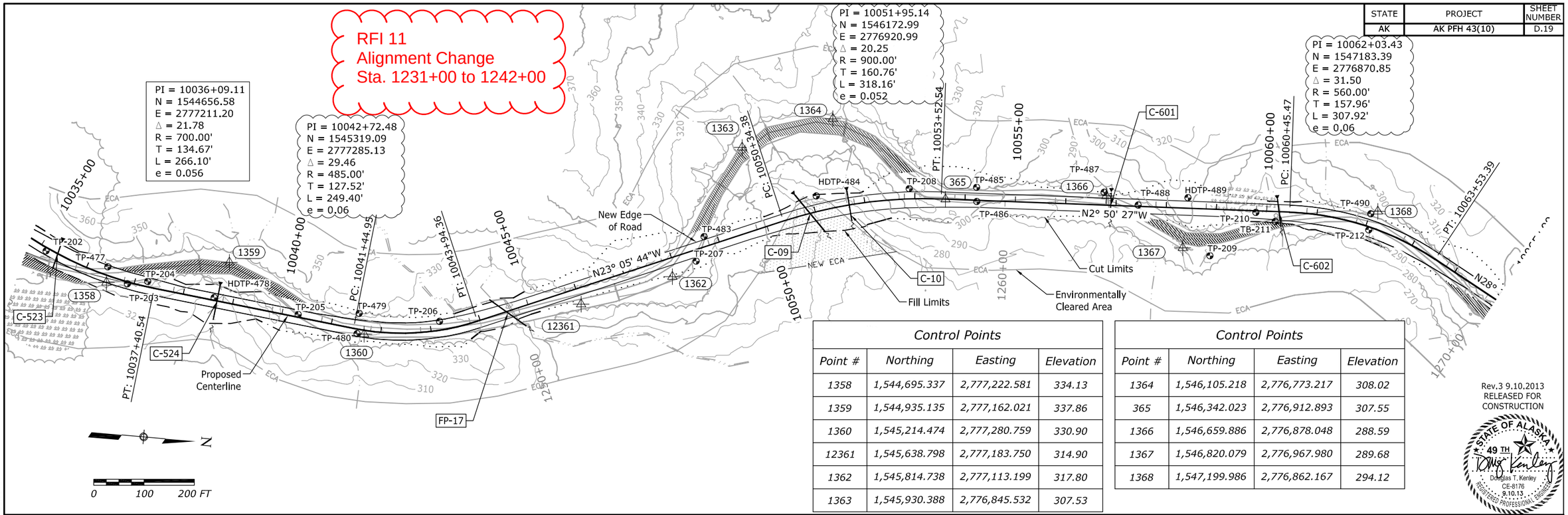
RFI 11
Alignment Change
Sta. 1231+00 to 1242+00

PI = 10036+09.11
N = 1544656.58
E = 2777211.20
Δ = 21.78
R = 700.00'
T = 134.67'
L = 266.10'
e = 0.056

PI = 10042+72.48
N = 1545319.09
E = 2777285.13
Δ = 29.46
R = 485.00'
T = 127.52'
L = 249.40'
e = 0.06

PI = 10051+95.14
N = 1546172.99
E = 2776920.99
Δ = 20.25
R = 900.00'
T = 160.76'
L = 318.16'
e = 0.052

PI = 10062+03.43
N = 1547183.39
E = 2776870.85
Δ = 31.50
R = 560.00'
T = 157.96'
L = 307.92'
e = 0.06



Control Points

Point #	Northing	Easting	Elevation
1358	1,544,695.337	2,777,222.581	334.13
1359	1,544,935.135	2,777,162.021	337.86
1360	1,545,214.474	2,777,280.759	330.90
12361	1,545,638.798	2,777,183.750	314.90
1362	1,545,814.738	2,777,113.199	317.80
1363	1,545,930.388	2,776,845.532	307.53

Control Points

Point #	Northing	Easting	Elevation
1364	1,546,105.218	2,776,773.217	308.02
365	1,546,342.023	2,776,912.893	307.55
1366	1,546,659.886	2,776,878.048	288.59
1367	1,546,820.079	2,776,967.980	289.68
1368	1,547,199.986	2,776,862.167	294.12

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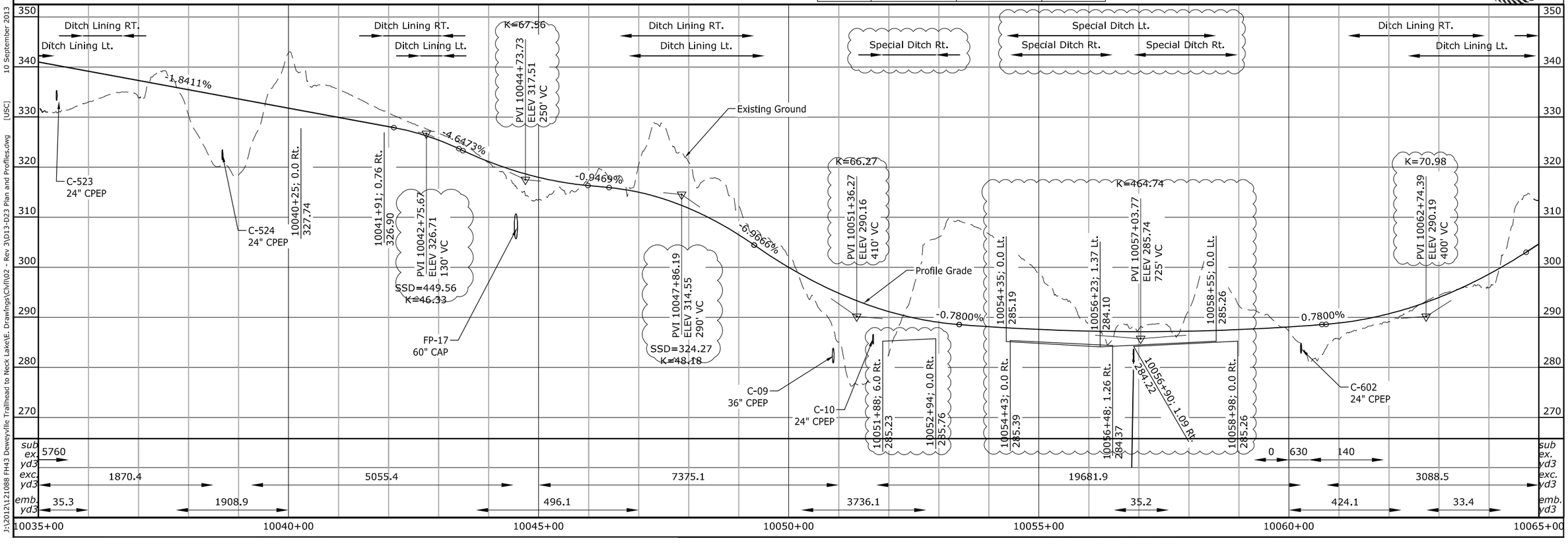

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STATE	PROJECT	SHEET NUMBER
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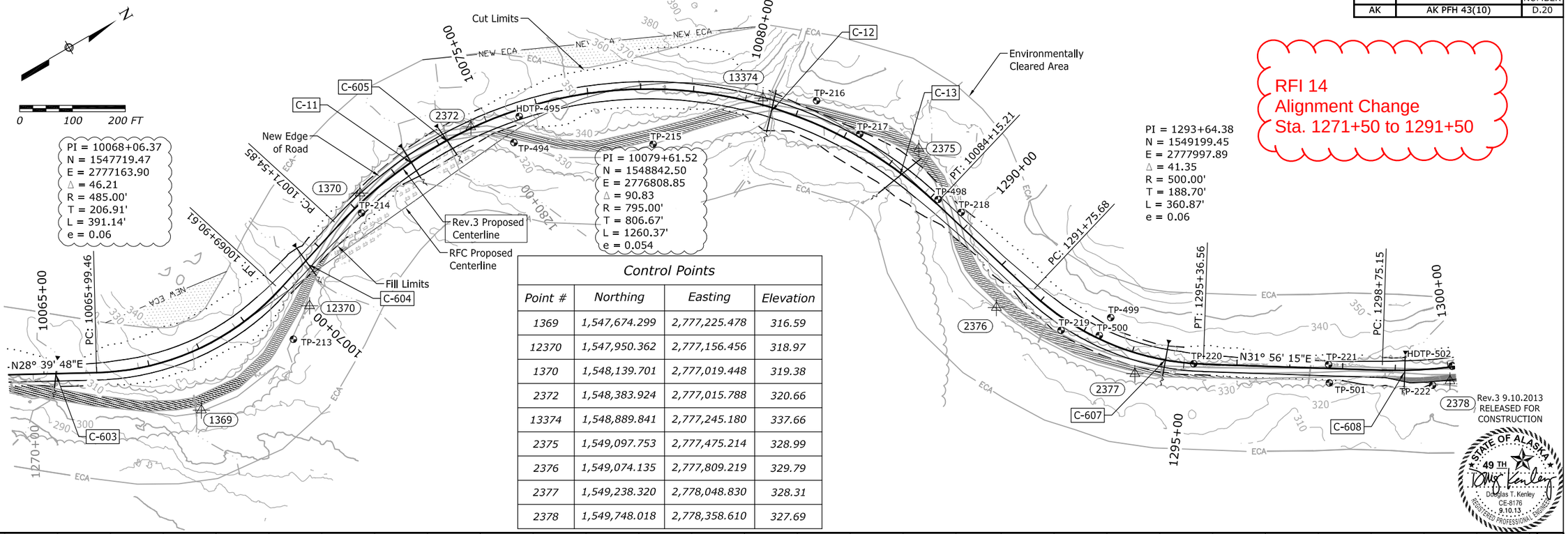
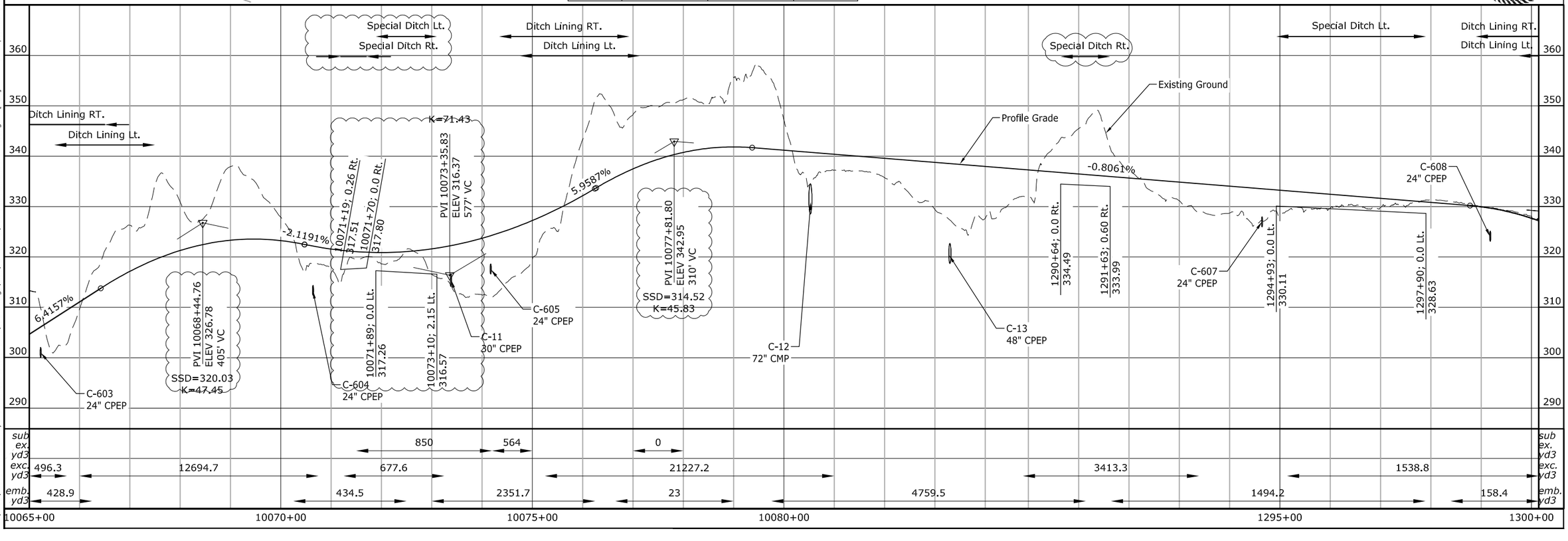


Control Points

Point #	Northing	Easting	Elevation
1369	1,547,674.299	2,777,225.478	316.59
12370	1,547,950.362	2,777,156.456	318.97
1370	1,548,139.701	2,777,019.448	319.38
2372	1,548,383.924	2,777,015.788	320.66
13374	1,548,889.841	2,777,245.180	337.66
2375	1,549,097.753	2,777,475.214	328.99
2376	1,549,074.135	2,777,809.219	329.79
2377	1,549,238.320	2,778,048.830	328.31
2378	1,549,748.018	2,778,358.610	327.69



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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.21

N

0 100 200 FT

RFI 47
PVI Change
1329+00 to 1355+00

Control Points			
Point #	Northing	Easting	Elevation
2378	1,549,748.018	2,778,358.610	327.69
2379	1,550,157.696	2,778,452.168	304.36
2380	1,550,698.917	2,778,681.719	312.32
2381	1,551,059.430	2,778,633.480	319.56

Control Points			
Point #	Northing	Easting	Elevation
13382	1,551,638.073	2,778,465.620	338.07
2383	1,552,334.758	2,778,318.803	338.68
2384	1,552,529.364	2,778,343.730	336.66

PI = 1299+60.10
N = 1549719.01
E = 2778321.76
Δ = 11.83
R = 820.00'
T = 84.95'
L = 169.29'
e = 0.054

PI = 1311+07.21
N = 1550796.76
E = 2778716.35
Δ = 37.12
R = 840.00'
T = 282.00'
L = 544.14'
e = 0.052

PI = 1317+89.73
N = 1551468.43
E = 2778510.91
Δ = 4.10
R = 3500.00'
T = 125.23'
L = 250.36'
e = 0.022

PI = 1327+73.03
N = 1552426.99
E = 2778291.23
Δ = 42.62
R = 560.00'
T = 218.45'
L = 416.56'
e = 0.06

Waste Site 25

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Ditch Lining Rt. | Ditch Lining RT. | Ditch Lining RT. / Ditch Lining Lt. | Special Ditch Lt. | Ditch Lining RT. / Ditch Lining Lt.

Guardrail Rt.

Profile Grade
Existing Ground

C-609 24" CPEP
C-610 24" CPEP
C-611 24" CPEP
C-612 24" CPEP
C-613 24" CPEP
C-615 24" CPEP
C-616 24" CPEP

-6.9829%
-4.4693%
2.5946%
-0.7800%

PVI 1300+27.98
ELEV 328.99
300' VC
SSD=324.71
K=48.57

PVI 1305+93.73
ELEV 289.48
740' VC
K=64.62

PVI 1312+11.26
ELEV 317.08
400' VC
SSD=775.62
K=213.36

PVI 1321+33.63
ELEV 341.01
350' VC
SSD=494.79
K=103.72

1325+39; 0.0 Lt.
336.26

1327+11; 0.0 Lt.
335.37

PVI 1329+73
ELEV 334.46
300' VC
SSD=336.24
K=51.77

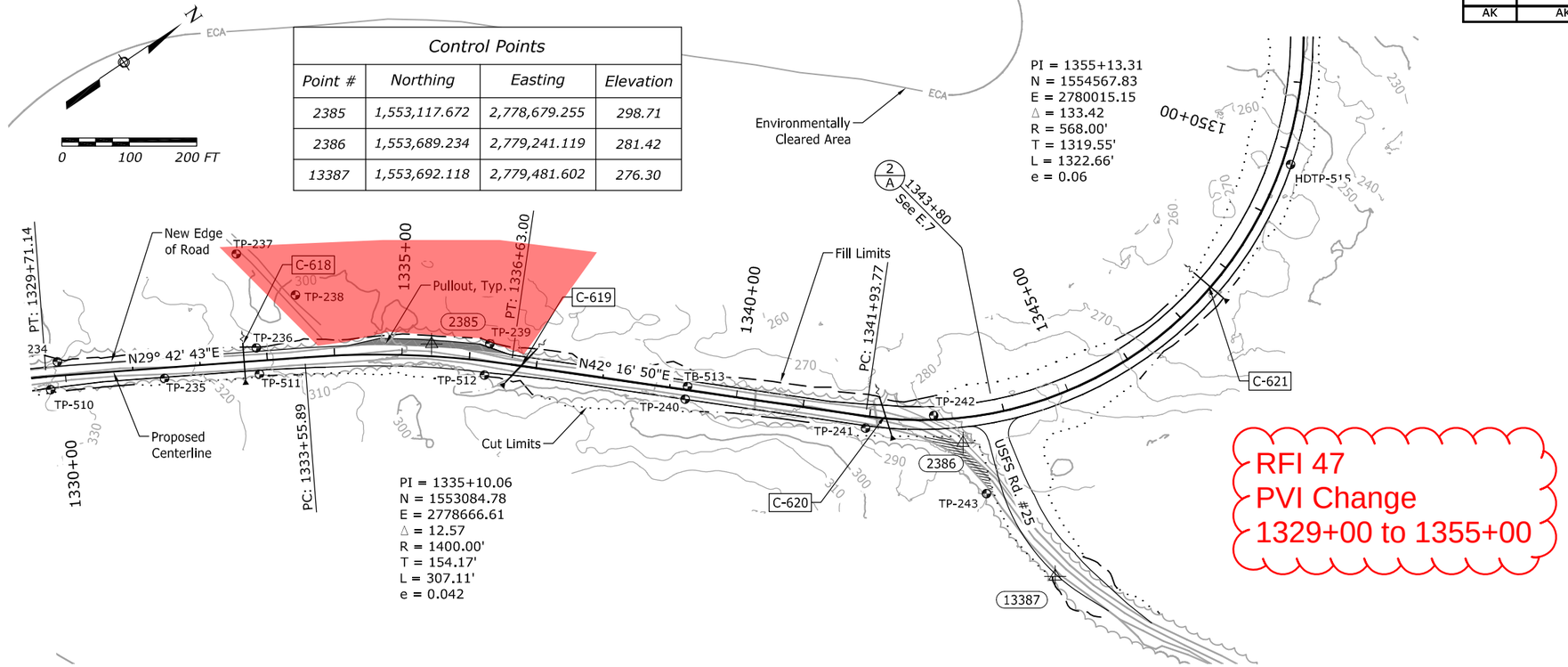
PVI 1329+88
ELEV 334.35

	1300+00	1305+00	1310+00	1315+00	1320+00	1325+00	1330+00
sub ex. yd3							
exc. yd3	2531.2		10038.1			2771.7	
emb. yd3		5452.2		1122.8	1699.3		51.9

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.22

RFI 60
Additional Waste Area
Sta. 1335+00

Control Points			
Point #	Northing	Easting	Elevation
2385	1,553,117.672	2,778,679.255	298.71
2386	1,553,689.234	2,779,241.119	281.42
13387	1,553,692.118	2,779,481.602	276.30



RFI 47
PVI Change
1329+00 to 1355+00

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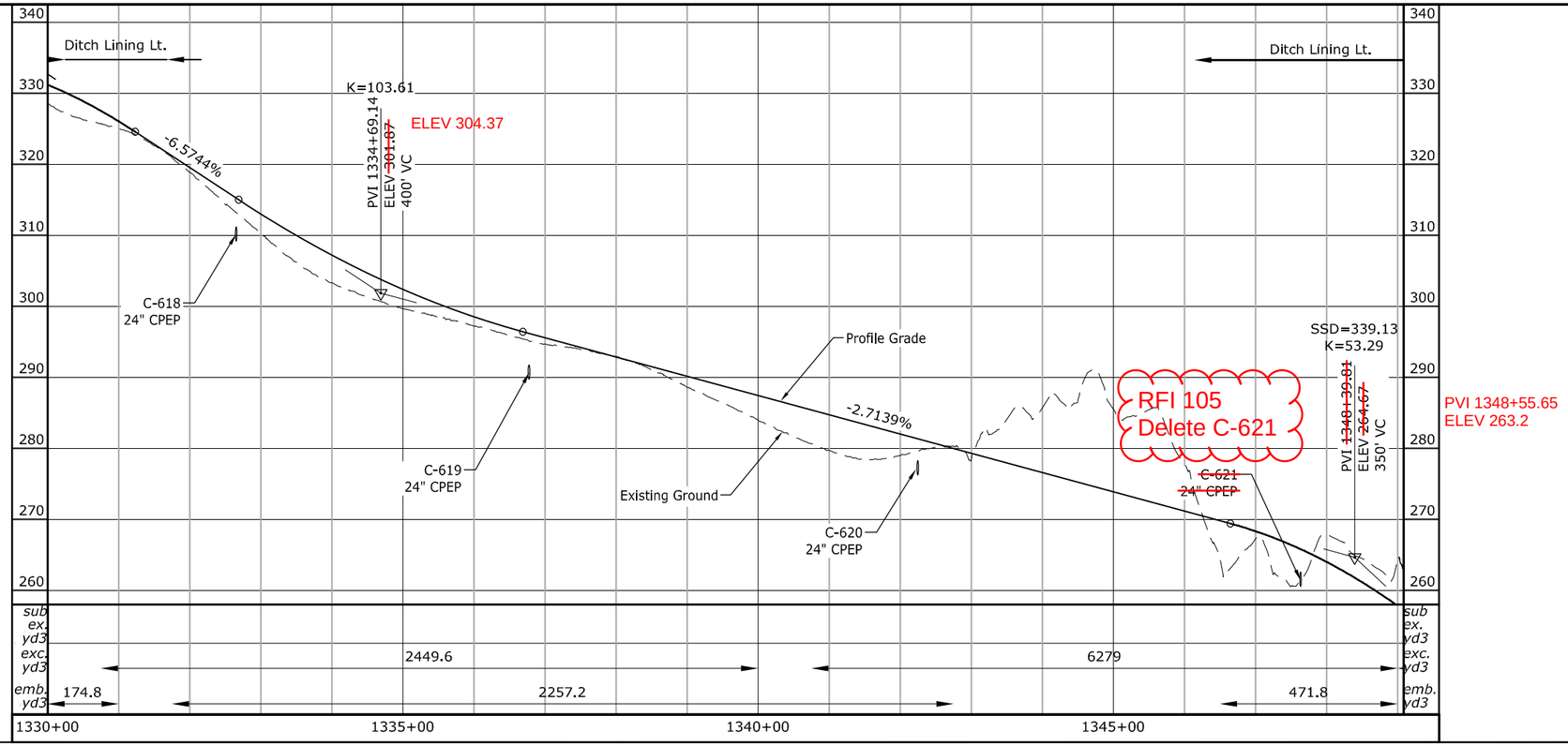

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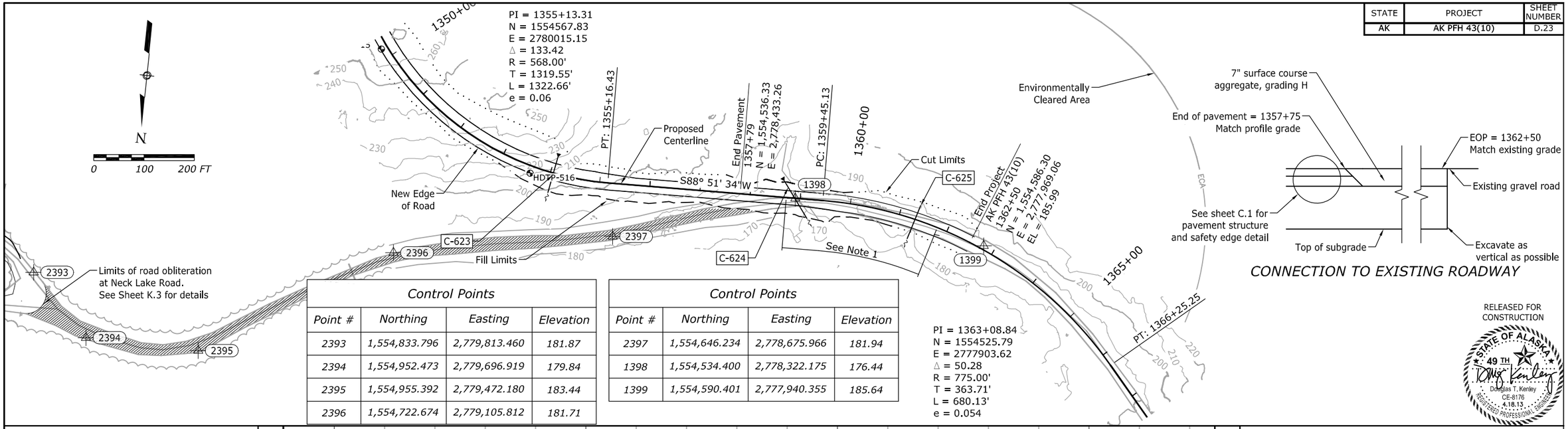
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	D.23



Control Points			
Point #	Northing	Easting	Elevation
2393	1,554,833.796	2,779,813.460	181.87
2394	1,554,952.473	2,779,696.919	179.84
2395	1,554,955.392	2,779,472.180	183.44
2396	1,554,722.674	2,779,105.812	181.71

Control Points			
Point #	Northing	Easting	Elevation
2397	1,554,646.234	2,778,675.966	181.94
1398	1,554,534.400	2,778,322.175	176.44
1399	1,554,590.401	2,777,940.355	185.64

CONNECTION TO EXISTING ROADWAY

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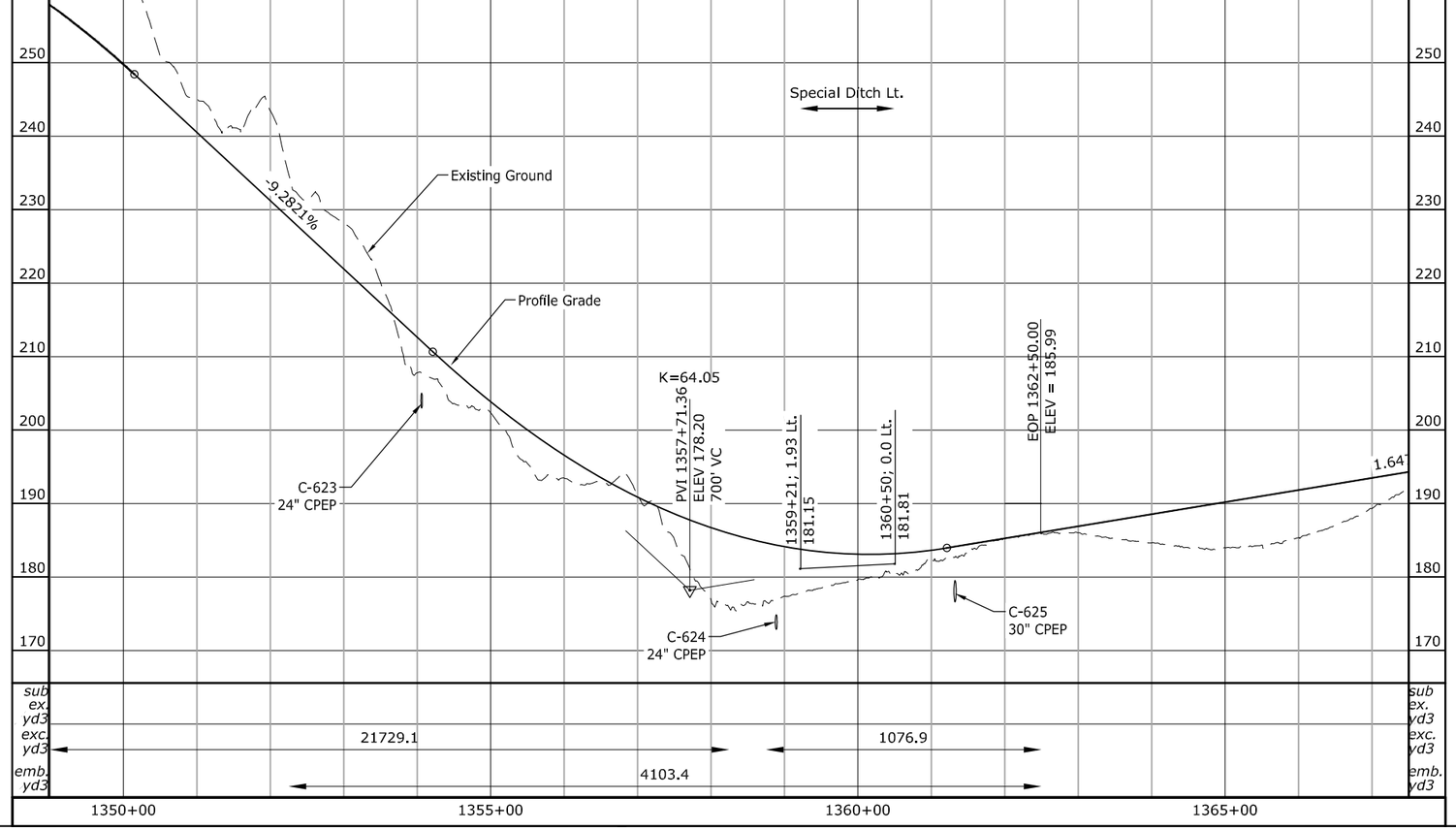

Note:

1. *A known karst feature exists in this area. The feature's precise location and extents shall be identified during construction. The design engineer shall evaluate the formation for a case specific design to be approved by FHWA.*

RFI 81
See Sheet K.07 for Karst Pipe Profile

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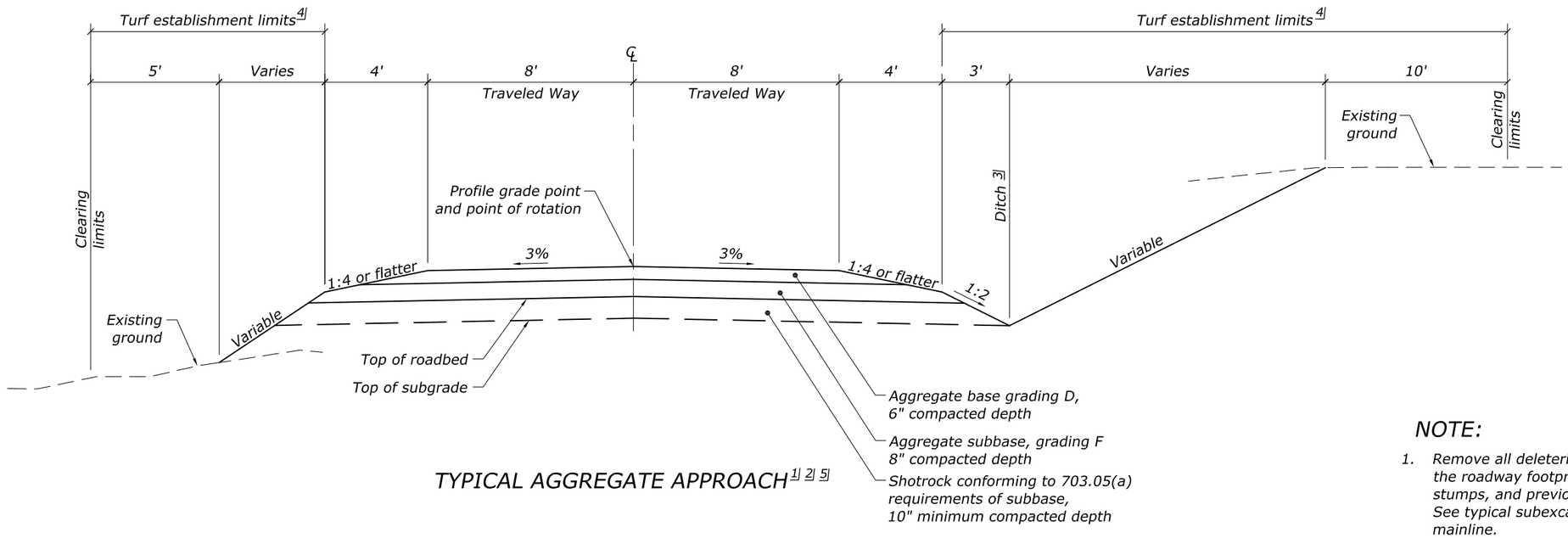
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	E.1



TYPICAL AGGREGATE APPROACH 1 2 5

NOTE:

1. *Remove all deleterious material from within the roadway footprint including logs, stumps, and previously sidecast excavation. See typical subexcavation details for mainline.*
2. *Approach roads were designed to accommodate logging trucks in the direction of skew. The vertical profile was designed for a standard low-boy trailer.*

APPROACH ROAD QUANTITIES

Station	USFS Road	Side	Type	Class	Clearing & Grubbing (acres)	Roadway Excavation (CUYD)	Embankment (CUYD)	Superpave Pavement (TON)	Aggregate Base Grading D (CUYD)	Aggregate Subbase Grading F (CUYD)	Shotrock (CUYD)
815+22	20-666	Rt	2	A	0.1	300	15	11	28	45	57
871+42	20-670	Rt	2	A	0.1	40	230	19	30	52	63
909+15	20-676	Lt	2	A	0.30	2,790	30	16	46	73	92
934+62	20-680	Lt	2	A	0.1	775	5	15	62	94	119
985+13	20-686	Lt	2	A	0.1	165	10	12	35	55	69
1007+17	20-687	Rt	2	A	0.1	75	15	17	16	31	37
1092+82	20-688	Rt	2	A	0.20	950	10	12	50	76	97
10010+30	20-689	Rt	2	A	0.40	1,050	30	11	36	55	70
10033+67	20-690	Rt	2	A	0.1	60	115	18	37	60	75
1343+77	25	Rt	1	1	0.65	6,000	400	57	216 6	330	419
Total					2.15	12,205	860	188	556	871	1,098

FOOTNOTE:

1 *Construct USFS Road #25 per the mainline typical section for the first 100' from the edge of traveled way. Construct remainder of the approach road per the typical aggregate approach, except roadway width shall match the existing road width.*

2 *See standard road approach detail for paving at intersection with mainline.*

3 *Construct ditch similar to mainline rock and soil ditch details.*

4 *Apply turf establishment to all disturbed non-rock slopes with seeding.*

5 *Transition typical section to match existing section 50 feet from end of paving.*

6 *For USFS Road #25, use surface course, grading H, 6" compacted depth.*

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FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TYPICAL SECTIONS AGGREGATE APPROACH

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\E1 Typical Section.dwg [USC] 10 September 2013 11:35 AM

STATE	PROJECT	SHEET NUMBER
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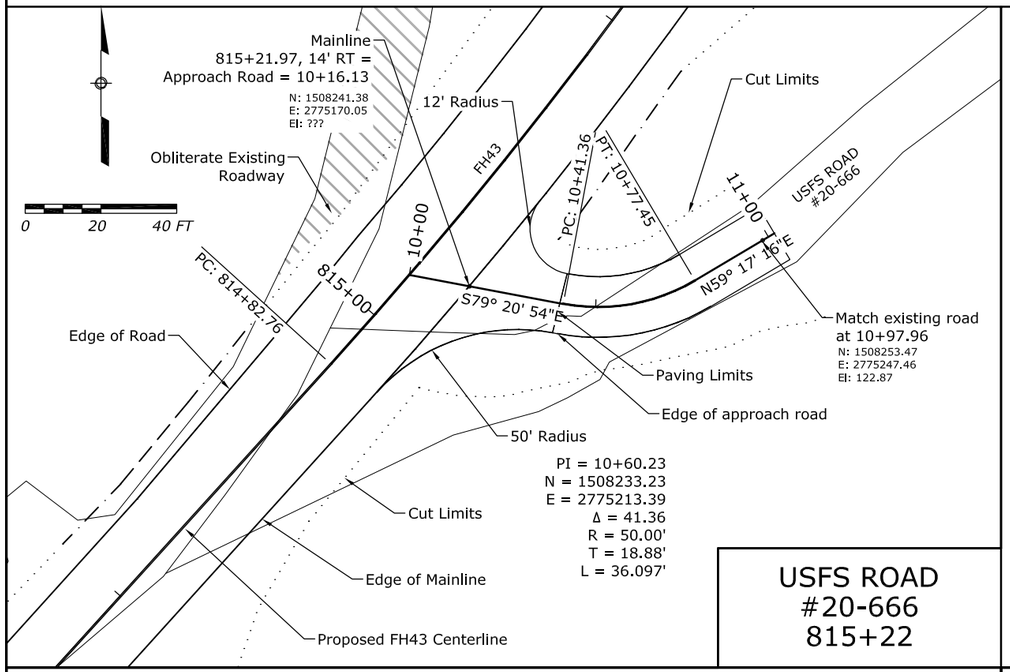
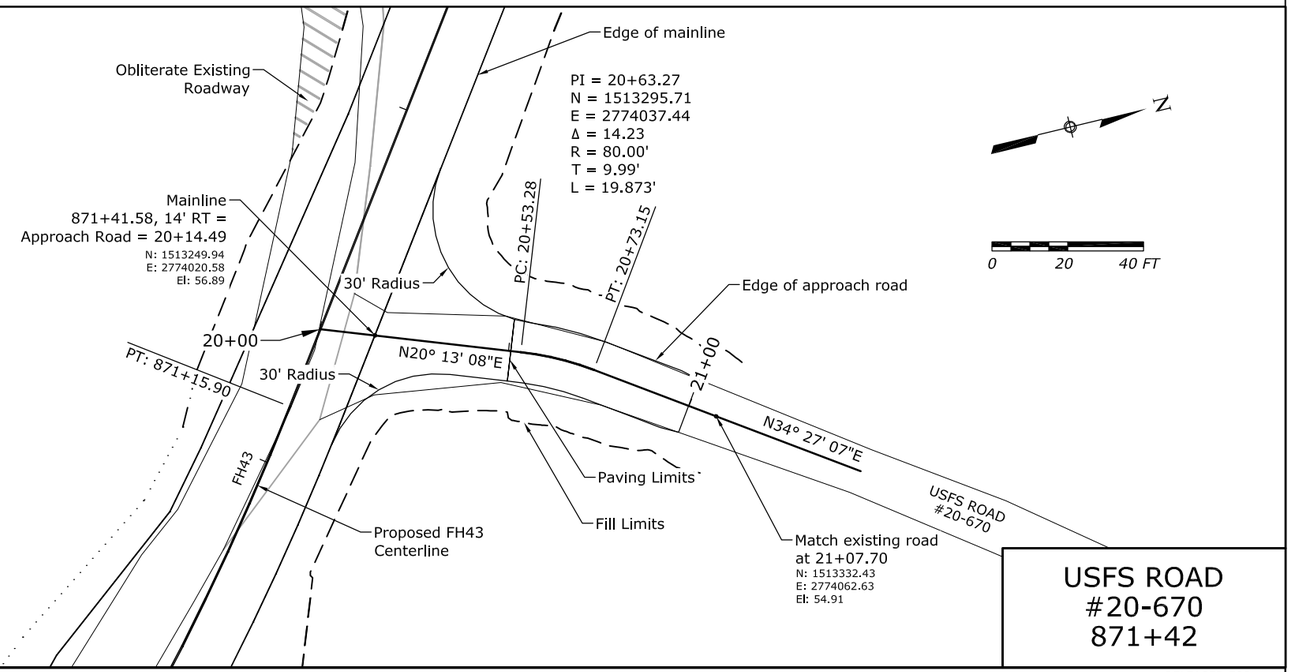
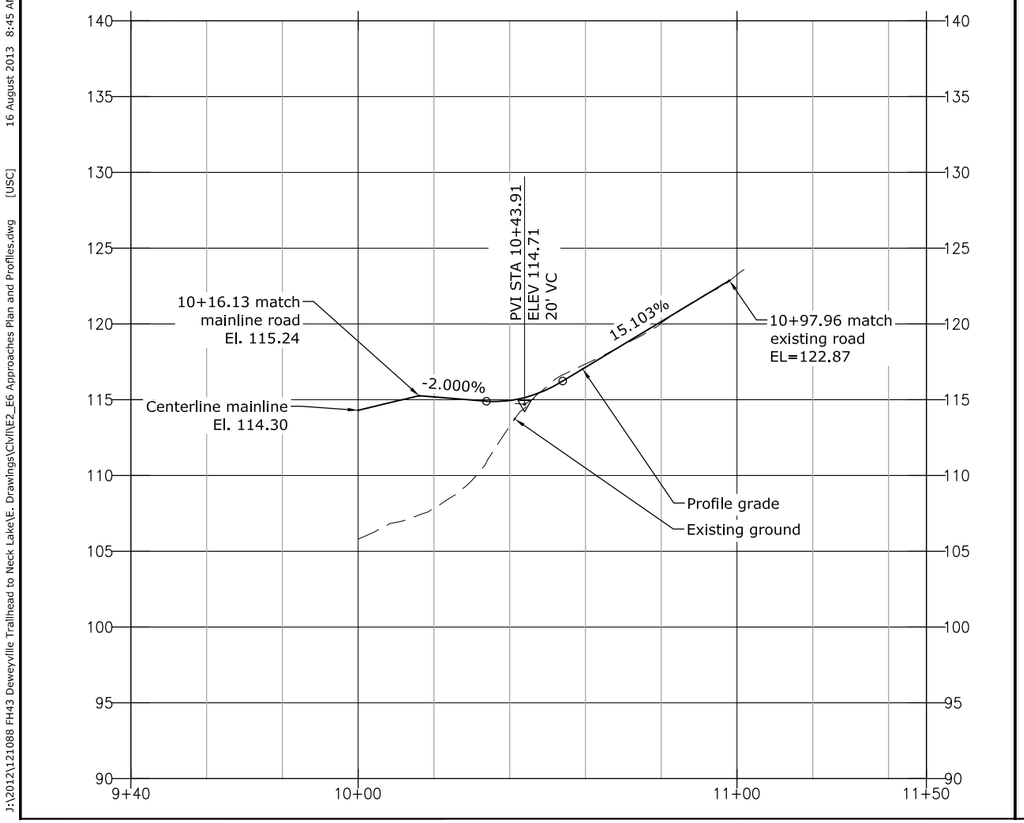
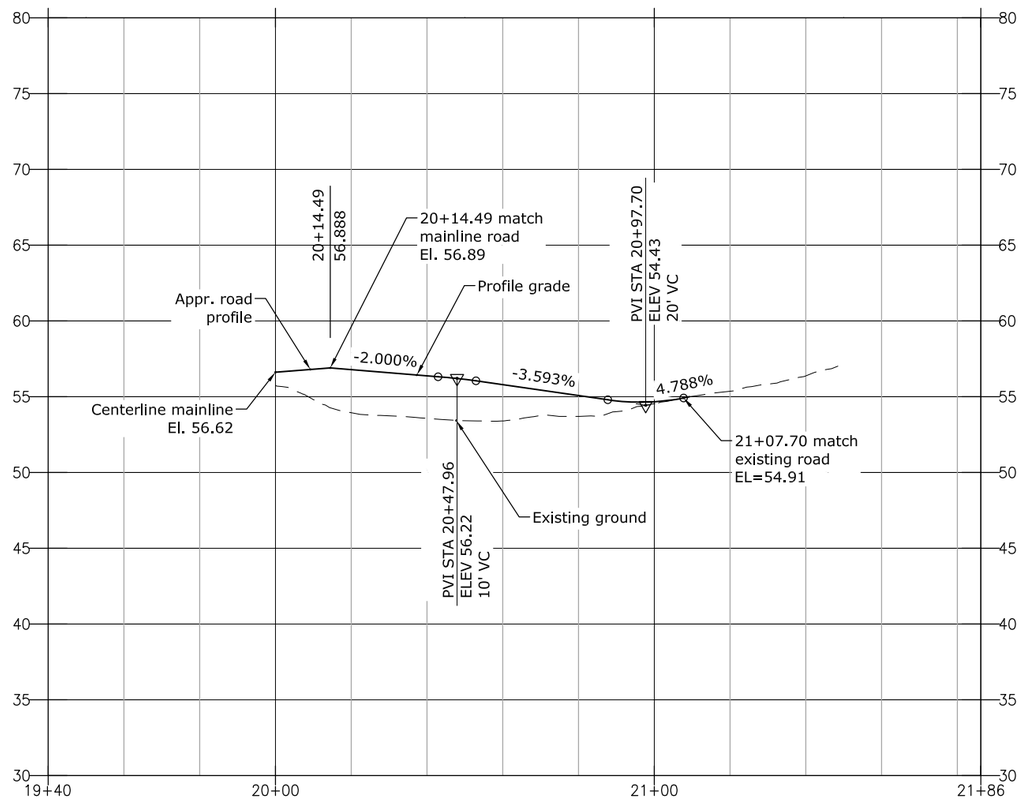


USFS ROAD
#20-666
815+22



USFS ROAD
#20-670
871+42





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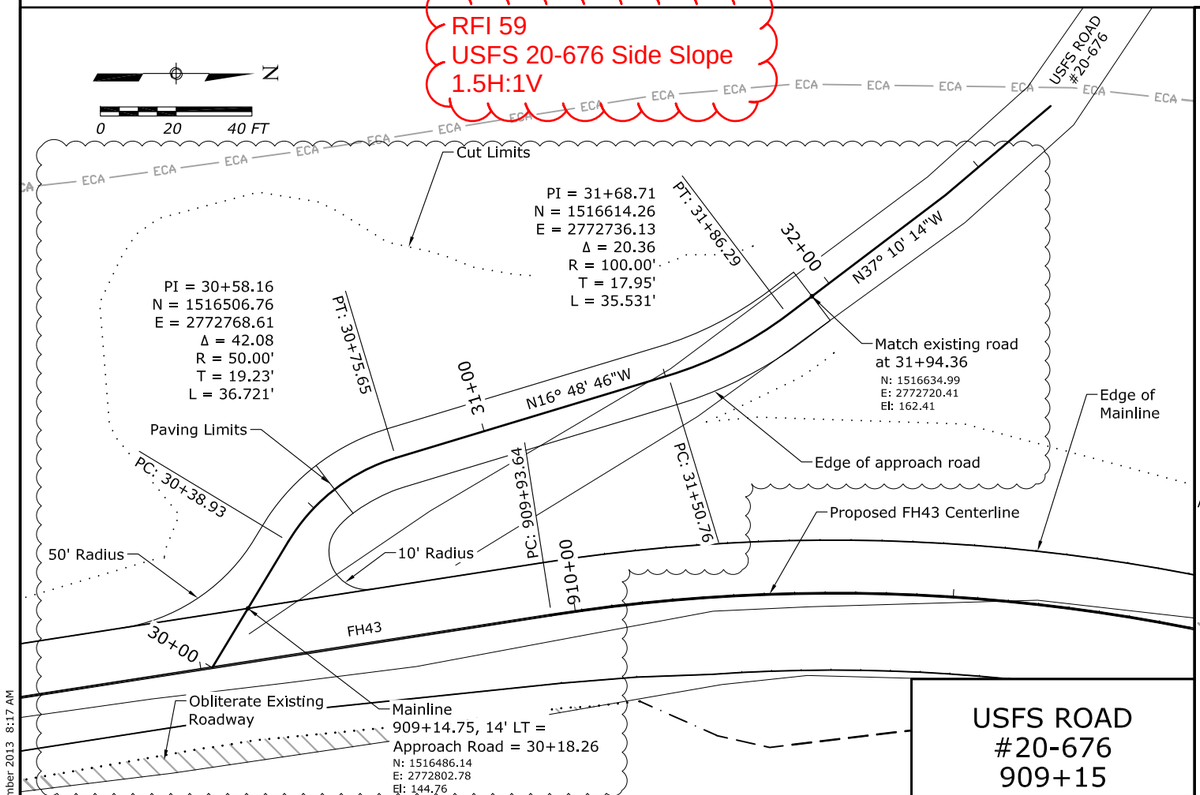
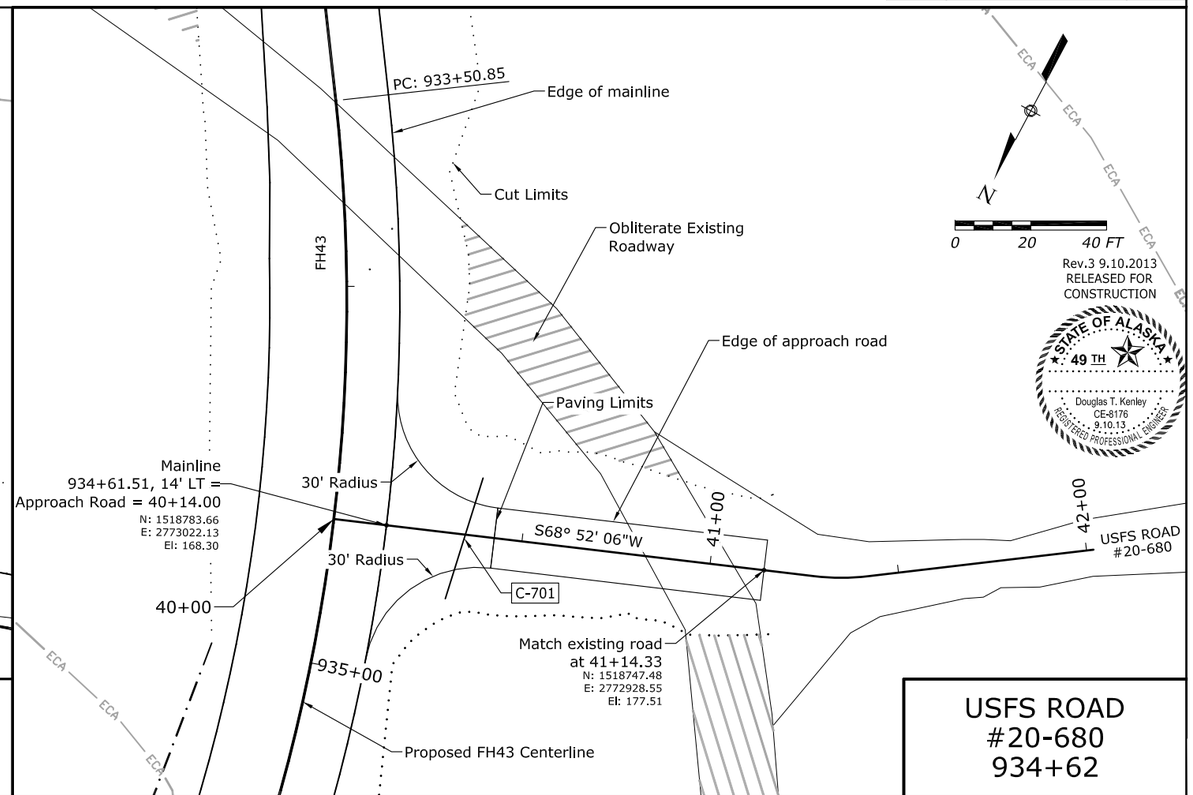
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	E.3

RFI 59
USFS 20-676 Side Slope
1.5H:1V



USFS ROAD
#20-676
909+15



USFS ROAD
#20-680
934+62

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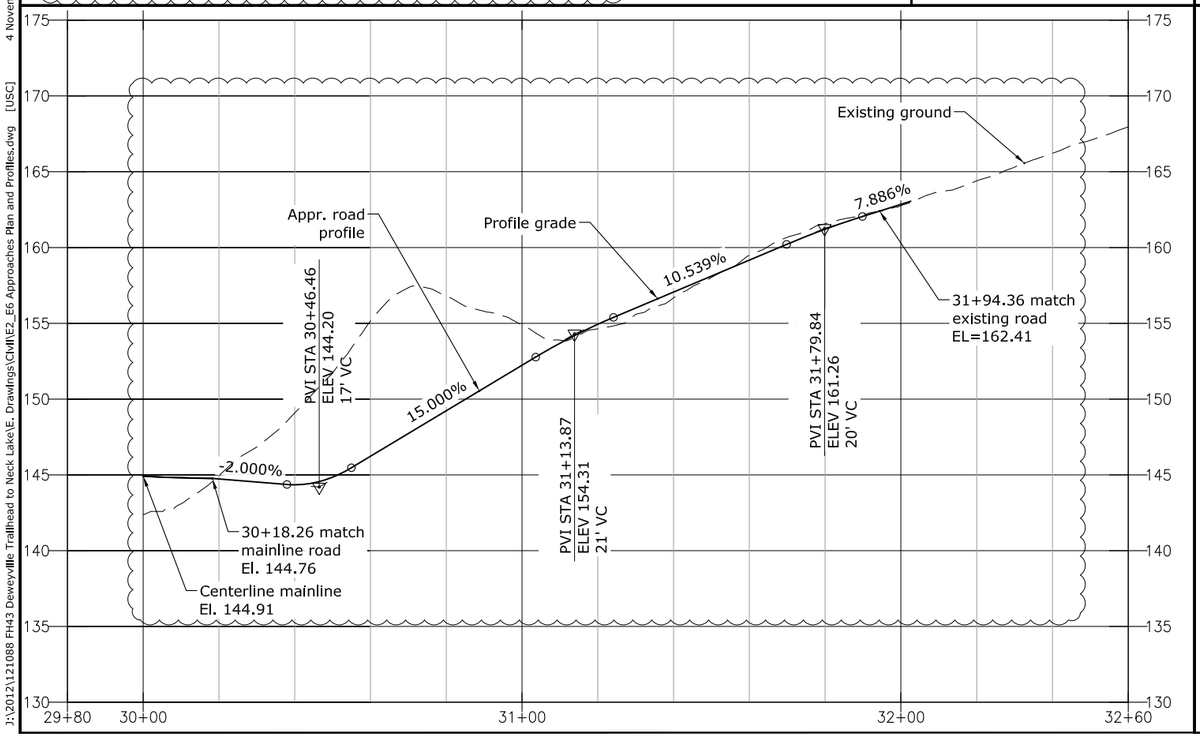

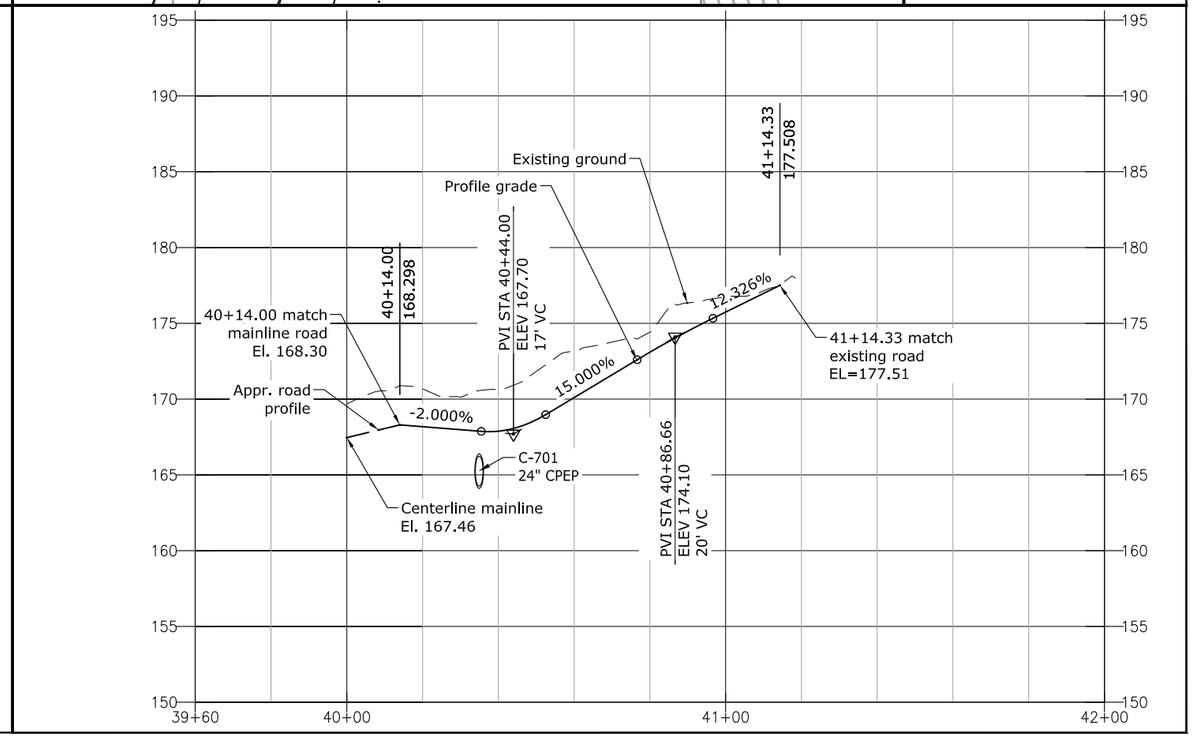

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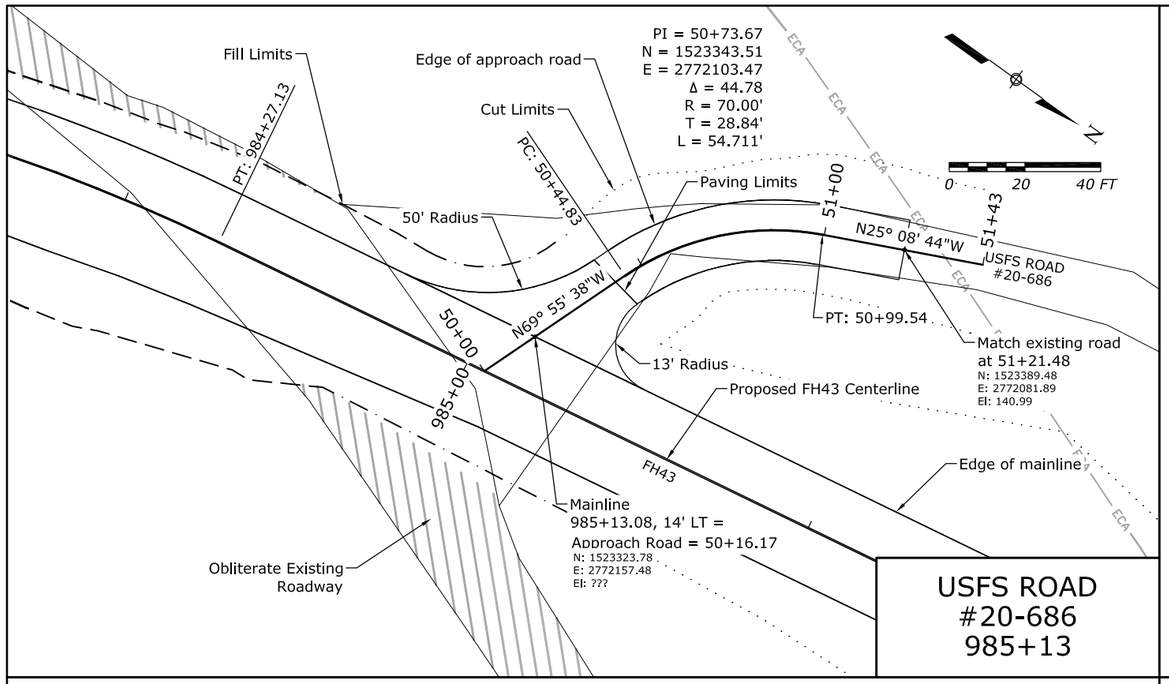
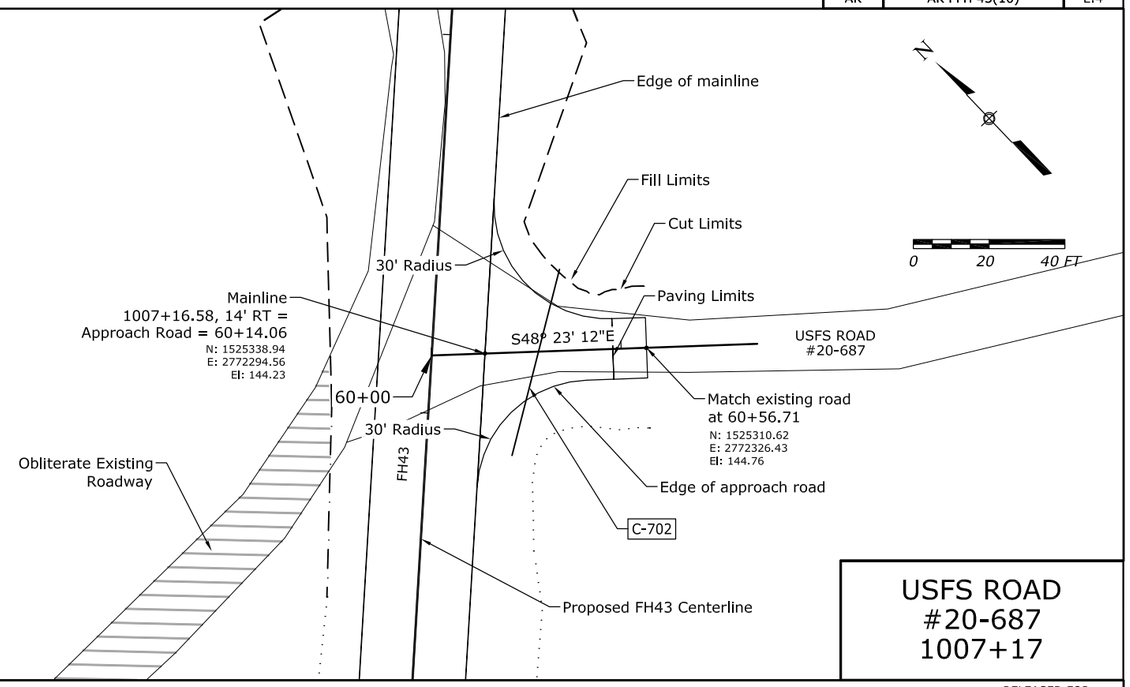
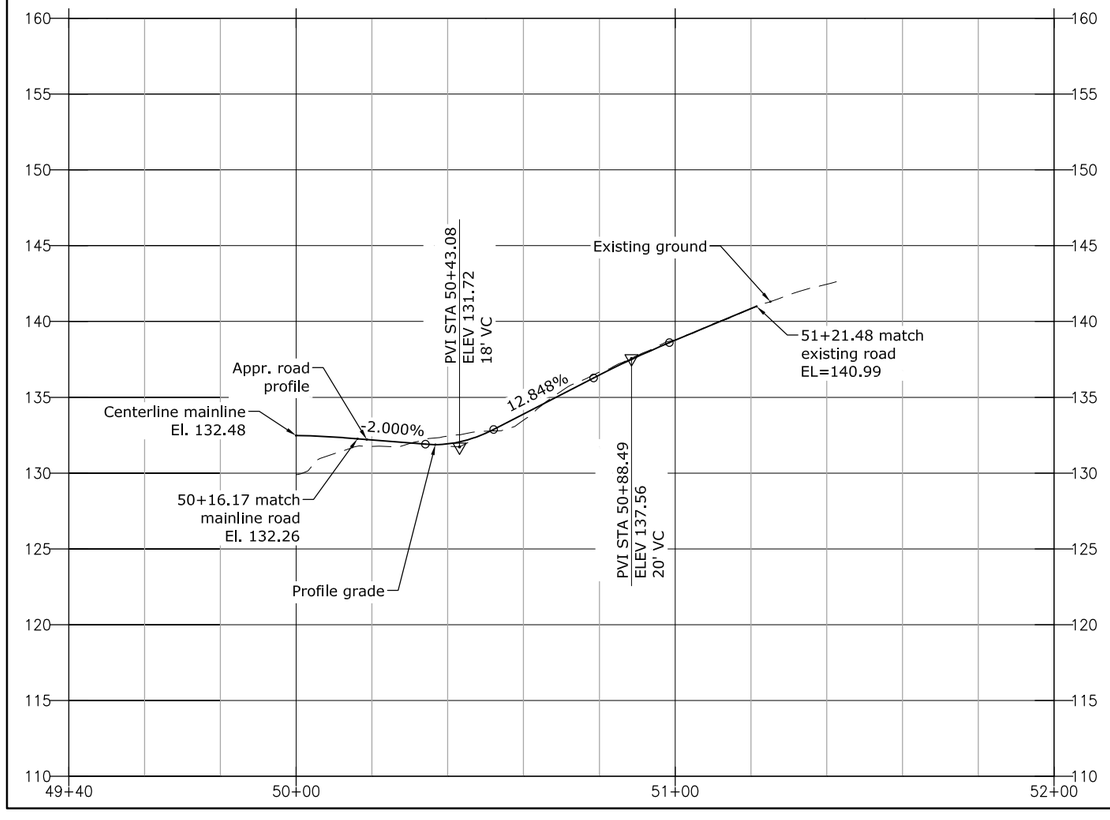
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	E.4

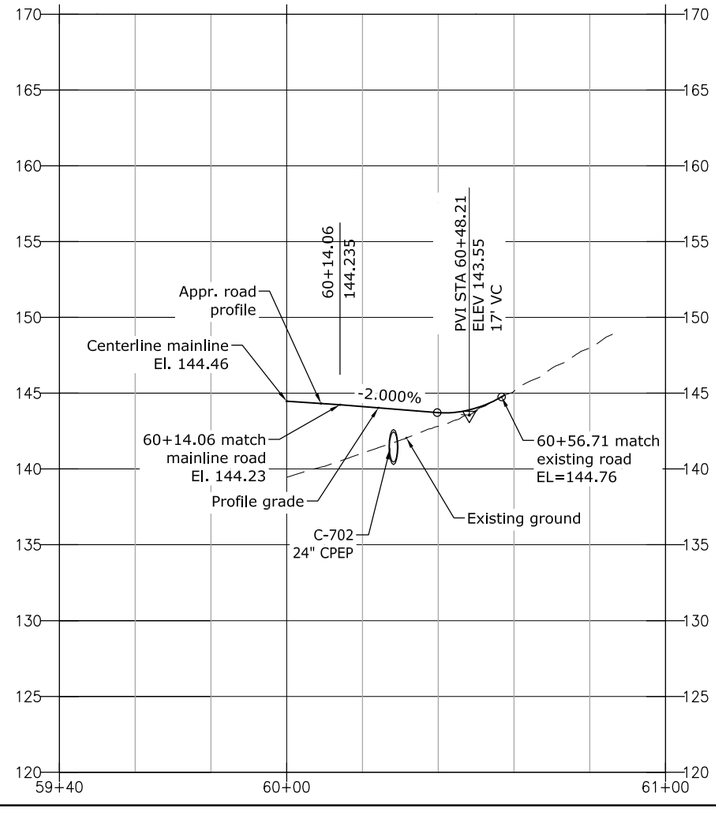


USFS ROAD #20-686 985+13



USFS ROAD #20-687 1007+17





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CE-8176
9.05.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\E2_E6 Approaches Plan and Profiles.dwg [USC] 16 August 2013 8:45 AM

STATE	PROJECT	SHEET NUMBER
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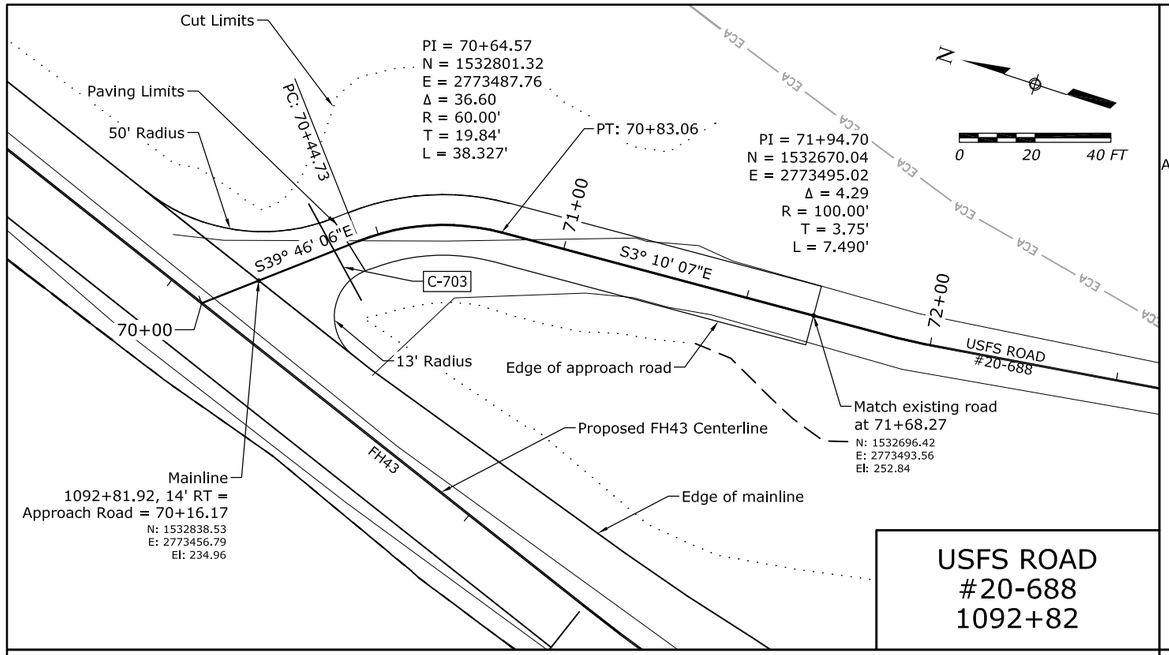

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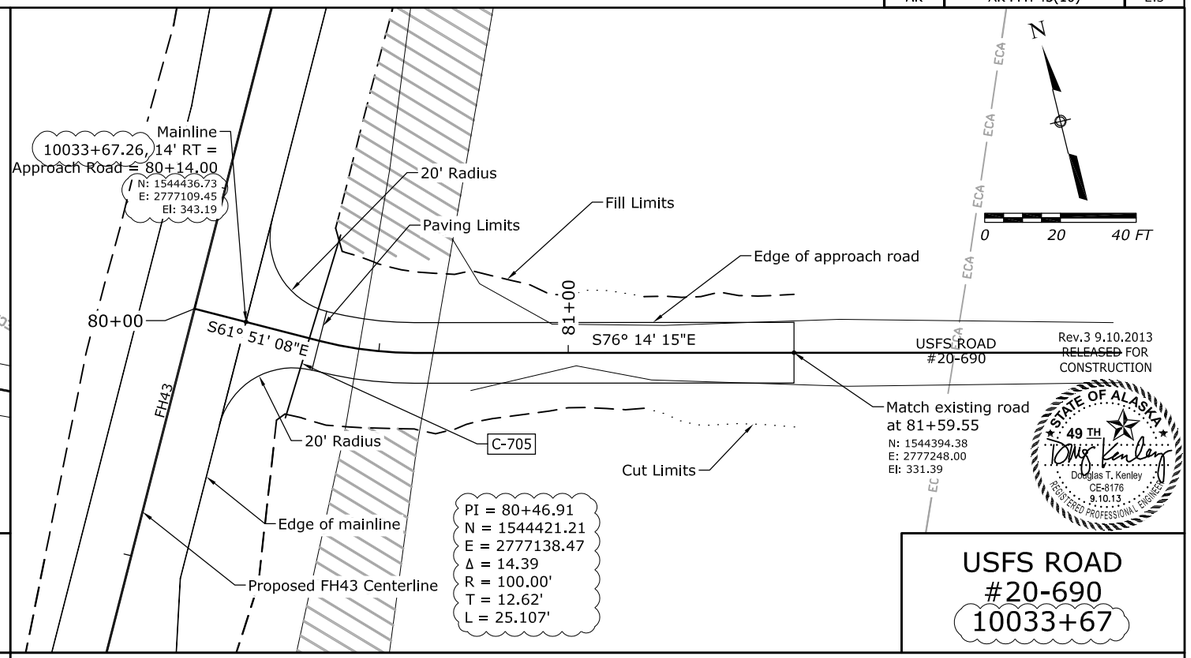

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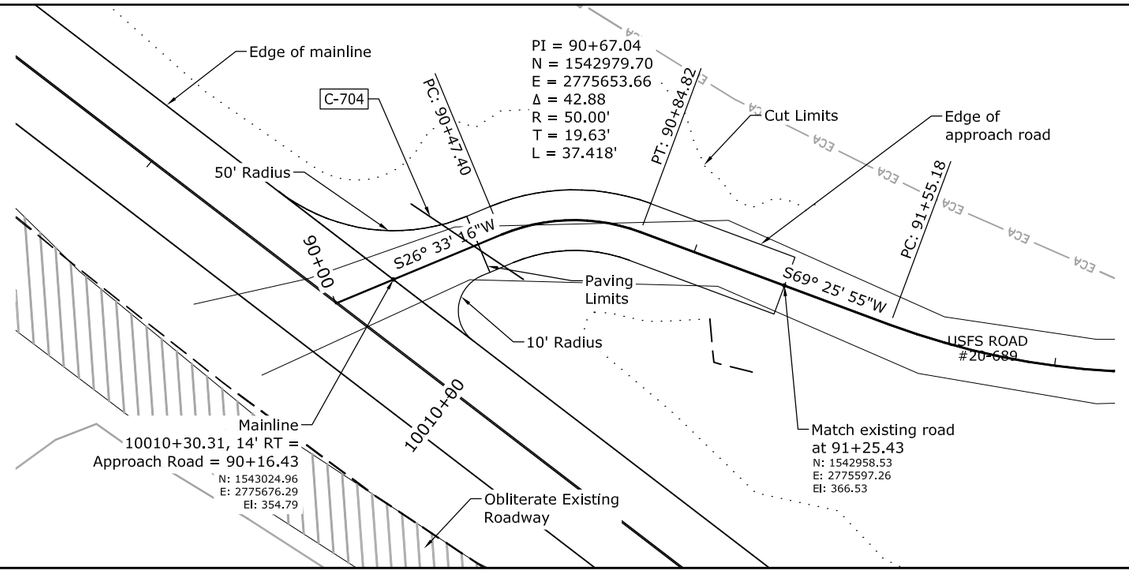

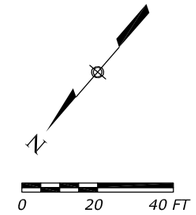

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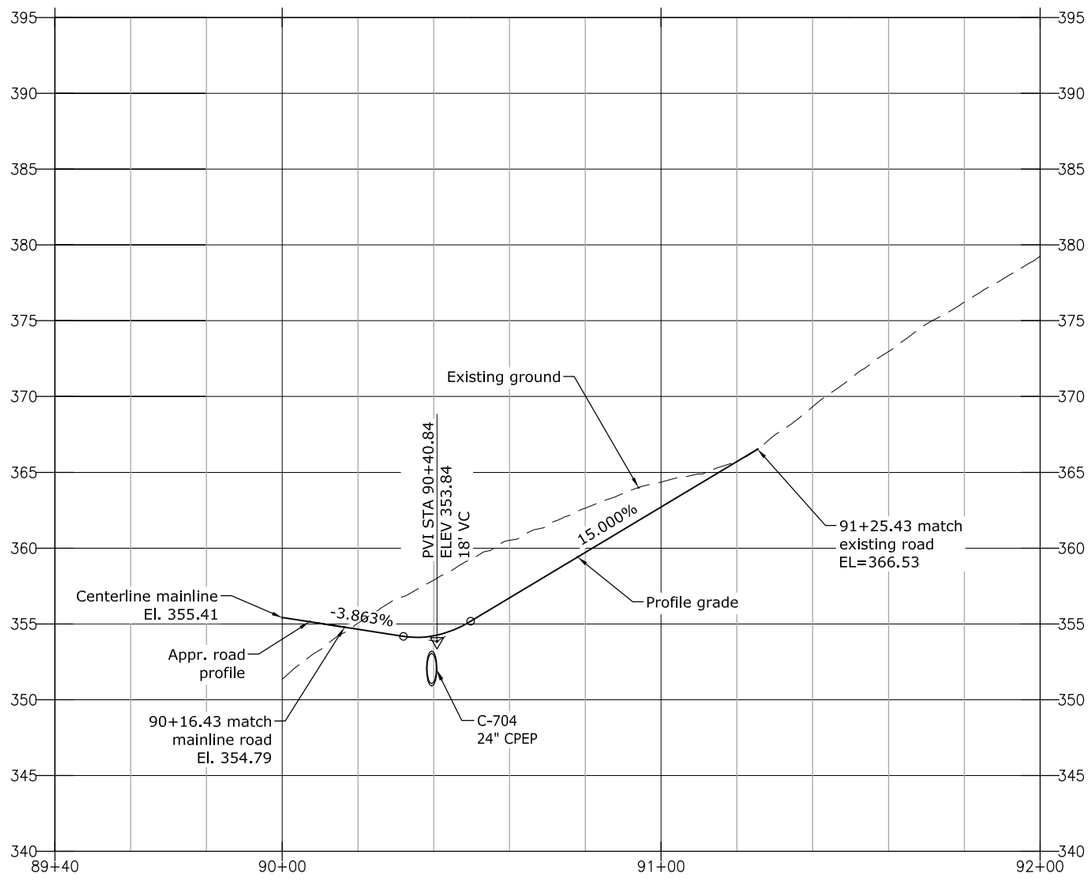

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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
9.05.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E: Drawings\Civil\E2_E6 Approaches Plan and Profiles.dwg [USC] 16 August 2013 8:45 AM

STATE	PROJECT	SHEET NUMBER
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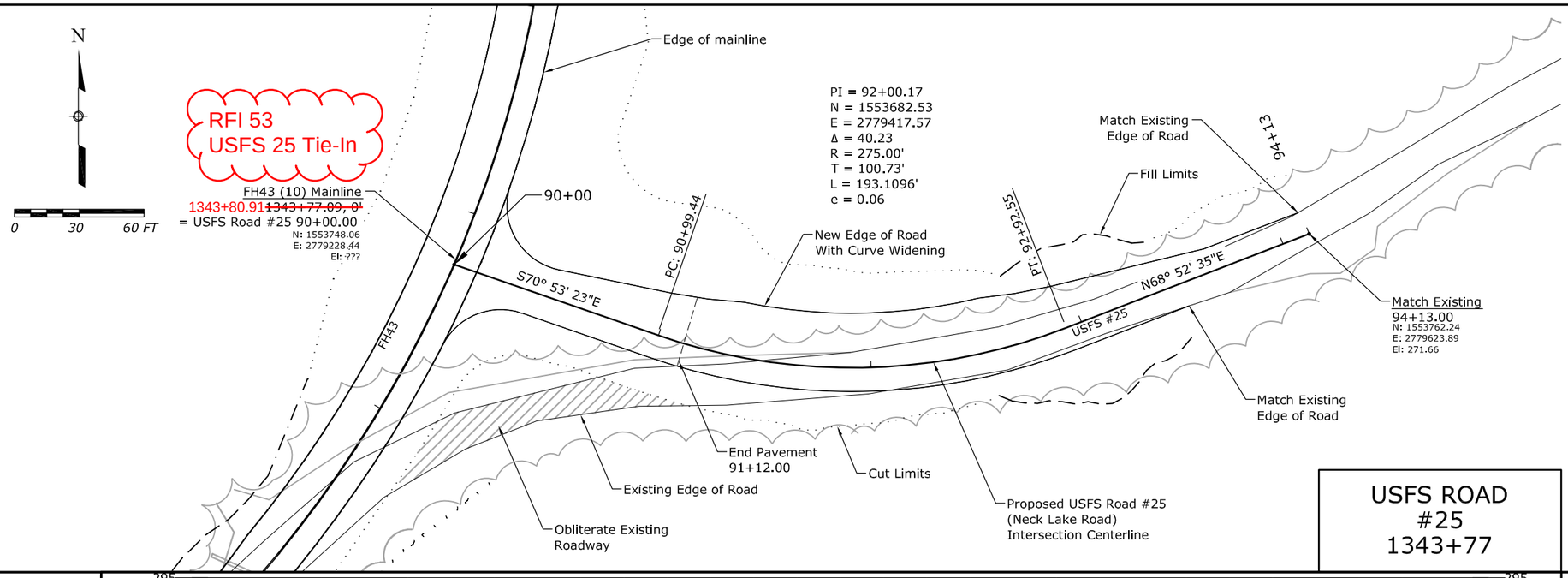
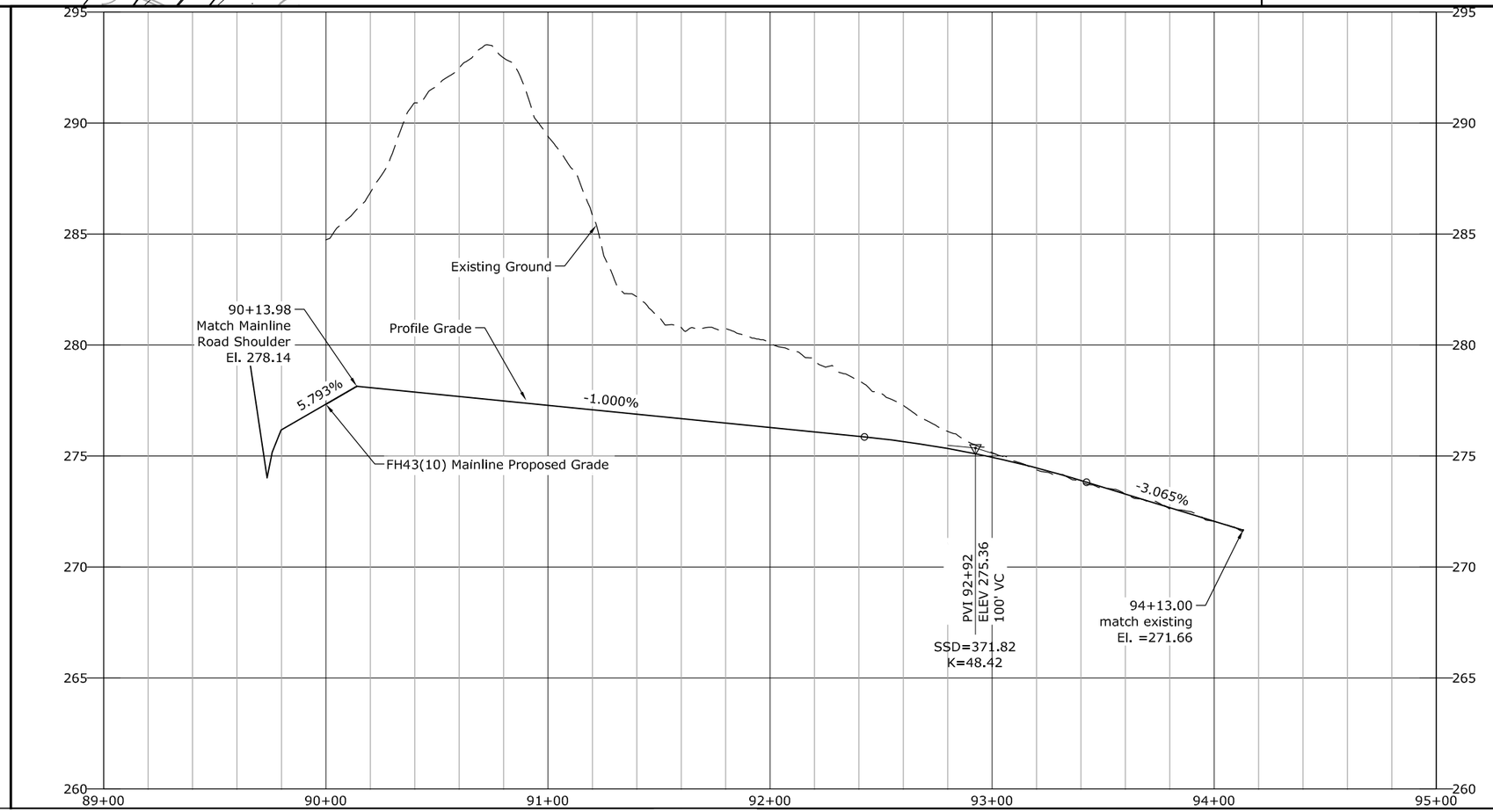


USFS ROAD
#25
1343+77



NOTE:

1. *Apply curve widening to the inside of curves distributed evenly between both traveled ways. See sheet C.7 for Curve widening locations.*

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J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\E7 Neck Lake Intersection.dwg [USC] 24 July 2013 10:32 AM

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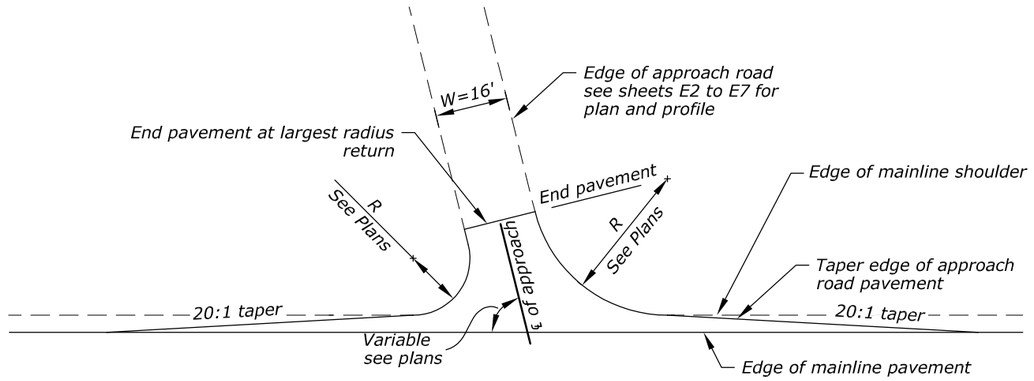
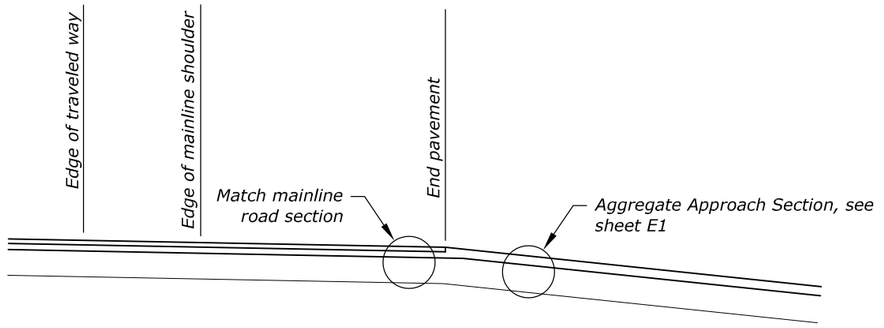
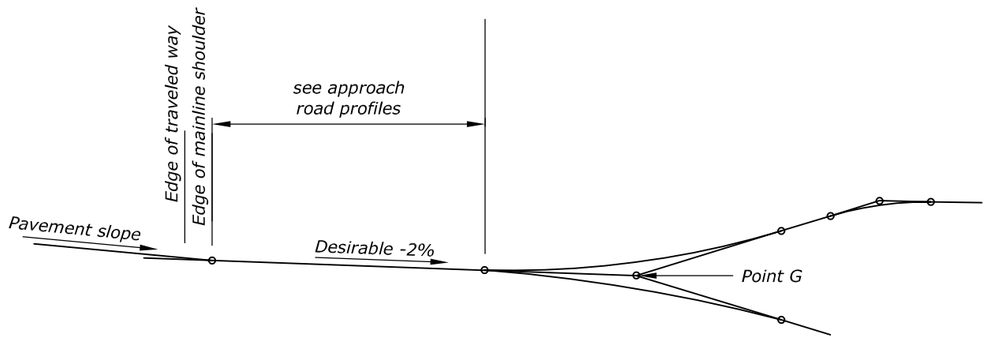


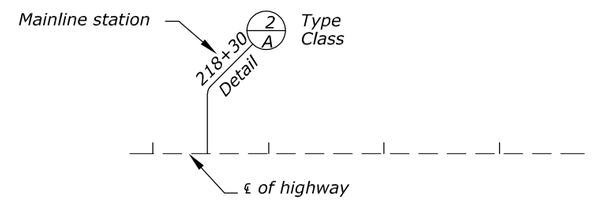
TYPE 2, CLASS A PLAN



TYPE 2, CLASS A APPROACH SECTION



APPROACH PROFILE



ROAD APPROACH SYMBOL

NOTE:

1. Construct side slope ratio and degree of finish of approaches compatible with adjacent roadway construction.

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CE-8176
9.05.13
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FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

STANDARD ROAD APPROACH

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\E8 Minor Approach.dwg [USC] 16 August 2013 8:58 AM

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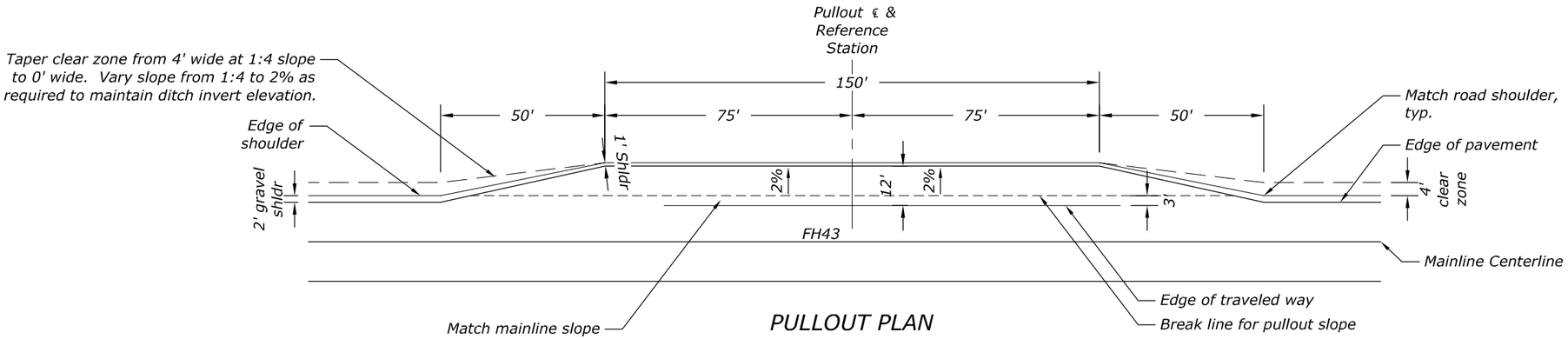
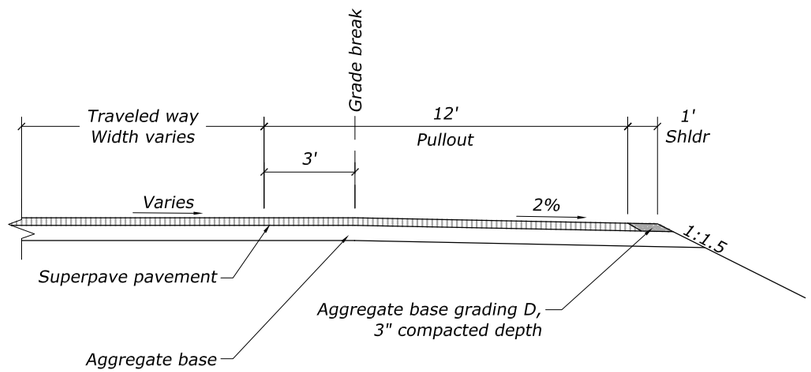


PULLOUT PLAN

Pullout Schedule					
Mainline Station	Side	Mainline Station	Side	Mainline Station	Side
812+40	Lt	1013+50	Lt	10031+72	Rt
869+50	Lt	1069+80	Lt	1299+90	Rt
922+50	Rt	1132+50	Rt	1335+40	Lt
962+60	Rt	1190+30	Lt		



PULLOUT SECTION

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

RFI #2

RFI #3

RFI #5

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
9.10.13
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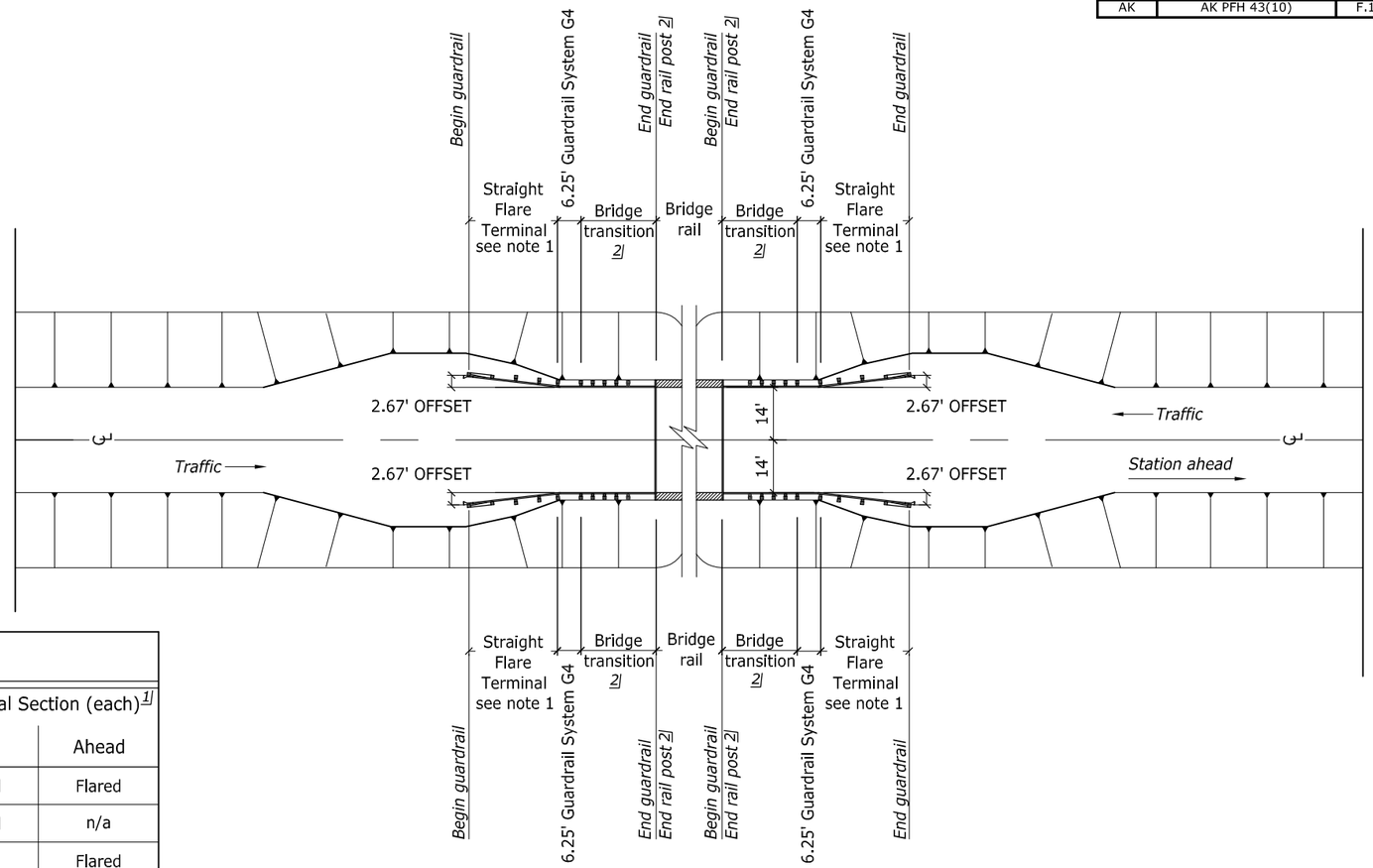
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

PULLOUT PLAN AND SCHEDULE

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\E9 Pullout details.dwg [USC] 9 September 2013 12:11 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	F.1

RFI 56
Guardrail Type Callout



G4, Type II

ROADSIDE BARRIERS QUANTITIES

Start Station	End Station	Side	Guardrail, ~~system G4 type IV~~, Class A wood posts (feet)	Bridge Rail Transitions (each)	Terminal Section (each)[1]	
					Back	Ahead
796+36	802+23	Lt	512.50		Flared	Flared
Tunga Creek bridge, see detail [2]		Lt	6.25	1	Flared	n/a
Tunga Creek bridge, see detail [2]		Lt	6.25	1	n/a	Flared
Tunga Creek bridge, see detail [2]		Rt	6.25	1	Flared	n/a
Tunga Creek bridge, see detail [2]		Rt	6.25	1	n/a	Flared
915+96	920+21	Rt	350		Flared	Flared
964+39	976+14	Rt	1100		Flared	Flared
990+39	993+89	Rt	275		Flared	Flared
Chum Creek bridge, see detail [2]		Lt	6.25	1	Flared	n/a
Chum Creek bridge, see detail [2]		Lt	6.25	1	n/a	Flared
Chum Creek bridge, see detail [2]		Rt	6.25	1	Flared	n/a
Chum Creek bridge, see detail [2]		Rt	6.25	1	n/a	Flared
1100+85	1104+35	Lt	275		Flared	Flared
1125+28	1131+90	Lt	587.50		Flared	Flared
1141+88	1146+50	Lt	387.50		Flared	Flared
1184+38	1187+25	Lt	212.50		Flared	Flared
1301+70	1308+08	Rt	562.50		Flared	Flared
Total			4312.50	8		
Terminal Sections					Type Flared	26

*Field verify extents of guardrail in the field prior to installation.

GUARDRAIL LAYOUTS FOR CHUM CREEK AND TUNGA CREEK

NOTES:
1. See std details on sht F.4 for terminal lengths and grading requirements.
2. See bridge sheets for bridge transition detail.

FOOTNOTE:

[1] End sections shall be 37.5 feet in length.

[2] Guardrail shall be laid out based on centerline of end rail post, see sheet G.11 for layout point and length of transition.

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STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

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FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TABULATION OF QUANTITIES AND DETAILS

J:\2012\121088 FH43 Dewyville Trailhead to Neck Lake\E. Drawings\Civil\F1 Safety Features Tabulation.dwg [USC] 18 April 2013 3:45 PM

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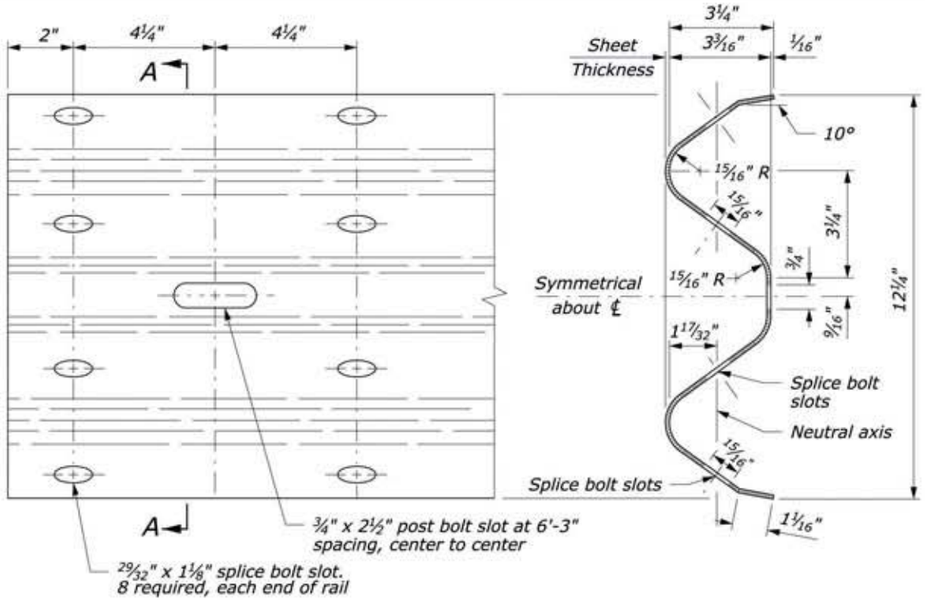
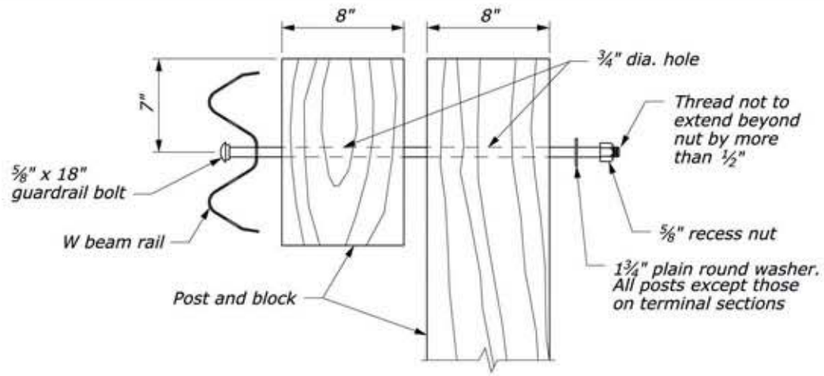


RAIL ELEVATION

SECTION A-A

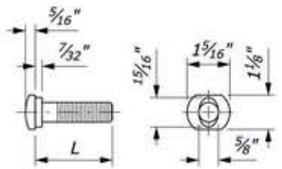
W BEAM RAIL



POST BOLT ASSEMBLY

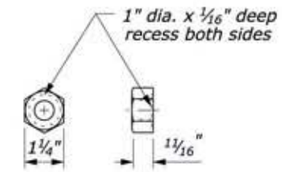
NOTE:

1. When encountering impenetrable material, see Standards 617-13 or 617-24.
2. See Special Contract Requirements when 7'-0"or longer posts are specified.
3. See Special Contract Requirements when the alternative hole arrangement is specified.
4. Install reflector tab between post bolt and rail, every fourth post. Alternate reflector tab shapes are acceptable.
5. Dimensional tolerances not shown or implied are intended to be those consistent with the proper functioning of the part, including its appearance, and accepted manufacturing practices.



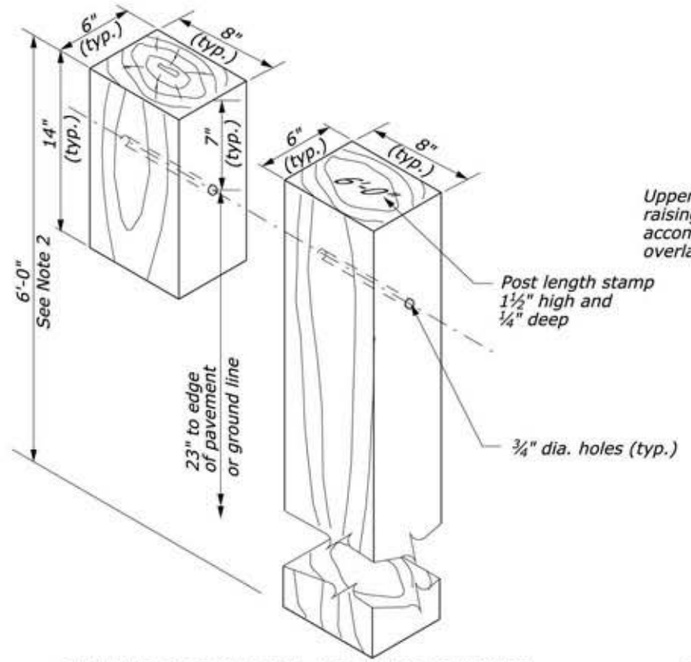
⅝" GUARDRAIL BOLT

L	Thread Length
1¼"	1⅛" minimum
2"	1¾" minimum
10"	4" minimum
18"	4" minimum
25"	4" minimum

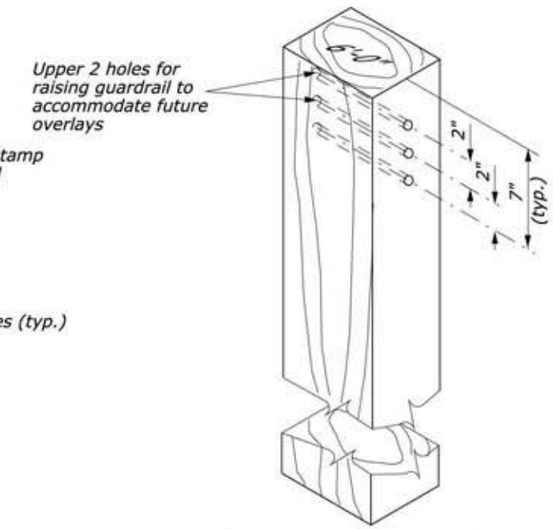


⅝" RECESS NUT

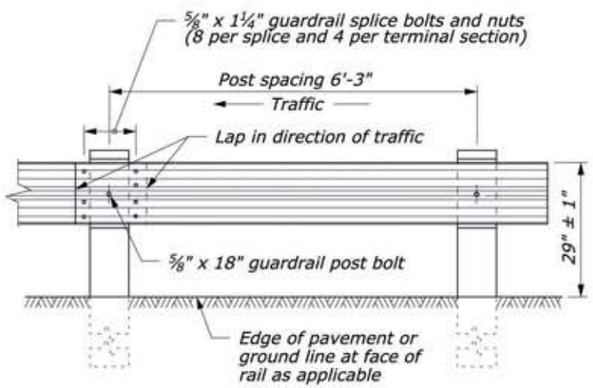
GUARDRAIL BOLT AND RECESS NUT



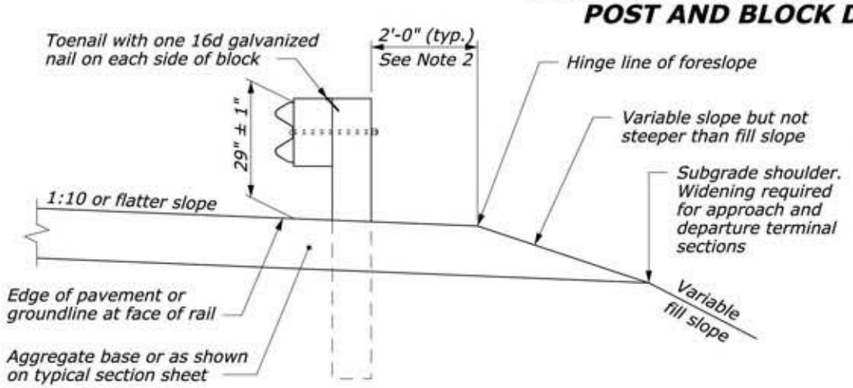
STANDARD HOLE ARRANGEMENT POST AND BLOCK DETAIL



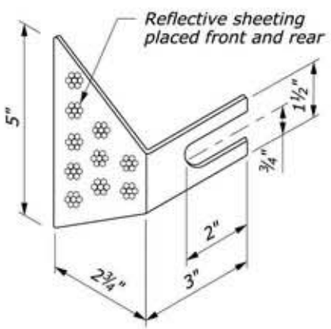
ALTERNATE HOLE ARRANGEMENT POST AND BLOCK DETAIL



POST SPACING STANDARD POST SECTION



TYPICAL GUARDRAIL CROSS SECTION



REFLECTOR TAB

(See Note 4)

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

G4 W-BEAM GUARDRAIL WOOD POSTS

3/4/2013

...\st61710-draft_V4.dgn [US Customary]

STATE	PROJECT	SHEET NUMBER
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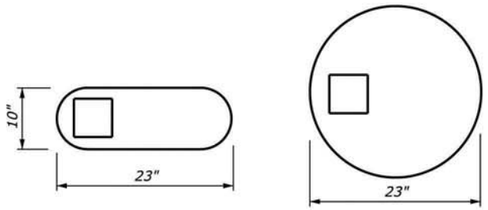
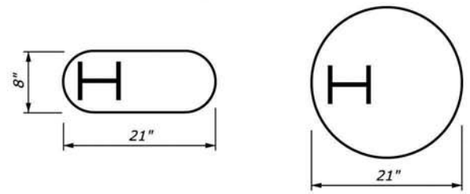
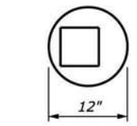


Wood Post

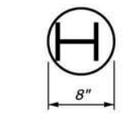


Steel Post

PLAN VIEW



Wood Post

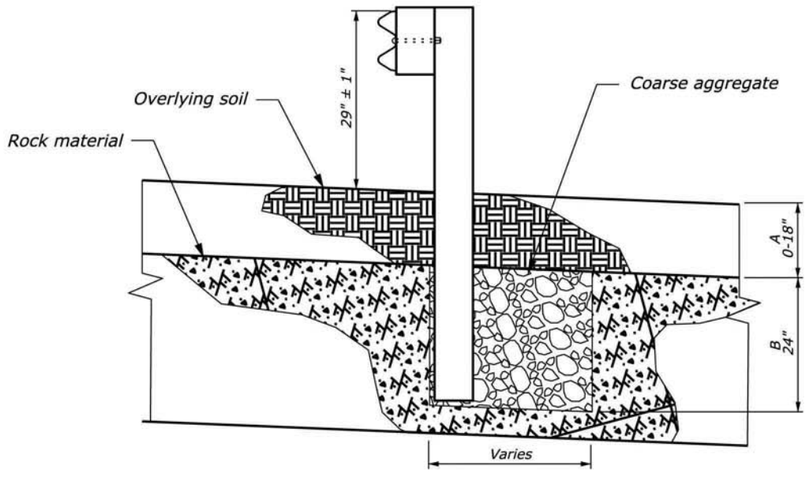


Steel Post

PLAN VIEW

NOTE:

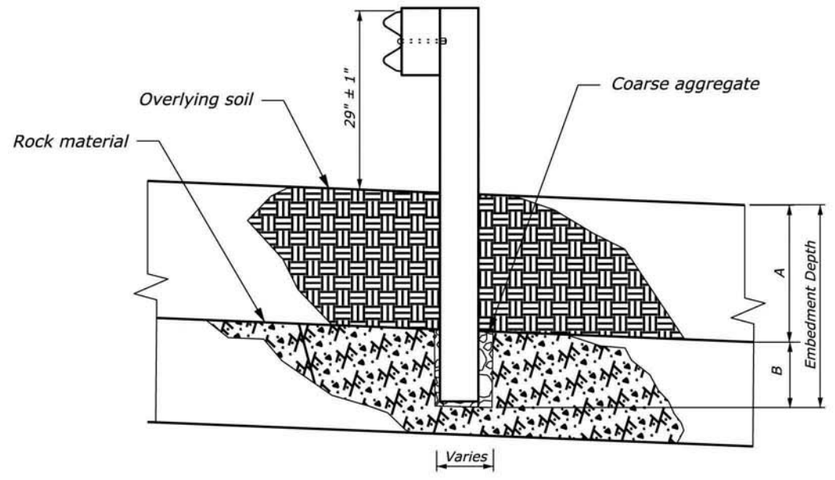
1. *Case 1 and Case 2 show steel posts. See Standards 617-10 and 617-11 for other details.*
2. *Either the circular or the oblong hole configuration is acceptable for Case 1 conditions.*
3. *See Special Contract Requirements for course aggregate specifications.*



ELEVATION

CASE 1 - Overlying Soil is 18" or Less

See Note 2



ELEVATION

CASE 2 - Overlying Soil is Greater than 18"

Case 2: Where the overlying soil depth (A) is greater than 18", the depth required for drilling (B) is equal to either 12" or the Embedment Depth minus A, whichever is less.

NO SCALE

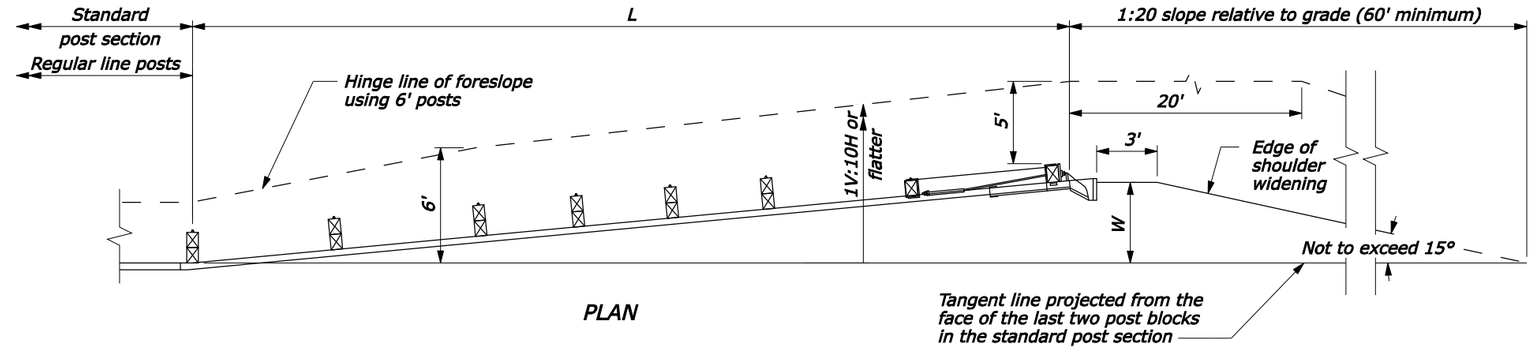
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

PLACEMENT OF GUARDRAIL POSTS IN ROCK

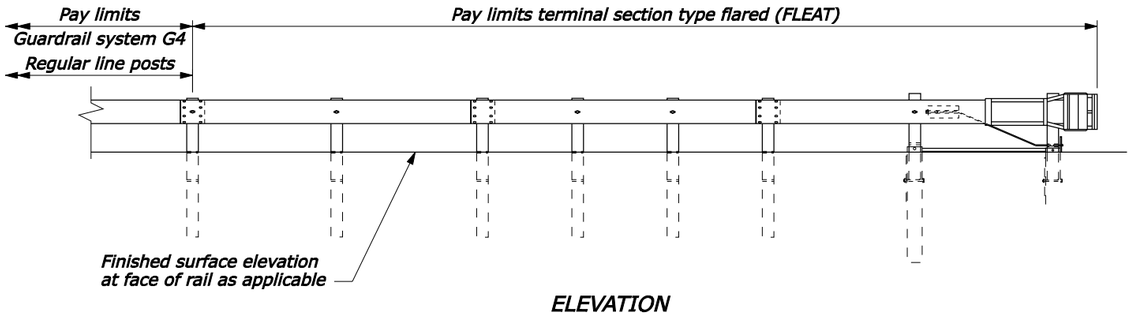
$DATE$

$PATH$

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	F.4



PLAN



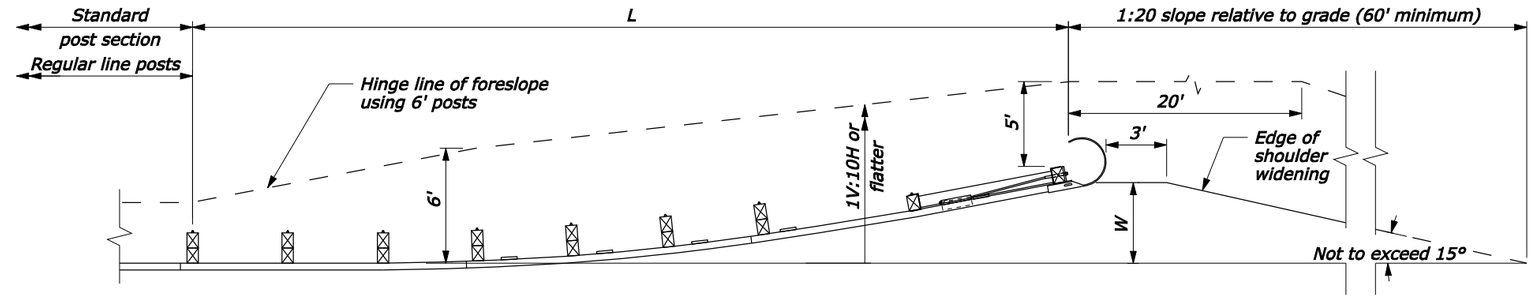
ELEVATION

STRAIGHT FLARED OPTION

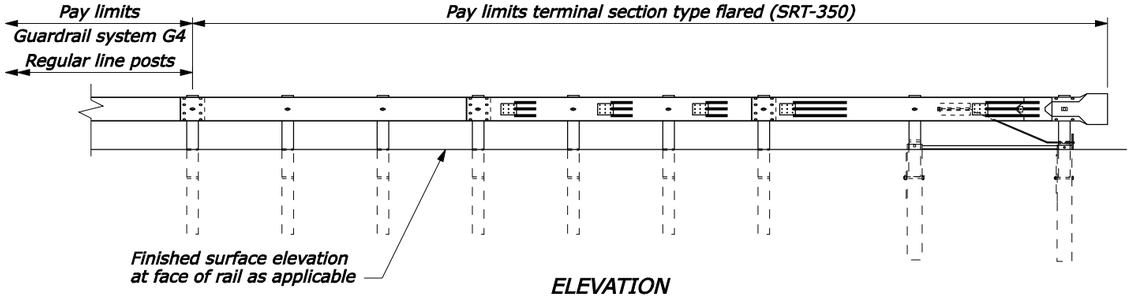
TEST LEVEL	L (ft)	W (ft)
2 (≤ 45 mph)	25.0	1.67-2.67
3 (> 45 mph)	37.5	2.5-4.0

NOTE:

1. Install a flared G4 W-beam guardrail terminal that meets NCHRP-350 requirements per manufacturer's recommendations. Ensure that terminal meets appropriate test level for the project.
2. Where terminal is placed on a curve, and post offsets would result in the rail encroaching onto the shoulder (e.g., the inside of a curve), install the posts so that the face of the rail is at the edge of the shoulder.
3. Pave widened shoulder on both ends of guardrail runs when indicated on the plans.
4. See manufacturer's drawings for other details.



PLAN



ELEVATION

PARABOLIC FLARED OPTION

TEST LEVEL	L (ft)	W (ft)
3 (> 45 mph)	37.5	3.0 or 4.0

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

G4 W BEAM GUARDRAIL TYPE FLARED TERMINAL

STANDARD APPROVED FOR USE 6/2005

REVISED:
DRAFT: 2/2007

STANDARD 617-19

26-Feb-2007 02:39 PM
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STATE	PROJECT	SHEET NUMBER
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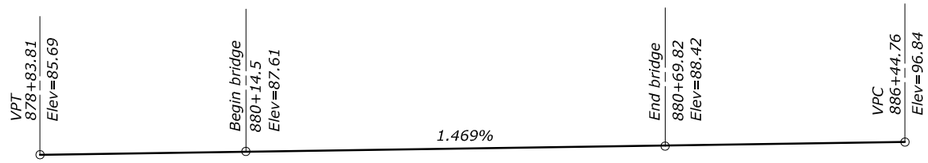
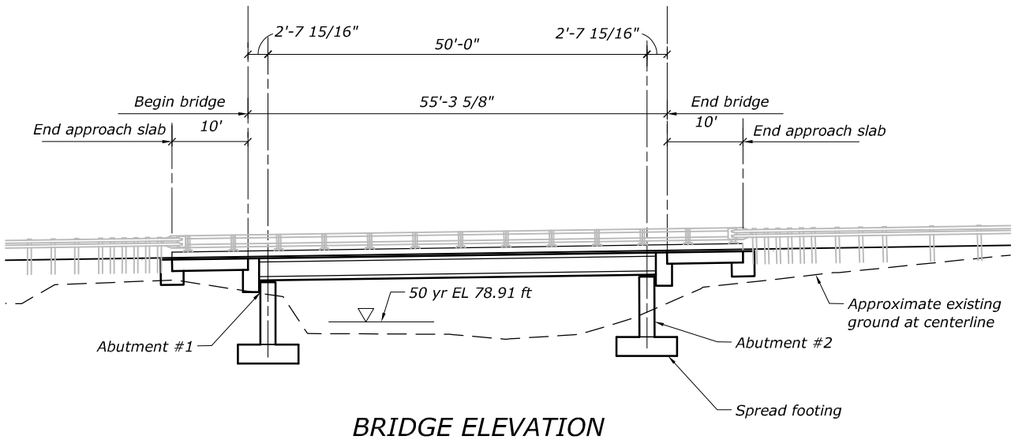
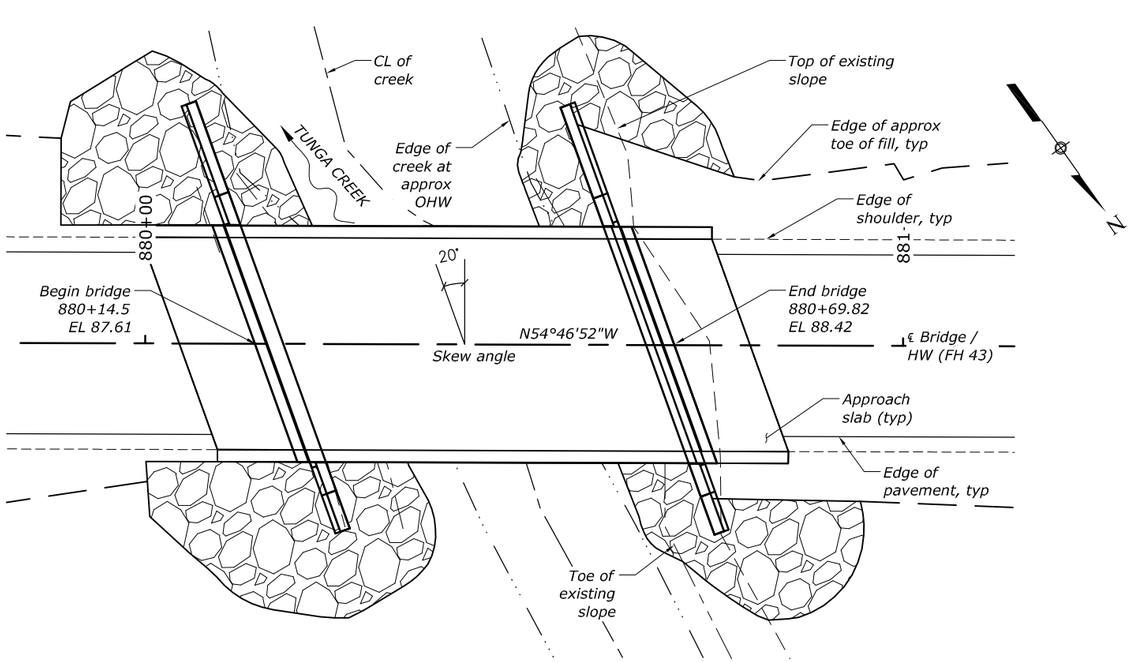
AK DOT BRIDGE NO. 2300		



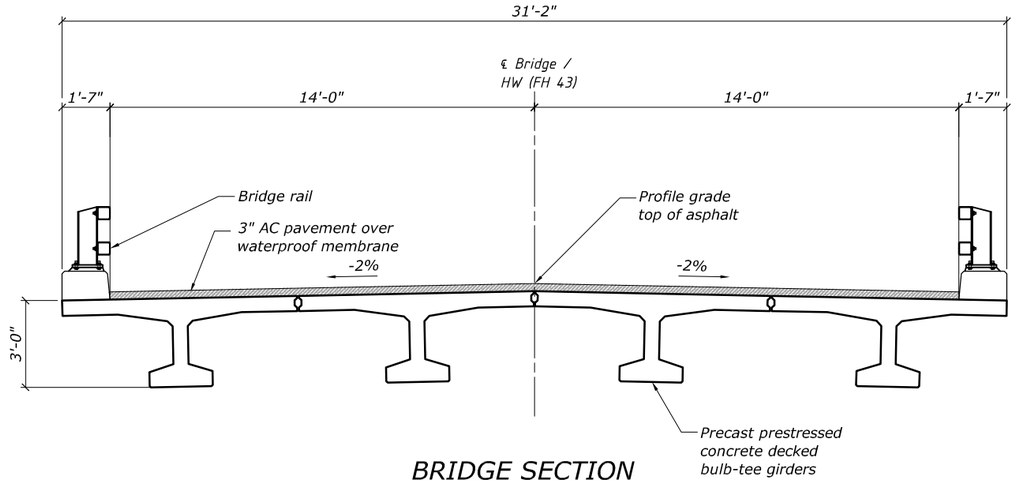
PROFILE GRADE
NTS



BRIDGE ELEVATION
0 10 20 FT



BRIDGE PLAN
0 10 20 FT



BRIDGE SECTION
0 2.5 5 FT

DESIGN CRITERIA

SPECIFICATIONS:	*FP-03, Standard Specification for Construction of Roads and Bridges on Federal Highway Projects and the Revisions to Satandard Specifications*		
DESIGN:	*AASHTO LRFD bridge design specification, 2012 edition.*		
LIVE LOAD:	*HL-93*		
SEISMIC PARAMETERS	*Site Class,*		*= B*
	0.2s Spectral Acceleration coefficient,	S_s	*= 0.3*
	1.0s Spectral Acceleration coefficient,	S_1	*= 0.2*
	Site Factors:	F_{pga}	*= 1.0*
		F_a	*= 1.0*
		F_v	*= 1.0*
	Liquefaction potential		*= none*
	Design Response Spectrum	S_{DS}	*= 0.30*
		S_{D1}	*= 0.20*
		PGA	*= 0.10*
		As	*= 0.10*
		Zone	*= 2*
DEAD LOAD:	*Plus 25 psf future wearing surface*		
PRECAST CONCRETE:	*See "girders" DWG.*		
CONCRETE:	*Use class A(AE) concrete for all concrete unless otherwise noted. f'c = 4000 psi*		
REINFORCING STEEL:	*Use ASTM A706, grade 60, Fy = 60,000 psi reinforcing steel. Space bars evenly unless otherwise noted.*		
STRUCTURAL STEEL:	*Use ASTM A709, grade 36, Fy = 36,000 psi galvanize all structural steel unless otherwise noted.*		

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kenley
CE-625
8.20.13
REGISTERED PROFESSIONAL ENGINEER

INDEX TO SHEETS TUNGA CREEK BRIDGE #2300

RG2946	TUNGA CREEK BRIDGE
RG2946-1	GENERAL LAYOUT
RG2946-2	SITE PLAN
RG2946-3	RIPRAP LAYOUT & ABUTMENT EXCAVATION
RG2946-4	ABUTMENT 1
RG2946-5	ABUTMENT 2
RG2946-6	ABUTMENT DETAILS
RG2946-7	TYPICAL SECTION , FRAMING PLAN & GIRDER DETAILS
RG2946-8	GIRDERS
RG2946-9	APPROACH SLAB
RG2946-10	RAILING DETAILS
RG2946-11	W BEAM TRANSITION

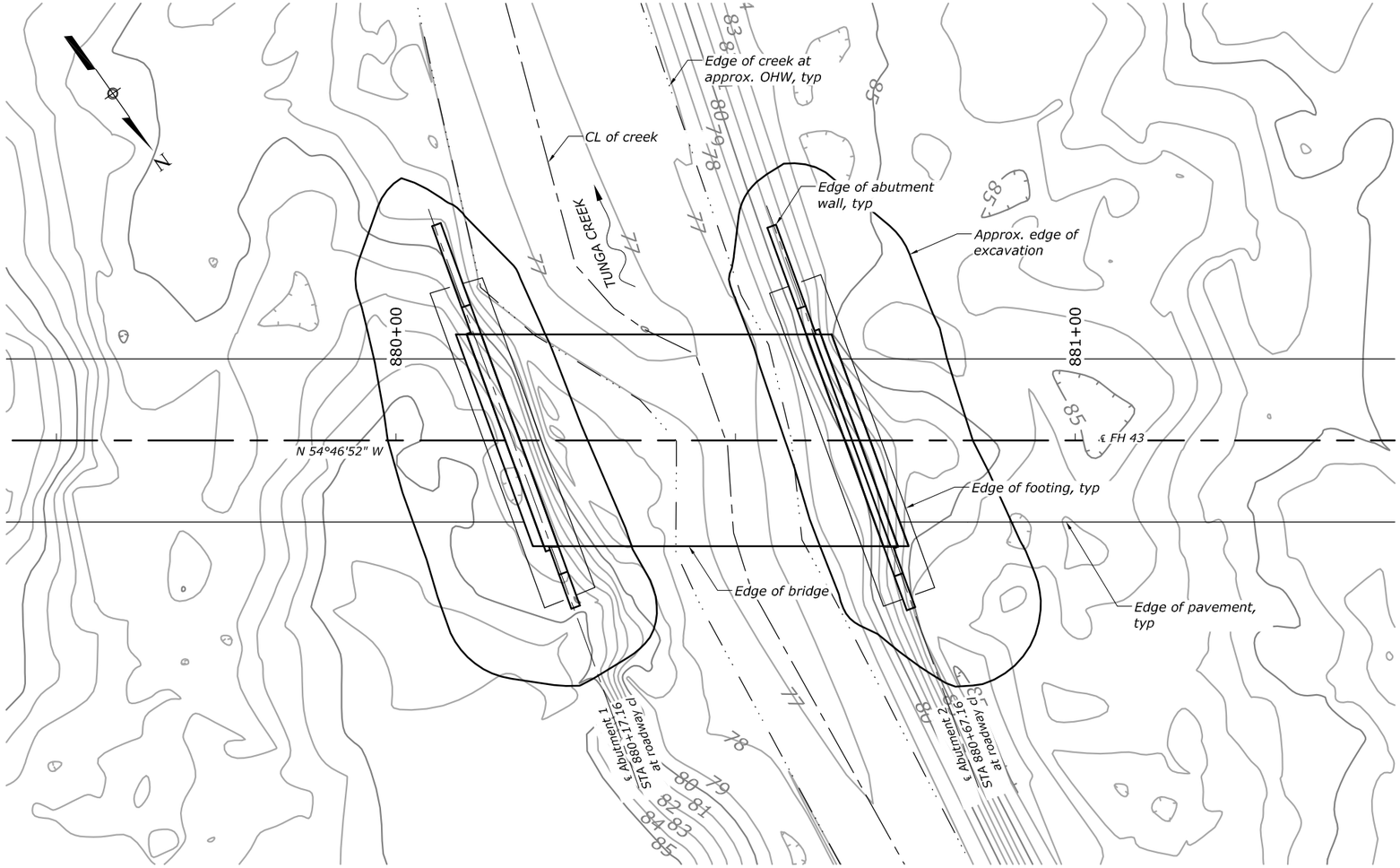
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TUNGA CREEK BRIDGE #2300
GENERAL LAYOUT

BRIDGE DRAWING	DATE	DRAWING NO.
1 OF 11	JULY 2013	RG2946 - 1

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Tunga Creek\G 01-General Layout.dwg [USC] 20 August 2013 9:06 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.2
AK DOT BRIDGE NO. 2300		



SITE PLAN

0 10 20 FT

HYDRAULIC AND HYDROLOGIC SUMMARY

	50 YR.	100 YR.	500 YR.
Flood frequency (yr.)	2	1	0.2
Exceedance probability (%)	320	359	461
Discharge (cfs)	78.91	79.03	79.35
Water surface elev. (ft)	0.00	0.02	0.11
Anticipated add'l backwater (ft)	0	0	0
Contraction scour (ft)	0	0	0
Abutment scour (ft)	0	0	0
Long term bed elevation change (ft)			

Drainage area for this crossing: 1.72 square miles.

Hydraulic capacity >>461 cfs at low superstructure elevation of 84.8 feet which has an exceedance probability of 0.2 percent

Design high water (DHW) = 78.91 ft at bridge ℄
Ordinary high water (OHW) = 78.25 ft at bridge ℄

TUNGA CREEK BRIDGE ESTIMATE OF QUANTIIES

ITEM	UNIT	SUBST.	SUPERST.	TOTAL
Excavation for structures	CY	1040		1040
Structural fill	CY	805		805
Class A (AE) concrete for abutment footing and wall	CY	115		115
Class A (AE) concrete for backwall	CY		19	19
Class A (AE) concrete for approach slab	CY	45		45
Class A (AE) concrete for approach slab footing		15		15
Class A (AE) concrete for curb	CY		10	10
Prestressed concrete member (36" decked bulb-tee)	EA		4	4
Reinforcing steel	LBS	22450	2450	24900
Epoxy-coated reinforcing steel	LBS	0	14520	14520
Geocomposite sheet drain	SF		800	800
Bridge rail	LF		302	302
Bridge rail W-beam trasition	EA		4	4
Riprap, class 2	CY	312		312
Waterproof membrane	SF		2150	2150

FOOTING INFORMATION

Location	Limit State	Res. Factor	Factored Bearing Resistance	Factored Bearing Pressure
Abutment 1	Extreme event 1	0.45	20,000 psf	17,900 psf
Abutment 2	Extreme event 1	0.45	20,000 psf	17,900 psf

GEOTECHNICAL REPORT: For boring logs and other geotechnical information, see Geotechnical Report No. 5-13 AK PFH 43(10) Deweyville trailhead to Neck Lake Road WFLD by PND Engineers.

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH F. Charles Kerley CE-625 8.20.13 REGISTERED PROFESSIONAL ENGINEER

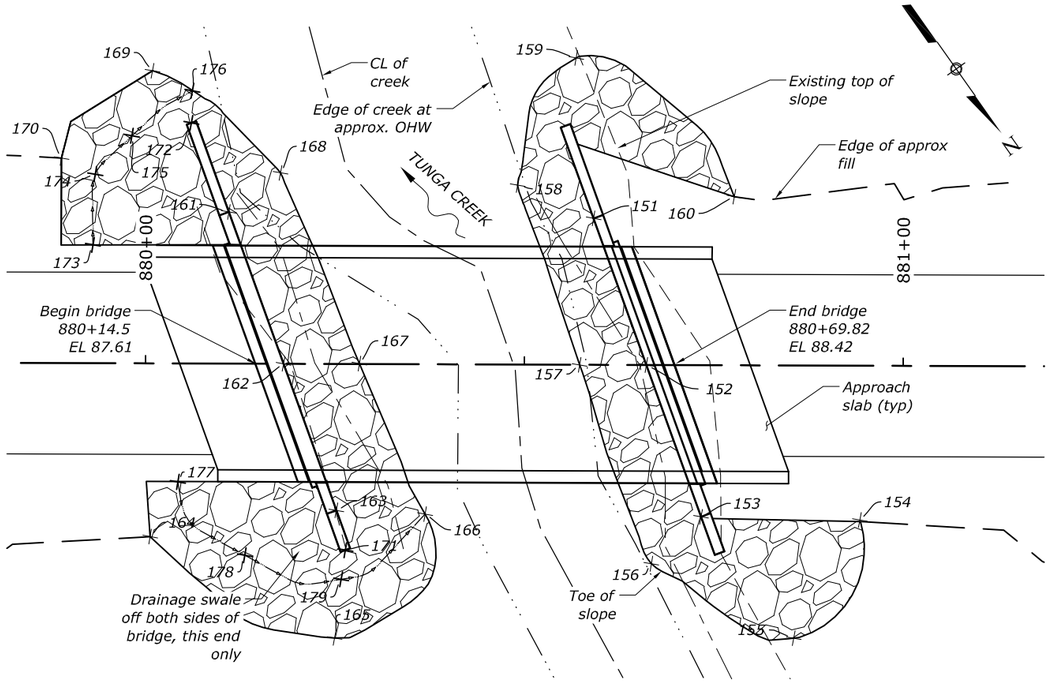
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TUNGA CREEK BRIDGE #2300
SITE PLAN

BRIDGE DRAWING	DATE	DRAWING NO.
2 OF 11	JULY 2013	RG2946 - 2

J:\2012\1221088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Tunga Creek\G 02-Site Plan.dwg [USC] 15 August 2013 5:25 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.3
AK DOT BRIDGE NO. 2300		



RIPRAP PLAN

0 10 20 FT

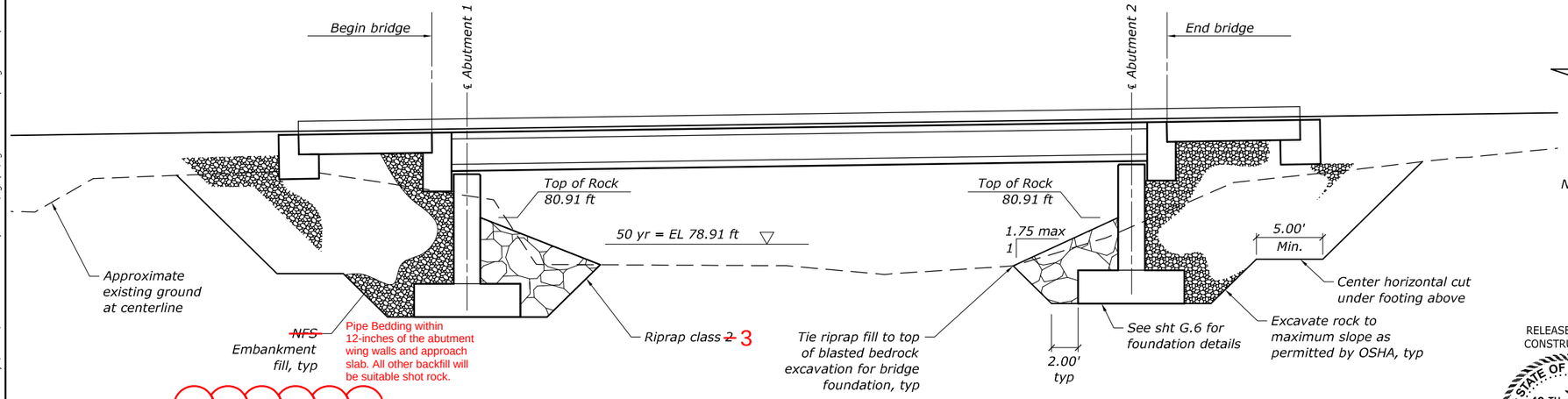
RIPRAP LAYOUT TABLE

POINT NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
151	1513751.8380	2773251.8226	80.91	Riprap
152	1513771.6698	2773257.2246	80.91	Riprap
153	1513792.2114	2773262.8125	80.91	Riprap
154	1513804.5852	2773245.8907	83.50	Riprap
155	1513812.3454	2773261.9925	87.18	Riprap
156	1513793.5199	2773271.7302	77.74	Riprap
157	1513766.6125	2773264.4253	77.28	Riprap
158	1513742.4905	2773257.5059	77.09	Riprap
159	1513733.1975	2773241.5619	83.30	Riprap
160	1513760.1547	2773234.9708	83.50	Riprap
161	1513723.5271	2773290.7403	80.91	Riprap
162	1513744.0655	2773296.3305	80.91	Riprap
163	1513763.9007	2773301.7292	80.91	Riprap
164	1513752.6258	2773323.8398	85.36	Riprap
165	1513777.5431	2773311.5805	84.98	Riprap

RIPRAP LAYOUT TABLE

POINT NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
166	1513771.0266	2773292.4224	79.10	Riprap
167	1513749.7888	2773288.1270	77.42	Riprap
168	1513723.2058	2773282.2055	76.23	Riprap
169	1513702.4867	2773288.3065	81.39	Riprap
170	1513705.0241	2773304.7529	80.95	Riprap
171	1513768.8751	2773303.7622	82.50	Riprap
172	1513711.0563	2773288.0526	81.39	Riprap
173	1513716.7730	2773307.9192	87.04	Riprap
174	1513709.3262	2773302.3212	80.60	Riprap
175	1513707.9447	2773295.4490	79.95	Riprap
176	1513707.6745	2773285.5209	79.30	Riprap
177	1513748.8174	2773316.6967	85.88	Riprap
178	1513761.8162	2773315.0138	84.20	Riprap
179	1513771.7102	2773306.4379	82.00	Riprap

Note: Layout points are a general approximation to excavation and riprap placement limits. Contractor shall field fit riprap to daylight limits around bridge abutment excavations.

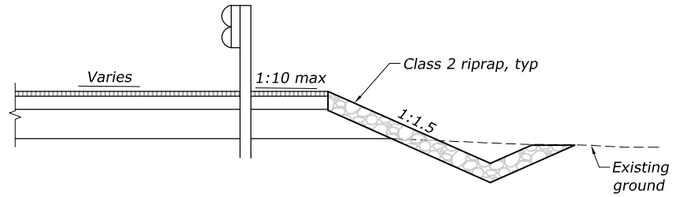


RFI 58
Structure Backfill

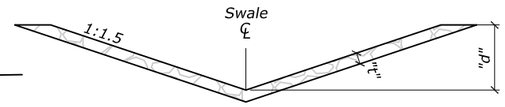
RFI 70
Bridge Abutment Riprap
Class 3 - Visual Acceptance

RIPRAP SECTION AT CL

0 5 10 FT



TYPICAL EMBANKMENT RIPRAP



TYPICAL DRAINAGE SWALE SECTION

Notes:
1. "d" varies. Extend swale until water has been directed towards the creek and positive drainage to the creek is provided.
2. "t" shall be a minimum of 12"

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kerley
CE-6254
8.20.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

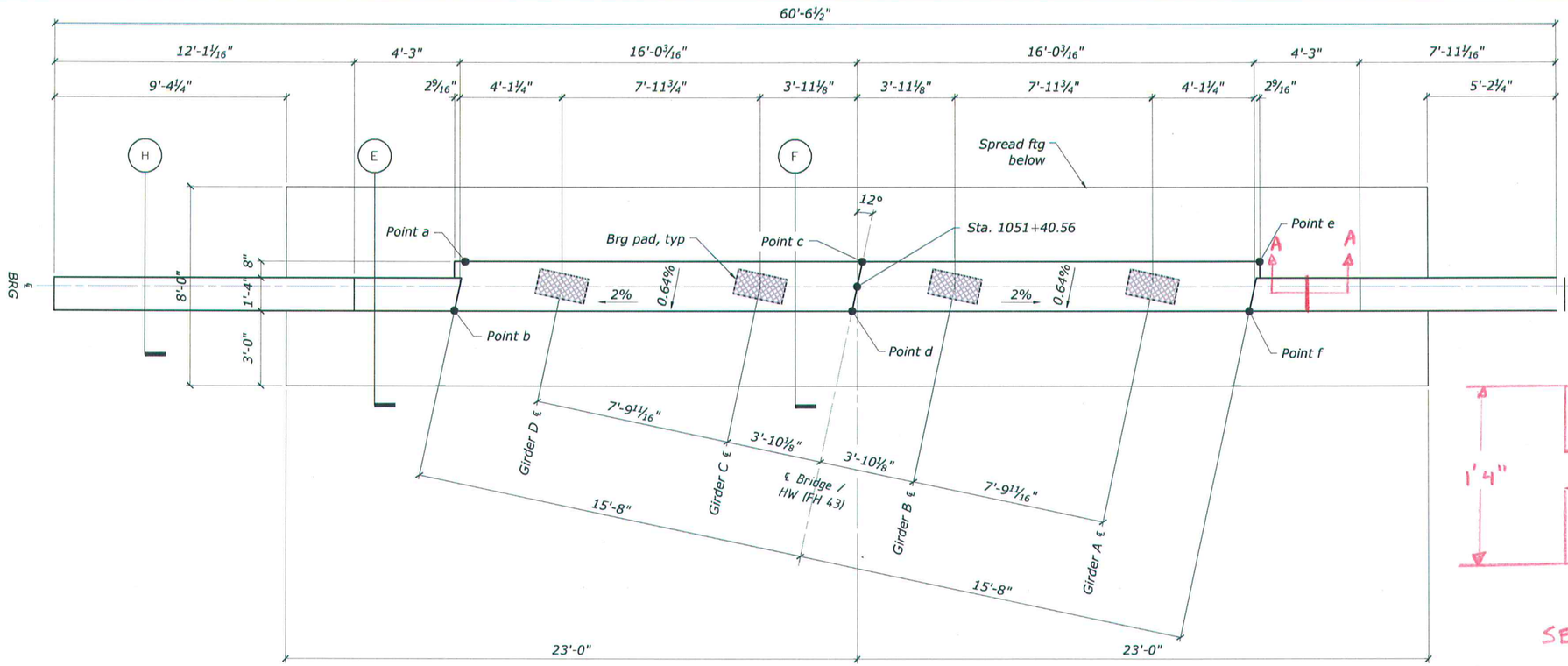
TUNGA CREEK BRIDGE #2300
RIPRAP LAYOUT & ABUTMENT EXCAVATION

BRIDGE DRAWING	DATE	DRAWING NO.
3 OF 11	JULY 2013	RG2946 - 3

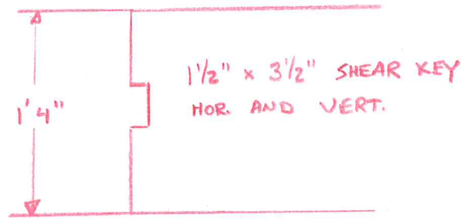
J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Tunga Creek\G 03-Rip Rap Layout and Abutment Excavation.dwg 15 August 2013 5:25 PM [USC]

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	
	AK DOT BRIDGE NO. 2301	

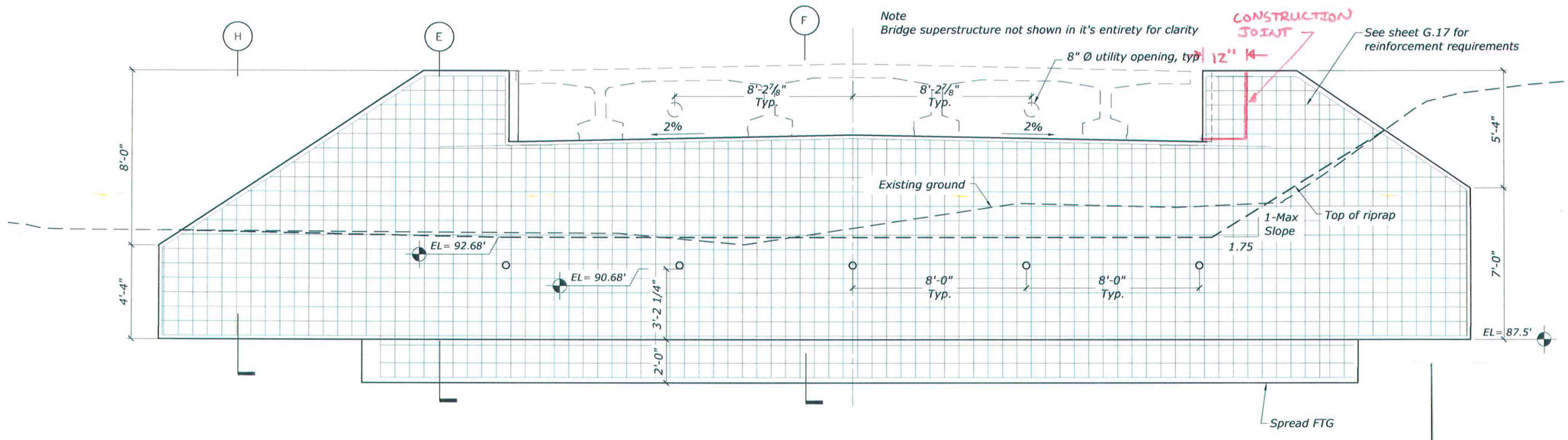
Sheet RFI 55-1



RFI 55
Wing Wall Construction Joint



SECTION A
TYP



TOP OF ABUTMENT WALL ELEV

POINT	ABUTMENT 1
a	96.40'
b	96.39'
c	96.73'
d	96.72'
e	96.44'
f	96.43'

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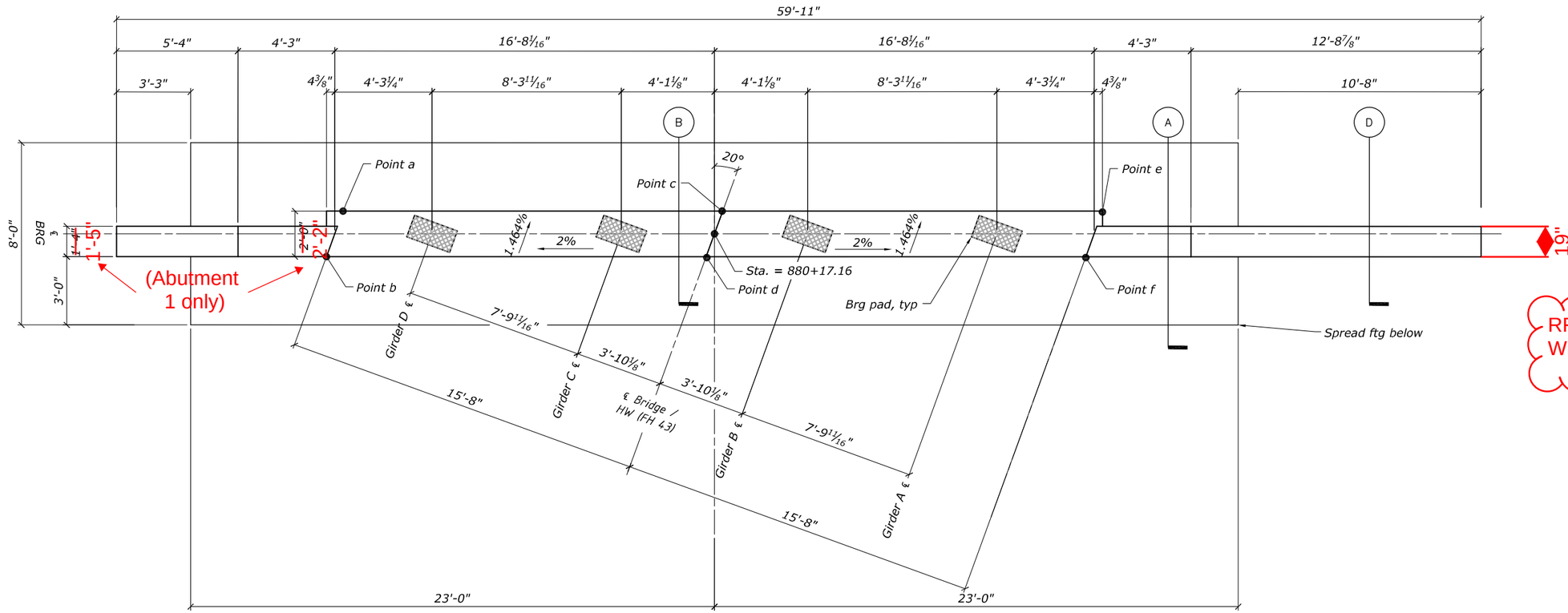
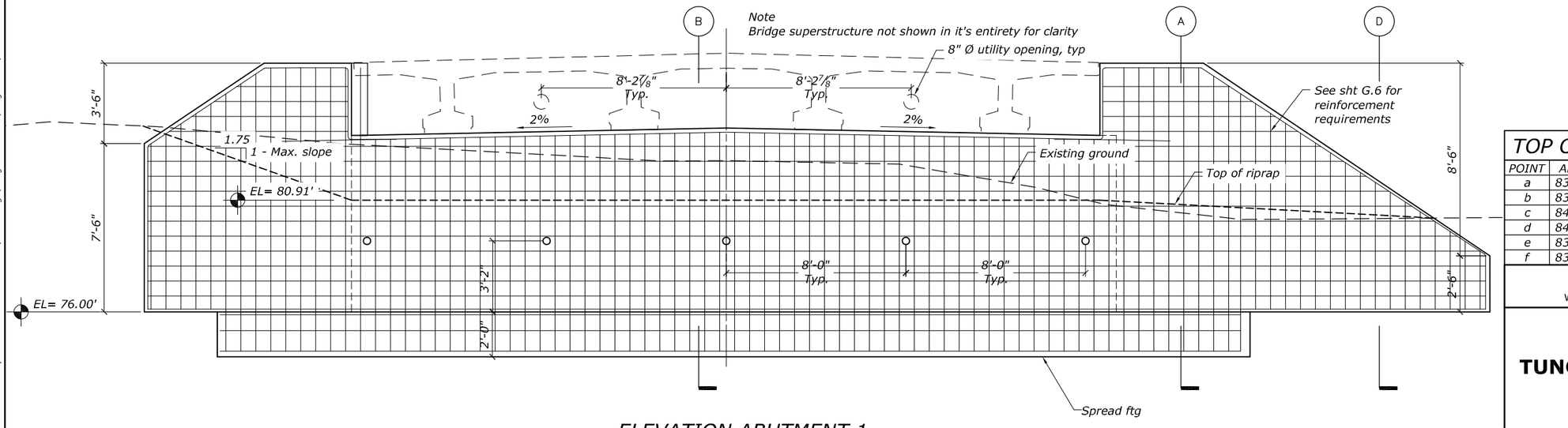
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.4
	AK DOT BRIDGE NO. 2300	



PLAN ABUTMENT 1



ELEVATION ABUTMENT 1

(Looking Back On Station)

RFI 71
South Tunga West Wing Wall Clearance
(19" West wing wall only)

RFI 55
Wing Wall Construction Joint

RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
F. Charles Kerley
CE-6258
8.20.13
REGISTERED PROFESSIONAL ENGINEER

TOP OF ABUTMENT WALL ELEV

POINT	ABUTMENT 1
a	83.90'
b	83.93'
c	84.13'
d	84.16'
e	83.73'
f	83.76'

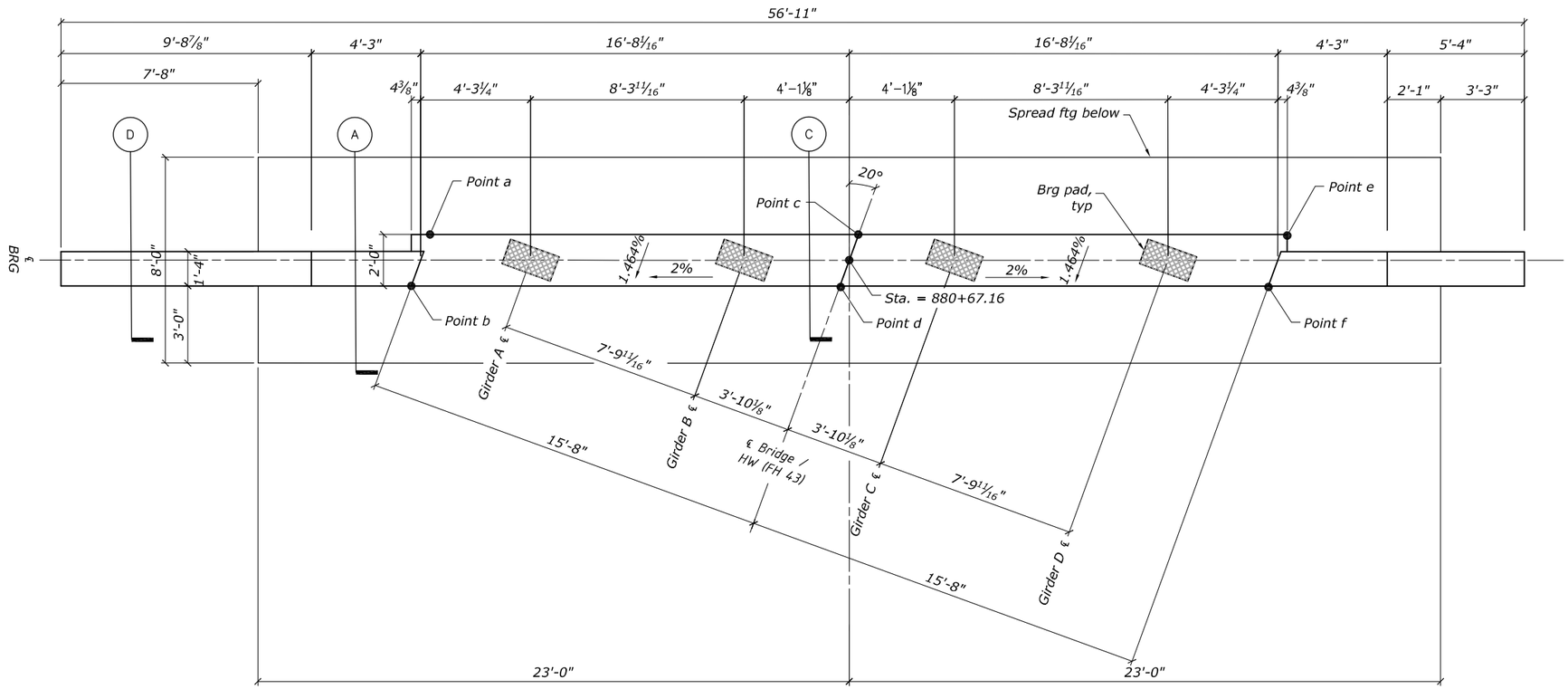
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TUNGA CREEK BRIDGE #2300
ABUTMENT 1

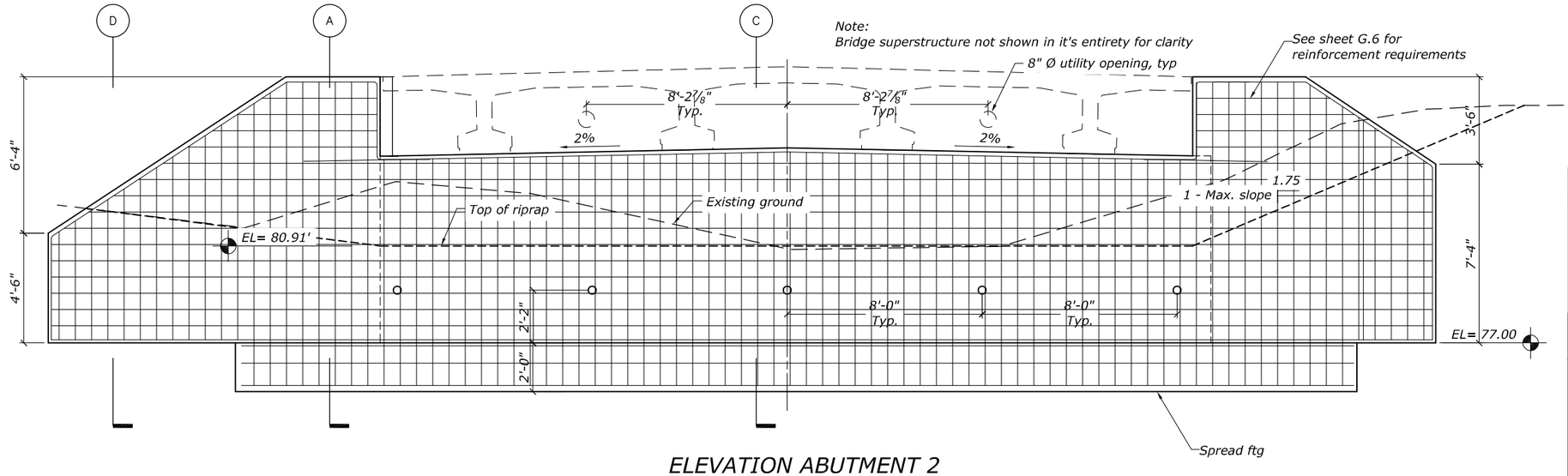
BRIDGE DRAWING	DATE	DRAWING NO.
4 OF 11	JULY 2013	RG2946 - 4

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Tunga Creek\G 04-5-Abutments.dwg [USC] 20 August 2013 9:10 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.5
	AK DOT BRIDGE NO. 2300	



PLAN ABUTMENT 2



ELEVATION ABUTMENT 2

(Looking up station)

RFI 55
Wing Wall Construction Joint

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kenley
CE-625
8.20.13
REGISTERED PROFESSIONAL ENGINEER

TOP OF ABUTMENT WALL ELEV

POINT	ABUTMENT 2
a	84.49'
b	84.46'
c	84.89'
d	84.86'
e	84.66'
f	84.63'

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TUNGA CREEK BRIDGE #2300
ABUTMENT 2

BRIDGE DRAWING	DATE	DRAWING NO.
5 OF 11	JULY 2013	RG2946 - 5

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Tunga Creek\G 04-5-Abutments.dwg [USC] 20 August 2013 9:10 AM

RFI 71
South Tunga West Wingwall
Rebar Clearance
(19" west wingwall thickness)

(Abutment 1 only)

RFI 43
Rebar Clearance
Abutment 1

RFI 44
Rebar Clearance
Abutment 2

RFI 82
Utility Conduit Splice

RFI 91
Curb Construction
Joint

RFI 73
Construction
Joint Chamfer
Flexible Sealant
Location (Tunga)
No chamfer was
installed on the
approach side of
the wingwall. It is
acceptable to
install the sealant
in the 90 degree
corner between
the wingwall and
the girder wall.

RFI 77
Bearing Pad Adhesive Thickness
Use 1/8" thick adhesive

RFI 68
Abutment Wall
Transition Sealant

RFI 69
Void Behind Wing
Wall

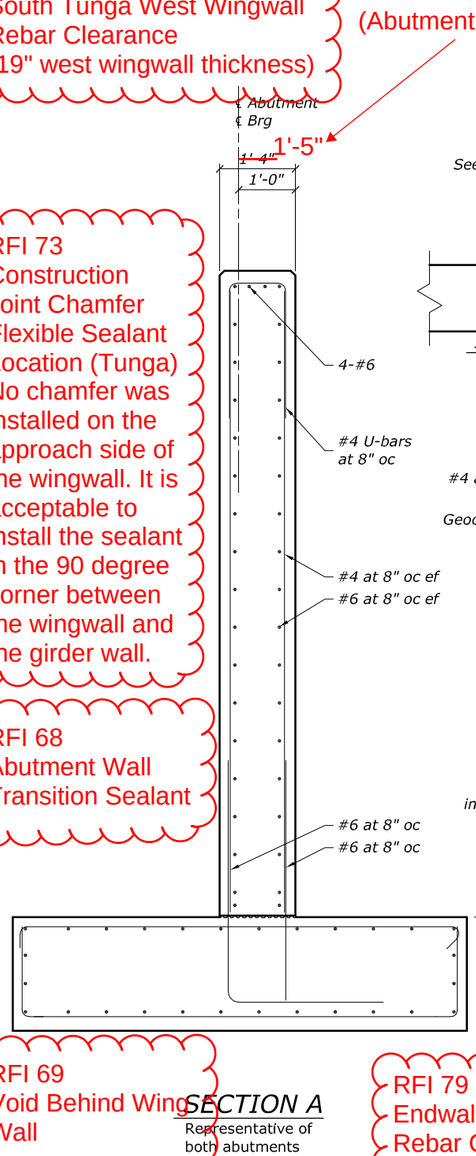
RFI 79
Endwall Diaphragm
Rebar Cnonflict

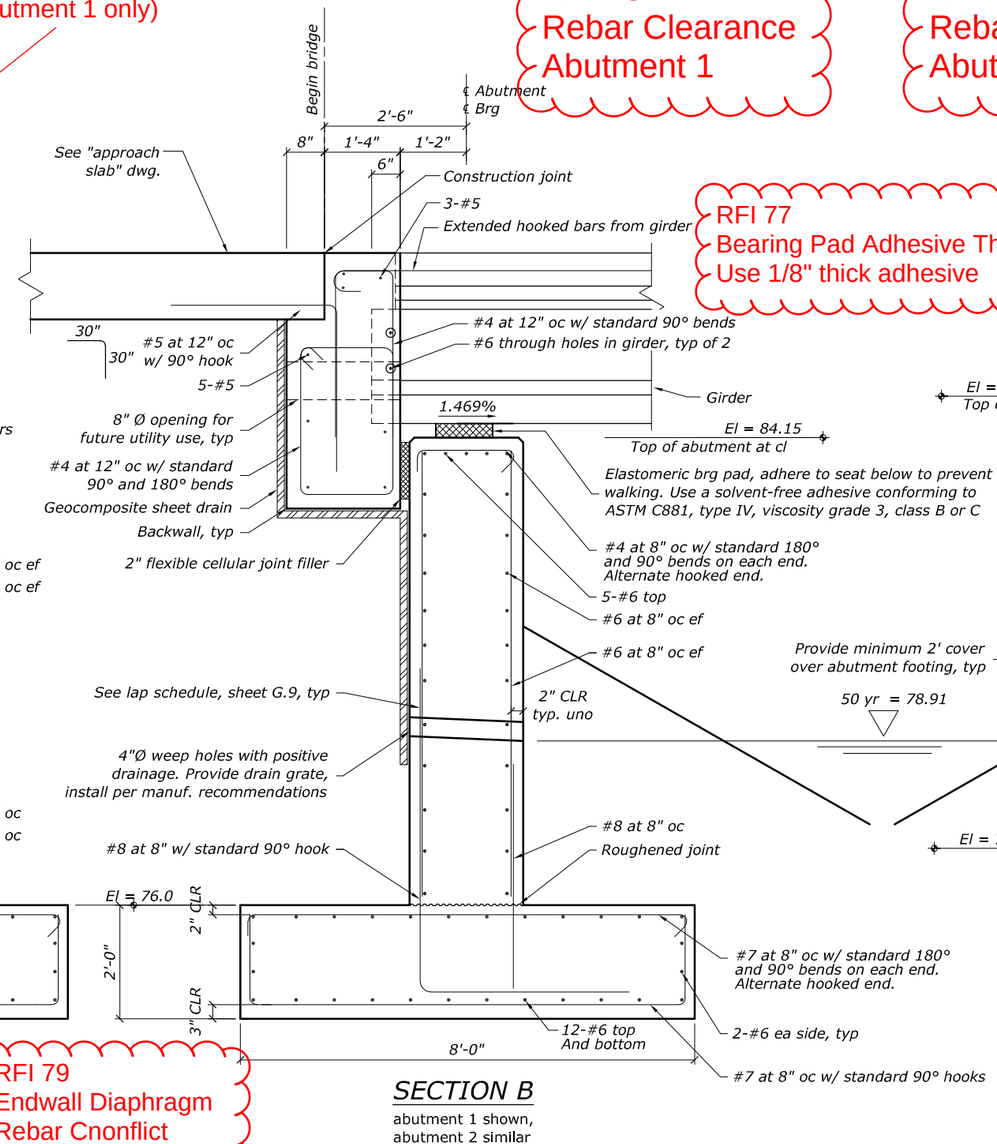
RFI 98
Endwall Rebar
Changes

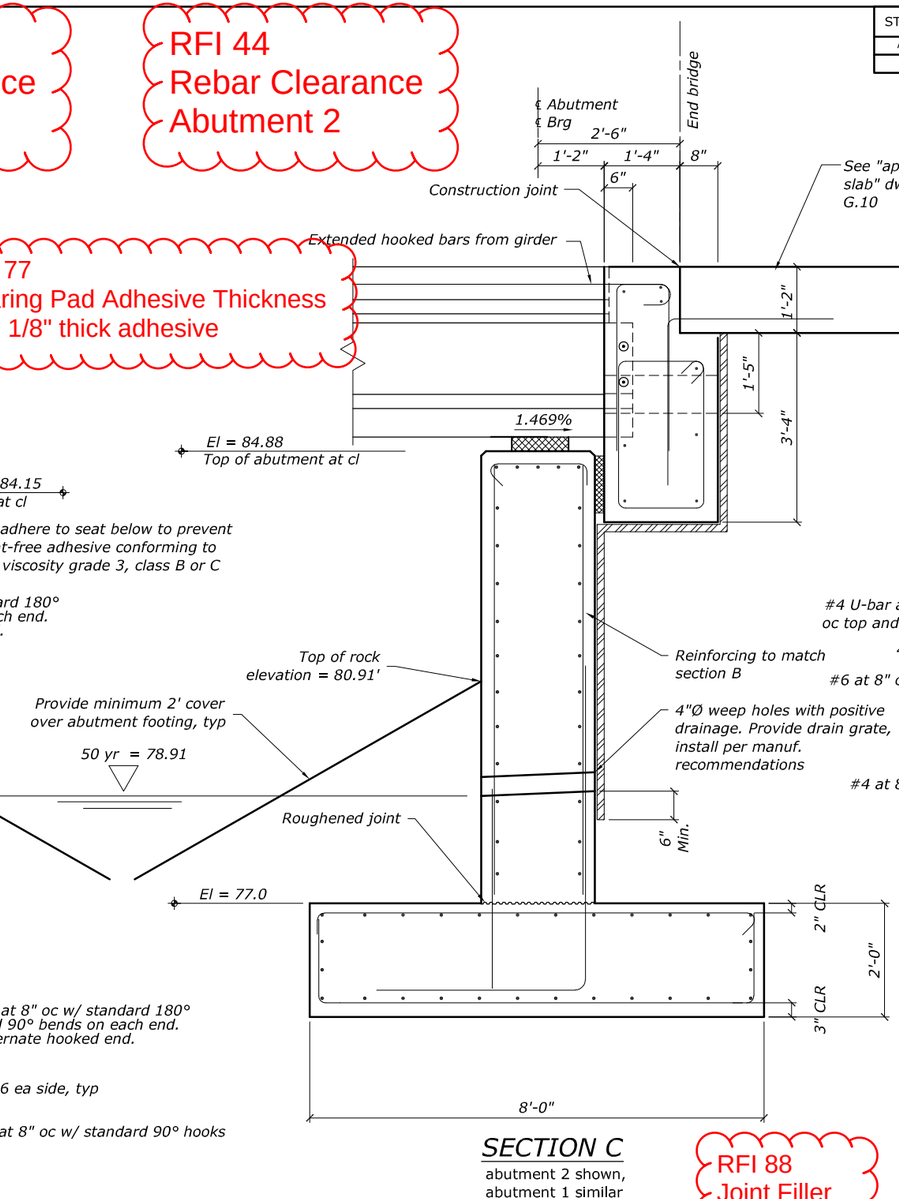
RFI 72 - Construction Joint Chamfer
If no construction joint is installed no
chamfer or flexible sealant is required

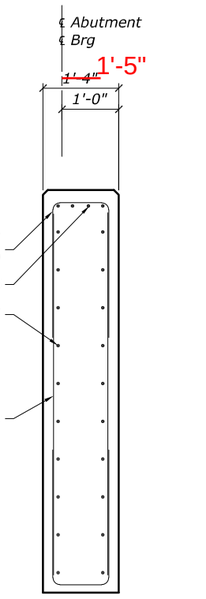
RFI 88
Joint Filler
at Endwall

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.6
AK DOT BRIDGE NO. 2300		







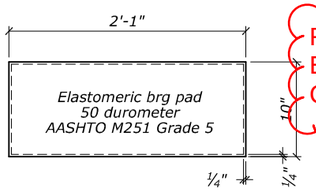


SECTION A
Representative of both abutments

SECTION B
abutment 1 shown,
abutment 2 similar

SECTION C
abutment 2 shown,
abutment 1 similar

SECTION D
Representative of both abutments

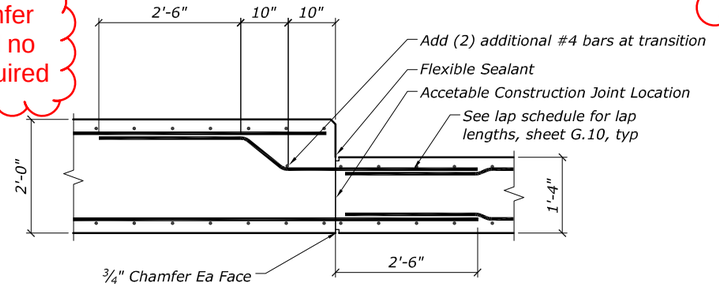


BEARING PAD

Notes:
1. Backwall and approach slab reinforcing bar to be epoxy coated.
2. Bridge rail anchorage not shown for clarity.
3. Section A typical beyond bridge to edge of ftg.
4. Elastomeric bearing pad shear modulus = 0.095 ksi

BEARING PAD REACTIONS

Location	D.L. Per brg.	L.L. Per brg.
Abutments	47.5 kips	74.6 kips



ABUTMENT WALL TRANSITION PLAN

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kenley
CE-6251
8.20.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TUNGA CREEK BRIDGE #2300
ABUTMENT DETAILS

BRIDGE DRAWING	DATE	DRAWING NO.
6 OF 11	JULY 2013	RG2946 - 6

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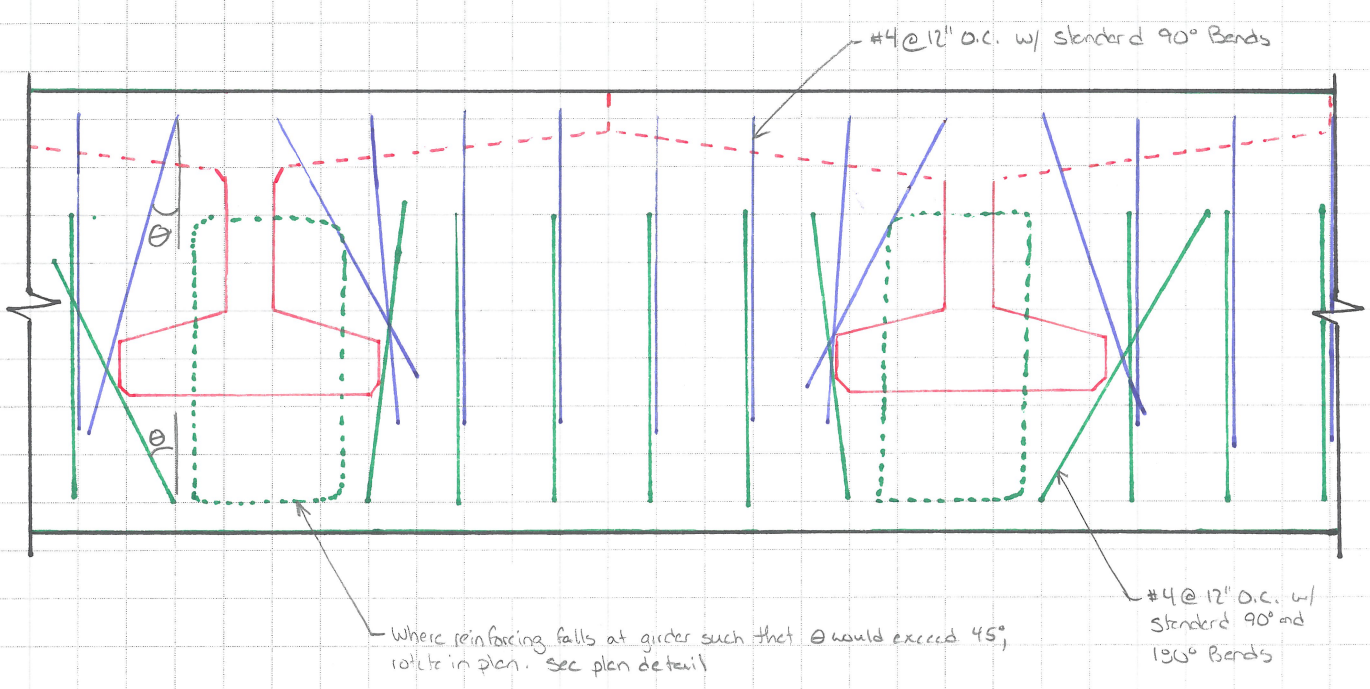
P N D

1506 W. 36th Avenue
Anchorage, Alaska 99503
phone 907.561.1011
fax 907.563.4220

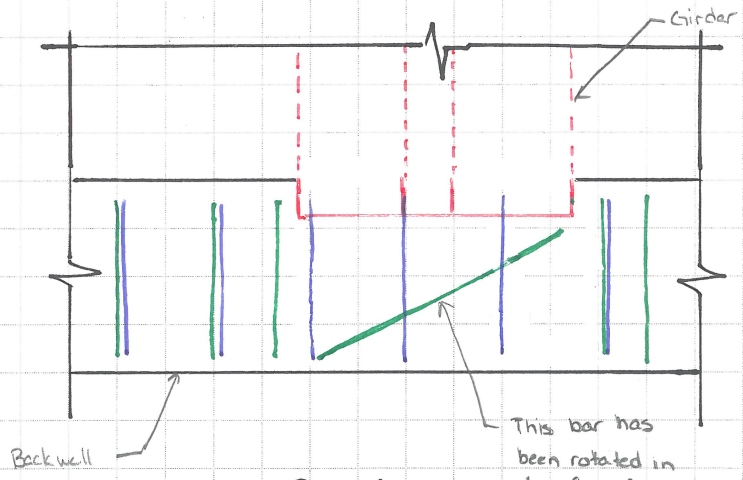
Project: 121088 - Dewey Mille Road
Sheet Number: _____ Of: _____
Calculated by: _____ Date: _____
Checked by: _____ Date: _____



ELEVATION
NTS

θ = 45° max

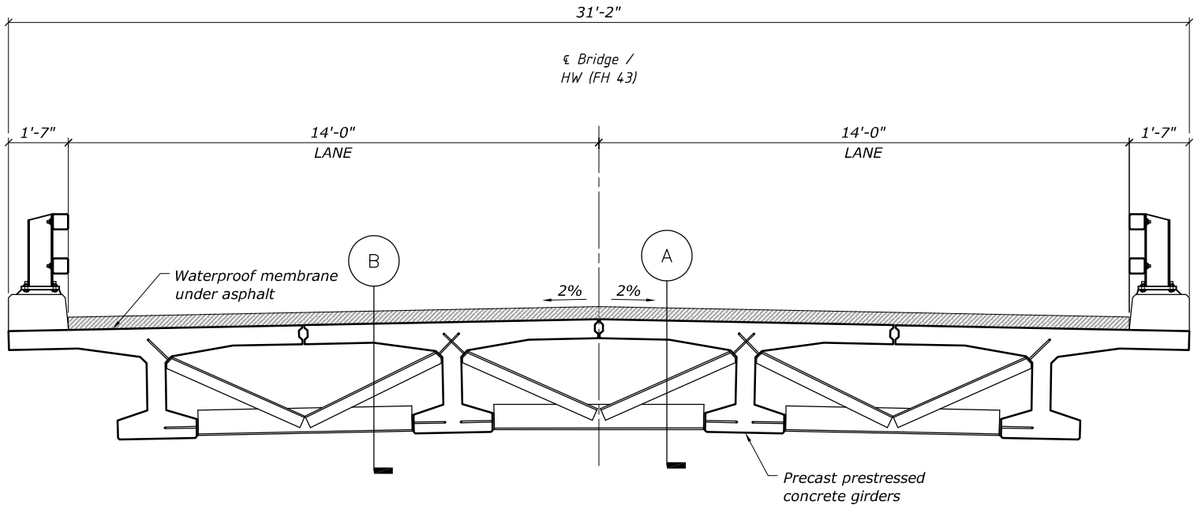
If θ>45°, rotate reinforcement in plan to fit behind girder



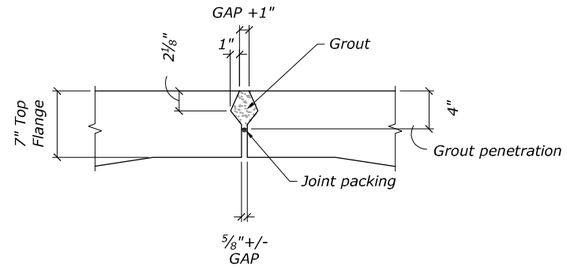
PLAN
NTS

RFI 79
Endwall Diaphragm
Rebar Conflict

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.7
	AK DOT BRIDGE NO. 2300	



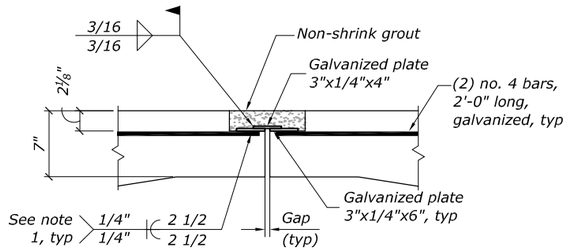
SECTION NEAR MIDSPAN



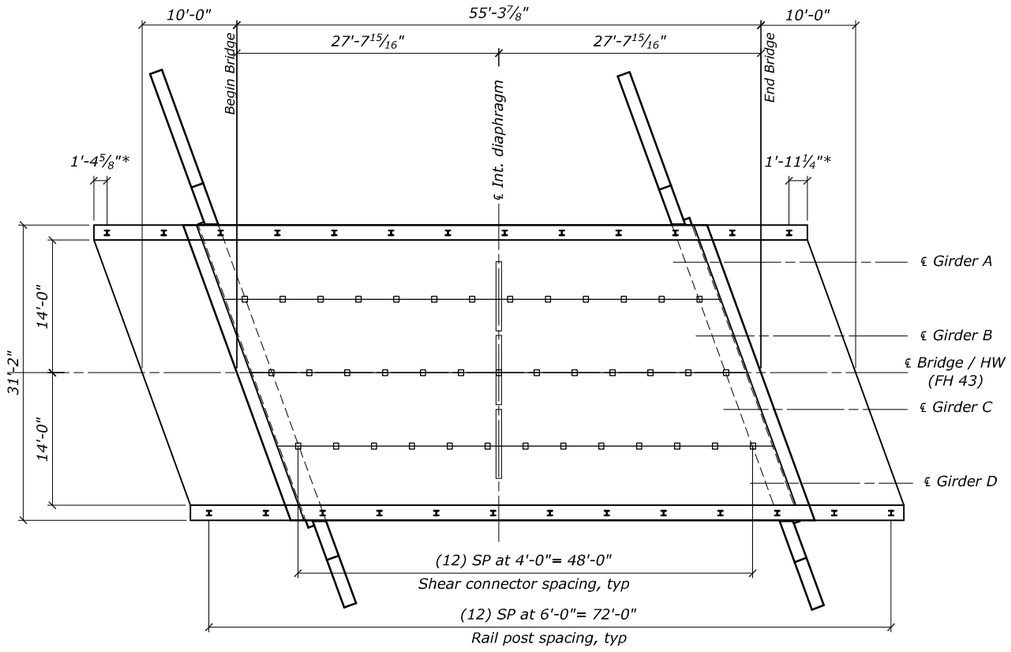
SHEAR KEY DETAIL

RFI 97
Girder Elevation Difference

RFI 80
Shear Key Shims

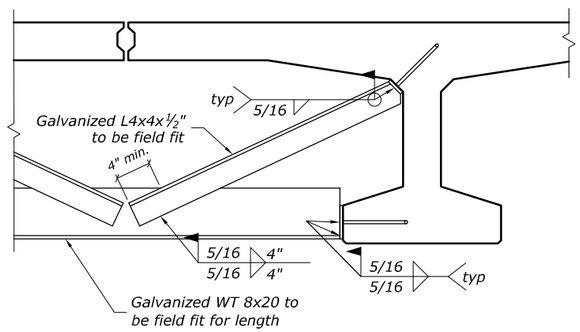


SHEAR CONNECTOR DETAIL

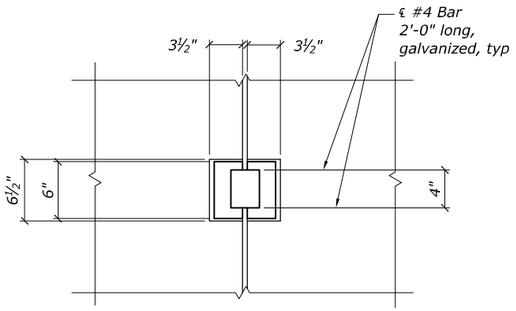


*: Contractor to verify prior to installation

FRAMING PLAN



INTERMEDIATE DIAPHRAGM CONNECTION DETAIL



PLAN VIEW - SHEAR CONNECTOR

NOTES:

1. Remove galvanized coating from areas to be welded before welding, repair all damaged coatings per ASTM A780.
2. Shear key grout shall have a min. 24 hr f'c = 5,000 psi and 28 day f'c = 10,000 psi

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kerley
CE-6225
8.20.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TUNGA CREEK BRIDGE #2300 TYPICAL SECTION, FRAMING PLAN & GIRDER DETAILS

BRIDGE DRAWING	DATE	DRAWING NO.
7 OF 11	JULY 2013	RG2946 - 7

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Tunga Creek\G 07-Typcial Section, Framing Plan & Girder Details.dwg [USC] 15 August 2013 5:28 PM

STATE	PROJECT	SHEET NUMBER
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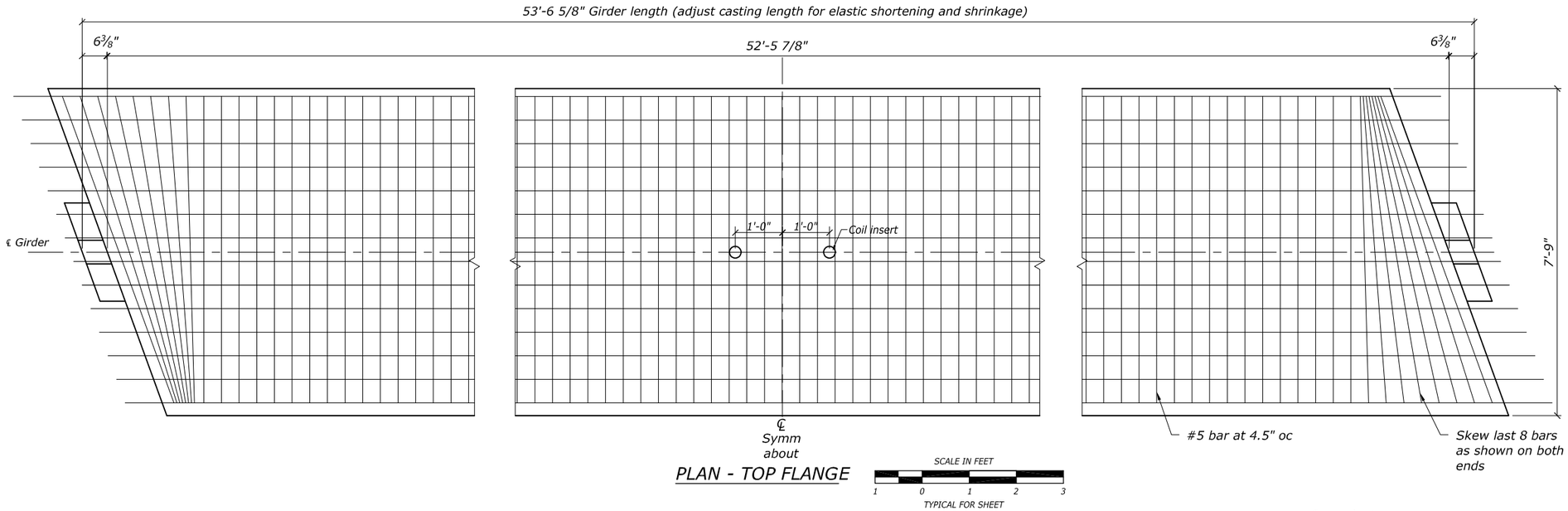
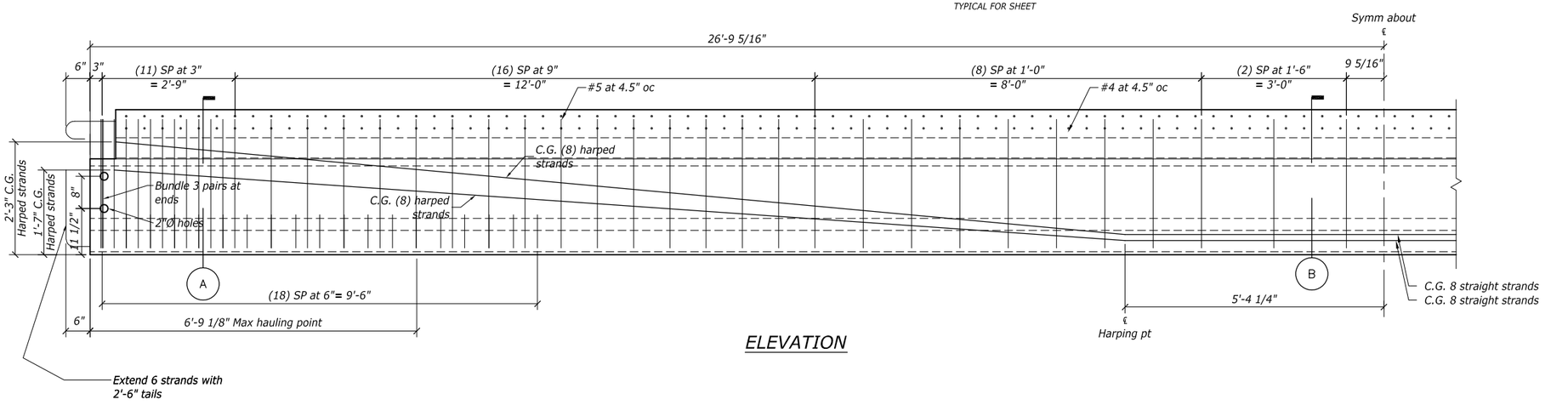
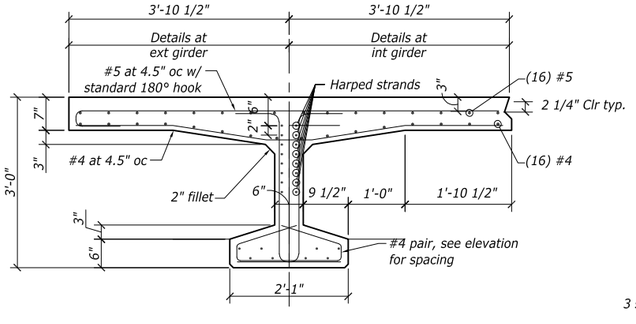
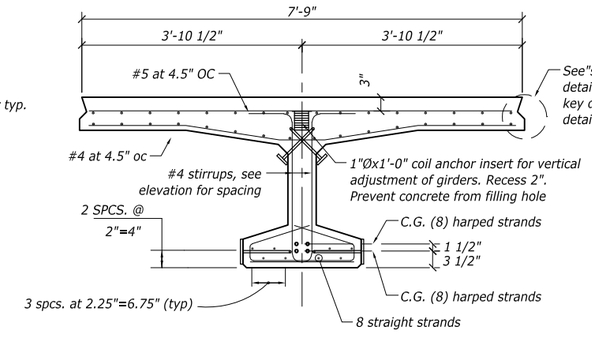
	AK DOT BRIDGE NO. 2300	



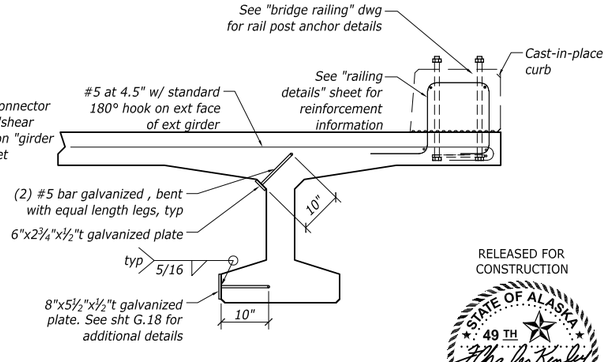




SECTION A



SECTION B



EXTERIOR GIRDER NEAR MIDSPAN

RFI 86
Pre Tension cables - Non epoxy coated

RFI 83
Girder Tension Cables

NOTES:

Use P(AE) concrete with the following strengths:
At stress transfer f'ci = 6750 PSI
At 28 days f'c = 8000 PSI

Use ½"Ø low-relaxation prestressing strands with an ultimate strength of 270 ksi and a cross section area of 0.153 in².

Design is based on the following steel stresses:
pre-tensioning - Jacking stress 189 KSI
After all losses 166 KSI
Total strand area = 3.672 in2
Total pre-stress losses = 21.68 ksi

All reinforcing to be epoxy coated.

One inch clear on all reinforcing except as noted.

Deflect forms to compensate for camber and roadway grade.

Provide smooth concrete surface on the roadway surface of the precast member. Roughen the surface under the railing curbs.

Omit shear key and shear key connectors outside the exterior girders.

Cast girder and ends plumb with respect to roadway grade.

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kerley
CE-6251
8.20.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TUNGA CREEK BRIDGE #2300 GIRDERS

BRIDGE DRAWING	DATE	DRAWING NO.
8 OF 11	JULY 2013	RG2946 - 8

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Tunga Creek\G 08-Girders.dwg [USC] 15 August 2013 5:28 PM

STATE	PROJECT	SHEET NUMBER
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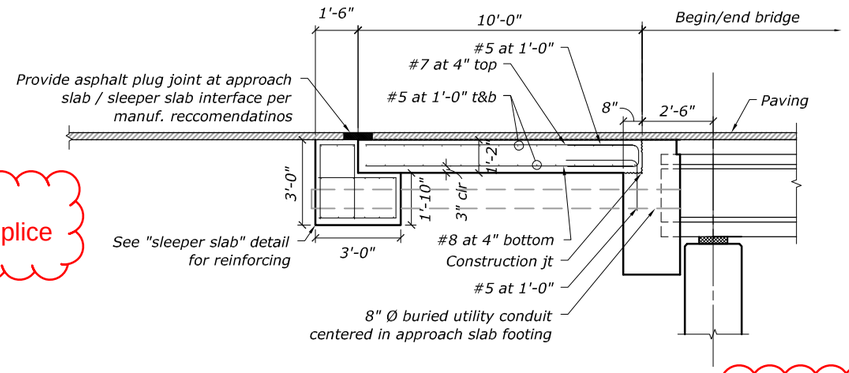
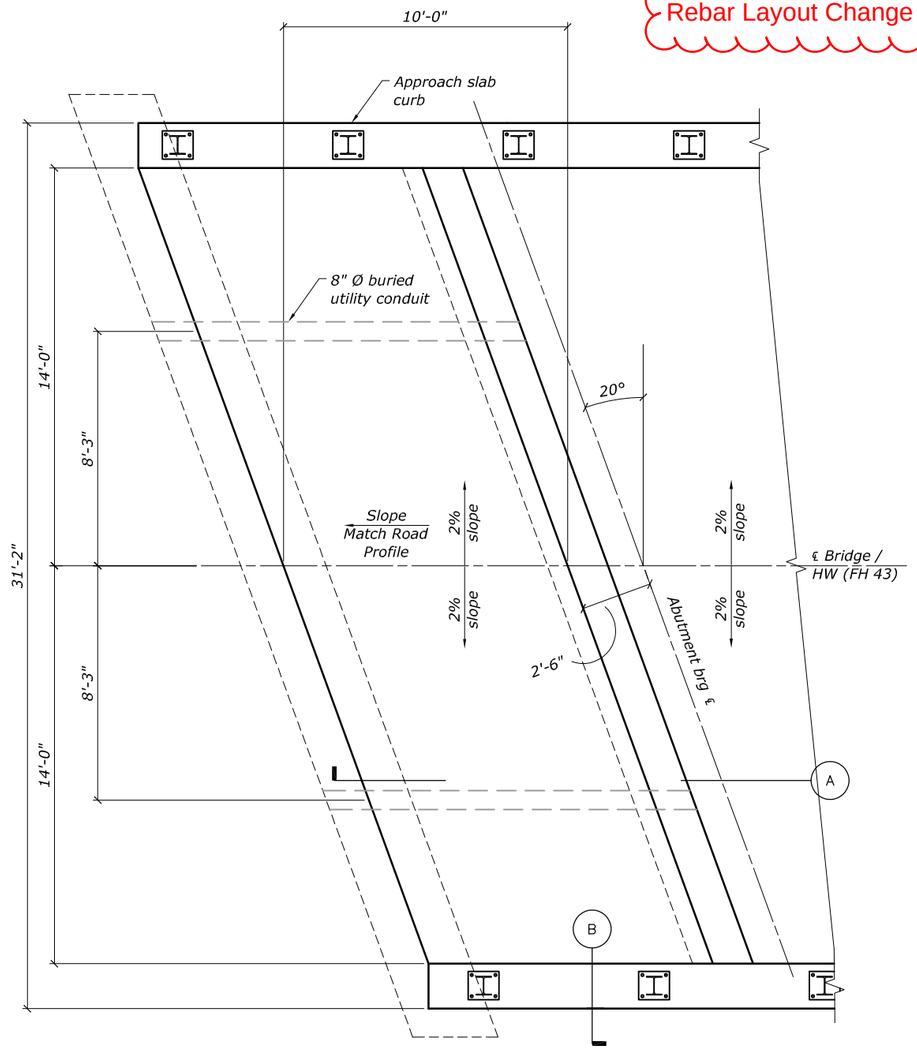
AK DOT BRIDGE NO. 2300		



RFI 82
Utility Conduit Splice

SECTION A

RFI 102
Rebar Layout Change



PLAN

(ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR)

STANDARD 180 DEG HOOK DIMENSIONS

Bar Size	#3	#4	#5	#6	#7	#8
Min Bend Dia. (d)	2 1/4"	3"	3 3/4"	4 1/2"	5 1/4"	6"
Extension Length (L)	2.5"	2.5"	2.5"	3.0"	3.5"	4.0"

Ref ACI 318-08 Section 12.5

STANDARD 90 DEG HOOK DIMENSIONS

Bar Size	#3	#4	#5	#6	#7	#8
Min Bend Dia. (d)	2 1/4"	3"	3 3/4"	4 1/2"	5 1/4"	6"
Extension Length (L)	4.5"	6.0"	7.5"	9.0"	10.5"	12.0"

Ref ACI 318-08 Section 12.5

CLASS A REBAR LAP SPLICES

Bar Size	#3	#4	#5	#6	#7	#8
Standard Reinf.	16"	21"	25"	30"	55"	63"
Epoxy Coated	19"	25"	30"	37"	65"	75"

CLASS A(AE) REBAR LAP SPLICES

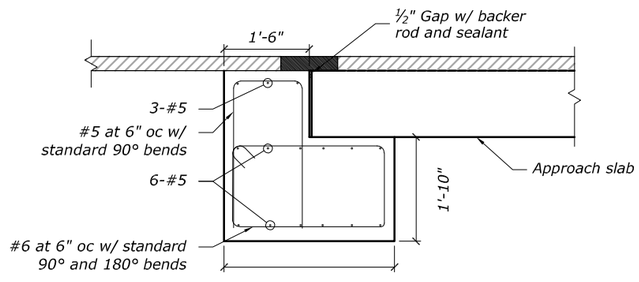
Bar Size	#3	#4	#5	#6	#7	#8
Standard Reinf.	16"	21"	25"	30"	55"	63"
Epoxy Coated	19"	25"	30"	37"	65"	75"

REINFORCING CLEARANCES/COVER

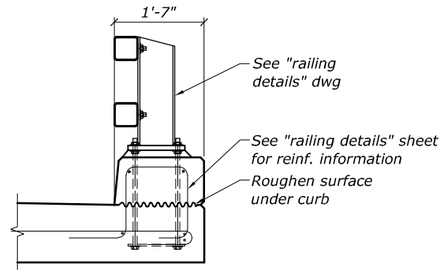
Exposure Condition		Min. Cover U.N.O.	Tolerance
Cast against and permanently exposed to earth		3"	-3/8", +1"
Exposed to earth or weather	#5 and smaller bars:	1 1/2"	-1/4', + 1/2"
	#6 and larger bars:	2"	-1/4', + 1/2"
Not exposed to weather or in contact with ground		3/4"	-1/4', + 3/8"
Slabs, walls, beams, columns, piers to ties and stirrups:		1 1/2"	-1/4', + 1/2"

"-" Indicates tolerance decreease towards member face. "+" Iindicates away from member face

REBAR BENDING AND LAP SCHEDULE



SLEEPER SLAB DETAIL



SECTION B

NOTES:

1. All reinforcing for approach slab to be epoxy coated.
2. Approach slab concrete to be class A(AE) with min. f'c = 4000 psi.

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kerley
CE-6225
8.20.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TUNGA CREEK BRIDGE #2300 APPROACH SLAB

BRIDGE DRAWING	DATE	DRAWING NO.
9 OF 11	JULY 2013	RG2946 - 9

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Tunga Creek\G 09-Approach slab.dwg [USC] 20 August 2013 10:19 AM

STATE	PROJECT	SHEET NUMBER
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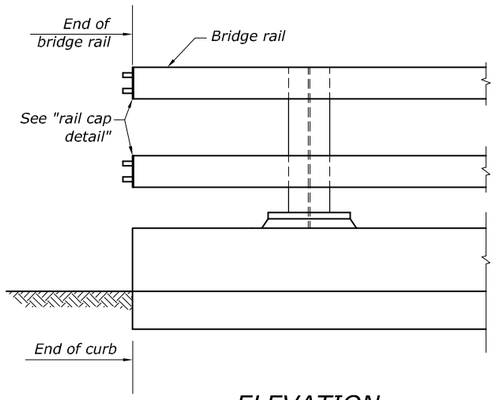
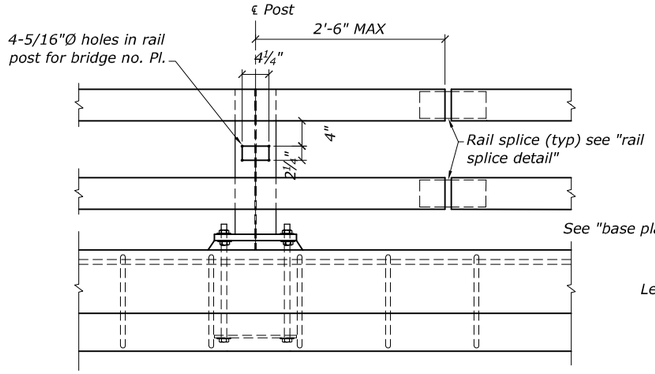
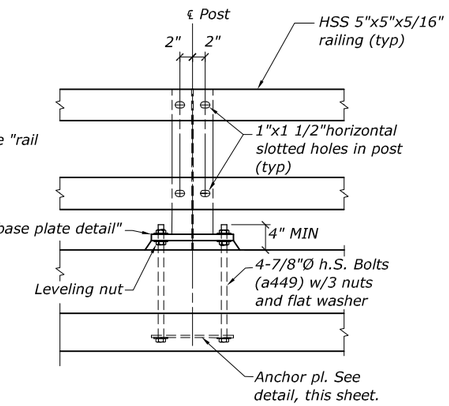
AK DOT BRIDGE NO. 2300		



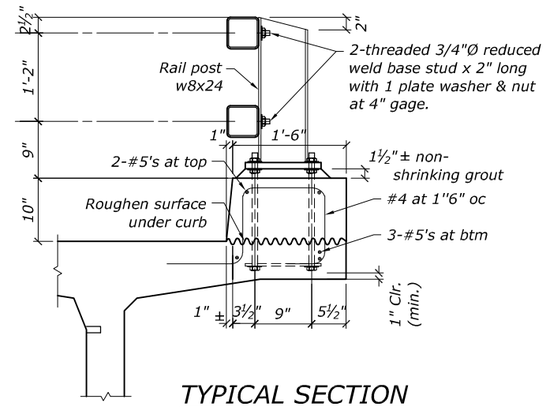
ELEVATION



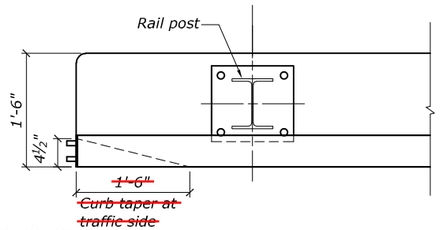
EXPANSION JOINT



TYPICAL POST ELEVATION

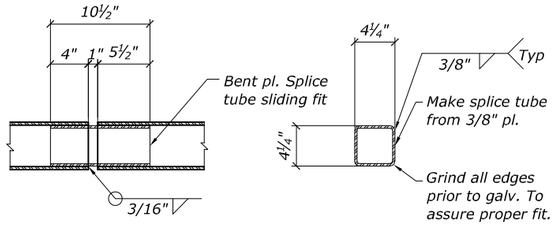


TYPICAL SECTION



PLAN
END POST DETAIL

RFI 104
Eliminate Bridge Rail Curb Taper



RAIL SPLICE DETAIL

RFI 85
Bridge Rail Splice Spacing

SPLICE TUBE

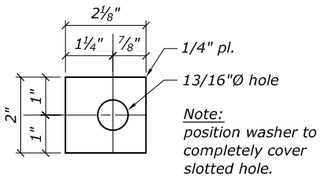
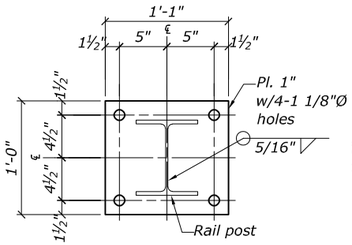
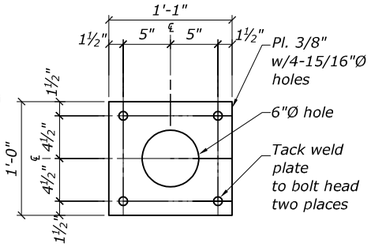


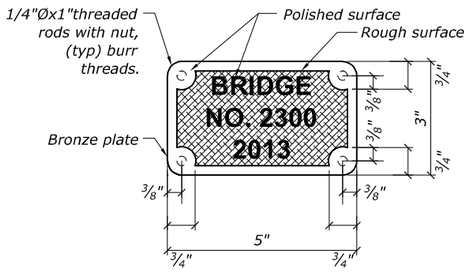
PLATE WASHER



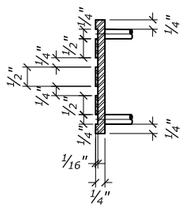
BASE PLATE DETAIL

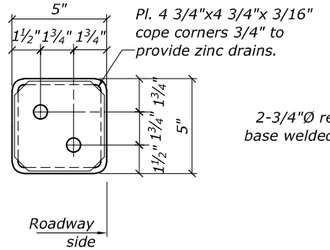


ANCHOR PLATE DETAIL

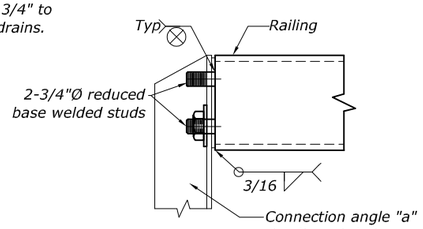


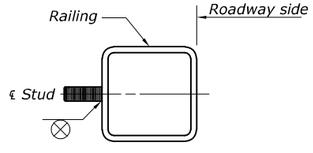
BRONZE BRIDGE NO. PLATE





RAIL CAP DETAIL





RAILING STUD DETAIL

NOTES

1. Locate bridge number plates on right hand side of approaching traffic near each end as shown (2 total).
2. Furnish bridge number plates. Use bronze that conforms to A.S.T.M. B98-90, alloy "a" or "b". Use "century" type style lettering. Use studs and nuts that conforms to uns c65100 or c65500. Braze 1/4"Ø threaded rod to back of plate with nut-4 required. Use locking nuts or lock washers on all machine bolts.
3. Provide railing expansion joints at 50'-0" maximum intervals. Railing shall be continuous over 4 posts maximum.
4. Use grout with a minimum 24 hour f'c of 3000 psi.
5. See "typical section" dwg. For rail post spacing.
6. Bridge rail is tl-4 crash test rated.
7. Install rail posts plumb.
8. See dwg G.11 for w beam transition

Materials (unless noted otherwise)

H.S.S.:	ASTM A500
Steel posts and plates:	ASTM A36 (AASHTO M183)
Bridge rail bolts:	ASTM A325 Galvanized (AASHTO M164
Anchor bolts:	ASTM A449

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
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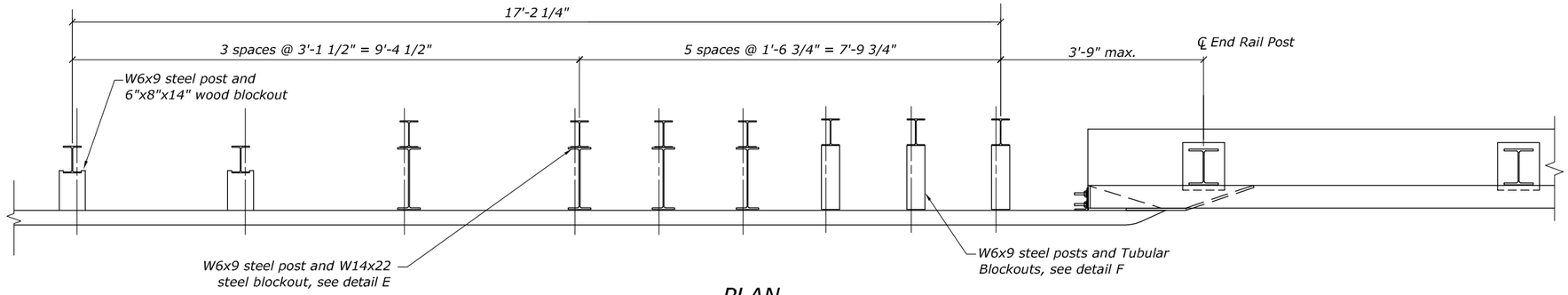
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TUNGA CREEK BRIDGE #2300
RAILING DETAILS

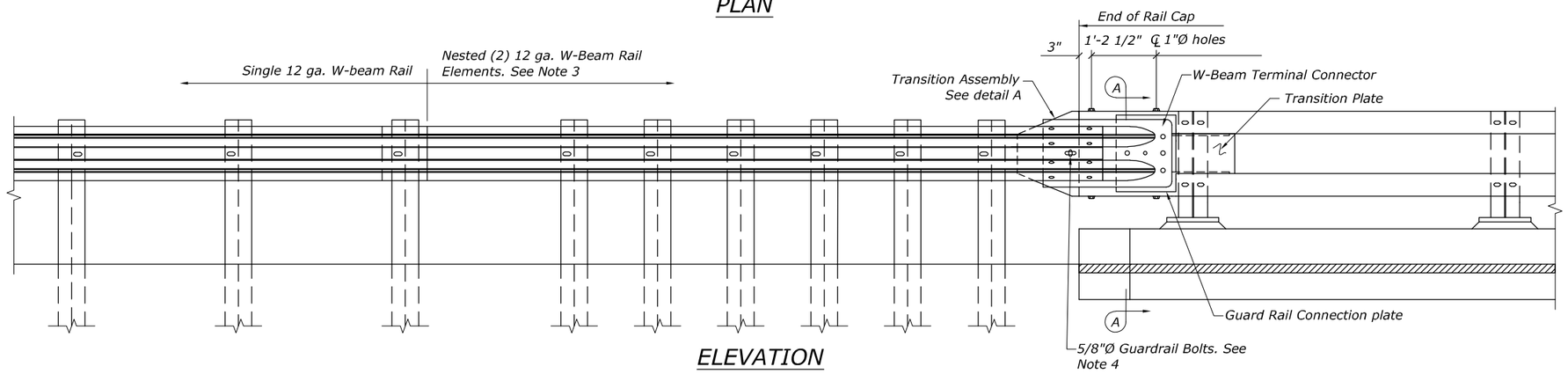
BRIDGE DRAWING	DATE	DRAWING NO.
10 OF 11	JULY 2013	RG2946 - 10

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Tunga Creek\G 10-Bridge Railing.dwg 15 August 2013 5:27 PM

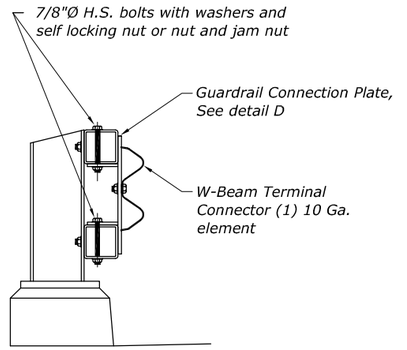
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.11
AK DOT BRIDGE NO. 2300		



PLAN



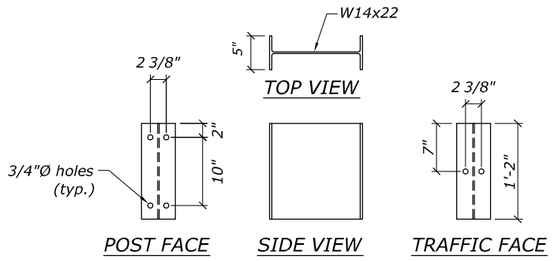
ELEVATION



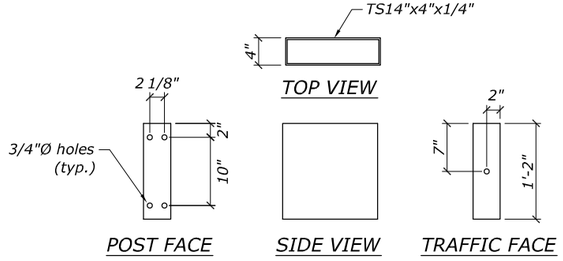
SECTION A-A

GENERAL NOTE

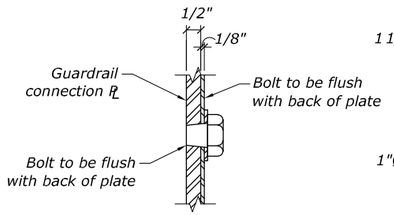
1. All guardrail and guardrail connection hardware to conform to AASHTO M-180. All H.S. Bolts conform to ASTM A325. All other steel to conform to ASTM A709 Grade 36.
2. Conform to G-00, G-04S, G-25S for all guardrail details not shown.
3. Lap approach guardrail to prevent snags from oncoming traffic.
4. Provide 4 1/2" horizontal slot in approach guardrail. Adjust guardrail bolts for sliding fit.
5. This design is approved for NCHRP 350, TL 3.



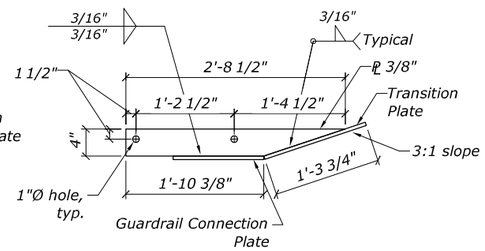
DETAIL E - STEEL BLOCK



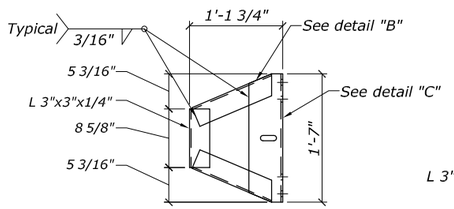
DETAIL F - TUBULAR BLOCKOUTS



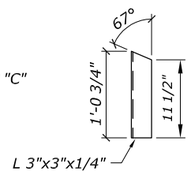
DETAIL G



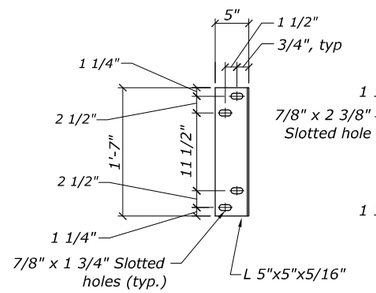
VIEW H-H



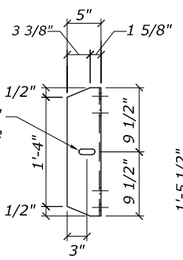
DETAIL A - TRANSITION ASSEMBLY

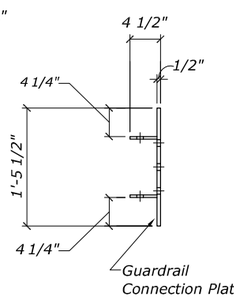


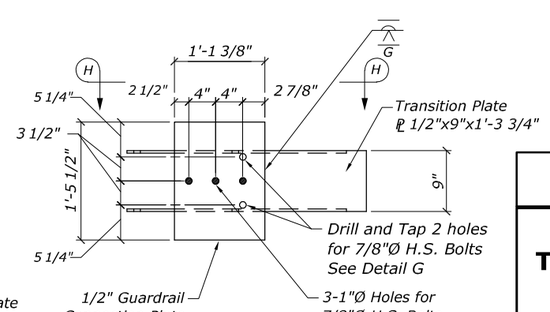
DETAIL B



DETAIL C







DETAIL D - GUARDRAIL CONNECTION PLATE

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kerley
CE-8226
8.20.13
REGISTERED PROFESSIONAL ENGINEER

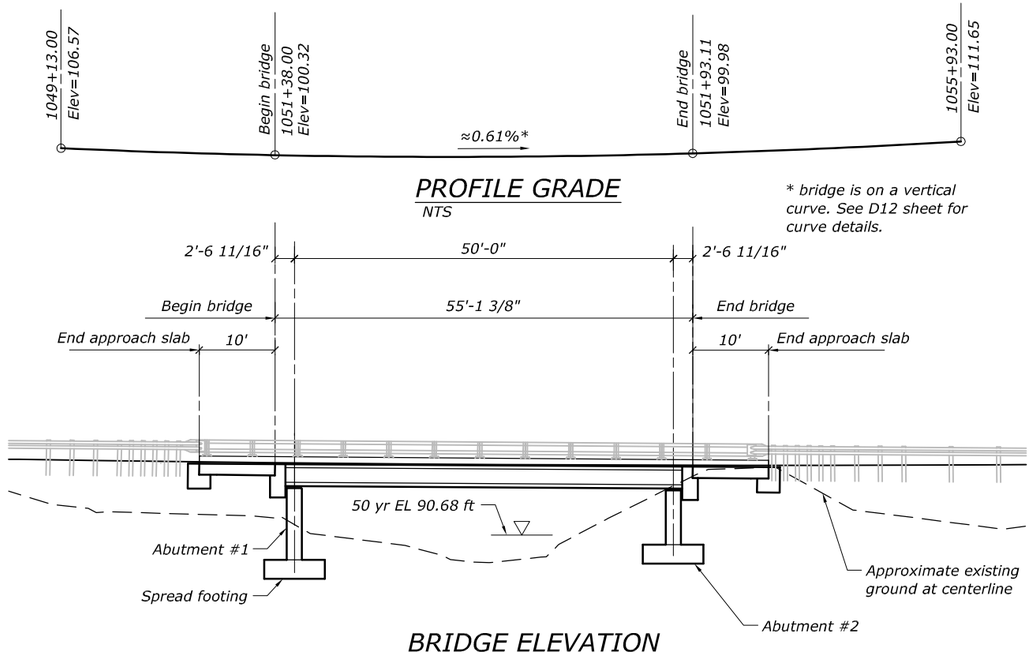
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

TUNGA CREEK BRIDGE #2300
BRIDGE RAIL
W-BEAM TRANSITION

BRIDGE DRAWING	DATE	DRAWING NO.
11 OF 11	JULY 2013	RG2946 - 11

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Tunga Creek\G 11-W Beam Transition.dwg [USC] 15 August 2013 5:28 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.12
AK DOT BRIDGE NO. 2301		

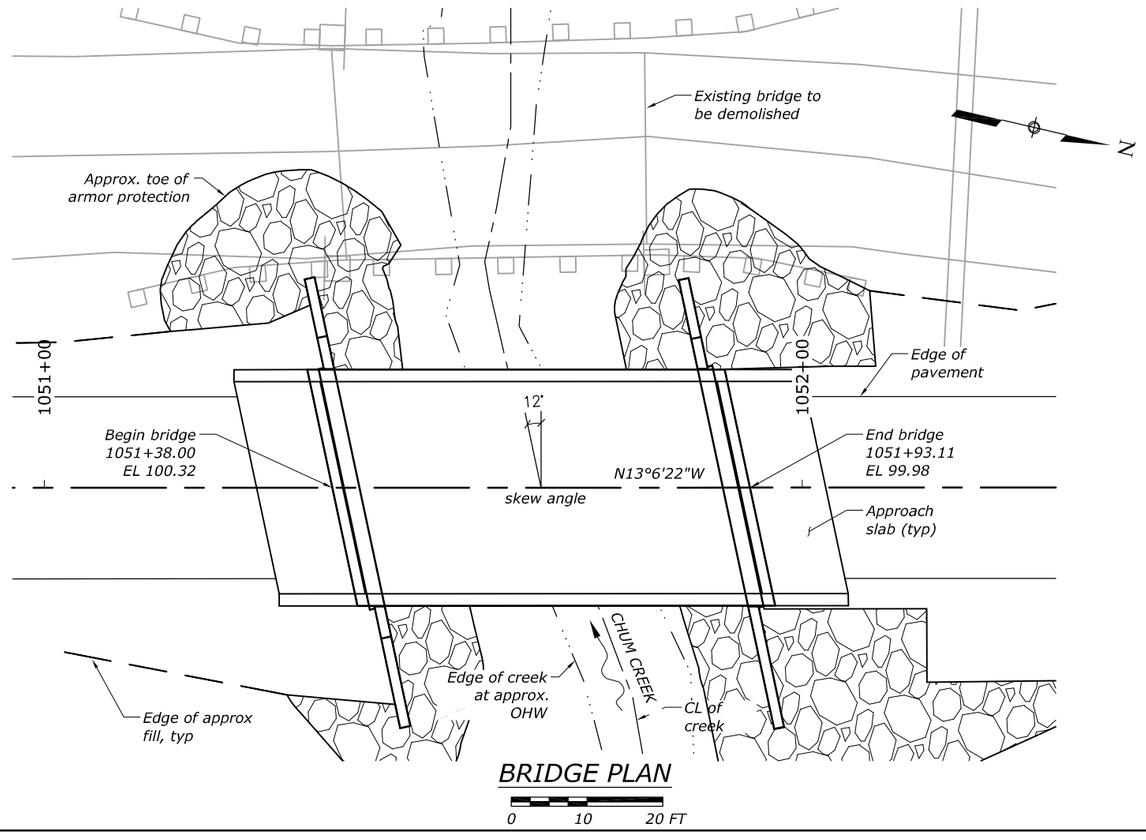


PROFILE GRADE

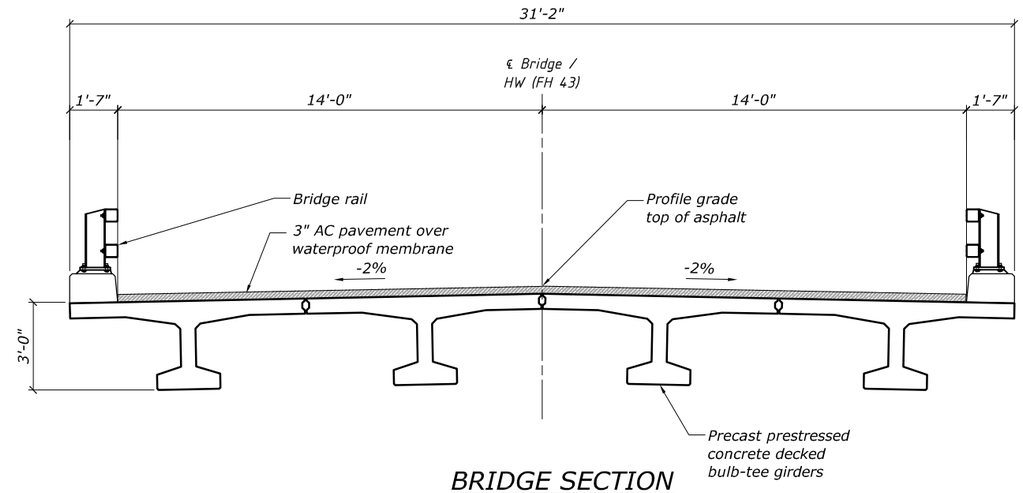
NTS

* bridge is on a vertical curve. See D12 sheet for curve details.

BRIDGE ELEVATION



BRIDGE PLAN



BRIDGE SECTION

DESIGN CRITERIA

SPECIFICATIONS:	*FP-03, Standard Specification for Construction of Roads and Bridges on Federal Highway Projects and the Revisions to Satandard Specifications*	
DESIGN:	*AASHTO LRFD bridge design specification, 2012 edition.*	
LIVE LOAD:	*HL-93*	
SEISMIC PARAMETERS	*Site Class,*	*= B*
	0.2s Spectral Acceleration coefficient, S_s	*= 0.3*
	1.0s Spectral Acceleration coefficient, S_1	*= 0.2*
	Site Factors: F_{pga}	*= 1.0*
	F_a	*= 1.0*
	F_v	*= 1.0*
	Liquefaction potential	*= none*
	Design Response Spectrum S_{DS}	*= 0.30*
	S_{D1}	*= 0.20*
	PGA	*= 0.10*
	As	*= 0.10*
	Zone	*= 2*
DEAD LOAD:	*Plus 25 psf future wearing surface*	
PRECAST CONCRETE:	*See "girders" DWG.*	
CONCRETE:	*Use class A(AE) concrete for all concrete unless otherwise noted. f'c = 4000 psi*	
REINFORCING STEEL:	*Use ASTM A706, grade 60, Fy = 60,000 psi reinforcing steel. Space bars evenly unless otherwise noted.*	
STRUCTURAL STEEL:	*Use ASTM A709, grade 36, Fy = 36,000 psi galvanize all structural steel unless otherwise noted.*	

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kerley
CE-625
8.20.13
REGISTERED PROFESSIONAL ENGINEER

INDEX TO SHEETS CHUM CREEK BRIDGE #2301

RG2947	CHUM CREEK BRIDGE
RG2947-1	GENERAL LAYOUT
RG2947-2	SITE PLAN
RG2947-3	RIPRAP LAYOUT & ABUTMENT EXCAVATION
RG2947-4	ABUTMENT 1
RG2947-5	ABUTMENT 2
RG2947-6	ABUTMENT DETAILS
RG2947-7	TYPICAL SECTION , FRAMING PLAN & GIRDER DETAILS
RG2947-8	GIRDERS
RG2947-9	APPROACH SLAB
RG2947-10	RAILING DETAILS
RG2947-11	BRIDGE RAIL W BEAM TRANSITION
RG2947-12	EXISTING BRIDGE REMOVAL AND BANK RESTORATION

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301
GENERAL LAYOUT

BRIDGE DRAWING	DATE	DRAWING NO.
1 OF 12	JULY 2013	RG2947 - 1

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 12-General Layout.dwg [USC] 20 August 2013 9:18 AM

STATE	PROJECT	SHEET NUMBER
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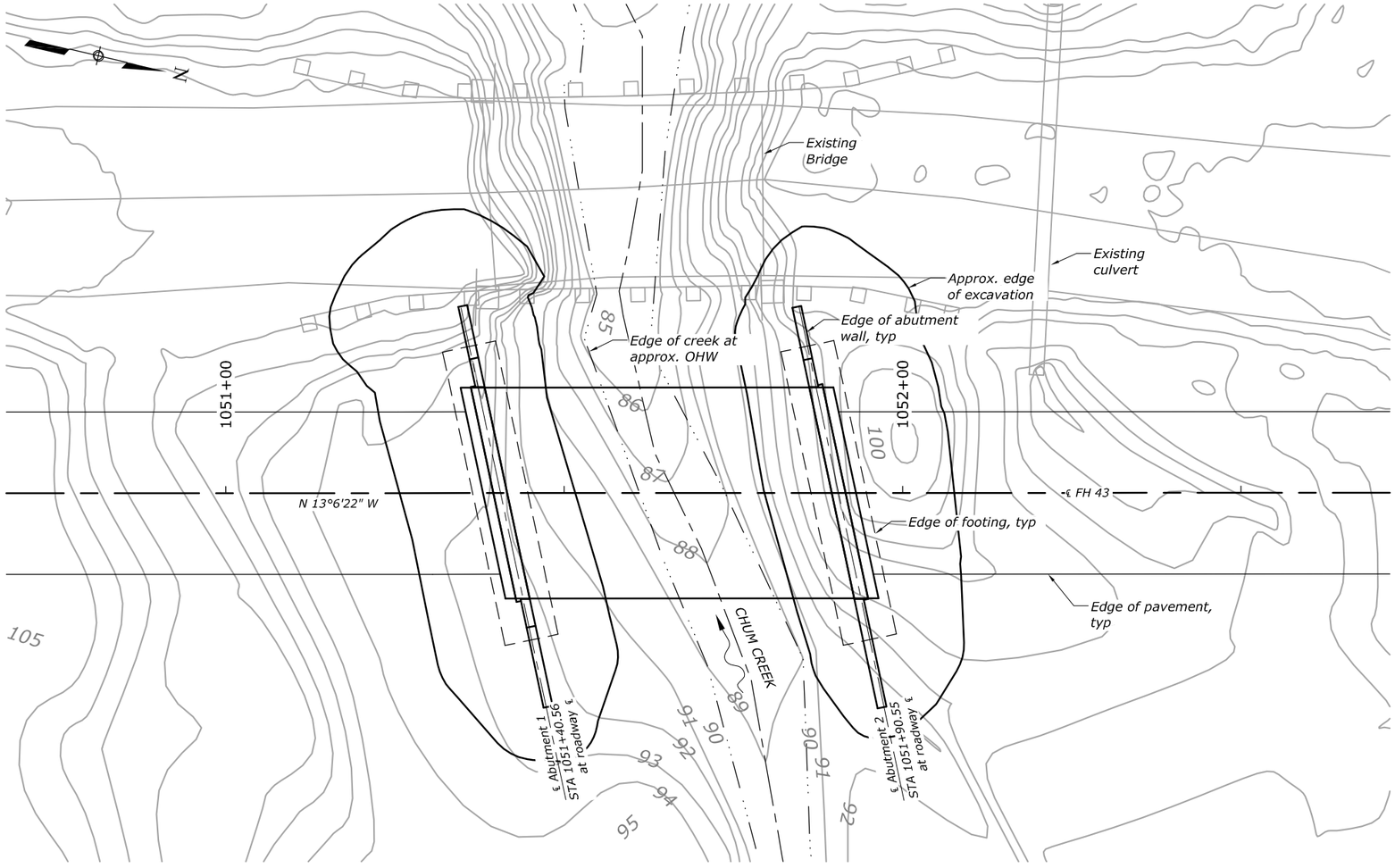
AK DOT BRIDGE NO. 2301		



SITE PLAN

0 10 20 FT

HYDRAULIC AND HYDROLOGIC SUMMARY

	50 YR.	100 YR.	500 YR.
Flood frequency (Yr.)	2	1	0.2
Exceedance probability (%)	286	320	411
Discharge (cfs)	90.68	90.89	91.48
Water surface elev. (ft)	0.17	0.16	0.26
Anticipated add'l backwater (ft)	0	0	0
Contraction scour (ft)	0	0	0
Abutment scour (ft)			
Long term bed elevation change (ft)			

Drainage area for this crossing: 1.10 square miles

Hydraulic capacity >>411 cfs at low superstructure elevation of 97 feet which has an exceedance probability of 0.2 percent

Total scour equals contraction scour + local scour

Design high water (DHW) = 90.68 ft at bridge ℄
Ordinary high water (OHW) = 89.93 ft at bridge ℄

CHUM CREEK BRIDGE ESTIMATE OF QUANTIIES

ITEM	UNIT	SUBST.	SUPERST.	TOTAL
Removal of existing bridge	EA			1
Excavation for structures	CY	1100		1100
Structural fill	CY	900		900
Class A (AE) concrete for abutment footing and wall	CY	115		115
Class A (AE) concrete for backwall	CY		19	19
Class A (AE) concrete for approach slab	CY	45		45
Class A (AE) concrete for approach slab footing	CY	15		15
Class A (AE) concrete for curb	CY		10	10
Prestressed concrete member (36" decked bulb-tee)	EA		4	4
Reinforcing steel	LBS	22450	2450	24900
Epoxy-coated reinforcing steel	LBS	0	14520	14520
Geocomposite sheet drain	SF		800	800
Bridge rail	LF		302	302
Bridge rail W-beam trasition	EA		4	4
Riprap, class 2	CY	290		290
Waterproof membrane	SF		2150	2150

FOOTING INFORMATION

Location	Limit State	Res. Factor	Factored Bearing Resistance	Factored Bearing Pressure
Abutment 1	Extreme event 1	0.45	20,000 psf	17,900 psf
Abutment 2	Extreme event 1	0.45	20,000 psf	17,900 psf

GEOTECHNICAL REPORT: For boring logs and other geotechnical information, see Geotechnical Report No. 5-13 AK PFH 43(10) Deweyville trailhead to Neck Lake Road WFLD by PND Engineers.

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kerley
CE-625
8.20.13
REGISTERED PROFESSIONAL ENGINEER

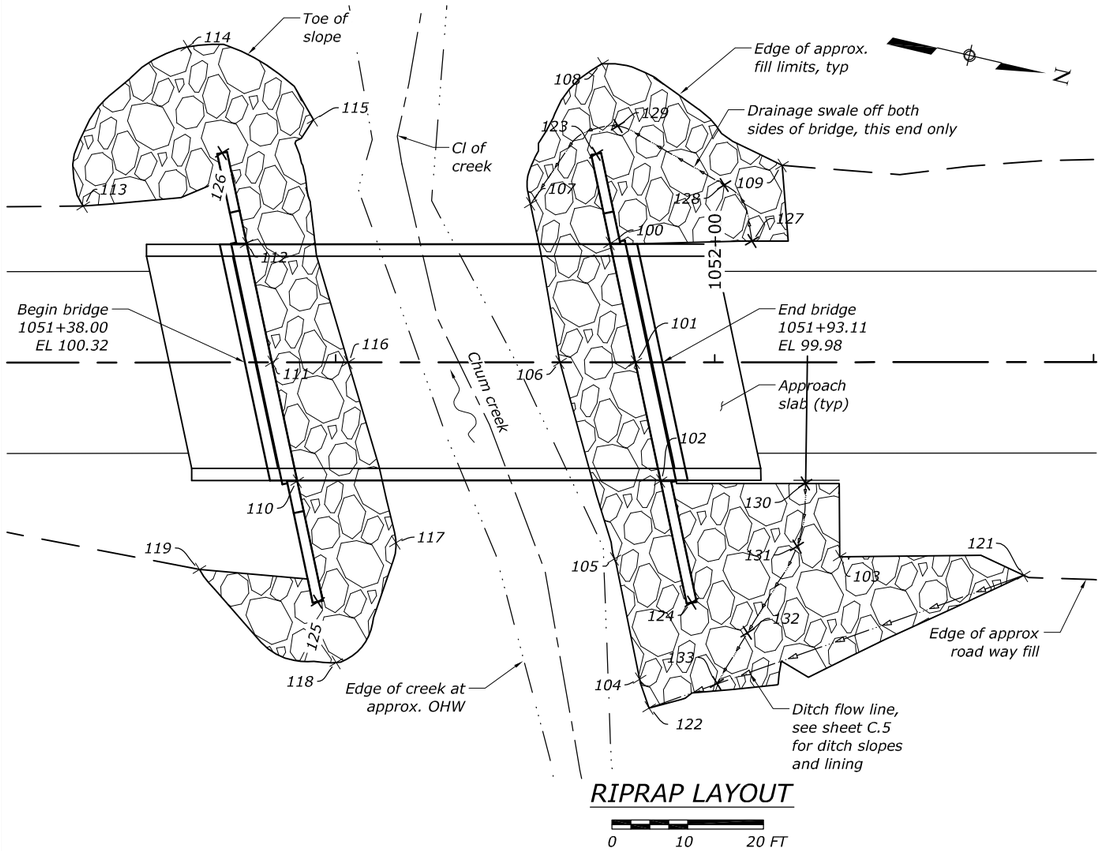
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301
SITE PLAN

BRIDGE DRAWING	DATE	DRAWING NO.
2 OF 12	JULY 2013	RG2947 - 2

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 13-Site Plan.dwg [USC] 15 August 2013 5:13 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.14
	AK DOT BRIDGE NO. 2301	



RIPRAP LAYOUT

0 10 20 FT

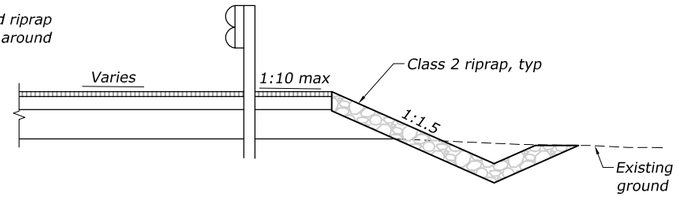
RIPRAP LAYOUT TABLE

POINT NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	1528917.9112	2774244.2530	92.68	Riprap
101	1528924.6970	2774258.7588	92.68	Riprap
102	1528931.4928	2774273.2623	92.68	Riprap
103	1528956.7662	2774277.6577	93.85	Riprap
104	1528934.7007	2774299.3766	91.50	Riprap
105	1528927.8873	2774284.6637	90.91	Riprap
106	1528915.0117	2774261.0137	91.73	Riprap
107	1528906.5015	2774241.5196	91.14	Riprap
108	1528911.4816	2774221.4032	97.84	Riprap
109	1528937.6820	2774229.0699	97.70	Riprap
110	1528884.7900	2774284.1510	92.68	Riprap
111	1528877.9908	2774269.6328	92.68	Riprap
112	1528871.1950	2774255.1293	92.68	Riprap
113	1528849.0762	2774255.1714	98.84	Riprap
114	1528857.6858	2774231.5946	99.49	Riprap
115	1528876.0733	2774237.1963	89.90	Riprap
116	1528887.7877	2774267.3519	89.74	Riprap

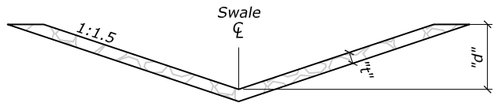
RIPRAP LAYOUT TABLE

POINT NO	NORTHING	EASTING	ELEVATION	DESCRIPTION
117	1528899.3216	2774289.1135	91.51	Riprap
118	1528895.2161	2774306.2830	92.89	Riprap
119	1528874.8617	2774298.4221	93.24	Riprap
121	1528980.9831	2774274.5378	93.99	Riprap
122	1528936.7956	2774302.7848	92.00	Riprap
123	1528913.4329	2774233.1477	95.26	Riprap
124	1528939.1168	2774287.9621	93.12	Riprap
125	1528891.0251	2774299.0216	92.79	Riprap
126	1528865.3367	2774244.1978	96.09	Riprap
127	1528936.0697	2774239.6831	99.62	Riprap
128	1528930.8202	2774233.3199	96.80	Riprap
129	1528915.4025	2774228.9030	93.75	Riprap
130	1528950.1700	2774269.2561	99.52	Riprap
131	1528950.9770	2774277.6036	98.02	Riprap
132	1528947.1846	2774290.1875	96.51	Riprap
133	1528944.7700	2774297.5881	95.01	Riprap

Note: Layout points are a general approximation to excavation and riprap placement limits. Contractor shall field fit riprap to daylight limits around bridge abutment excavations.

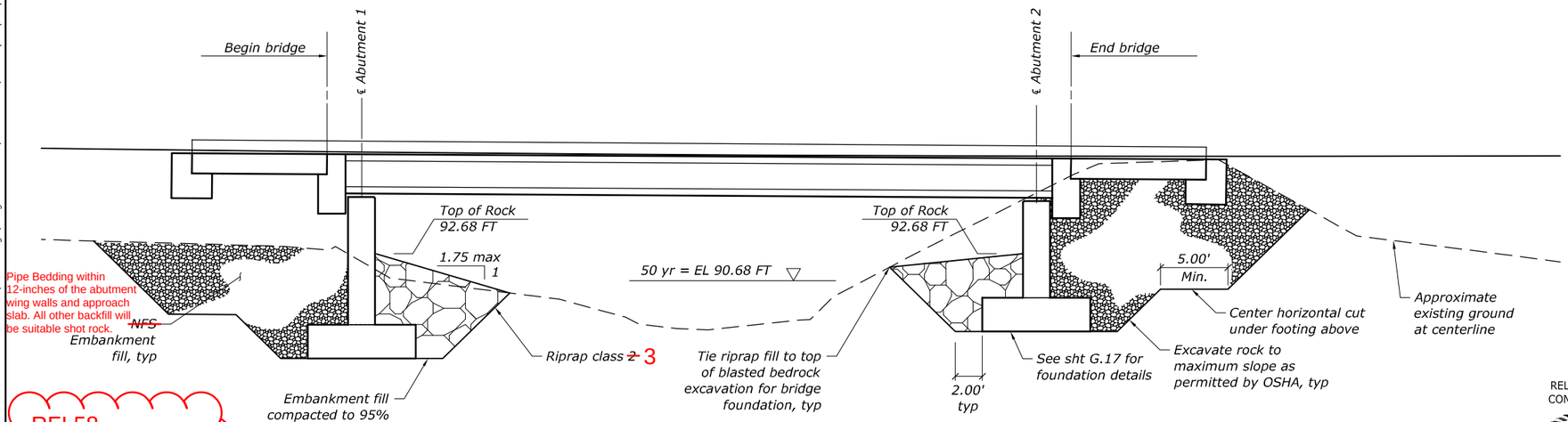


TYPICAL EMBANKMENT RIPRAP



TYPICAL DRAINAGE SWALE SECTION

Notes:
1. "d" varies. Extend swale until water has been directed towards the creek and positive drainage to the creek is provided.
2. "t" shall be a minimum of 12"



RFI 58
Structure Backfill

RFI 70
Bridge Abutment Riprap
Class 3 - Visual Acceptance

BRIDGE SECTION AT CL

0 5 10 FT

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kerley
CE-6258
8.20.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301
RIPRAP LAYOUT & ABUTMENT EXCAVATION

BRIDGE DRAWING	DATE	DRAWING NO.
3 OF 12	JULY 2013	RG2947 - 3

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 14-Rlp Rap Layout.dwg [USC] 15 August 2013 5:13 PM

STATE	PROJECT	SHEET NUMBER
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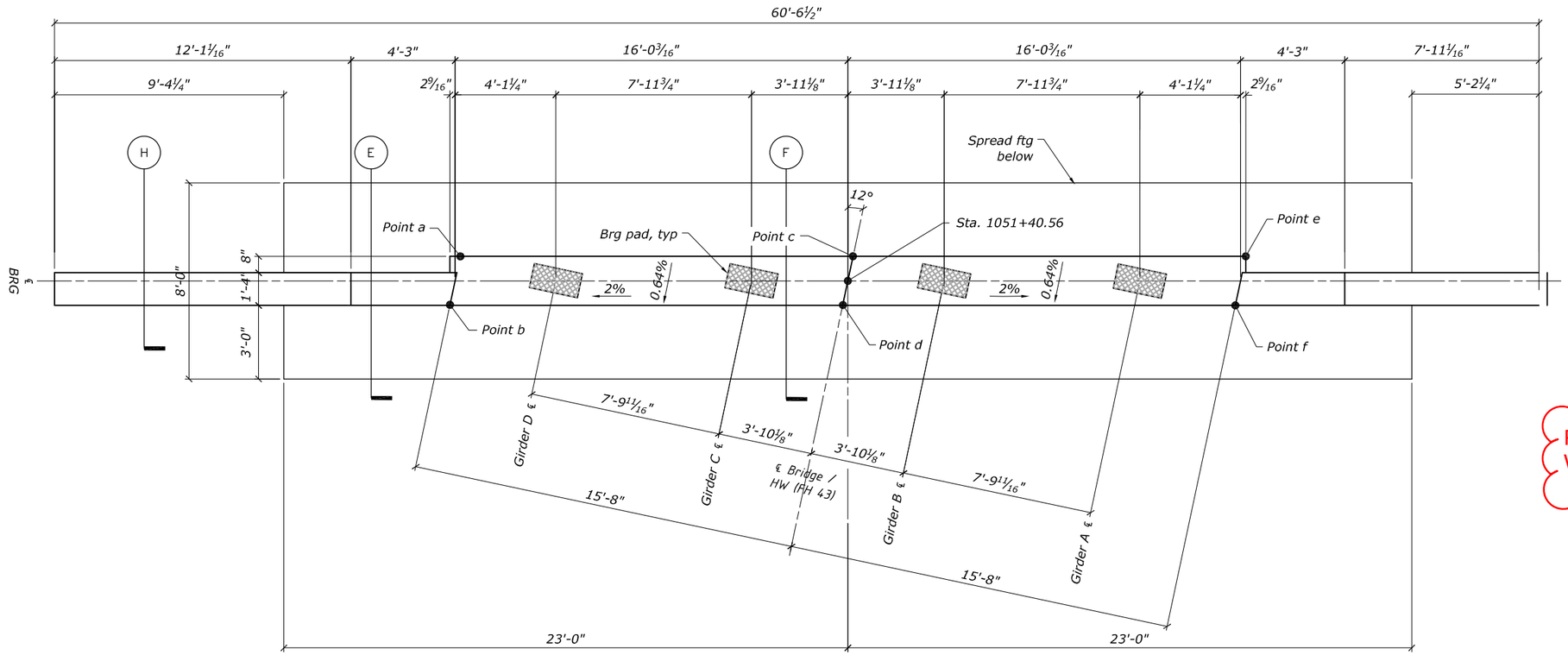
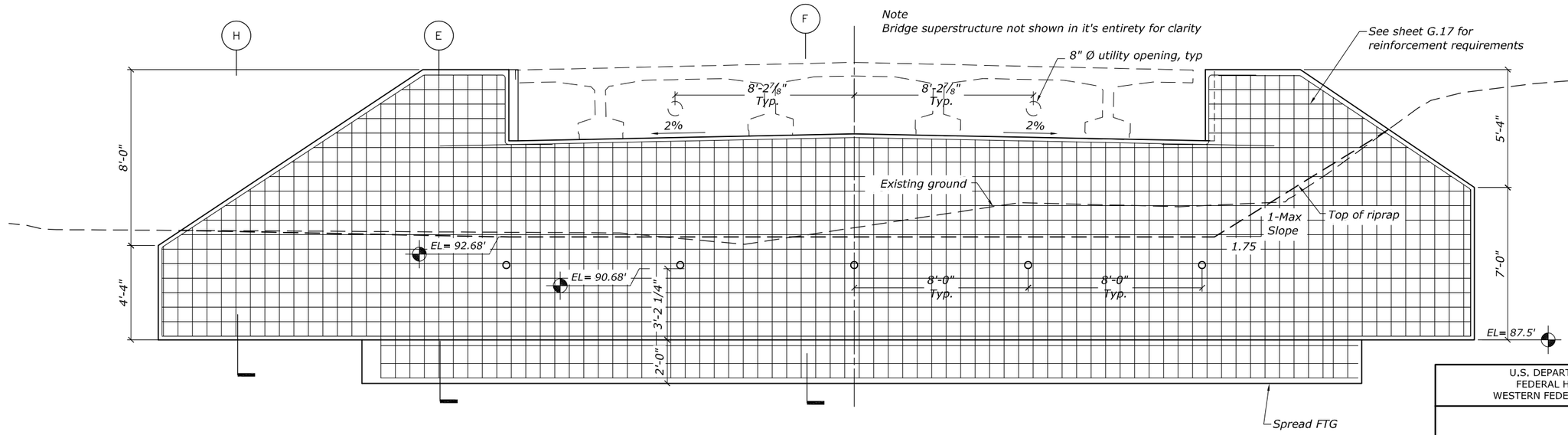
AK DOT BRIDGE NO. 2301		



PLAN-ABUTMENT 1



ELEVATION ABUTMENT 1

(LOOKING BACK ON STATION)

RFI 55
Wing Wall Construction Joint

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kenley
CE-6258
8.20.13
REGISTERED PROFESSIONAL ENGINEER

TOP OF ABUTMENT WALL ELEV

POINT	ABUTMENT 1
a	96.40'
b	96.39'
c	96.73'
d	96.72'
e	96.44'
f	96.43'

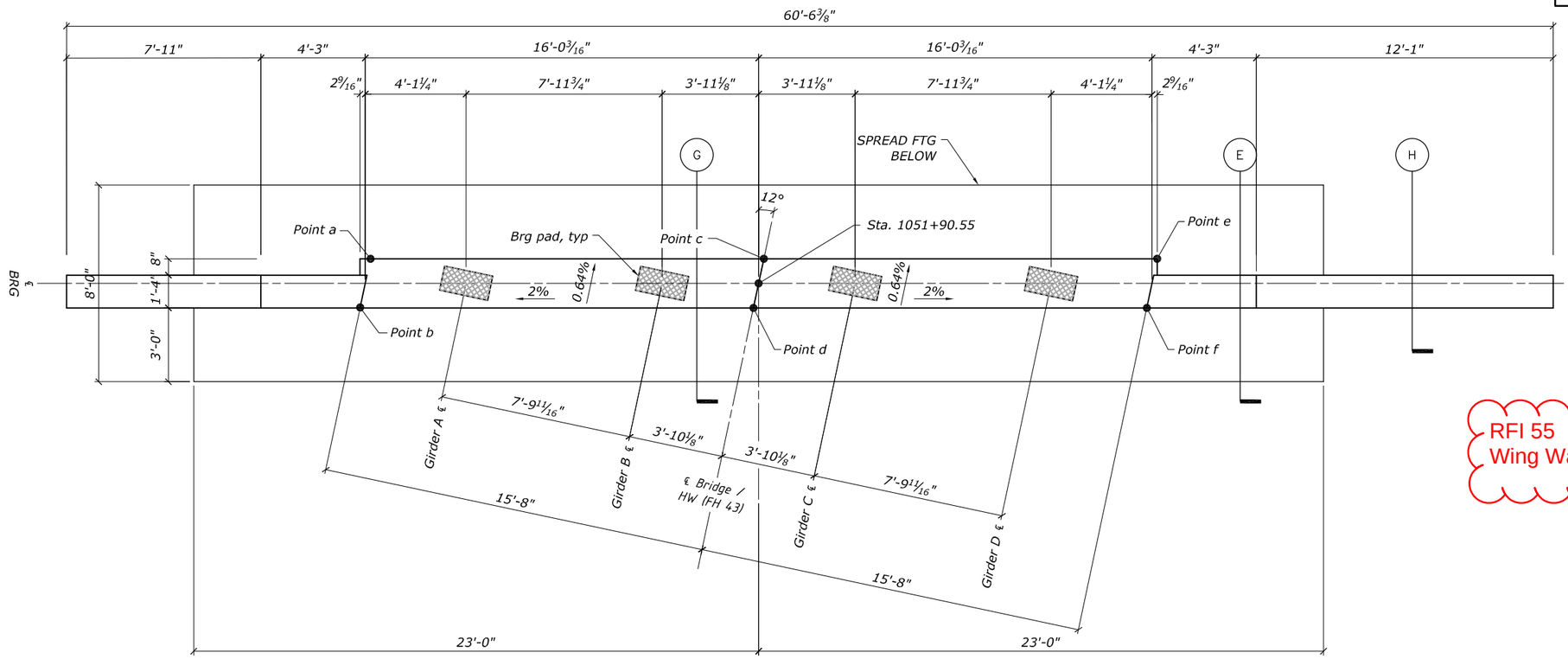
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301
ABUTMENT 1

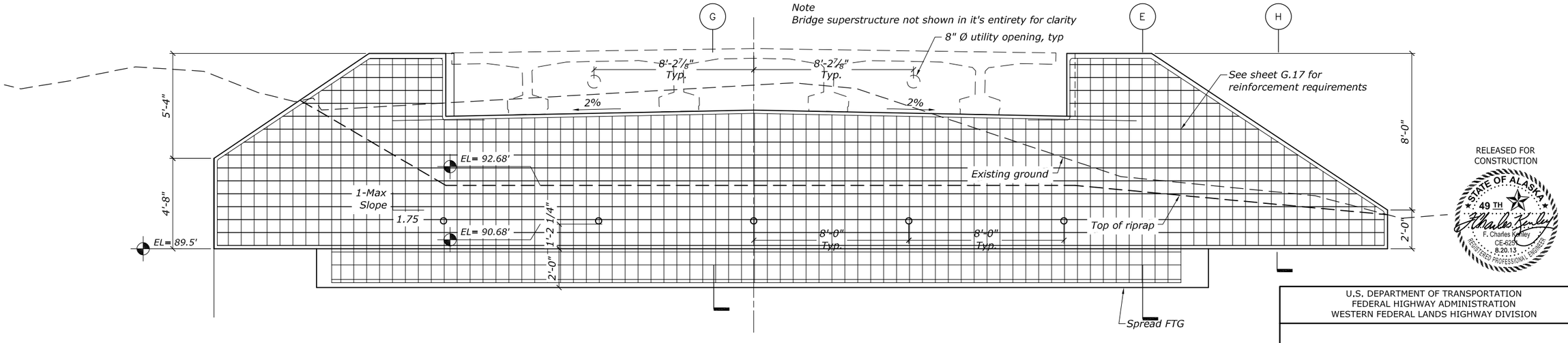
BRIDGE DRAWING	DATE	DRAWING NO.
4 OF 12	JULY 2013	RG2947 - 4

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 15-16-Abutments.dwg [USC] 20 August 2013 9:21 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.16
	AK DOT BRIDGE NO. 2301	



PLAN-ABUTMENT 2



ELEVATION ABUTMENT 2

(LOOKING UP STATION)

RFI 55
Wing Wall Construction Joint

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kenley
CE-625
8.20.13
REGISTERED PROFESSIONAL ENGINEER

TOP OF ABUTMENT WALL ELEV

POINT	ABUTMENT 2
a	96.12'
b	96.13'
c	96.41'
d	96.42'
e	96.08'
f	96.09'

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301
ABUTMENT 2

BRIDGE DRAWING	DATE	DRAWING NO.
5 OF 12	JULY 2013	RG2947 - 5

20 August 2013 9:21 AM

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 15-16-Abutments.dwg [USC]

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.17
AK DOT BRIDGE NO. 2301		

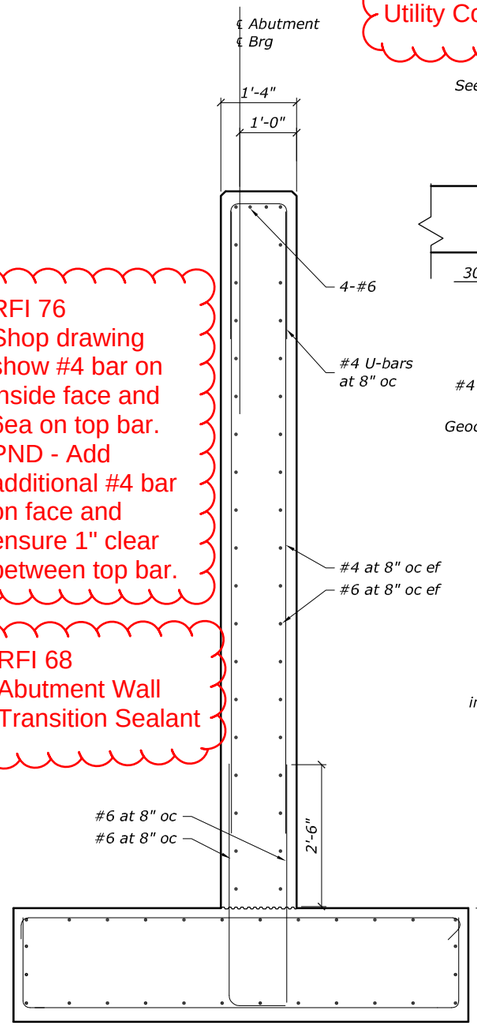
RFI 82
Utility Conduit Splice

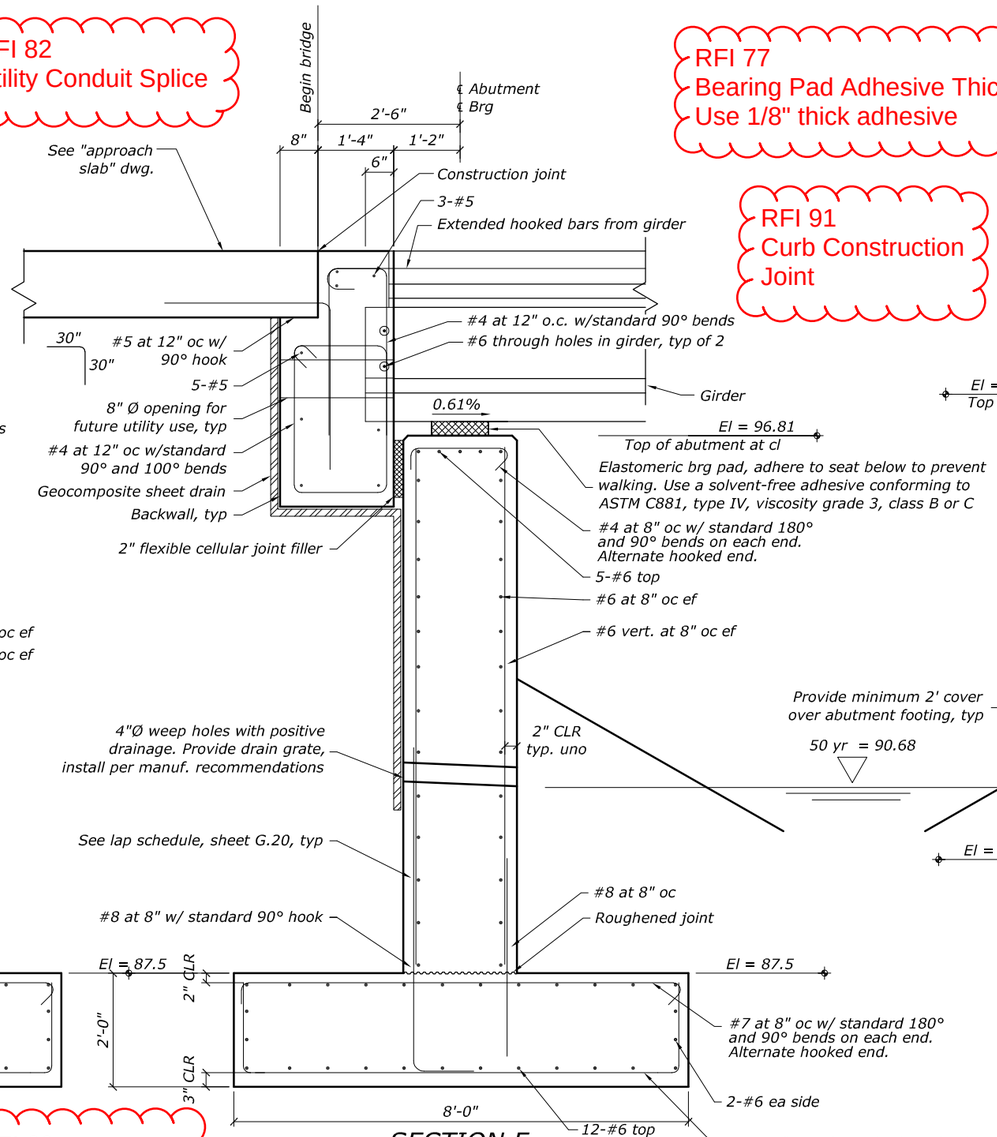
RFI 77
Bearing Pad Adhesive Thickness
Use 1/8" thick adhesive

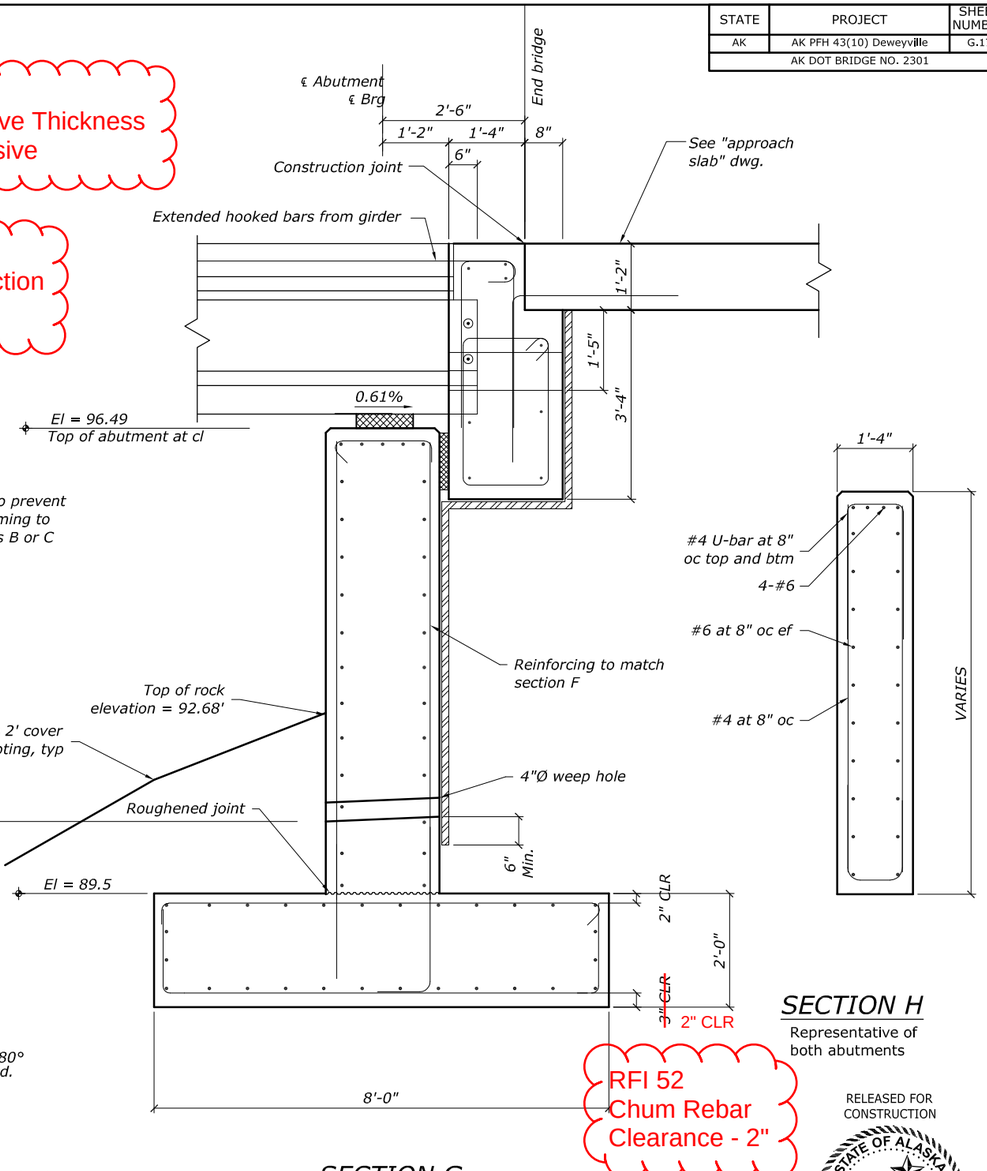
RFI 91
Curb Construction Joint

RFI 76
Shop drawing show #4 bar on inside face and 6ea on top bar.
PND - Add additional #4 bar on face and ensure 1" clear between top bar.

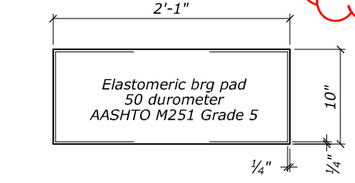
RFI 68
Abutment Wall Transition Sealant







SECTION E
Representative of both abutments

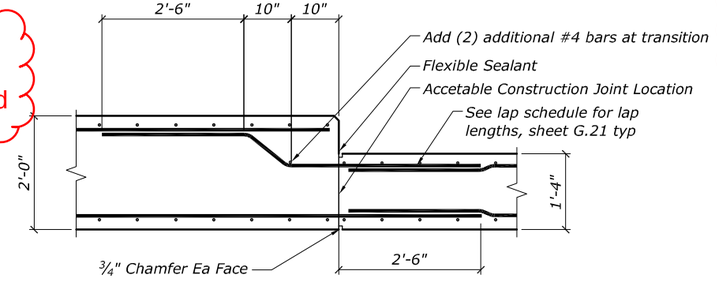


BEARING PAD

RFI 69
Void Behind Wing Wall

SECTION F
abutment 1 shown, abutment 2 similar

RFI 72 - Construction Joint Chamfer
If no construction joint is installed no chamfer or flexible sealant is required



ABUTMENT WALL TRANSITION PLAN

SECTION G
abutment 2 shown, abutment 1 similar

RFI 88
Joint Filler at Endwall

RFI 52
Chum Rebar Clearance - 2"

SECTION H
Representative of both abutments

RELEASED FOR CONSTRUCTION

Notes:
1. Backwall and approach slab reinforcing bar to be epoxy coated.
2. Bridge rail anchorage not shown for clarity.
3. Section A typical beyond bridge to edge of ftg.
4. Elastomeric bearing pad shear modulus = 0.095 ksi

BEARING PAD REACTIONS		
LOCATION	D.L. PER BRG.	L.L. PER BRG.
ABUTMENTS	47.5 kips	74.6 kips

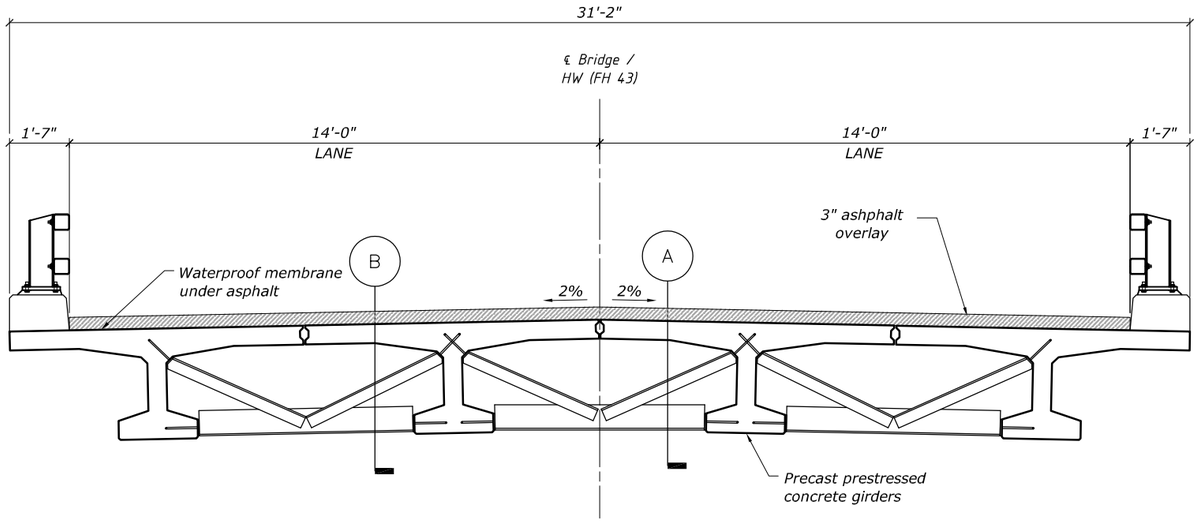
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301
ABUTMENT DETAILS

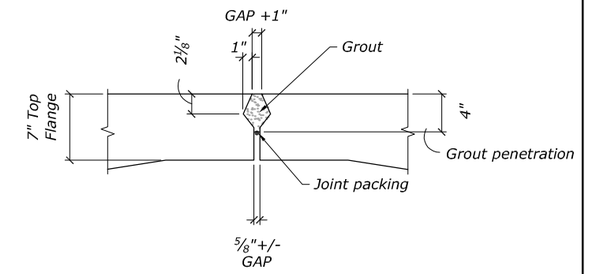
BRIDGE DRAWING	DATE	DRAWING NO.
6 OF 12	JULY 2013	RG2947 - 6

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 17-Abutment Dets.dwg [USC]
24 August 2013 9:26 AM

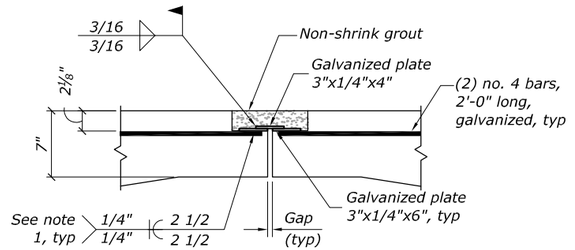
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.18
	AK DOT BRIDGE NO. 2301	



SECTION NEAR MIDSPAN



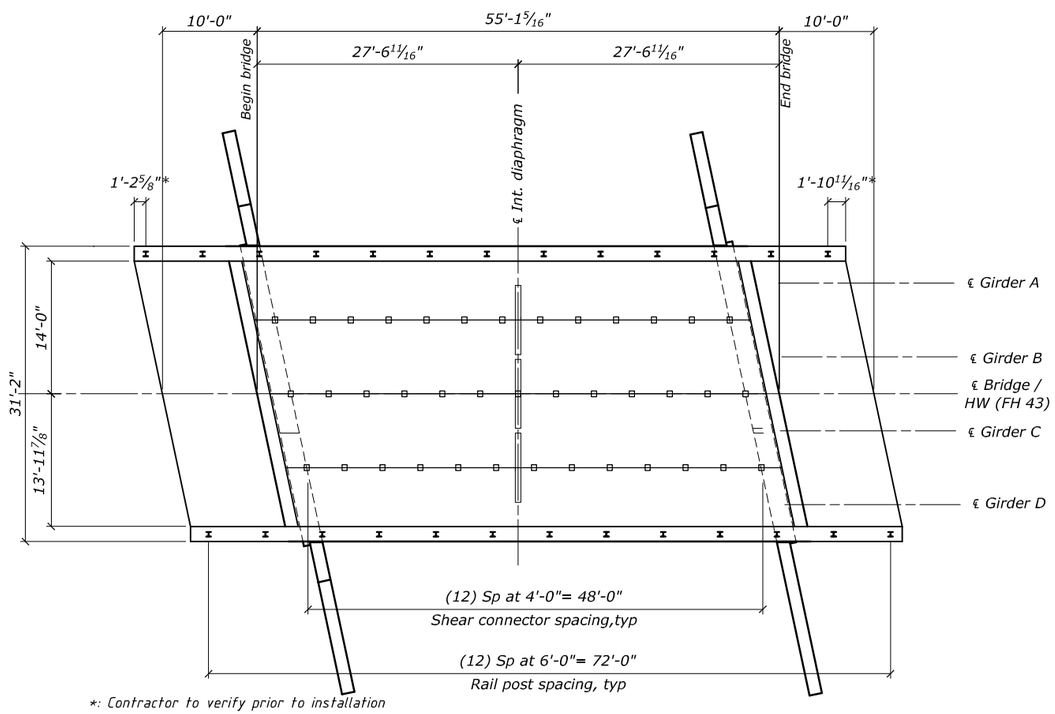
SHEAR KEY DETAIL



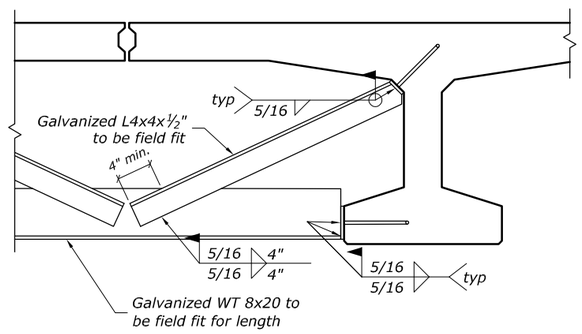
SHEAR CONNECTOR DETAIL

RFI 97
Girder Elevation Difference

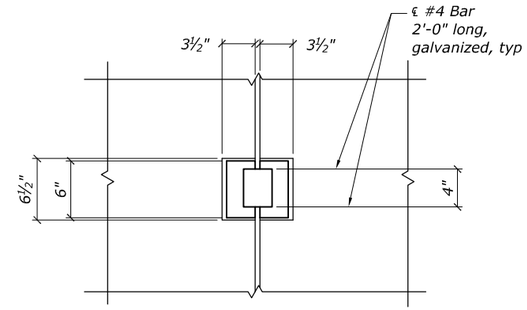
RFI 80
Shear Key Shims



FRAMING PLAN



INTERMEDIATE DIAPHRAGM CONNECTION DETAIL



PLAN VIEW - SHEAR CONNECTOR

1. Remove galvanized coating from areas to be welded before welding, repair all damaged coatings per ASTM A780.
2. Shear key grout shall have a min. 24 hr f'c = 5,000 psi and 28 day f'c = 10,000 psi

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kenley
CE-6251
8.20.13
REGISTERED PROFESSIONAL ENGINEER

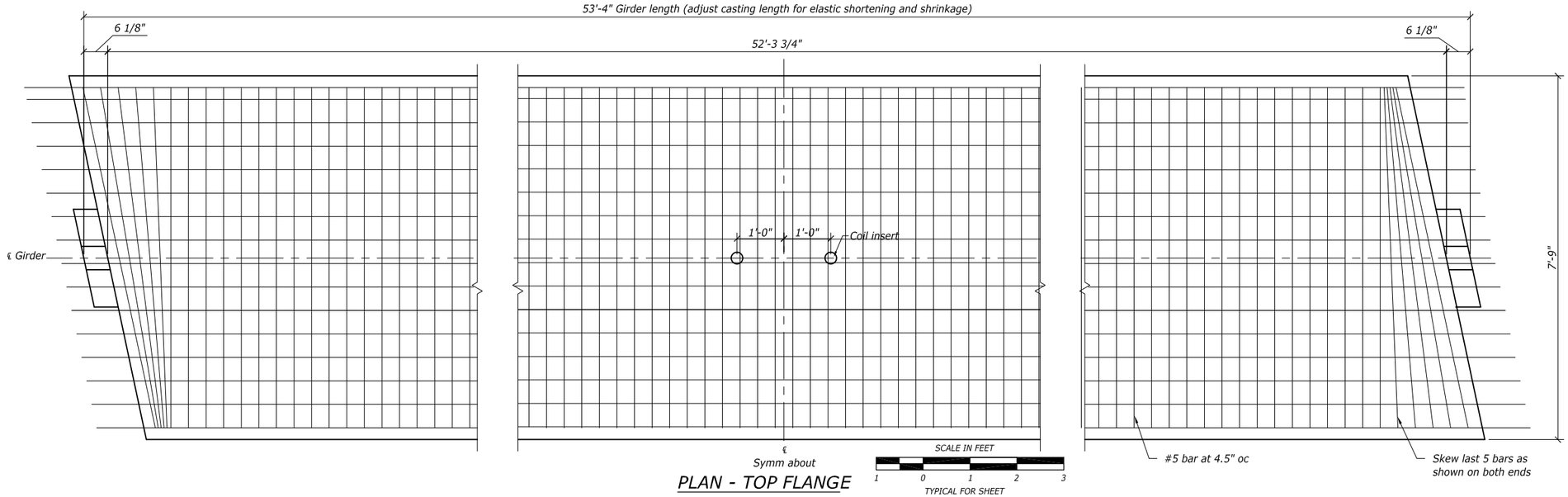
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301
TYPICAL SECTION, FRAMING PLAN & GIRDER DETAILS

BRIDGE DRAWING	DATE	DRAWING NO.
7 OF 12	JULY 2013	RG2947 - 7

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 18-Typdal Section.dwg [USC] 15 August 2013 5:14 PM

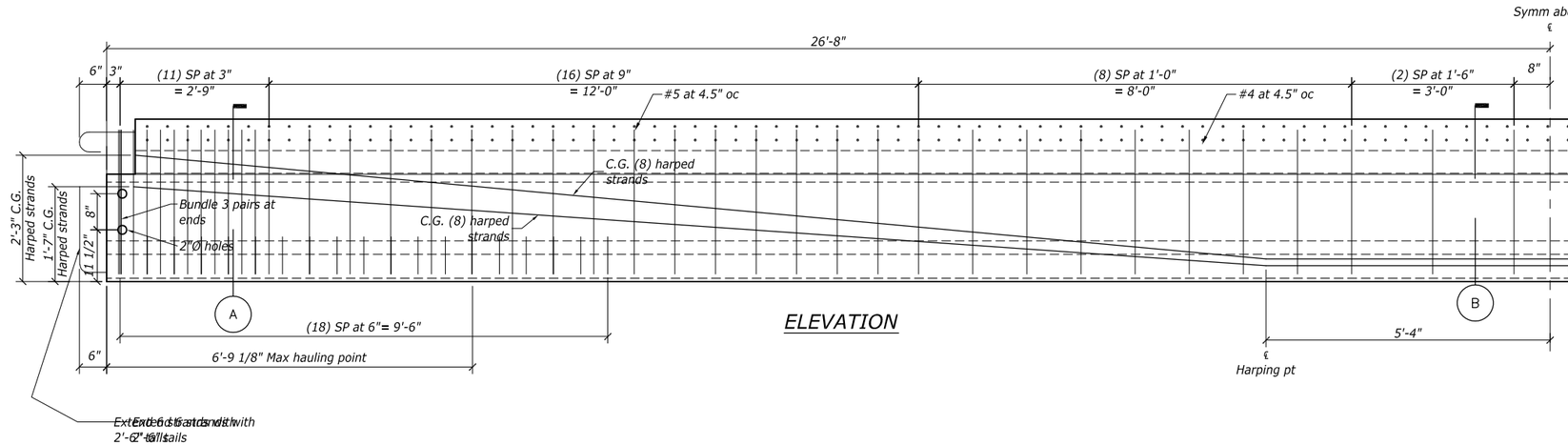
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.19
	AK DOT BRIDGE NO. 2301	



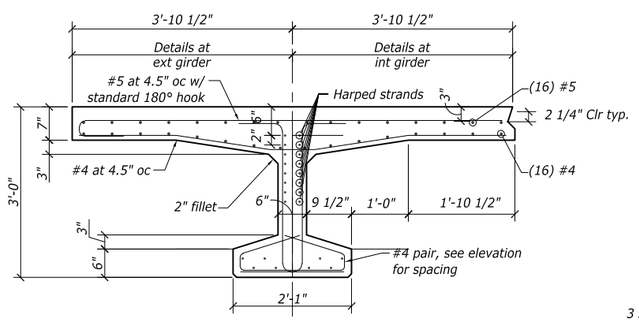
PLAN - TOP FLANGE

RFI 86
Pre Tension cables - Non epoxy coated

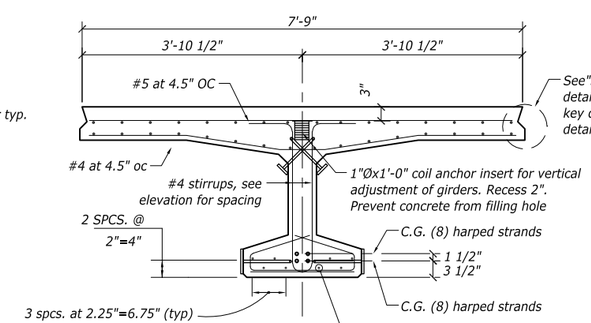
RFI 83
Girder Tension Cables



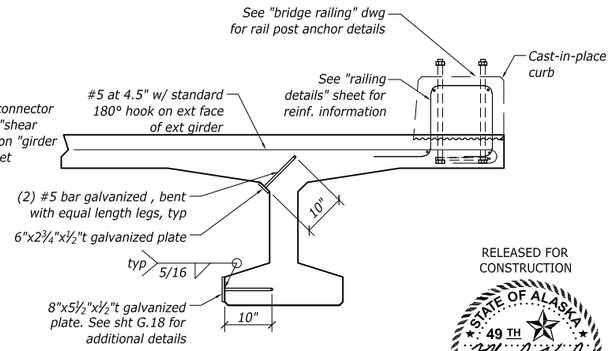
ELEVATION



SECTION A



SECTION B



EXTERIOR GIRDER NEAR MIDSPAN

NOTES:

Use P(AE) concrete with the following strengths:
At stress transfer f'ci = 6750 PSI
At 28 days f'c = 8000 PSI

Use ½"Ø low-relaxation prestressing strands with an ultimate strength of 270 ksi and a cross section area of 0.153 in².

Design is based on the following steel stresses:
pre-tensioning - Jacking stress 189 KSI
After all losses 166 KSI
Total strand area = 3.672 in2
Total pre-stress losses = 21.68 ksi

All reinforcing to be epoxy coated.

One inch clear on all reinforcing except as noted.

Deflect forms to compensate for camber and roadway grade.

Provide smooth concrete surface on the roadway surface of the precast member. Roughen the surface under the railing curbs.

Omit shear key and shear key connectors outside the exterior girders.

Cast girder and ends plumb with respect to roadway grade.

RELEASED FOR CONSTRUCTION

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F. Charles Kenley
CE-6251
8.20.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301 GIRDERS

BRIDGE DRAWING	DATE	DRAWING NO.
8 OF 12	JULY 2013	RG2947 - 8

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 19-Girders.dwg [USC] 15 August 2013 5:17 PM

STATE	PROJECT	SHEET NUMBER
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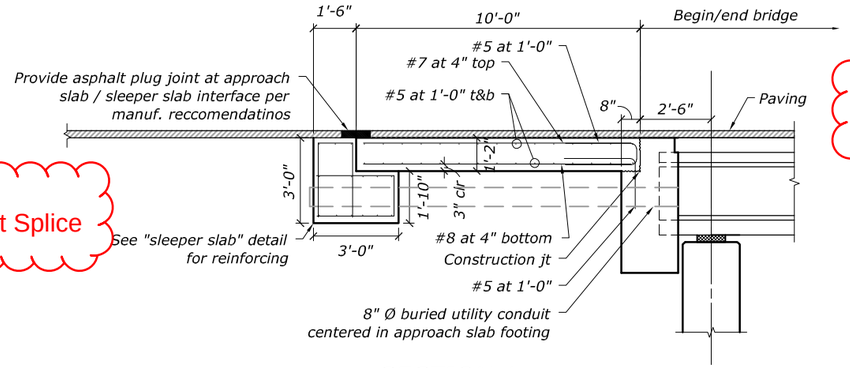
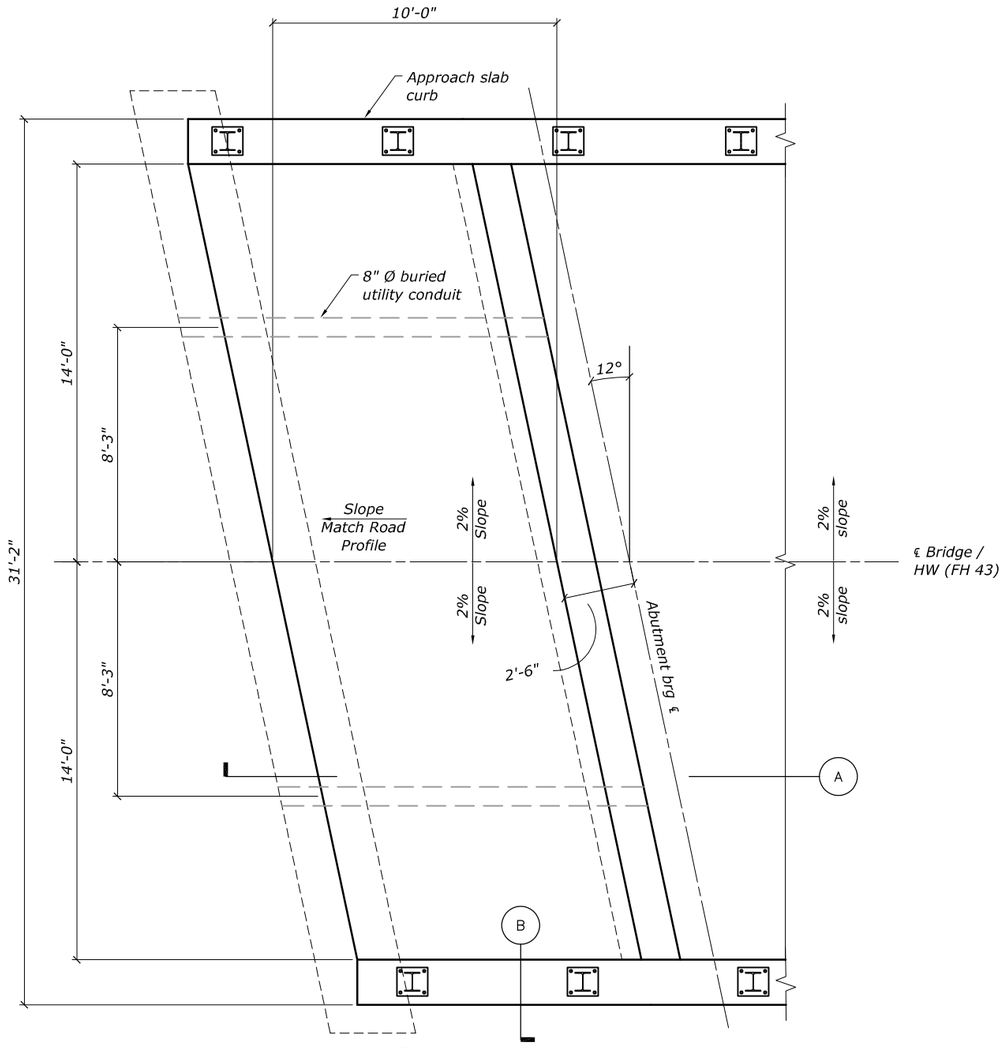
AK DOT BRIDGE NO. 2301		



RFI 82
Utility Conduit Splice

RFI 102
Rebar Layout Change

SECTION A



PLAN

(Abutment 1 shown, Abutment 2 similar)

STANDARD 180 DEG HOOK DIMENSIONS

Bar size	#3	#4	#5	#6	#7	#8
Min Bend Dia. (d)	2 1/4"	3"	3 3/4"	4 1/2"	5 1/4"	6"
Extension Length (L)	2.5"	2.5"	2.5"	3.0"	3.5"	4.0"

Ref ACI 318-08 Section 12.5

STANDARD 90 DEG HOOK DIMENSIONS

Bar size	#3	#4	#5	#6	#7	#8
Min Bend Dia. (d)	2 1/4"	3"	3 3/4"	4 1/2"	5 1/4"	6"
Extension Length (L)	4.5"	6.0"	7.5"	9.0"	10.5"	12.0"

Ref ACI 318-08 Section 12.5

CLASS A REBAR LAP SPLICES

Bar size	#3	#4	#5	#6	#7	#8
Standard Reinf.	16"	21"	25"	30"	55"	63"
Epoxy Coated	19"	25"	30"	37"	65"	75"

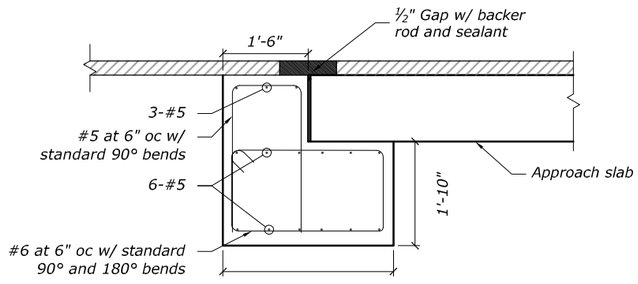
CLASS A(AE) REBAR LAP SPLICES

BAR SIZE	#3	#4	#5	#6	#7	#8
Standard Reinf.	15"	19"	23"	28"	50"	56"
Epoxy Coated	17"	23"	28"	33"	59"	67"

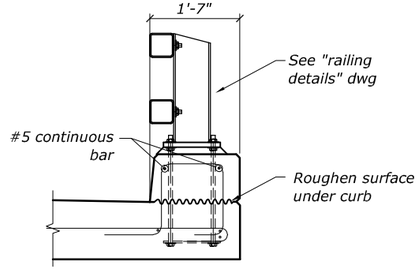
REINFORCING CLEARANCES/COVER

Exposure condition		Min. Cover U.N.O.	Tolerance
Cast against and permanently exposed to earth		3"	-3/8", +1"
Exposed to earth or weather	#5 and smaller bars:	1 1/2"	-1/4', + 1/2"
	#6 and larger bars:	2"	-1/4', + 1/2"
Not exposed to weather or in contact with ground:		3/4"	-1/4', + 3/8"
Slabs, walls, beams, columns, piers to ties and stirrups:		1 1/2"	-1/4', + 1/2"

"-" Indicates tolerance decrease towards member face. "+" Indicates away from member face.



SLEEPER SLAB DETAIL



SECTION B

NOTES:
1. All reinforcing for approach slab to be epoxy coated.
2. Approach slab concrete to be class A (AE) with min. f'c = 4000 psi.

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kenley
CE-6203
8.20.13
REGISTERED PROFESSIONAL ENGINEER

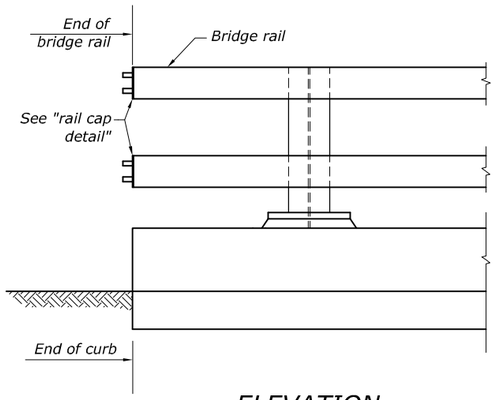
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301
APPROACH SLAB

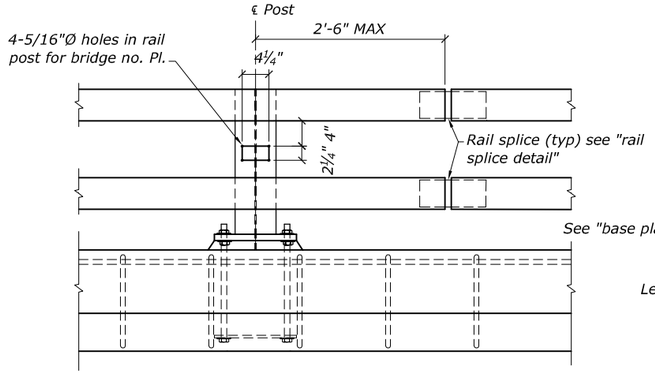
BRIDGE DRAWING	DATE	DRAWING NO.
9 OF 12	JULY 2013	RG2947 - 9

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 20-Approach slab.dwg [USC] 20 August 2013 10:18 AM

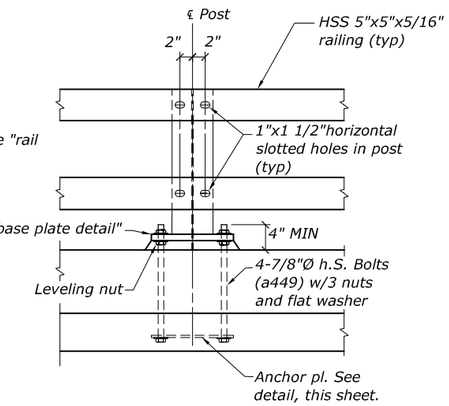
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.21
AK DOT BRIDGE NO. 2301		



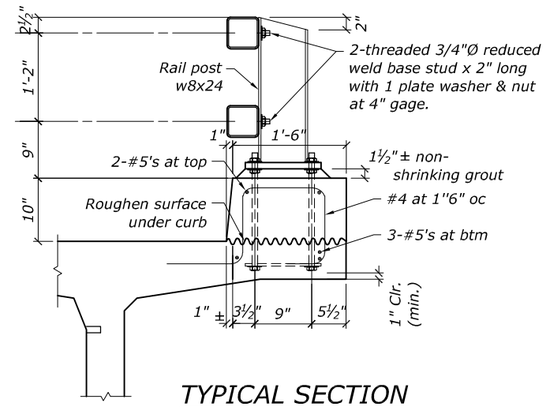
ELEVATION



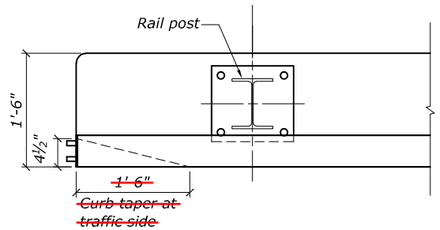
EXPANSION JOINT



TYPICAL POST ELEVATION

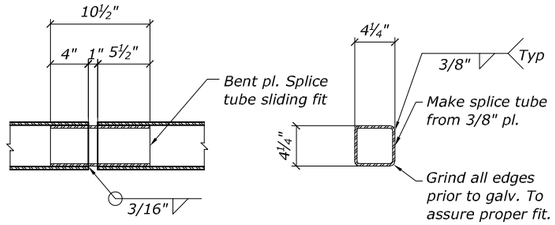


TYPICAL SECTION



PLAN
END POST DETAIL

RFI 104
Eliminate Bridge Rail Curb Taper



RAIL SPLICE DETAIL

RFI 85
Bridge Rail Splice Spacing

SPLICE TUBE

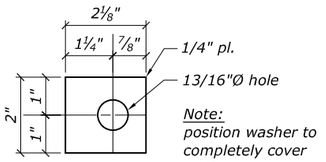
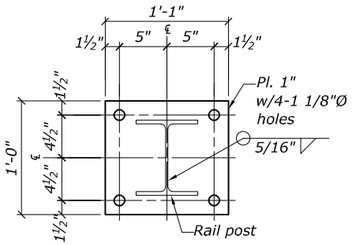
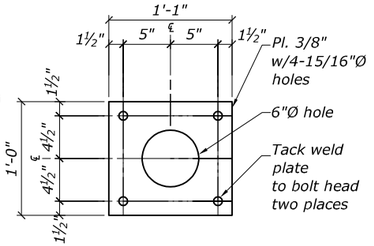


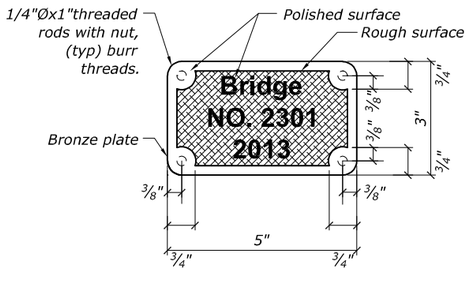
PLATE WASHER



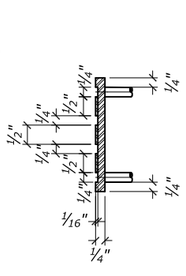
BASE PLATE DETAIL

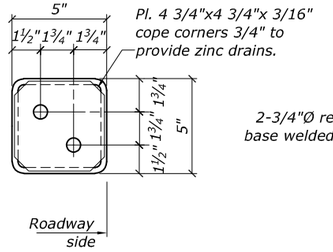


ANCHOR PLATE DETAIL

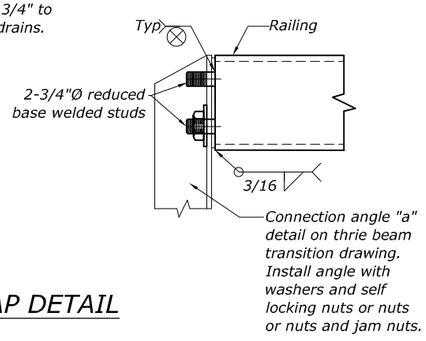


BRONZE BRIDGE NO. PLATE

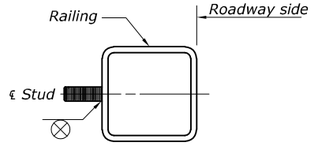




RAIL CAP DETAIL



RAILING STUD DETAIL



NOTES

1. Locate bridge number plates on right hand side of approaching traffic near each end as shown (2 total).
2. Furnish bridge number plates. Use bronze that conforms to A.S.T.M. B98-90, alloy "a" or "b". Use "century" type style lettering. Use studs and nuts that conforms to uns c65100 or c65500. Braze 1/4"Ø threaded rod to back of plate with nut-4 required. Use locking nuts or lock washers on all machine bolts.
3. Provide railing expansion joints at 50'-0" maximum intervals. Railing shall be continuous over 4 posts maximum.
4. Use grout with a minimum 24 hour f'c of 3000 psi.
5. See "typical section" dwg. For rail post spacing.
6. Bridge rail is tl-4 crash test rated.
7. Install rail posts plumb.
8. See sheet G.22 for w beam transition.

Materials (unless noted otherwise)

H.S.S.:	ASTM A500
Steel posts and plates:	ASTM A36 (AASHTO M183)
Bridge rail bolts:	ASTM A325 Galvanized (AASHTO M164
Anchor bolts:	ASTM A449

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kerley
CE-6201
8.20.13
REGISTERED PROFESSIONAL ENGINEER

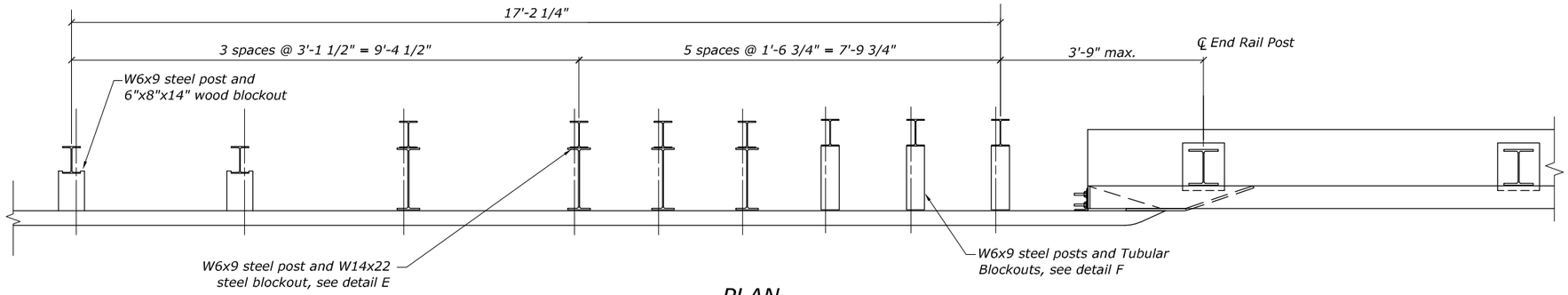
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301
RAILING DETAILS

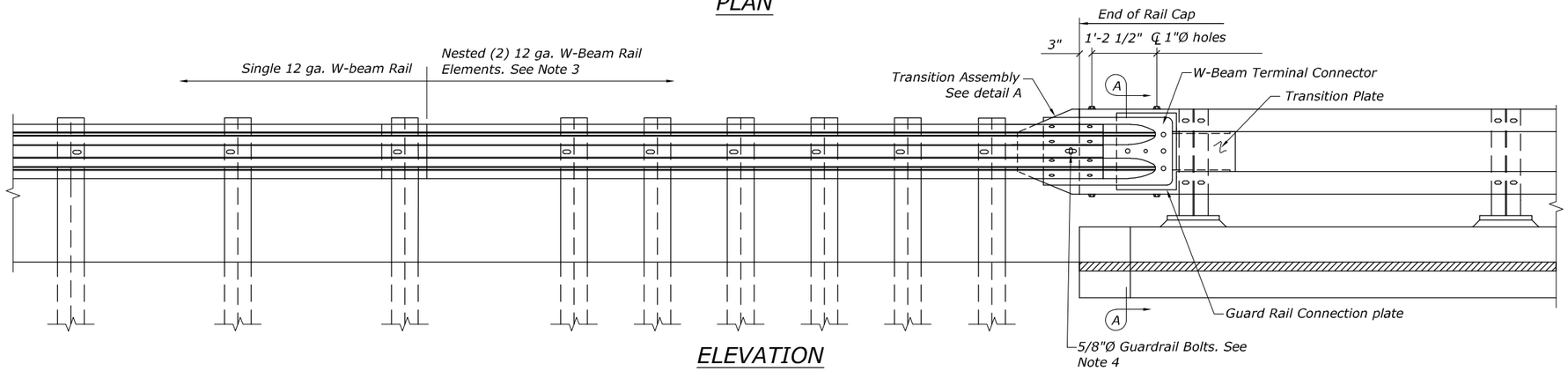
BRIDGE DRAWING	DATE	DRAWING NO.
10 OF 12	JULY 2013	RG2947 - 10

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 21-Bridge Railing.dwg, ANSI C 15 August 2013 5:16 PM

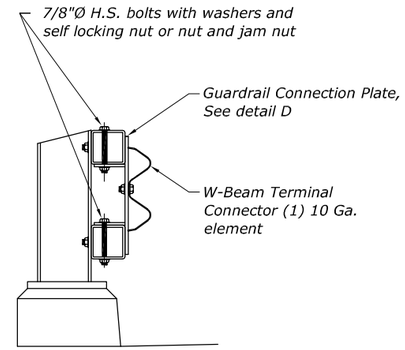
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.22
AK DOT BRIDGE NO. 2301		



PLAN



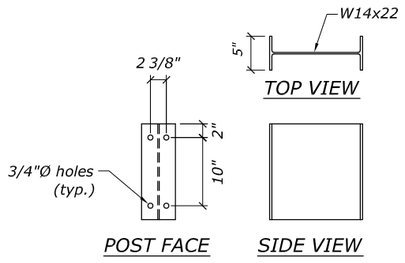
ELEVATION



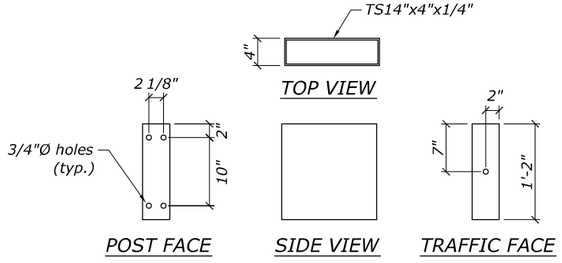
SECTION A-A

GENERAL NOTE

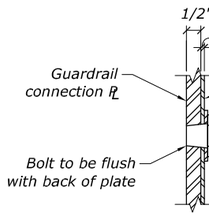
1. All guardrail and guardrail connection hardware to conform to AASHTO M-180. All H.S. Bolts conform to ASTM A325. All other steel to conform to ASTM A709 Grade 36.
2. Conform to G-00, G-04S, G-25S for all guardrail details not shown.
3. Lap approach guardrail to prevent snags from oncoming traffic.
4. Provide 4 1/2" horizontal slot in approach guardrail. Adjust guardrail bolts for sliding fit.
5. This design is approved for NCHRP 350, TL 3.



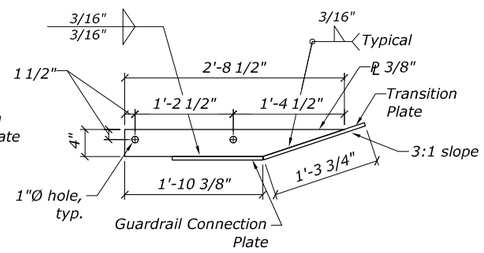
DETAIL E - STEEL BLOCK



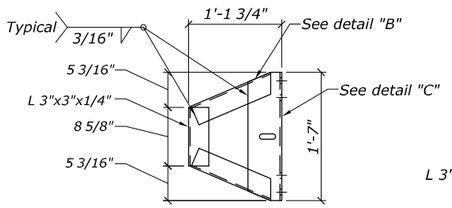
DETAIL F - TUBULAR BLOCKOUTS



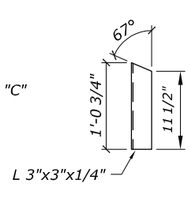
DETAIL G



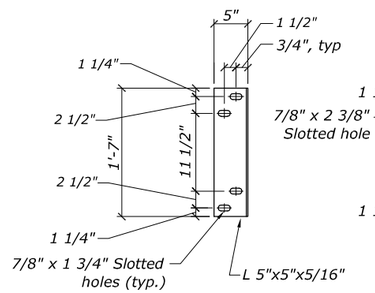
VIEW H-H



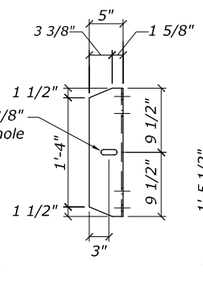
DETAIL A - TRANSITION ASSEMBLY

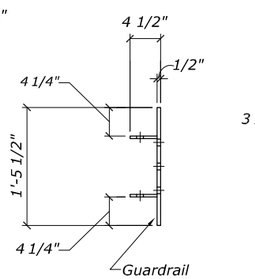


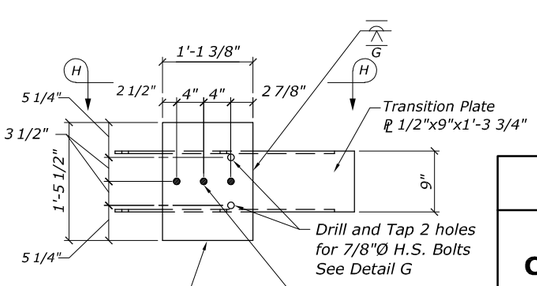
DETAIL B



DETAIL C







DETAIL D - GUARDRAIL CONNECTION PLATE

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kerley
CE-625
8.20.13
REGISTERED PROFESSIONAL ENGINEER

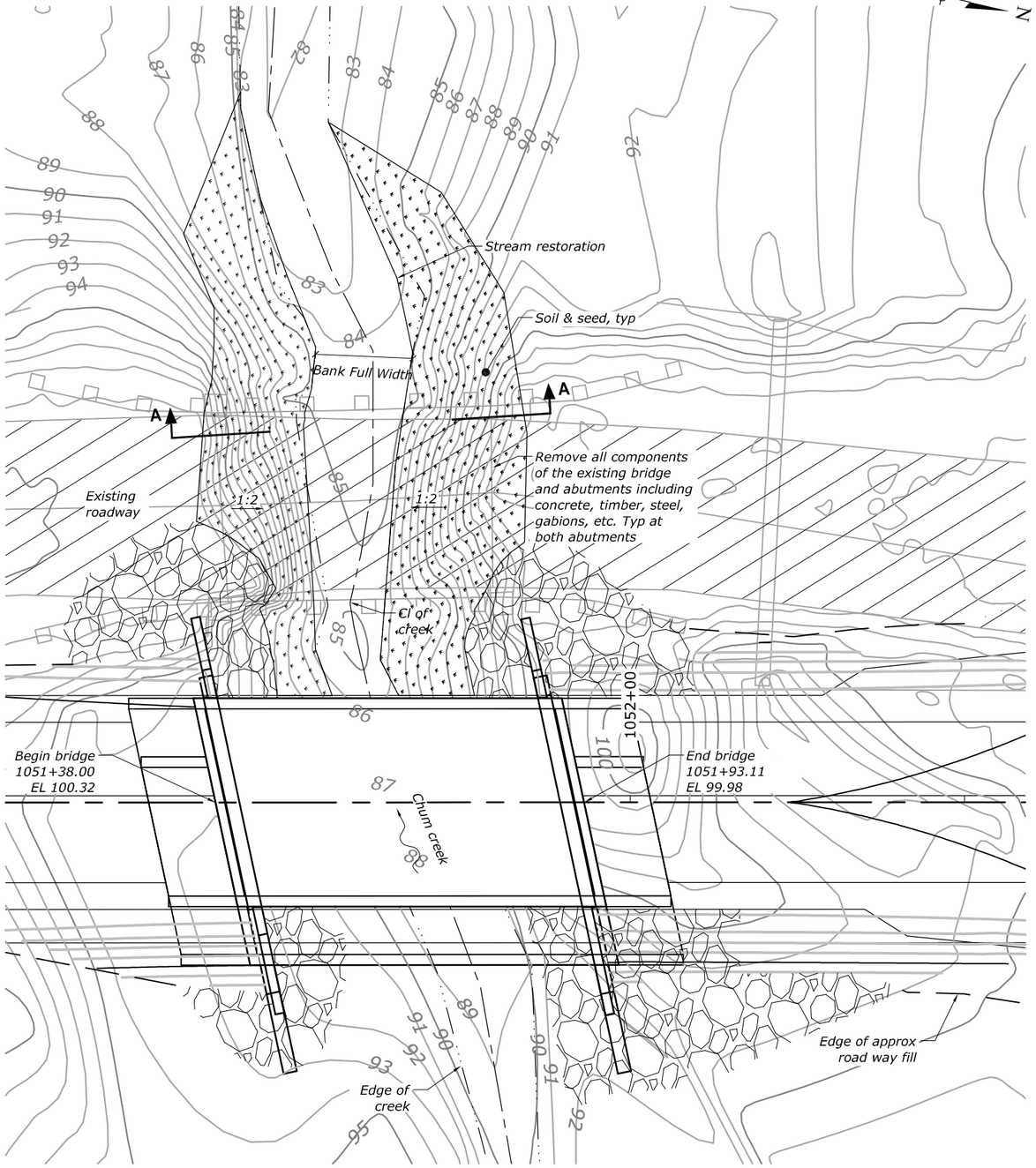
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301
BRIDGE RAIL
W BEAM TRANSITION

BRIDGE DRAWING	DATE	DRAWING NO.
11 OF 12	JULY 2013	RG2947 - 11

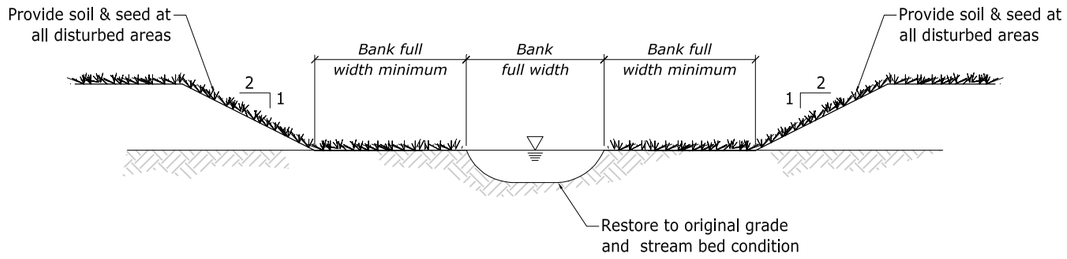
J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 22-Bridge Rail W Beam TransItion.dwg [USC] 15 August 2013 5:16 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	G.23
	AK DOT BRIDGE NO. 2301	



EXISTING CHUM CREEK BRIDGE REMOVAL AND STREAM RESTORATION PLAN

0 10 20 FT



EXISTING CHUM CREEK BRIDGE REMOVAL AND STREAM RESTORATION SECTION A-A

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
F. Charles Kenley
CE-8258
8.20.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CHUM CREEK BRIDGE #2301
EXISTING BRIDGE REMOVAL AND BANK RESTORATION

BRIDGE DRAWING	DATE	DRAWING NO.
12 OF 12	JULY 2013	RG2947 - 12

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Bridge Structures\Chum Creek\G 23-Bridge Removal.dwg [USC] 15 August 2013 5:17 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.1

LEGEND	
DESCRIPTION	SYMBOL
Silt Fence	
Toe of fill	
Top of cut	
Identified wetlands	
R4sb wetlands	
Pehtn-h2o wetlands	
Fill perimeter control	
Preservation of existing vegetation	PEV

N

0 100 200 FT

780+00

785+00

790+00

795+00

BOP = 783+43
NORTHING = 1,505,617.15
EASTING = 2,773,655.22

PT: 783+11.49

PC: 786+63.82

PT: 791+93.50

PC: 794+51.05

Roadway
By Others

C-101

Install sediment control
at live streams

Install fill perimeter control

New Edge
of Road

Cut Limits

Preservation of
existing vegetation

Proposed
Centerline

Environmentally
Cleared Area

Install sediment control
at live streams

Install fill perimeter control

Fill Limits

Install fill perimeter control

C-102

C-01

Install fill perimeter control

Install sediment control
at live streams

MATCH LINE

ECA

PEV

N

0 100 200 FT

795+00

800+00

805+00

810+00

815+00

820+00

825+00

PT: 797+06.28

PC: 799+74.39

PT: 802+31.88

PC: 806+65.49

PT: 812+33.19

PC: 814+82.76

Install fill
perimeter control

Preservation of
existing vegetation

Install fill
perimeter control

Fill Limits

Proposed
Centerline

Environmentally
Cleared Area

New Edge
of Road

Install fill perimeter control

Pullout,
Typ.

Install sediment control
at live streams

Install fill
perimeter control

Existing Edge
of Road

Install sediment control
at live streams

Install fill
perimeter control

Install silt fence

Existing Edge
of Road

MATCH LINE

C-103

C-104

C-105

C-106

C-107

C-108

C-109

Cut Limits

Install sediment control
at live streams

Install fill
perimeter control

Install sediment control
at live streams

Install sediment control
at live streams

Install fill perimeter control

Install fill perimeter control

Install silt fence

ECA

PEV

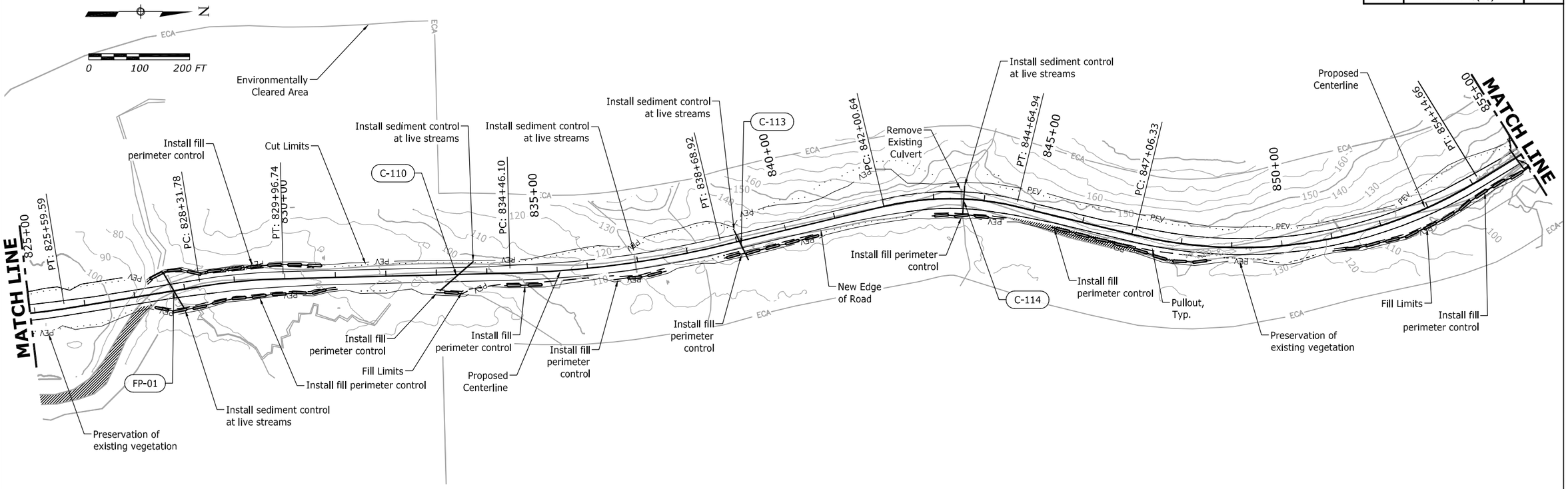
RELEASED FOR
CONSTRUCTION

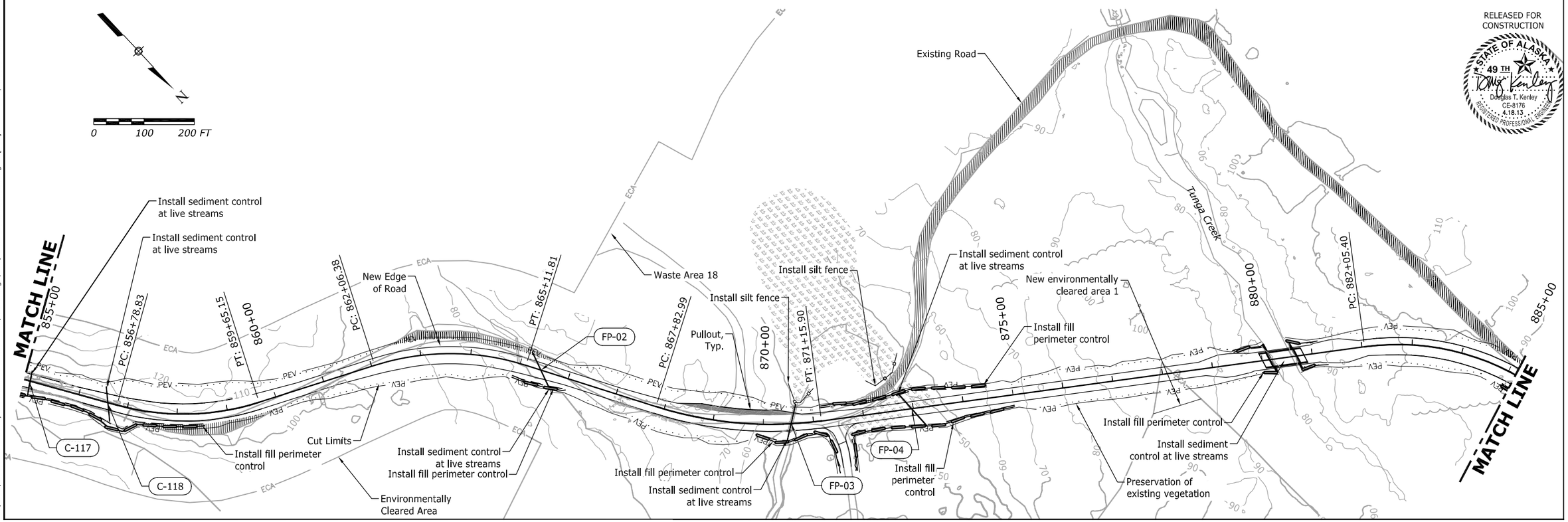
STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

18 April 2013 3:54 PM

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E: Drawings\Civil\H1-H5 Erosion Control.dwg [USC]

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.2



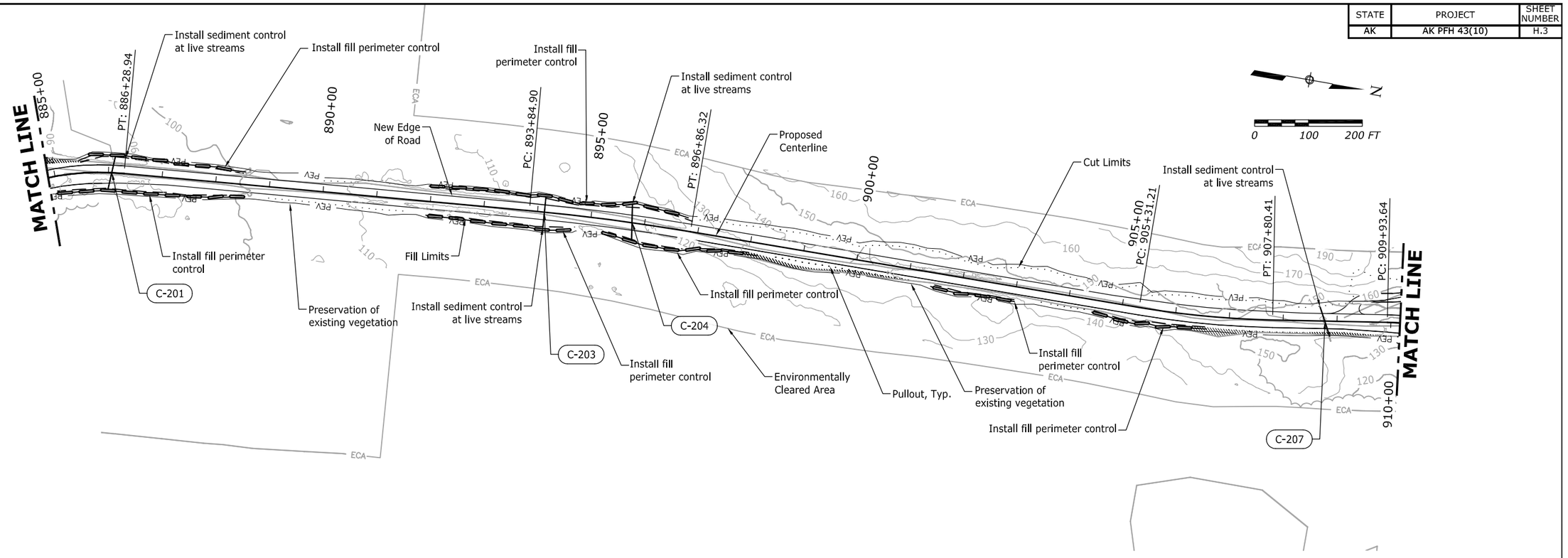


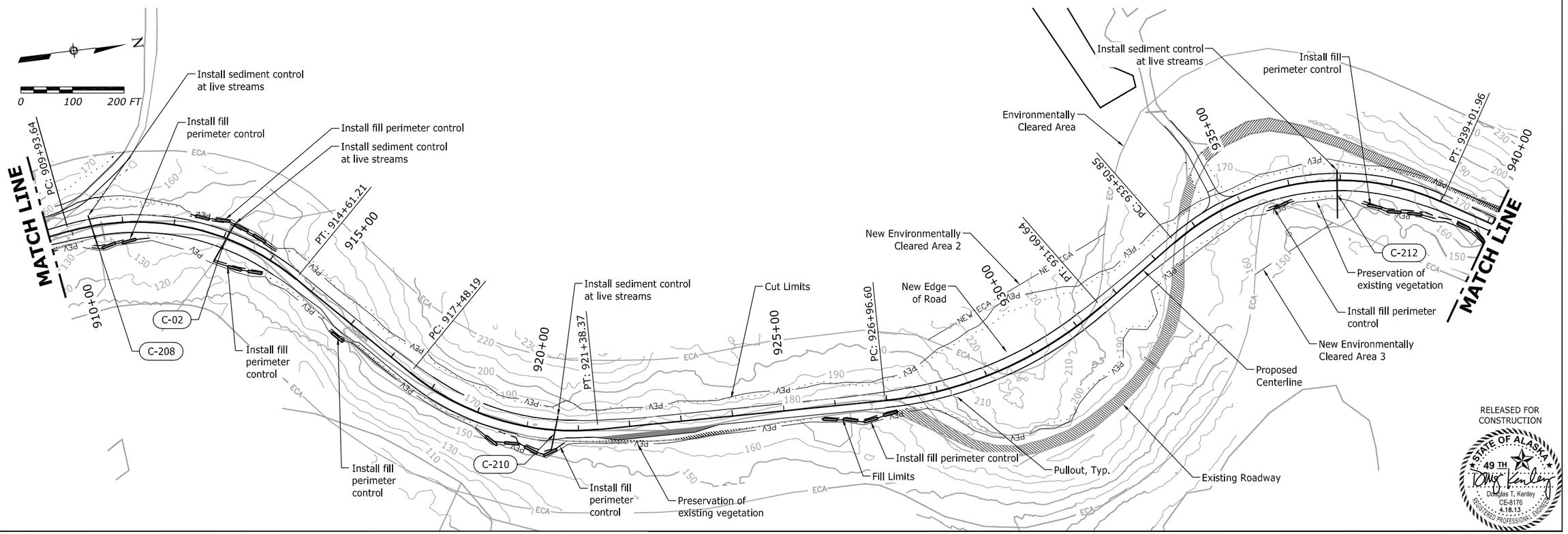
RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E: Drawings\Civil\H1-H5 Erosion Control.dwg [USC] 18 April 2013 3:54 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.3



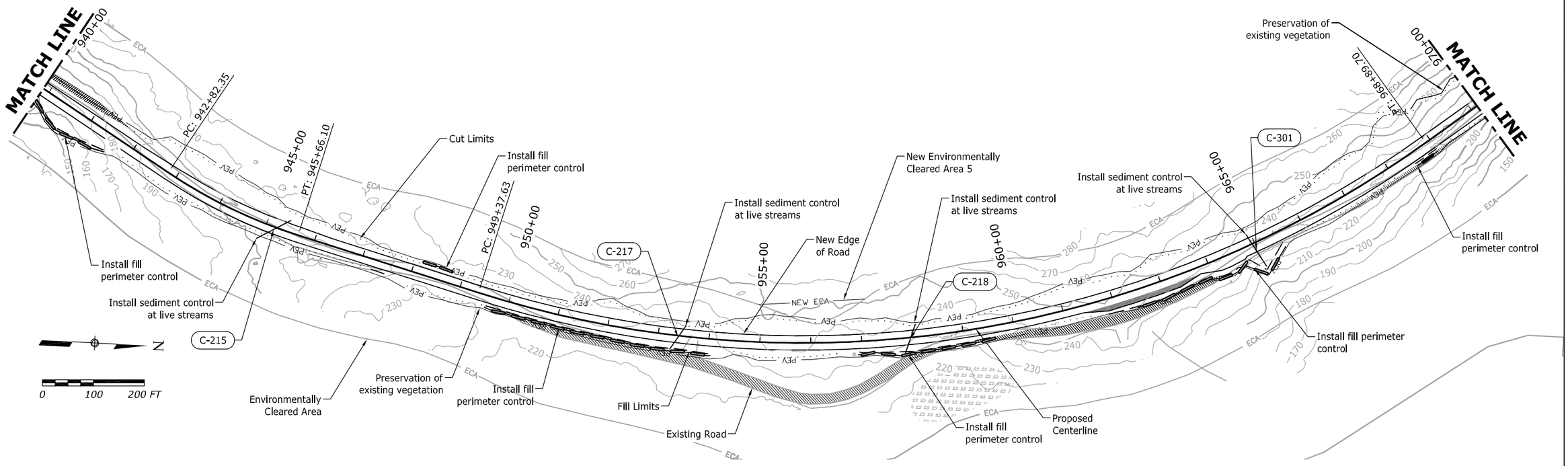


RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E: Drawings\Civil\H1-H5 Erosion Control.dwg [USC] 18 April 2013 3:54 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.4



RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E: Drawings\Civil\H1-H5 Erosion Control.dwg [USC] 18 April 2013 3:54 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.5

N

0 100 200 FT

MATCH LINE

1000+00

1005+00

1010+00

1015+00

1020+00

1025+00

1030+00

C-309

C-03

C-310

C-311

C-312

C-313

C-314

C-315

Install sediment control at live streams

Install fill perimeter control

PT: 1004+09.27

Proposed Centerline

Cut Limits

Preservation of existing vegetation

PC: 1012+03.63

Pullout, Typ.

PC: 1019+27.25

PT: 1017+58.68

Existing Road

New Edge of Road

PT: 1023+55.94

Fill Limits

Environmentally Cleared Area

PC: 1030+09.53

ECA

PEV

MATCH LINE

1030+00

1035+00

1040+00

1045+00

1050+00

1055+00

1060+00

C-317

C-318

C-320

FP-07

FP-09

PC: 1030+09.53

PT: 1031+85.98

PC: 1034+46.15

PT: 1037+85.78

PC: 1043+54.31

PT: 1050+05.57

NEW ECA

New Environmentally Cleared Area 6

New Environmentally Cleared Area 7

Chum Creek

Preservation of existing vegetation

Install sediment control at live streams

Install fill perimeter control

Fill Limits

Environmentally Cleared Area

Existing Road

New Edge of Road

Cut Limits

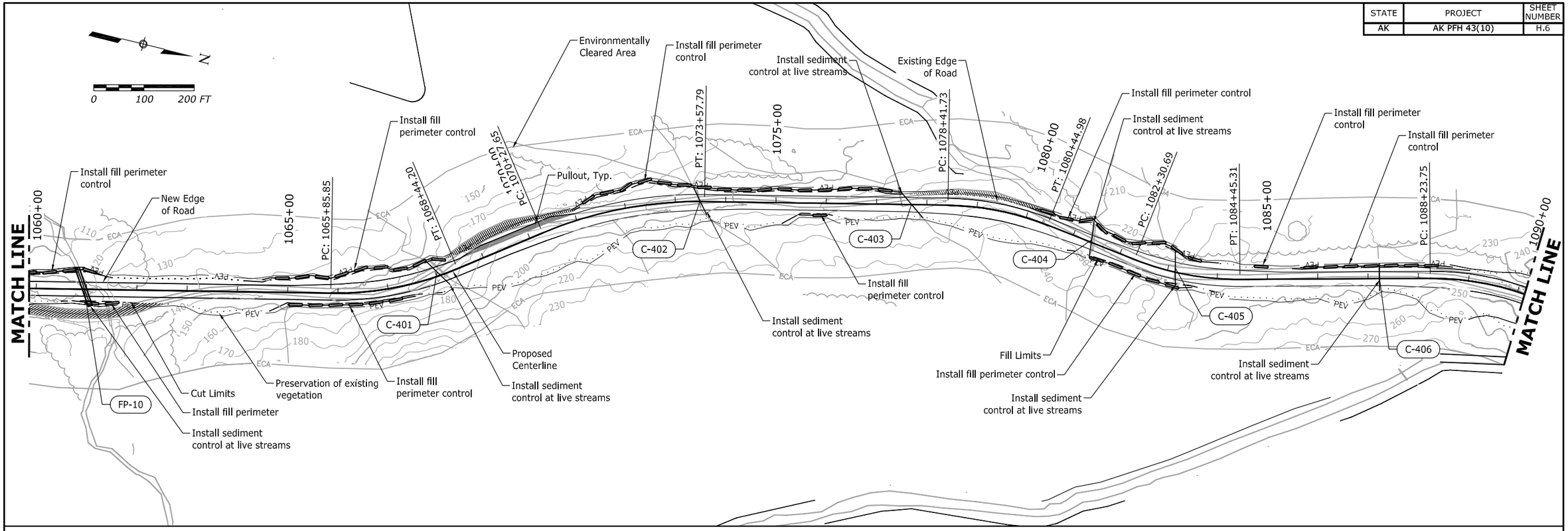
RELEASED FOR CONSTRUCTION

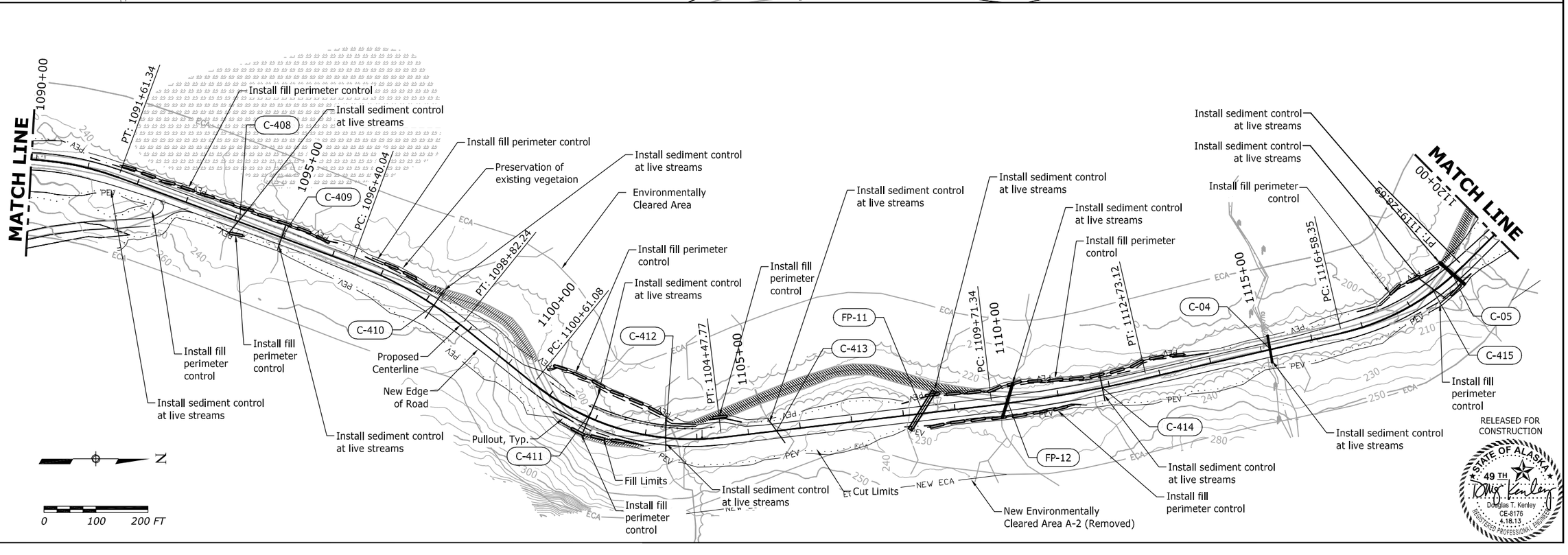
STATE OF ALASKA 49 TH

Douglas T. Kenley CE-8176 4.18.13 REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E: Drawings\Civil\H1-H5 Erosion Control.dwg [USC] 18 April 2013 3:54 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.6



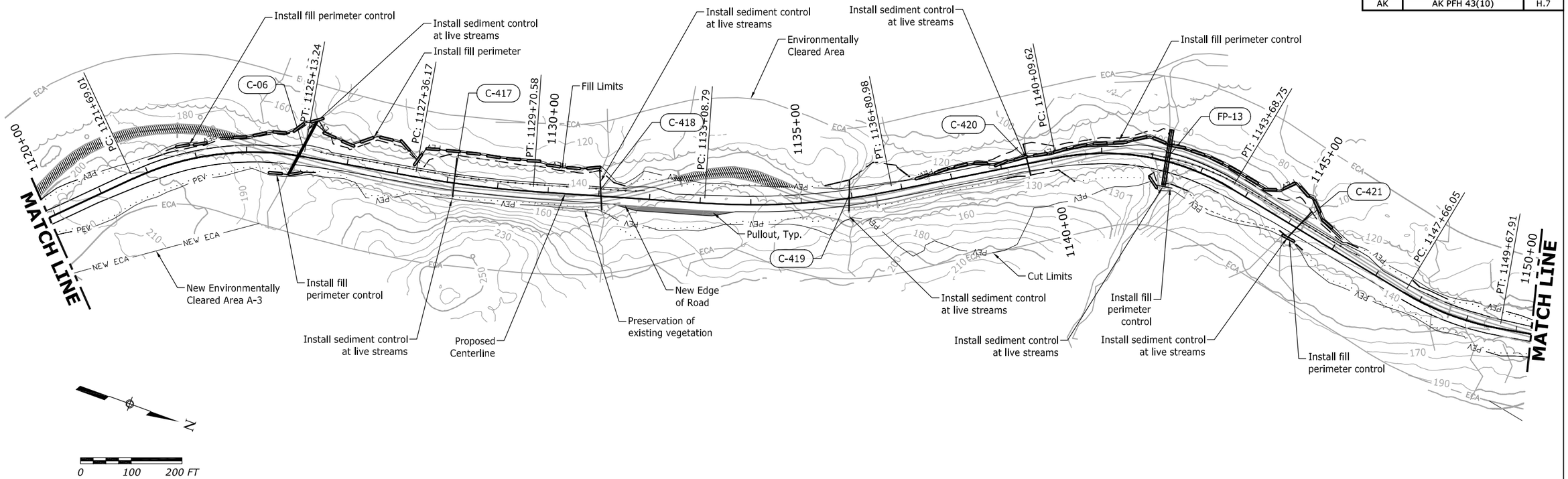


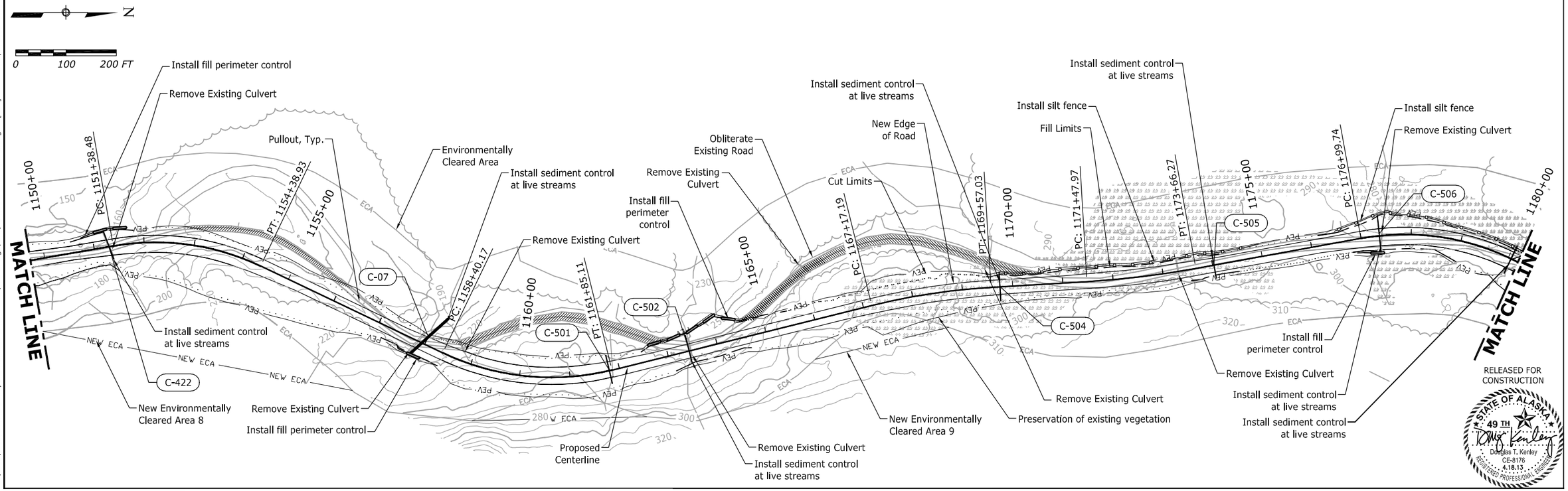
RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E: Drawings\Civil\H6-H11 Erosion Control.dwg [USC] 18 April 2013 3:53 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.7





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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
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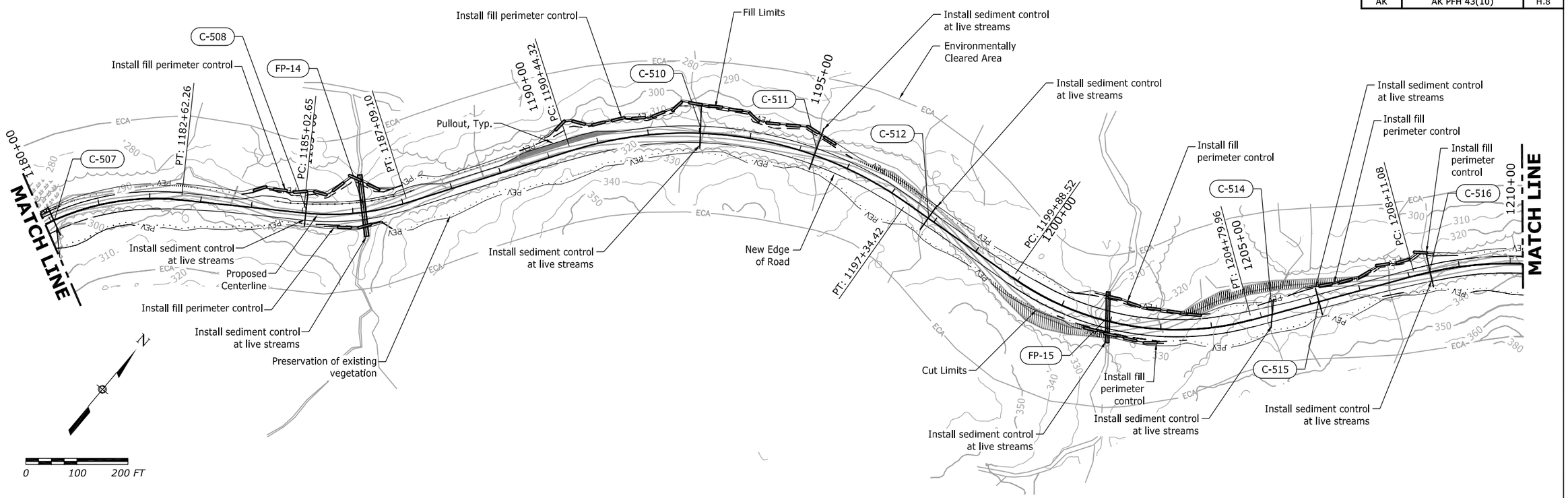
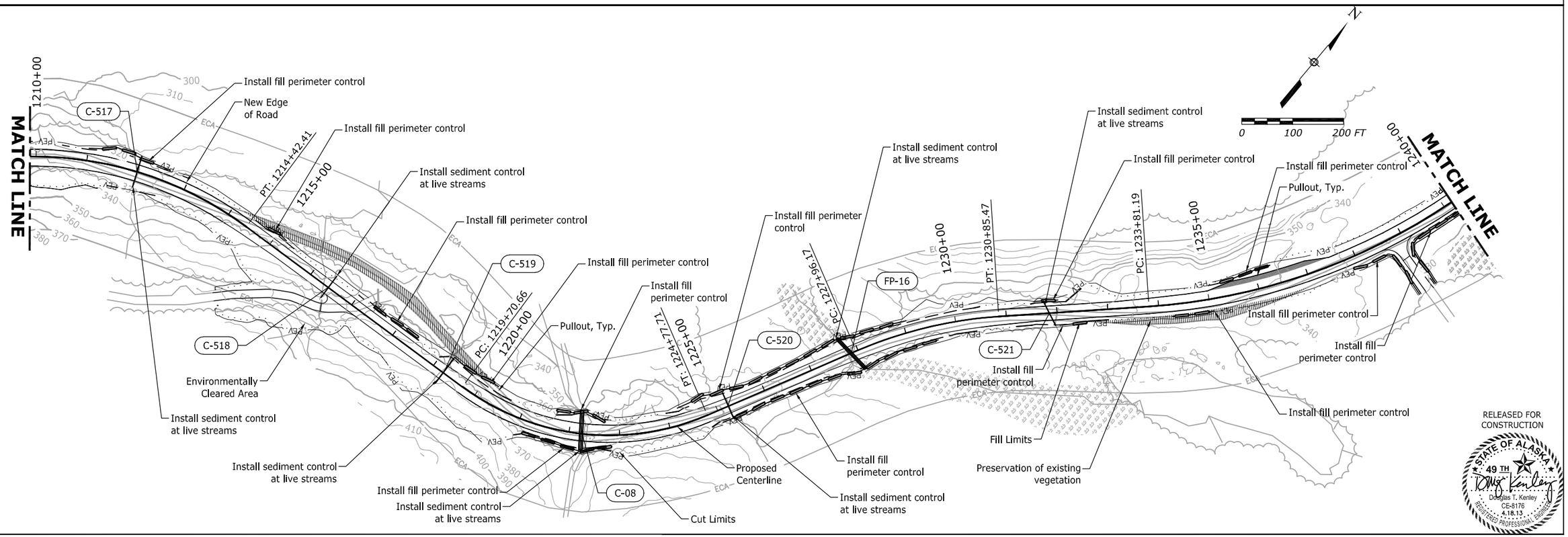
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E: Drawings\Civil\H6-H11 Erosion Control.dwg 18 April 2013 3:53 PM [USC]

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.8





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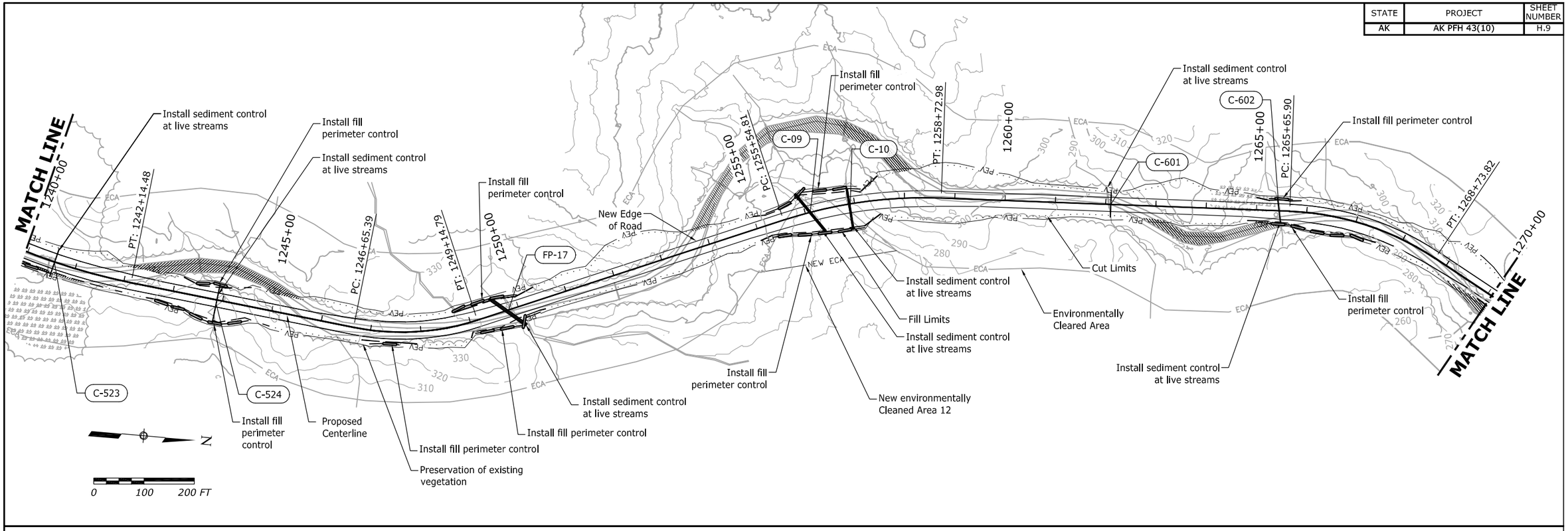
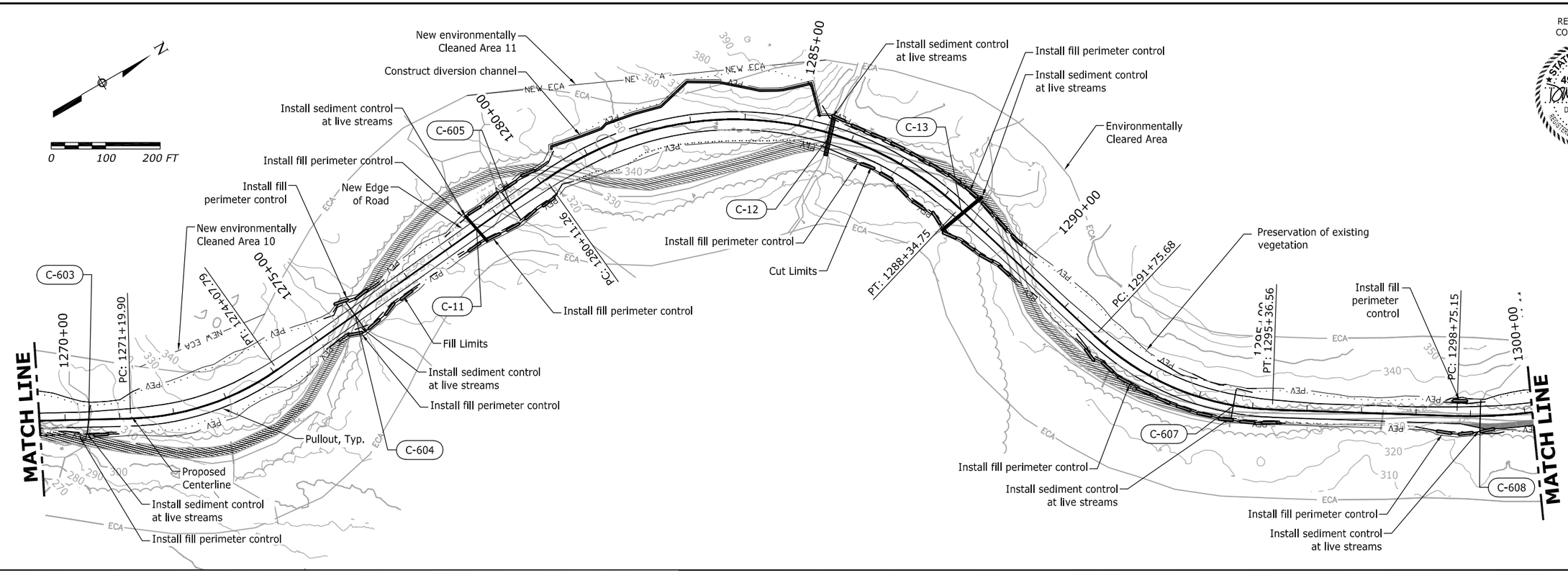
STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\H6-H11 Erosion Control.dwg [USC] 18 April 2013 3:53 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.9





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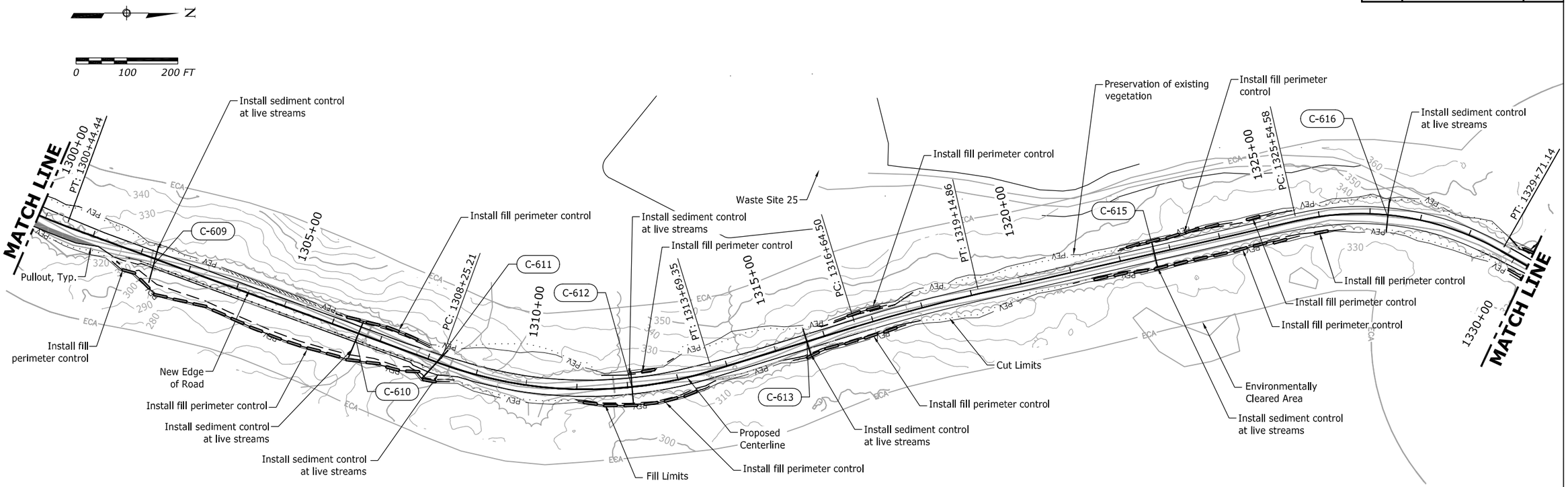
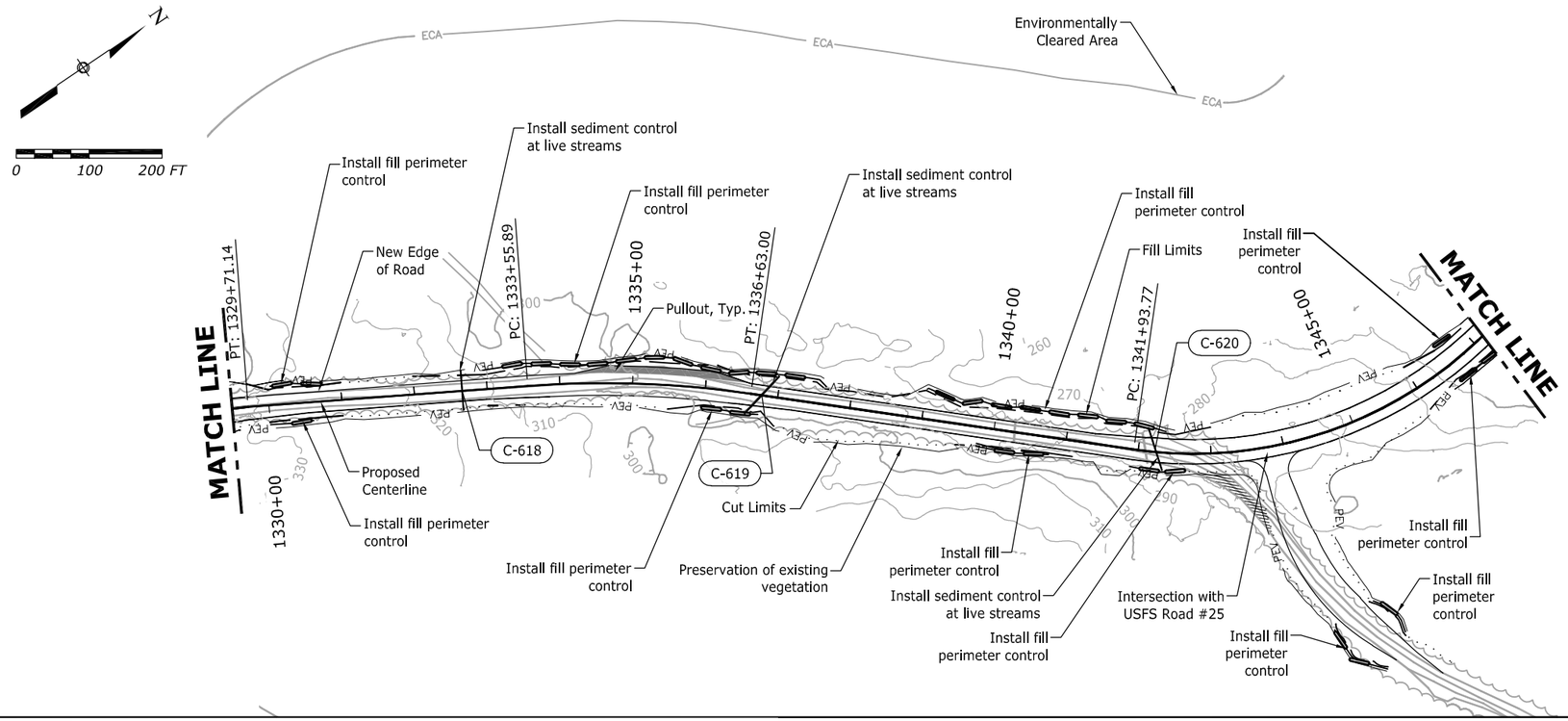
STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E: Drawings\Civil\H6-H11 Erosion Control.dwg [USC] 18 April 2013 3:53 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.10



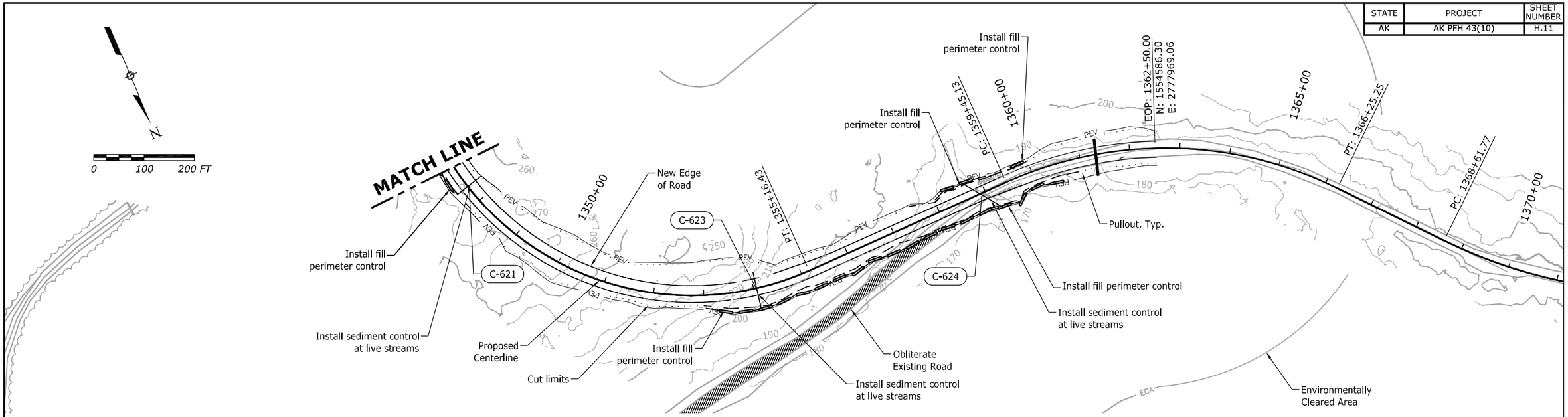


RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E: Drawings\Civil\H6-H11 Erosion Control.dwg [USC] 18 April 2013 3:53 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.11

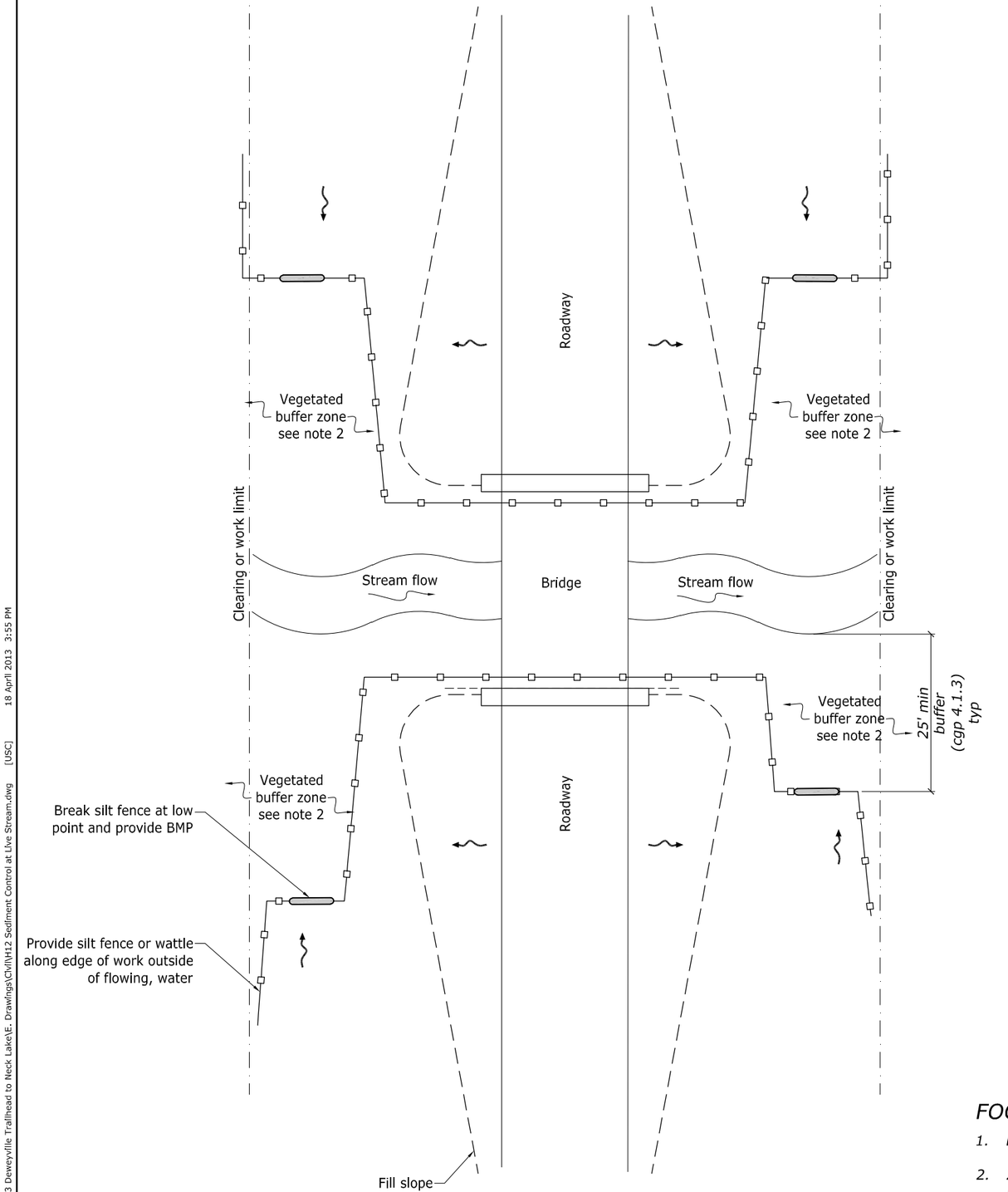


RELEASED FOR CONSTRUCTION

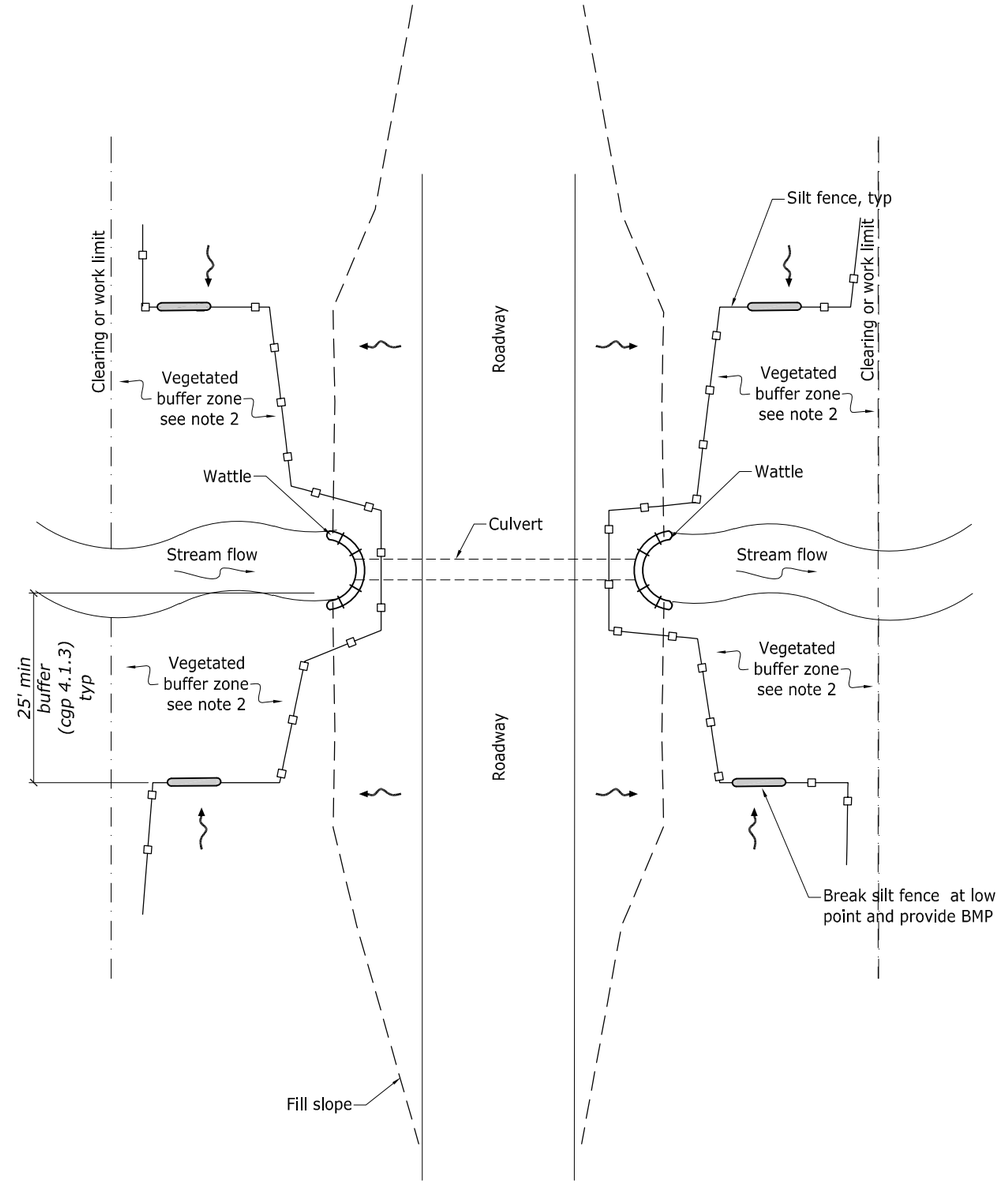
STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E: Drawings\Civil\H6-H11 Erosion Control.dwg [USC] 18 April 2013 3:53 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	H.12



TYPICAL BRIDGE STREAM CROSSING TEMPORARY BMP'S



TYPICAL CULVERT STREAM CROSSING TEMPORARY BMP'S

FOOT NOTE:

1. *During times of heavy rain additional BMP's may be required.*
2. *25' Buffer zone is minimum per CGP 4.1.3. Stream crossing permit may have different buffer zone requirement.*

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

SEDIMENT CONTROL AT LIVE STREAMS

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E- Drawings\Civil\H12 Sediment Control at Live Stream.dwg [USC] 18 April 2013 3:55 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	I.1

N

0 1000 2000 FT

BOP
783+43

USFS RD #20-666

793+00

823+00

853+00

AK PFH 43(1)

Waste Disposal Areas, Typ.

18

17

16

I.2

883+00

USFS RD #20-676

19

913+00

20

943+00

973+00

Tunga Creek Bridge

New Roadway Centerline

USFS RD #20-670

USFS RD #20-680

I.2

USFS RD #20-686

21

1003+00

1033+00

USFS RD #20-687

I.3

USFS RD #20-688

23

1063+00

1093+00

24

I.3

Chum Creek Bridge

MATCH LINE

MATCH LINE

1123+00

1153+00

2 New Waste Area

1183+00

I.4

1213+00

3 New Waste Area

1243+00

1273+00

USFS RD #20-689

USFS RD #20-690

I.4

New Roadway Centerline, Typ

Existing Road, typ

1303+00

25

1333+00

I.5

Waste Disposal Area. typ

27

End Project 1362+50

I.5

26

Neck Lake Rd Intersection

LEGEND

(X) Waste Area Designation

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\11 Waste Disposal Layout.dwg [USC] 18 April 2013 3:58 PM

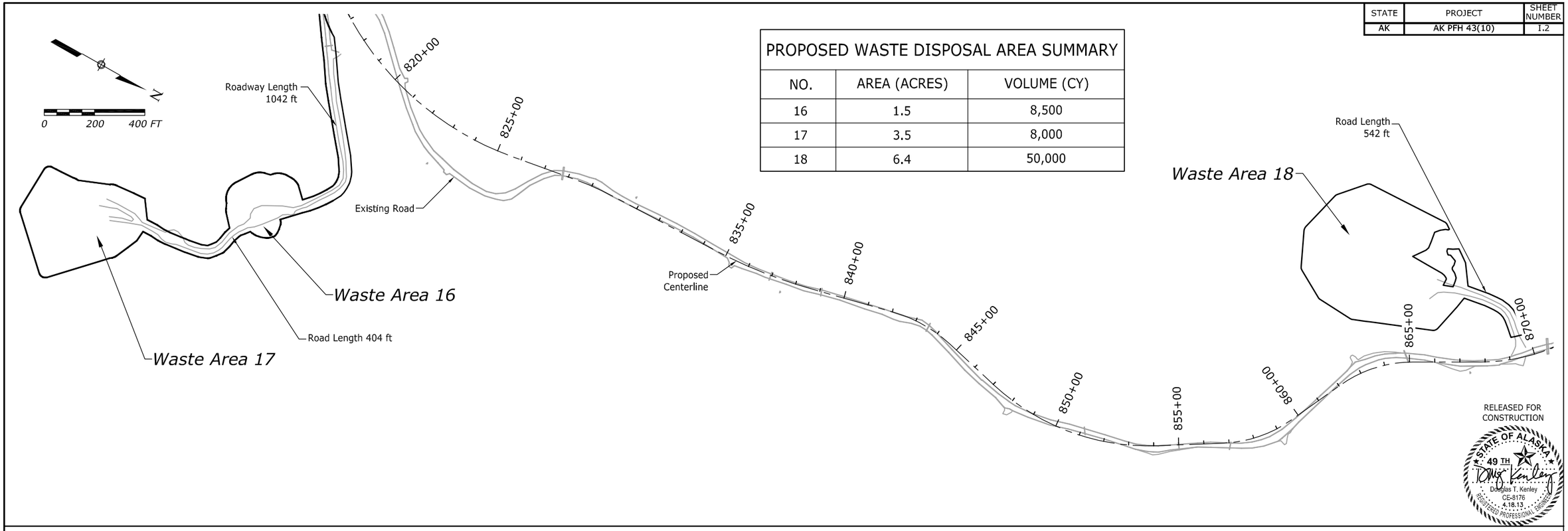
RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

WASTE DISPOSAL AREAS SHEET LAYOUT PLAN

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	I.2



PROPOSED WASTE DISPOSAL AREA SUMMARY		
NO.	AREA (ACRES)	VOLUME (CY)
16	1.5	8,500
17	3.5	8,000
18	6.4	50,000

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STATE OF ALASKA 49 TH
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CE-8176
4.18.13
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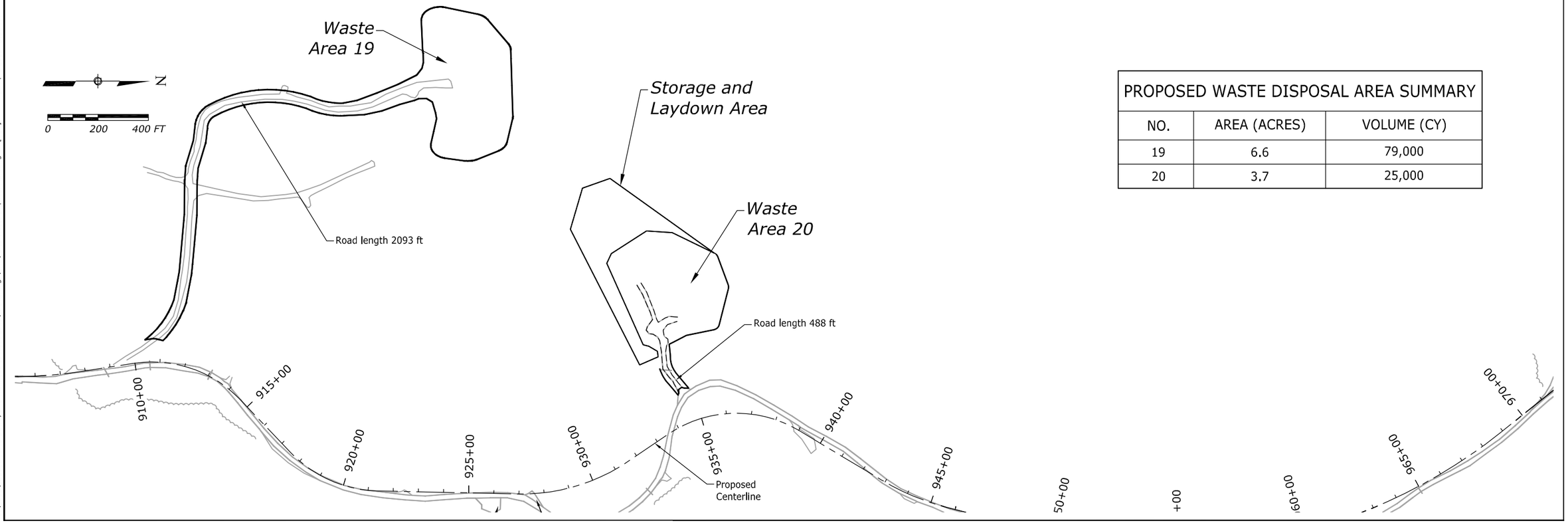
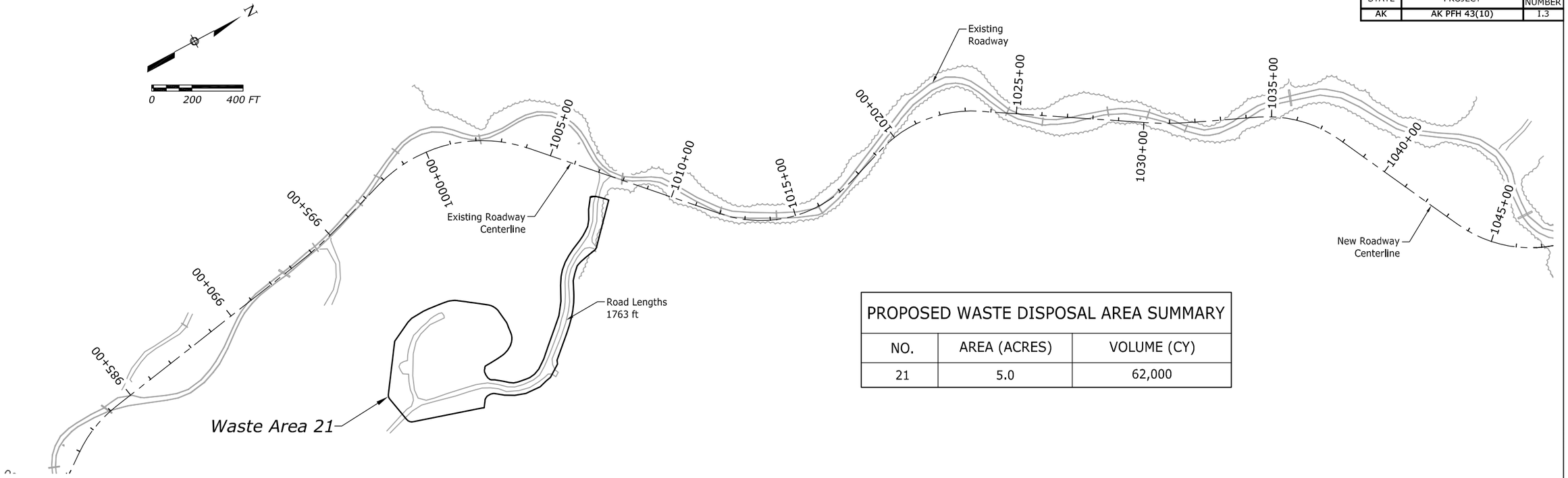


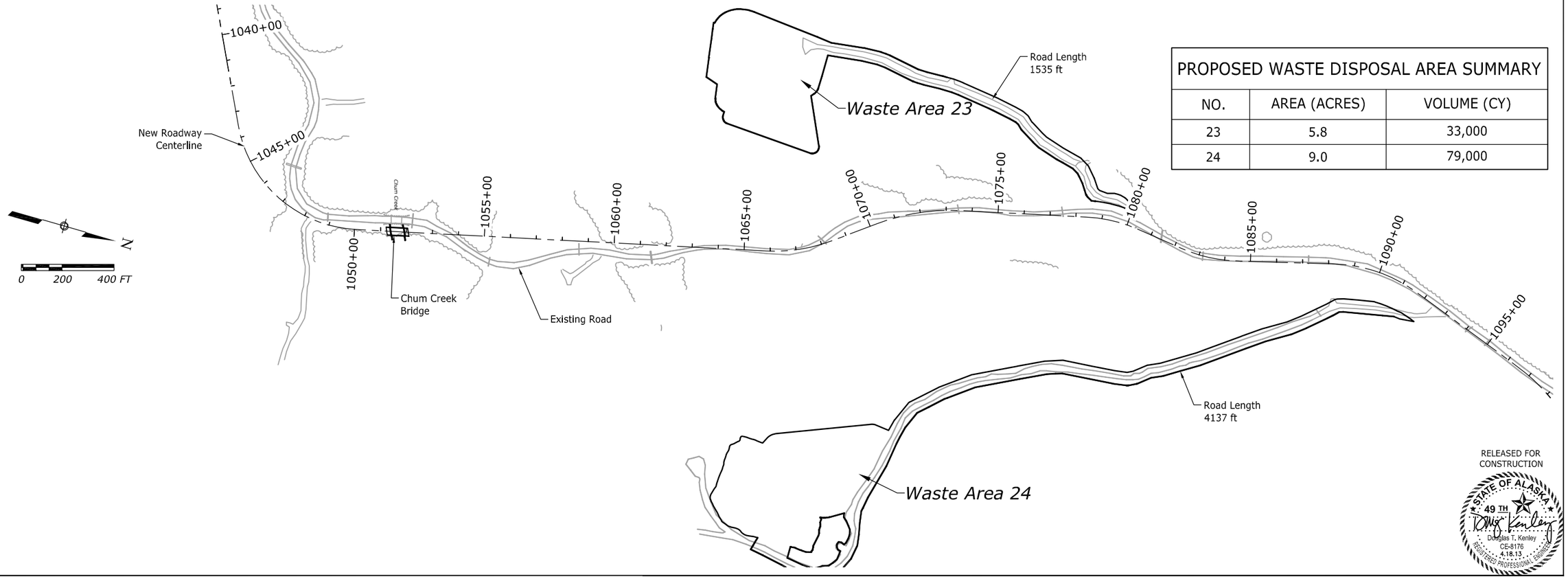
PROPOSED WASTE DISPOSAL AREA SUMMARY		
NO.	AREA (ACRES)	VOLUME (CY)
19	6.6	79,000
20	3.7	25,000

J:\2012\121088 FH43 Dewevville Trailhead to Neck Lake\E. Drawings\Civil\12-15 Waste DIsposal Plan.dwg 18 April 2013 3:58 PM [USC]

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	I.3



PROPOSED WASTE DISPOSAL AREA SUMMARY		
NO.	AREA (ACRES)	VOLUME (CY)
21	5.0	62,000



PROPOSED WASTE DISPOSAL AREA SUMMARY		
NO.	AREA (ACRES)	VOLUME (CY)
23	5.8	33,000
24	9.0	79,000

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
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4.18.13
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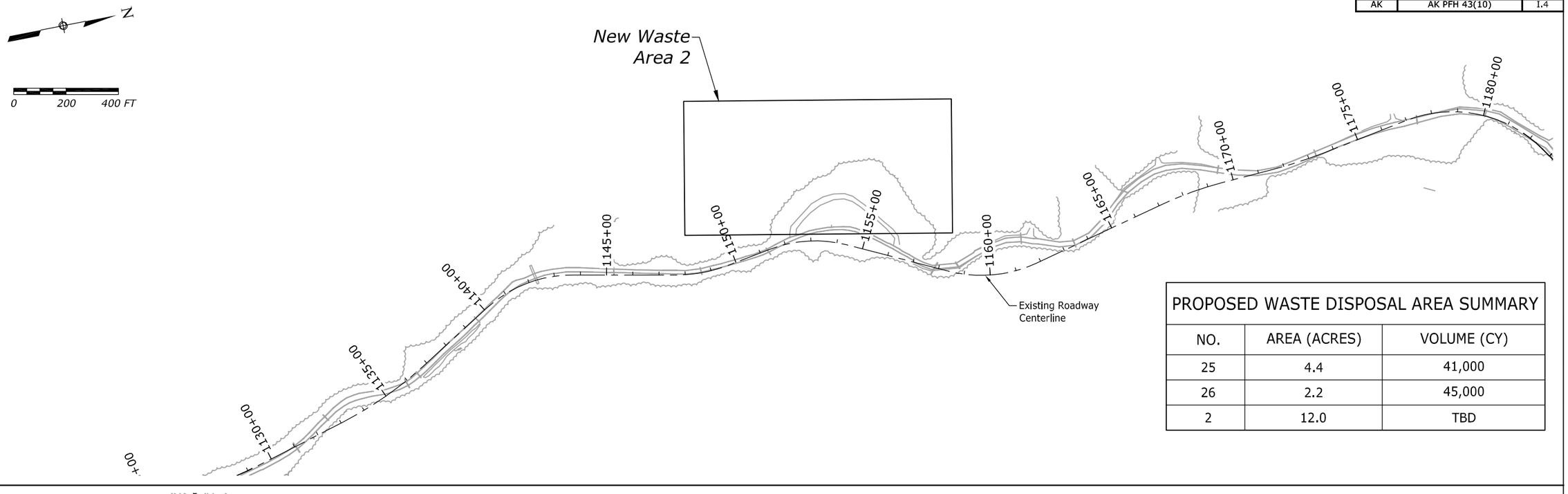
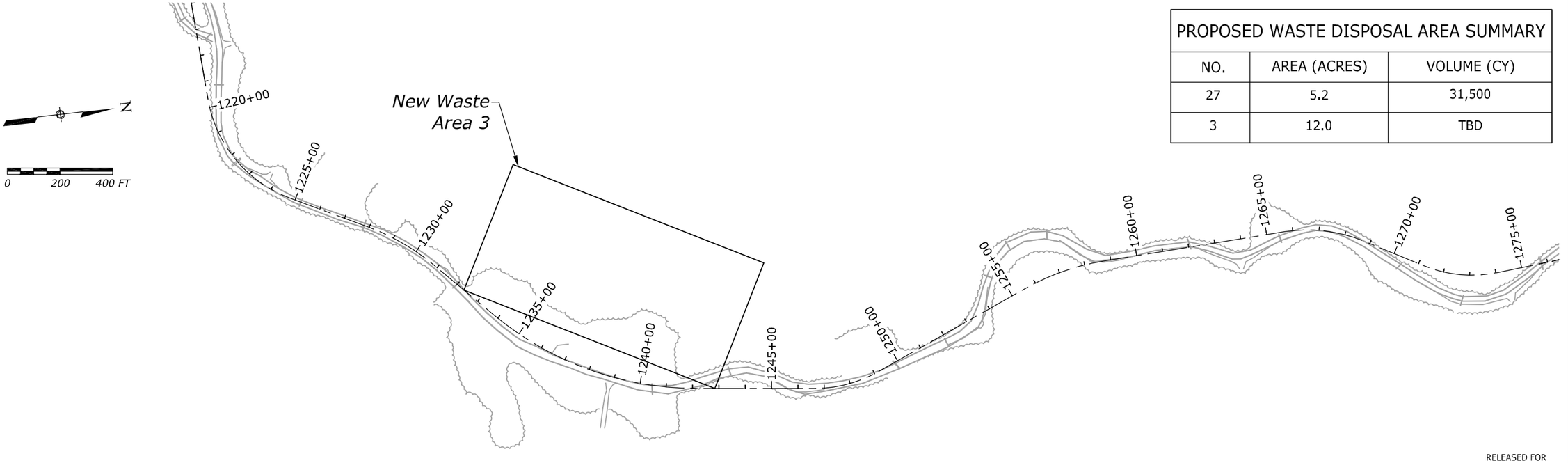
J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\12-15 Waste Disposal Plan.dwg [USC] 18 April 2013 3:58 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	I.4



PROPOSED WASTE DISPOSAL AREA SUMMARY		
NO.	AREA (ACRES)	VOLUME (CY)
25	4.4	41,000
26	2.2	45,000
2	12.0	TBD



PROPOSED WASTE DISPOSAL AREA SUMMARY		
NO.	AREA (ACRES)	VOLUME (CY)
27	5.2	31,500
3	12.0	TBD

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
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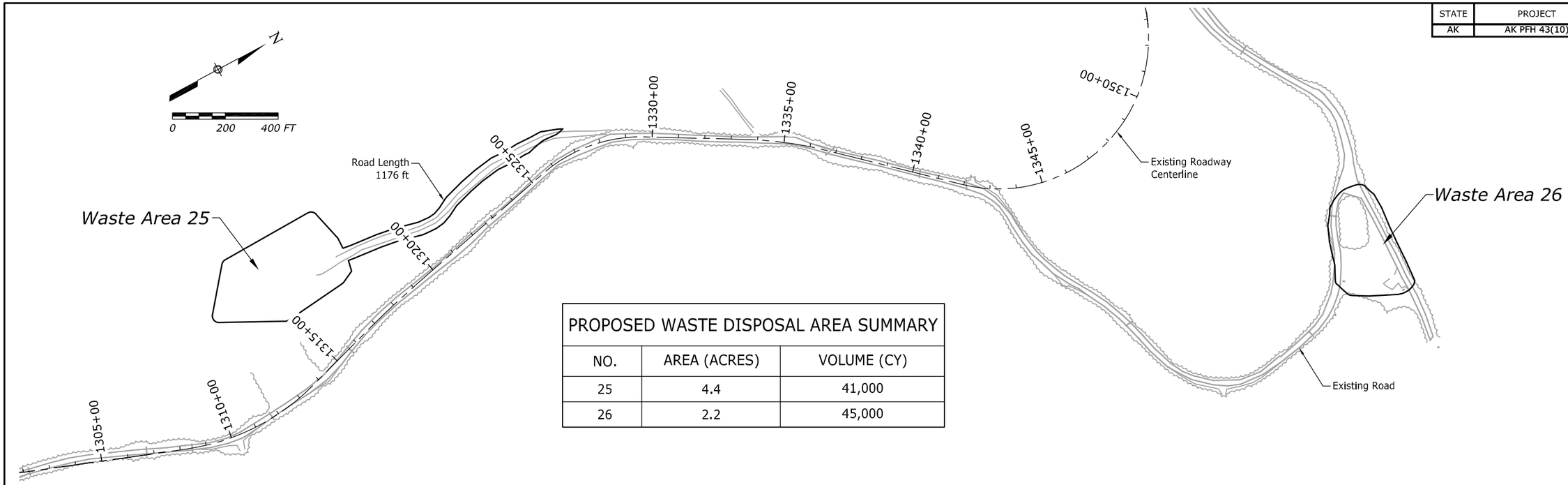
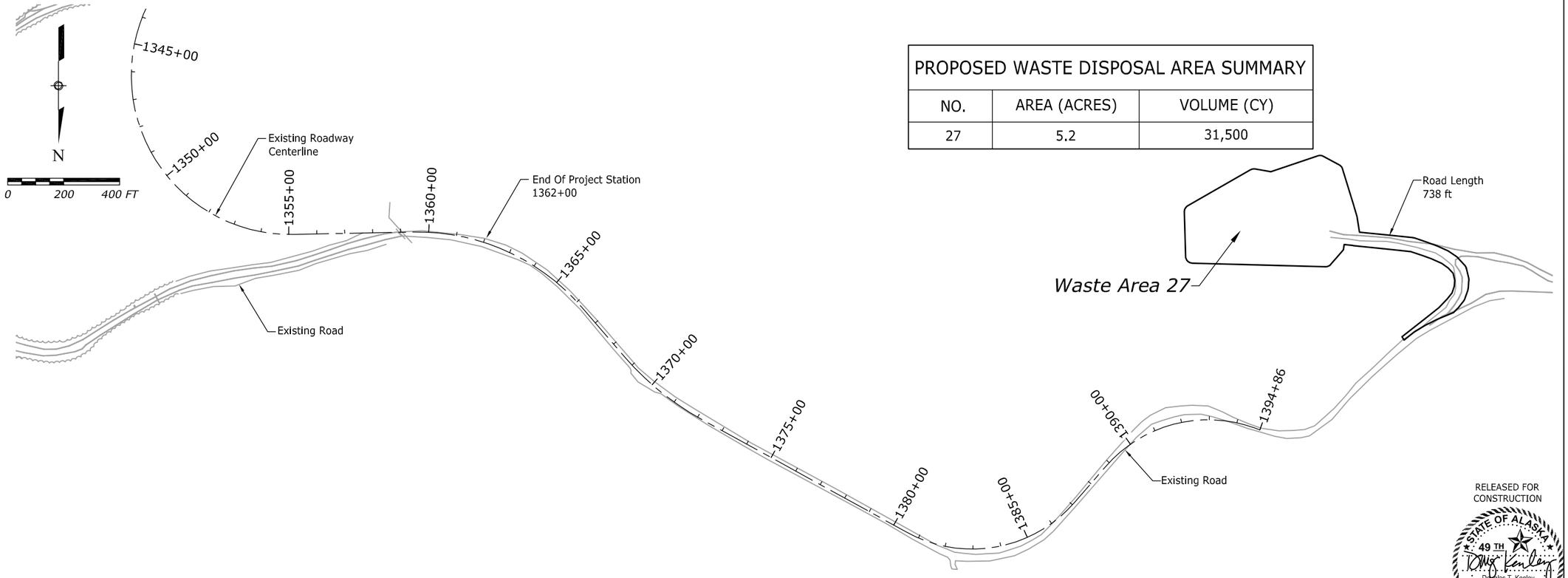
4.18.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\12-I5 Waste Disposal Plan.dwg [USC] 18 April 2013 3:58 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	I.5



PROPOSED WASTE DISPOSAL AREA SUMMARY		
NO.	AREA (ACRES)	VOLUME (CY)
25	4.4	41,000
26	2.2	45,000



PROPOSED WASTE DISPOSAL AREA SUMMARY		
NO.	AREA (ACRES)	VOLUME (CY)
27	5.2	31,500

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\I2-I5 Waste Disposal Plan.dwg [USC] 18 April 2013 3:58 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.1

Fish Passage Culvert Summary Table

Culvert Label	Size and Type	Pipe Length	Ga.	Corrugation	Start Station	Start Offset	Start Invert	End Station	End Offset	End Invert	Slope	Riprap Inlet	Riprap Outlet	Start Structure or Section	End Structure or Section	Inlet Bevel	Outlet Bevel	Footnotes
FP-01	84" CMP	85.46	12	3"x1"	827+94.11	39.43' R	63.23	827+62.76	40.07' L	62.80	0.50%	Class 1	Class 1			Y	Y	
FP-02	72" CMP	78.64	12	3"x1"	865+69.76	29.17' R	57.83	865+16.41	28.56' L	60.18	2.99%	Class 1	Class 1			Y	Y	
FP-03	11'-10"x7'-7" Pipe Arch	78.39	10	3"x1"	870+44.98	36.99' R	43.27	870+67.16	38.21' L	43.27	0.00%	Class 2	Class 2			Y	Y	
FP-04	66" CAP	88.95	16	3"x1"	873+22.02	37.54' R	43.83	872+72.28	36.21' L	43.39	0.50%	Class 1	Class 1			Y	Y	
FP-05	108" CMP	70.55	12	3"x1"	983+97.79	37.52' R	119.56	983+89.62	32.54' L	121.16	2.27%	Class 1	Class 1			Y	Y	
FP-06	11'-5"x7'-3" Pipe Arch	100.25	10	3"x1"	992+03.90	49.56' R	68.67	992+31.41	46.83' L	66.94	1.73%	Class 2	Class 2			Y	Y	
FP-07	66" CAP	88.25	16	3"x1"	1034+06.57	30.07' R	110.96	1034+56.57	41.49' L	101.25	11.06%	Class 1	Class 1			Y	Y	
FP-08	No Longer Fish Culvert See Culvert C-318																	
FP-09	96" CMP	96.68	12	3"x1"	1044+94.13	29.43' R	112.69	1045+46.85	51.42' L	99.35	13.93%	Class 2	Class 2			Y	Y	
FP-10	96" CMP	79.66	12	3"x1"	1061+08.03	32.68' R	116.09	1060+80.89	41.89' L	109.18	8.70%	Class 2	Class 2			Y	Y	
FP-11	96" CMP	88.33	12	3"x1"	1108+09.51	28.22' R	221.00	1108+64.27	40.52' L	212.21	10.00%	Class 1	Class 1			Y	Y	
FP-12	No Longer Fish Culvert																	
FP-13	No Longer Fish Culvert																	
FP-14	No Longer Fish Culvert																	
FP-15	10'-8"x6'-11" Pipe Arch	99.64	10	3"x1"	1202+03.37	41.02' R	314.62	1201+80.46	55.72' L	306.74	7.93%	Class 2	Class 2			Y	Y	
FP-16	60" CAP	81.31	16	3"x1"	10022+94.42	38.78' R	318.37	10022+65.83	37.38' L	319.52	1.42%	Class 1	Class 1			Y	Y	
FP-17	60" CAP	89.34	16	3"x1"	10044+83.59	39.02' R	301.79	10044+30.82	32.72' L	308.97	8.06%	Class 1	Class 1			Y	Y	

Major Culvert Summary Table

Culvert Label	Size	Allowable Pipe Material	Pipe Length	Ga.	Corrugation	Start Station	Start Offset	Start Invert	End Station	End Offset	End Invert	Slope	Riprap Inlet	Riprap Outlet	Start Structure or Section	End Structure or Section	Inlet Bevel	Outlet Bevel	Footnotes
C-05	48"	CPEP	65.63	N/A	N/A	1119+07.40	28.60' R	191.36	1118+98.94	36.43' L	188.56	4.27%	Class 1	Class 1	End Section	End Section			
C-08	72"	CMP	84.64	12	3"x1"	10017+30.05	33.83' R	351.95	10017+00.41	45.39' L	346.00	7.05%	Class 4	Class 4			Y	Y	
C-12	72"	CMP	81.84	12	3"x1"	10080+56.18	47.56' R	324.33	10080+50.13	33.74' L	331.51	8.81%	Class 1	Class 1			Y	Y	
C-13	48"	CPEP	104.38	N/A	N/A	10083+15.15	55.45' R	315.49	10083+40.33	45.73' L	321.33	5.61%	Class 2	Class 2	End Section	End Section			
FP-12	36"	CPEP	59.81	N/A	N/A	1109+87.91	27.09' R	224.32	1110+12.42	27.43' L	222.53	3.00%	Class 2	Class 2	End Section	End Section			
FP-13	84"	CMP	109.81	12	3"x1"	1142+35.87	46.32' R	97.29	1142+24.43	62.24' L	85.51	10.79%	Class 3	Class 3			Y	Y	
FP-14	96"	CMP	121.96	12	3"x1"	1186+20.88	47.55' R	272.25	1186+23.21	73.56' L	258.07	11.71%	Class 1	Class 1			Y	Y	

NOTES:

1. *Metal round pipe culverts (CMP) and metal pipe arch culverts shall be provided with an aluminized type 2 coating that shall conform to the applicable requirements of AASHTO M274.*
2. *Corrugated aluminum pipe (CAP) shall conform to the requirements of section 707.03 "Aluminum-alloy corrugated pipe" of the Standard Specifications (FP-03).*
3. *Provide drainage path at culvert outlet where indicated.*

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

DRAINAGE QUANTITIES

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\J1-J5 Drainage Quantities.dwg [USC] 11 September 2013 8:51 AM

Minor Culvert Summary Table

Culvert Label	Size	Allowable Pipe Material	Pipe Length	Ga.	Corrugation	Start Station	Start Offset	Start Invert	End Station	End Offset	End Invert	Slope	Riprap Inlet	Riprap Outlet	Start Structure or Section	End Structure or Section	Inlet Bevel	Outlet Bevel	Footnotes
C-101	24"	CPEP	55.66	N/A	N/A	784+69.35	30.16' L	126.77	784+72.26	25.26' R	131.02	7.67%	N/A	Class 2	End Section	End Section			
C-102	24"	CPEP	57.32	N/A	N/A	790+65.89	30.50' L	124.69	790+53.70	25.45' R	127.58	5.04%	N/A	Class 2	End Section	End Section			Ditch
C-103	24"	CPEP	60.71	N/A	N/A	797+06.22	30.66' L	111.20	797+16.84	29.09' R	112.96	2.90%	N/A	Class 2	End Section	End Section			Perched
C-104	24"	CPEP	63.10	N/A	N/A	801+17.79	35.46' L	97.98	801+17.79	27.61' R	99.87	3.00%	N/A	Class 2	End Section	End Section			Perched
C-105	24"	CPEP	60.28	N/A	N/A	804+93.33	29.88' L	93.97	805+12.69	27.18' R	95.78	3.00%	N/A	Class 2	End Section	End Section			Perched
C-106	24"	CPEP	61.87	N/A	N/A	808+93.86	32.40' L	92.52	808+84.60	28.74' R	94.38	3.00%	N/A	Class 2	End Section	End Section			Ditch
C-107	24"	CPEP	68.92	N/A	N/A	811+80.01	38.88' L	92.85	811+70.24	29.31' R	94.91	3.00%	N/A	Class 2	End Section	End Section			Perched
C-108	24"	CPEP	60.01	N/A	N/A	815+20.15	28.00' L	108.65	815+47.25	25.52' R	110.45	3.00%	N/A	Class 2	End Section	End Section			Perched
C-109	24"	CPEP	68.13	N/A	N/A	821+78.02	31.12' L	102.85	822+19.29	23.20' R	104.10	1.83%	N/A	Class 2	End Section	End Section			
C-110	24"	CPEP	82.30	N/A	N/A	833+78.67	28.56' L	92.63	833+15.44	24.06' R	90.16	3.00%	N/A	Class 2	End Section	End Section			Perched
C-113	24"	CPEP	54.87	N/A	N/A	838+99.84	26.35' L	118.35	839+11.53	27.23' R	116.70	3.00%	N/A	Class 2	End Section	End Section			Ditch
C-114	24"	CPEP	56.01	N/A	N/A	843+60.11	25.08' L	124.27	843+58.69	30.86' R	121.92	4.20%	N/A	Class 2	End Section	End Section			
C-117	24"	CPEP	53.65	N/A	N/A	854+97.89	25.65' L	98.30	855+02.14	27.80' R	96.69	3.00%	N/A	Class 2	End Section	End Section			
C-118	24"	CPEP	61.35	N/A	N/A	856+49.00	28.62' L	98.62	856+70.97	28.63' R	96.78	3.00%	N/A	Class 2	End Section	End Section			Perched
C-201	24"	CPEP	61.79	N/A	N/A	886+11.18	30.68' L	88.27	886+00.16	30.09' R	90.13	3.00%	N/A	Class 2	End Section	End Section			
C-203	24"	CPEP	59.63	N/A	N/A	894+12.62	29.06' L	111.78	894+12.55	30.56' R	111.19	1.00%	N/A	Class 2	End Section	End Section			
C-204	24"	CPEP	77.54	N/A	N/A	895+72.16	38.75' L	111.41	895+81.14	38.26' R	111.02	0.50%	N/A	Class 2	End Section	End Section			
C-207	24"	CPEP	58.82	N/A	N/A	908+68.28	25.68' L	140.97	908+87.79	29.75' R	138.39	4.40%	N/A	Class 2	End Section	End Section			
C-208	24"	CPEP	59.69	N/A	N/A	910+35.77	28.03' L	135.68	910+43.34	31.16' R	133.89	3.00%	N/A	Class 2	End Section	End Section			Perched
C-210	24"	CPEP	69.04	N/A	N/A	920+59.43	32.46' L	156.73	920+50.76	36.00' R	154.66	3.00%	N/A	Class 2	End Section	End Section			Perched
C-212	24"	CPEP	61.12	N/A	N/A	936+93.77	25.30' L	160.18	936+93.77	35.71' R	156.52	6.00%	N/A	Class 2	End Section	End Section			Perched
C-215	24"	CPEP	77.59	N/A	N/A	945+50.18	29.86' L	201.37	944+97.71	27.33' R	199.04	3.00%	N/A	Class 2	End Section	End Section			Ditch
C-217	24"	CPEP	60.87	N/A	N/A	953+55.41	25.85' L	226.80	953+26.19	27.51' R	224.97	3.00%	N/A	Class 2	End Section	End Section			
C-218	24"	CPEP	60.78	N/A	N/A	958+08.44	24.98' L	230.07	957+83.28	30.21' R	226.46	5.95%	N/A	Class 2	End Section	End Section			
C-301	24"	CPEP	55.56	N/A	N/A	964+91.01	26.01' L	230.90	964+98.83	28.97' R	229.23	3.00%	N/A	Class 2	End Section	End Section			Perched
C-303	24"	CPEP	62.55	N/A	N/A	976+17.00	25.82' L	162.68	976+17.66	36.70' R	160.80	3.00%	N/A	Class 2	End Section	End Section			Perched
~~C-305~~	~~24"~~	~~CPEP~~	~~57.36~~	~~N/A~~	~~N/A~~	~~981+60.66~~	~~27.42' L~~	~~131.93~~	~~981+61.94~~	~~29.92' R~~	~~132.22~~	~~0.50%~~	~~N/A~~	~~Class 2~~	~~End Section~~	~~End Section~~			
C-307	24"	CPEP	58.72	N/A	N/A	994+28.36	28.17' L	78.83	994+22.51	30.21' R	81.06	3.80%	N/A	Class 2	End Section	End Section			Perched
C-308	24"	CPEP	69.66	N/A	N/A	999+12.22	28.21' L	94.47	999+47.88	31.69' R	96.55	3.00%	N/A	Class 2	End Section	End Section			Perched
C-309	24"	CPEP	82.53	N/A	N/A	1002+28.26	39.14' L	105.42	1002+59.86	37.07' R	107.89	3.00%	N/A	Class 2	End Section	End Section			Perched
C-310	24"	CPEP	58.50	N/A	N/A	1011+87.26	28.59' L	150.54	1012+09.35	25.45' R	152.60	3.52%	N/A	Class 2	End Section	End Section			Perched
C-311	24"	CPEP	67.70	N/A	N/A	1014+28.63	42.03' L	145.28	1014+27.72	25.58' R	148.73	5.09%	N/A	Class 2	End Section	End Section			
C-312	24"	CPEP	56.09	N/A	N/A	1015+98.92	32.13' L	140.27	1015+98.92	23.86' R	143.63	6.00%	N/A	Class 2	End Section	End Section			Perched
C-313	24"	CPEP	50.46	N/A	N/A	1018+48.65	26.23' L	137.62	1018+42.00	23.78' R	139.14	3.00%	N/A	Class 2	End Section	End Section			
C-314	24"	CPEP	60.89	N/A	N/A	1024+68.81	27.11' L	140.40	1025+01.97	23.93' R	142.22	3.00%	N/A	Class 2	End Section	End Section			Perched

RFI 50
Add C-116
Sta. 851+00

RFI 57
Add C-321
Sta. 1058+60

RFI 51
Delete C-305

RFI 8
See Perched Culvert Details following sheet J.5

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

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Douglas T. Kenley
CE-8176
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DRAINAGE QUANTITIES

J:\2012\121088 FH43 Dewyville Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\J1-J5 Drainage Quantities.dwg [USC] 11 September 2013 8:51 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.3

MInor Culvert Summary Table

Culvert Label	Size	Allowable Pipe Material	Pipe Length	Ga.	Corrugation	Start Station	Start Offset	Start Invert	End Station	End Offset	End Invert	Slope	Riprap Inlet	Riprap Outlet	Start Structure or Section	End Structure or Section	Inlet Bevel	Outlet Bevel	Footnotes
~~C-315~~	~~24"~~	~~CPEP~~	~~53.45~~	~~N/A~~	~~N/A~~	~~1028+17.10~~	~~25.94' L~~	~~140.52~~	~~1028+03.60~~	~~25.76' R~~	~~142.12~~	~~3.00%~~	~~N/A~~	~~Class 2~~	~~End Section~~	~~End Section~~			~~Ditch~~
C-317	24"	CPEP	78.94	N/A	N/A	1035+98.41	31.05' L	107.24	1036+45.39	32.49' R	109.61	3.00%	N/A	Class 2	End Section	End Section			Ditch
C-318	24"	CPEP	66.38	N/A	N/A	1040+81.24	28.57' L	111.05	1041+18.26	26.49' R	113.04	3.00%	N/A	Class 2	End Section	End Section			Perched
C-320	24"	CPEP	54.99	N/A	N/A	1055+29.35	29.23' L	101.43	1055+34.13	25.53' R	103.07	3.00%	N/A	Class 2	End Section	End Section			
C-401	24"	CPEP	63.92	N/A	N/A	1068+20.51	26.47' R	162.28	1067+91.77	30.55' L	158.45	6.00%	N/A	Class 2	End Section	End Section			Perched
C-402	24"	CPEP	62.35	N/A	N/A	1073+64.28	29.04' R	193.38	1073+36.77	26.81' L	191.51	3.00%	N/A	Class 2	End Section	End Section			Perched
C-403	24"	CPEP	72.87	N/A	N/A	1077+94.45	28.06' R	216.63	1077+46.40	26.67' L	214.45	3.00%	N/A	Class 2	End Section	End Section			Perched
C-404	24"	CPEP	60.30	N/A	N/A	1081+45.36	28.23' R	224.87	1081+30.97	30.30' L	223.06	3.00%	N/A	Class 2	End Section	End Section			Perched
C-405	24"	CPEP	57.10	N/A	N/A	1083+21.40	24.97' R	230.54	1083+08.48	30.62' L	228.41	3.75%	N/A	Class 2	End Section	End Section			Perched
C-406	24"	CPEP	53.20	N/A	N/A	1087+22.50	29.04' L	232.19	1087+23.06	24.07' R	235.22	5.71%	N/A	Class 2	End Section	End Section			
C-408	24"	CPEP	61.75	N/A	N/A	1093+98.58	24.13' R	228.99	1094+18.67	33.89' L	222.41	10.71%	N/A	Class 2	End Section	End Section			
~~C-409~~	~~24"~~	~~CPEP~~	~~49.42~~	~~N/A~~	~~N/A~~	~~1094+96.73~~	~~24.42' R~~	~~227.74~~	~~1094+95.29~~	~~24.98' L~~	~~227.22~~	~~1.05%~~	~~N/A~~	~~Class 2~~	~~End Section~~	~~End Section~~			
C-410	24"	CPEP	64.25	N/A	N/A	1098+17.38	33.62' L	217.66	1098+17.55	30.61' R	219.59	3.00%	N/A	Class 2	End Section	End Section			Ditch
C-411	24"	CPEP	57.40	N/A	N/A	1101+87.30	23.40' R	211.18	1101+85.80	33.88' L	207.74	6.00%	N/A	Class 2	End Section	End Section			Perched
C-412	24"	CPEP	59.72	N/A	N/A	1103+42.73	25.30' R	212.86	1103+36.05	33.94' L	209.28	6.00%	N/A	Class 2	End Section	End Section			Perched
C-413	24"	CPEP	56.28	N/A	N/A	1105+67.63	24.50' R	220.31	1105+40.58	24.83' L	218.62	3.00%	N/A	Class 2	End Section	End Section			Ditch
C-414	24"	CPEP	51.50	N/A	N/A	1111+86.47	25.88' R	222.14	1111+86.08	25.60' L	220.59	3.00%	N/A	Class 2	End Section	End Section			
~~C-415~~	~~24"~~	~~CPEP~~	~~60.01~~	~~N/A~~	~~N/A~~	~~1118+63.65~~	~~23.71' R~~	~~195.02~~	~~1118+46.04~~	~~33.62' L~~	~~191.42~~	~~6.00%~~	~~N/A~~	~~Class 2~~	~~End Section~~	~~End Section~~			~~Perched~~
C-417	24"	CPEP	52.41	N/A	N/A	1128+14.54	25.84' R	152.84	1128+13.08	26.52' L	151.27	3.00%	N/A	Class 2	End Section	End Section			Perched
C-418	36"	CPEP/CMP	57.65	16	2⅔"x ½"	1131+07.45	27.78' R	143.85	1131+01.03	29.48' L	142.12	3.00%	N/A	Class 2	End Section	End Section			Perched
C-419	24"	CPEP	61.36	N/A	N/A	1135+90.64	24.37' R	137.57	1136+00.13	35.75' L	129.73	12.89%	N/A	Class 2	End Section	End Section			
C-420	24"	CPEP	63.91	N/A	N/A	1139+53.95	23.76' R	114.31	1139+51.64	39.31' L	104.23	15.97%	N/A	Class 2	End Section	End Section			
C-421	24"	CPEP	53.80	N/A	N/A	1145+12.86	23.96' R	114.07	1145+24.58	28.52' L	112.46	3.00%	N/A	Class 2	End Section	End Section			Perched
C-422	24"	CPEP	66.13	N/A	N/A	1151+35.88	30.77' R	158.62	1151+23.28	34.12' L	156.60	3.05%	N/A	Class 2	End Section	End Section			
C-501	24"	CPEP	58.03	N/A	N/A	9004+79.86	25.19' R	240.72	9004+76.39	32.68' L	237.97	4.74%	N/A	Class 2	End Section	End Section			Ditch
C-502	24"	CPEP	53.05	N/A	N/A	9006+37.96	23.93' R	250.52	9006+48.55	28.03' L	248.93	3.00%	N/A	Class 2	End Section	End Section			
C-504	24"	CPEP	55.13	N/A	N/A	9012+99.72	26.02' R	287.63	9012+89.21	28.08' L	285.98	3.00%	N/A	Class 2	End Section	End Section			Ditch
C-505	24"	CPEP	52.11	N/A	N/A	9017+27.06	26.59' L	295.31	9017+27.96	25.49' R	296.87	3.00%	N/A	Class 2	End Section	End Section			
C-506	24"	CPEP	60.95	N/A	N/A	9020+61.29	30.70' R	290.00	9020+58.36	30.15' L	288.18	3.00%	N/A	Class 2	End Section	End Section			Perched
C-507	24"	CPEP	61.92	N/A	N/A	9023+15.47	29.49' L	283.87	9023+12.70	32.36' R	284.49	1.00%	N/A	Class 2	End Section	End Section			Ditch
C-508	24"	CPEP	59.70	N/A	N/A	1185+06.89	25.87' R	284.61	1185+07.50	33.78' L	282.11	4.20%	N/A	Class 2	End Section	End Section			Perched
C-510	24"	CPEP	58.70	N/A	N/A	1193+02.07	28.72' R	316.85	1193+02.05	29.96' L	315.09	3.00%	N/A	Class 2	End Section	End Section			Perched
C-511	24"	CPEP	59.17	N/A	N/A	1195+30.39	29.61' R	319.19	1195+30.38	29.53' L	317.42	3.00%	N/A	Class 2	End Section	End Section			Perched
C-512	24"	CPEP	57.40	N/A	N/A	1197+86.16	26.87' R	322.68	1197+86.13	30.51' L	320.94	3.03%	N/A	Class 2	End Section	End Section			Ditch
C-514	24"	CPEP	55.91	N/A	N/A	10000+13.65	24.87' R	326.53	10000+32.67	27.68' L	324.84	3.02%	N/A	Class 2	End Section	End Section			Ditch

RFI 105
Delete C-315

RFI #49
Delete C-409

RFI #48
Delete C-418

RFI 8
See Perched Culvert Details following sheet J.5

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

DRAINAGE QUANTITIES

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\J1-J5 Drainage Quantities.dwg [USC] 11 September 2013 8:51 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.4

Minor Culvert Summary Table

Culvert Label	Size	Allowable Pipe Material	Pipe Length	Ga.	Corrugation	Start Station	Start Offset	Start Invert	End Station	End Offset	End Invert	Slope	Riprap Inlet	Riprap Outlet	Start Structure or Section	End Structure or Section	Inlet Bevel	Outlet Bevel	Footnotes
C-515	24"	CPEP	52.28	N/A	N/A	10001+17.52	25.49' R	325.19	10001+17.62	26.76' L	323.43	3.37%	N/A	Class 2	End Section	End Section			
C-516	24"	CPEP	59.16	N/A	N/A	10003+42.50	30.20' R	323.01	10003+43.78	28.92' L	321.23	3.00%	N/A	Class 2	End Section	End Section			Perched
C-517	24"	CPEP	62.42	N/A	N/A	10007+04.16	30.37' R	323.17	10007+07.35	31.87' L	319.63	5.68%	N/A	Class 2	End Section	End Section			Ditch
C-518	24"	CPEP	65.08	N/A	N/A	10011+43.68	25.47' R	345.47	10011+05.94	27.38' L	341.44	6.21%	N/A	Class 2	End Section	End Section			Ditch
C-519	24"	CPEP	56.06	N/A	N/A	10014+35.47	25.74' R	355.10	10014+37.13	30.21' L	351.89	5.73%	N/A	Class 2	End Section	End Section			
C-520	24"	CPEP	51.79	N/A	N/A	10020+17.63	23.91' R	346.68	10020+17.55	27.82' L	344.34	4.52%	N/A	Class 2	End Section	End Section			
C-521	24"	CPEP	53.61	N/A	N/A	10026+90.68	24.82' R	321.36	10026+69.38	24.37' L	321.70	0.64%	N/A	Class 2	End Section	End Section			
C-523	24"	CPEP	55.40	N/A	N/A	10035+41.34	29.92' R	332.21	10035+32.55	24.73' L	334.26	3.71%	N/A	Class 2	End Section	End Section			Ditch
C-524	24"	CPEP	70.93	N/A	N/A	10038+68.09	33.68' L	322.48	10038+68.07	37.22' R	320.35	3.00%	N/A	Class 2	End Section	End Section			Perched
C-601	24"	CPEP	49.31	N/A	N/A	10056+89.70	24.66' L	281.75	10056+89.60	24.66' R	281.68	0.15%	N/A	Class 2	End Section	End Section			
C-602	24"	CPEP	53.89	N/A	N/A	10060+20.50	24.25' L	283.54	10060+29.22	28.91' R	281.93	3.00%	N/A	Class 2	End Section	End Section			Ditch
C-603	24"	CPEP	52.44	N/A	N/A	10065+19.35	26.89' R	299.22	10065+25.86	25.11' L	300.79	3.00%	N/A	Class 2	End Section	End Section			Ditch
C-604	24"	CPEP	64.32	N/A	N/A	10070+56.89	33.14' R	311.36	10070+70.47	29.71' L	313.29	3.00%	N/A	Class 2	End Section	End Section			Perched
C-605	24"	CPEP	61.28	N/A	N/A	10074+14.06	27.46' L	317.49	10074+21.25	33.37' R	315.52	3.20%	N/A	Class 2	End Section	End Section			
C-607	24"	CPEP	61.62	N/A	N/A	1294+64.50	31.64' L	326.92	1294+64.54	29.96' R	325.08	3.00%	N/A	Class 2	End Section	End Section			Perched Ditch
C-608	24"	CPEP	62.89	N/A	N/A	1299+19.52	27.69' L	323.96	1299+16.27	35.09' R	322.07	3.00%	N/A	Class 2	End Section	End Section			Ditch
C-609	24"	CPEP	56.17	N/A	N/A	1302+27.59	25.90' L	309.68	1302+32.36	30.04' R	308.00	3.00%	N/A	Class 2	End Section	End Section			Perched
C-610	24"	CPEP	59.89	N/A	N/A	1306+56.01	26.56' L	292.59	1306+53.59	33.26' R	290.80	3.00%	N/A	Class 2	End Section	End Section			Perched
C-611	24"	CPEP	67.49	N/A	N/A	1308+31.40	29.17' L	295.76	1308+09.31	34.62' R	293.74	3.00%	N/A	Class 2	End Section	End Section			Perched
C-612	24"	CPEP	60.34	N/A	N/A	1312+09.50	30.26' L	309.96	1312+08.14	30.04' R	308.15	3.00%	N/A	Class 2	End Section	End Section			Perched
C-613	24"	CPEP	56.83	N/A	N/A	1315+64.03	31.13' R	316.20	1315+64.00	25.48' L	321.20	8.83%	N/A	Class 2	End Section	End Section			
C-615	24"	CPEP	53.69	N/A	N/A	1322+68.35	24.54' L	334.66	1322+68.38	29.06' R	331.59	5.72%	N/A	Class 2	End Section	End Section			
C-616	24"	CPEP	59.27	N/A	N/A	1327+35.36	33.05' R	329.57	1327+35.49	26.15' L	332.42	4.80%	N/A	Class 2	End Section	End Section			Ditch
C-618	24"	CPEP	53.45	N/A	N/A	1332+65.56	27.64' L	308.35	1332+65.62	25.79' R	309.96	3.02%	N/A	Class 2	End Section	End Section			Ditch
C-619	24"	CPEP	63.86	N/A	N/A	1336+96.21	26.37' L	289.31	1336+59.45	25.85' R	291.23	3.00%	N/A	Class 2	End Section	End Section			Perched
C-620	24"	CPEP	59.69	N/A	N/A	1342+34.05	23.35' R	277.28	1342+10.79	31.65' L	274.91	3.97%	N/A	Class 2	End Section	End Section			
C-621	24"	CPEP	57.87	N/A	N/A	1347+03.85	32.57' L	259.10	1347+03.87	25.24' R	261.72	4.52%	N/A	Class 2	End Section	End Section			Ditch
C-623	24"	CPEP	62.21	N/A	N/A	1354+06.03	31.95' L	205.69	1354+06.09	30.23' R	203.83	3.00%	N/A	Class 2	End Section	End Section			Perched
C-624	24"	CPEP	86.34	N/A	N/A	1358+66.09	32.00' L	174.81	1359+16.09	38.26' R	170.58	4.91%	N/A	Class 2	End Section	End Section			
C-625	30"	CPEP	70.84	N/A	N/A	1361+34.17	29.31' L	178.29	1361+29.47	41.29' R	174.78	4.96%	N/A	Class 2	End Section	End Section			Buried Inlet

RFI 66
Delete C-520
Pipe was Installed

RFI 105
Delete C-621

RFI 8
See Perched Culvert Details following sheet J.5

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

DRAINAGE QUANTITIES

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\J1-J5 Drainage Quantities.dwg [USC] 11 September 2013 8:51 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.5

MInor Culvert Summary Table

Culvert Label	Size	Allowable Pipe Material	Pipe Length	Ga.	Corrugation	Start Station	Start Offset	Start Invert	End Station	End Offset	End Invert	Slope	Riprap Inlet	Riprap Outlet	Start Structure or Section	End Structure or Section	Inlet Bevel	Outlet Bevel	Footnotes
C-01	36"	CPEP	70.00	N/A	N/A	793+41.00	33.18' R	116.48	793+25.94	35.14' L	114.38	3.00%	N/A	Class 2	End Section	End Section			
C-02	36"	CPEP	68.80	N/A	N/A	912+99.27	36.99' R	129.48	913+09.68	30.99' L	131.54	3.00%	N/A	Class 2	End Section	End Section			
C-03	36"	CPEP	72.98	N/A	N/A	1007+98.87	34.30' R	135.23	1007+89.22	38.01' L	133.04	3.00%	N/A	Class 2	End Section	End Section			
C-04	24"	CPEP	53.66	N/A	N/A	1115+15.71	25.37' R	210.28	1115+18.45	28.20' L	208.67	3.00%	N/A	Class 2	End Section	End Section			
C-06	36"	CPEP	89.01	N/A	N/A	1124+88.76	37.75' R	168.37	1125+18.12	46.29' L	165.70	3.00%	N/A	Class 2	End Section	End Section			
C-07	36"	CPEP	80.38	N/A	N/A	9000+80.47	32.60' R	206.94	9001+10.75	41.82' L	204.52	3.00%	N/A	Class 2	End Section	End Section			
C-09	36"	CPEP	94.78	N/A	N/A	10051+10.48	43.30' R	279.69	10050+70.47	42.61' L	282.02	2.46%	N/A	Class 2	End Section	End Section			
C-10	24"	CPEP	59.32	N/A	N/A	10051+68.76	31.84' R	283.68	10051+69.13	27.45' L	285.46	3.00%	N/A	Class 2	End Section	End Section			
C-11	30"	CPEP	65.62	N/A	N/A	10073+36.13	34.65' R	313.47	10073+39.40	30.88' L	314.79	2.02%	N/A	Class 2	End Section	End Section			

RFI 8
See Perched Culvert Details following sheet J.5

Parallel Culvert Summary Table

Culvert Label	Size	Allowable Pipe Material	Pipe Length	Ga.	Corrugation	Start Station	Start Offset	Start Invert	End Station	End Offset	End Invert	Slope	Riprap Inlet	Riprap Outlet	Start Structure or Section	End Structure or Section	Inlet Bevel	Outlet Bevel	Footnotes
C-701	24"	CPEP	33.37	N/A	N/A	934+47.24	38.06' L	164.56	934+77.84	31.97' L	163.89	2.00%	N/A	Class 2	End Section	End Section			
C-702	24"	CPEP	50.70	N/A	N/A	1006+90.14	22.70' R	140.21	1007+39.92	32.29' R	140.64	0.84%	N/A	Class 2	End Section	End Section			
C-703	24"	CPEP	28.91	N/A	N/A	1092+57.48	26.73' R	231.79	1092+84.09	38.05' R	231.75	0.13%	N/A	Class 2	End Section	End Section			
C-704	24"	CPEP	37.01	N/A	N/A	10012+02.80	34.98' R	350.89	10012+39.73	32.68' R	351.26	1.00%	N/A	Class 2	End Section	End Section			
C-705	24"	CPEP	50.45	N/A	N/A	10033+45.35	30.37' R	336.24	10033+95.68	32.53' R	333.49	5.46%	N/A	Class 2	End Section	End Section			

Culvert Summary Table

Culvert Size	Quantity	Total Length (ft)
24"	106	6,763
30"	2	131
36"	6	586
48"	2	163
60"	3	250
66"	2	179
72"	3	229
84"	1	87
96"	4	390
108"	1	71
10'-8"x6'-11" Pipe Arch	1	100
11'-5"x7'-3" Pipe Arch	1	101
11'-10"x7'-7" Pipe Arch	1	78
14'-3"x9'-2" Pipe Arch	1	116

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

DRAINAGE QUANTITIES

J:\2012\121088 FH43 Dewyville Trallhead to Neck Lake\E. Drawings\Civil\02 - Rev 3\J1-J5 Drainage Quantities.dwg [USC] 11 September 2013 8:51 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	RFI-08.01

Notes:

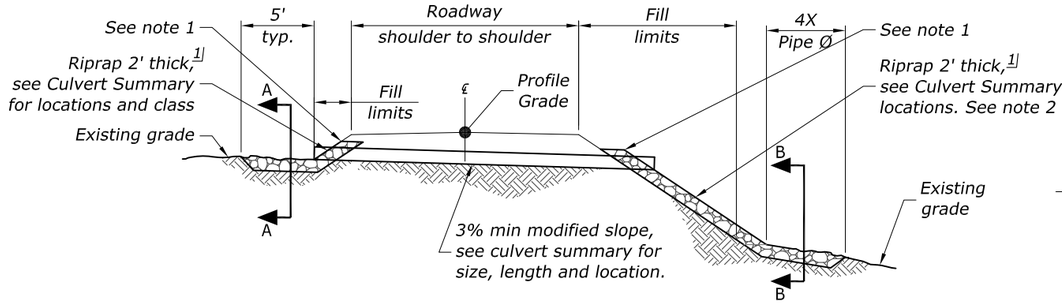
1. *Extend riprap 1' above culvert.*
2. *Where culvert is seated on bedrock, riprap apron may be omitted.*
3. *Culverts 48"Ø or smaller are to be installed with flared end sections per FHWA standard plans.*

Footnote:

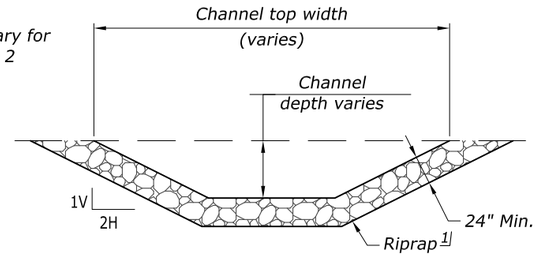
1/ Directly beneath Riprap, install either a 6" thick layer of Aggregate Filter Blanket material or Separation Geotextile Type II-C, except where Riprap is placed on bedrock or rock embankment.

2/ Perched culvert details are solely applicable to the culverts listed in this table.

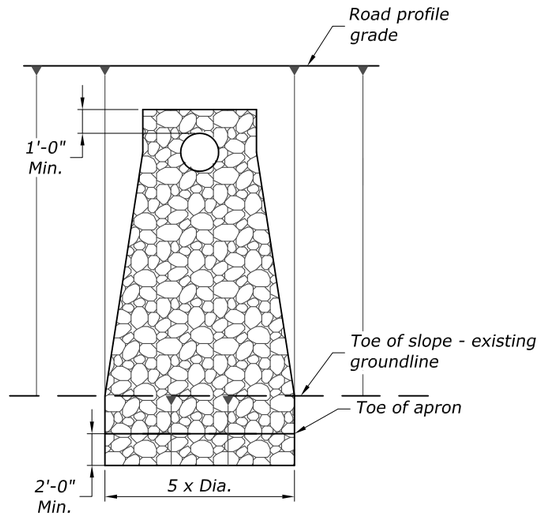
3/ Minimum pipe cover below subgrade must be maintained.



TYPICAL PERCHED PIPE CULVERT INSTALLATION
NON-FISH STREAMS



SECTION A-A
PERCHED NON-FISH STREAMS



SECTION B-B
PERCHED NON-FISH STREAMS

Perched Culvert Summary Table 2/

Culvert Label	Size	Allowable Min Slope 3/	Riprap Class
C-01	36"	3%	2
C-02	36"	3%	2
C-03	36"	3%	2
C-06	36"	3%	2
C-07	36"	3%	2
C-10	36"	3%	2
C-103	24"	3%	2
C-104	24"	3%	2
C-105	24"	3%	2
C-107	24"	3%	2
C-108	24"	3%	2
C-110	24"	3%	2
C-118	24"	3%	2
C-208	24"	3%	2
C-210	24"	3%	2
C-212	24"	3%	2
C-301	24"	3%	2
C-303	24"	3%	2
C-307	24"	3%	2
C-308	24"	3%	2
C-309	24"	3%	2

Perched Culvert Summary Table 2/

Culvert Label	Size	Allowable Min Slope 3/	Riprap Class
C-310	24"	3%	2
C-312	24"	3%	2
C-314	24"	3%	2
C-318	24"	3%	2
C-401	24"	3%	2
C-402	24"	3%	2
C-403	24"	3%	2
C-404	24"	3%	2
C-405	24"	3%	2
C-411	24"	3%	2
C-412	24"	3%	2
C-415	24"	3%	2
C-417	24"	3%	2
C-418	36"	3%	2
C-421	24"	3%	2
C-506	24"	3%	2
C-508	24"	3%	2
C-510	24"	3%	2
C-511	24"	3%	2
C-516	24"	3%	2
C-524	24"	3%	2

Perched Culvert Summary Table 2/

Culvert Label	Size	Allowable Min Slope 3/	Riprap Class
C-604	24"	3%	2
C-607	24"	3%	2
C-609	24"	3%	2
C-610	24"	3%	2
C-611	24"	3%	2
C-612	24"	3%	2
C-616	24"	3%	2
C-619	24"	3%	2
C-620	24"	3%	2
C-623	24"	3%	2
C-624	24"	3%	2
C-625	30"	3%	2
FP-12	36"	3%	2

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

PERCHED CULVERT DETAILS

RFI 8

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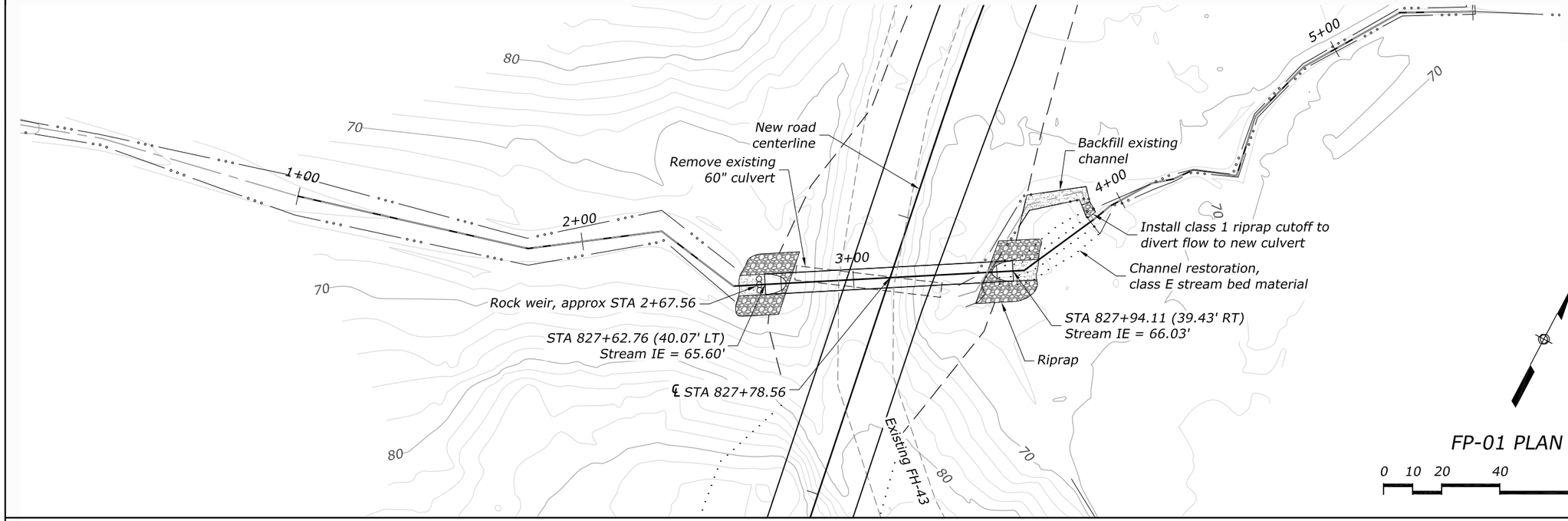
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.6

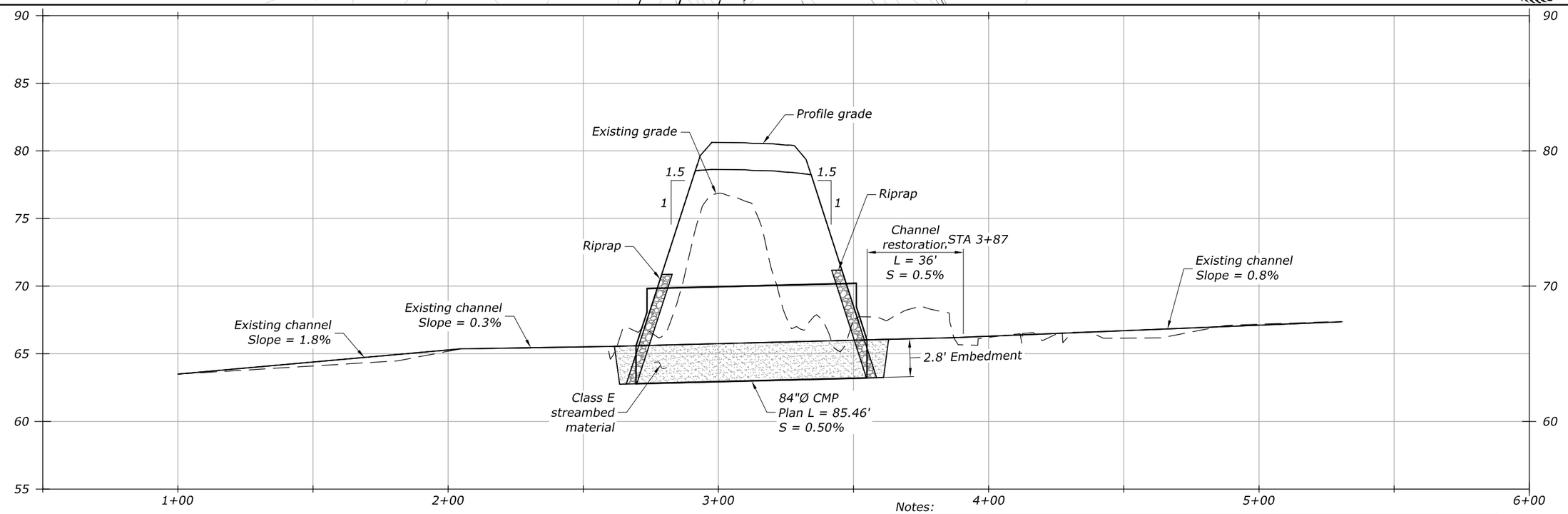


FP-01 PLAN

0 10 20 40 80FT

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



FP-01 PROFILE

5:1 Vertical exaggeration

Notes:

1. Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.
2. Field verify inlet elevations, outlet elevations, and slope.
3. Overtopping elevation measured at top of subgrade.

Notes:

Drainage area (sq-mi)	=	0.14	Q50 Headwater elevation (ft)	=	70.85
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	69.55
Q2 (cfs)	=	51.43	Overtopping flood (cfs)	=	258
Q50 (cfs)	=	111.04	Overtopping probability	<	0.2%
QFish (cfs)	=	20.57	Overtopping elevation (ft)	=	78.55
Fish species	=	CT, DV	Hw/D ratio Q50	=	1.15
Design bankfull width (ft)	=	4			

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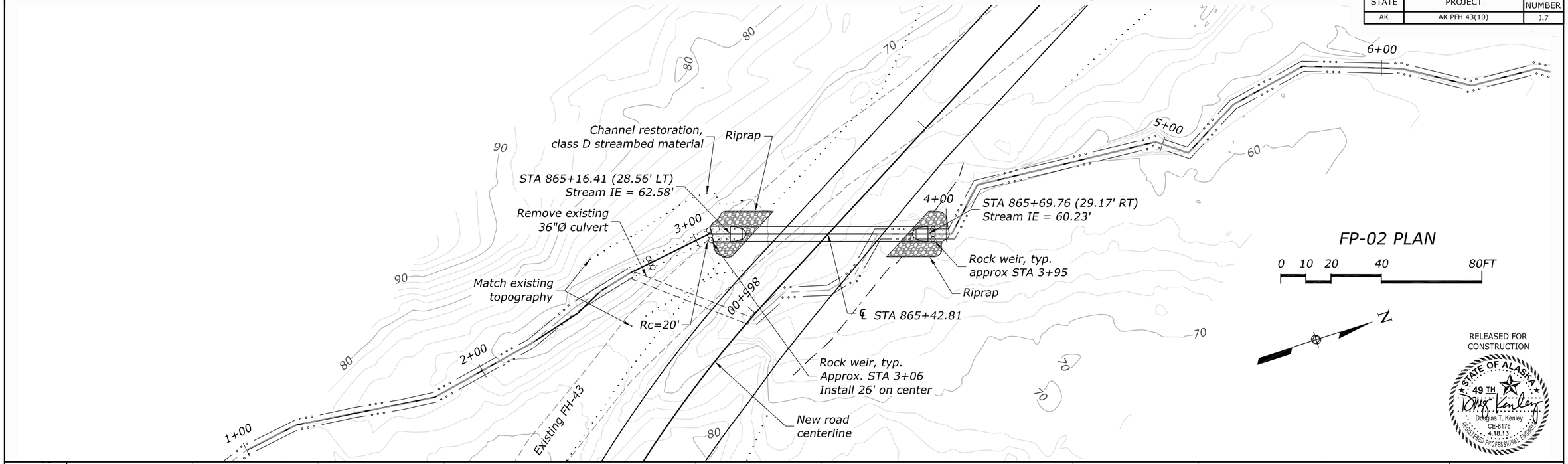
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.7



FP-02 PLAN

0 10 20 40 80FT

N

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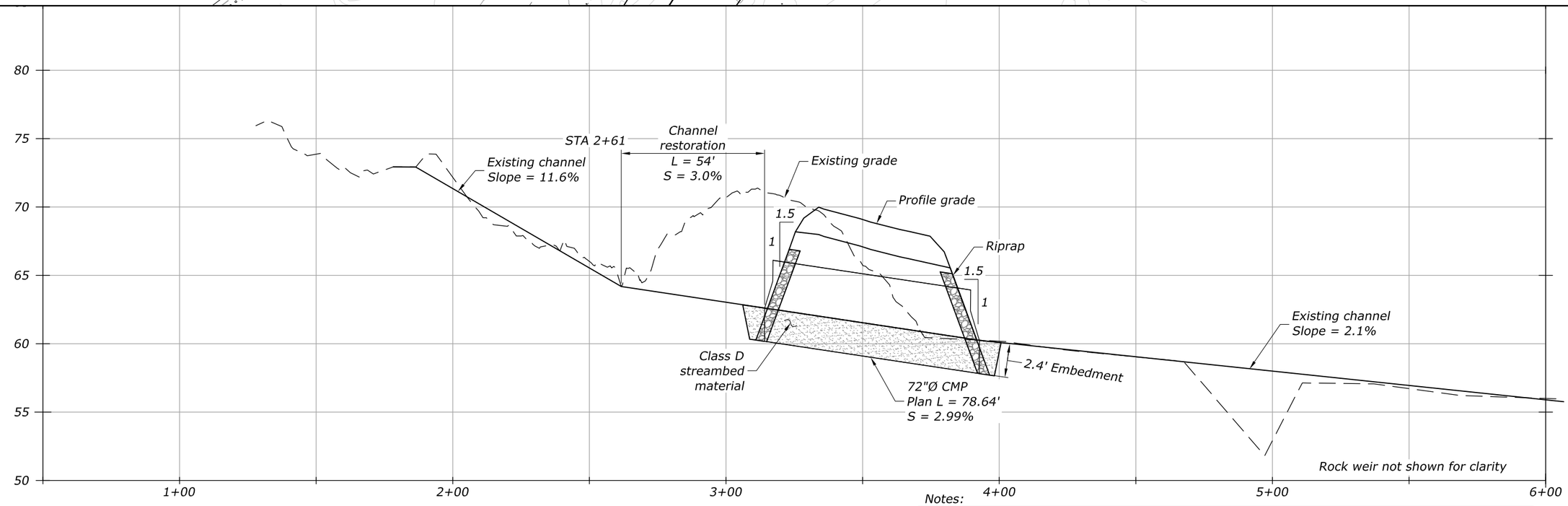
STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



FP-02 PROFILE

5:1 Vertical exaggeration

Notes:

1. Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.
2. Field verify inlet elevations, outlet elevations, and slope.
3. Overtopping elevation measured at top of subgrade.

Notes:

Drainage area (sq-mi)	=	0.01	Q50 Headwater elevation (ft)	=	63.51
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	61.78
Q2 (cfs)	=	5.36	Overtopping flood (cfs)	=	106
Q50 (cfs)	=	11.80	Overtopping probability	<	0.2%
QFish (cfs)	=	2.14	Overtopping elevation (ft)	=	66.89
Fish species	=	SS, CT, DV	Hw/D ratio Q50	=	0.26
Design bankfull width (ft)	=	3			

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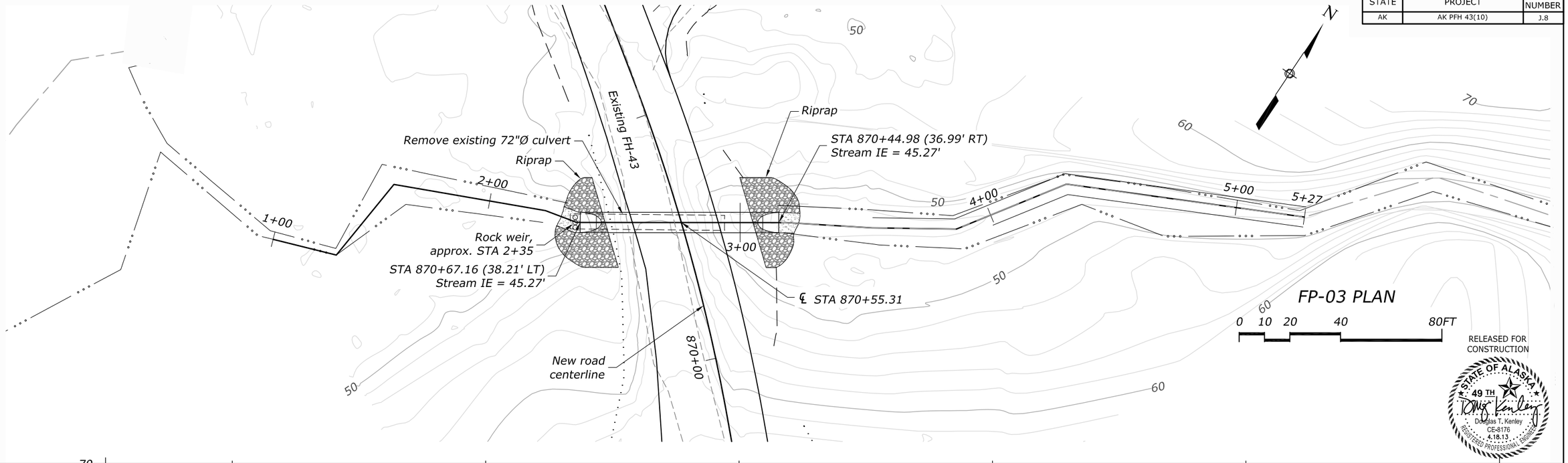
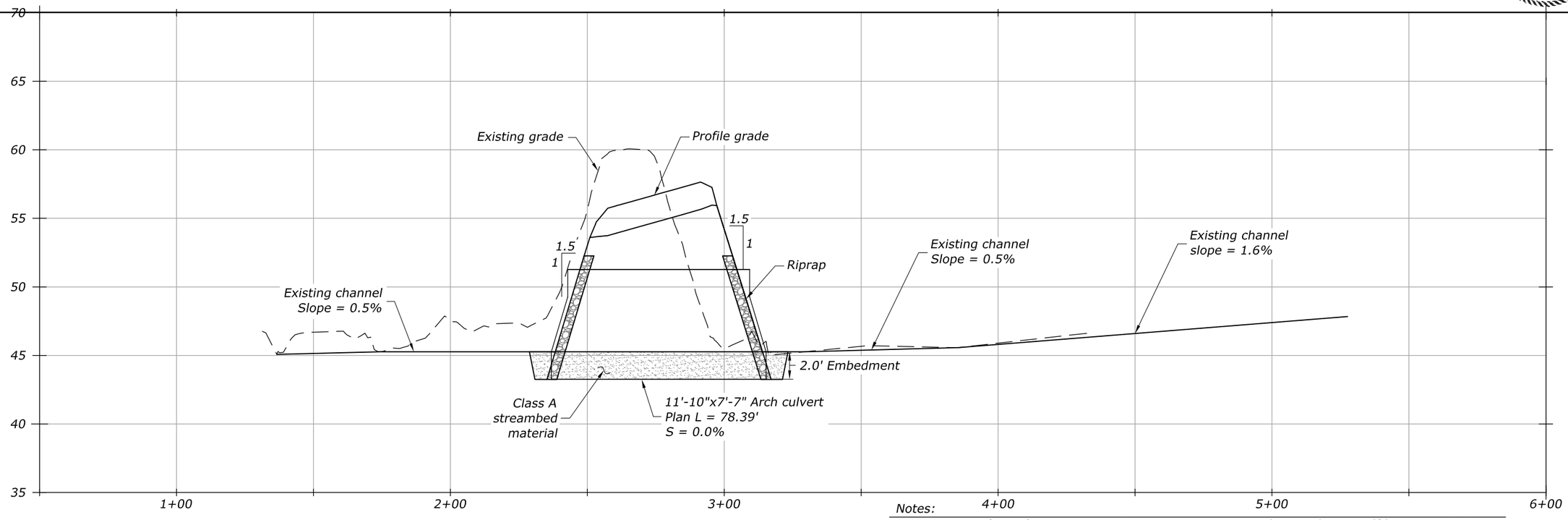
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.8



FP-03 PLAN

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



FP-03 PROFILE

5:1 Vertical exaggeration

Notes:

1. Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.
2. Field verify inlet elevations, outlet elevations, and slope.
3. Overtopping elevation measured at top of subgrade.

Notes:

Drainage area (sq-mi)	=	0.40	Q50 Headwater elevation (ft)	=	49.96
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	48.29
Q2 (cfs)	=	87.40	Overtopping flood (cfs)	=	522
Q50 (cfs)	=	185.39	Overtopping probability	<	0.2%
QFish (cfs)	=	34.96	Overtopping elevation (ft)	=	54.57
Fish species	=	CT	Hw/D ratio Q50	=	0.84
Design bankfull width (ft)	=	9.8			

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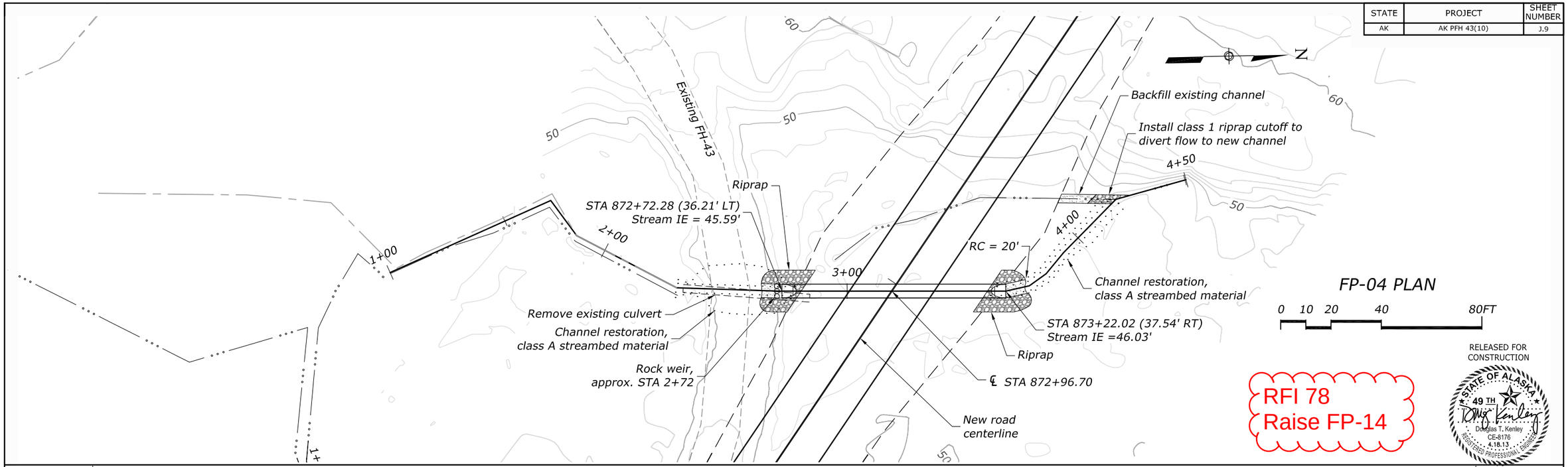
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.9



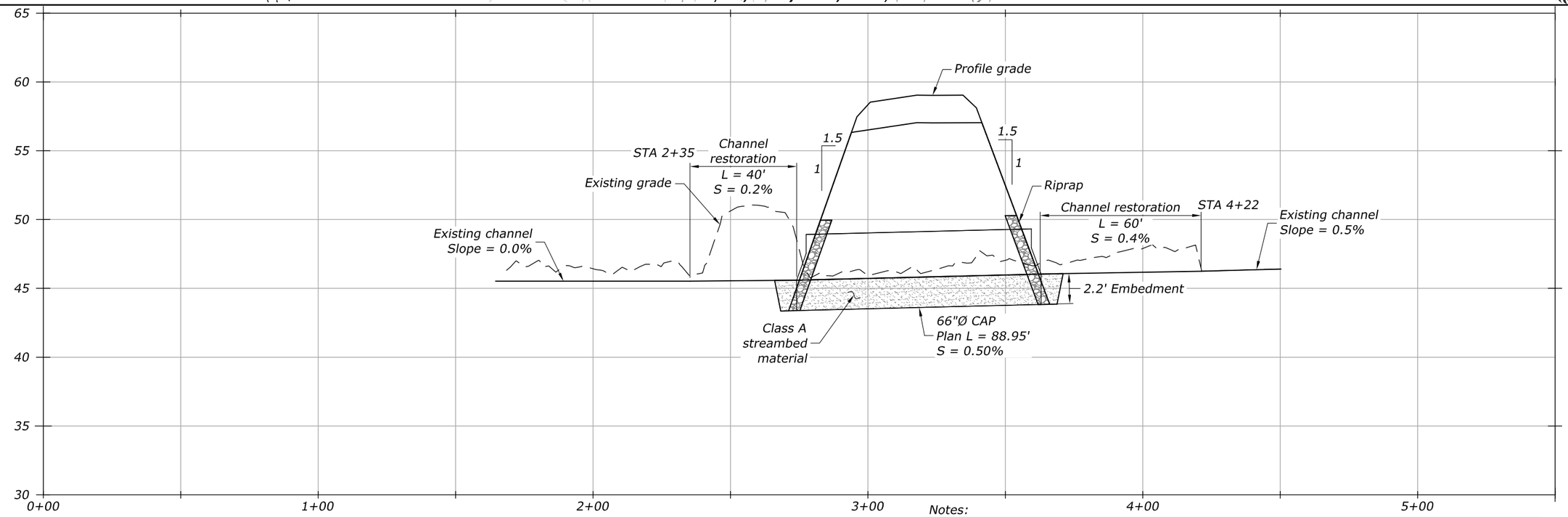
FP-04 PLAN

0 10 20 40 80FT

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

RFI 78
Raise FP-14



FP-04 PROFILE

5:1 Vertical exaggeration

Notes:

1. *Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.*
2. *Field verify inlet elevations, outlet elevations, and slope.*
3. *Overtopping elevation measured at top of subgrade.*

Notes:					
Drainage area (sq-mi)	=	0.01	Q50 Headwater elevation (ft)	=	47.83
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	47.42
Q2 (cfs)	=	7.20	Overtopping flood (cfs)	=	116
Q50 (cfs)	=	15.83	Overtopping probability	<	0.2%
QFish (cfs)	=	2.88	Overtopping elevation (ft)	=	57.04
Fish species	=	CT, DV	Hw/D ratio Q50	=	0.55
Design bankfull width (ft)	=	3.5			

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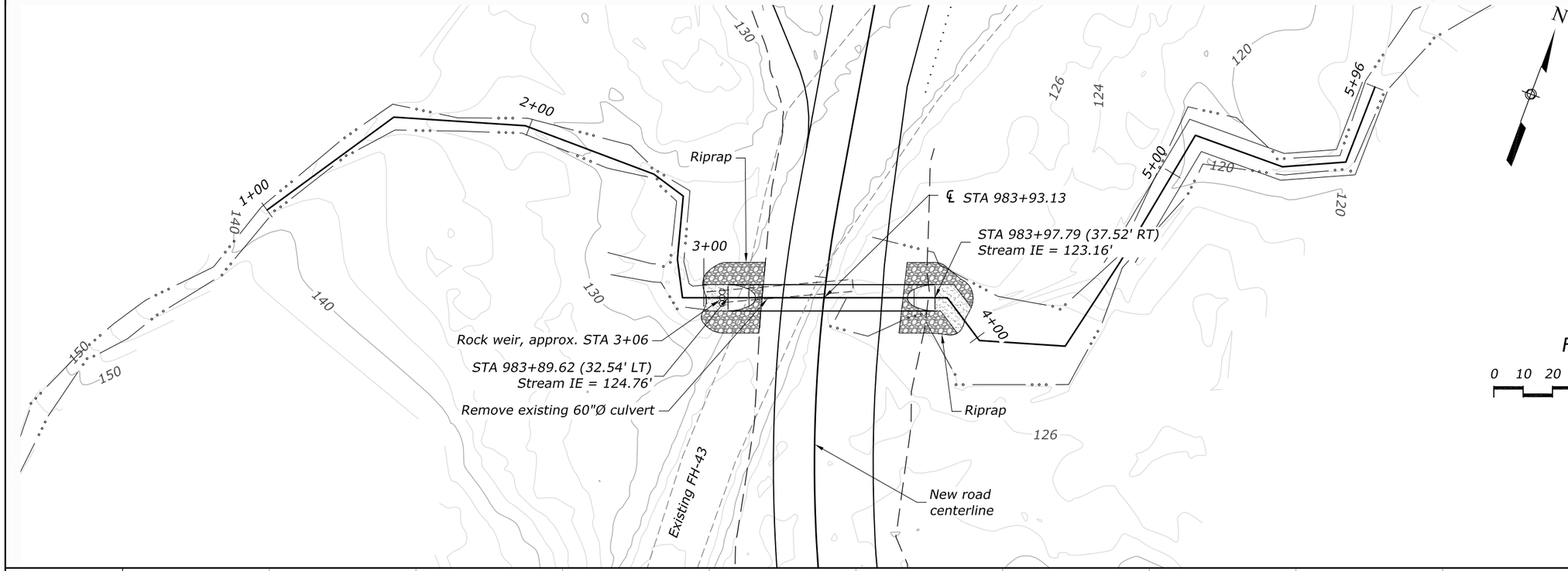
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.10

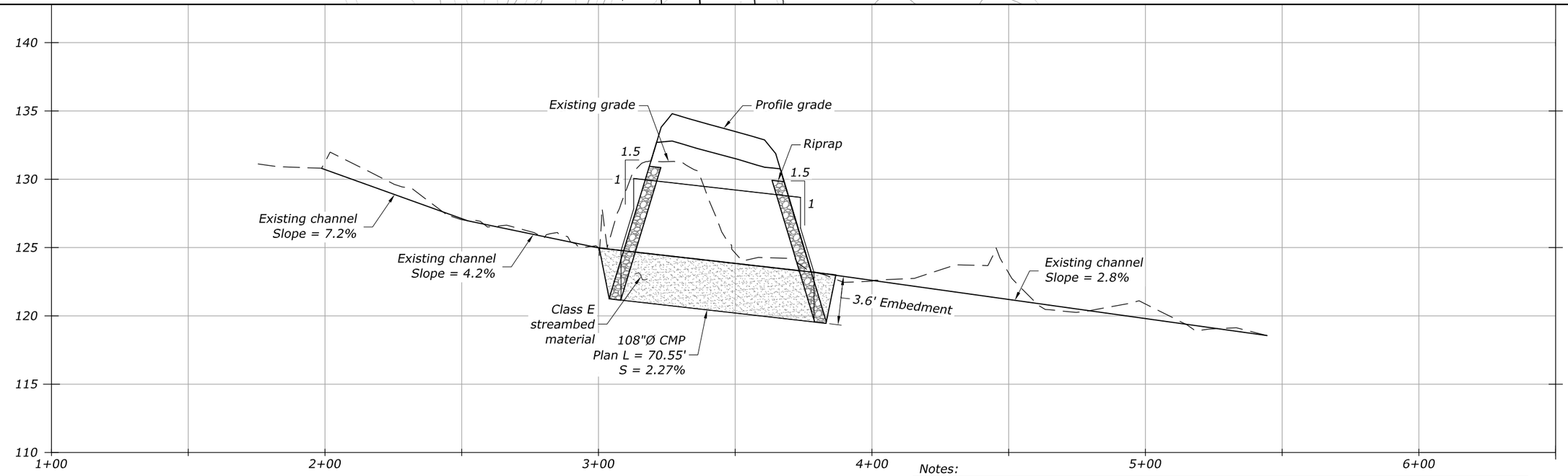


FP-05 PLAN

0 10 20 40 80FT

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



FP-05 PROFILE

5:1 Vertical exaggeration

Notes:

1. *Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.*
2. *Field verify inlet elevations, outlet elevations, and slope.*
3. *Overtopping elevation measured at top of subgrade.*

Notes:

Drainage area (sq-mi)	=	0.14	Q50 Headwater elevation (ft)	=	127.88
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	125.51
Q2 (cfs)	=	50.55	Overtopping flood (cfs)	=	334
Q50 (cfs)	=	109.15	Overtopping probability	<	0.2%
QFish (cfs)	=	20.22	Overtopping elevation (ft)	=	131.99
Fish species	=	DV	Hw/D ratio Q50	=	0.58
Design bankfull width (ft)	=	7			

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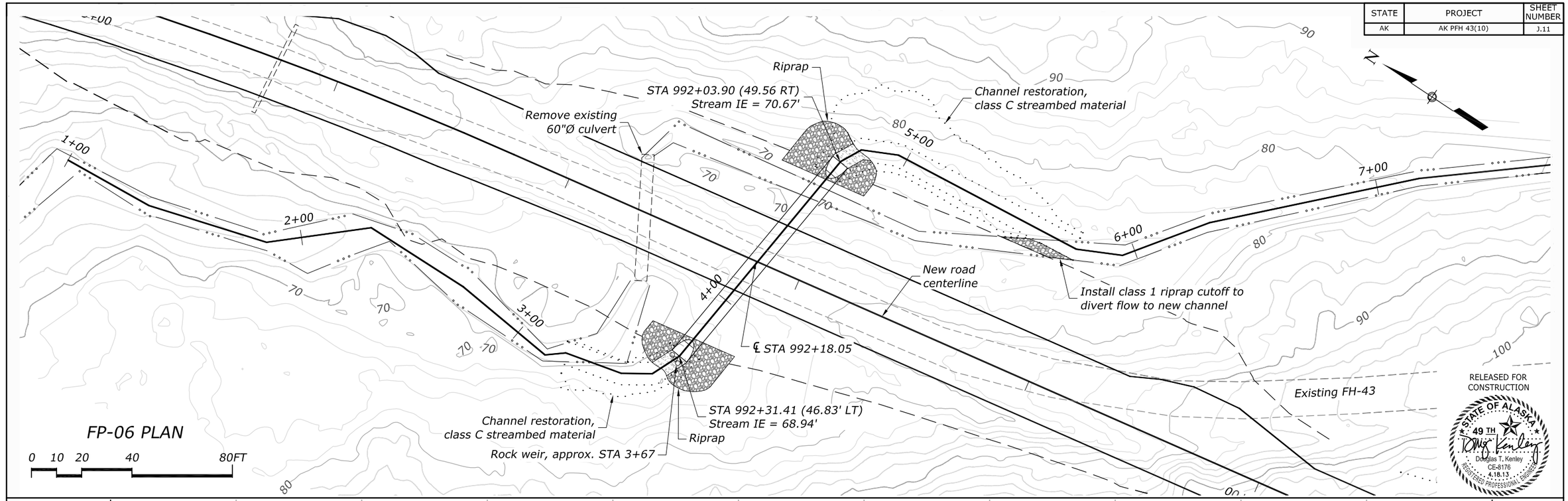
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.11

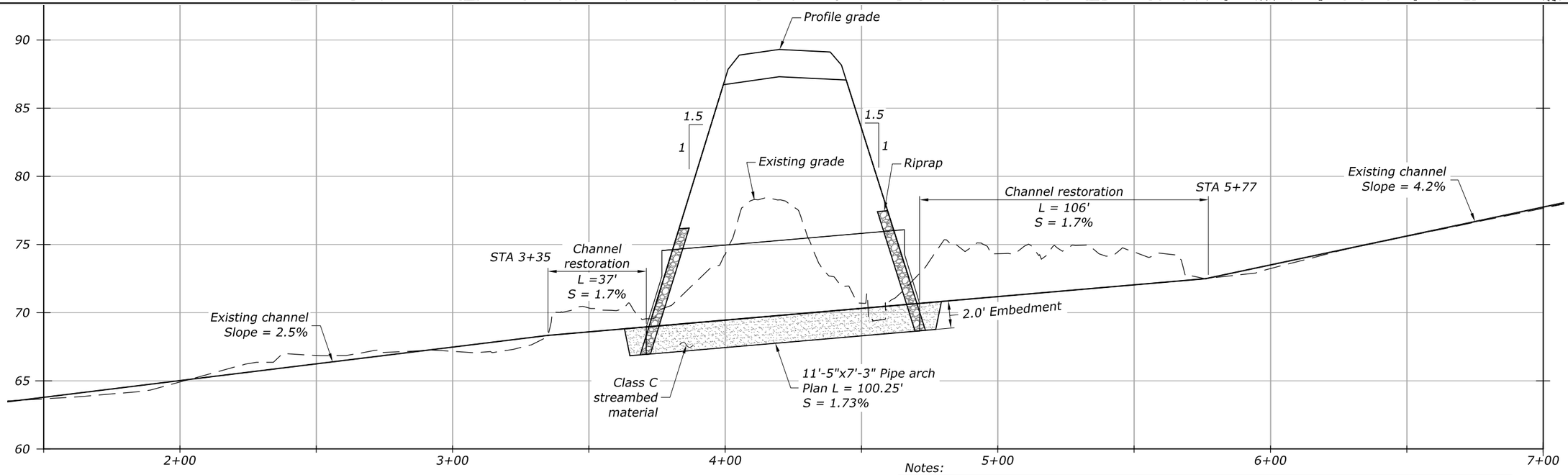


FP-06 PLAN

0 10 20 40 80FT

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



FP-06 PROFILE

5:1 Vertical exaggeration

Notes:

1. Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.
2. Field verify inlet elevations, outlet elevations, and slope.
3. Overtopping elevation measured at top of subgrade.

Notes:

Drainage area (sq-mi)	=	0.18	Q50 Headwater elevation (ft)	=	73.90
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	71.37
Q2 (cfs)	=	62.86	Overtopping flood (cfs)	=	601
Q50 (cfs)	=	135.47	Overtopping probability	<	0.2%
QFish (cfs)	=	25.14	Overtopping elevation (ft)	=	87.30
Fish species	=	CT, DV	Hw/D ratio Q50	=	0.64
Design bankfull width (ft)	=	9			

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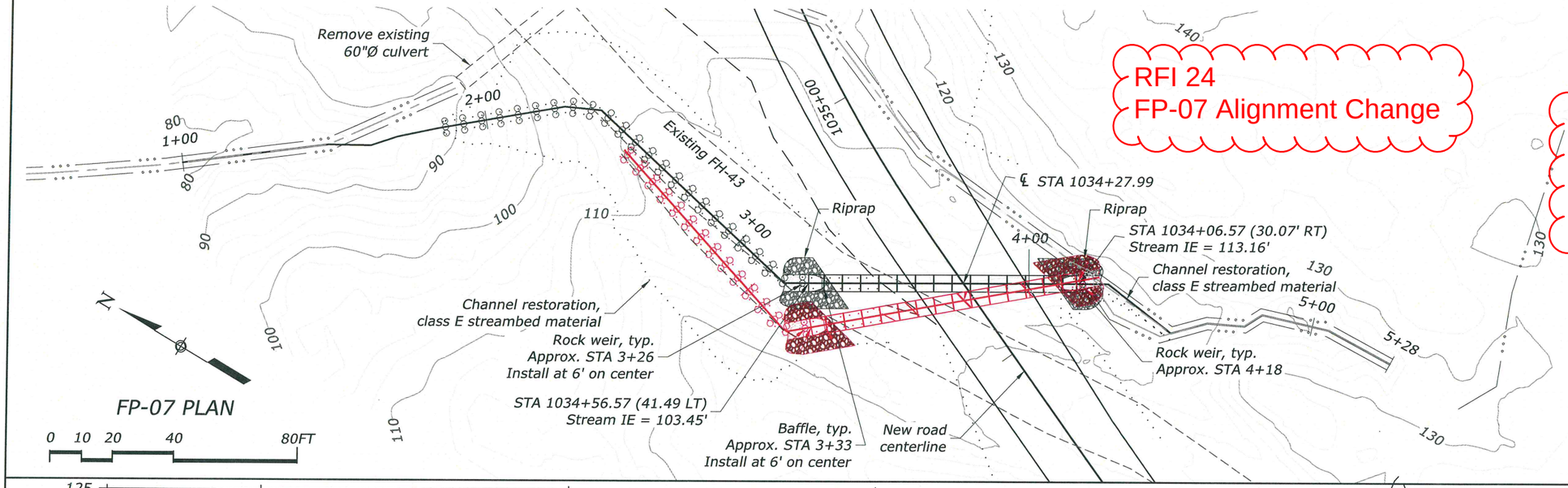
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.12

RFI 24
FP-07 Alignment Change

RFI 17
See Channel Restoration Profile Data
Sheet RFI-17.01

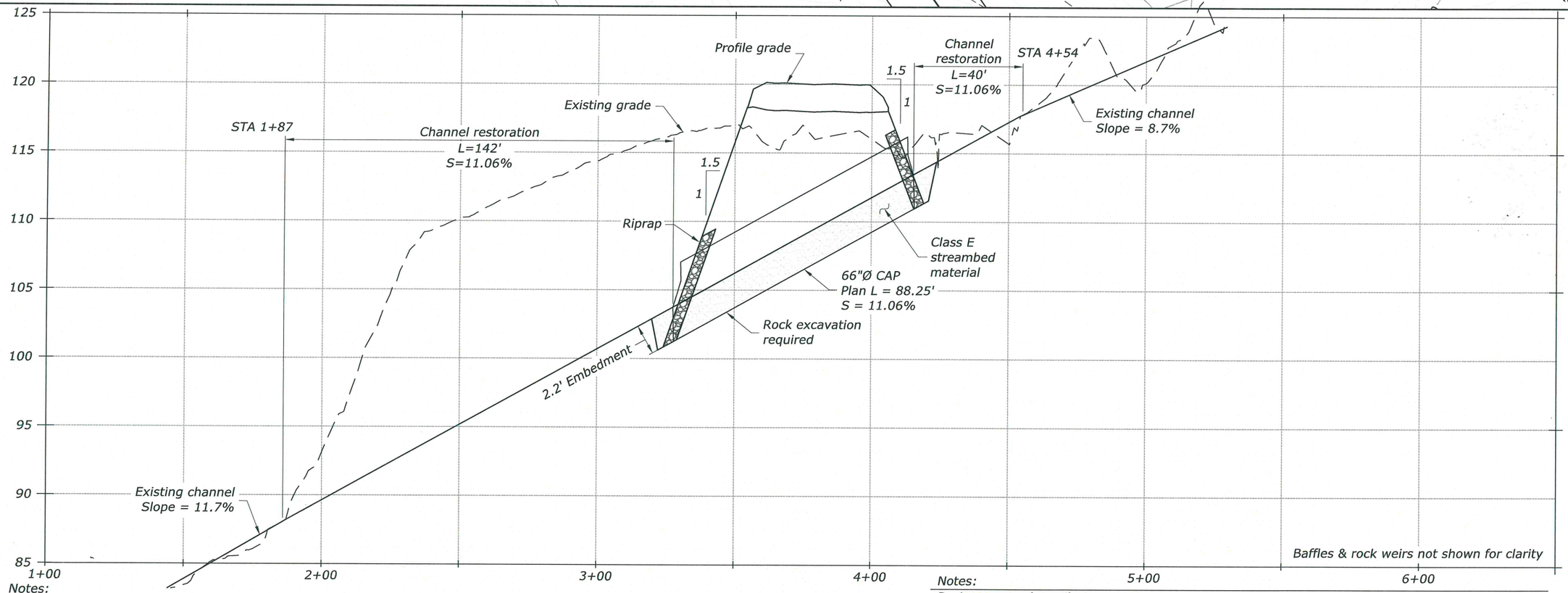


FP-07 PLAN

0 10 20 40 80FT

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



FP-07 PROFILE
5:1 Vertical exaggeration

Notes:

1. Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.
2. Field verify inlet elevations, outlet elevations, and slope.
3. Overtopping elevation measured at top of subgrade.
4. For channels excavated in bedrock, construct step pools within proposed channel profile to match existing channel conditions at a spacing approximately equal to the rock weirs or baffles installed within proposed AOP structure. Install streambed within excavated channels in-between excavated pools.

Notes:					
Drainage area (sq-mi)	=	0.04	Q50 Headwater elevation (ft)	=	114.43
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	104.74
Q2 (cfs)	=	16.72	Overtopping flood (cfs)	=	160
Q50 (cfs)	=	36.45	Overtopping probability	<	0.2%
QFish (cfs)	=	6.69	Overtopping elevation (ft)	=	117.98
Fish species	=	SS, CT, DV	Hw/D ratio Q50	=	0.38
Design bankfull width (ft)	=	3.5			

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	RFI-17.01

RFI 17
FP-07 Channel
Restoration Line

Notes:

1. *Approximate location of channel tie in.*
2. *Culvert outlet.*
3. *Profile elevations shall match the stream flow line per fish passage details on sheet J.29.*

FP-07 CHANNEL RESTORATION PROFILE DATA

Profile Station	*Profile Elevation*[3]	*Mainline Station*	*Offset*	*Offset Side*
1+85.94[1]	*88.060*	*1035+43.79*	*121.820*	*LT*
1+86.50	*88.120*	*1035+43.69*	*121.270*	*LT*
1+92.50	*88.790*	*1035+42.51*	*115.450*	*LT*
1+98.50	*89.460*	*1035+41.30*	*109.640*	*LT*
2+04.50	*90.120*	*1035+40.07*	*103.830*	*LT*
2+10.50	*90.780*	*1035+38.82*	*98.020*	*LT*
2+16.50	*91.450*	*1035+37.54*	*92.220*	*LT*
2+22.50	*92.110*	*1035+36.24*	*86.420*	*LT*
2+28.54	*92.780*	*1035+34.40*	*80.830*	*LT*
2+34.51	*93.440*	*1035+31.48*	*75.900*	*LT*
2+41.12	*94.170*	*1035+27.51*	*72.010*	*LT*
2+47.12	*94.830*	*1035+22.75*	*69.490*	*LT*
2+53.12	*95.500*	*1035+17.82*	*67.390*	*LT*
2+59.12	*96.160*	*1035+12.86*	*65.360*	*LT*
2+65.12	*96.820*	*1035+07.86*	*63.380*	*LT*
2+71.12	*97.490*	*1035+02.82*	*61.460*	*LT*
2+77.12	*98.150*	*1034+97.75*	*59.600*	*LT*
2+83.12	*98.820*	*1034+92.64*	*57.800*	*LT*
2+89.12	*99.480*	*1034+87.51*	*56.060*	*LT*
2+95.12	*100.140*	*1034+82.33*	*54.380*	*LT*
3+01.12	*100.810*	*1034+77.13*	*52.760*	*LT*
3+07.12	*101.470*	*1034+71.90*	*51.200*	*LT*
3+13.11	*102.130*	*1034+66.65*	*49.650*	*LT*
3+18.93	*102.780*	*1034+61.79*	*47.000*	*LT*
3+25.87	*103.400*	*1034+57.65*	*43.110*	*LT*
3+27.87[2]	*103.450*	*1034+56.57*	*41.490*	*LT*

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

FP-07 CHANNEL RESTORATION PROFILE DATA

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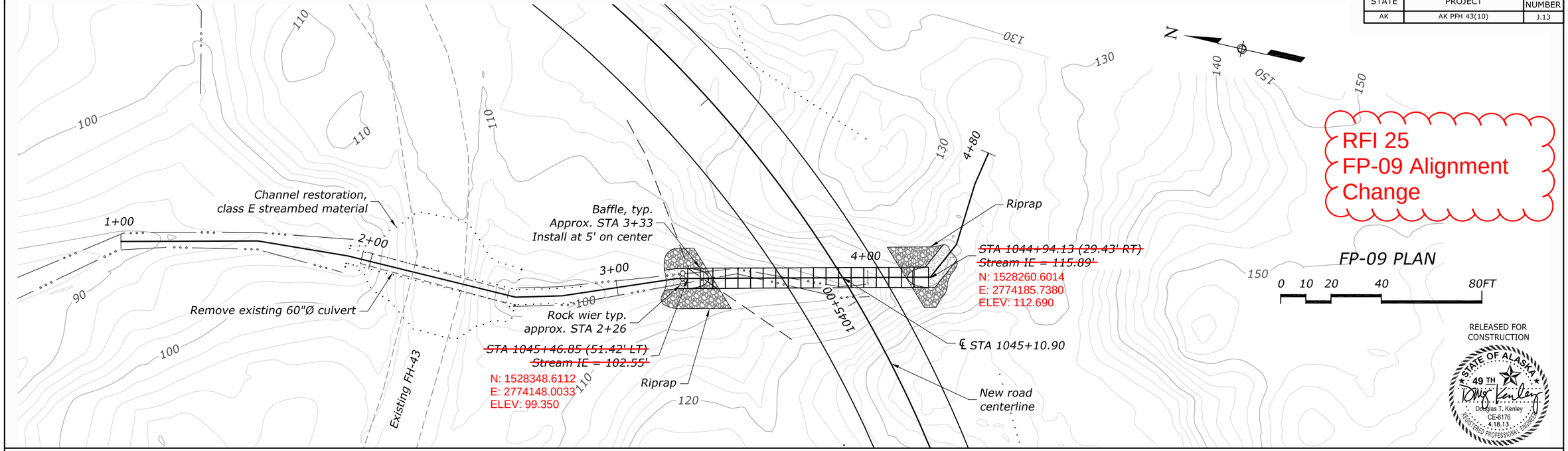
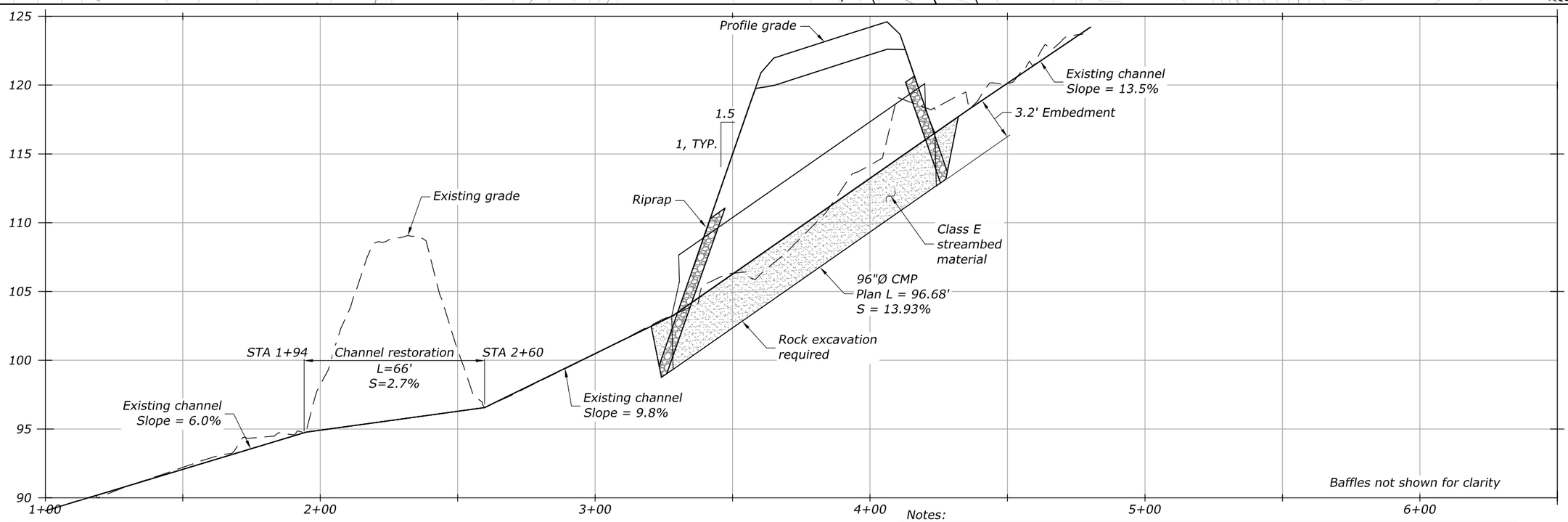
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.13





Notes:

1. *Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.*
2. *Field verify inlet elevations, outlet elevations, and slope.*
3. *Overtopping elevation measured at top of subgrade.*
4. *For channels excavated in bedrock, construct step pools within proposed channel profile to match existing channel conditions at a spacing approximately equal to the rock weirs or baffles installed within proposed AOP structure. Install streambed within excavated channels in-between excavated pools.*

FP-09 PROFILE

5:1 Vertical exaggeration

Notes:

Drainage area (sq-mi)	=	*0.11*	*Q50 Headwater elevation (ft)*	=	*117.65*
Design exceedance	=	*2%*	*Q50 Tailwater elevation (ft)*	=	*103.98*
Q2 (cfs)	=	*42.54*	*Overtopping flood (cfs)*	=	*318*
Q50 (cfs)	=	*92.01*	*Overtopping probability*	<	*0.2%*
QFish (cfs)	=	*17.02*	*Overtopping elevation (ft)*	=	*121.15*
Fish species	=	*CT, DV, SH*	*Hw/D ratio Q50*	=	*0.37*
Design bankfull width (ft)	=	*6*			

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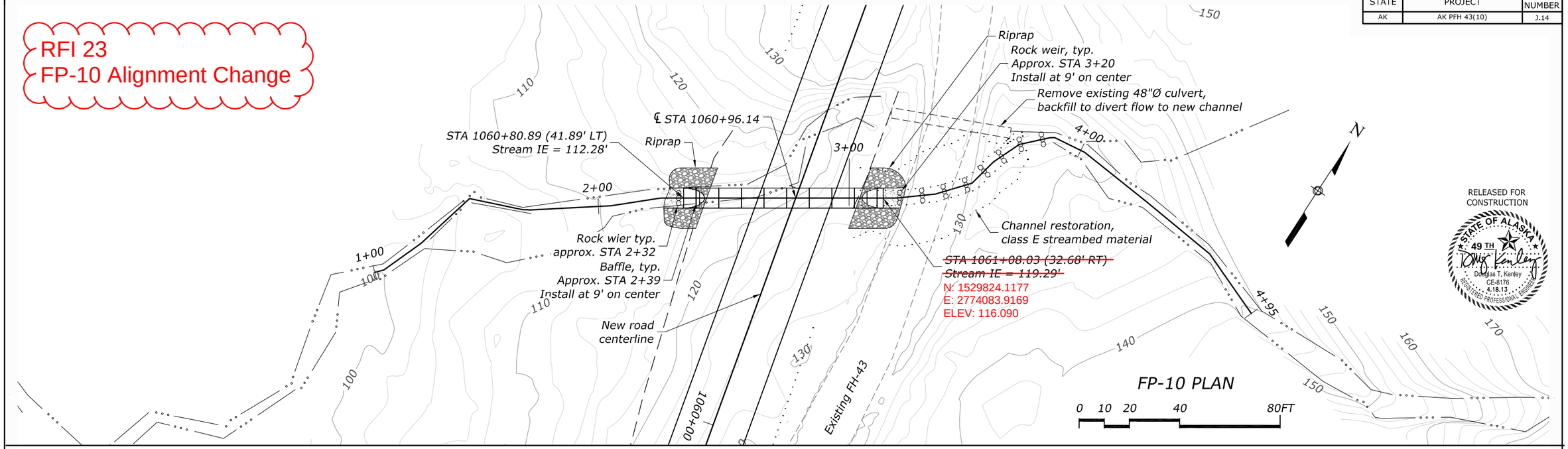
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.14

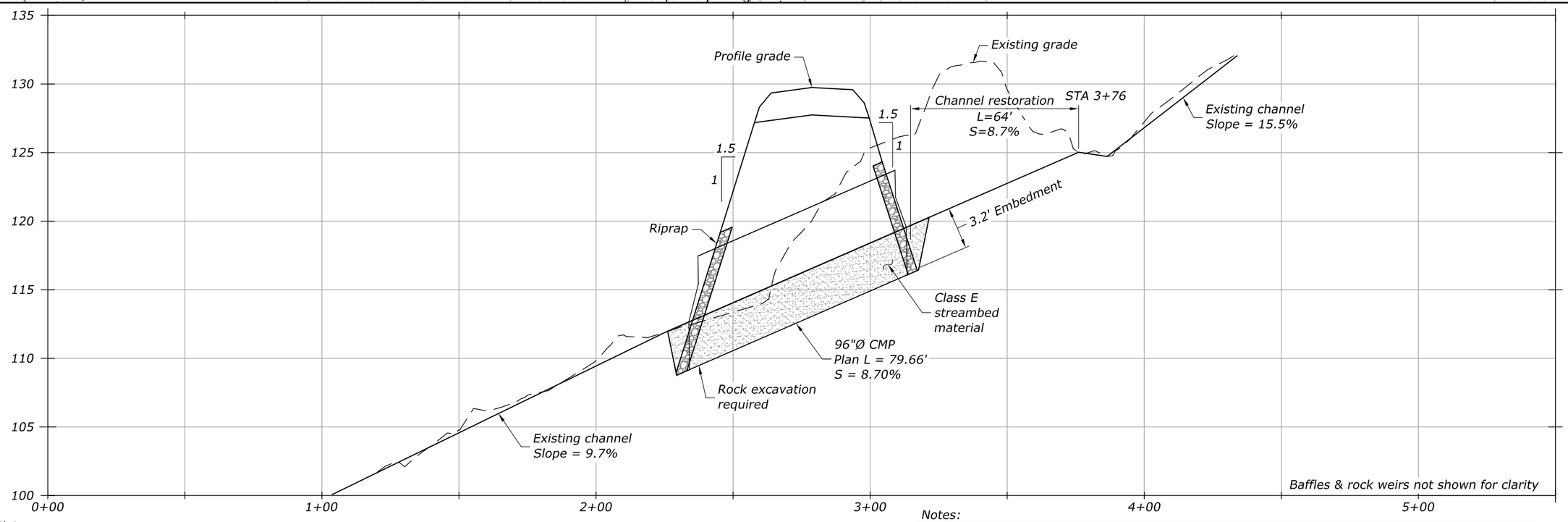
RFI 23
FP-10 Alignment Change



FP-10 PLAN

RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



FP-10 PROFILE

5:1 Vertical exaggeration

Notes:

1. Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.
2. Field verify inlet elevations, outlet elevations, and slope.
3. Overtopping elevation measured at top of subgrade.
4. For channels excavated in bedrock, construct step pools within proposed channel profile to match existing channel conditions at a spacing approximately equal to the rock weirs or baffles installed within proposed AOP structure. Install streambed within excavated channels in-between excavated pools.

Notes:

Drainage area (sq-mi)	=	0.13	Q50 Headwater elevation (ft)	=	121.39
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	113.67
Q2 (cfs)	=	48.74	Overtopping flood (cfs)	=	469
Q50 (cfs)	=	105.28	Overtopping probability	<	0.2%
QFish (cfs)	=	19.50	Overtopping elevation (ft)	=	127.73
Fish species	=	CT, DV, SH	Hw/D ratio Q50	=	0.44
Design bankfull width (ft)	=	6			

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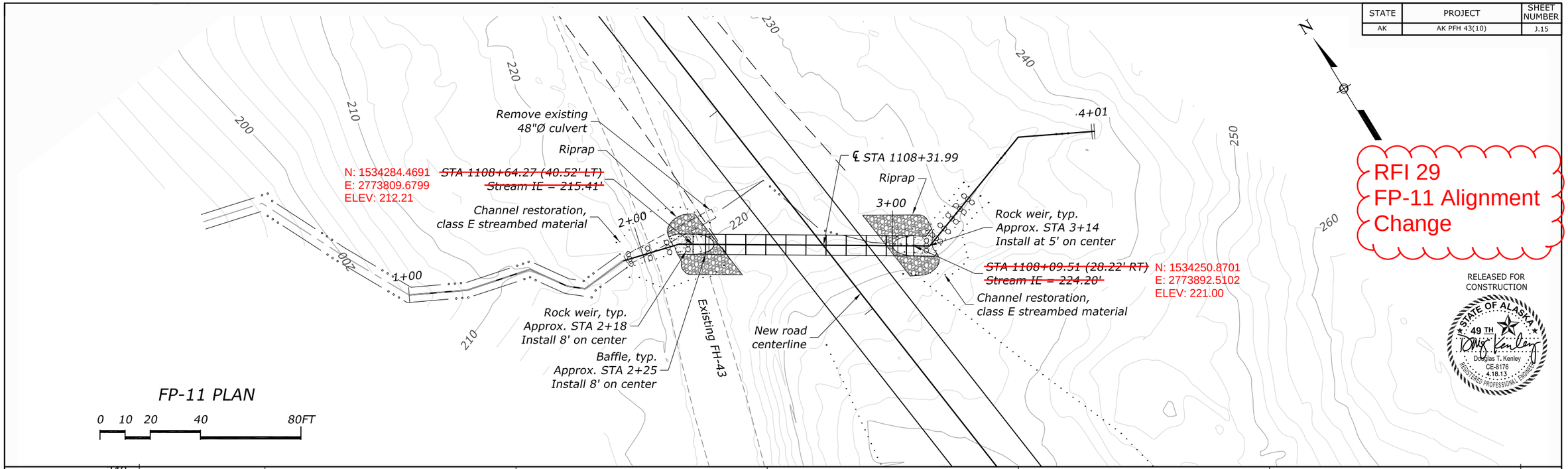
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.15



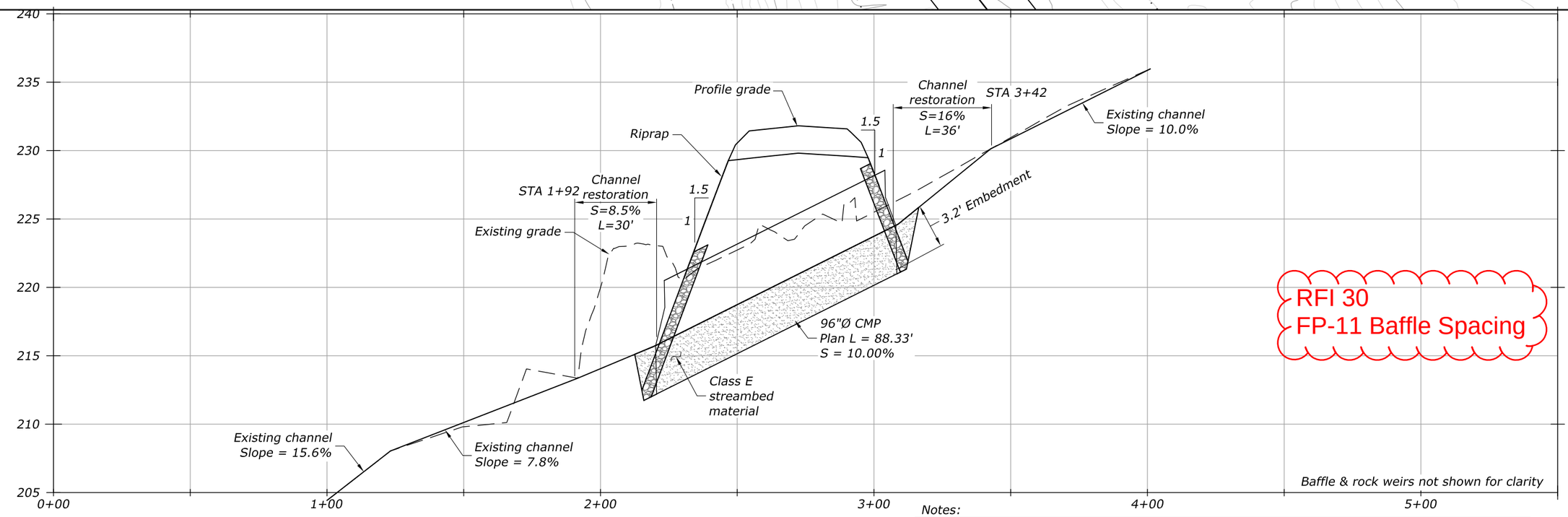
RFI 29
FP-11 Alignment Change

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

FP-11 PLAN

0 10 20 40 80FT



RFI 30
FP-11 Baffle Spacing

FP-11 PROFILE

5:1 Vertical exaggeration

Notes:

1. Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.
2. Field verify inlet elevations, outlet elevations, and slope.
3. Overtopping elevation measured at top of subgrade.

Notes:

Drainage area (sq-mi)	=	0.10	Q50 Headwater elevation (ft)	=	225.62
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	216.49
Q2 (cfs)	=	30.88	Overtopping flood (cfs)	=	333
Q50 (cfs)	=	66.40	Overtopping probability	<	0.2%
QFish (cfs)	=	12.35	Overtopping elevation (ft)	=	229.81
Fish species	=	CT	Hw/D ratio Q50	=	0.30
Design bankfull width (ft)	=	6			

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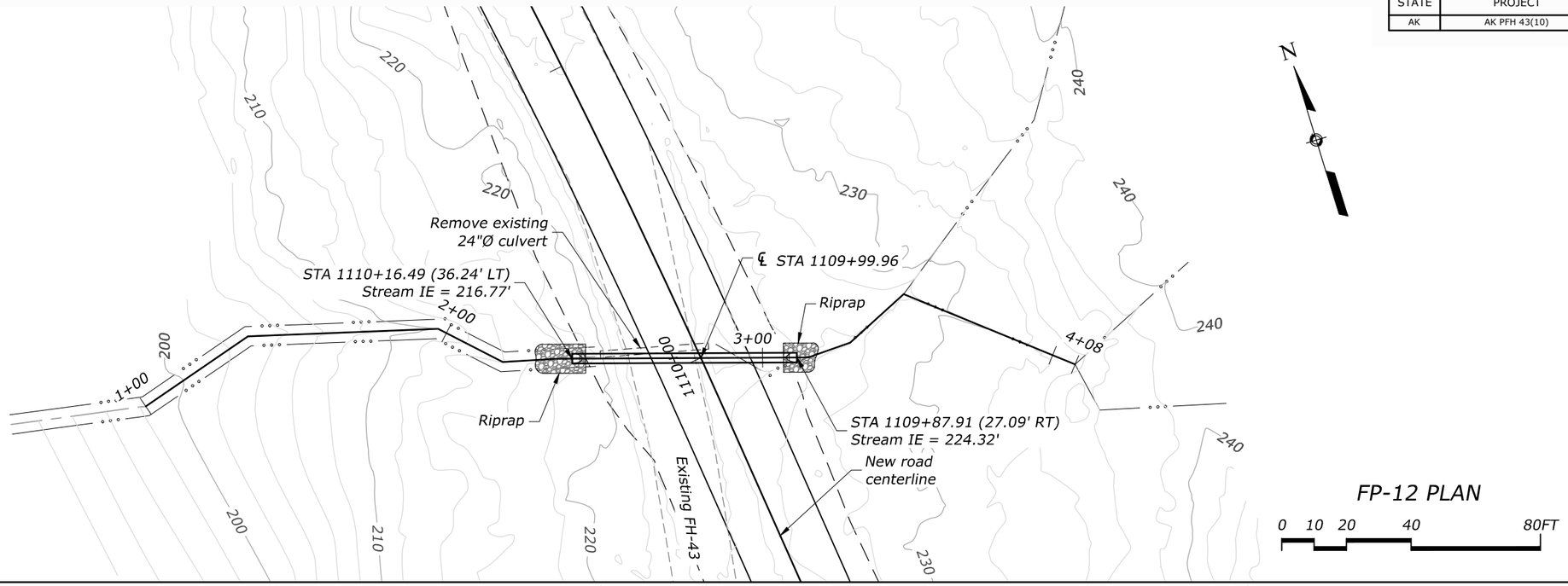
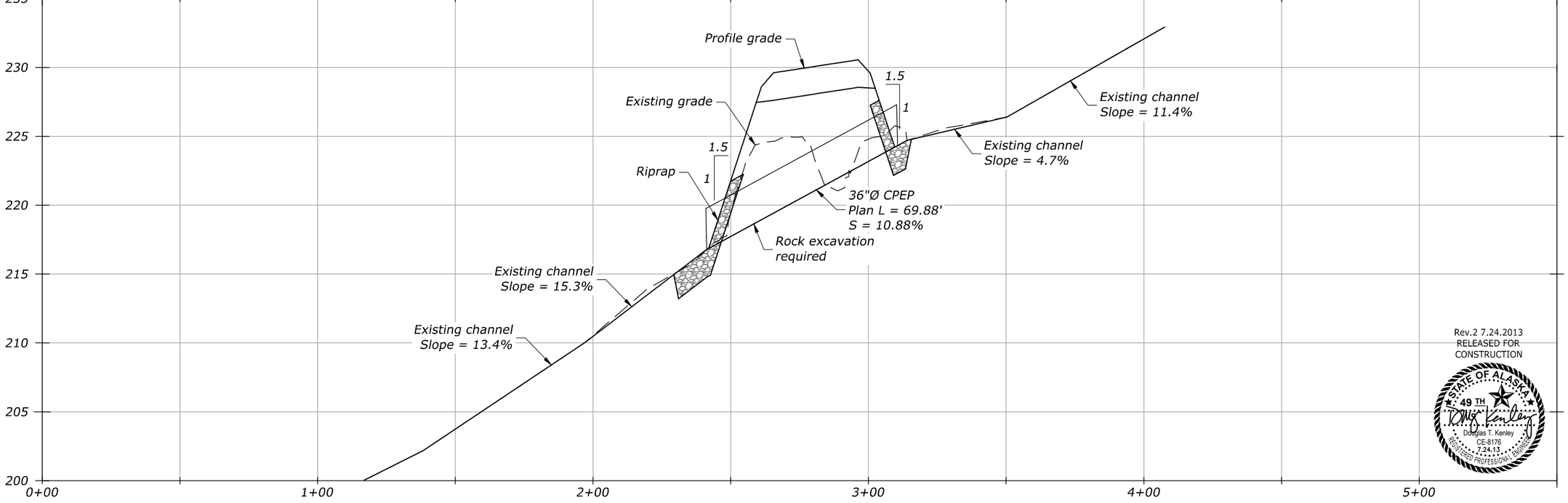
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.16



FP-12 PLAN



FP-12 PROFILE

5:1 Vertical exaggeration

Rev.2 7.24.2013
RELEASED FOR
CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
7.24.13
REGISTERED PROFESSIONAL ENGINEER

Notes:

1. *Field verify inlet elevations, outlet elevations, and slope.*
2. *Overtopping elevation measured at top of subgrade.*

Notes:					
Drainage area (sq-mi)	=	0.02	Q50 Headwater elevation (ft)	=	226.36
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	217.41
Q2 (cfs)	=	10.19	Overtopping flood (cfs)	=	49.29
Q50 (cfs)	=	22.32	Overtopping probability	<	0.2%
Hw/D ratio Q50	=	0.68	Overtopping elevation (ft)	=	228.08

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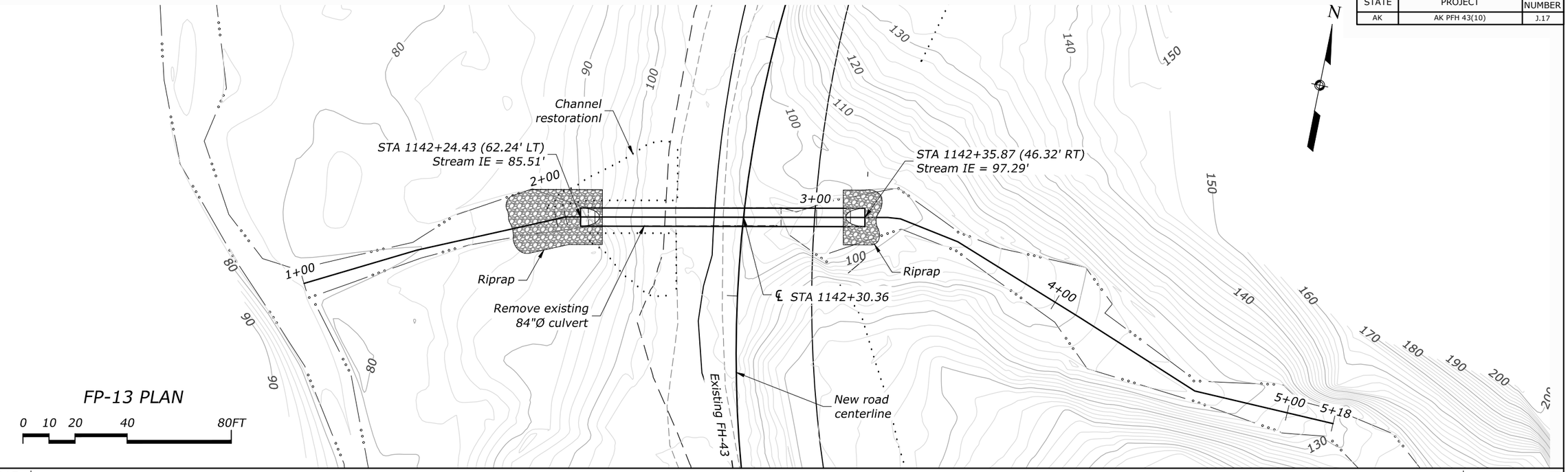
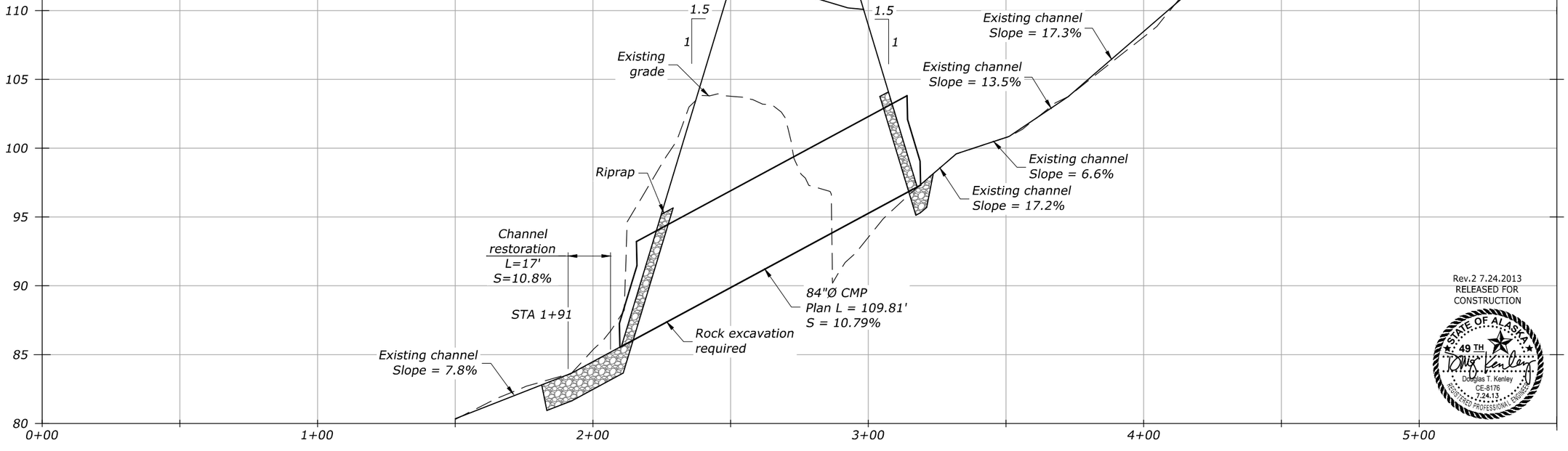
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.17



FP-13 PLAN

0 10 20 40 80FT



FP-13 PROFILE

5:1 Vertical exaggeration

Rev.2 7.24.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
7.24.13
REGISTERED PROFESSIONAL ENGINEER

Notes:

1. Field verify inlet elevations, outlet elevations, and slope.
2. Overtopping elevation measured at top of subgrade.

Notes:

Drainage area (sq-mi)	=	0.45	Q50 Headwater elevation (ft)	=	103.47
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	88.30
Q2 (cfs)	=	99.43	Overtopping flood (cfs)	=	516.50
Q50 (cfs)	=	210.80	Overtopping probability	<	0.2%
Hw/D ratio Q50	=	0.89	Overtopping elevation (ft)	=	111.19

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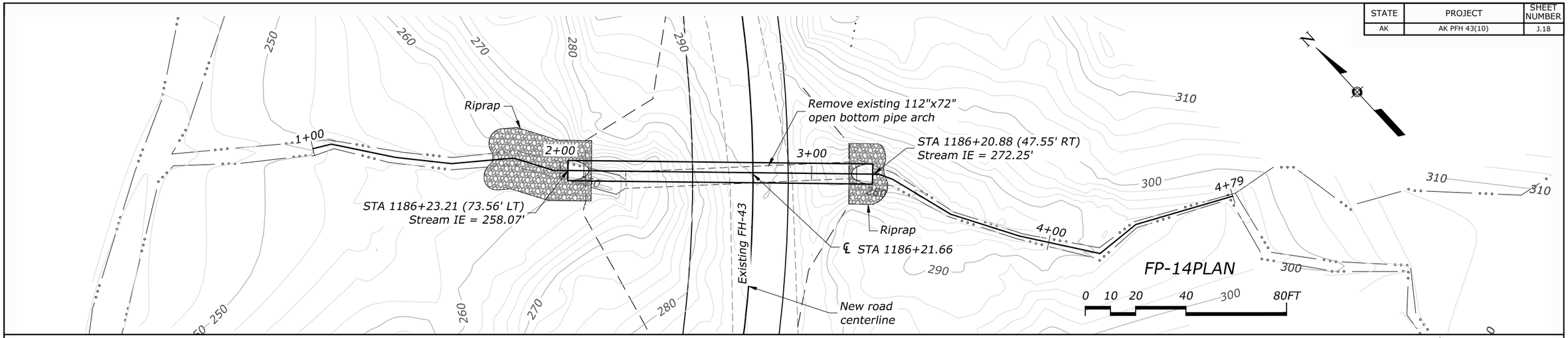
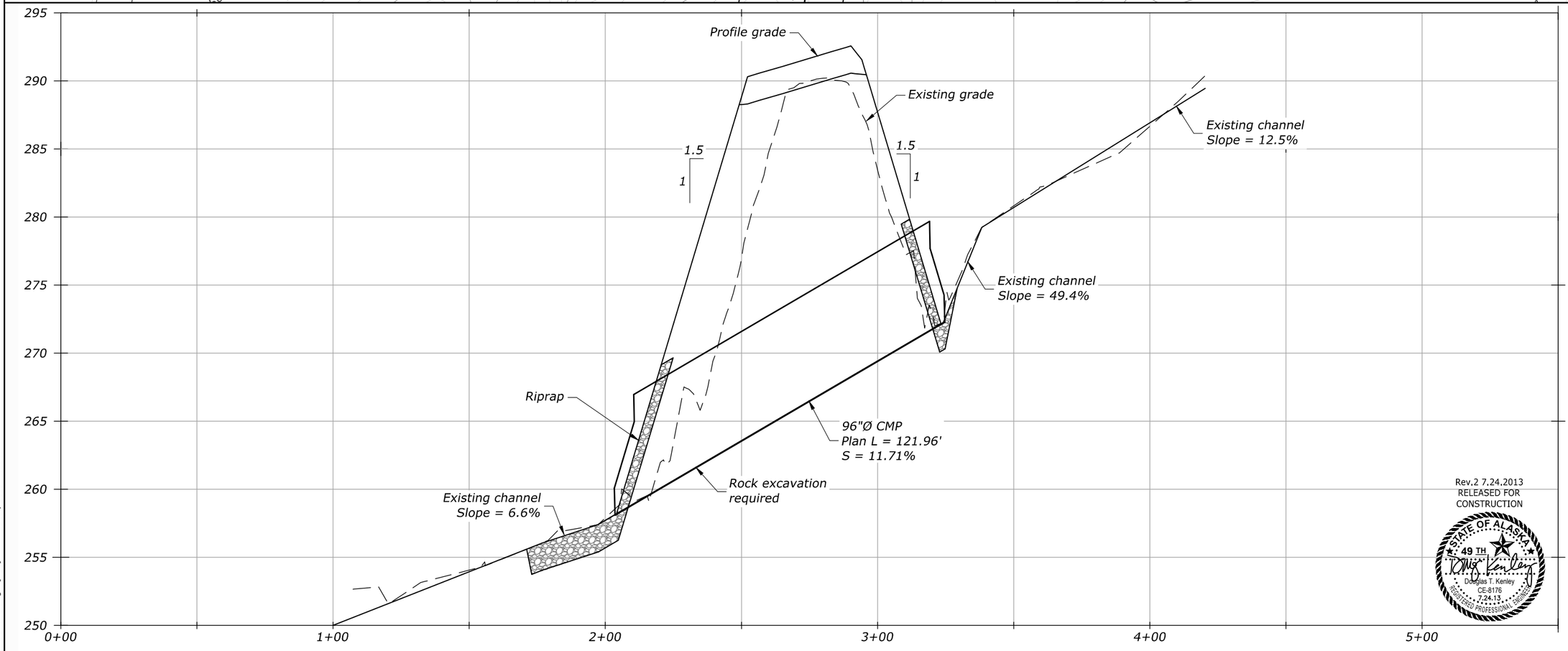
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.18





FP-14 PROFILE

5:1 Vertical exaggeration

Rev.2 7.24.2013
RELEASED FOR
CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
7.24.13
REGISTERED PROFESSIONAL ENGINEER

Notes:

1. Field verify inlet elevations, outlet elevations, and slope.
2. Overtopping elevation measured at top of subgrade.

Notes:

Drainage area (sq-mi)	=	0.08	Q50 Headwater elevation (ft)	=	275.69
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	259.66
Q2 (cfs)	=	32.52	Overtopping flood (cfs)	=	763.77
Q50 (cfs)	=	70.49	Overtopping probability	<	0.2%
Hw/D ratio Q50	=	0.43	Overtopping elevation (ft)	=	289.49

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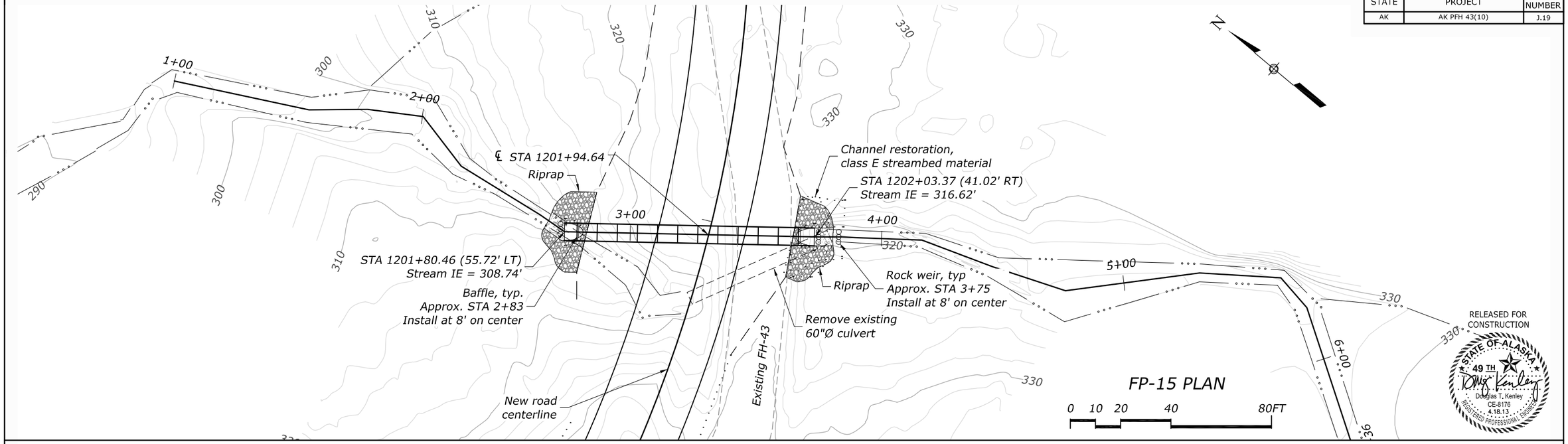
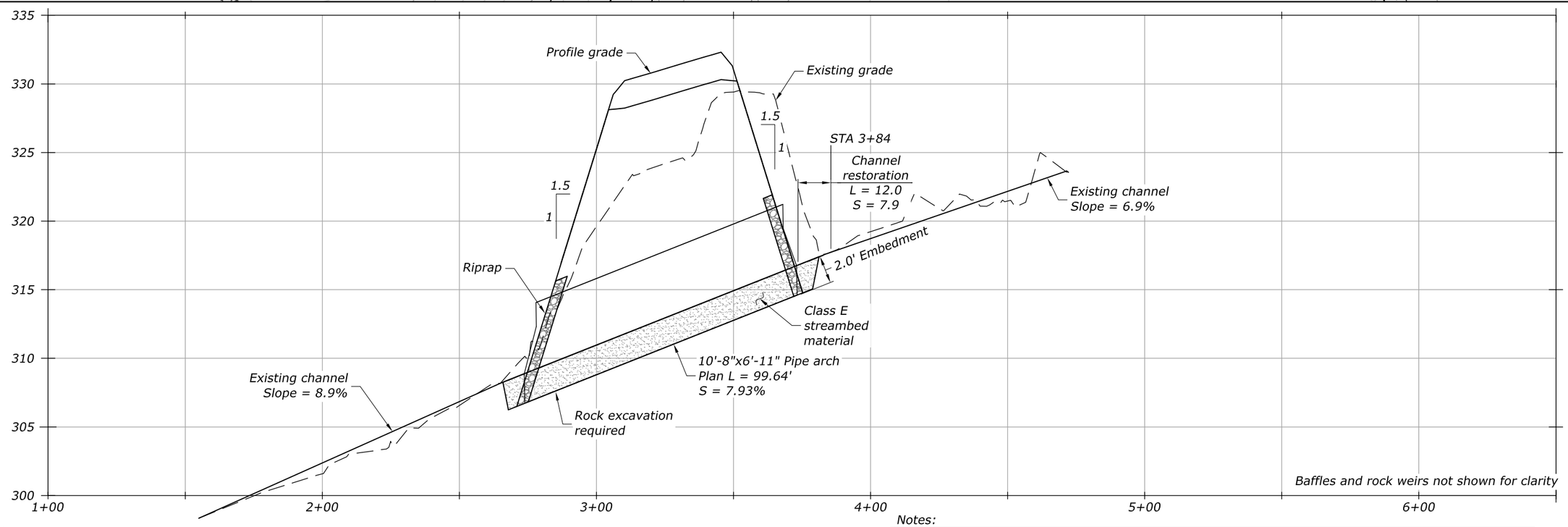
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.19



FP-15 PLAN

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



FP-15 PROFILE

5:1 Vertical exaggeration

Notes:

1. *Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.*
2. *Field verify inlet elevations, outlet elevations, and slope.*
3. *Overtopping elevation measured at top of subgrade.*
4. *For channels excavated in bedrock, construct step pools within proposed channel profile to match existing channel conditions at a spacing approximately equal to the rock weirs or baffles installed within proposed AOP structure. Install streambed within excavated channels in-between excavated pools.*

Notes:

Drainage area (sq-mi)	=	*0.35*	*Q50 Headwater elevation (ft)*	=	*319.98*
Design exceedance	=	*2%*	*Q50 Tailwater elevation (ft)*	=	*310.35*
Q2 (cfs)	=	*65.63*	*Overtopping flood (cfs)*	=	*559*
Q50 (cfs)	=	*138.57*	*Overtopping probability*	<	*0.2%*
QFish (cfs)	=	*26.25*	*Overtopping elevation (ft)*	=	*329.34*
Fish species	=	*CT*	*Hw/D ratio Q50*	=	*0.68*
Design bankfull width (ft)	=	*8.2*			

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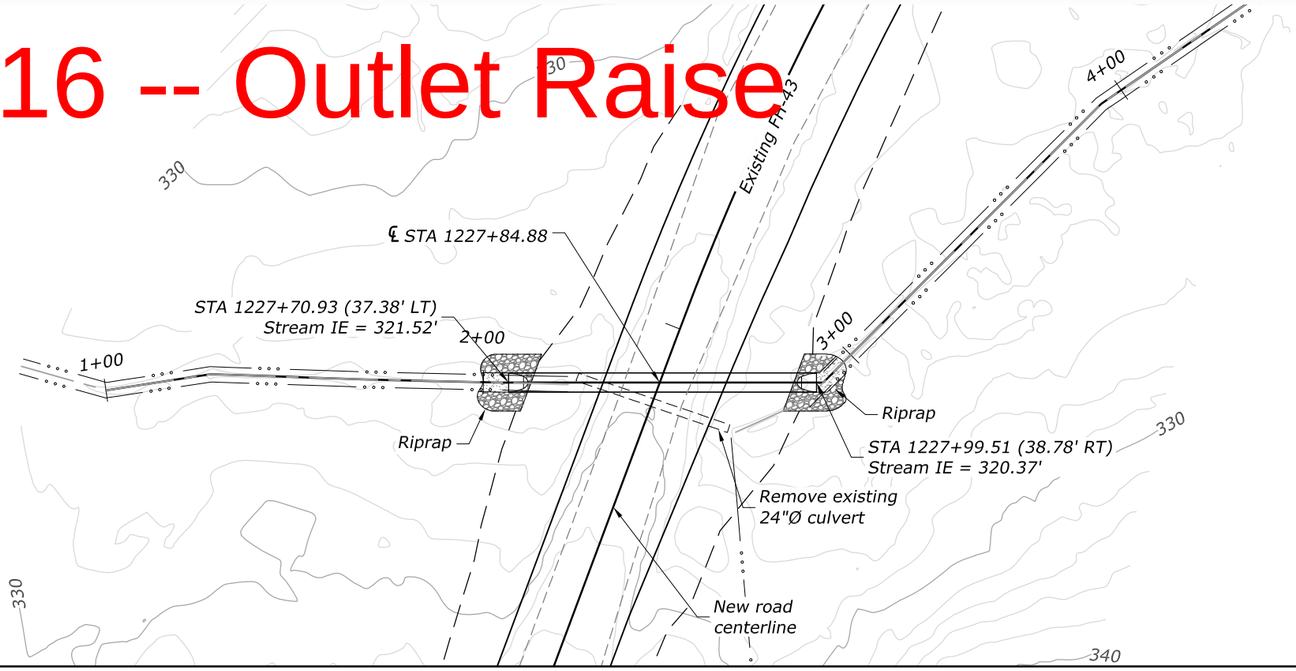
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.20

FP 16 -- Outlet Raise

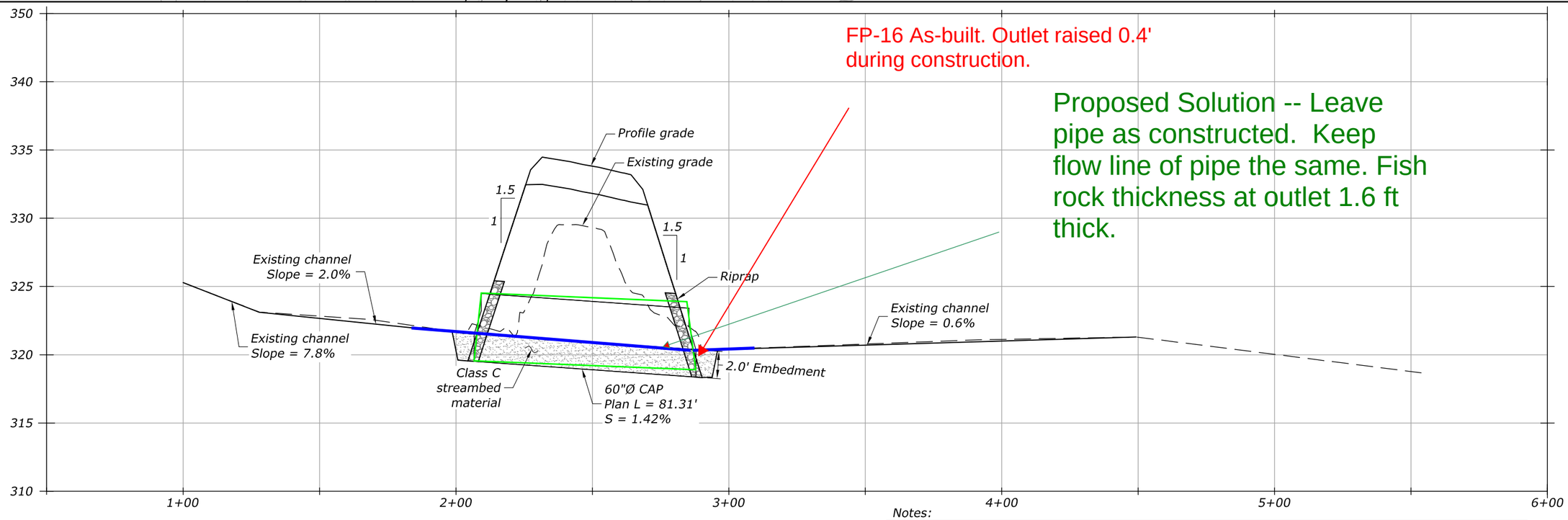


FP-16 PLAN

0 10 20 40 80FT

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



FP-16 As-built. Outlet raised 0.4' during construction.

Proposed Solution -- Leave pipe as constructed. Keep flow line of pipe the same. Fish rock thickness at outlet 1.6 ft thick.

FP-16 PROFILE

5:1 Vertical exaggeration

Notes:

1. *Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.*
2. *Field verify inlet elevations, outlet elevations, and slope.*
3. *Overtopping elevation measured at top of subgrade.*

Notes:

Drainage area (sq-mi)	=	0.01	Q50 Headwater elevation (ft)	=	323.14
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	322.90
Q2 (cfs)	=	4.93	Overtopping flood (cfs)	=	86
Q50 (cfs)	=	10.87	Overtopping probability	<	0.2%
QFish (cfs)	=	1.97	Overtopping elevation (ft)	=	331.81
Fish species	=	CT	Hw/D ratio Q50	=	0.54
Design bankfull width (ft)	=	2			

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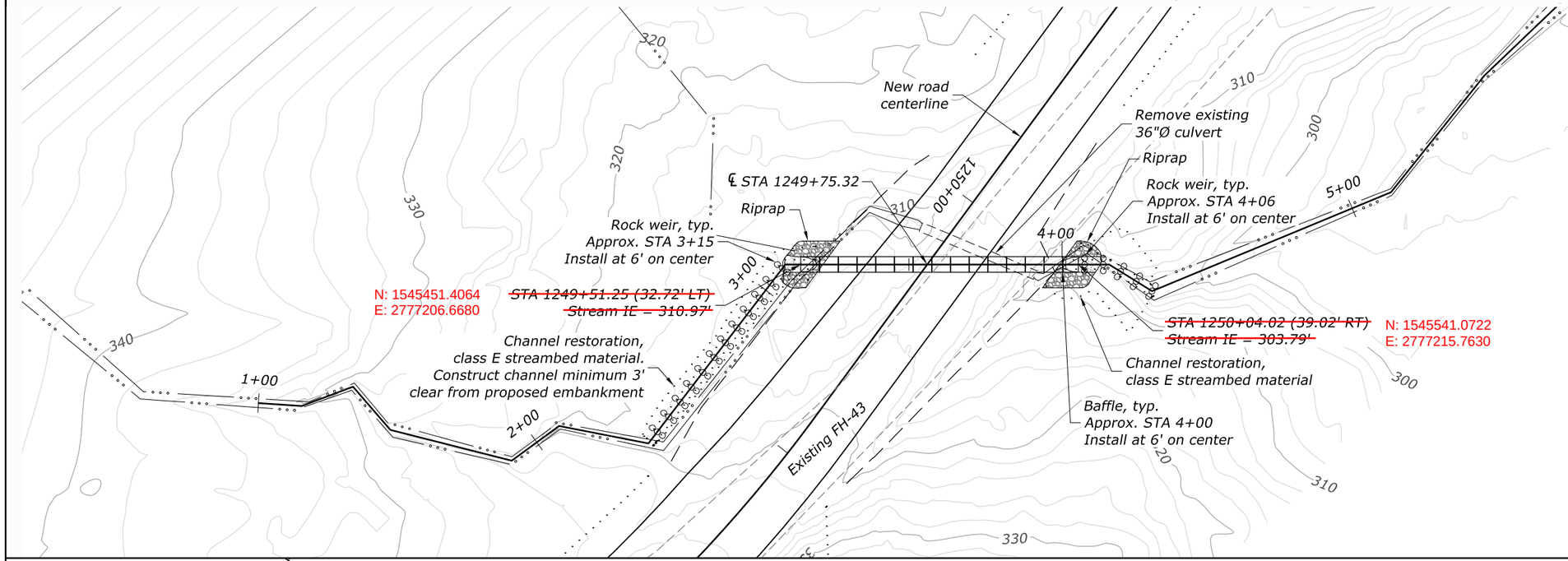
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.21



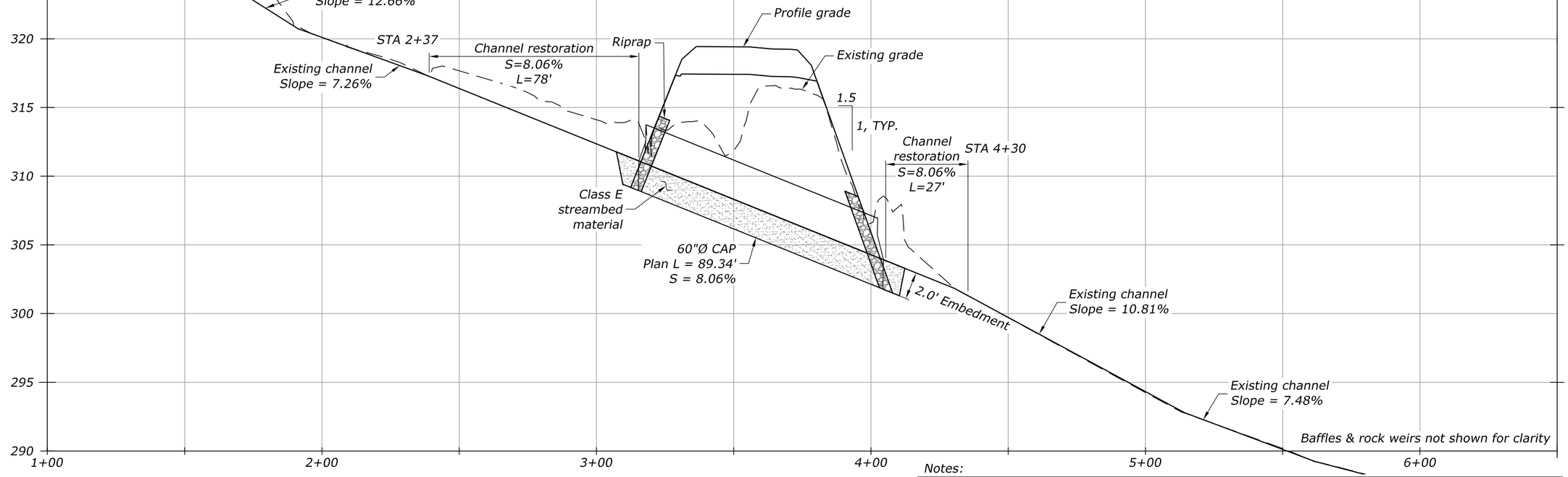
RFI 28
FP-17 Grade Change

FP-17 PLAN

0 10 20 40 80FT

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



FP-17 PROFILE

5:1 Vertical exaggeration

Notes:

1. Do not begin construction until Title 16 permit is received. Any additional requirements in the Title 16 permit shall be met and documented in the project asbuilts.
2. Field verify inlet elevations, outlet elevations, and slope.
3. Overtopping elevation measured at top of subgrade.

Notes:

Drainage area (sq-mi)	=	0.03	Q50 Headwater elevation (ft)	=	312.22
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	305.66
Q2 (cfs)	=	13.89	Overtopping flood (cfs)	=	121
Q50 (cfs)	=	30.34	Overtopping probability	<	0.2%
QFish (cfs)	=	5.56	Overtopping elevation (ft)	=	317.61
Fish species	=	CT	Hw/D ratio Q50	=	0.42
Design bankfull width (ft)	=	3			

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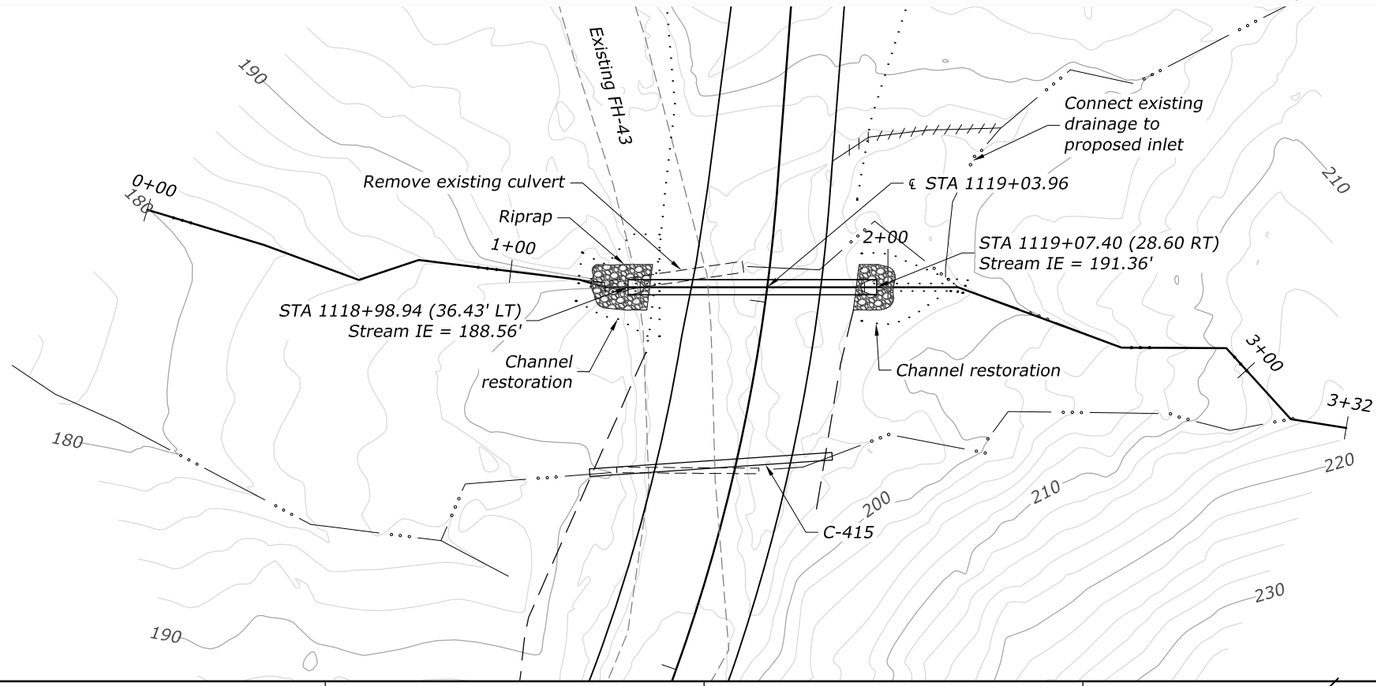
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.22

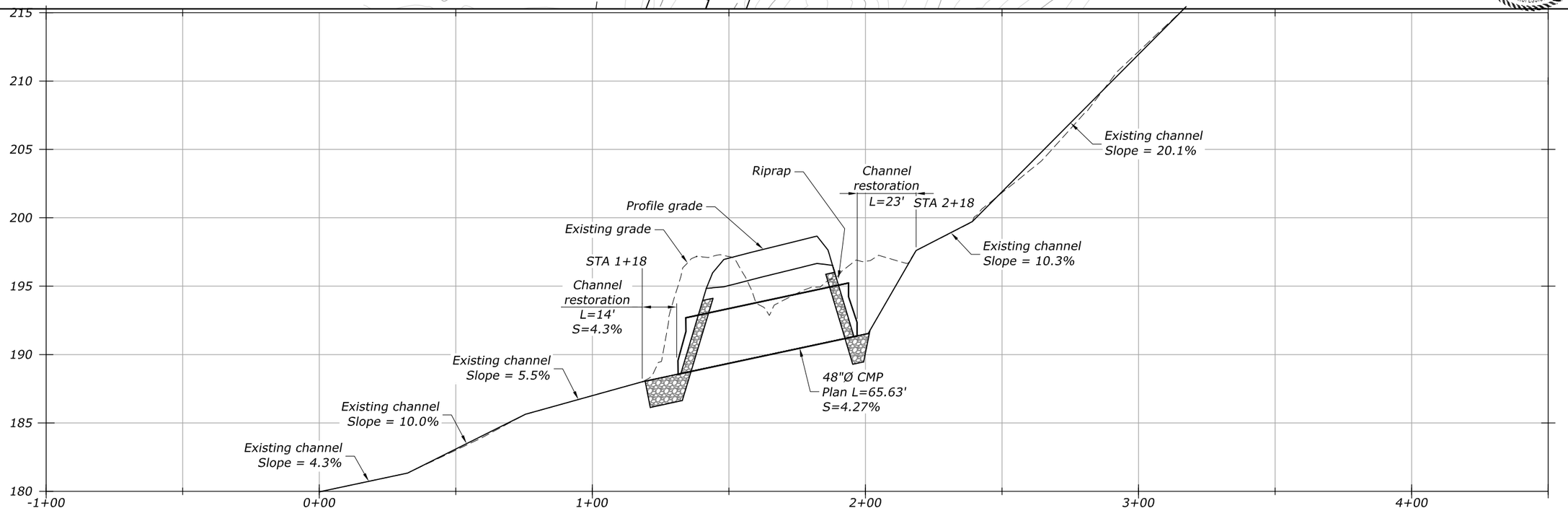


C-05 PLAN

0 10 20 40 80FT

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER



C-05 PROFILE

5:1 Vertical exaggeration

Notes:

1. Field verify inlet elevations, outlet elevations, and slope.
2. Overtopping elevation measured at top of subgrade.

Notes:					
Drainage area (sq-mi)	=	0.05	Q50 Headwater elevation (ft)	=	194.46
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	191.29
Q2 (cfs)	=	23.29	Overtopping flood (cfs)	=	81
Q50 (cfs)	=	50.65	Overtopping probability	<	0.2%
Hw/D ratio Q50	=	0.78	Overtopping elevation (ft)	=	195.64

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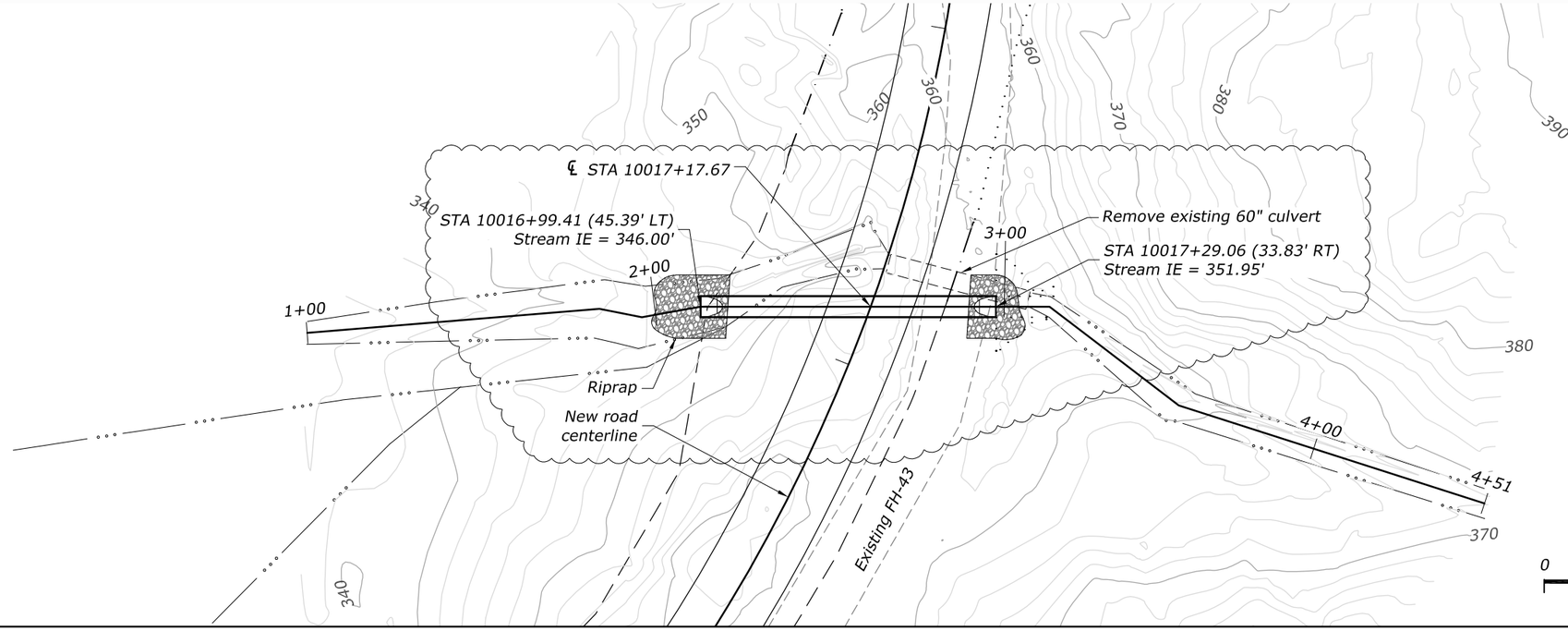
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.23

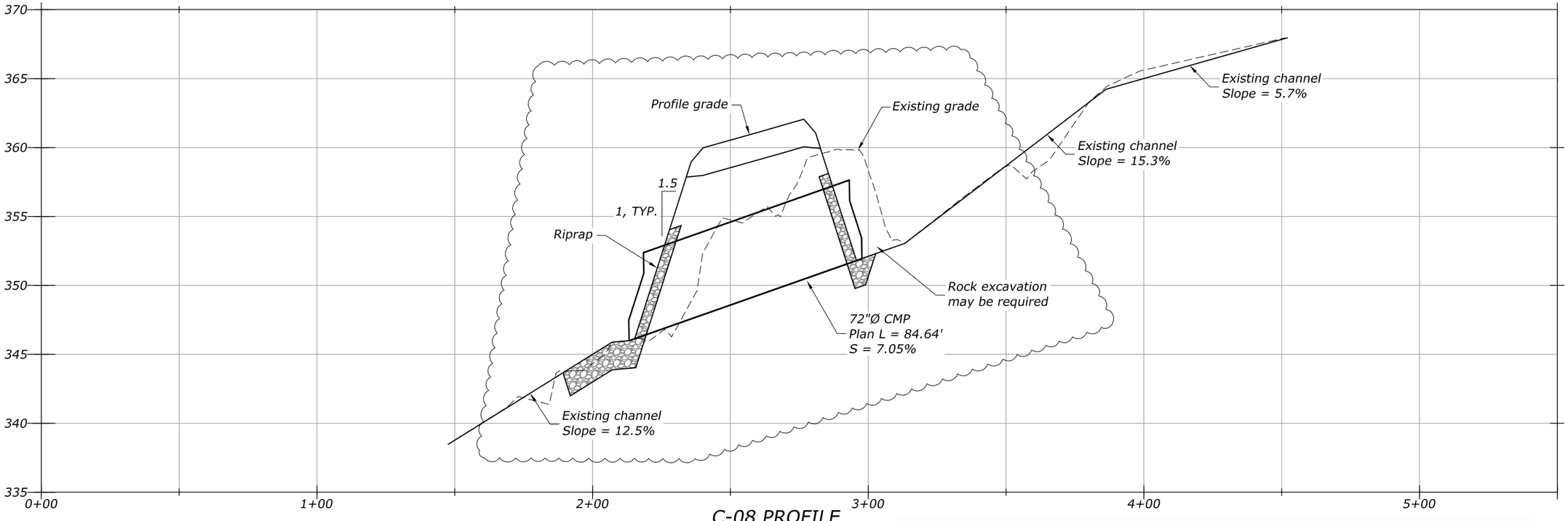


Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

C-08 PLAN

0 10 20 40 80FT



C-08 PROFILE

5:1 Vertical exaggeration

Notes:

1. Field verify inlet elevations, outlet elevations, and slope.
2. Overtopping elevation measured at top of subgrade.

Notes:

Drainage area (sq-mi)	=	0.22	Q50 Headwater elevation (ft)	=	359.33
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	348.19
Q2 (cfs)	=	73.64	Overtopping flood (cfs)	=	170
Q50 (cfs)	=	158.48	Overtopping probability	<	2%
Hw/D ratio Q50	=	0.88	Overtopping elevation (ft)	=	359.63

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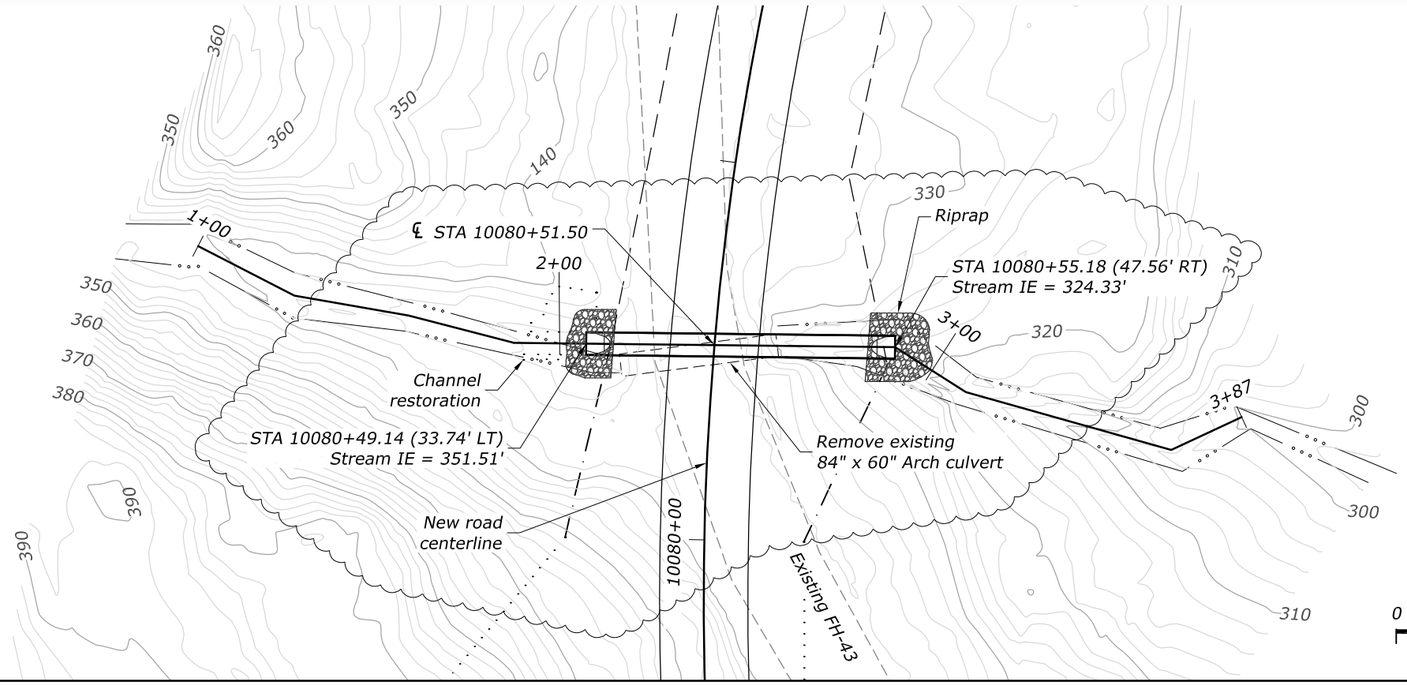
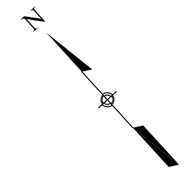
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.24

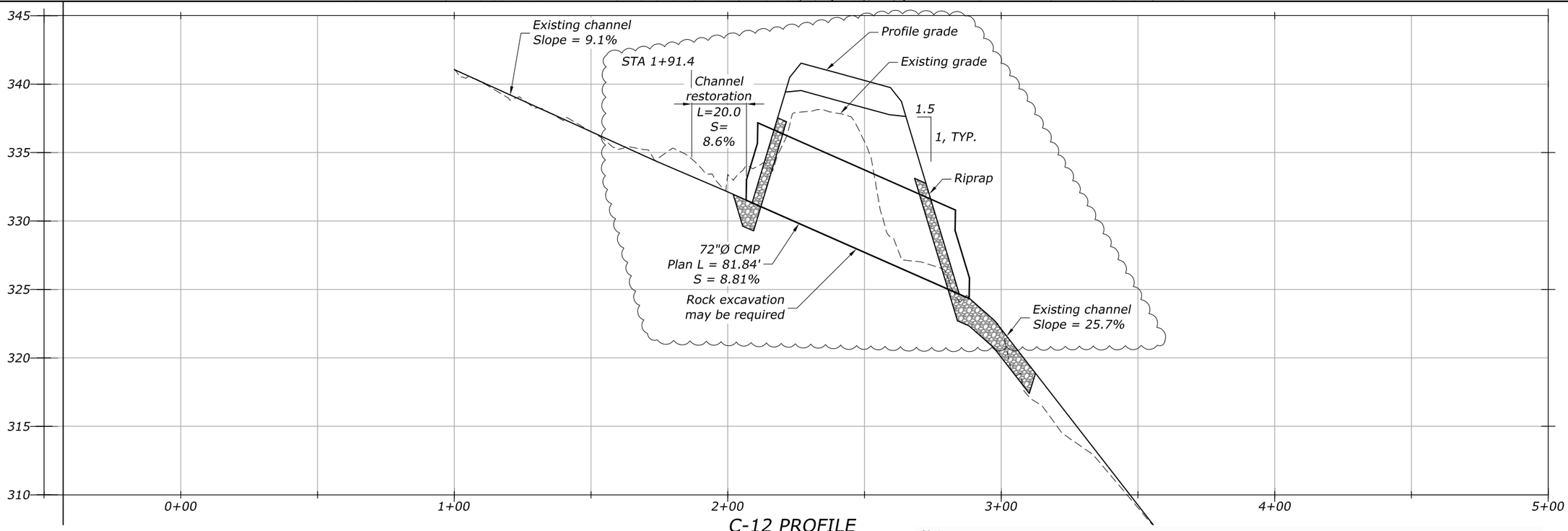




Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

C-12 PLAN

0 10 20 40 80FT



C-12 PROFILE

5:1 Vertical exaggeration

Notes:

1. *Field verify inlet elevations, outlet elevations, and slope.*
2. *Overtopping elevation measured at top of subgrade.*

Notes:

Drainage area (sq-mi)	=	*0.16*	*Q50 Headwater elevation (ft)*	=	*337.56*
Design exceedance	=	*2%*	*Q50 Tailwater elevation (ft)*	=	*330.74*
Q2 (cfs)	=	*56.61*	*Overtopping flood (cfs)*	=	*180*
Q50 (cfs)	=	*122.11*	*Overtopping probability*	<	*0.2%*
Hw/D ratio Q50	=	*0.78*	*Overtopping elevation (ft)*	=	*338.83*

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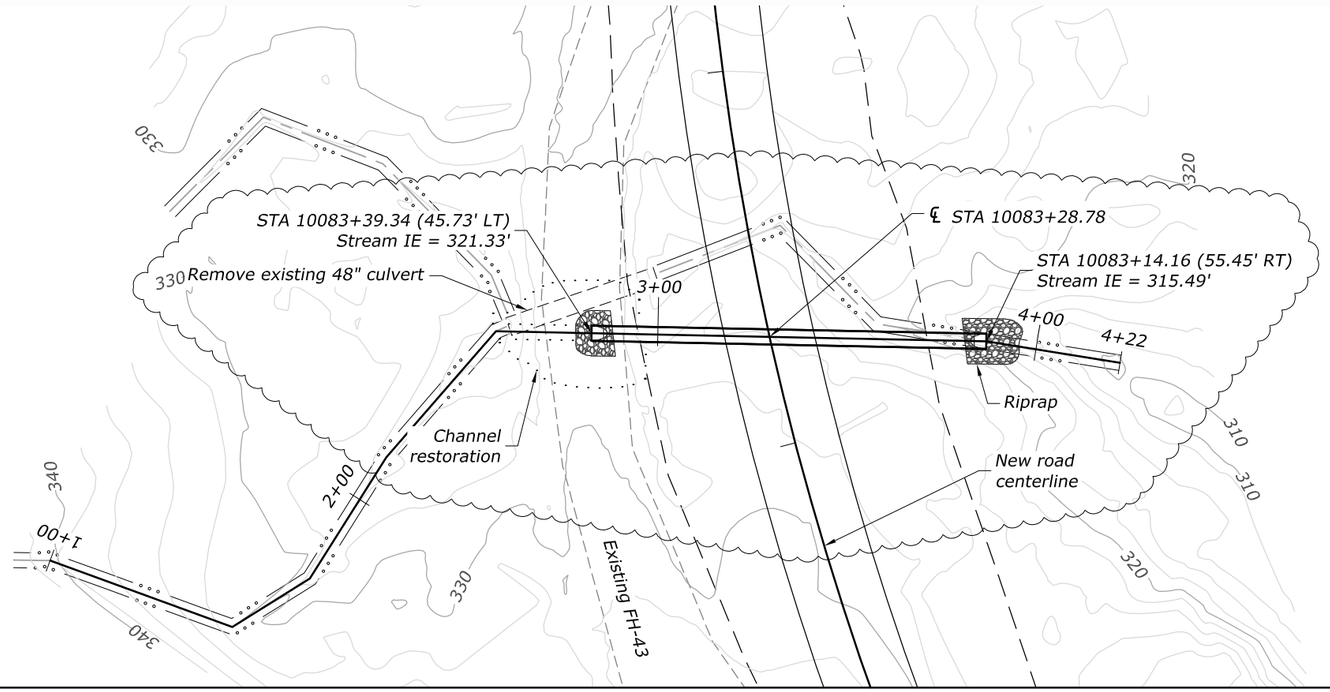
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	J.25

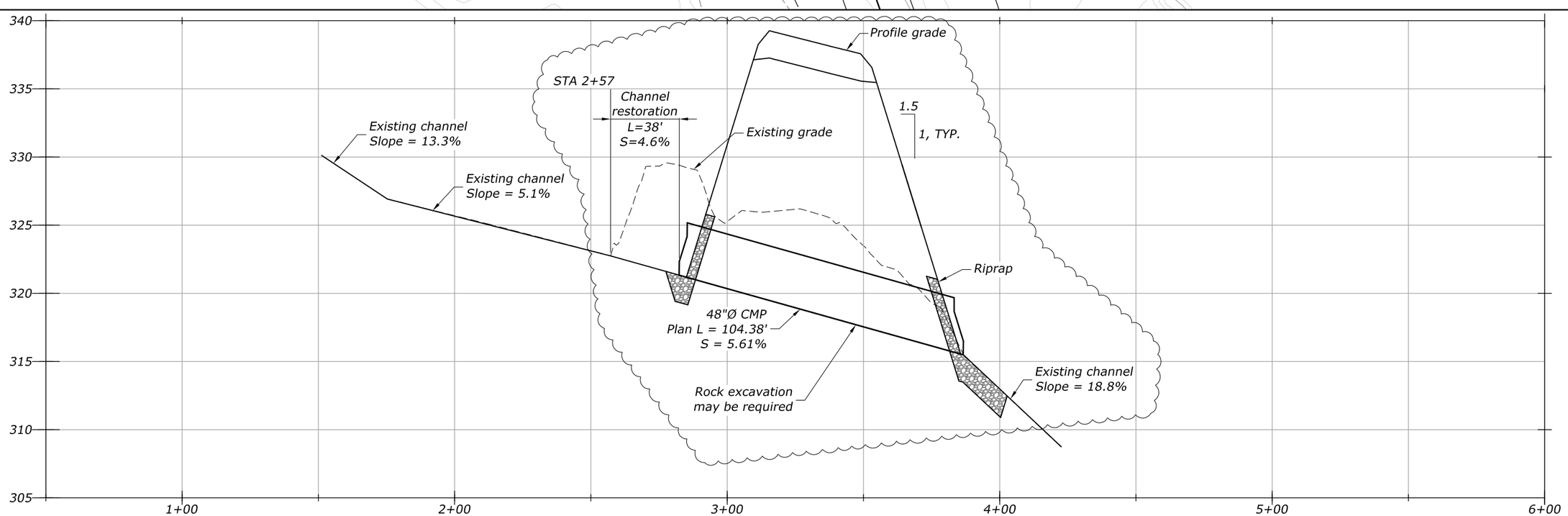


Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

C-13 PLAN

0 10 20 40 80FT



C-13 PROFILE

5:1 Vertical exaggeration

Notes:

1. Field verify inlet elevations, outlet elevations, and slope.
2. Overtopping elevation measured at top of subgrade.

Notes:

Drainage area (sq-mi)	=	0.06	Q50 Headwater elevation (ft)	=	325.31
Design exceedance	=	2%	Q50 Tailwater elevation (ft)	=	318.96
Q2 (cfs)	=	26.81	Overtopping flood (cfs)	=	188
Q50 (cfs)	=	58.23	Overtopping probability	<	0.2%
Hw/D ratio Q50	=	0.91	Overtopping elevation (ft)	=	336.52

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	J.26

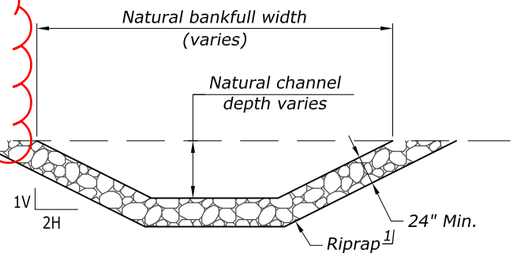
Notes:

1. *Extend riprap 1' above culvert or to the q50 flood elevation, whichever is greater.*
2. *Where culvert is seated on bedrock, riprap apron may be omitted*
3. *Install retention baffle per details and plan sheets*
4. *Culverts 48"Ø or smaller are to be installed with flared end sections per FHWA standard plans.*
5. *Culverts greater than 48"Ø are to be provided with mitered pipe ends that conform to fill slope or headwalls with beveled edges*

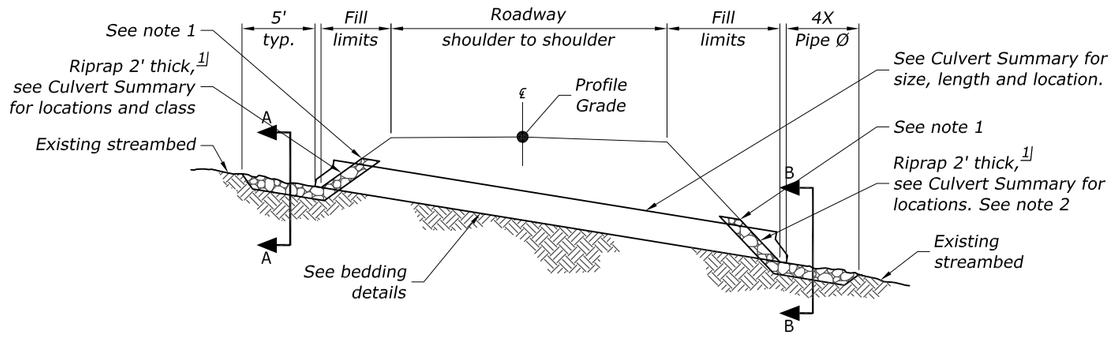
Footnote:

1/ Directly beneath Riprap, install either a 6" thick layer of Aggregate Filter Blanket material or Separation Geotextile Type II-C, except where Riprap is placed on bedrock or rock embankment.

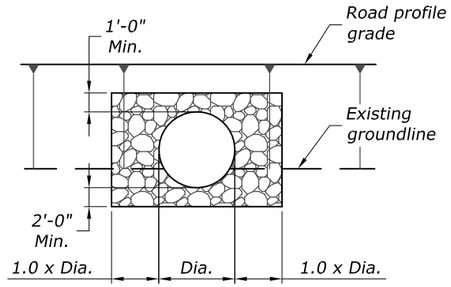
RFI 15
Aggregate Filter Blanket



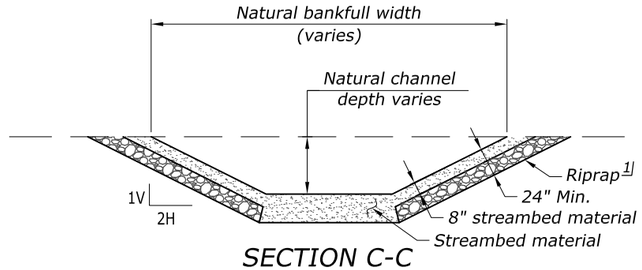
SECTION A-A
NON-FISH STREAMS



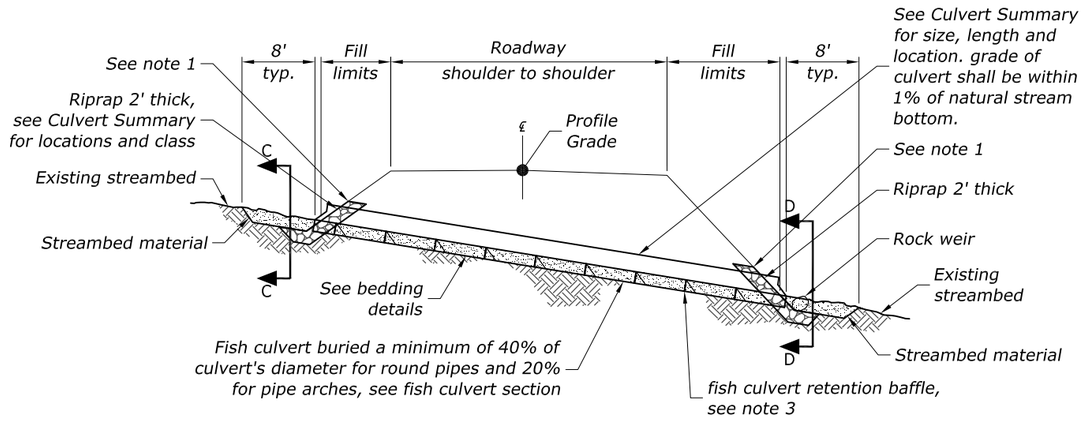
TYPICAL PIPE CULVERT INSTALLATION
NON-FISH STREAMS



SECTION B-B
NON-FISH STREAMS

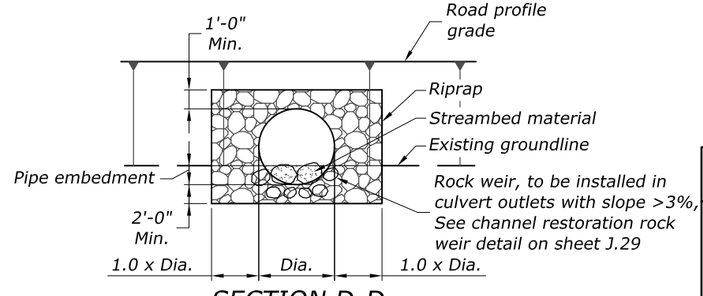


SECTION C-C
FISH STREAMS



TYPICAL PIPE CULVERT INSTALLATION
FISH STREAMS

Note: See sheets J6-J21 for individual fish streams plan and profile



SECTION D-D
FISH STREAMS

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CULVERT DETAILS

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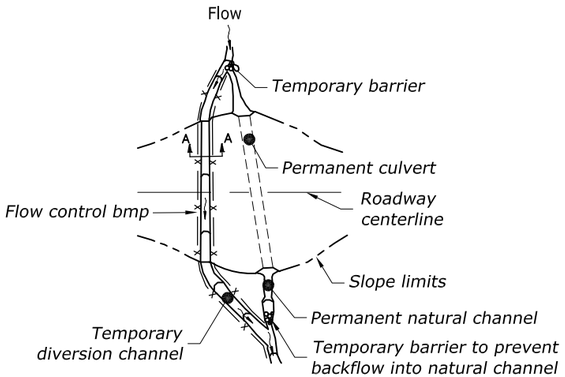
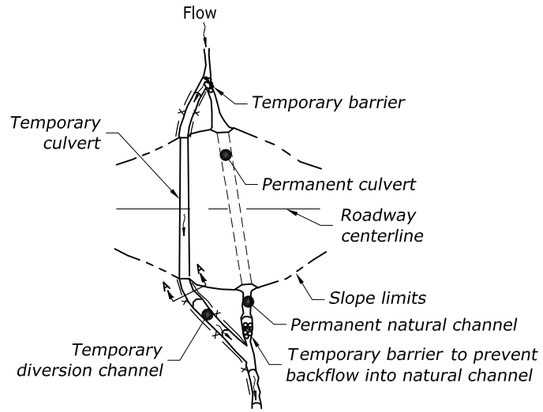
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	J.27

Notes:

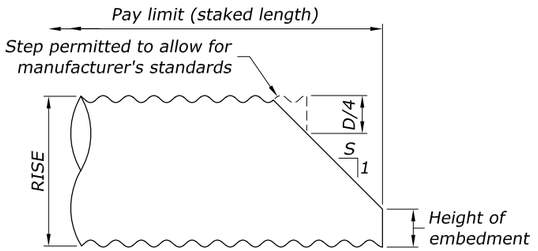
1. *"W" - Match channel width to existing stream width.*
2. *Construct channel to maintain positive drainage. provide a minimum grade of 0.5 percent where possible.*
3. *If pumping is used during construction the intake must be operated and maintained to prevent fish entrapment, entrainment, or injury with the use of perforated plate and woven wire having a mesh size not greater than 3/32 inches or profile bar and wedgewire having openings not greater than 1/16 inches. approach velocities shall not exceed a passive. velocity of 0.2 feet per second (fps) or an active velocity of 0.4 fps.*
4. *The culvert ends shall be beveled to match the embankment or ditch slope. Shape the slope in the vicinity of the culvert end to ensure no part of the culvert protrudes more than 4" above the ground line.*
5. *Field cutting of culvert ends is permitted when approved by the Engineer. All field-cut culverts edges shall be treated per manufacture's recommendations.*



DIVERSION CHANNEL

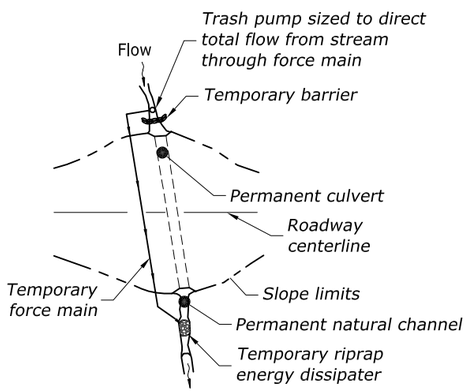


TEMPORARY CULVERT DIVERSION



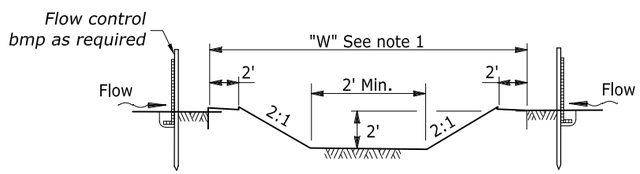
S = 1.5 for 1V:1.5H fill slopes

END TREATMENT DIAGRAM FOR FISH PASSAGE CULVERTS



DIVERSION PUMP

(See note 3)



SECTION A-A
TYPICAL DIVERSION CHANNEL

RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

CULVERT DETAILS

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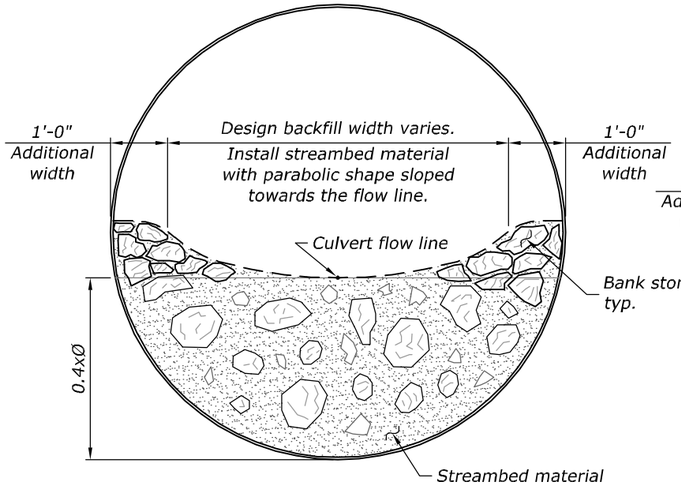
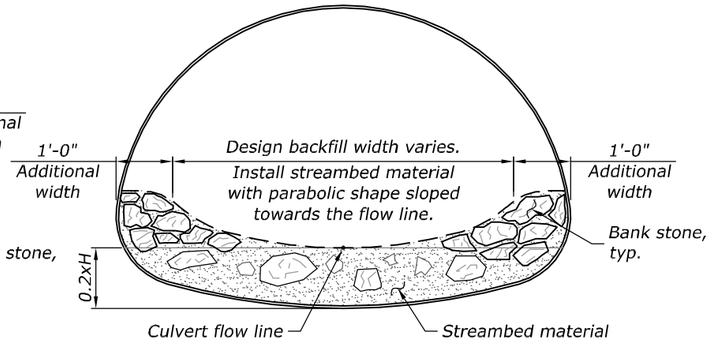
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	J.28

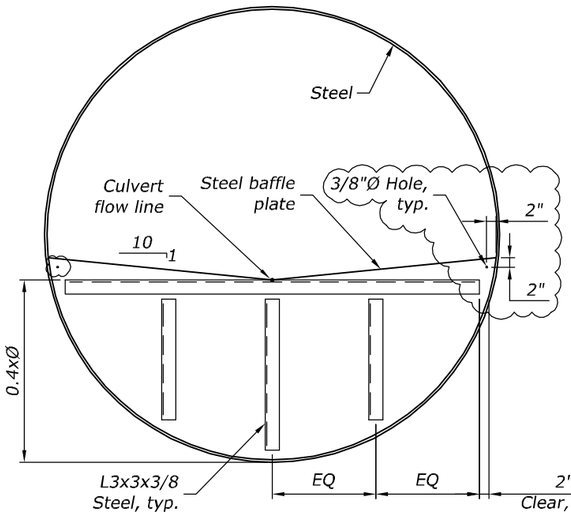
RFI-18 FIGURE



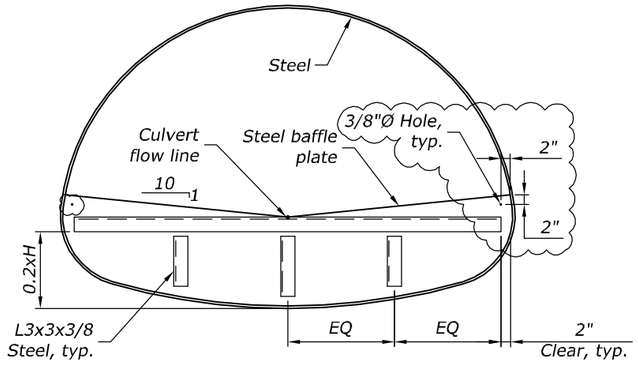
TYPICAL FISH CULVERT
CROSS SECTION



TYPICAL FISH ARCH PIPE
CROSS SECTION



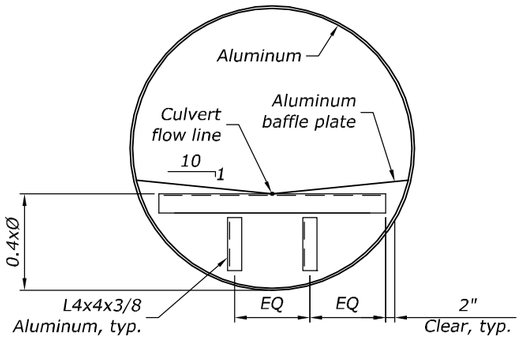
TYPICAL STEEL FISH CULVERT
BAFFLE DETAIL



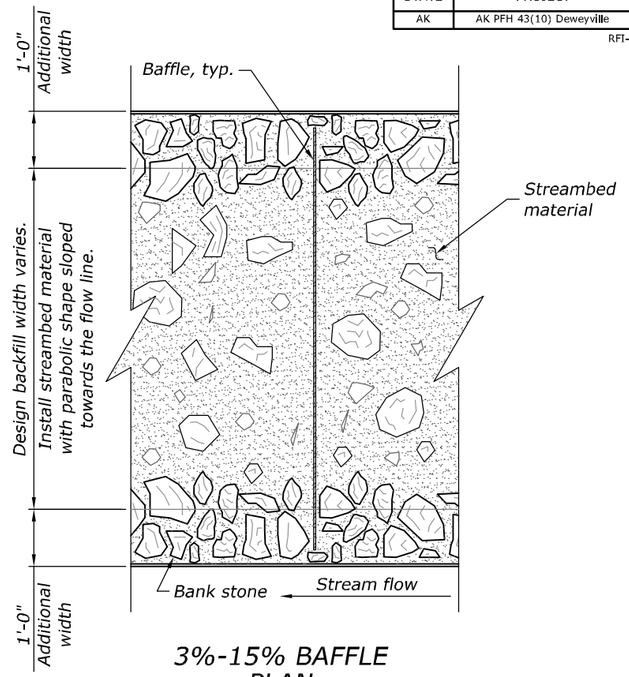
TYPICAL STEEL FISH ARCH PIPE
BAFFLE DETAIL

Baffle Notes:

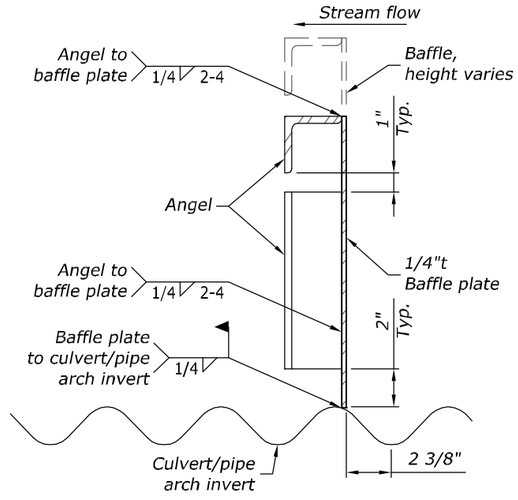
1. *All steel baffles and braces shall be manufactured from A36 Grade 36 steel plate and shall be installed with either a bolted or welded connection. All aluminum baffles shall be manufactured from materials meeting aluminum pipe materials specifications.*
2. *All dimensions on this sheet are nominal-baffles shall be manufactured to fit particular pipe.*
3. *Baffle assemblies shall be hot dip galvanized after fabrication per ASTM A123.*
4. *Welds between base plate and corrugated pipe shall be applied in small enough passes to ensure that corrugated pipe is not burned through. Steel welding per AWS D1.1. Aluminum welding per AWS D1.2.*
5. *All damaged galvanizing, including that removed for welding, shall be repaired per ASTM A780 and modified as follows:*
   Repair using Galv-Viz Bar zinc sticks, as manufactured by American Solder & Flux. Alternately, damage coating may be repaired by spray metalizing per AWS C2.23-2003 to a minimum thickness of 12 mils. All repairs shall have a top coat of zinc-rich paint.
6. *All damaged pipe coating shall be repaired per pipe manufacturers recommendations.*



TYPICAL ALUMINUN FISH CULVERT
BAFFLE DETAIL



3%-15% BAFFLE
PLAN



TYPICAL BAFFLE
CONNECTION

RFI 18
Fish Baffle Details

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

FISH PASSAGE DETAILS

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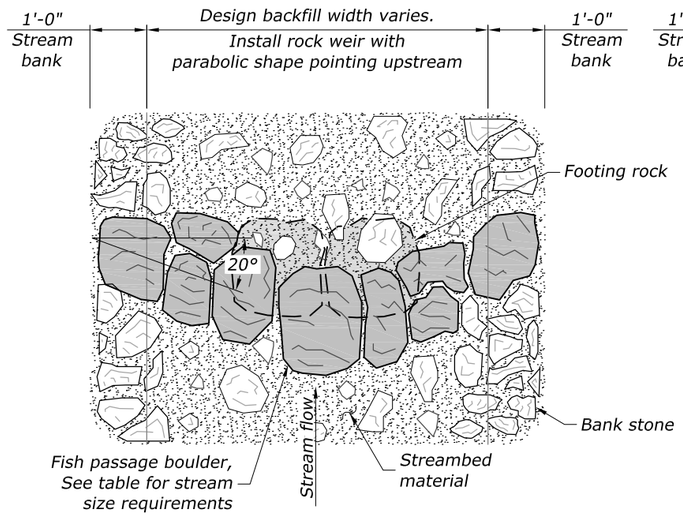
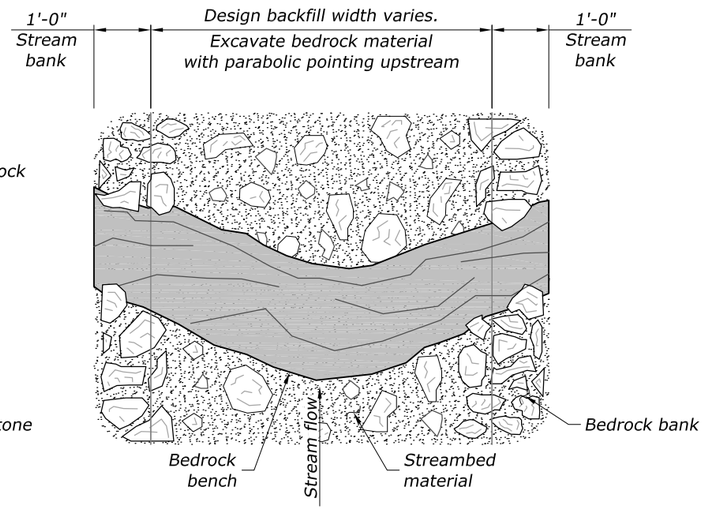
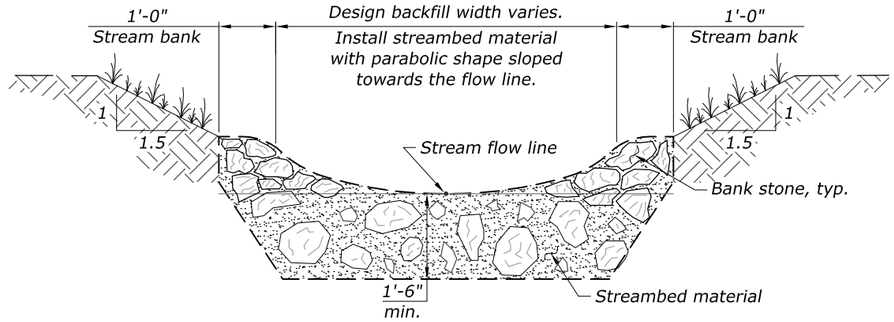
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10) Deweyville	J.29



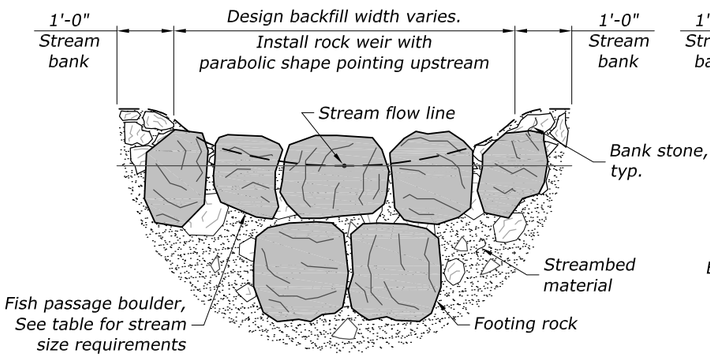
CHANNEL RESTORATION
ROCK WEIR PLAN



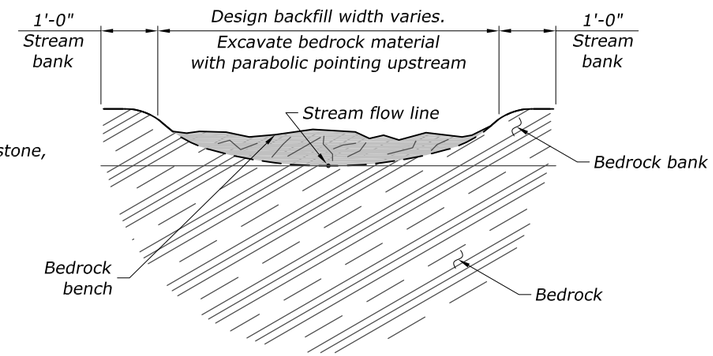
BEDROCK CHANNEL RESTORATION
ROCK WEIR PLAN



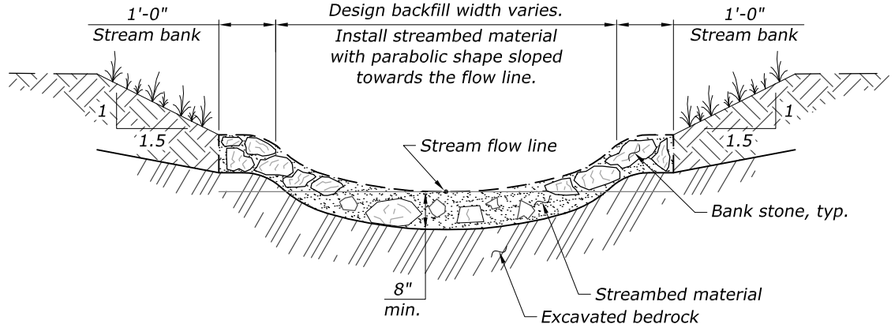
TYPICAL FISH STREAM
CHANNEL SECTION



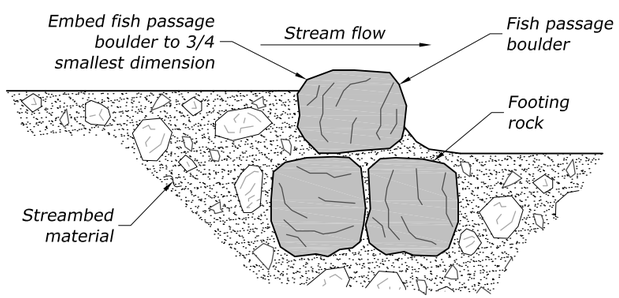
CHANNEL RESTORATION
ROCK WEIR SECTION



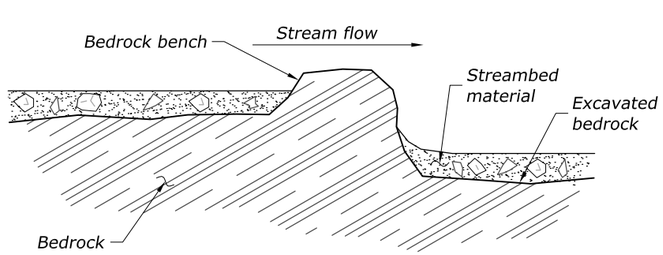
BEDROCK CHANNEL RESTORATION
ROCK WEIR SECTION



TYPICAL FISH STREAM
BEDROCK CHANNEL SECTION



CHANNEL RESTORATION
ROCK WEIR PROFILE



BEDROCK CHANNEL RESTORATION
ROCK WEIR PROFILE

FISH PASSAGE BOULDER SUMMARY

Structure	Boulder Size (in)	
	Min	MAX
FP-01	18	24
FP-02	15	24
FP-03	6	12
FP-04	6	12
FP-05	18	24
FP-06	12	24
FP-07	18	24
FP-09	18	36
FP-10	18	24
FP-11	18	24
FP-12	18	24
FP-13	18	30
FP-14	18	30
FP-15	18	24
FP-16	12	24
FP-17	18	24

RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

FISH PASSAGE DETAILS

K:\2012\121088 - FH43 Deweyville Trailhead to Neck Lake\100% IFC\J.29.FISH PASSAGE DETAILS.100% IFC.dwg [USC] 19 April 2013 10:21 AM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH)43(10)	J.30

METAL ROUND PIPE CULVERT

FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT

STEEL

PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS					3" x 1" CORRUGATIONS					5" x 1" CORRUGATIONS				
		METAL THICKNESS (INCH/GAGE)														
		0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.064/16	0.079/14	0.109/12	0.138/10	0.168/8
		MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)														
12	12	100	100	100	100	100										
15	12	100	100	100	100	100										
18	12	100	100	100	100	100										
21	12	100	100	100	100	100										
24	12	100	100	100	100	100										
30	12	85	100	100	100	100										
36	12	71	89	100	100	100	81	100	100	100	100					
42	12	61	76	100	100	100	70	87	100	100	100					
48	12	53	66	93	100	100	61	76	100	100	100	54	68	95	100	100
54	12		59	83	100	100	54	68	95	100	100	48	60	85	100	100
60	12			74	97	100	49	61	86	100	100	43	54	76	98	100
66	12				87	100	44	55	78	100	100	39	49	69	89	100
72	12				80	97	40	51	71	92	100	36	45	63	82	100
78	12					87	37	47	66	85	100	33	42	58	75	92
84	12					75	35	43	61	78	96	31	39	54	70	86
90	12						32	40	57	73	90	29	36	51	65	80
96	12							38	53	69	84		34	48	61	75
102	18							36	50	65	79		32	45	57	71
108	18								47	61	75			42	54	67
114	18								45	58	71			40	52	63
120	18								43	55	67			38	49	60
126	18									52	64				47	57
132	18									50	61				44	54
138	18									48	58				42	52
144	18										56					50

ALUMINUM

PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS					3" x 1" CORRUGATIONS				
		METAL THICKNESS (INCH/GAGE)									
		0.060/16	0.075/14	0.105/12	0.135/10	0.164/8	0.060/16	0.075/14	0.105/12	0.135/10	0.164/8
		MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)									
12	12	100	100	100	100	100					
15	12	100	100	100	100	100					
18	12	100	100	100	100	100					
21	12	88	100	100	100	100					
24	12	77	97	100	100	100					
30	12	62	77	100	100	100	71	89	100	100	100
36	12	52	64	90	100	100	59	74	100	100	100
42	12	44	55	77	99	100	51	64	89	100	100
48	12			67	87	100	44	56	78	100	100
54	18			54	71	88	39	50	69	93	100
60	18				57	72	35	45	62	83	98
66	18					58	32	40	56	76	89
72	18					45	30	37	55	70	82
78	24							34	48	64	75
84	24								44	59	70
90	24								41	62	65
96	24								38	51	61
102	24									46	55
108	24									42	50
114	24										45
120	24										40

NOTE:

1. When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.
2. Fill heights exceeding 100 feet require special analysis by the CO.
3. The fill heights in the table are for helical lockseam and welded seam pipe only. Fill heights for culvert pipe with annular corrugations are more restrictive than those of helical lockseam and welded seam pipe. Obtain approval before furnishing annular corrugation pipe.
4. Measure minimum cover from the top of the pipe culvert to the subgrade for flexible pavements, and to the top of the pavement for rigid pavements. Measure maximum fill height from the top of the pipe to the top of the pavement for both flexible and rigid pavement.

METAL PIPE ARCH CULVERT

FILL HEIGHT AND METAL THICKNESS TABLE FOR HELICAL LOCKSEAM AND WELDED SEAM PIPE CULVERT

STEEL

PIPE ARCH SIZE SPAN x RISE INCHES	EQUI-VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS					3" x 1" CORRUGATIONS					5" x 1" CORRUGATIONS				
				METAL THICKNESS (INCH/GAGE)														
				0.064/16	0.079/14	0.109/12	0.138/10	0.168/8	0.079/14	0.109/12	0.138/10	0.168/8		0.079/14	0.109/12	0.138/10	0.168/8
				MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)														
17 x 13	15	3	12	13														
21 x 15	18	3	12	12														
24 x 18	21	3	12	13														
28 x 20	24	3	12	13														
35 x 24	30	3	12	12														
42 x 29	36	3.5	12	12														
49 x 33	42	4	12		12													
57 x 38	48	5	12			12												
60 x 46	54	8	15							21					21			
64 x 43	54	6	12			12												
66 x 51	60	9	15							21					21			
71 x 47	60	7	12				12											
73 x 55	66	12	18							20					20			
77 x 52	66	8	12					12										
81 x 59	72	14	18						17					17				
83 x 57	72	9	12					12										
87 x 63	78	14	18						17					17				
95 x 67	84	16	18						17					17				
103 x 71	90	16	18							17				17				
112 x 75	96	18	21							16					16			
117 x 79	102	18	21							16					16			
128 x 83	108	18	24								16					16		
137 x 87	114	18	24								16					16		
142 x 91	120	18	24									16						16

ALUMINUM

PIPE ARCH SIZE SPAN x RISE INCHES	EQUI-VALENT DIAMETER INCHES	MINIMUM CORNER RADIUS INCHES	MINIMUM COVER INCHES	2⅔" x ½" CORRUGATIONS				3" x 1" CORRUGATIONS			
				METAL THICKNESS (INCH/GAGE)							
				0.060/16	0.075/14	0.105/12	0.135/10	0.060/16	0.075/14	0.105/12	0.135/10
				MAXIMUM FILL HEIGHT ABOVE TOP OF PIPE (FEET)							
17 x 13	15	3	12	13							
21 x 15	18	3	12	12							
24 x 18	21	3	12	13							
28 x 20	24	3	12		13						
35 x 24	30	3	12		12						
42 x 29	36	3.5	15			12					
49 x 33	42	4	15			12					
57 x 38	48	5	15				12				
60 x 46	54	8	15					21			
64 x 43	54	6	18				12				
66 x 51	60	9	18					21			
73 x 55	66	12	18						20		
81 x 59	72	14	21							17	
87 x 63	78	14	21							17	
95 x 67	84	16	24							17	
103 x 71	90	16	24								17

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

METAL PIPE CULVERT

STANDARD APPROVED FOR USE 12/1993
REVISED: 4/1994 6/2005

STANDARD 602-1

27-Sep-2005 12:55 PM
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STATE	PROJECT	SHEET NUMBER
AK	AK PFH)43(10)	J.31

COUPLING BANDS FOR METAL PIPE CULVERT 1/

CORRUGATION SIZE 2/ INCHES	ROUND PIPE DIAMETER INCHES	PIPE ARCH SPAN x RISE INCHES	MINIMUM BAND WIDTH (INCHES) ANNULAR CORRUGATED BANDS 3/	HELICALLY CORRUGATED BANDS 4/	SEMI-CORRUGATED BANDS 5/
1½ x ¼	underdrain 6/	-	10.5	7	10.5
2⅔ x ½	12 to 36	17 x 13 to 42 x 29	7	12	
	42 to 72	49 x 33 to 83 x 57	10.5	12	
	78 to 84	-	10.5	12	10.5
3 x 1	36 to 72	60 x 46 to 81 x 59	12	14	10.5
	78 to 144	87 x 64 to 142 x 91	12	14	10.5
5 x 1	36 to 72	60 x 46 to 81 x 59	20	22	
	78 to 144	87 x 64 to 142 x 91	20	22	

1/ Fabricate annular, helical and semi-corrugated type coupling bands from the same metal as the connecting pipe. Provide coupling bands not more than 3 nominal sheet thicknesses thinner than the thickness of the pipe to be connected, and no thinner than 0.052 inch for steel or 0.048 inch for aluminum. Fasten coupling bands with the following diameter of bolt:
⅜" for 18" round culvert (21" x 15" pipe arch) or less
½" for 21" round culvert (24" x 18" pipe arch) or more

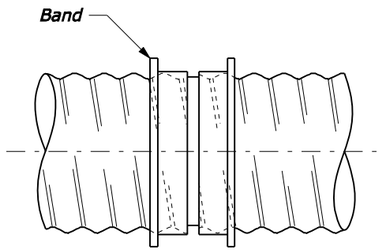
2/ For helically corrugated pipe with rerolled ends, the nominal corrugations size refers to the dimension of the end corrugation in the pipe.

3/ Use annular corrugated bands with pipes having annular corrugations or with helical pipe having rerolled end to form annular corrugations. A 10.5 inch band is acceptable on pipe ends rerolled with 2⅔" x ½" corrugations. A 12 inch band is acceptable on pipe ends rerolled with 3" x 1" pipe corrugations.

4/ Use helical corrugated bands with pipes having helically corrugated ends.

5/ The minimum band widths shown for 3" x 1" and 5" x 1" corrugated sizes apply to 2⅔" x ½" corrugations on rerolled pipe ends.

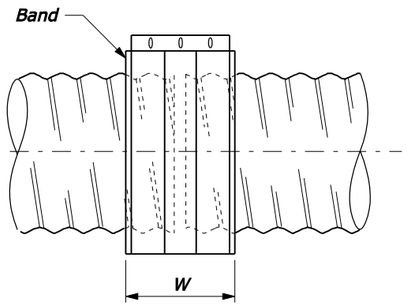
6/ Smooth sleeve-type couplers and flat bands may be used for pipe diameters of 12" or less. Use a matching metal having a nominal thickness of not less than 0.040 inch for steel, or 0.036 inch for aluminum, or a plastic with an equivalent strength to metal.



SLEEVE JOINT

Smoother sleeve with center stop.
Stab type joint

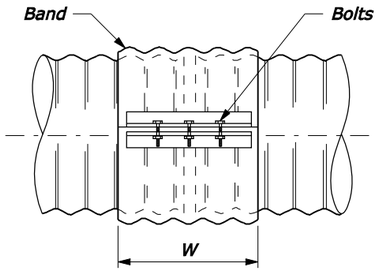
SMOOTH SLEEVE BAND



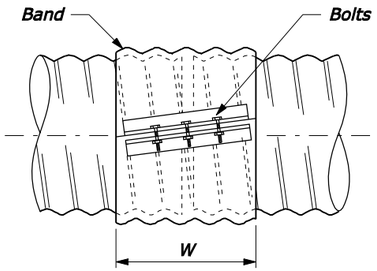
FLAT BAND

NOTE:

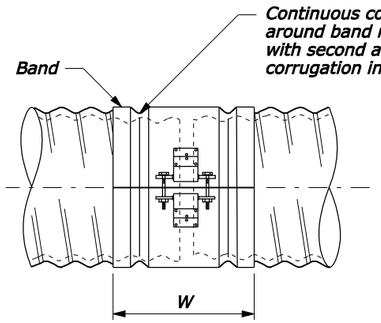
1. Watertight pipe joints are not required unless specified in the Special Contract Requirements.
2. Other types of coupling bands or fastening devices that comply with the joint performance criteria of AASHTO Standard specifications for Highway Bridges, Division II Section 26 may be used.



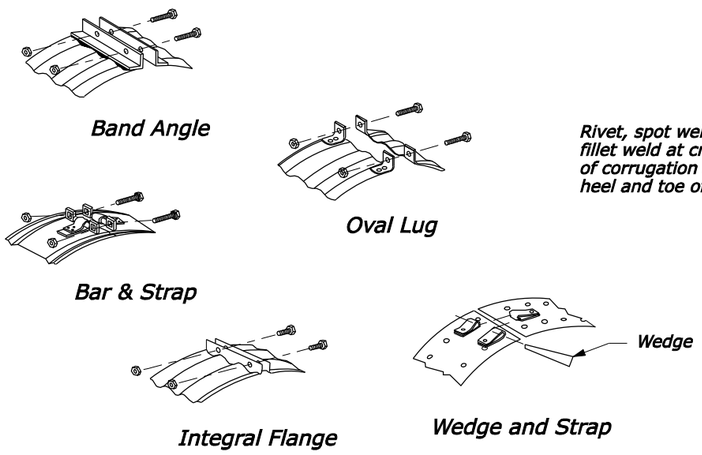
SIDE VIEW



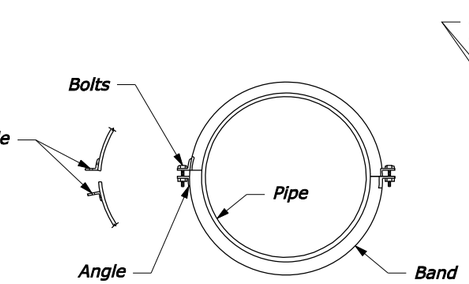
SIDE VIEW



SIDE VIEW



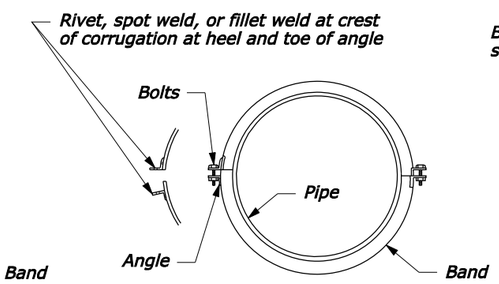
STANDARD BAND CONNECTIONS



END VIEW

Second angle connection optional to 42" diameter, required above 42" diameter

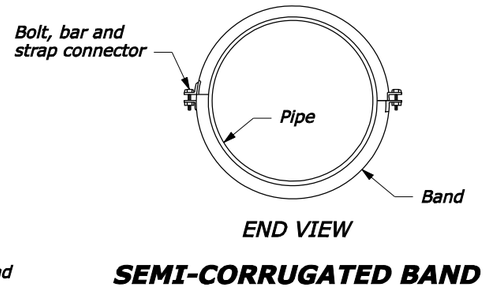
ANNULAR BAND



END VIEW

Second angle connection optional to 42" diameter, required above 42" diameter

HELICAL BAND



END VIEW

SEMI-CORRUGATED BAND

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

METAL PIPE CULVERT COUPLING BAND

STANDARD APPROVED FOR USE 12/1993
REVISED: 4/1994 6/2005

STANDARD 602-2

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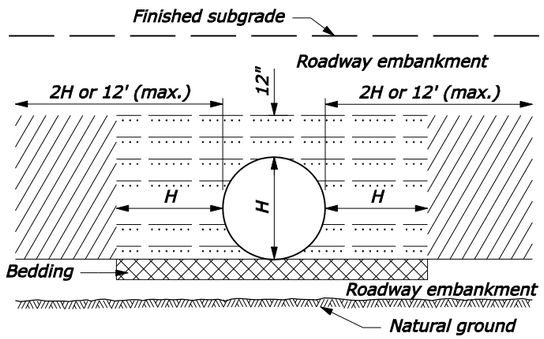
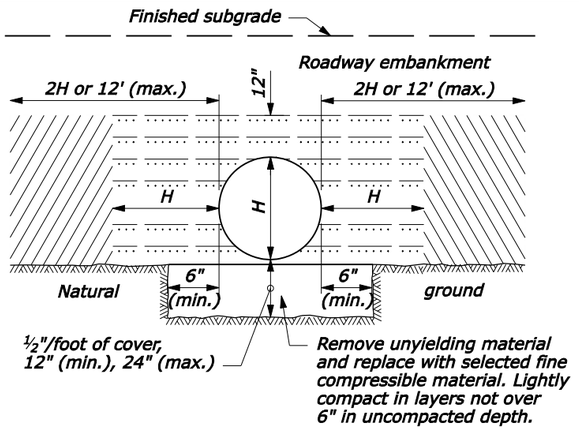
STATE	PROJECT	SHEET NUMBER
AK	AK PFH)43(10)	J.32

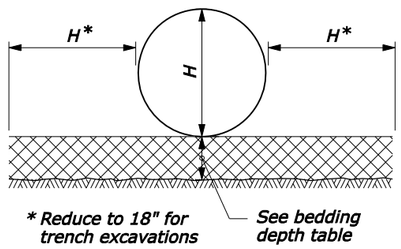


ABOVE NATURAL GROUND



ON UNYIELDING MATERIAL

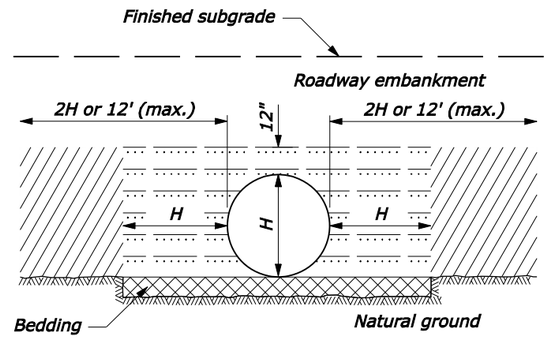
BEDDING DEPTH	
PIPE SIZE (H)	DEPTH
12" to 54"	4"
> 54"	6"



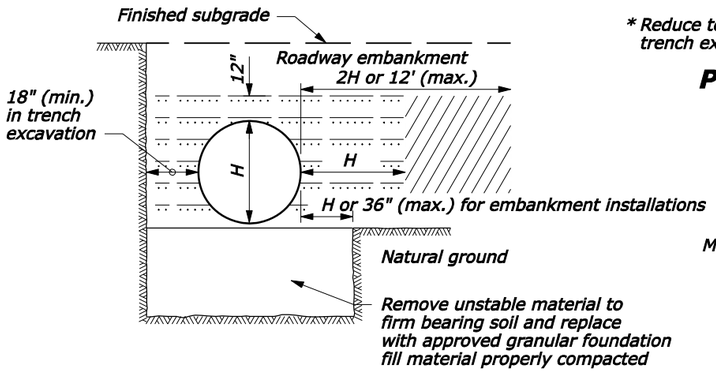
PIPE BEDDING

NOTE:

1. When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.
2. H equals the diameter of all round pipe culverts or the rise dimension of all pipe arch culverts.

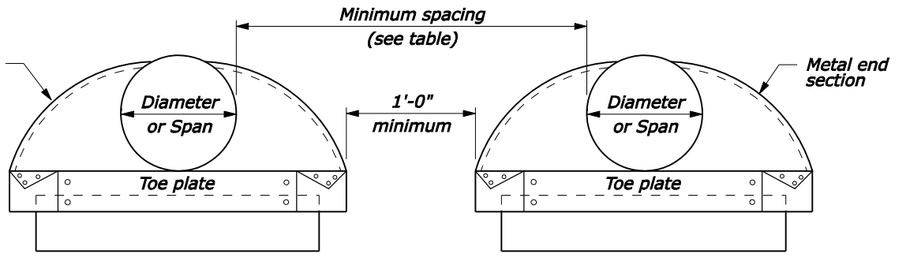


ON NATURAL GROUND



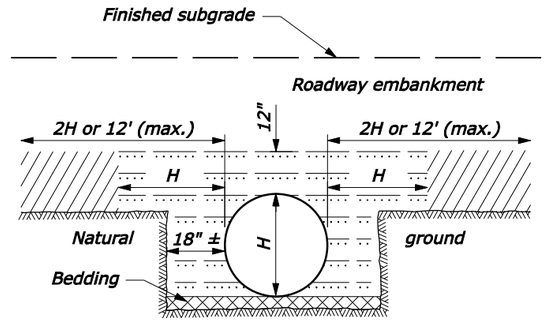
ON UNSTABLE MATERIAL

MINIMUM SPACING	
DIAMETER or SPAN	SPACING
UP to 48"	24"
48" and UP	Half diameter or span OR 36" whichever is less

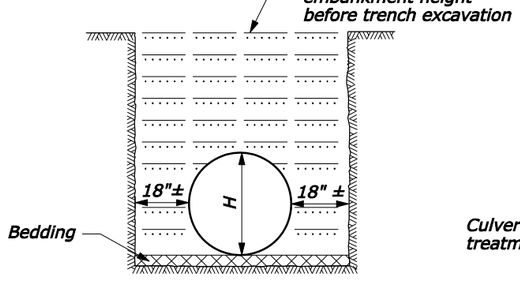


ELEVATION

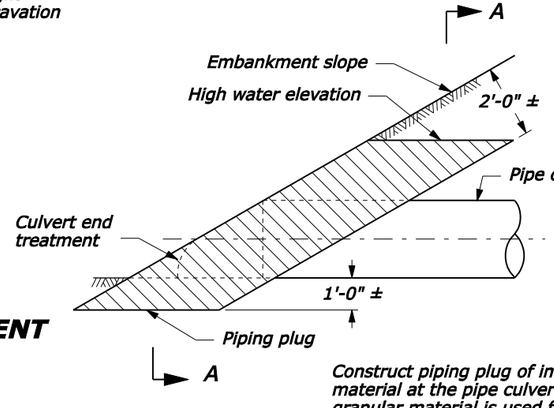
MULTIPLE PIPE INSTALLATION



ABOVE AND BELOW NATURAL GROUND



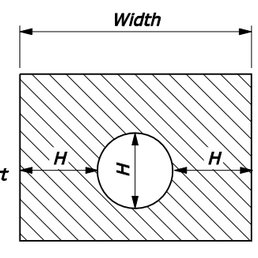
BELOW NATURAL GROUND OR TRENCH EXCAVATION IN EMBANKMENT



Construct piping plug of impermeable backfill material at the pipe culvert inlet where granular material is used for backfill. Width may be adjusted to tie into impervious material.

PIPING PLUG

NO SCALE



SECTION A-A

Bedding material (uncompacted)

Embankment material placed in layers not exceeding 6" compacted depth.

Compacted backfill material placed in layers not exceeding 6" compacted depth meeting the following:
Metal Pipe: Maximum particle size = 3"
Soil classification: A-1, A-2, or A-3
Plastic Pipe: Maximum particle size: 1½"
Soil classification: A-1, A-2-4, A-2-5, or A-3
Or lean concrete backfill in accordance with Section 614.

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

METAL AND PLASTIC PIPE CULVERT BEDDING

STANDARD APPROVED FOR USE 12/1993
REVISED: 4/1994 6/2005

STANDARD 602-3

03-Oct-2005 06:43 AM
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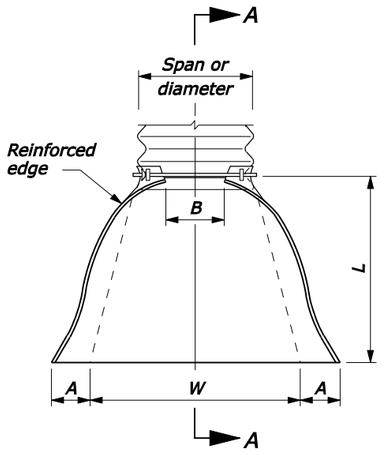
STATE	PROJECT	SHEET NUMBER
AK	AK PFH)43(10)	J.33

END SECTIONS FOR ROUND PIPE CULVERT

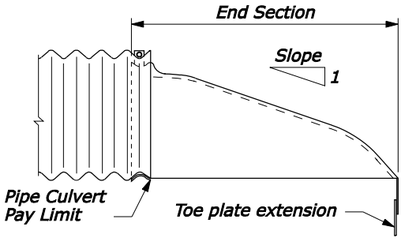
PIPE SIZE DIAMETER INCHES	METAL THICKNESS STEEL		ALUMINUM		DIMENSIONS INCHES					SLOPE
	INCHES	GAGE	INCHES	GAGE	A (min)	B (max)	H (min)	L (±2")	W (max)	Approx.
12	0.064	16	0.060	16	5	7	6	21	44	2¼
15	0.064	16	0.060	16	6	8	6	26	52	2¼
18	0.064	16	0.060	16	7	10	6	31	58	2⅛
21	0.064	16	0.060	16	8	12	6	36	66	2⅛
24	0.064	16	0.060	16	9	13	6	41	72	2⅛
30	0.079	14	0.075	14	11	16	8	51	88	2⅛
36	0.079	14	0.075	14	13	19	9	60	105	2
42	0.109	12	0.105	12	15	25	10	69	122	2⅛
48	0.109	12	0.105	12	17	29	12	78	131	2
54	0.109	12	0.105	12	17	33	12	84	143	2
60	0.109	12	0.105	12	17	36	12	87	157	1⅞
66	0.109	12	0.105	12	17	39	12	87	162	1⅝
72	0.109	12	0.105	12	17	44	12	87	169	1½
78	0.109	12	0.105	12	17	48	12	87	178	1⅜
84	0.109	12	0.105	12	17	52	12	87	184	1⅓
90	0.109	12	0.105	12	17	58	12	87	188	1¼
96	0.109	12	0.105	12	17	58	12	87	197	1⅛

END SECTIONS FOR PIPE ARCH CULVERT

PIPE SIZE SPAN x RISE INCHES	METAL THICKNESS STEEL		ALUMINUM		DIMENSIONS INCHES					SLOPE
	INCHES	GAGE	INCHES	GAGE	A (min)	B (max)	H (min)	L (±2")	W (max)	Approx.
17 x 13	0.064	16	0.060	16	5	9	6	20	52	2⅛
21 x 15	0.064	16	0.060	16	6	11	6	24	58	2
24 x 18	0.064	16	0.060	16	7	12	6	28	58	2⅛
28 x 20	0.064	16	0.060	16	7	16	6	32	66	2
35 x 24	0.079	14	0.075	14	9	16	6	39	72	1⅞
42 x 29	0.079	14	0.075	14	11	18	7	46	88	1⅞
49 x 33	0.109	12	0.105	12	12	21	9	53	105	1¾
57 x 38	0.109	12	0.105	12	16	26	12	62	122	1⅞
60 x 46	0.109	12	0.105	12	17	36	12	70	142	1⅞
64 x 43	0.109	12	0.105	12	17	30	12	69	131	1⅞
66 x 51	0.109	12	0.105	12	17	36	12	77	156	1¾
71 x 47	0.109	12	0.105	12	17	36	12	77	143	1⅞
73 x 55	0.109	12	0.105	12	17	36	12	77	168	1½
77 x 52	0.109	12	0.105	12	17	36	12	77	157	1⅝
81 x 59	0.109	12	0.105	12	17	44	12	77	179	1⅝
83 x 57	0.109	12	0.105	12	17	44	12	77	162	1½
87 x 63	0.109	12	0.105	12	17	44	12	77	186	1½
95 x 67	0.109	12	0.105	12	17	44	12	87	210	1½
103 x 71	0.109	12	0.105	12	17	44	12	87	222	1⅓
112 x 75	0.109	12	0.105	12	17	44	12	87	226	1¼



PLAN

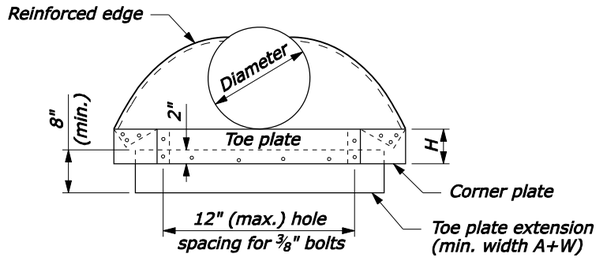


SECTION A-A

ROUND OR PIPE ARCH CULVERT

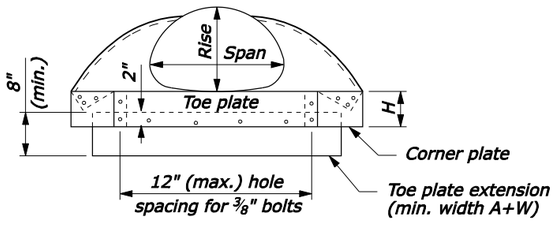
NOTE:

1. Variations in design and dimensions are permitted to allow for manufacturer's standards.
2. Fabricate the diameter of the end section of Design B to match the inside diameter of the concrete pipe culvert.
3. Design C may be used in lieu of design A for all metal pipe culvert sizes. Coupling bands may be any acceptable type for the pipe culvert specified.
4. Fabricate multiple piece bodies with lap seams tightly joined by ⅜" rivets or bolts. Fabricate end section center panels for 60" and larger diameter pipe and equivalent pipe arch from 0.138 inch steel or 0.135 inch aluminum.
5. On end section center panels for 66" and larger equivalent pipe arch provide 2½" x 2½" x ¼" angle reinforcement bolted or riveted under the center panel seam.
6. Supplement the reinforced edges of end sections for 60" and larger diameter pipe and 66" and larger equivalent pipe arch with 2½" x 2½" x ¼" stiffener angles attached with bolts or rivets.
7. Fabricate connector section, corner plate and toe plate extensions from the same metal thickness as the panel body. Use toe plate extension where shown on the plans.
8. Warp embankment slopes to match the slope of the flared end sections.



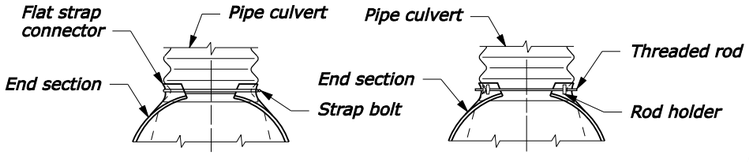
ELEVATION

ROUND PIPE CULVERT



ELEVATION

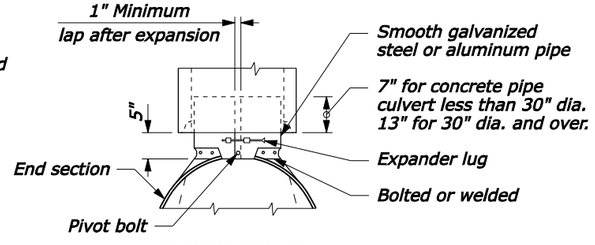
PIPE ARCH CULVERT



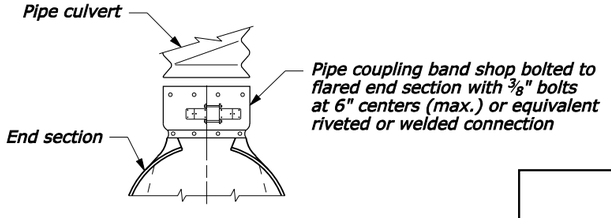
For 12" thru 24" round pipe and 17" x 13" thru 28" x 20" pipe arch

For 30" thru 60" round pipe and 35" x 24" thru 66" x 51" pipe arch

DESIGN A
CONNECTION TO ANNULAR CORRUGATED METAL PIPE



DESIGN B
CONNECTION TO CONCRETE PIPE INLET END



For all sizes of round pipe and pipe arch

DESIGN C
CONNECTION TO METAL PIPE OR OUTLET END OF CONCRETE PIPE

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

METAL END SECTIONS

STANDARD APPROVED FOR USE 12/1993
REVISED: 4/1994 6/2005
DRAFT: 10/2007

STANDARD 602-4

31-Oct-2007 01:07 PM
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STATE	PROJECT	SHEET NUMBER
AK	AK PFH)43(10)	J.34

POLYETHYLENE (PE) PLASTIC ROUND PIPE CULVERT

FILL HEIGHT TABLE AND MINIMUM CELL CLASSIFICATION NUMBER PER ASTM D 3350

SMOOTH WALL (SOLID WALL)

PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	CELL CLASSIFICATION NUMBER 335434C						
		MINIMUM WALL THICKNESS (INCHES)						
		0.607	0.857	0.923	1.154	1.385	1.292	1.477
		MAXIMUM FILL HEIGHT (FEET)						
12	12	57						
18	12		52					
24	12			38				
30	12				38			
36	12					38		
42	12						27	
48	12							27

CORRUGATED

PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	CELL CLASS. NO. 435400C MAXIMUM FILL HEIGHT (FEET)
12	12	10
15	12	10
18	12	10
24	12	10
30	12	10
36	12	10

RIBBED

PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	CELL CLASS. NO. 334433C MAXIMUM FILL HEIGHT (FEET)	CELL CLASS. NO. 335434C MAXIMUM FILL HEIGHT (FEET)
18	12	18	24
24	12	22	28
30	12	22	28
36	12	25	31
42	12	21	27
48	12	21	26

NOTE:

1. When directed, camber pipe culverts upward from a chord through the inlet and outlet inverts an ordinate amount equal to 1% of the pipe length. Develop camber on a parabolic curve. If the midpoint elevation on the parabolic curve as designed exceeds the elevation of the inlet invert, reduce the amount of camber or increase the pipe culvert gradient.
2. Measure minimum cover from the top of the pipe culvert to the subgrade for flexible pavements, and to the top of the pavement for rigid pavements. Measure maximum fill height from the top of the pipe to the top of the pavement for both flexible and rigid pavement.

POLYVINYL CHLORIDE (PVC) PLASTIC ROUND PIPE CULVERT

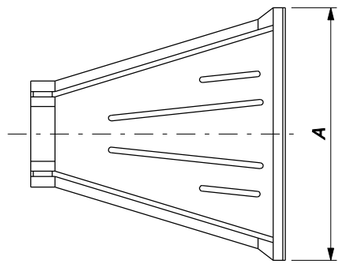
FILL HEIGHT TABLE AND MINIMUM CELL CLASSIFICATION NUMBER PER ASTM D 1784

SMOOTH WALL (SOLID WALL)

PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	CELL CLASS. NO. 12454		CELL CLASS. NO. 12364	
		MINIMUM WALL THICKNESS (INCHES)			
		0.358	0.438	0.358	0.438
		MAXIMUM FILL HEIGHT (FEET)			
12	12	65		69	
15	12		62		66

RIBBED

PIPE SIZE DIAMETER INCHES	MINIMUM COVER INCHES	CELL CLASS. NO. 12454C MAXIMUM FILL HEIGHT (FEET)	CELL CLASS. NO. 12364C MAXIMUM FILL HEIGHT (FEET)
12	12	37	26
15	12	32	22
18	12	33	23
24	12	29	21
30	12	28	20
36	12	27	19
42	12	26	18
48	12	24	17



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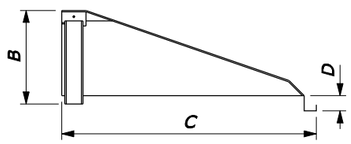
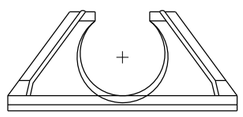


SIDE



FRONT

END SECTION DIMENSIONS

PIPE SIZE DIAMETER INCHES	DIMENSIONS INCHES A	B	C	D
12	42	14.5	33	6
15	46	24.5	45.5	6
18	54	29	55	6
24	58~~64~~	37	40~~65~~	2.5~~6~~
30	88	36	63.5	6
36	88	43	66.5	6

RFI 12
24-Inch End Section

PLASTIC PIPE END SECTION

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

PLASTIC PIPE CULVERT

STANDARD APPROVED FOR USE 12/1993
REVISED: 4/1994 6/2005
DRAFT 12/2008

STANDARD 602-5

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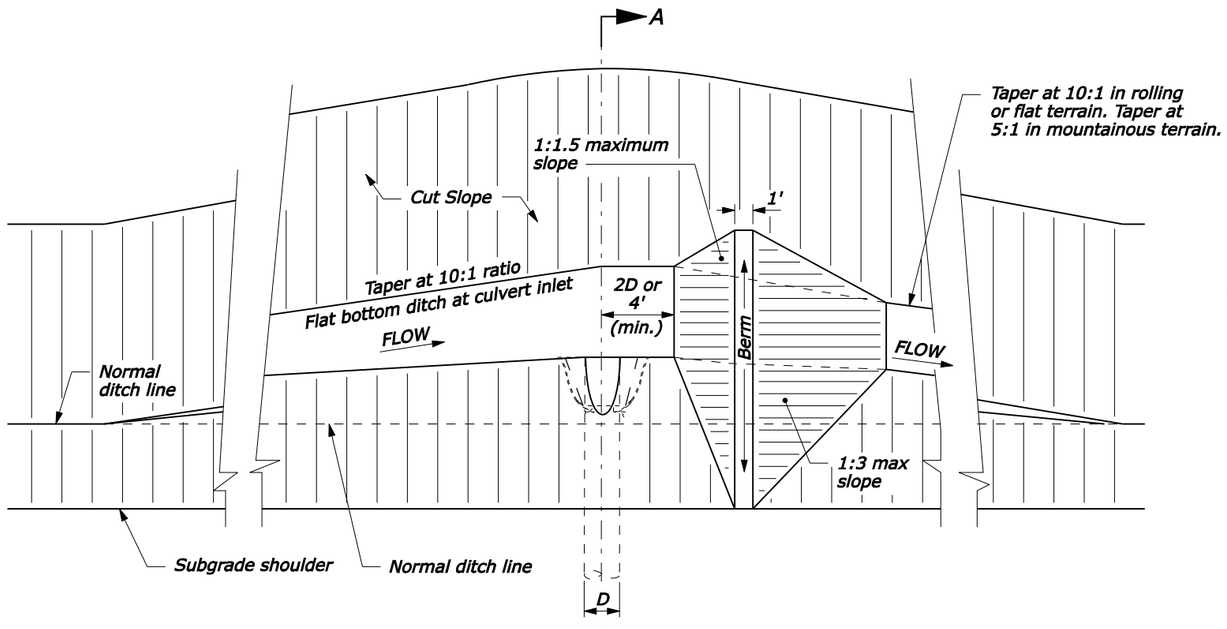
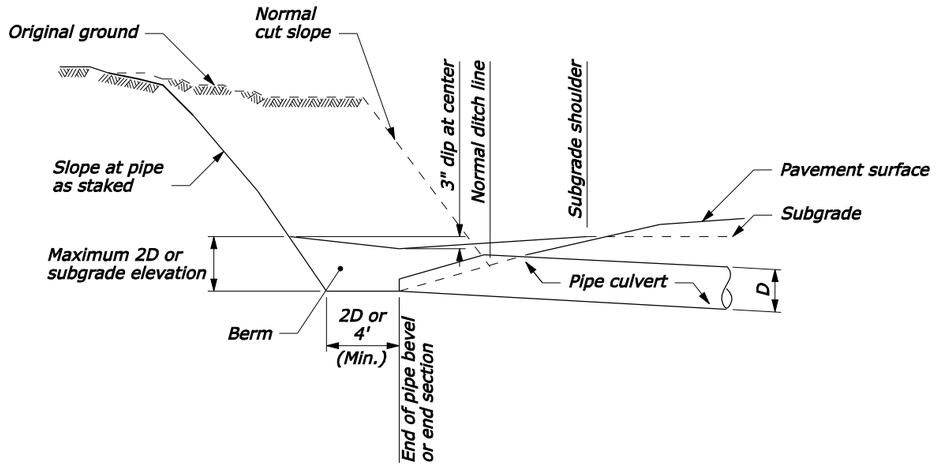
STATE	PROJECT	SHEET NUMBER
AK	AK PFH)43(10)	J.35

NOTE:

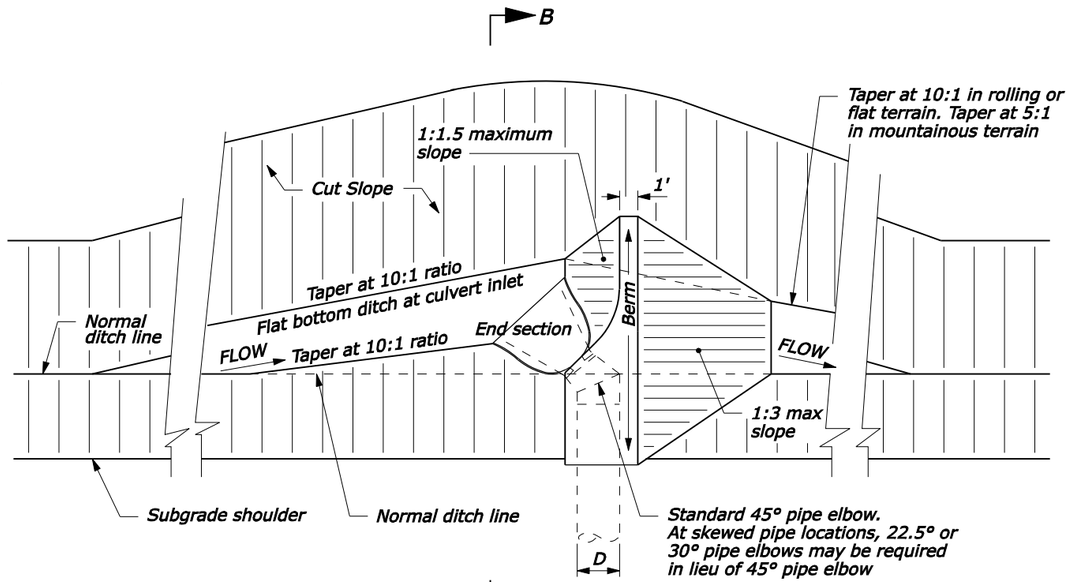
1. D equals the diameter of all round pipe or the rise dimension of all pipe arch culverts.



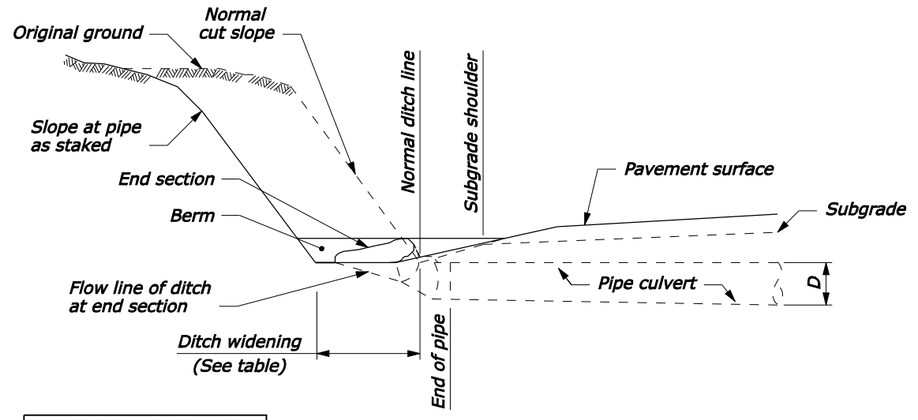
PLAN



SECTION A-A
TYPE I



PLAN



DITCH WIDENING	
PIPE SIZE (D)	WIDENING
18"	5'
24"	6'
30"	7'

SECTION B-B
TYPE II

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

PIPE CULVERT INLET TREATMENT IN CUT SLOPES

STANDARD APPROVED FOR USE 12/1993
REVISED: 4/1994 6/2005

STANDARD 602-6

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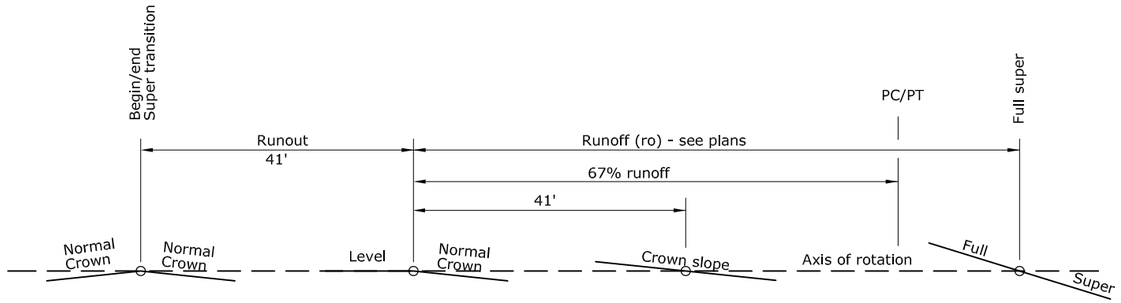
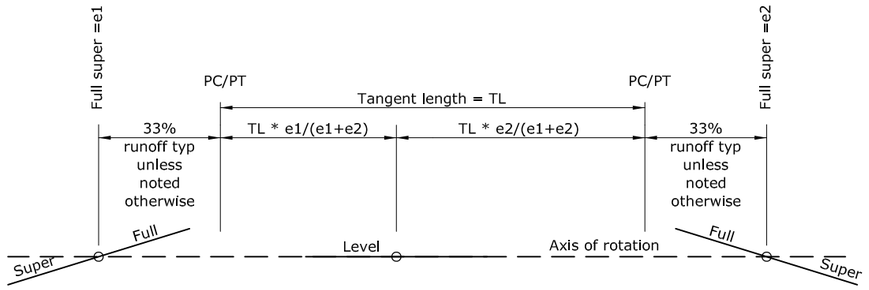
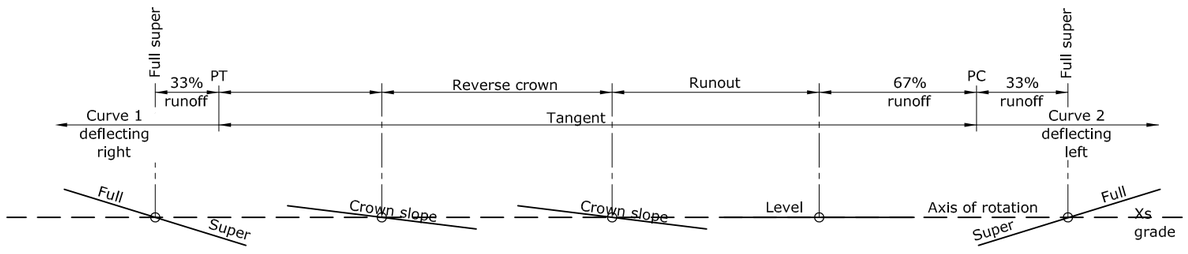
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	K.1



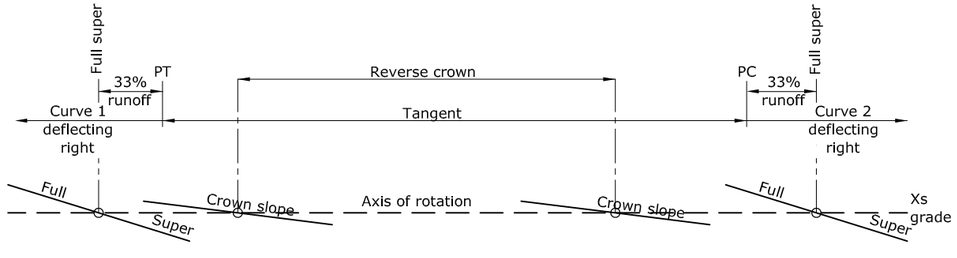
SUPERELEVATION TRANSITION - CASE 1



SUPERELEVATION TRANSITION SUPERCRITICAL - CASE 2



SUPERELEVATION TRANSITION USE OF REVERSE CROWN - CASE 3



SUPERELEVATION TRANSITION BROKEN BACK CURVES - CASE 4

NOTES

1. *Transition the roadway to a superelevated cross slope by rotating the traveled way and shoulder about the centerline of the alignment.*
2. *Build superelevation into subgrade and carry through shoulders.*
3. *% runoff = portion of runoff on tangent*
4. *Use the same relative gradient throughout all segments of the transition.*
5. *Widening for guardrail or curvature does not change the location of the axis of rotation.*
6. *See plan for degree of superelevation, "e".*
7. *See Super Elevation Report for location and transition type.*

RELEASED FOR CONSTRUCTION

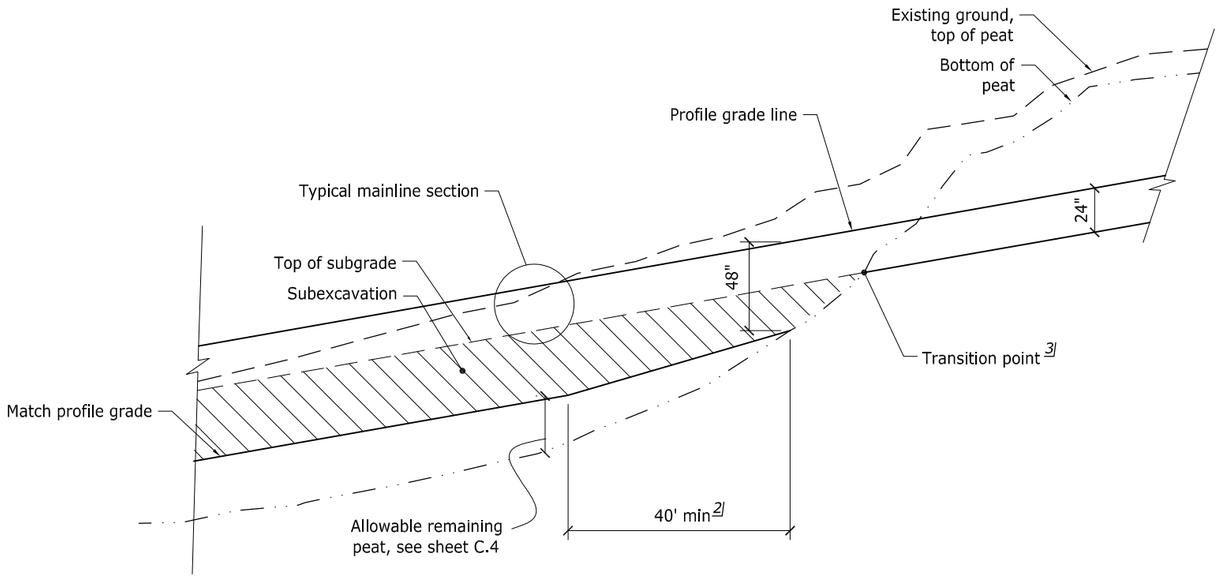
STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

ROADWAY DETAILS SUPERELEVATION TRANSITIONS

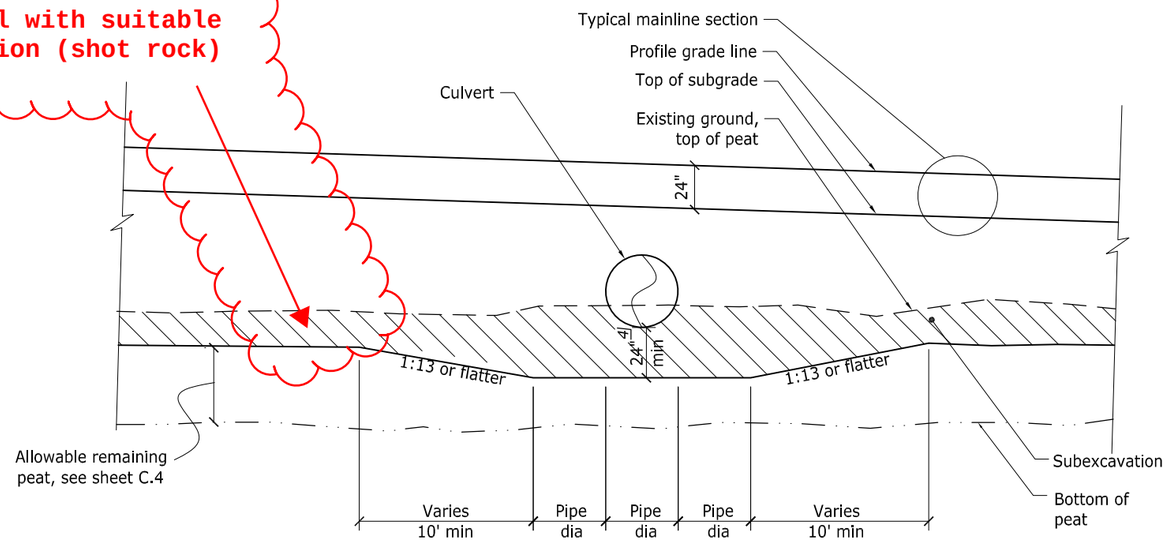
J:\2012\121088 FH43 Dewevville Trailhead to Neck Lake\E. Drawings\Civil\K1 Roadway Details.dwg [USC] 18 April 2013 4:08 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	K.2



LONGITUDINAL PEAT SUBEXCAVATION TRANSITION DETAIL 1/

RFI 10
Backfill with suitable excavation (shot rock)



LONGITUDINAL PEAT SUBEXCAVATION TRANSITION DETAIL AT CULVERTS 1/

FOOTNOTE:

1/ *Details to be used in areas where subexcavation types 1, 2, & 3 occur. The transition is not required under the existing road within a Type 2 subexcavation.*

2/ *The allowable remaining peat depth shall be developed linearly from the point of zero depth indicated in detail.*

3/ *See subexcavation summary table on sheet C.4 for the approximate location of transition point at the beginning and ending of each peat subexcavation area.*

4/ *Provide additional depth as necessary to create a stable foundation or as otherwise indicated in the J sheets. If firm ground is encountered within the 24", the minimum depth may be reduced per the applicable details on sheet J.32.*

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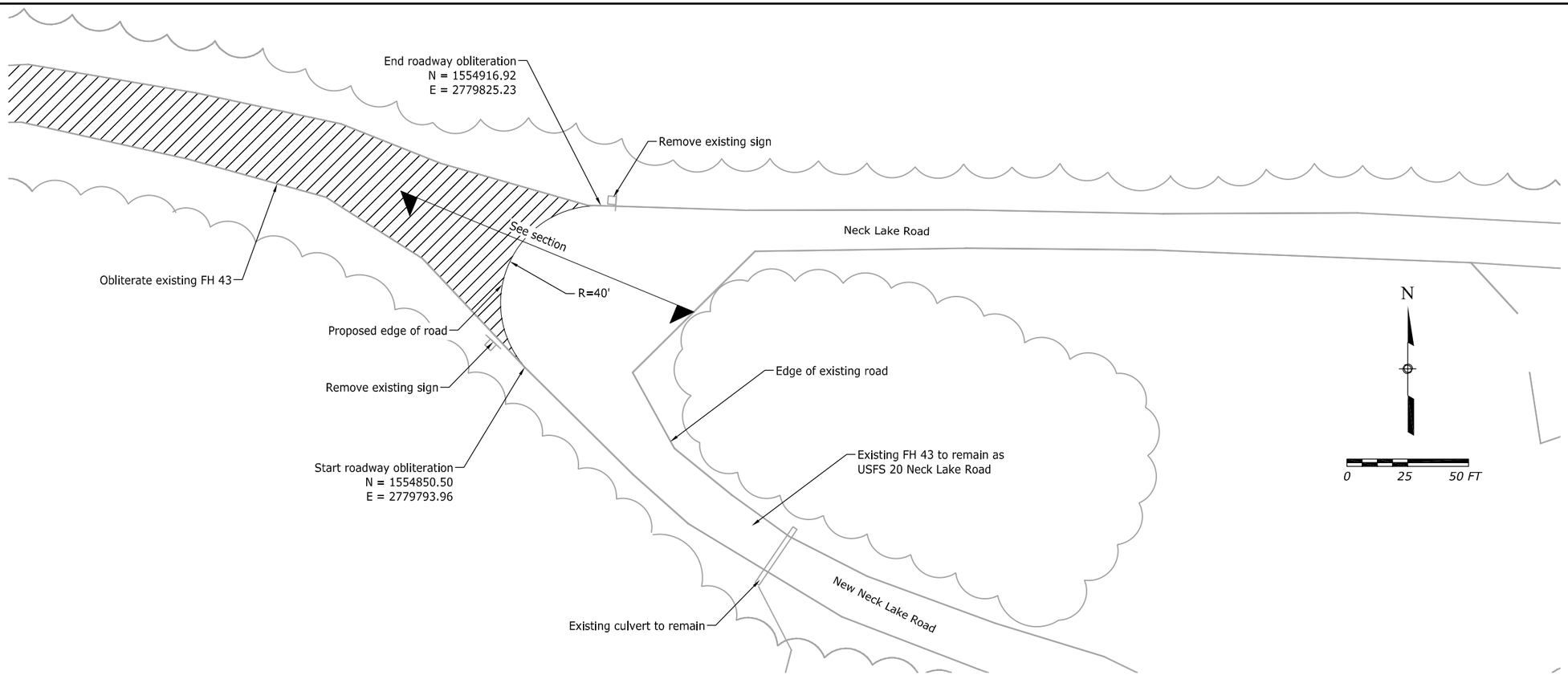
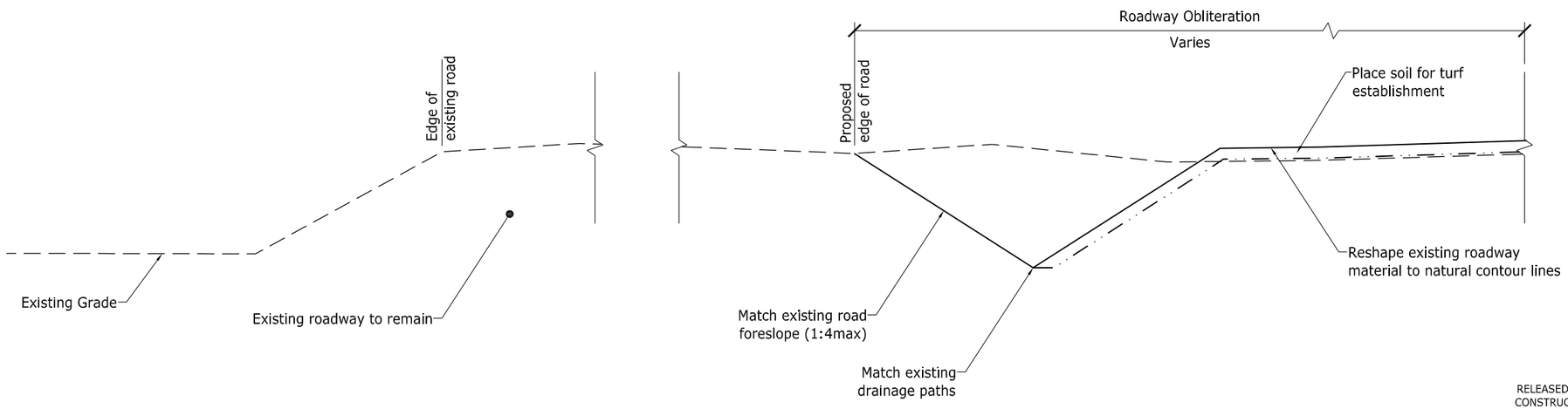
ROADWAY DETAILS

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\K2 Roadway Details.dwg [USC] 18 April 2013 4:08 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	K.3



PLAN



SECTION

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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
4.18.13
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U.S. CUSTOMARY DETAIL

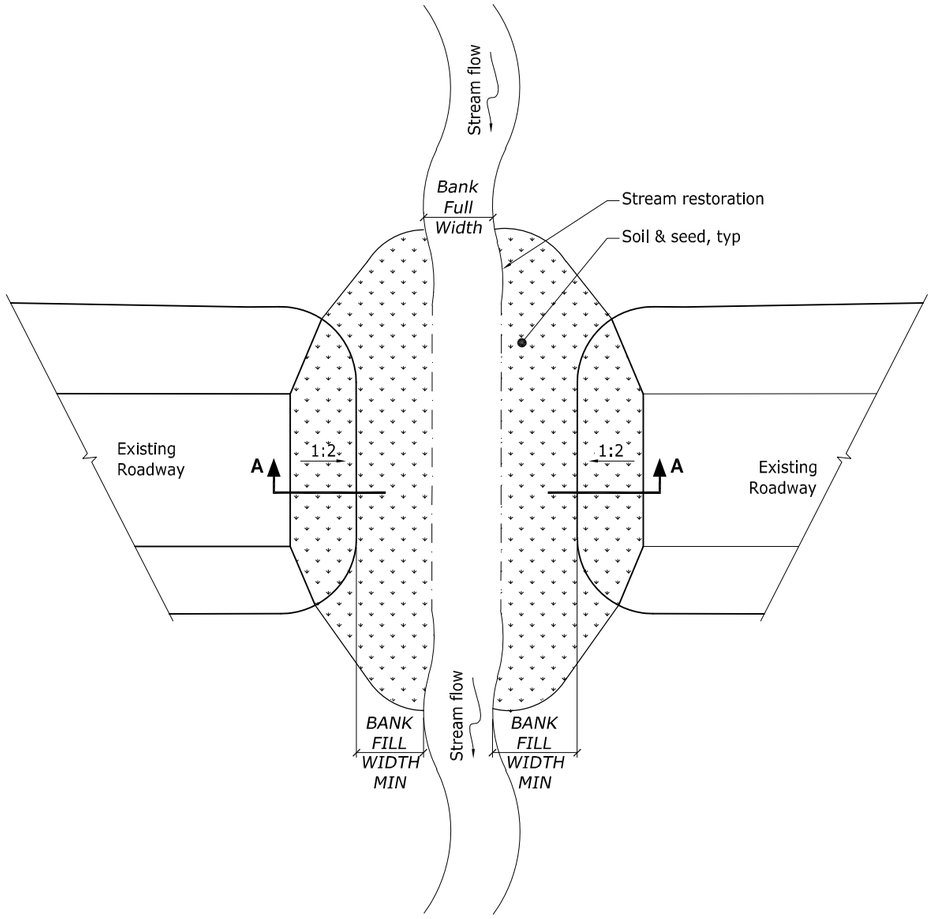
ROADWAY DETAILS AT NECK LAKE INTERSECTION

REVISED:

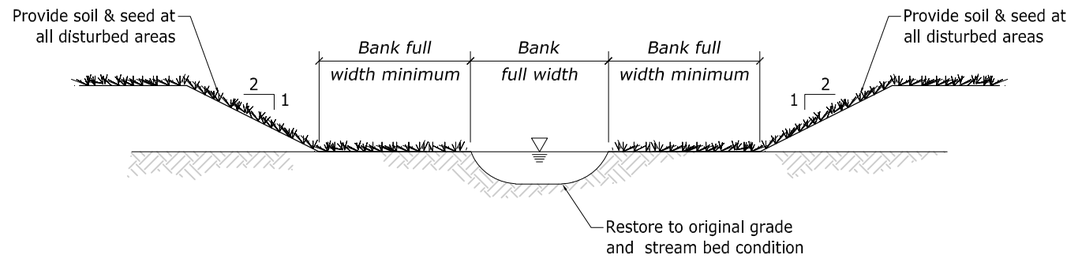
DETAIL

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\K3 Roadway Detail Obliteration at Neck Lake Road.dwg [USC] 18 April 2013 4:08 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	K.4



EXISTING CULVERT REMOVAL AND STREAM RESTORATION PLAN



EXISTING CULVERT REMOVAL AND STREAM RESTORATION SECTION A-A

RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
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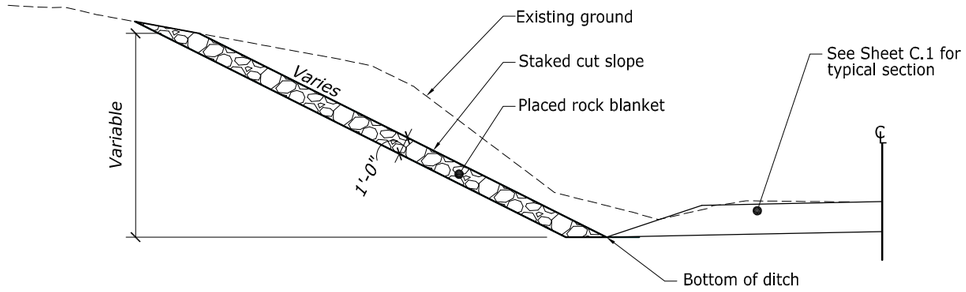
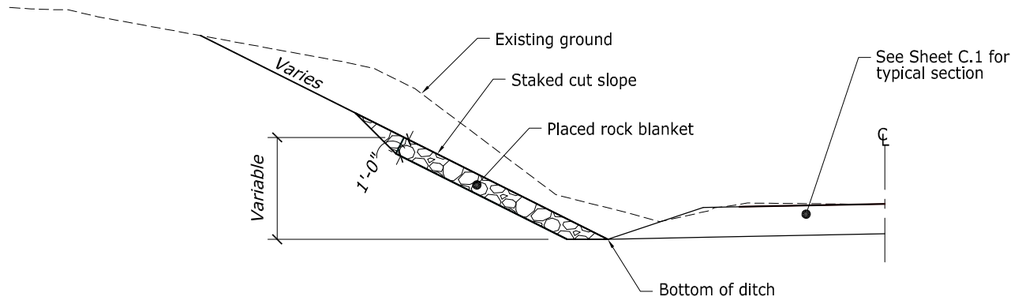
EXISTING CULVERT REMOVAL PLAN

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\K4 Exist CMP removal.dwg [USC] 18 April 2013 4:08 PM

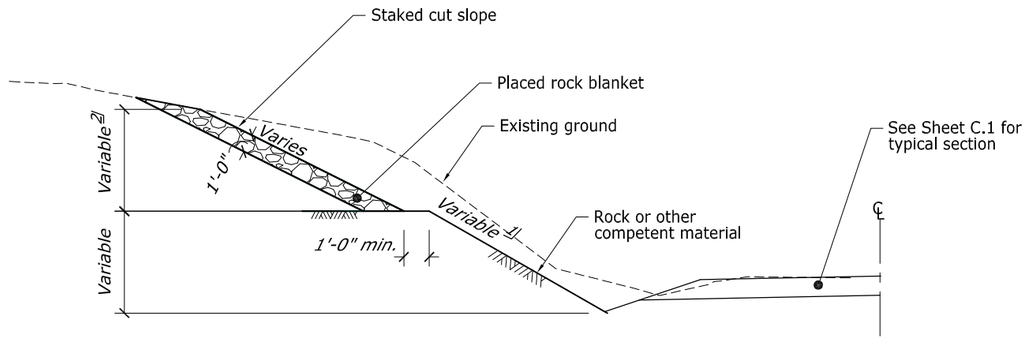
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	K.5



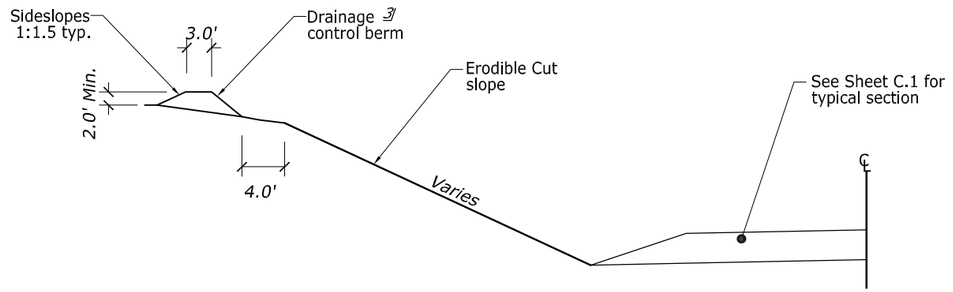
RIPRAP ROCK BLANKET TYPE 1



RIPRAP ROCK BLANKET TYPE 2



RIPRAP ROCK BLANKET TYPE 3



DRAINAGE CONTROL BERM 3]

NOTE

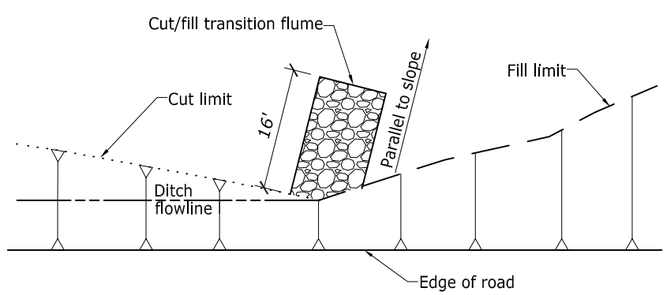
1. Location(s) of rock blanket to be determined in the field.

FOOTNOTE

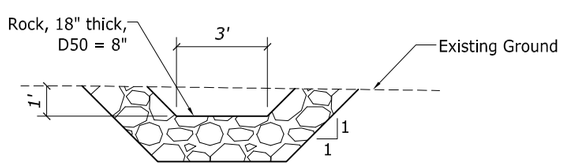
1] See rock cut detail on sheet C.5.

2] Adjust toe of rock blanket as required to match variable rock to other competent material line.

3] Construct drainage berms parallel to the top of slopes as shown to control and direct runoff to suitable discharge locations on the slope as needed. Provide 12" of soil and seed.



CUT/FILL TRANSITION FLUME PLAN



CUT/FILL TRANSITION FLUME SECTION

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CE-8176
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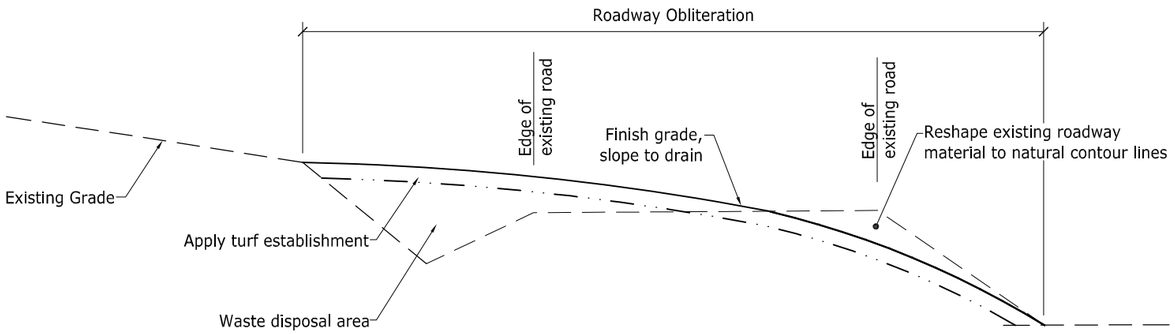
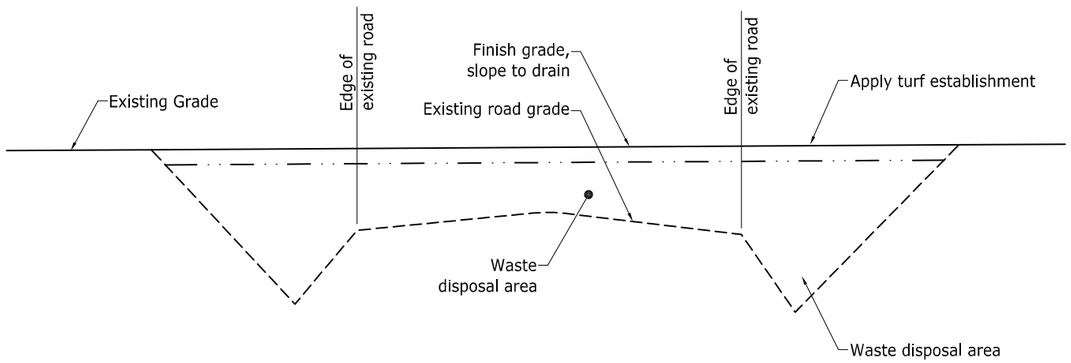
ROCK BLANKET DETAILS

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\K5 Rock Blanket.dwg [USC] 18 April 2013 4:07 PM

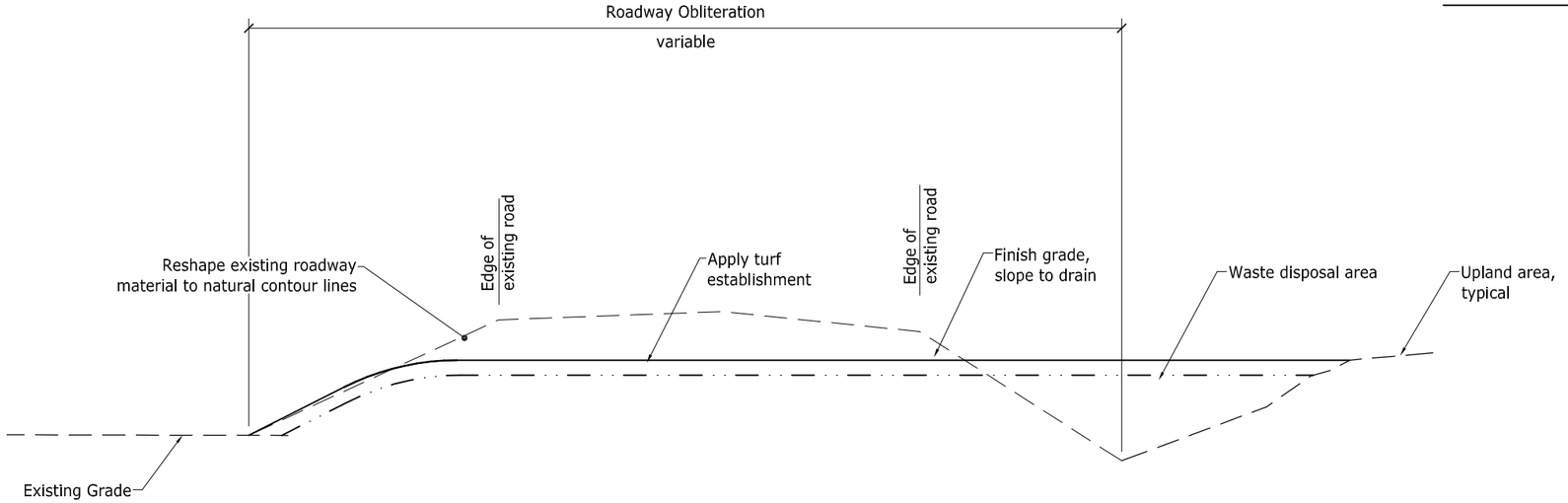
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	K.6



ROADWAY OBLITERATION (CUT/FILL AREAS)



ROADWAY OBLITERATION (CUT ONLY)



ROADWAY OBLITERATION (FILL ONLY)

NOTE:

1. *See plan sheets for roadway obliteration areas*
2. *Re-contour obliterated road sections to allow for natural surface drainage patterns*
3. *The existing roadway is to be used in combination with other upland areas for waste disposal*

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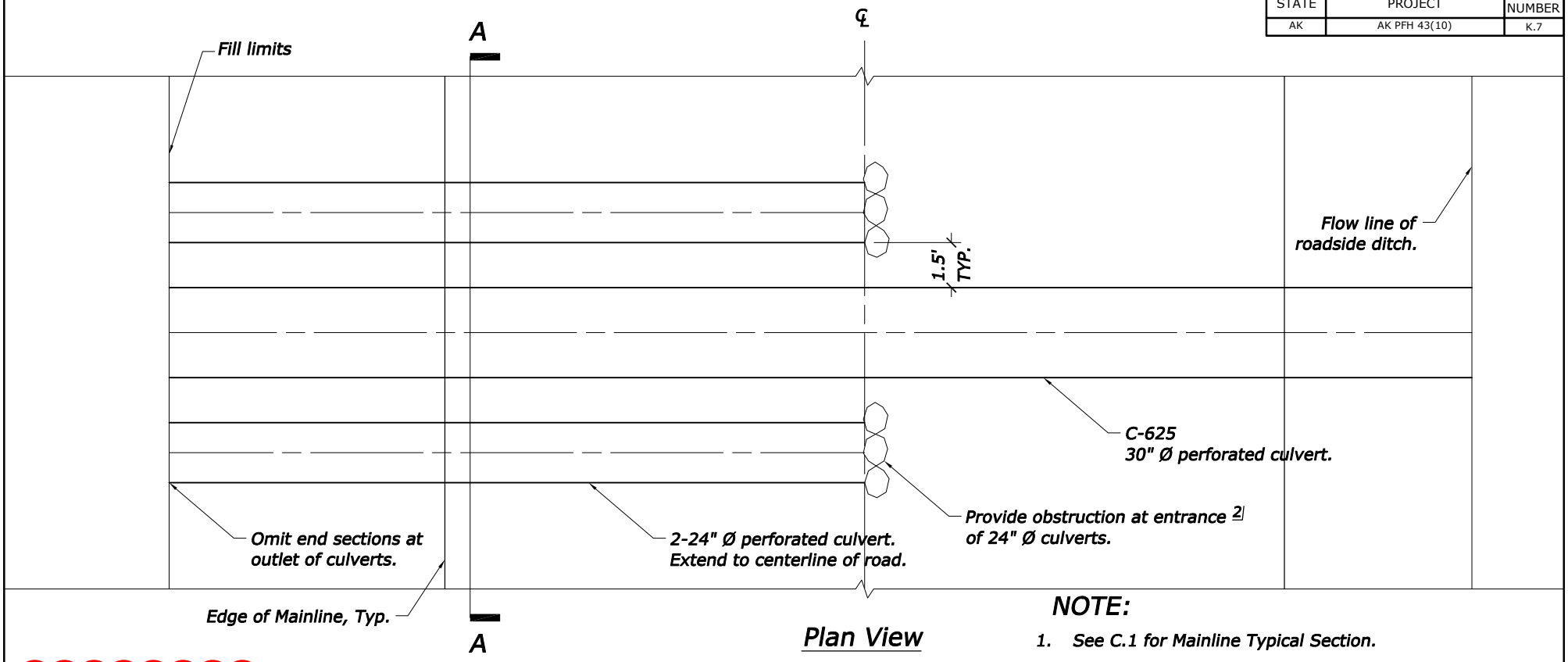
ROADWAY OBLITERATION DETAILS

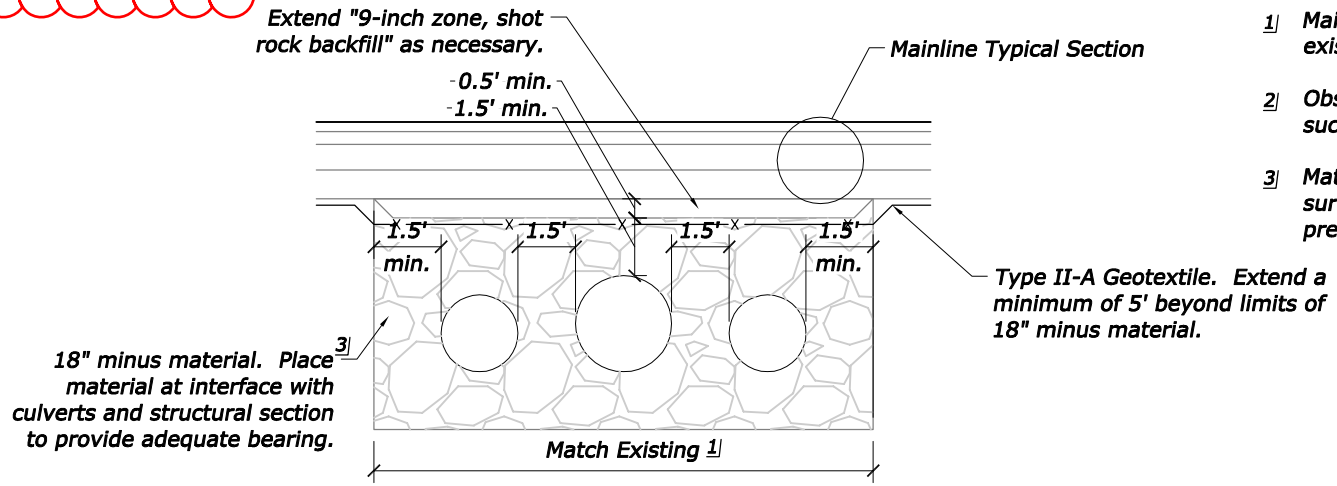
J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\K6 Roadway Obliteration Details.dwg [USC] 18 April 2013 4:07 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	K.7



Plan View

RFI 81
Karst Pipe Profile



Section A-A

NOTE:

1. See C.1 for Mainline Typical Section.
2. Perforations shall conform to Class II requirements per AASHTO M294 and M252.

FOOTNOTE:

1 Maintain minimum offset from culverts if larger than existing revetment.

2 Obstruction shall consist of 18" Ø boulders placed in such a way as to prevent infill of culvert.

3 Material shall be placed in such a way as to provide surface free of jagged, pointed, or sharp edges to prevent damage to culverts and/or geotextile.

U.S. DEPARTMENT OF TRANSPORTATION
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C-625 DETAIL SUBSURFACE FLOW AT KARST FORMATION

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\Figures\K.07 Karst Culverts.dwg [USC] 16 December 2013 4:14 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	L.1

General Notes for Temporary Traffic Control:

1. *No construction operations will be performed between 10:00 p.m. Saturday and 6:00 a.m. the following Monday.*
2. *No construction operations will be performed between 6:00 p.m. Friday and 6:00 a.m. the following Tuesday of the Memorial Day and Labor Day weekends.*
3. *No construction operations will be performed on July 3, 4, and 5.*
4. *No construction operations, including materials development, will be performed from November 1 through March 31, all dates inclusive.*
5. *All Temporary Traffic Control (TTC) devices, placement, fabrication, and maintenance of traffic shall be in accordance with the 2009 Edition of the Manual of Uniform Traffic Control Devices for Streets and Highways (MUTCD). Properly equipped flaggers shall be used to direct traffic for a lane closure of a two-lane highway when construction vehicles are entering and exiting the work area or at other locations as directed by the FHWA On-Site Representative. Flaggers' clothing and equipment shall conform to the latest edition of the MUTCD.*
6. *Warning lights shall be used during night time on all channelizing devices and shall conform to the latest edition of the MUTCD. Flashing warning lights shall be used when barricades or drums are used singly. Type C, steady-burn, warning lights shall be used when channelizing devices are used in a series (i.e., land closure, delineation of edge of traveled construction, etc.). In addition, when used to delineate a curve, Type C warning lights shall only be used to delineate the outside of the curve and not the inside.*
7. *TTC requirements shown on these plans are minimum requirements only and do not attempt to address in depth the variety of situations that may occur once construction has started. In no way do the requirements shown on these plans relieve the contractor of their responsibility for selecting the proper TTC devices and implementation procedures that will assure the safety of motorists, pedestrians, and workers at all times in conformance with the requirement in the latest addition of the MUTCD*
8. *TTC sign locations shown in these plans are general and can be field adjusted for "best fit" and visibility as approved by the FHWA On-Site Representative to more accurately reflect actual conditions.*
9. *Construction materials and equipment that are not in use shall be kept off the main travel way and consolidated in areas within the right-of-way unless approved by the FHWA On-Site Representative.*
10. *All necessary temporary signs and markings shall be in place prior to construction and before any detour or temporary route is opened to traffic.*
11. *All TTC devices shall be removed or completely covered as soon as practical when they are no longer needed, or when work is suspended for a short period of time.*
12. *The contractor shall submit to the owner, the location, beginning and ending stations and duration of one-lane or full road closure, as approved by the FHWA On-Site Representative, 48 hours in advance of the closure.*

Construction Requirements:

1. *Install and maintain TTC devices adjacent to and within the project as required by the TTC plan, section 156, and the MUTCD. Install and maintain TTC devices as follows:*
   - *(a) Furnish and install TTC devices before the start of construction operations.*
   - *(b) Install only those TTC devices needed for each stage or phase.*
   - *(c) Relocate temporary TTC devices as necessary.*
   - *(d) Remove devices that no longer apply to the existing conditions.*
   - *(e) Immediately replace any device that is lost, stolen, destroyed, or inoperative.*
   - *(f) Keep TTC devices clean.*
   - *(h) Remove all TTC devices upon contract completion or when approved.*

Public Notice Requirements:

1. *Publish notices of the road work in the island news and other local newspapers and on local radio stations. Include a description of the work, expected delays, and periods when the road is open to traffic without delays. Issue the notice at least 5 days before beginning construction work on the project or beginning construction work after a winter suspension, and at least two times during the normal tourist season.*

Accommodating Public Traffic During Work Hours:

1. *At all times, allow emergency traffic through the project.*
2. *At fish passage structures or bridge structures, if it is not reasonable to allow traffic through the work area, the road may be closed to public traffic (except emergency vehicles) as follows:*
   - *From 10:30 p.m. to 4:30 a.m., and*
   - *From 9:30 am to 4:30 pm.*
3. *Open the road at all times when a closed road is not needed for construction activities.*
4. *Remove equipment, stockpiled materials, and other hazards from the Clear Zone within the project limits during all non-work periods unless otherwise approved by the FHWA Onsite Representative.*
5. *Provide two-way radio communications between traffic and safety supervisor, flaggers and pilot cars. Provide two-way radio communications between flaggers unless flaggers are able to see each other and communicate. Citizen band radios are not acceptable. Make radio equipment available to the FHWA On-Site Representative as necessary.*
6. *Limit construction-caused delays to public traffic to a maximum of 45 minutes per passage through the project.*
7. *Complete paving of adjacent traffic lanes to the same elevation by the end of each day.*
8. *For purposes of facilitating traffic, perform grading or surfacing part-width at a time. Make the width not under construction available to public traffic under alternate one-way control. Furnish pilot car and driver, or flaggers, or both, to direct traffic through sections of road that are under one-way control, in accordance with the approved traffic control plan.*

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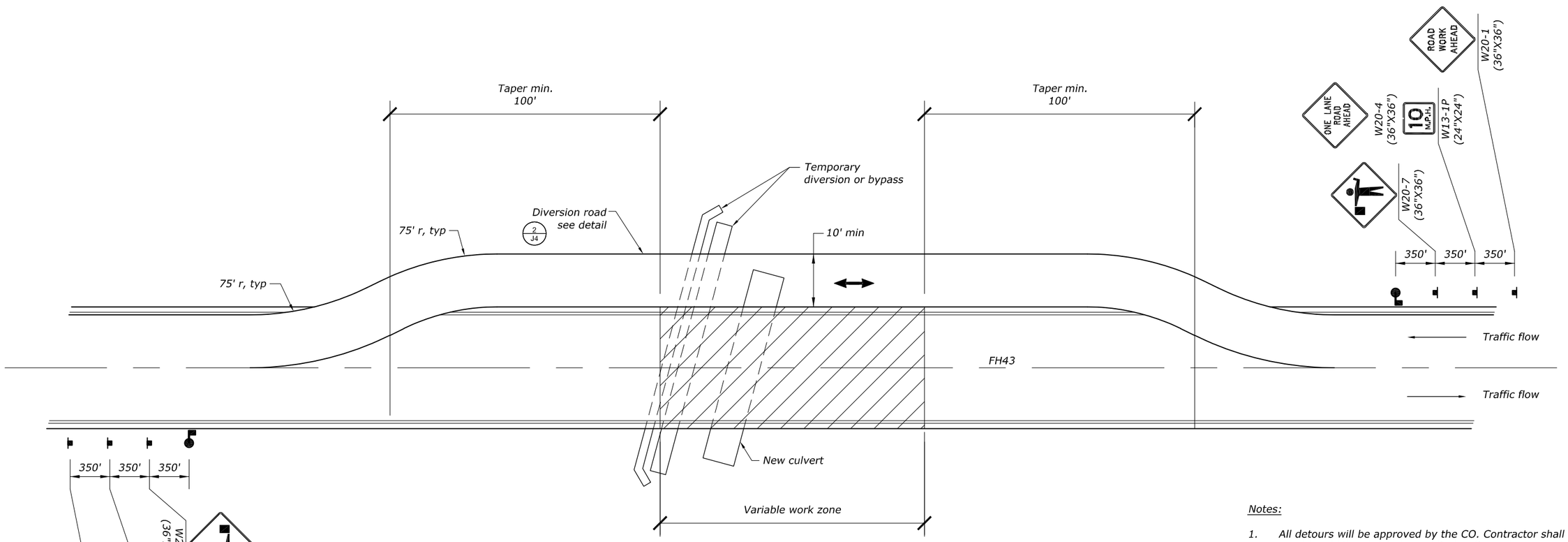
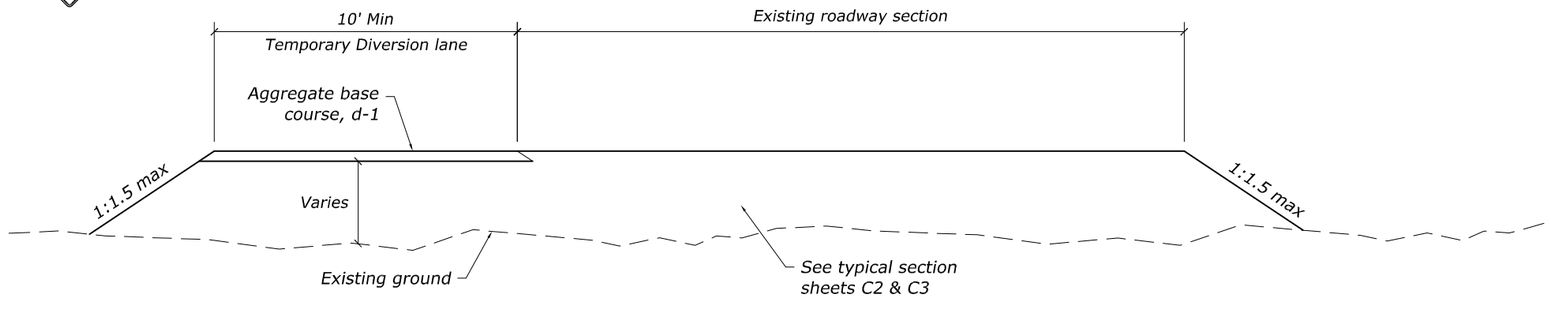
GENERAL NOTES FOR TEMPORARY TRAFFIC CONTROL

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\L1-General Notes.dwg [USC] 18 April 2013 4:13 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	L.2



ROAD CLOSURE WITH A DIVERSION (ONE LANE TWO WAY TRAFFIC with flaggers or pilot car)



DIVERSION ROAD CROSS-SECTION

Notes:

1. *All detours will be approved by the CO. Contractor shall provide additional detail on a site by site basis.*
2. *At minimum, a design vehicle WB-50 and speed limit of 10 mph shall be used when determining the design elements for temporary widening.*
3. *If at any point flaggers or a pilot car is not in use, two lanes of traffic must be available.*
4. *When re-routing traffic through the widening section of road, traffic shall be controlled by two flaggers located at both ends or by the use of a pilot car. If a pilot car is used, a radio controlled gate with arm lift may be used at stop points in accordance with the traffic control plan.*
5. *Type B warning lights shall be placed on the "road work ahead" (W20-1) and "one lane road ahead" (W20-4) signs during night time construction.*

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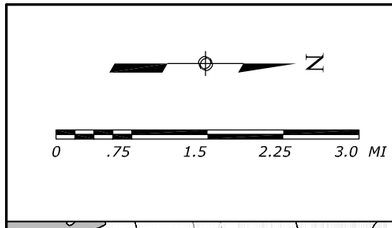
TYPICAL DETAILS

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\L2 Temporary Traffic Diversion.dwg [USC] 18 April 2013 4:13 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	L.3



BEGIN PROJECT
FH43(10) DEWEYVILLE
TRAILHEAD TO NECK LAKE
PROJECT STATION 763+00
(SEE NOTE BELOW)

END PROJECT
FH43(10) DEWEYVILLE
TRAILHEAD TO NECK LAKE
PROJECT STATION 1362+00.00

CAPITAN PASSAGE

10.75 MILES

SARKAR LAKE

NECK LAKE

FH43 SEGMENT III CONSTRUCTION BY OTHERS, SEE SCHEDULE BELOW

FH43 SEGMENT II CONSTRUCTION BY OTHERS, SEE SCHEDULE BELOW

FH43 SEGMENT I CONSTRUCTION BY OTHERS, SEE SCHEDULE BELOW

SEE SHEET L4 FOR GENERAL MARKING AND TRAFFIC CONTROL REQUIREMENTS ON PROJECT ALIGNMENT

EXISTING DETOUR SIGNAGE MAINTAINED BY OTHERS THROUGH COMPLETION OF CONSTRUCTION OF SEGEMENTS I, II, & III. CONTRACTOR WILL COORDINATE WITH CONSTRUCTION CONTRACTOR FOR SEGMENTS I, II & III TO ENSURE PROPER DETOUR SIGNAGE IS MAINTAINED THROUGHOUT THE ENTIRE CONSTRUCTION SCHEDULE

USFS RD 2054

USFS RD 2054

USFS RD 2054-A

FH43

FH43

COFFMAN COVE RD

BEGIN PROJECT DETOUR

SEE SHEET L4 FOR GENERAL MARKING AND TRAFFIC CONTROL AT DETOUR INTERSECTION RELATED TO THIS PROJECT.

AREA PROJECT SCHEDULE		
PROJECT	PHASE	
	EARTHWORK	PAVING
FH43(10) DEWEYVILLE TRAILHEAD TO NECK LAKE (THIS PROJECT)	2013	2014
FH43 SEGMENT I - CONSTRUCTION BY OTHERS	2012-2013	2014-2015
FH43 SEGMENT II - CONSTRUCTION BY OTHERS	2013	2014-2015
FH43 SEGMENT III - CONSTRUCTION BY OTHERS	2013	2014-2015

NOTE: START OF THIS PROJECT STATIONING MATCHES STATION 763+00.00 OF THE FOREST HIGHWAY 43 ROAD IMPROVEMENTS, SEGMENT III PROJECT BEING ADMINISTERED BY THE U.S. FOREST SERVICE.

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TEMPORARY TRAFFIC CONTROL AREA LAYOUT

J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civ\NL3 Temporary Traffic Control.dwg [USC] 18 April 2013 4:13 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	L.4

N

0 .5 1 1.5 2.0 MI

SHEET NOTES:

1. ✱COVER OR TURN SIGNS AWAY FROM ROADWAY WHEN NOT REQUIRED.
2. THE CONTRACTOR SHALL REQUIRE AN APPROVAL FROM THE OWNER PRIOR TO IMPLEMENTING A FULL ROAD CLOSURE.
3. PRIOR TO THE ROAD CLOSURES, SIGNS MUST BE POSTED PRESENTING THE TIME, LOCATION, AND PERIOD OF CLOSURE AT APPROPRIATE LOCATIONS.

EL CAPITAN PASSAGE

NECK LAKE

FOREST HWY 43 UNDER CONSTRUCTION EXPECT DETOUR AND DELAYS
CUSTOM (72" x 48")

ROAD WORK NEXT 11 MILES
G20-1

ROAD CLOSED AHEAD DEWEYVILLE TRAILHEAD TO NECK LAKE FROM 10:30 PM - 4:30 AM AND FROM 9:30 AM - 4:30 PM
CUSTOM (72" x 48")

R11-2
ROAD CLOSED
TYPE III BARRICADE WITH WARNING LIGHT
✱

END ROAD WORK
G20-2

TYPE III BARRICADE WITH WARNING LIGHT
ROAD CLOSED
R11-2
✱

ROAD CLOSED AHEAD DEWEYVILLE TRAILHEAD TO NECK LAKE FROM 10:30 PM - 4:30 AM AND FROM 9:30 AM - 4:30 PM
CUSTOM (72" x 48")

R11-2
FOREST HWY 43 UNDER CONSTRUCTION EXPECT DETOUR AND DELAYS
CUSTOM (72" x 48")

ROAD WORK NEXT 11 MILES
G20-1

END ROAD WORK
G20-2

RD 2054
USFS
FH43

ROAD CLOSED AHEAD DEWEYVILLE TRAILHEAD TO NECK LAKE FROM 10:30 PM - 4:30 AM AND FROM 9:30 AM - 4:30 PM
CUSTOM (72"x48")
✱

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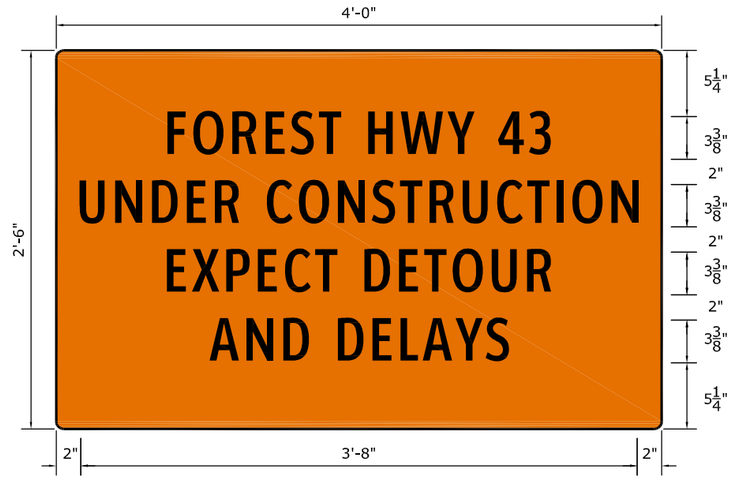
MARKING AND TRAFFIC CONTROL

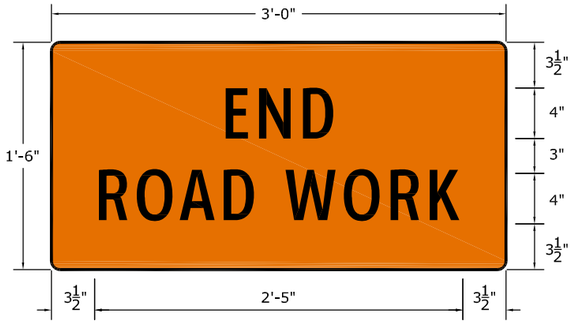
J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\L4 Temporary Traffic Control Signage.dwg [USC] 18 April 2013 4:12 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	L.5

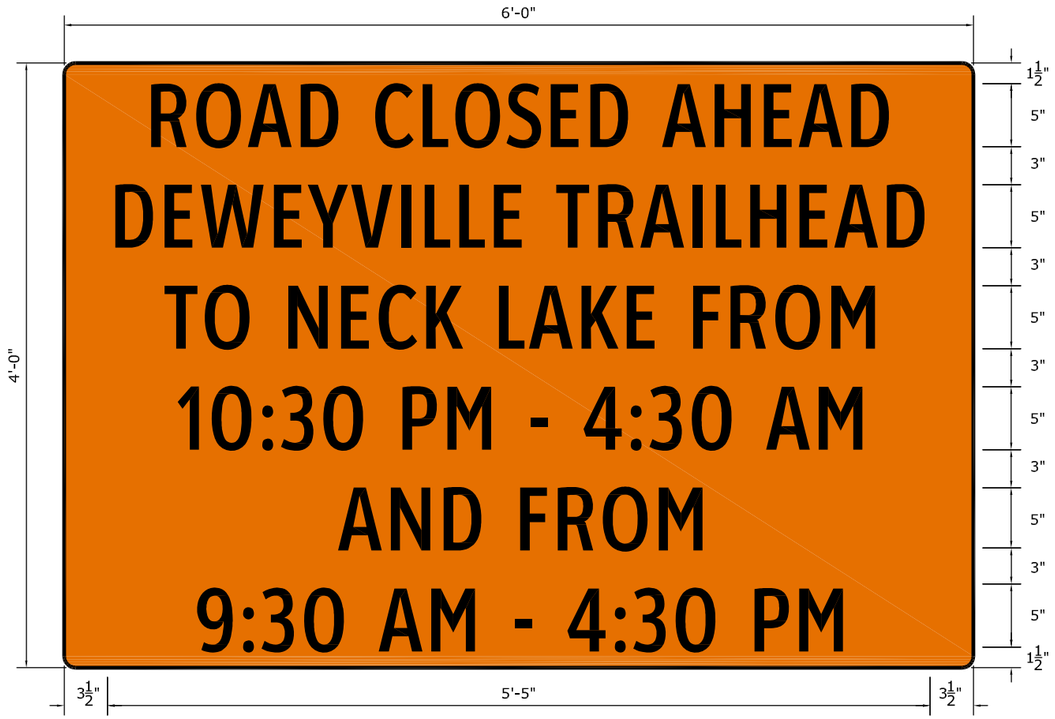


R11-2

G20-1



G20-2



CUSTOM
(72" x 48")

RELEASED FOR CONSTRUCTION

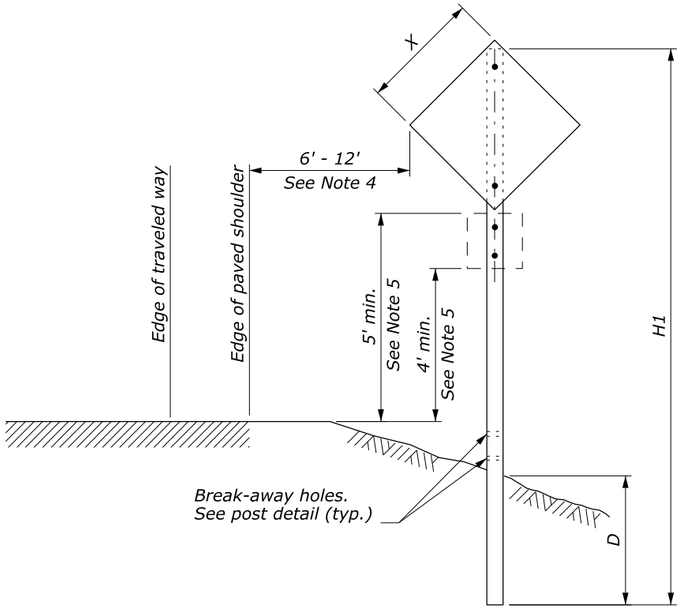
STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
4.18.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

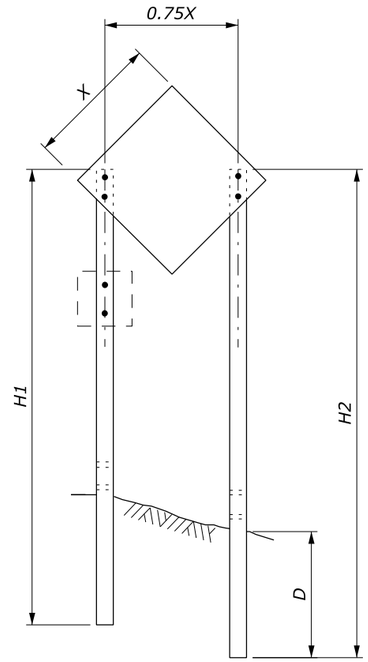
MARKING AND TRAFFIC CONTROL

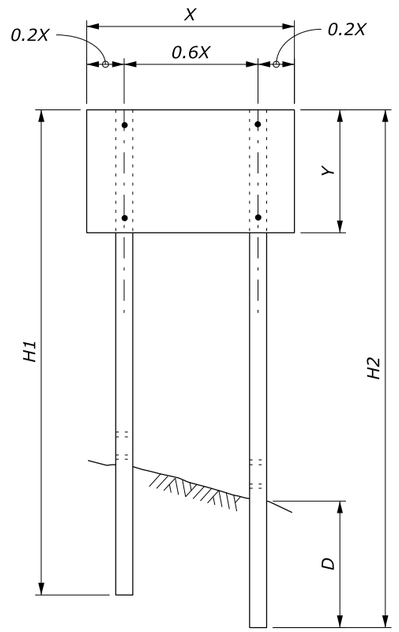
J:\2012\121088 FH43 Deweyville Trailhead to Neck Lake\E. Drawings\Civil\L5 Temporary Traffic Control Signage.dwg [USC] 18 April 2013 4:12 PM

STATE	PROJECT	SHEET NUMBER
AK	AK PFH(10)	L.6



SINGLE POST SIGN





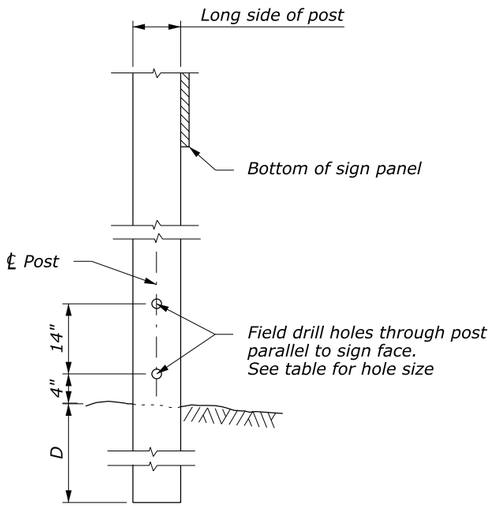
TWO POST SIGN

NOTE:

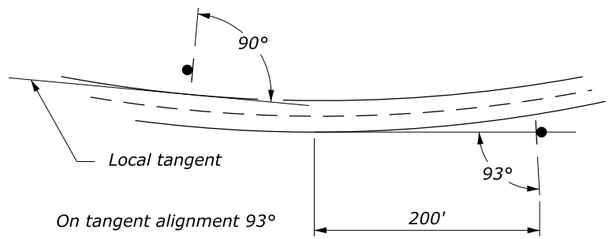
1. *Attach sign panels with a minimum of 2 - ¼" dia. bolts per post.*
2. *H1 and H2 = Overall post length. Select post lengths to fit field conditions.*
3. *D = Post embedment depth for average soil conditions.*
4. *In rural areas where lateral distance is limited, a minimum lateral offset of 2' may be used. In urban areas, a minimum lateral offset of 1' behind the face of the curb may be used.*
5. *In pedestrian locations, or in areas where the view is obstructed, use 7' minimum mounting height for main sign and 6' minimum mounting height for secondary sign.*
6. *Use 7' minimum spacing between posts for sign posts 6" x 6" or larger.*
7. *State standards may be used as an alternative if approved by the CO.*

WOOD POST SELECTION TABLE

WIDTH "X"	AREA (SQFT)	NUMBER OF POSTS	POST SIZE (INCH)	D (INCH)	HOLE SIZE (INCH)
Diamond ≤ 36" Other Shapes ≤ 48"	< 10	1	4 x 4	36	0
		1	4 x 6	48	1.5
Diamond ≤ 48"	10 - 20	1	6 x 6	48	2
Diamond ≤ 48" Other Shapes ≤ 12'	10 - 20	2	4 x 4	36	0
	20 - 50	2	4 x 6	48	1.5
> 13'	50 - 65	2	6 x 6	48	2
12' - 16'	50 - 65	3	4 x 6	48	1.5
> 17'	65 - 95	4	4 x 6	48	2
> 30'	65 - 95	3	6 x 6	48	2



POST DETAIL



SIGN INSTALLATION ANGLE

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

TEMPORARY TRAFFIC CONTROL SIGN INSTALLATION WOOD POSTS

STANDARD APPROVED FOR USE 6/2005
REVISED:
DRAFT: 9/2011

STANDARD 635-14

19 September 2011 1:34 PM c:\myfiles\pw_production\dms67497\st63514.dgn [USC]

STATE	PROJECT	SHEET NUMBER
AK	AK PFH(10)	L.7

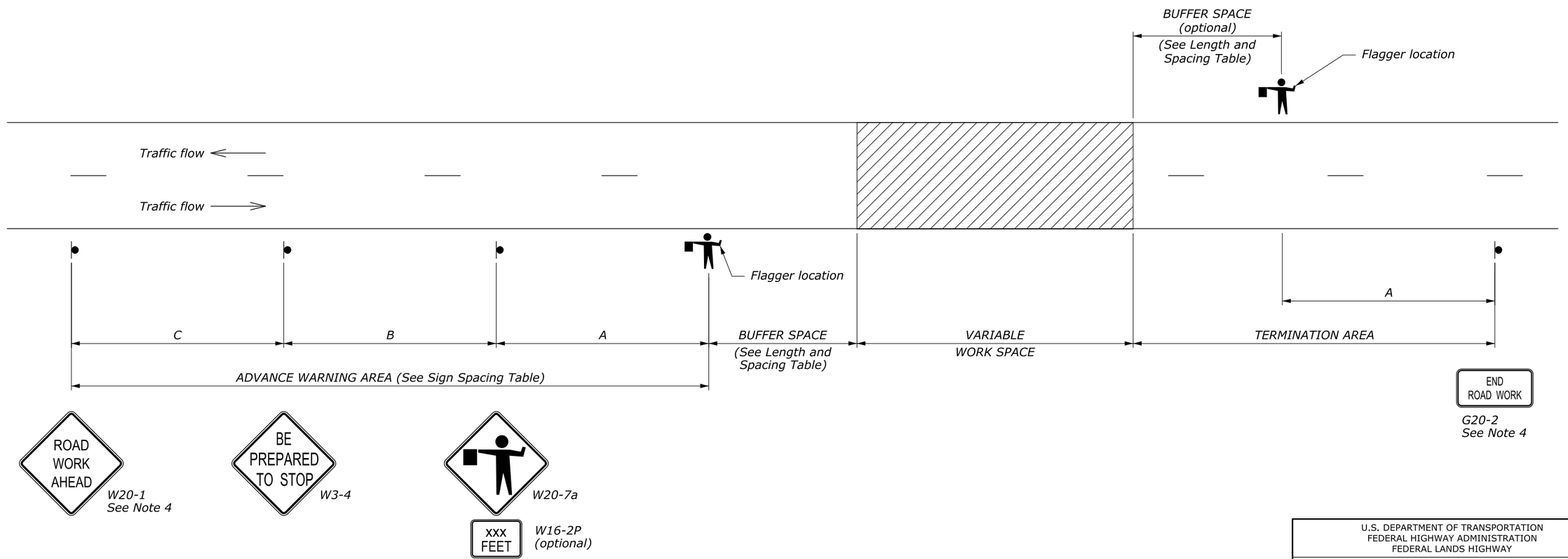
LENGTH AND SPACING TABLE	
APPROACH SPEED*	BUFFER SPACE LENGTH
MPH	FEET
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

* Approach speed based on the regulatory posted speed, not the advisory speed.

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640

NOTE:

1. Signs are shown for one direction of travel only. Place devices similar to those depicted for the opposite direction of travel.
2. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
3. For pilot car operation, mount the "PILOT CAR FOLLOW ME" (G20-4) sign at a conspicuous location on the rear of vehicle. Prominently display the name of the Contractor on the pilot car.
4. If closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
5. For night time flagging operation, provide floodlighting at flagger stations.
6. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

TEMPORARY TRAFFIC CONTROL ROAD CLOSURE LAYOUT (WITH FLAGGERS)

STANDARD APPROVED FOR USE 6/2005

REVISED:
DRAFT: 9/2010

STANDARD 635-5

22 September 2010 6:18 AM H:\StanDraw\st63505.dgn [USC]

STATE	PROJECT	SHEET NUMBER
AK	AK PFH(10)	L.8

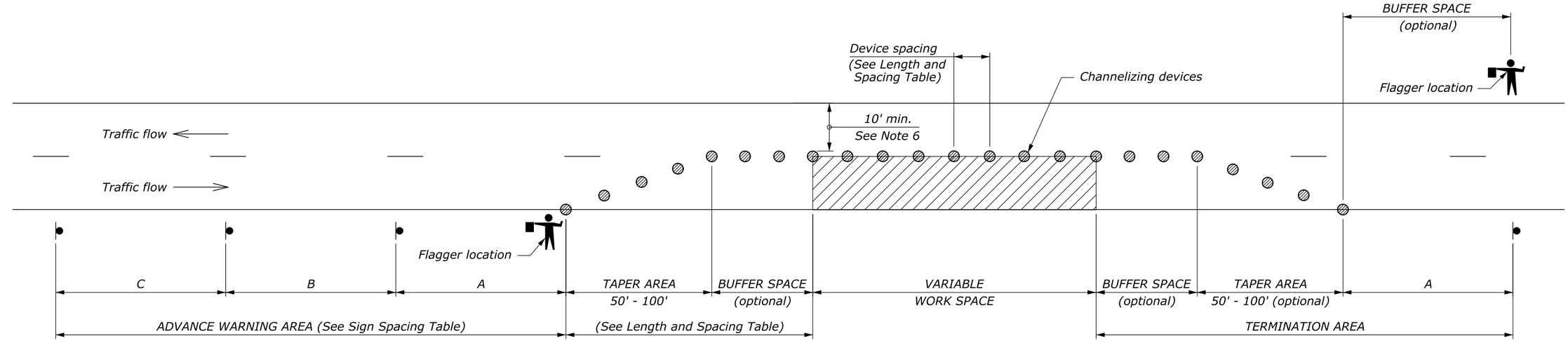
LENGTH AND SPACING TABLE				
APPROACH SPEED*	BUFFER SPACE LENGTH	CHANNELIZING DEVICE		
		TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	SPACING IN FEET		
20	115	20	40	40
25	155	20	50	50
30	200	20	60	60
35	250	20	70	70
40	305	20	80	80
45	360	20	90	90
50	425	20	100	100
55	495	20	110	110
60	570	20	120	120
65	645	20	130	130
70	730	20	140	140

* Approach speed based on the regulatory posted speed, not the advisory speed.

SIGN SPACING TABLE			
ROAD TYPE	DISTANCE BETWEEN SIGNS IN FEET		
	A	B	C
Urban and Rural 30 MPH and less	100	100	100
Urban and Rural 35 MPH to 50 MPH	350	350	350
Rural greater than 50 MPH	500	500	500
Expressway / Freeway	1000	1500	2640

NOTE:

1. Signs are shown for one direction of travel only. Place devices similar to those depicted for the opposite direction of travel.
2. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
3. For pilot car operation, mount the PILOT CAR FOLLOW ME (G20-4) sign at a conspicuous location on the rear of vehicle. Prominently display the name of the contractor on the pilot car.
4. If closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
5. For night time flagging operation, provide floodlighting at flagger stations.
6. For project specific minimum width, refer to the Special Contract Requirements, Section 156.
7. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



W20-1
See Note 4

W20-4

W13-1P
(optional)

W20-7a

W16-2P
(optional)

G20-2
See Note 4

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
FEDERAL LANDS HIGHWAY

U.S. CUSTOMARY STANDARD

TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH FLAGGERS)

STANDARD APPROVED FOR USE 6/2005

REVISED:
DRAFT: 9/2010

STANDARD
635-6

22 September 2010 6:20 AM H:\StanDraw\st63506.dgn [USC]

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	M.01

SIGNING AND STRIPING QUANTITIES [3]

Sheet	M.02	M.03	M.04	M.05	M.06	M.07	M.08	M.09	M.10	M.11	M.12	M.13	M.14	M.15	M.16	M.17	M.18	M.19	M.20	M.21	M.22	M.23	M.24	Total
Striping (4" Yellow solid line)	3,989	3,900	4,450	2,875	2,450	4,200	2,270	1,500	3,700	2,600	1,200	4,480	5,800	4,800	5,600	5,200	5,200	3,150	5,350	4,500	1,100	2,200	2,700	83,214
Striping (4" Yellow broken line)	925	1,150	675	1,475	1,000	400	1,665	2,100	750	900	1,800	560	0	700	0	600	600	1,250	350	700	975	0	0	18,575
Stiping (4" White solid line)	4,914	5,484	5,800	4,872	4,330	4,278	5,350	5,530	4,274	4,400	4,800	5,280	5,800	5,950	5,600	5,550	5,735	5,275	6,000	5,550	2,750	2,100	2,700	112,322
Striping (4" White dotted line)	0	316	0	328	70	322	250	70	326	0	0	320	0	250	0	250	65	325	0	250	250	100	0	3,492
Resessed Pavment Markers	43	48	51	43	34	42	41	42	40	39	34	53	52	52	47	50	55	49	53	43	27	24	15	977
Striping (Stop Bar)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Sign (Total) [1]	3	1	3	3	3	1	6	2	3	0	4	0	3	2	3	2	3	1	2	2	3	22	3	75

PASSING ZONE SCHEDULE

Passing Zone #	Direction	Start [2] Station	End [2] Station
1	North & Southbound	795+00	804+25
2	Northbound	822+00	825+00
	North & Southbound	825+00	832+50
	Southbound	832+50	833+50
3	North & Southbound	836+50	843+25
4	Northbound	867+00	873+25
5	North & Southbound	883+50	895+00

PASSING ZONE SCHEDULE

Passing Zone #	Direction	Start [2] Station	End [2] Station
6	North & Southbound	905+50	912+00
	Southbound	912+00	912+50
7	Northbound	933+00	935+50
	North & Southbound	935+50	943+40
8	North & Southbound	948+00	956+25
	Southbound	956+25	957+50
9	North & Southbound	963+00	979+00

PASSING ZONE SCHEDULE

Passing Zone #	Direction	Start [2] Station	End [2] Station
10	Northbound	986+00	987+00
	North & Southbound	987+00	994+50
11	Northbound	1010+00	1016+00
12	North & Southbound	1022+00	1031+00
13	North & Southbound	1044+00	1067+60
14	North & Southbound	1141+00	1148+00
15	Northbound	1199+00	1205+00

PASSING ZONE SCHEDULE

Passing Zone #	Direction	Start [2] Station	End [2] Station
16	Northbound	10017+75	10023+75
17	Northbound	10046+50	10047+00
	North & Southbound	10047+00	10062+00
	Southbound	10062+00	10062+50
18	North & Southbound	1299+00	1305+00
	Southbound	1305+00	1306+00

PASSING ZONE SCHEDULE

Passing Zone #	Direction	Start [2] Station	End [2] Station
19	North & Southbound	1328+75	1338+00
	Southbound	1338+00	1338+50

NOTES:

1. All sign posts shall be perforated steel tube breakaway type.
2. Fabricate sign post in such a way that it provides a minimum mounting height of ~~7~~ 5 feet measured vertically from the bottom edge of the primary sign and a minimum of 4 feet from the bottom of the lowest supplemental plaque to the elevation of the near edge of the traveled way. Also, allow a 1-inch gap between stacked signs so they can contract and expand.
3. Total length of the fiberglass reinforced plastic stake for the forest vertical route marker shall provide a minimum clearance of 3 feet measured vertically from the lowest number to elevation of the near edge of traveled way.
4. All sign bracing shall conform to AKDOT&PF standard detail S-01.00.
5. Fabricate guide signs according to the sign drawings shown on sheets M.32
6. Unless otherwise noted, all sign panels shall be 0.125" thick aluminum panel as specified in section 633.02 FP-03.
7. All existing signs shall be removed.
8. All signs shall be installed per the AKDOT&PF Traffic Manual standard drawings S-00.11, S-01.00, S-05.01, S-20.10, S-30.03, and -S32.00.
9. Recessed pavement markers shall be installed per AKDOT&PF standard detail T-06.00.
10. All signs shall use standard alphabet Series C 2000 for all letters and numbers unless otherwise designated on the plans or Alaska Traffic Manual Design Supplement. Clearview font type shall not be used per State of Alaska Discontinuing Clearview typeface of Alaska Highway signs Memo dated May 6, 2013 effective June 1, 2013 (http://www.dot.state.ak.us/stwddes/dcstraffic/assets/pdf/asds/clearview_memo.pdf).

RFI 108
MUTCD Sign Height

FOOTNOTE:

[1] *See sign schedule on sheets M.25 to M.31 for sign type and location.*

[2] *Passing zone start and end stations shall be approved in the field by FHWA on-site representative prior to application of paint.*

[3] *Striping quantities provided do not account for double application. See FP-03 Section 634.*

Rev.3 9.10.2013
RELEASED FOR CONSTRUCTION

STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
9.10.13
REGISTERED PROFESSIONAL ENGINEER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

SIGNAGE AND STRIPING NOTES AND QUANTITIES

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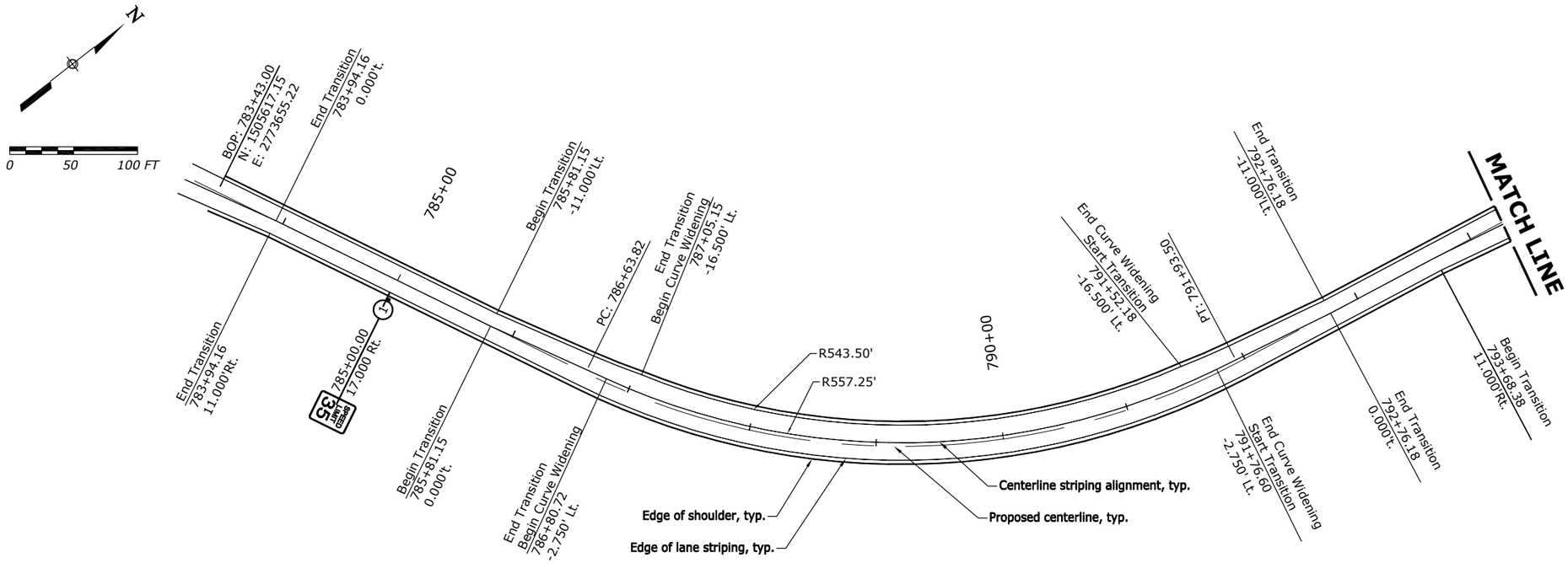
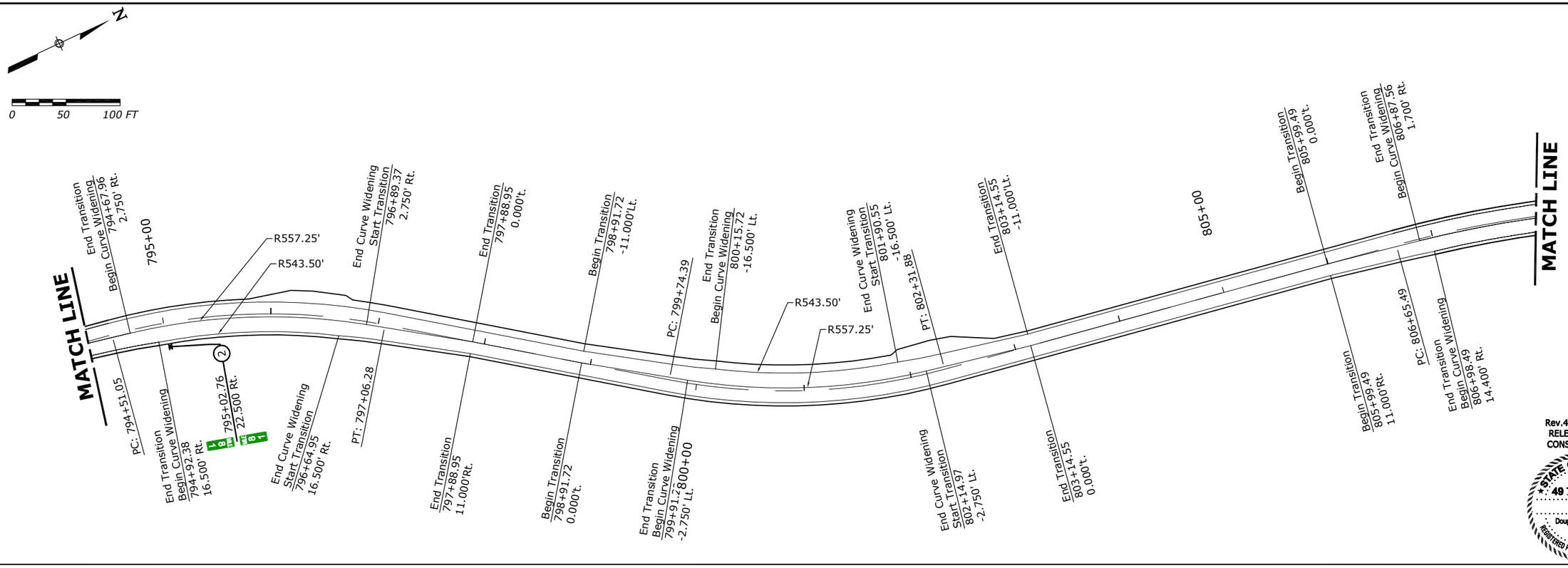
RFI 62 - Interim Release

STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	M.02





Rev.4 X.XX.201X
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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
X.XX.1X
REGISTERED PROFESSIONAL ENGINEER

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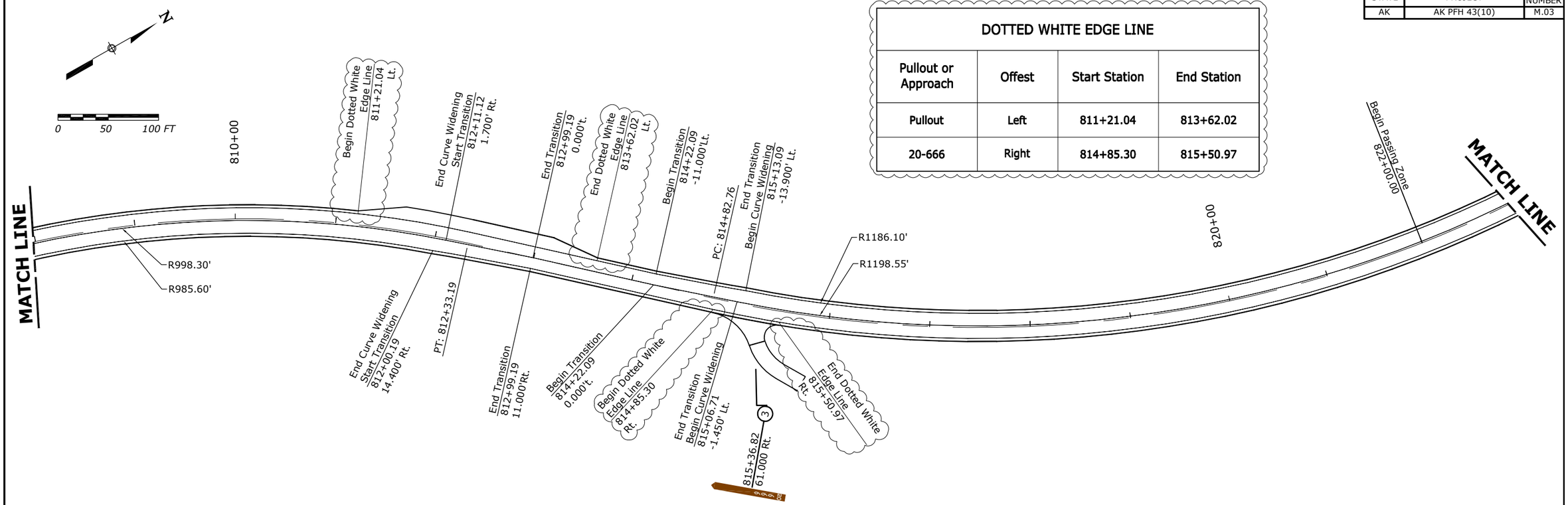
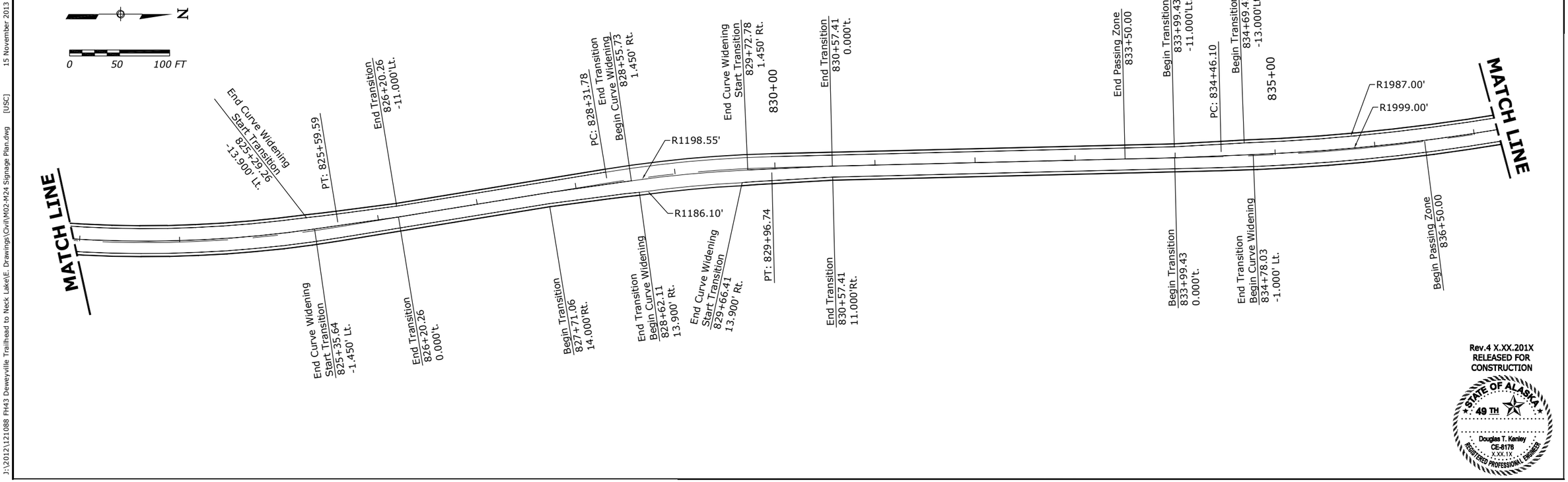
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.03

DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
Pullout	Left	811+21.04	813+62.02
20-666	Right	814+85.30	815+50.97





Rev.4 X.XX.201X
RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8178
X.XX.1X
REGISTERED PROFESSIONAL ENGINEER

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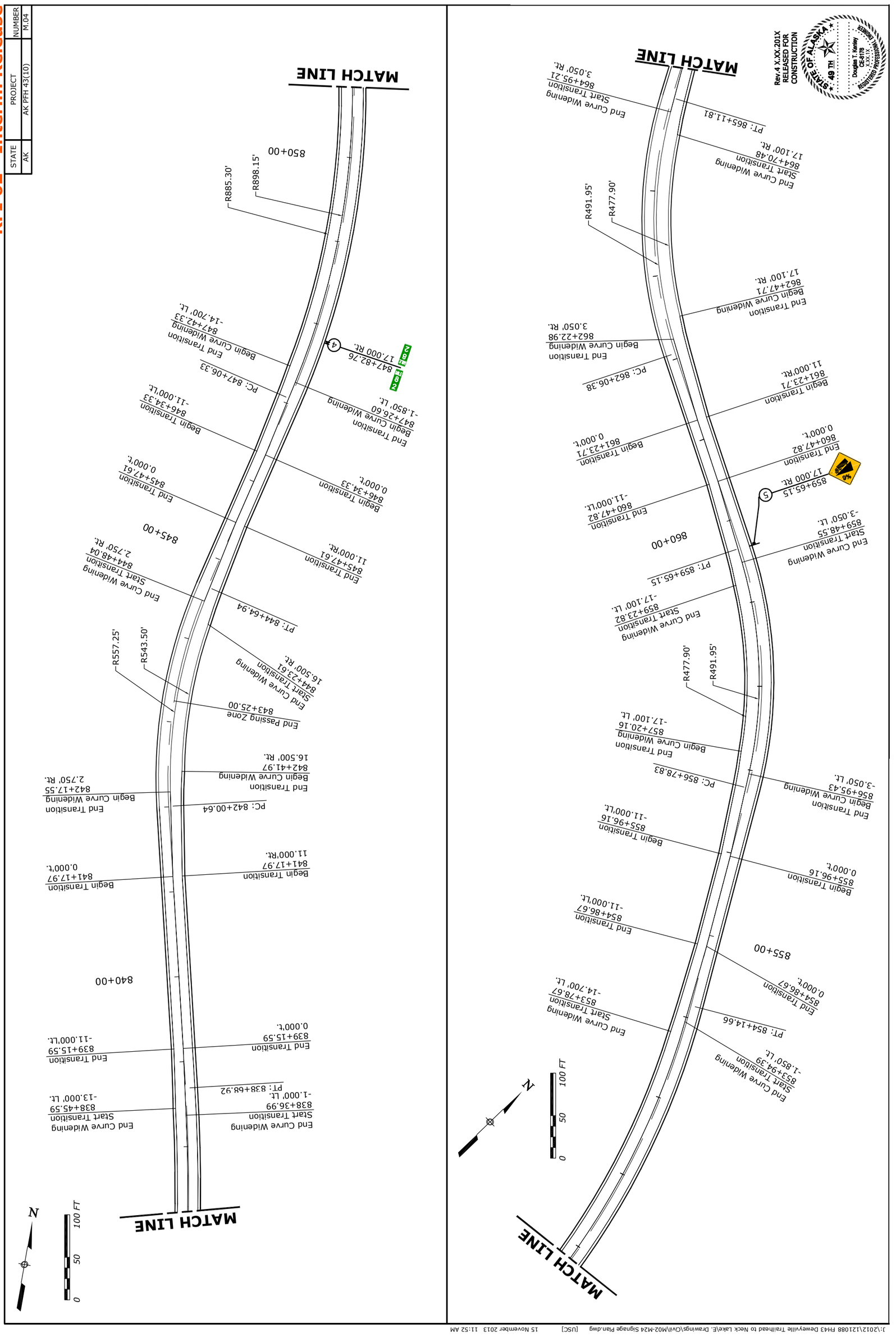
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.04



Rev.4 X.XX.201X
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STATE OF ALASKA
49 TH
Douglas T. Manley
CE-8178
X.XX.XX
REGISTERED PROFESSIONAL ENGINEER

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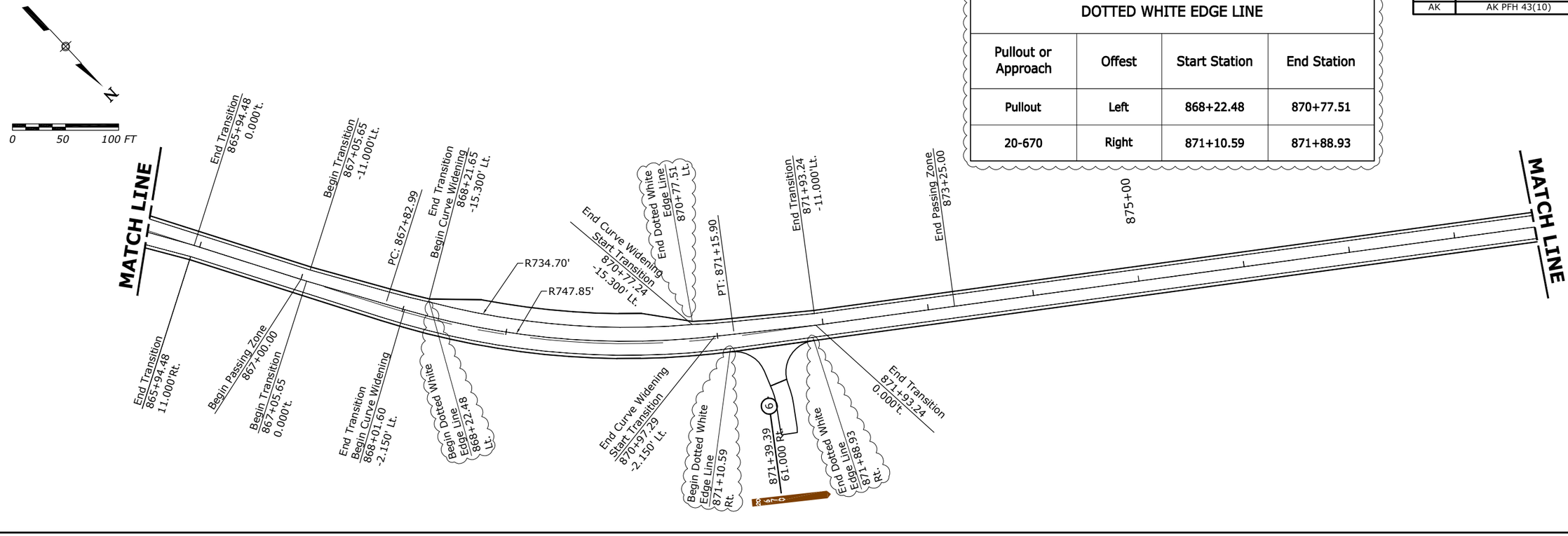
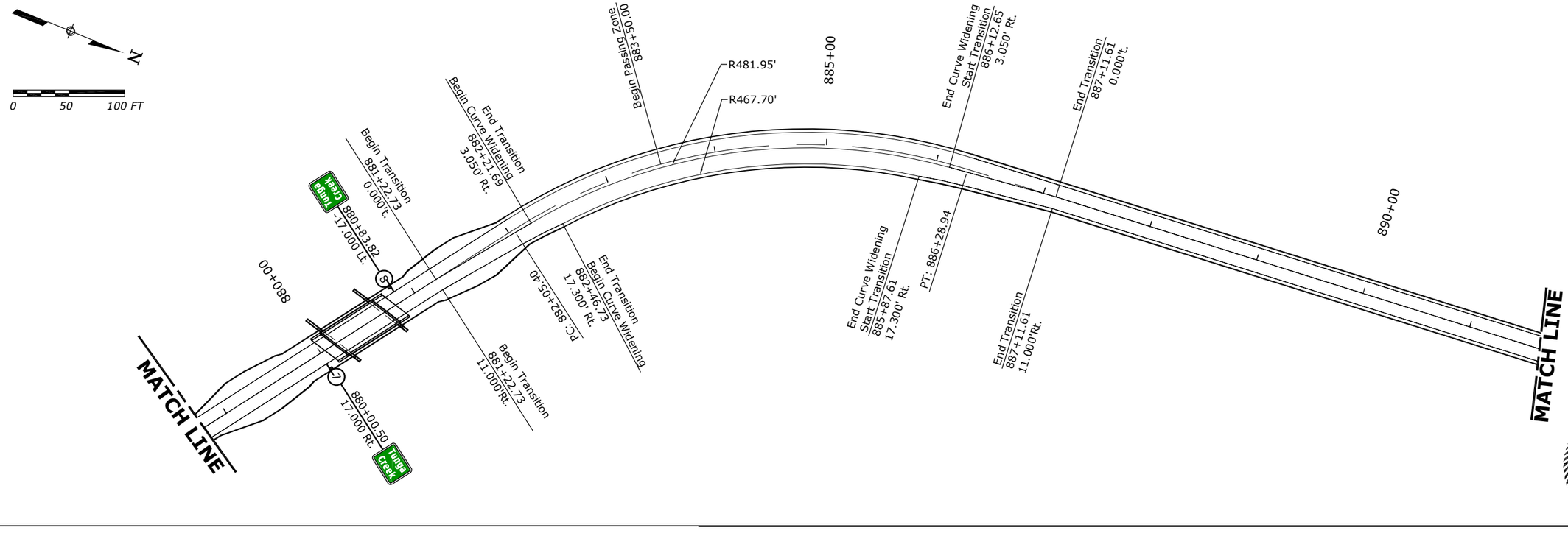
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.05

DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
Pullout	Left	868+22.48	870+77.51
20-670	Right	871+10.59	871+88.93





Rev.4 X.XX.201X
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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8178
X.XX.1X
REGISTERED PROFESSIONAL ENGINEER

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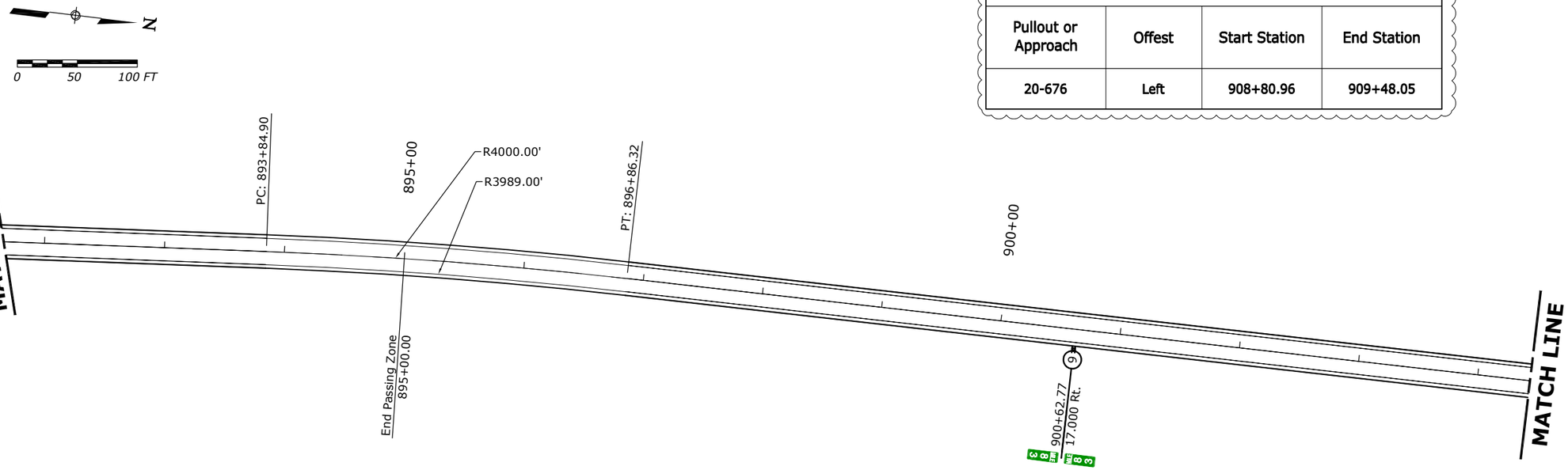
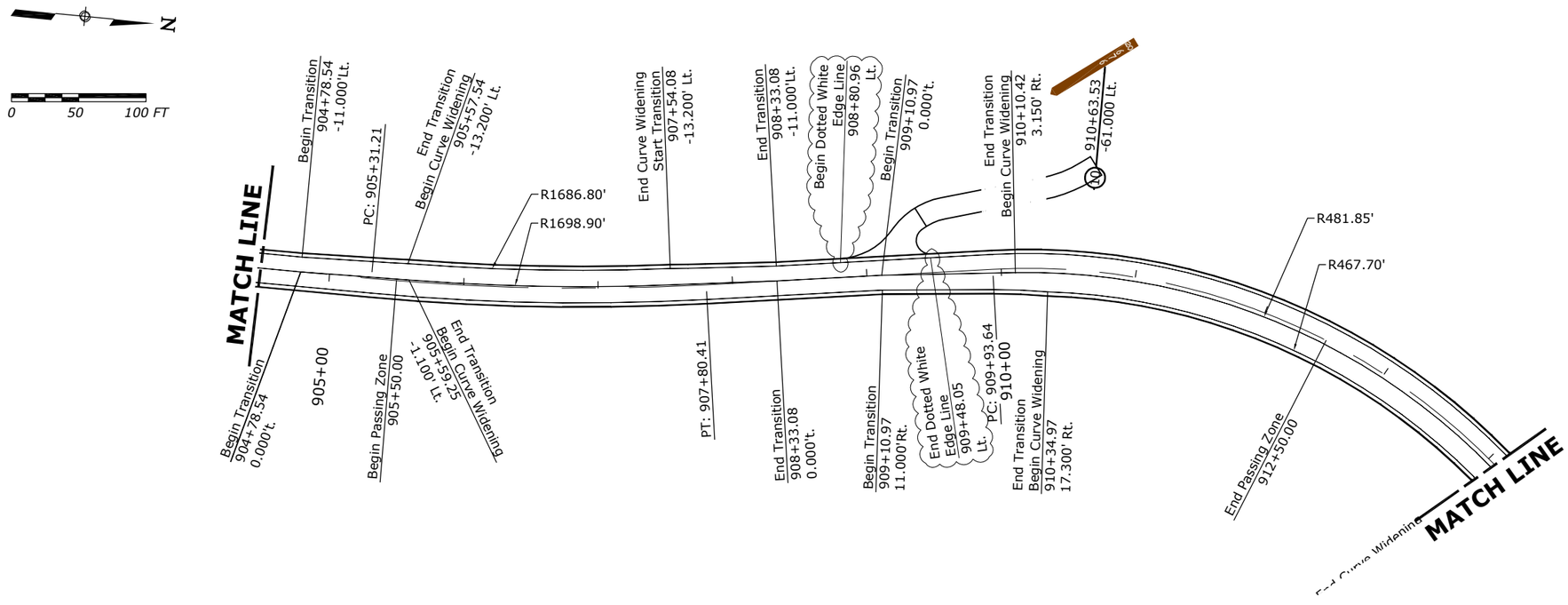
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.06

DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
20-676	Left	908+80.96	909+48.05





Rev.4 X.XX.201X
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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8178
X.XX.1X
REGISTERED PROFESSIONAL ENGINEER

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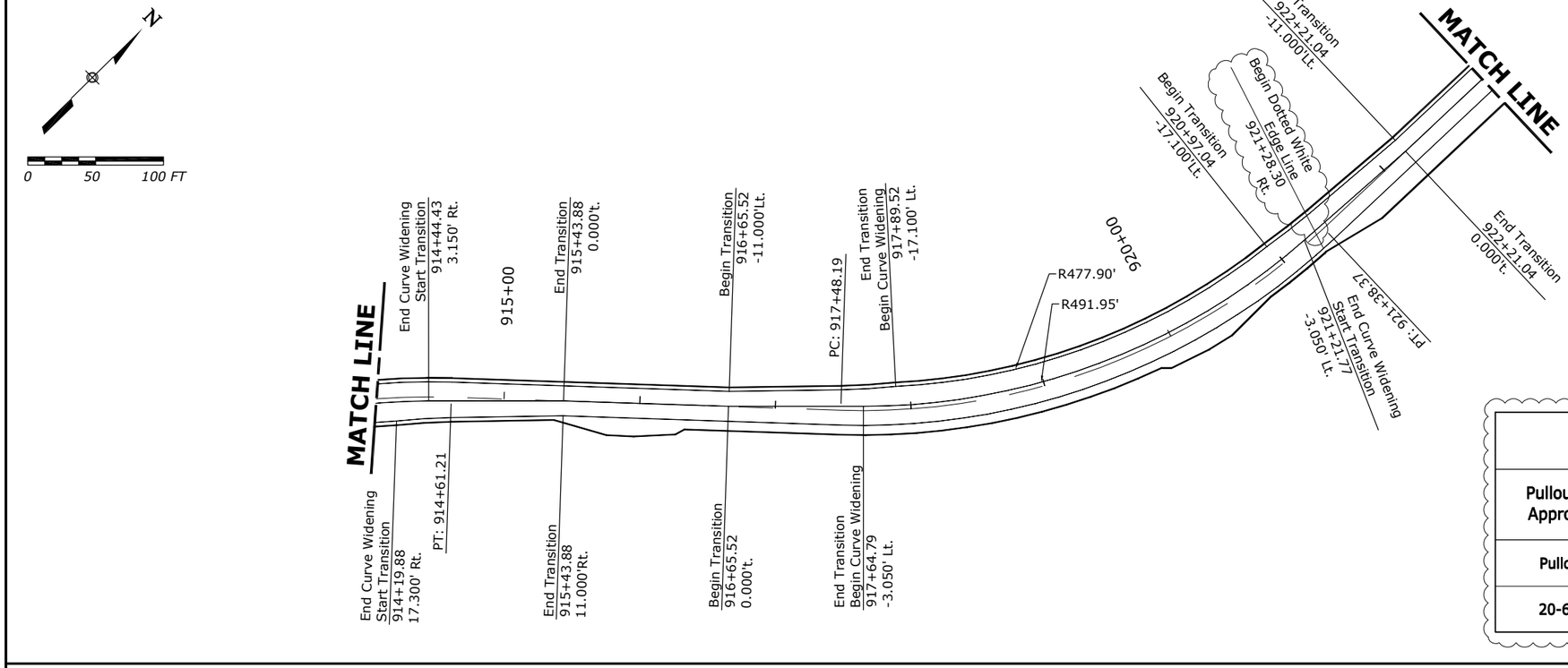
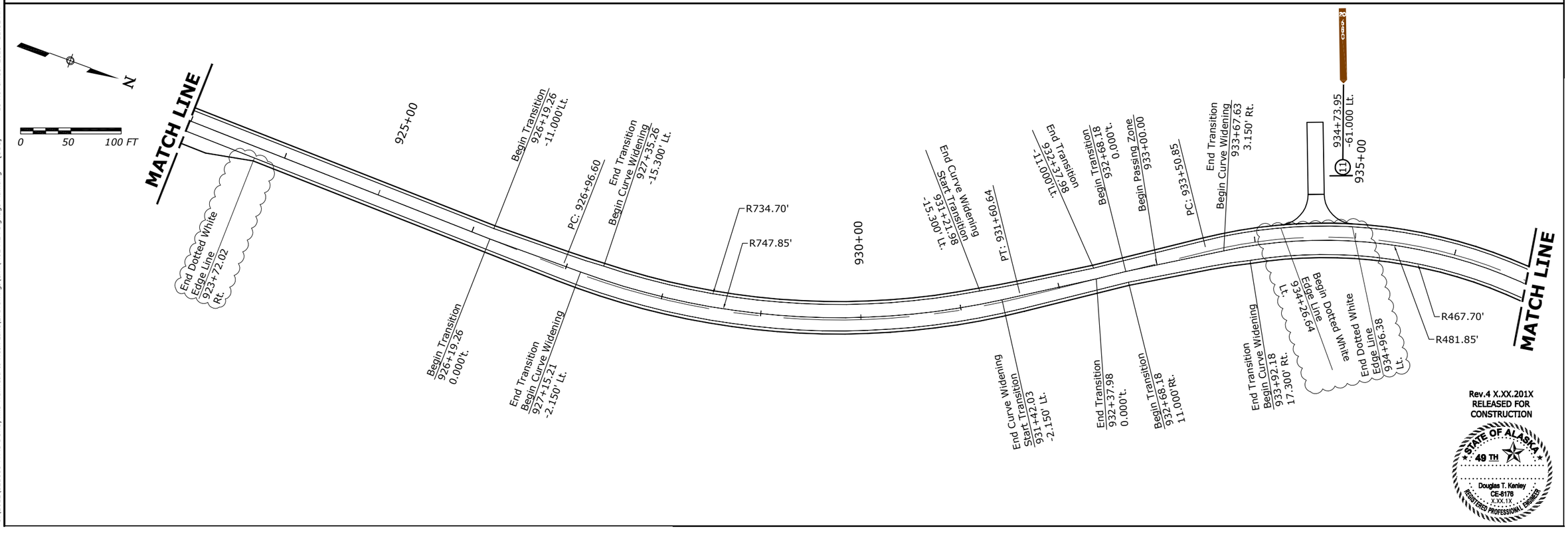
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.07



DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
Pullout	Right	921+28.30	923+72.02
20-680	Left	934+26.64	934+96.38



Rev.4 X.XX.201X
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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8178
X.XX.1X
REGISTERED PROFESSIONAL ENGINEER

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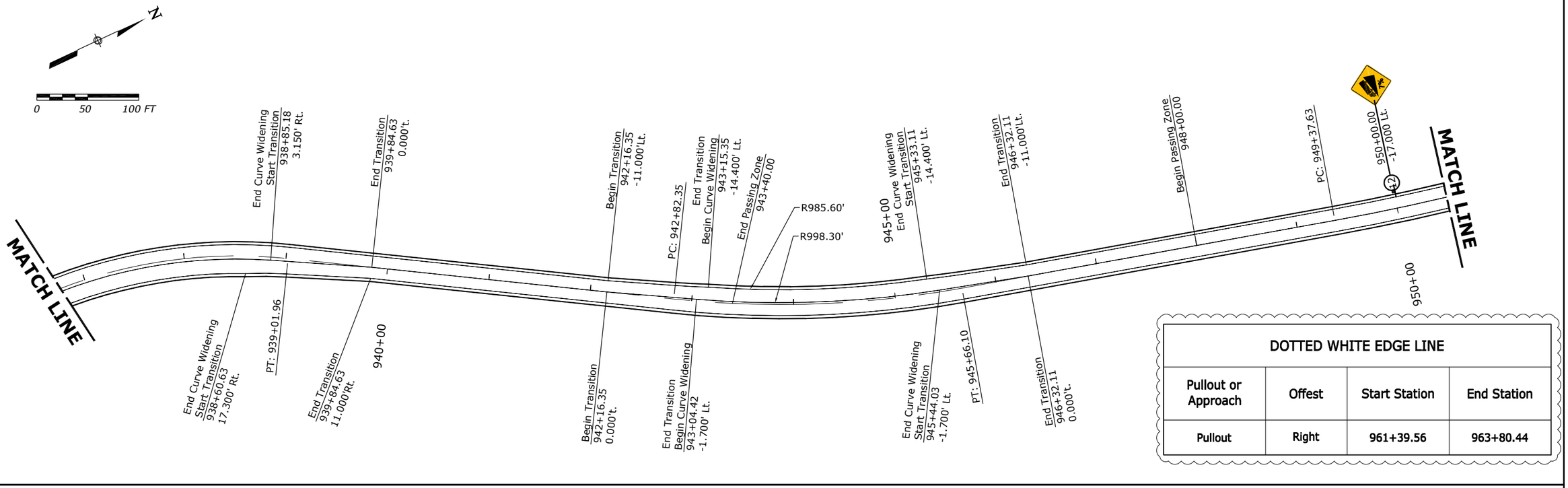
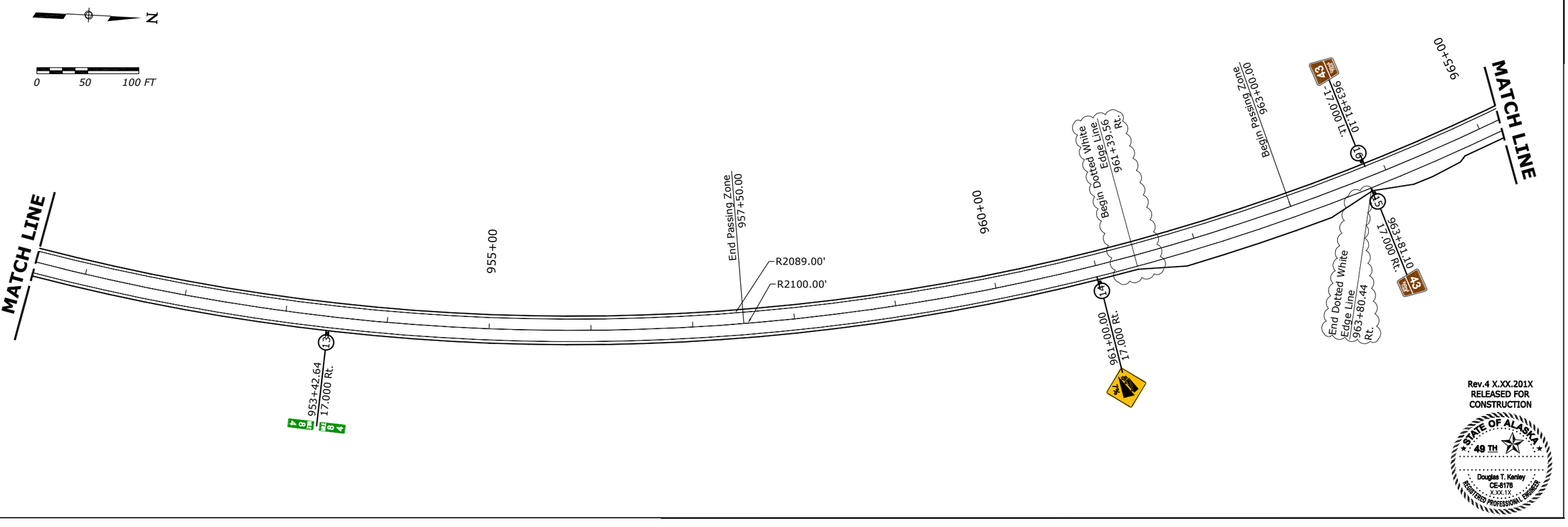
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.08



DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
Pullout	Right	961+39.56	963+80.44



Rev.4 X.XX.201X
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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8178
X.XX.1X
REGISTERED PROFESSIONAL ENGINEER

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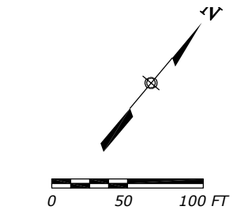
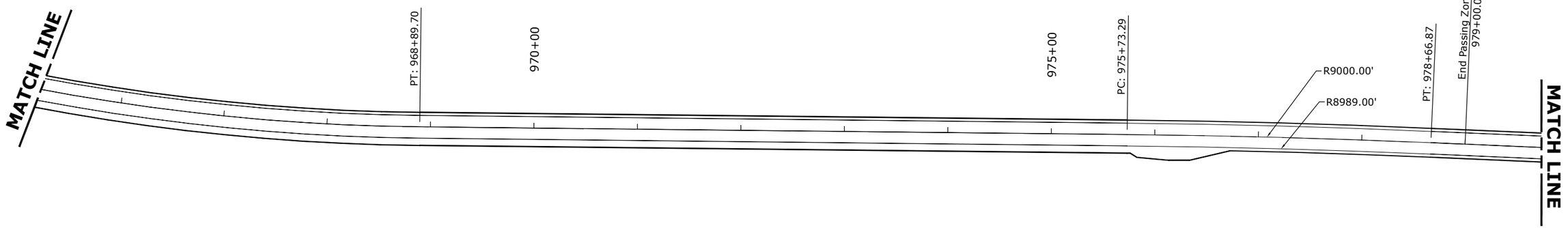
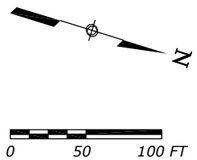
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.09







DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
20-686	Left	984+74.98	985+44.84

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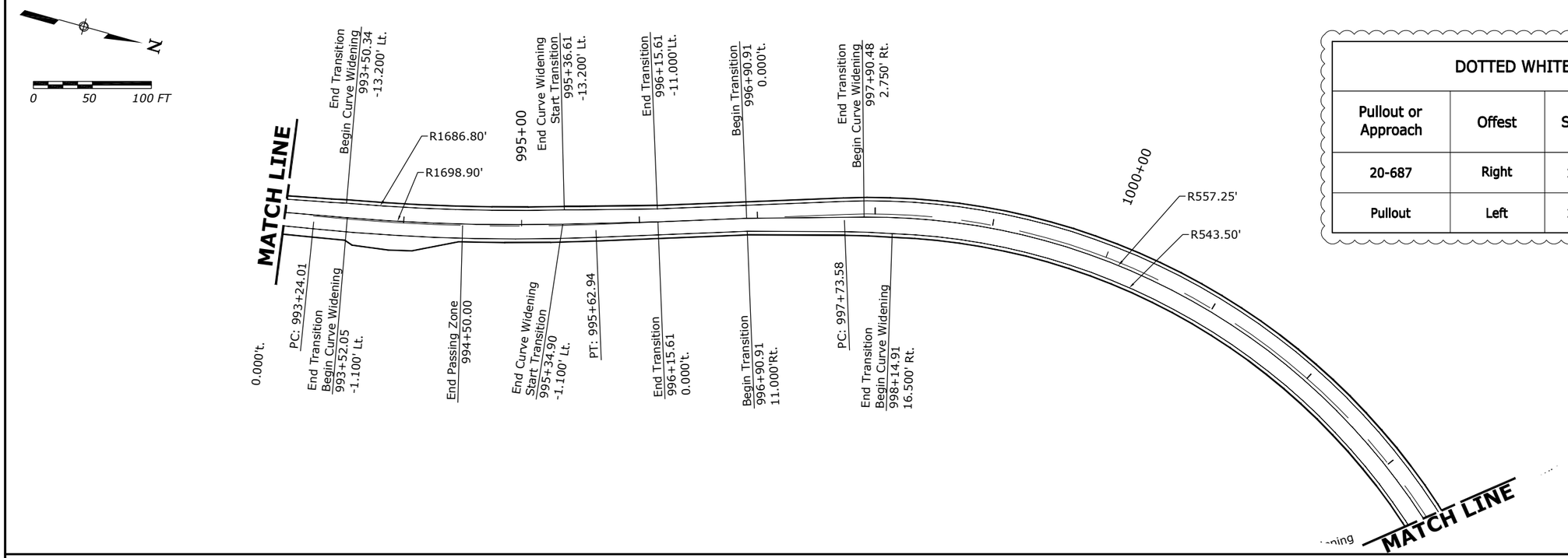
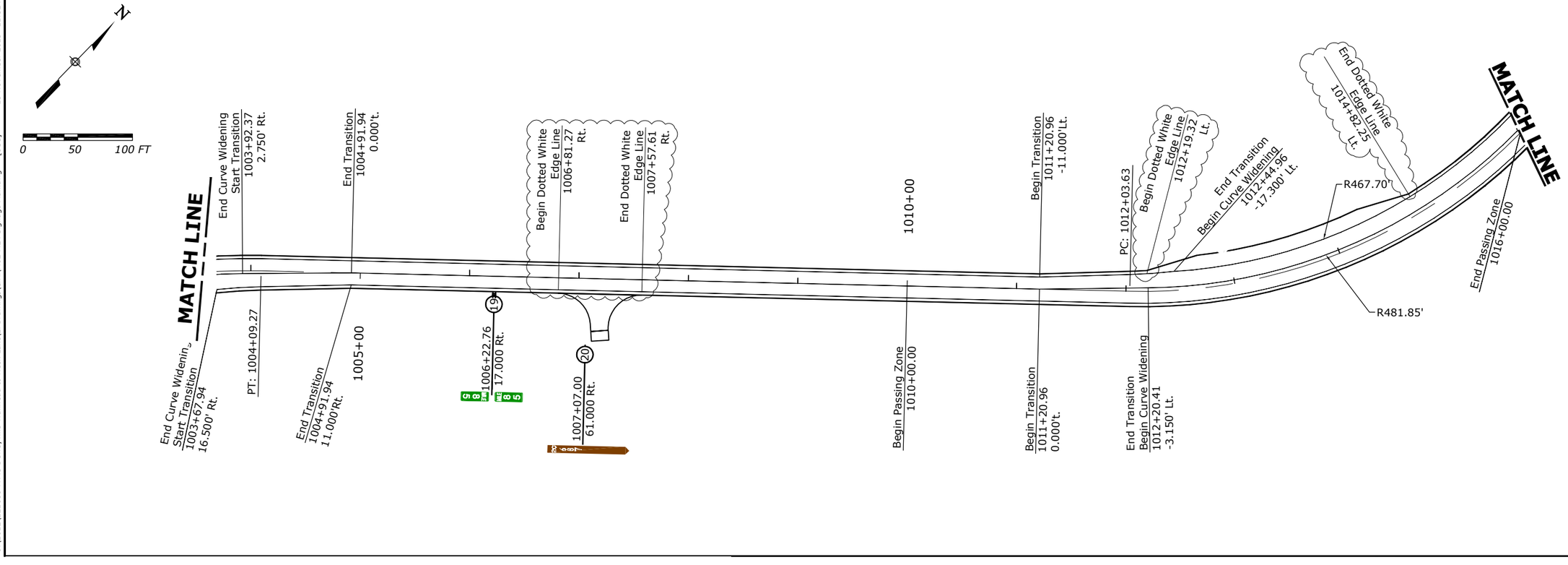
STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.10



DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
20-687	Right	1006+81.27	1007+57.61
Pullout	Left	1012+19.32	1014+82.25



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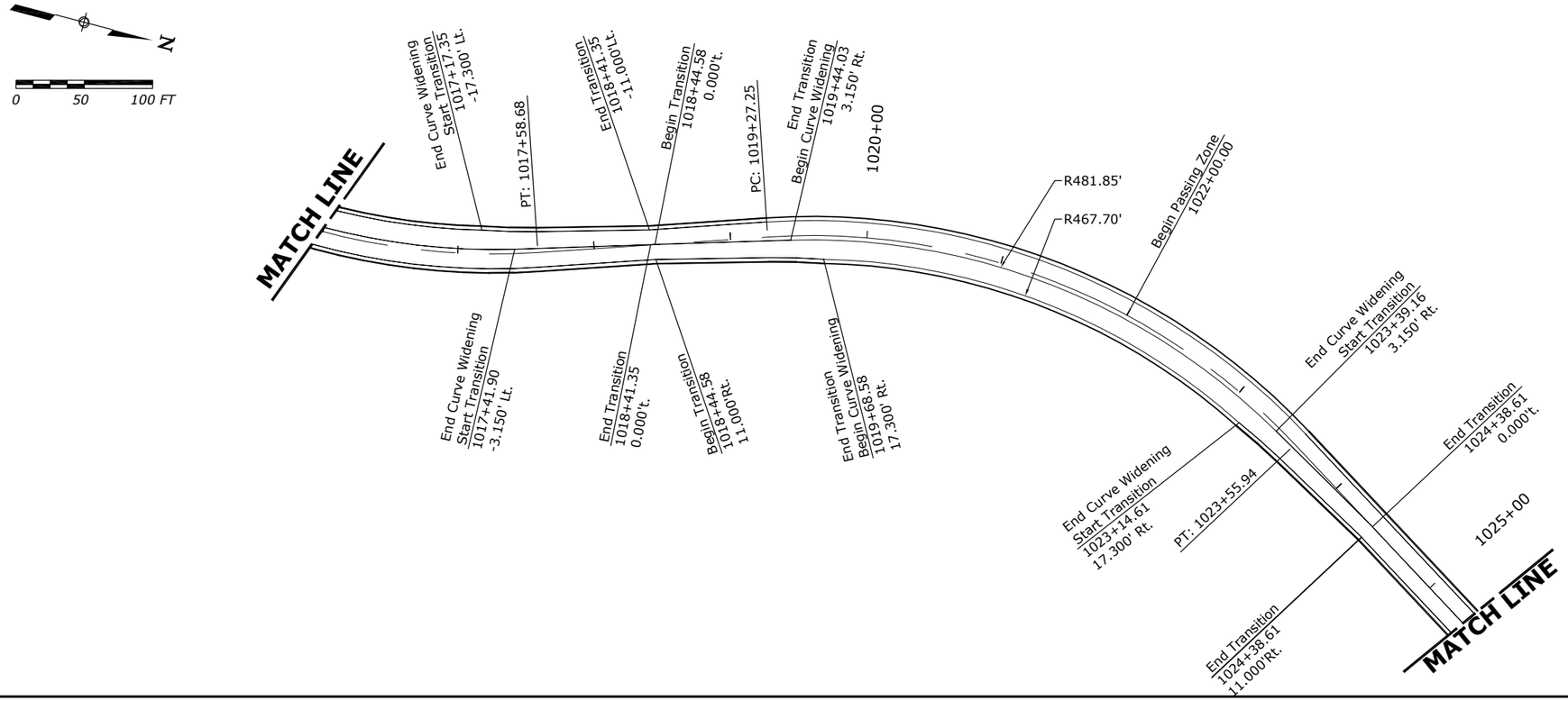
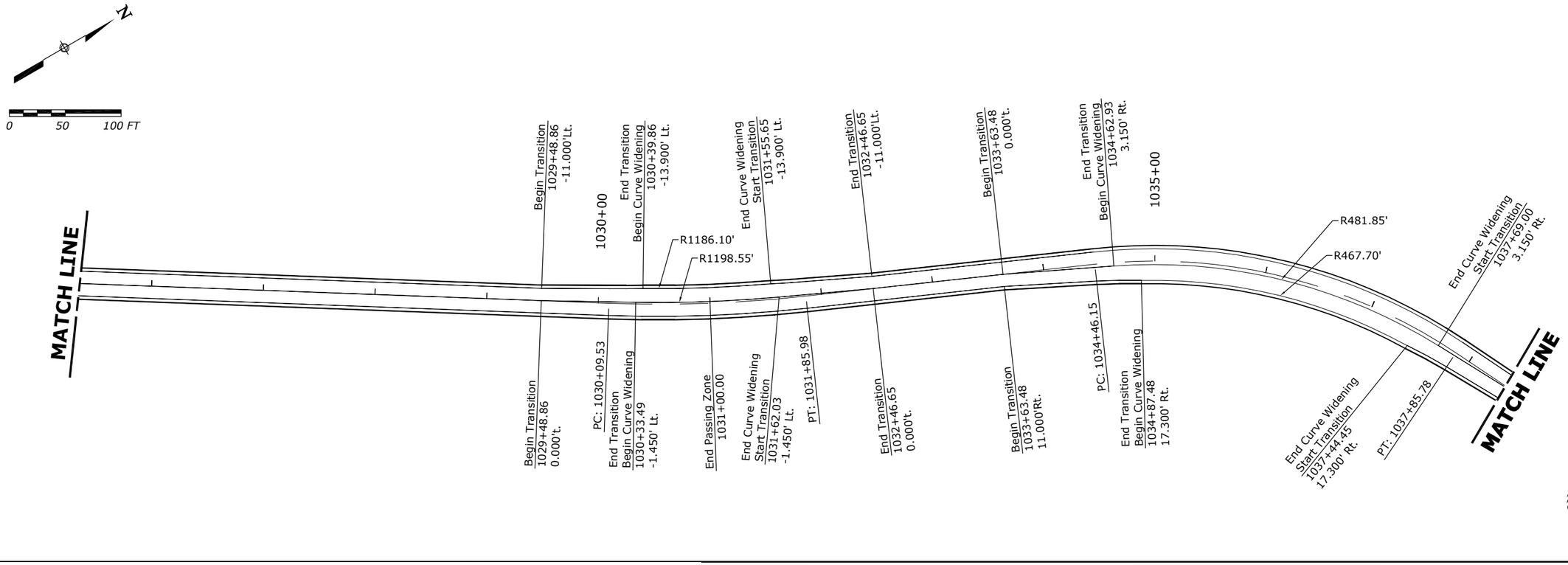
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.11





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RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.12

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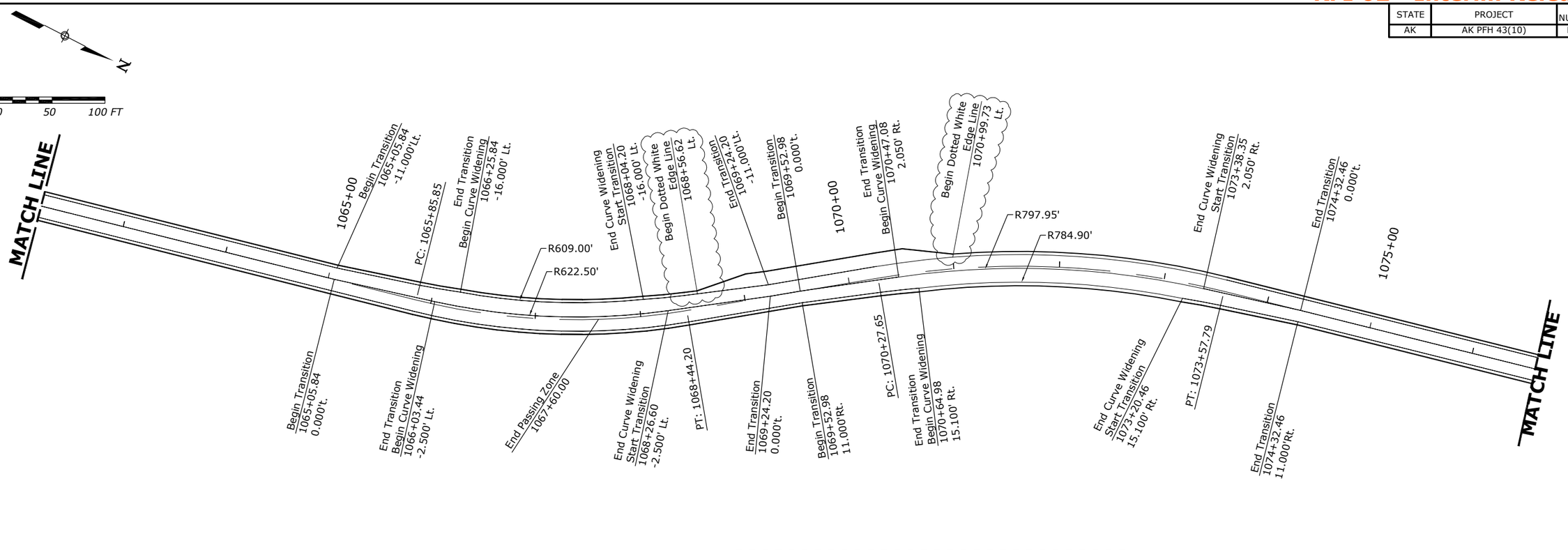
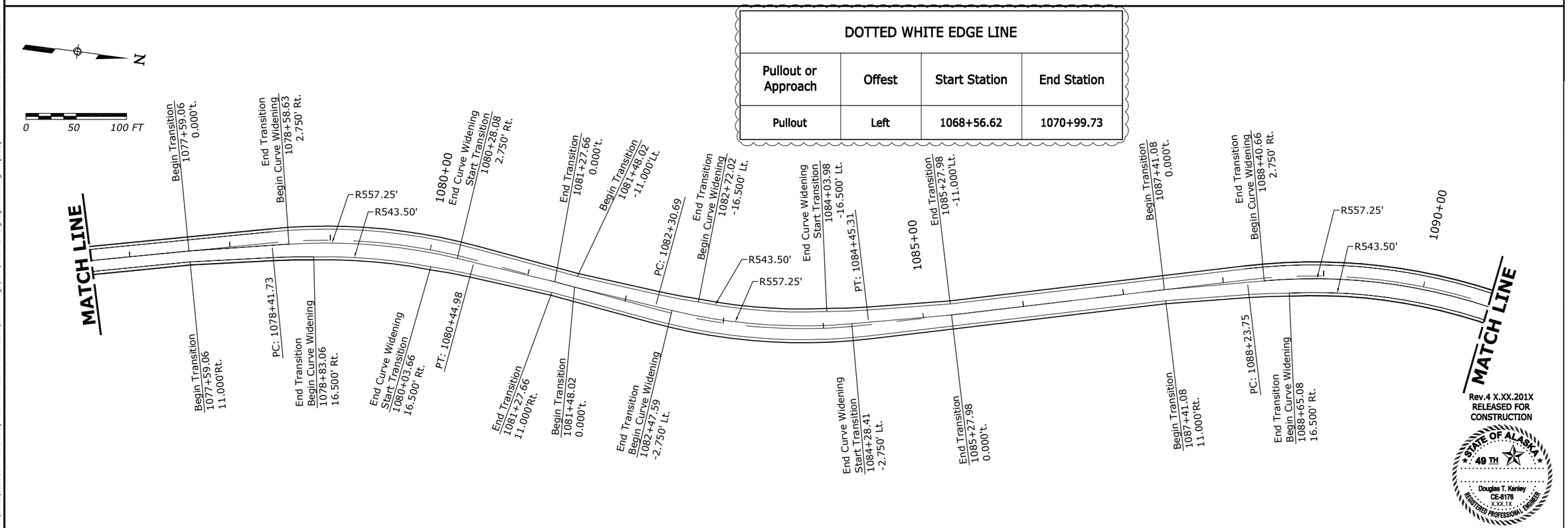
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.13





DOTTED WHITE EDGE LINE			
Pullout or Approach	**Offest**	**Start Station**	**End Station**
Pullout	**Left**	**1068+56.62**	**1070+99.73**

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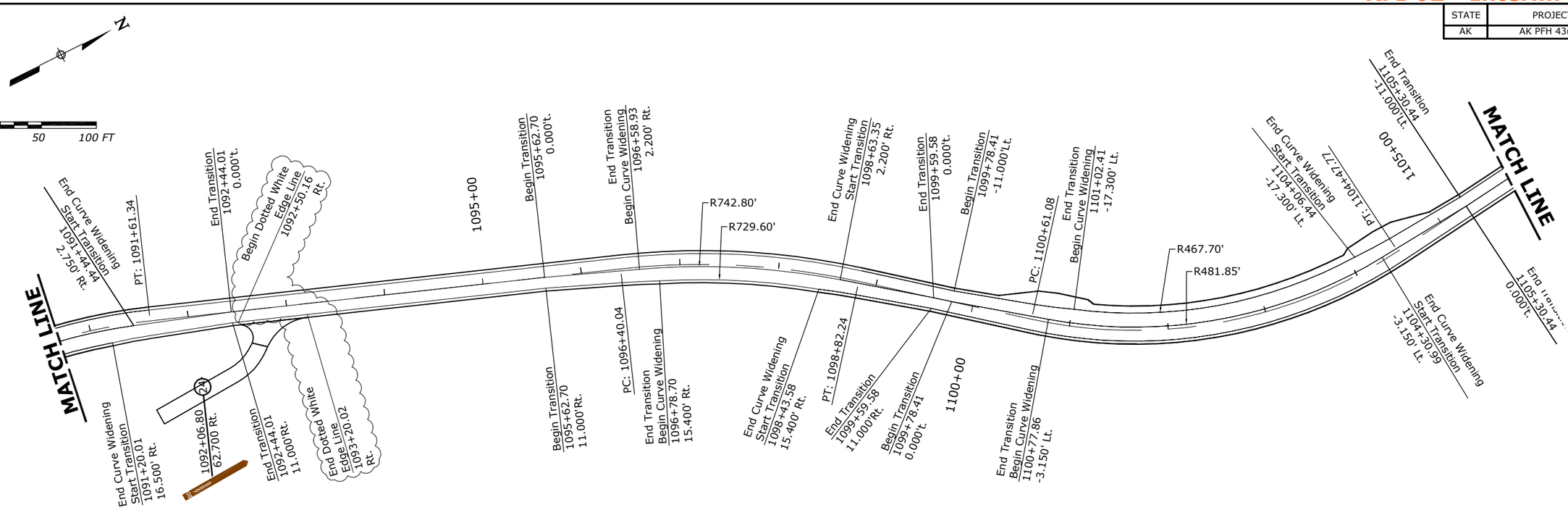
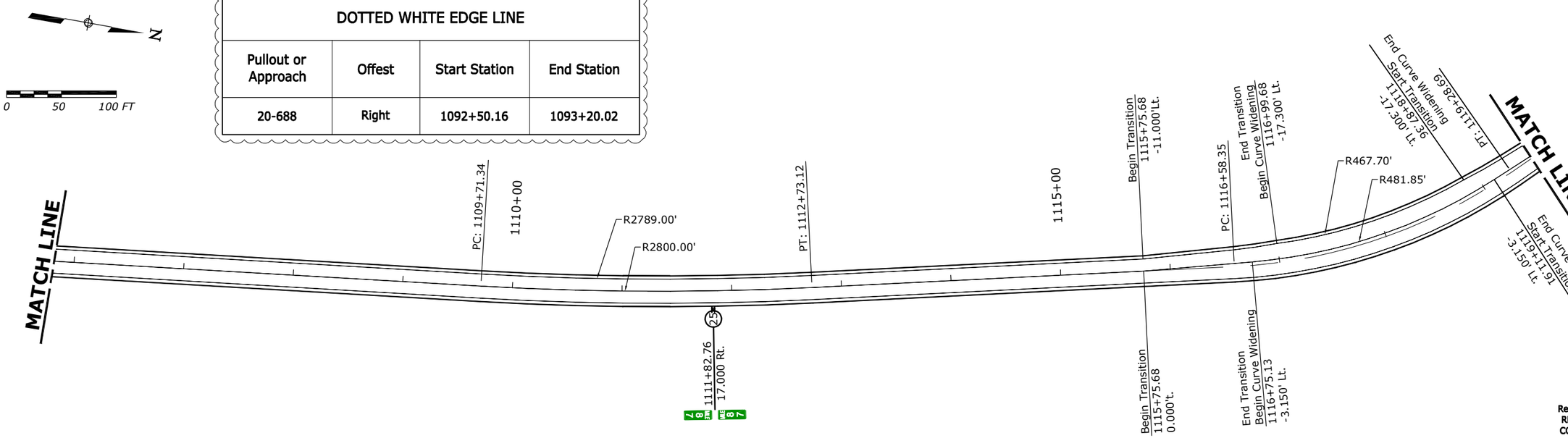
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.14



DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
20-688	Right	1092+50.16	1093+20.02



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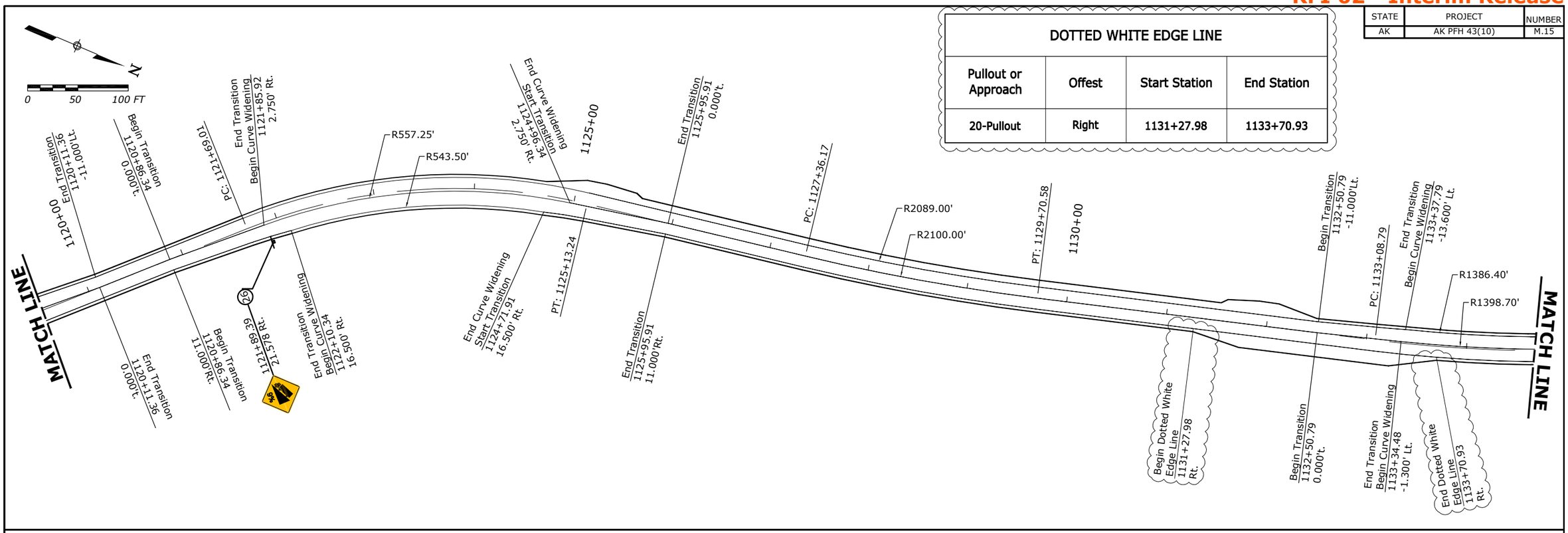
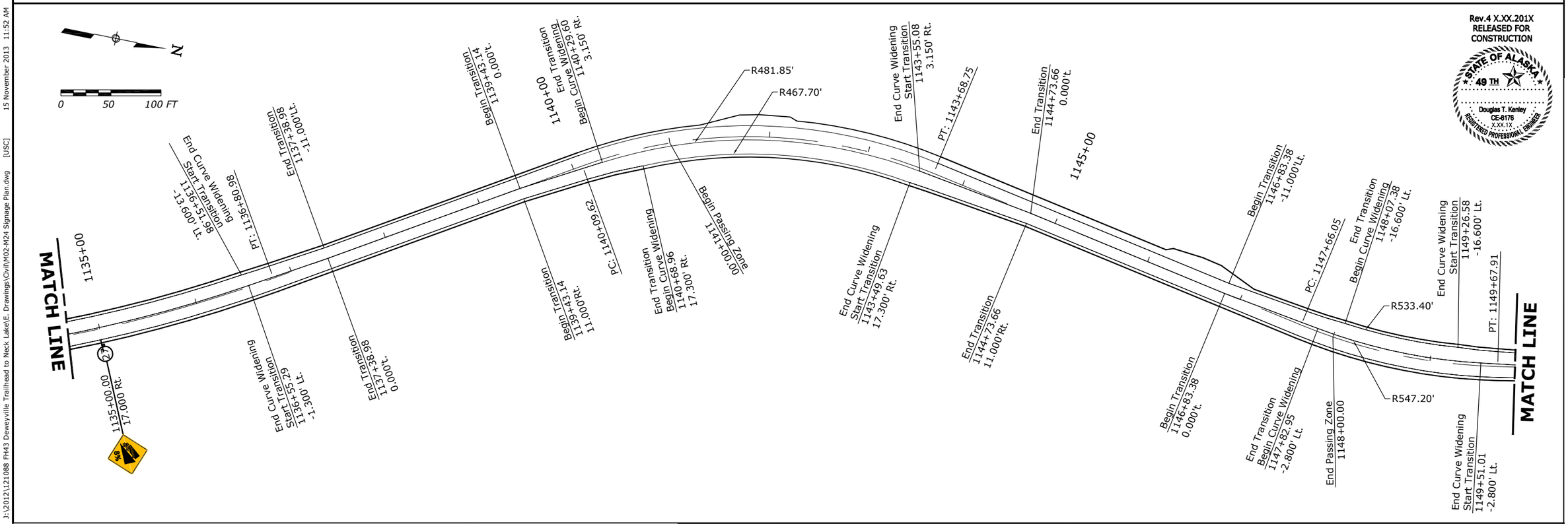
STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.15

DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
20-Pullout	Right	1131+27.98	1133+70.93





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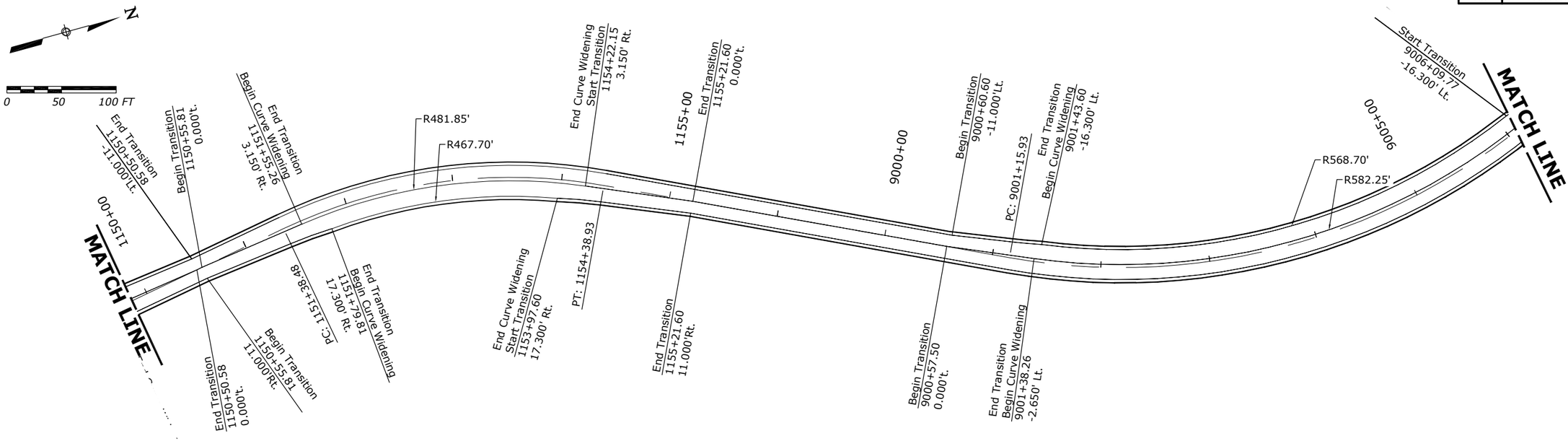
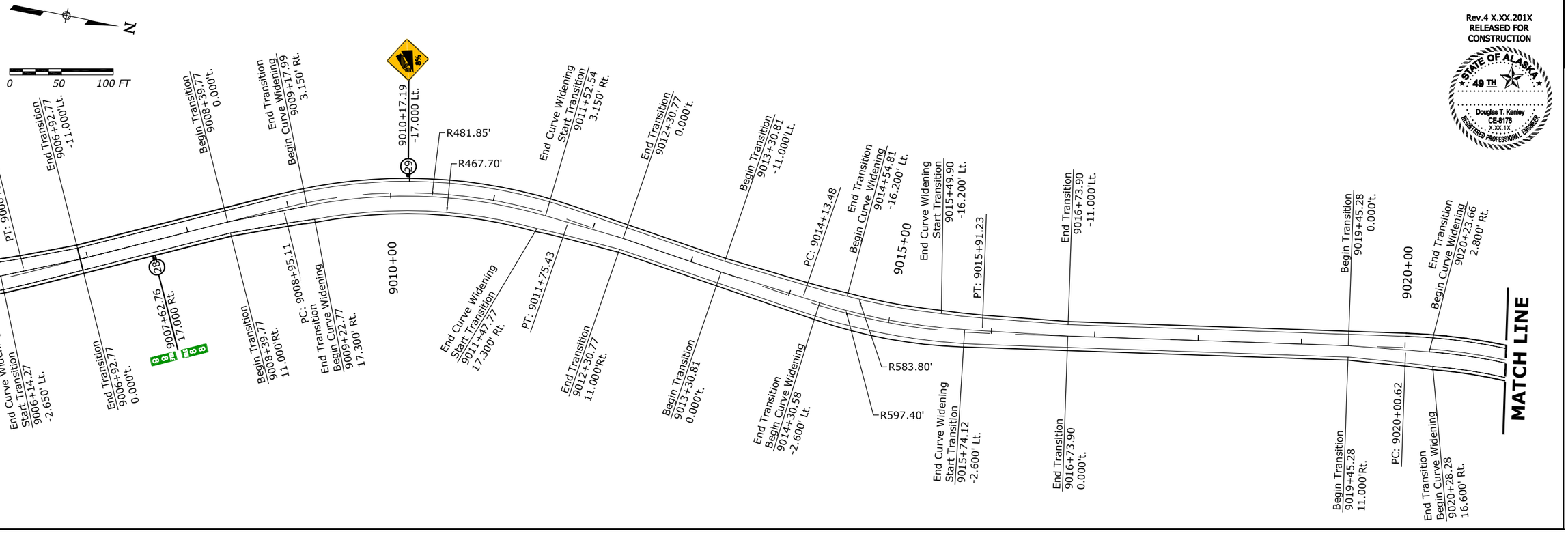
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.16





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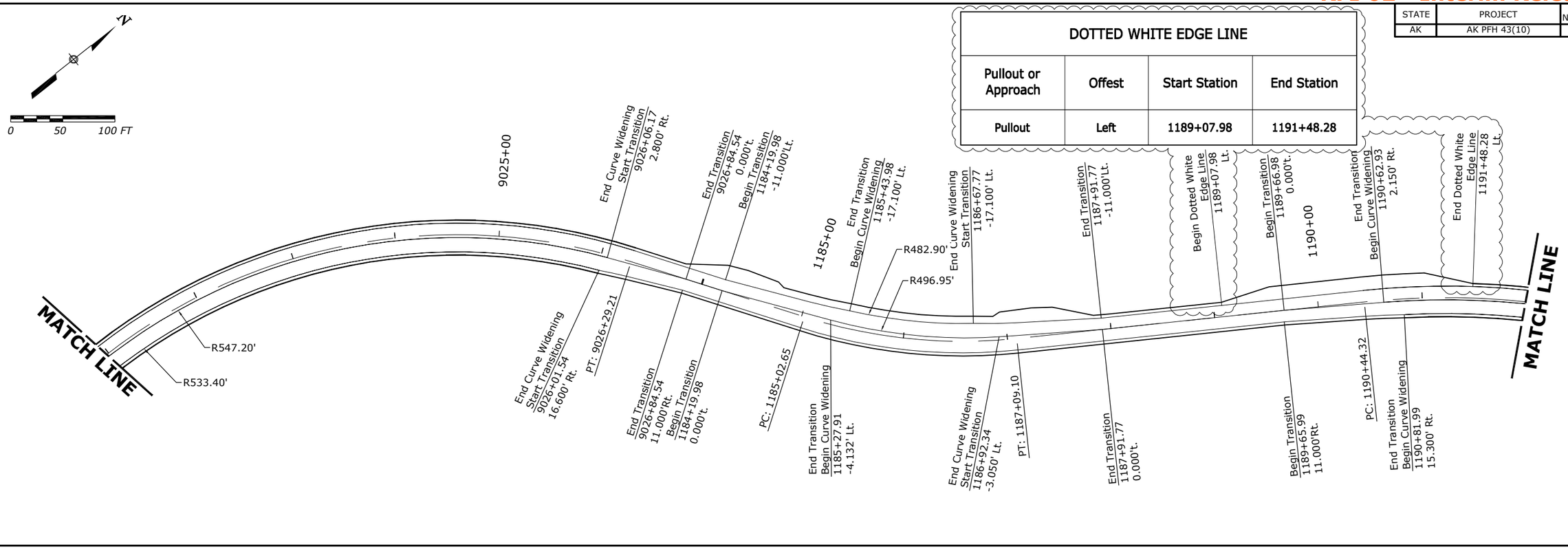
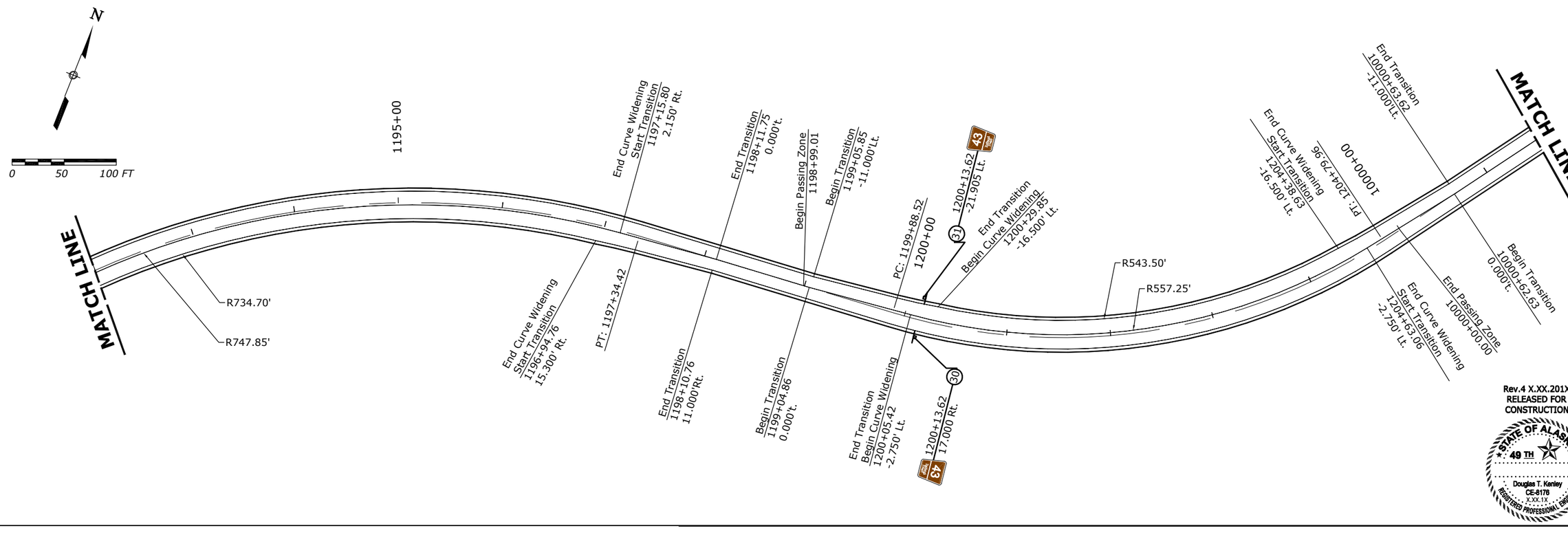
STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.17

DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
Pullout	Left	1189+07.98	1191+48.28





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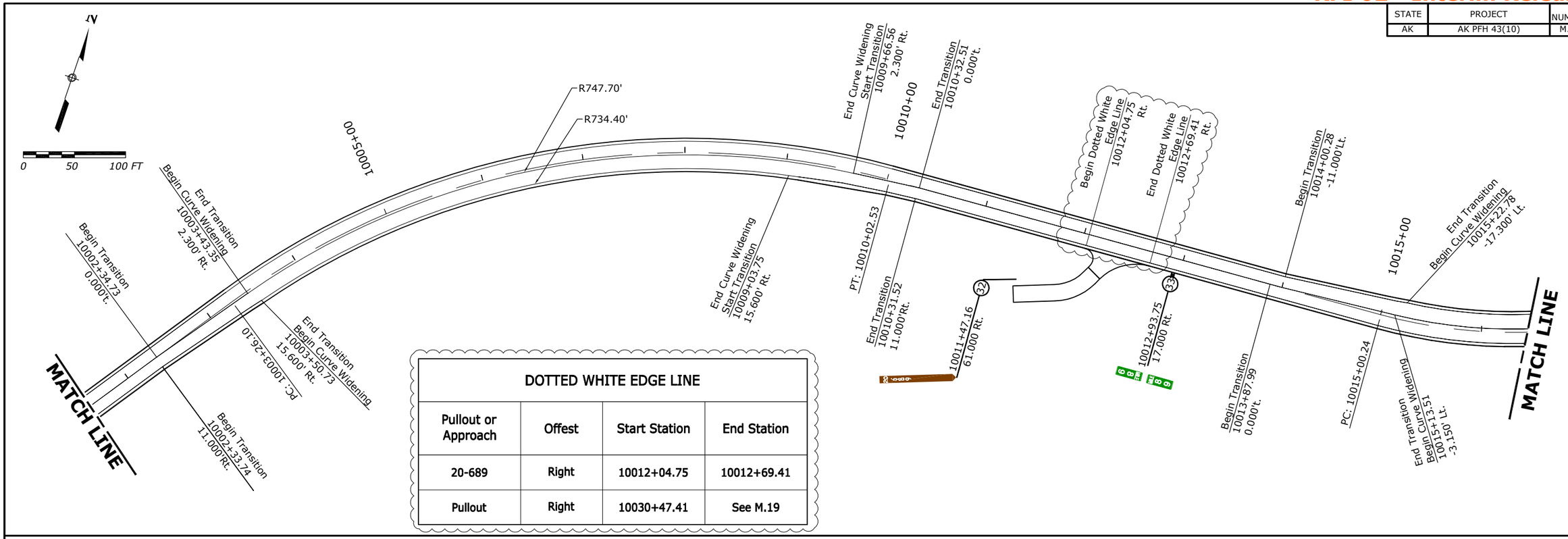
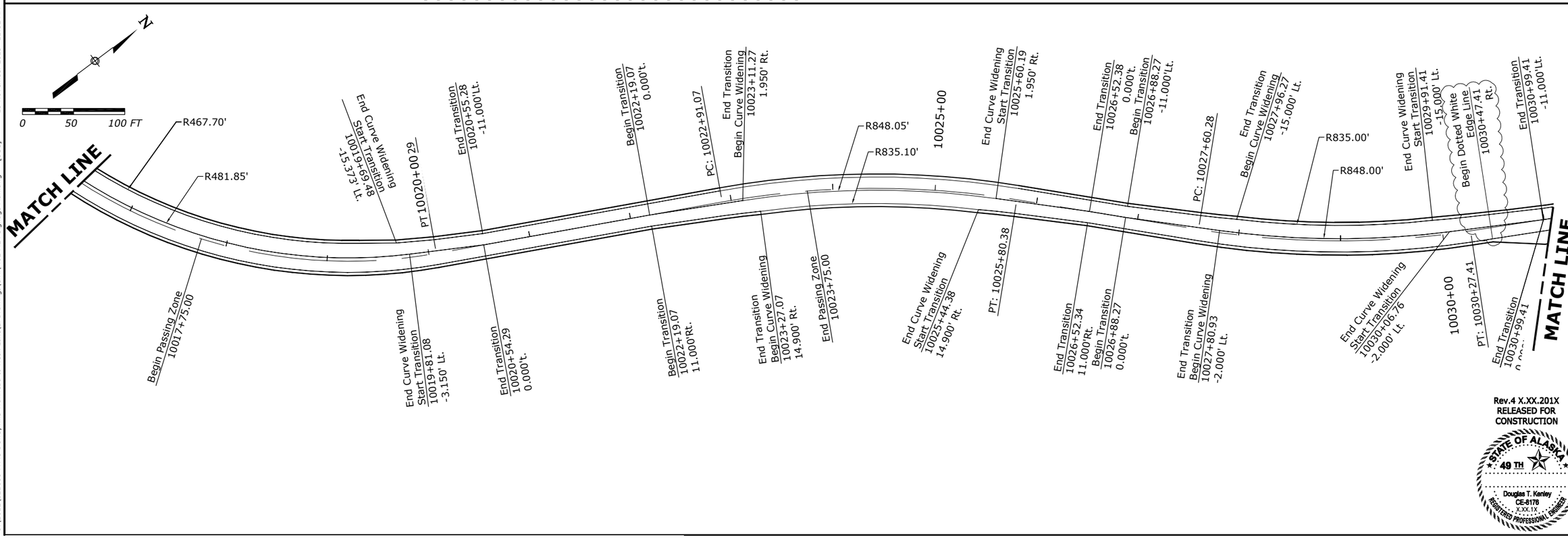
STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.18



DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
20-689	Right	10012+04.75	10012+69.41
Pullout	Right	10030+47.41	See M.19



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49 TH
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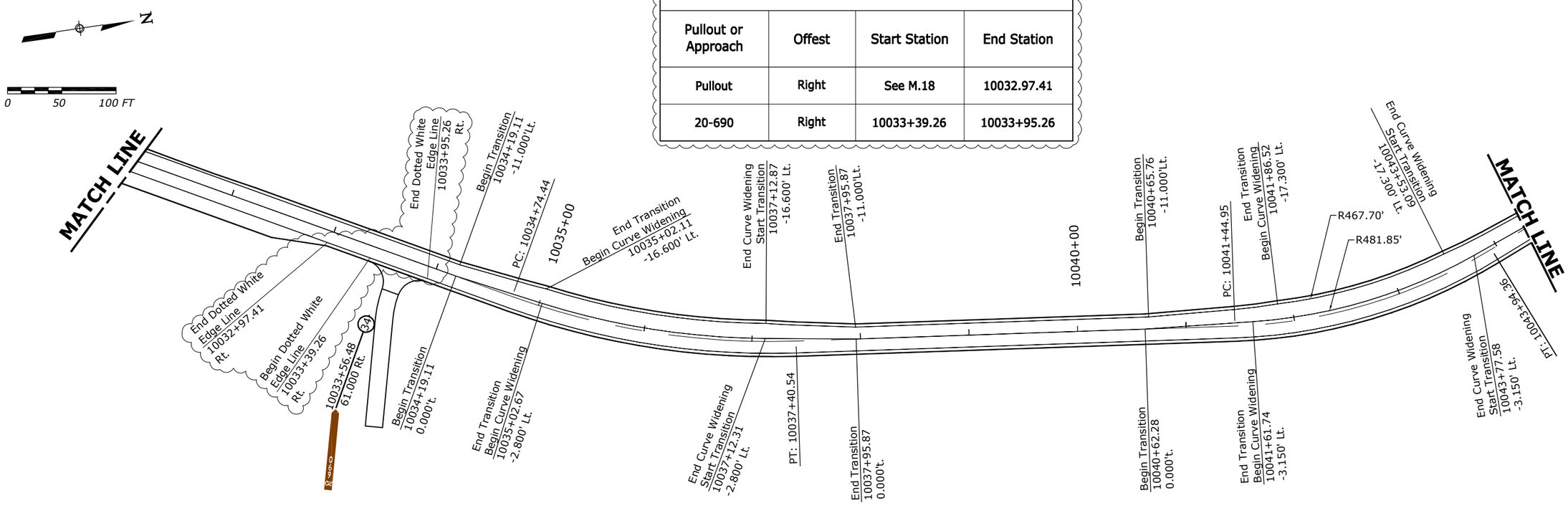
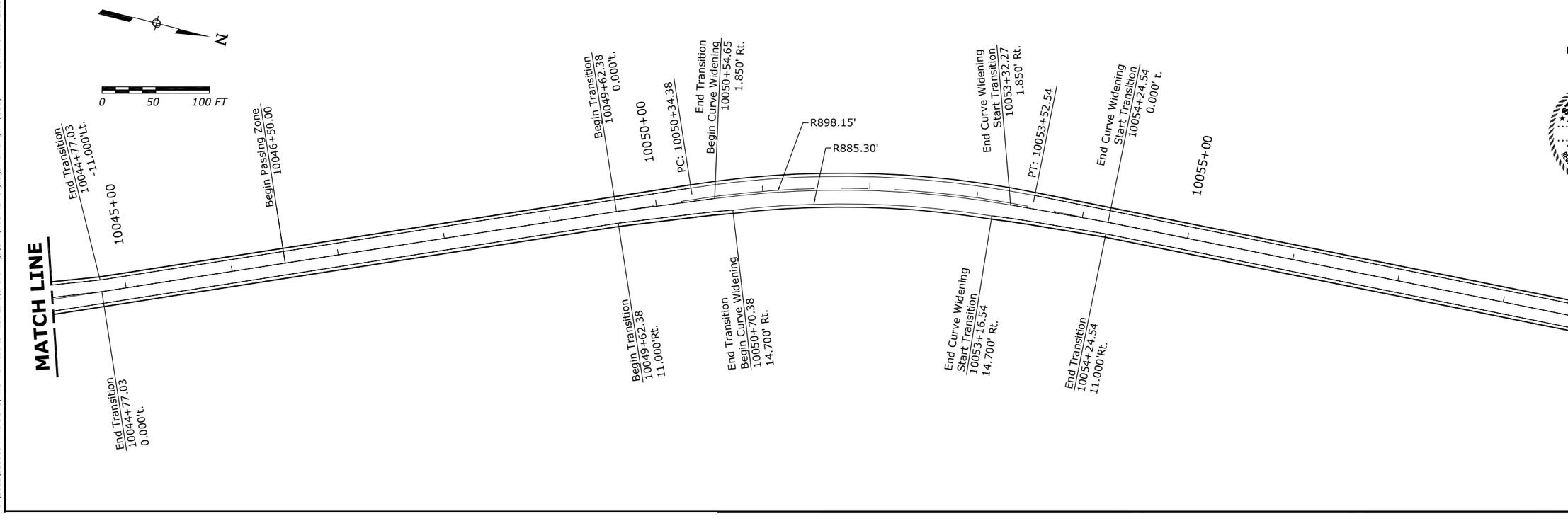
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.19

DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
Pullout	Right	See M.18	10032.97.41
20-690	Right	10033+39.26	10033+95.26





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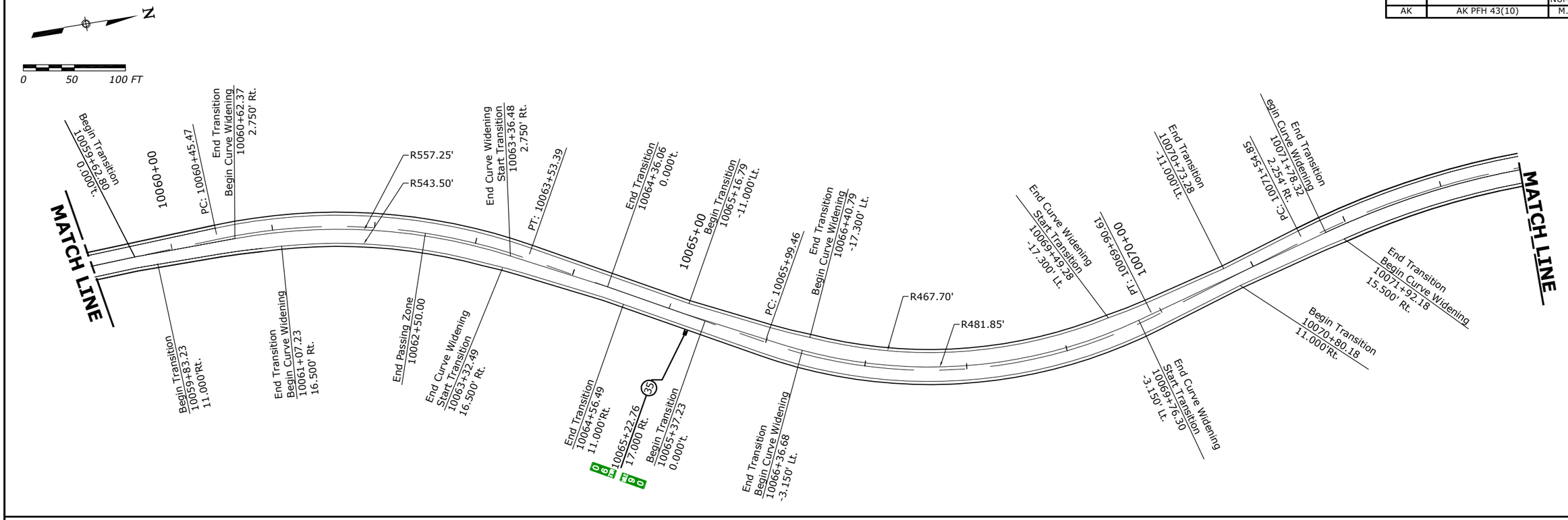
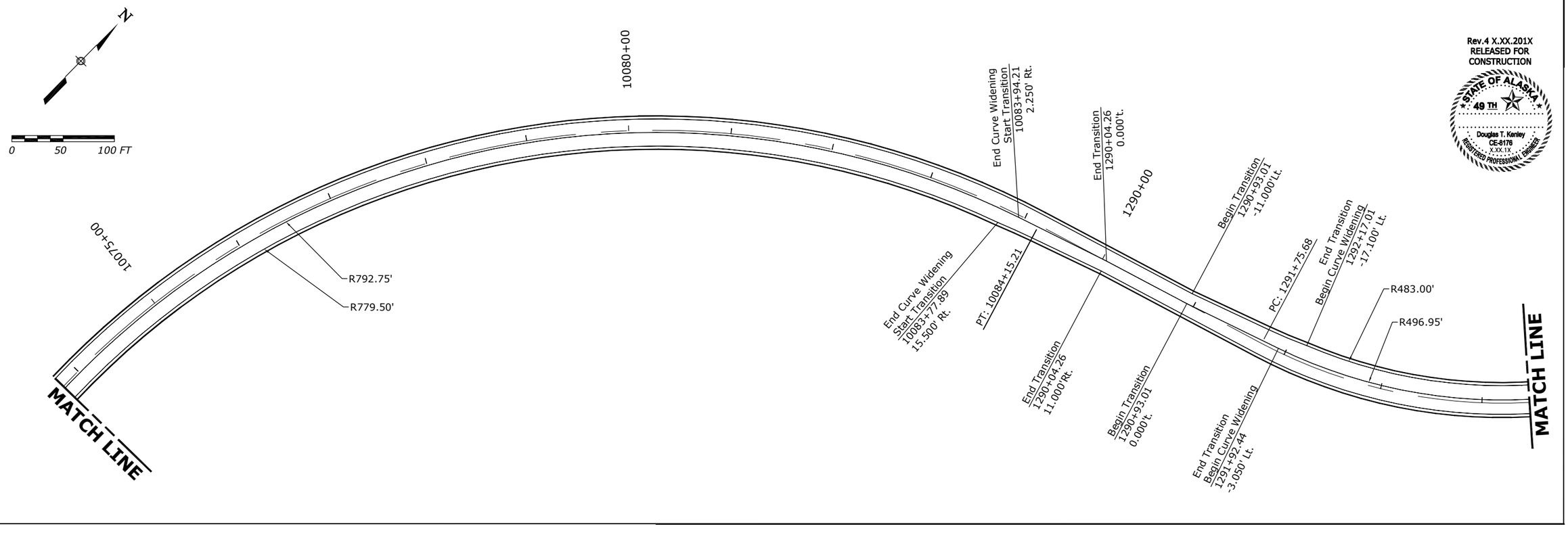
STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.20





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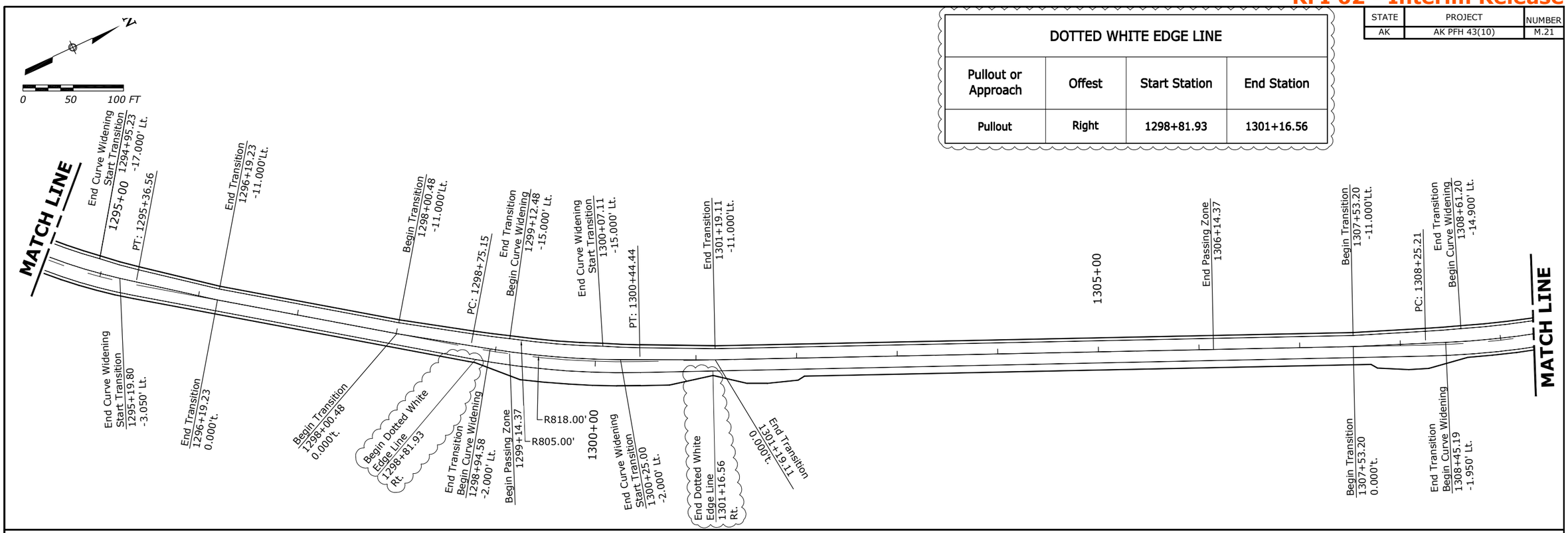
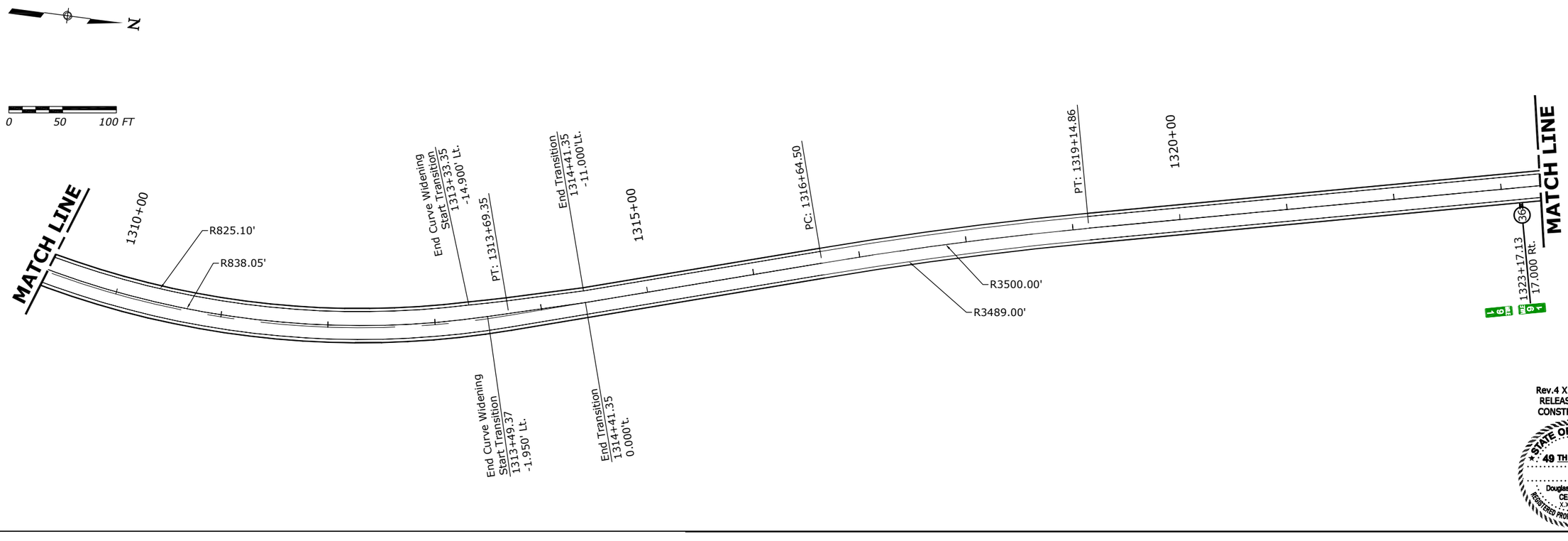
STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.21

DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
Pullout	Right	1298+81.93	1301+16.56





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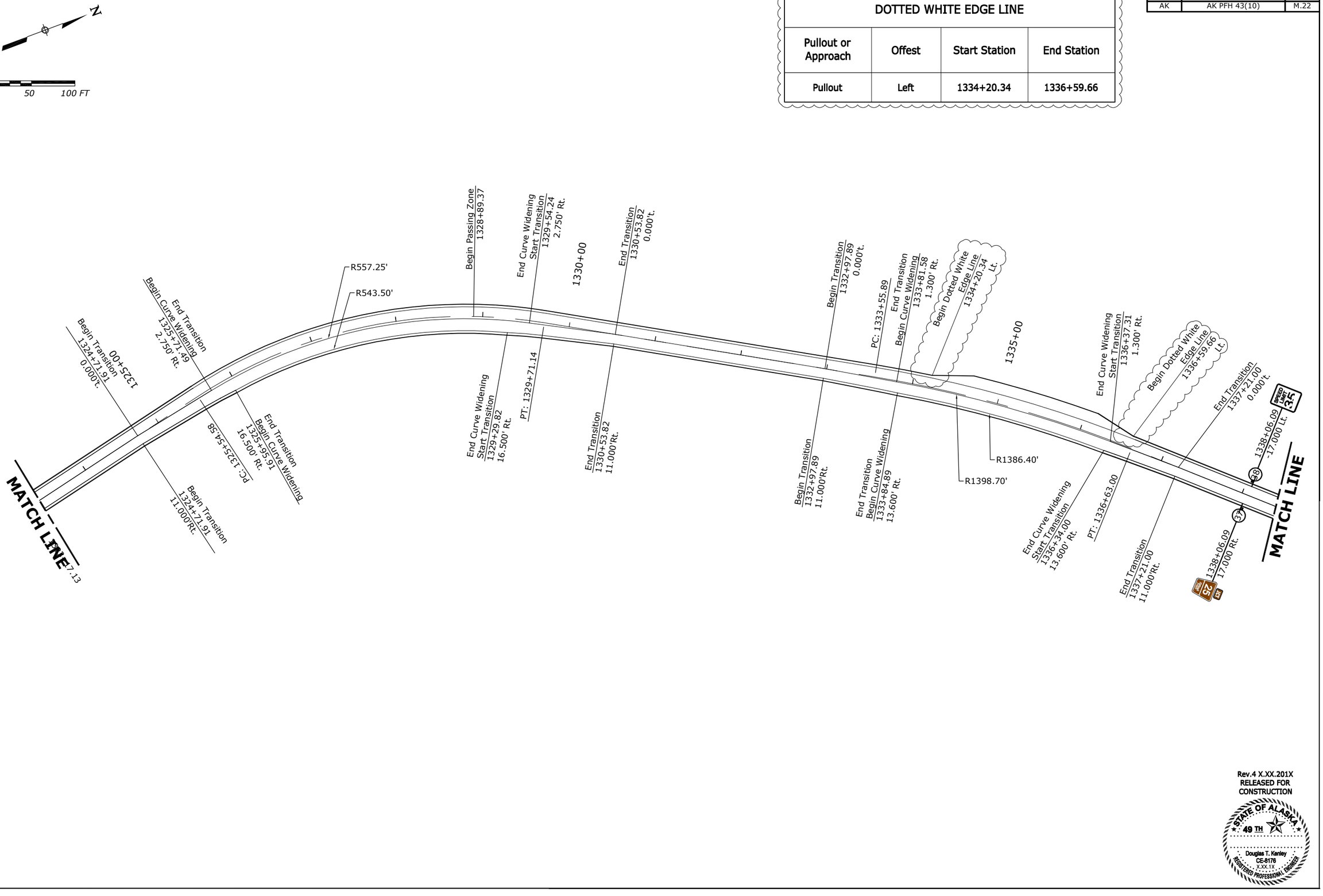
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.22

DOTTED WHITE EDGE LINE			
Pullout or Approach	Offest	Start Station	End Station
Pullout	Left	1334+20.34	1336+59.66

N

0 50 100 FT



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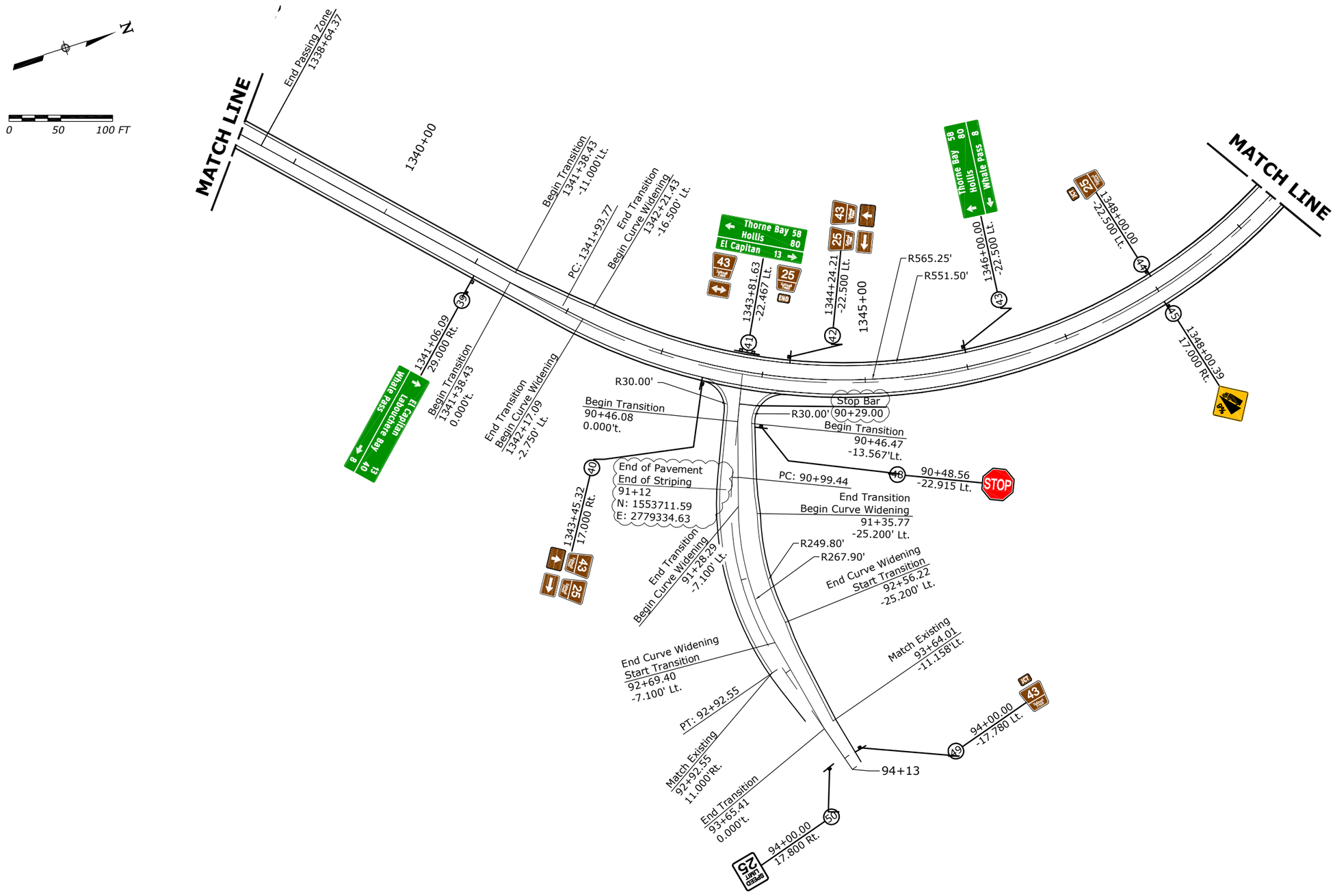
STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.23



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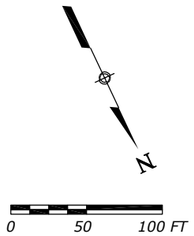
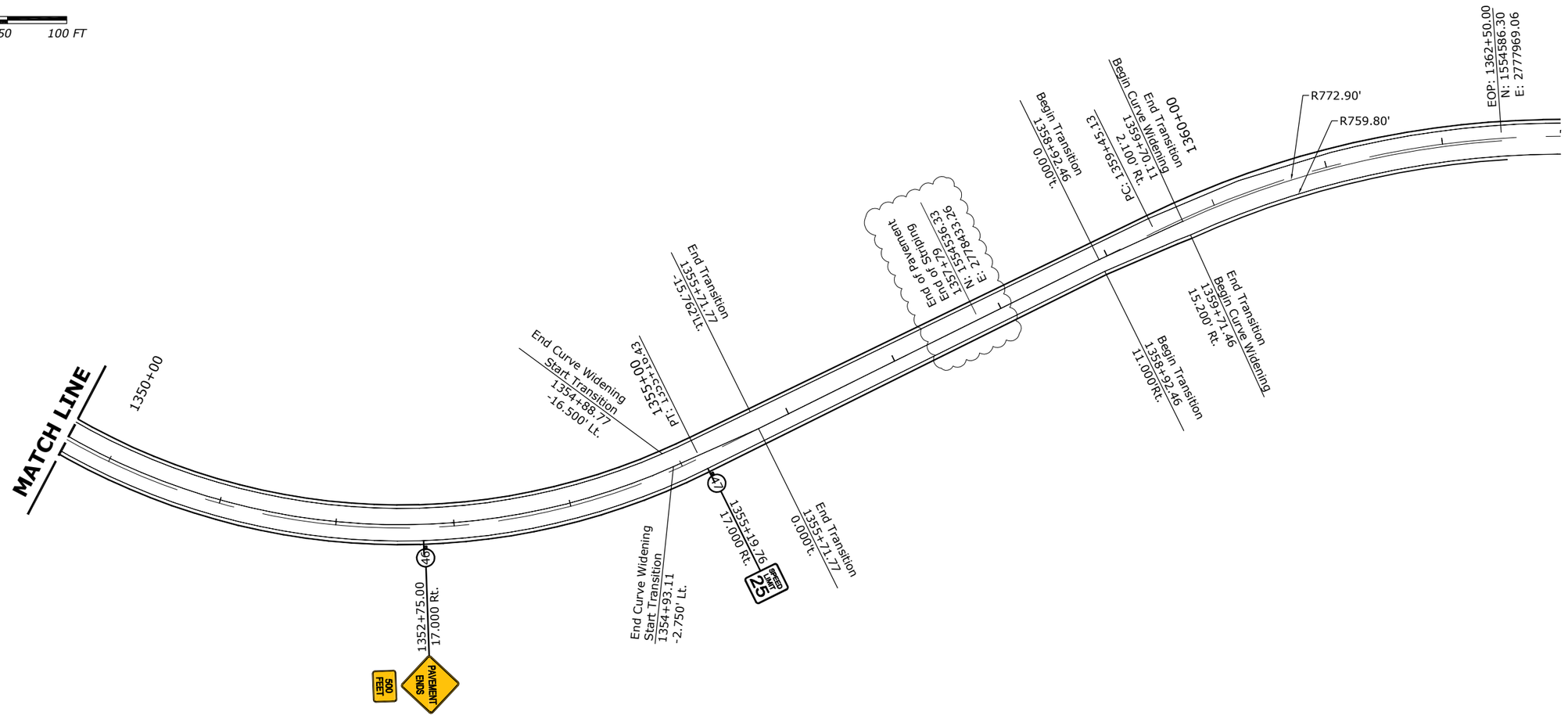
STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.24





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RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.25

STANDARD SIGN SUMMARY

Sheet	Post No.	Location	Offset Lt.	Offset Rt.	Type	Legend	Description	Size (in) W	Size (in) H	Area Sq. Ft.	Post #-Size	Post Type	Sign Faces	Total Quantity	Remarks
M.02	1	785+00.00		17.00'	R2-1			30	36	7.5	1-2.5"	PST-S	S	1	-
M.02	2	795+02.76		22.50'	D10-2			10	27	1.875	1-2.5"	PST-S	N/S	2	Install back to back
M.03	3	815+36.82		61.00'	FM1-7V [1]			4	Var. [1]	N/A	N/A	FS	SW	1	See footnote 1
M.04	4	847+82.76		17.00'	D10-2			10	27	1.875	1-2.5"	PST-S	N/S	2	Install back to back
M.04	5	859+65.15		17.00'	W7-1b			36	36	9.0	1-2.5"	PST-S	S	1	-
M.05	6	871+39.39		61.00'	FM1-7V [1]			4	Var. [1]	N/A	N/A	FS	SW	1	See footnote 1
M.05	7	880+00.50		17.00'	I-3			45	36	11.25	2-2.5"	PST-S	S	1	-
M.05	8	880+83.82	17.00'		I-3			45	36	11.25	2-2.5"	PST-S	N	1	-
M.06	9	900+62.77		17.00'	D10-2			10	27	1.875	1-2.5"	PST-S	N/S	2	Install back to back

FOOTNOTE:

1/ ***All FM1-7V signs shall be retroreflective text on fiberglass stake. The stake height may vary but must be a minimum of 48" above the edge of roadway.***

RFI 107
Bridge Sign Posts

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RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.26

STANDARD SIGN SUMMARY

Sheet	Post No.	Location	Offset Lt.	Offset Rt.	Type	Legend	Description	Size (in) W	Size (in) H	Area Sq. Ft.	Post #-Size	Post Type	Sign Faces	Total Quantity	Remarks
M.06	10	910+63.53	61.00'		FM1-7V [1]			4	Var. [1]	N/A	N/A	FS	SE	1	See footnote 1
M.07	11	934+73.95	61.00'		FM1-7V [1]			4	Var. [1]	N/A	N/A	FS	E	1	See footnote 1
M.08	12	950+00.00	17.00'		W7-1b			36	36	9.0	1-2.5"	PST-S	N	1	-
M.08	13	953+42.64		17.00'	D10-2			10	27	1.875	1-2.5"	PST-S	N/S	2	Install back to back
M.08	14	961+00.00		17.00'	W7-1b			36	36	9.0	1-2.5"	PST-S	S	1	-
M.08	15 16	963+81.10	17.00'	17.00'	M1-7			24	24	3.40	1-2.5"	PST-S	SE NW	2	-
M.09	17	985+09.94		17.00'	W7-1b			36	36	9.0	1-2.5"	PST-S	S	1	-
M.09	18	985+84.88	61.00'		FM1-7V [1]			4	Var. [1]	N/A	N/A	FS	SE	1	See footnote 1

FOOTNOTE:

1/ ***All FM1-7V signs shall be retroreflective text on fiberglass stake. The stake height may vary but must be a minimum of 48" above the edge of roadway.***

Rev.4 X.XX.201X
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STATE OF ALASKA 49 TH
Douglas T. Kenley
CE-8176
X.XX.1X
REGISTERED PROFESSIONAL ENGINEER

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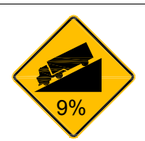
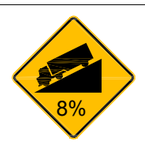
STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.27

STANDARD SIGN SUMMARY

Sheet	Post No.	Location	Offset Lt.	Offset Rt.	Type	Legend	Description	Size (in) W	Size (in) H	Area Sq. Ft.	Post #-Size	Post Type	Sign Faces	Total Quantity	Remarks
M.10	19	1006+22.76		17.00'	D10-2			10	27	1.875	1-2.5"	PST-S	SW/NE	2	Install back to back
M.10	20	1007+07.00		61.00'	FM1-7V [1]			4	Var. [1]	N/A	N/A	FS	N	1	See footnote 1
M.12	21	1051+24.00		17.00'	I-3			45	36	11.25	2-2.5"	PST-S	S	1	-
M.12	22	1052+07.11	17.00'		I-3			45	36	11.25	2-2.5"	PST-S	N	1	-
M.12	23	1059+02.76		17.00'	D10-2			10	27	1.875	1-2.5"	PST-S	N/S	2	Install back to back
M.14	24	1092+06.80		62.70'	FM1-7V [1]			4	Var. [1]	N/A	N/A	FS	N	1	See footnote 1
M.14	25	1111+82.76		17.00'	D10-2			10	27	1.875	1-2.5"	PST-S	N/S	2	Install back to back
M.15	26	1121+89.39		21.58'	W7-1b			36	36	9.0	1-2.5"	PST-S	S	1	-
M.15	27	1135+00.00		17.00'	W7-1b			36	36	9.0	1-2.5"	PST-S	S	1	-

FOOTNOTE:

[1] All FM1-7V signs shall be retroreflective text on fiberglass stake. The stake height may vary but must be a minimum of 48" above the edge of roadway.

RFI 107
Bridge Sign Posts

Rev.4 X.XX.201X
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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8178
X.XX.1X
REGISTERED PROFESSIONAL ENGINEER

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STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	M.28

STANDARD SIGN SUMMARY

Sheet	Post No.	Location	Offset Lt.	Offset Rt.	Type	Legend	Description	Size (in) W	Size (in) H	Area Sq. Ft.	Post #-Size	Post Type	Sign Faces	Total Quantity	Remarks
M.16	28	9007+62.75		17.00'	D10-2			10	27	1.875	1-2.5"	PST-S	N/S	2	Install back to back
M.16	29	9010+17.19	17.00'		W7-1b			36	36	9.0	1-2.5"	PST-S	N	1	-
M.17	30	1200+14.61		17.00'	M1-7			24	24	2.83	1-2.5"	PST-S	W	2	-
	31		21.91'										E		
M.18	32	10009+47.2		61.00'	FM1-7V [1]			4	Var. [1]	N/A	N/A	FS	E	1	See footnote 1
M.18	33	10010+92.8		17.00'	D10-2			10	27	1.875	1-2.5"	PST-S	W/E	2	Install back to back
M.19	34	10033+56.5		61.00'	FM1-7V [1]			4	Var. [1]	N/A	N/A	FS	W	1	See footnote 1
M.20	35	10065+22.8		17.00'	D10-2			10	27	1.875	1-2.5"	PST-S	SW/NE	2	Install back to back
M.21	36	1323+02.76		17.00'	D10-2			10	27	1.875	1-2.5"	PST-S	N/S	2	Install back to back

FOOTNOTE:

1] *All FM1-7V signs shall be retroreflective text on fiberglass stake. The stake height may vary but must be a minimum of 48" above the edge of roadway.*

Rev.4 X.XX.201X
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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
X.XX.1X
REGISTERED PROFESSIONAL ENGINEER

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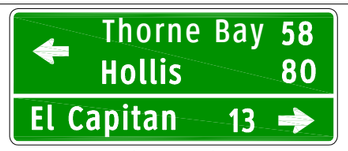
RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.29

STANDARD SIGN SUMMARY

Sheet	Post No.	Location	Offset (W) Lt.	Offset (W) Rt.	Type	Legend	Description	Size (in) W	Size (in) H	Area Sq. Ft.	Post #-Size	Post Type	Sign Faces	Total Quantity	Remarks
M.22	37	1338+00.00		17.00'	FM2-1			12	8	0.67	1-2.5"	PST-S	SW	2	-
					M1-7			24	24	3.40					-
	38		17.00'		R2-1			30	36	7.5	1-2.5"	PST-S	NE	1	See footnote 1
M.23	39	1341+00.00		29.00'	D1-3a			130	54	40.5	2-3"	STEEL PIPE	SW	1	-
M.23	40	1343+45.32		17.00'	M1-7			24	24	3.40	1-2.5"	PST-S	SW	4	-
					FM6-3			16	12	1.33					-
					M1-7			24	24	3.40					-
					FM6-1R			16	12	1.33					-
M.23	41	1343+75.38	22.50'		D1-3a			108	54	40.5	2-3"	STEEL PIPE	E	5	-
					M1-7			24	24	3.40					-
					FM6-4			16	12	1.33					-
					M1-7			24	24	3.40					-
					FM4-6			12	8	0.67					-

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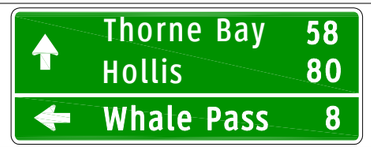
STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.30

STANDARD SIGN SUMMARY

Sheet	Post No.	Location	Offset (W) Lt.	Offset (W) Rt.	Type	Legend	Description	Size (in) W	Size (in) H	Area Sq. Ft.	Post #-Size	Post Type	Sign Faces	Total Quantity	Remarks
M.23	42	1344+24.21	22.50'		M1-7			24	24	3.40	1-2.5"	PST-S	N	4	-
					FM6-1L			16	12	1.33	1-2.5"	PST-S			-
					M1-7			24	24	3.40	1-2.5"	PST-S			-
					FM6-3			16	12	1.33	1-2.5"	PST-S			-
M.23	43	1346+00.00	22.50'		D1-3a			108	54	38.25	2-3"	STEEL PIPE	N	1	-
M.23	44	1348+00.00	22.50'		FM2-1			12	8	0.67	1-2.5"	PST-S	NW	2	-
					M1-7			24	24	3.40					-
M.23	45	1348+00.39		17.00'	W7-1b			36	36	9.0	1-2.5"	PST-S	SE	1	-
M.24	46	1352+75.00		17.00'	W8-3			36	36	9.0	1-2.5"	PST-S	S	2	-
					W16-2			36	20	5.0	1-2.5"	PST-S			-
M.24	47	1355+19.76		17.00'	R2-1			30	36	7.5	1-2.5"	PST-S	E	1	-

Rev.4 X.XX.201X
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RFI 62 - Interim Release

STATE	PROJECT	NUMBER
AK	AK PFH 43(10)	M.31

STANDARD SIGN SUMMARY

Sheet	Post No.	Location	Offset (W) Lt.	Offset (W) Rt.	Type	Legend	Description	Size (in) W	Size (in) H	Area Sq. Ft.	Post #-Size	Post Type	Sign Faces	Total Quantity	Remarks
M.22	48	90+48.56	23.00'		R1-1			36	36	9.00	1-2.5"	PST-S	E	1	-
M.22	49	94+00.00	17.80'		FM2-1			12	8	0.67	1-2.5"	PST-S	E	1	-
					M1-7			24	24	3.40					-
M.22	50	94+00.00		17.80'	R2-1			30	36	7.5	1-2.5"	PST-S	W	1	-

Rev.4 X.XX.201X
RELEASED FOR CONSTRUCTION

STATE OF ALASKA
49 TH
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CE-8176
X.XX.1X
REGISTERED PROFESSIONAL ENGINEER

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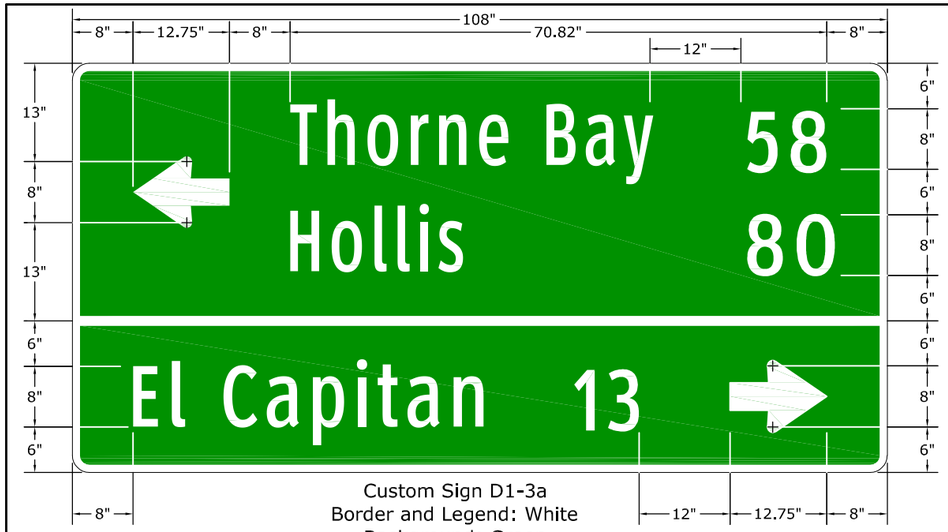
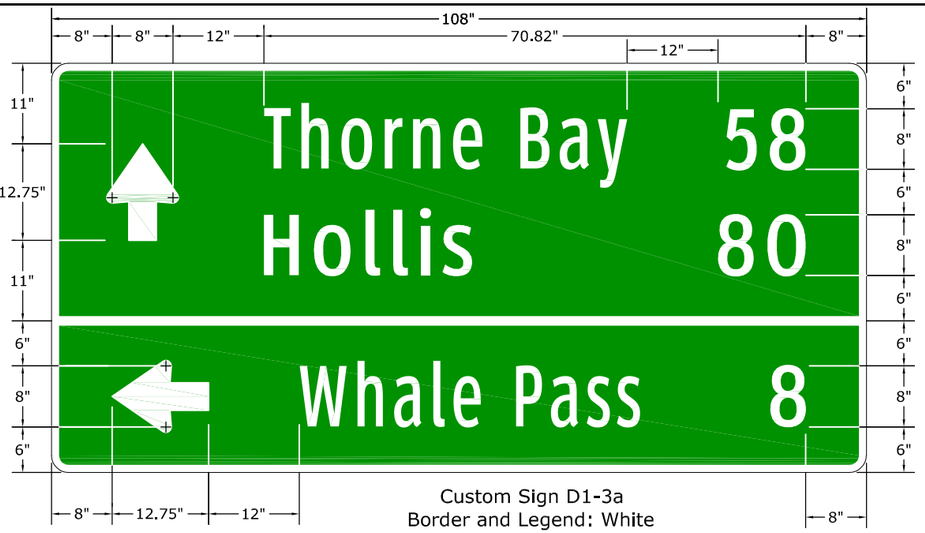
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	M.32

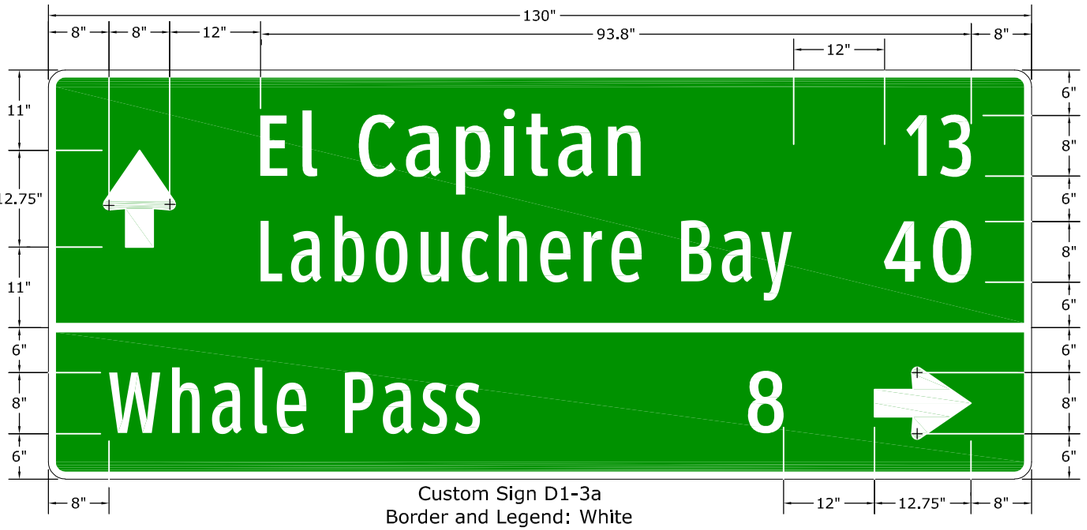


Custom Sign D1-3a
Border and Legend: White
Background: Green
Sign Post

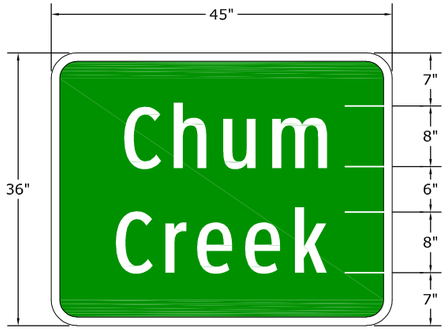


Custom Sign D1-3a
Border and Legend: White
Background: Green
Sign Post

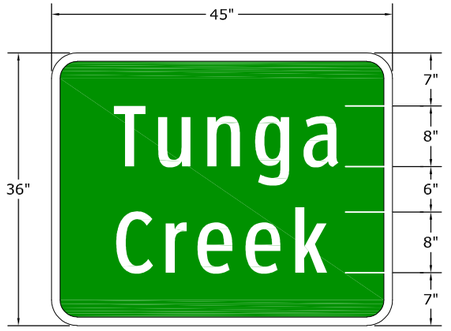
Typical Sign D10-2
Border and Legend: White
Background: Green
Sign Post



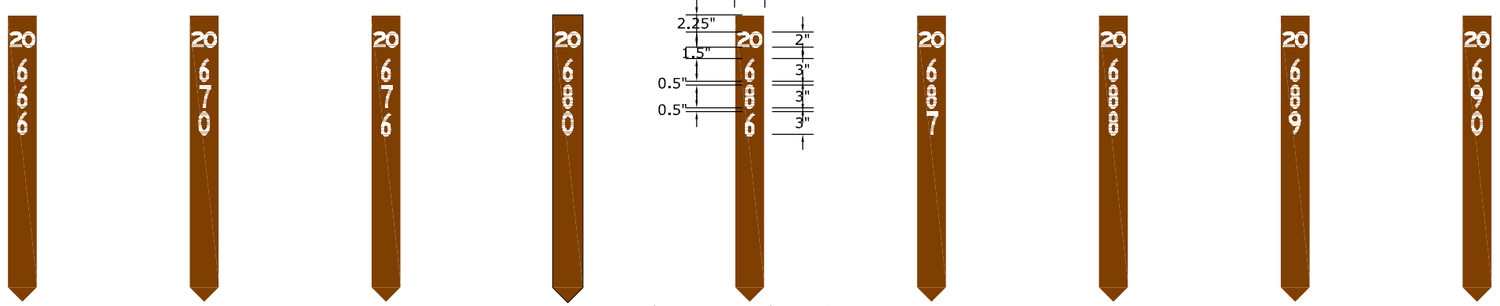
Custom Sign D1-3a
Border and Legend: White
Background: Green
Sign Post



Custom Sign I-3
Border and Legend: White
Background: Green
Sign Post



Custom Sign I-3
Border and Legend: White
Background: Green
Sign Post



Typical Fiberglass Stake FM1-7V
Border and Legend: White
Background: Brown
Sign Post

Typical Sign M1-7
Border and Legend: White
Background: Brown
Sign Post

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STATE OF ALASKA
49 TH
Douglas T. Kenley
CE-8176
9.05.13
REGISTERED PROFESSIONAL ENGINEER

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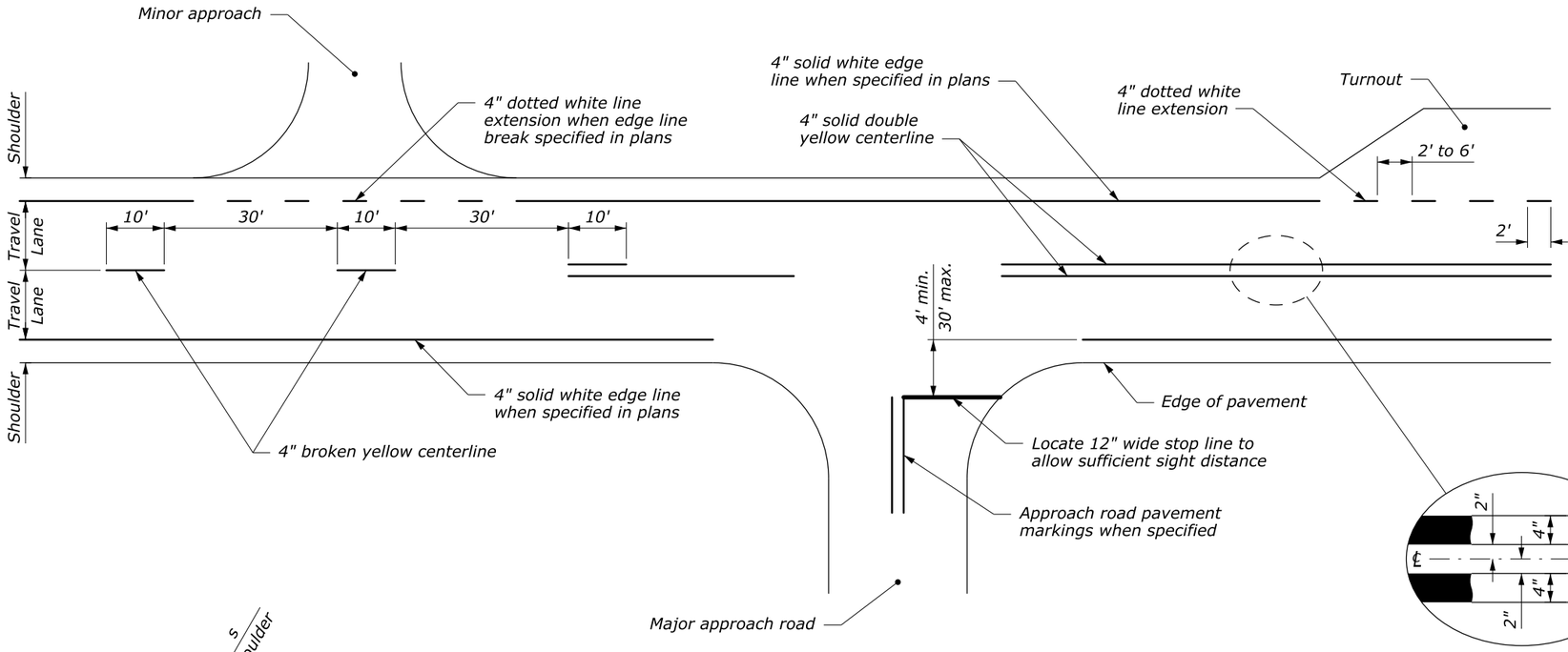
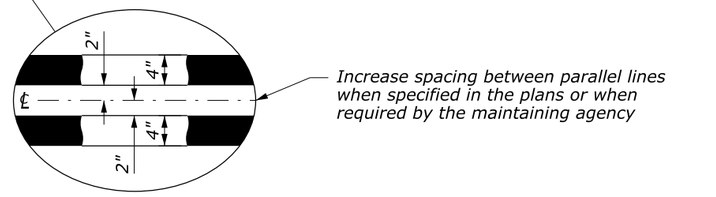
STATE	PROJECT	SHEET NUMBER
AK	AK PFH 43(10)	M.33



NOTE:

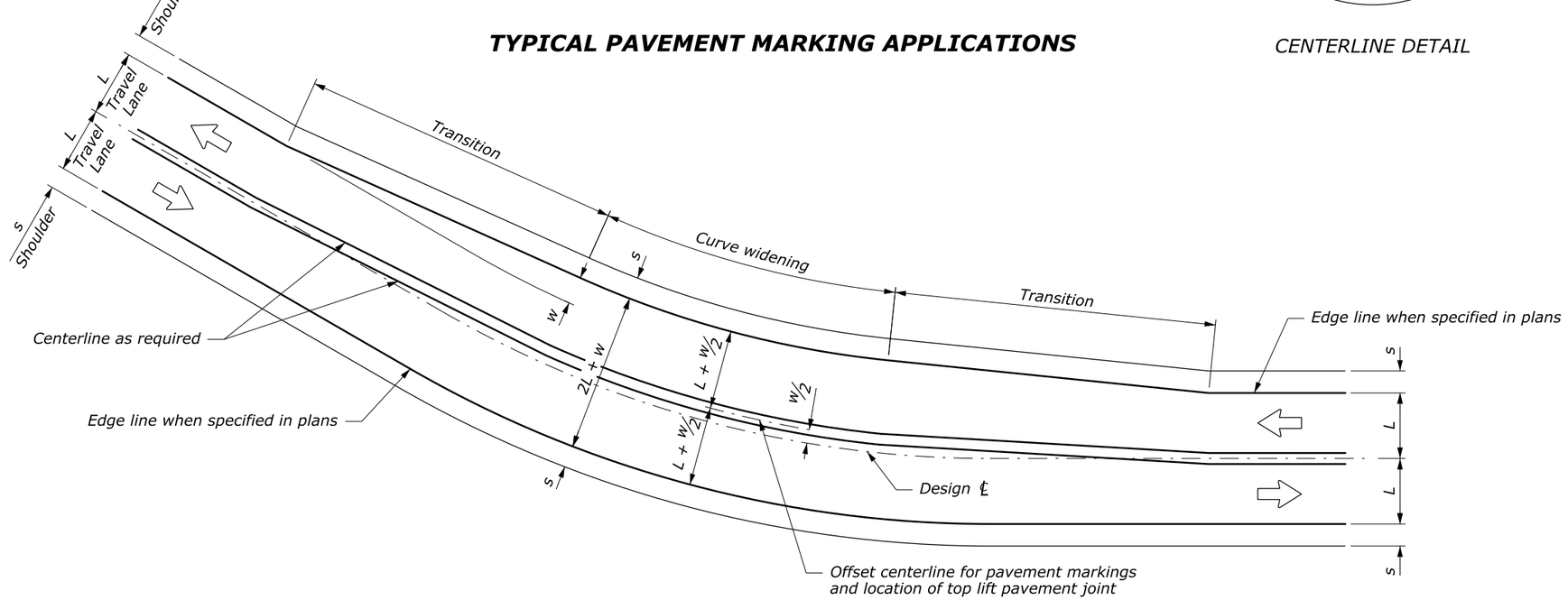
1. *Place edge line pavement markings at asphalt/concrete curb interface when curb is present.*
2. *Paint centerline pavement markings on curves with curve widening "w" to achieve equal lane widths within the roadway. Maintain a constant shoulder width "s" throughout the curve widening area. See staking details for curve widening transition locations.*
3. *Typical pavement marking widths are shown. Use wider pavement markings when specified on the plans or when required by the maintaining agency.*



Increase spacing between parallel lines when specified in the plans or when required by the maintaining agency

TYPICAL PAVEMENT MARKING APPLICATIONS

CENTERLINE DETAIL



CENTERLINE MODIFICATION FOR CURVES WITH WIDENING APPLIED ON INSIDE

See Note 2 for treatment of curves when widening "w" is split equally on both sides of centerline

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL

LINEAR PAVEMENT MARKINGS

DETAIL APPROVED FOR USE 10/2007
REVISED: 10/2012

DETAIL W634-2

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18 October 2012 2:03 PM