AK USFS 2060(1) Naukati Road Reconstruction

Contract No: DTFH7016C00005

Southeast Roadbuilders, Inc.

Award Date: November 19, 2015

Asbuilt Drawings

Index

Amendment A003

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	A.2

INDEX TO SHEETS

☑ APPROVED
☐ APPROVED AS NOTED
☐ RETURNED FOR CORRECTION

Date: JUL 10 2017 By: Jim Jozovich

FEDERAL HIGHWAY ADMINISTRATION
Federal Lands Highway

See FAR 52.236-21(e) for limitations of Government's responsibility in approving this document.

△ Amendment A003

INDEX TO SHEETS

Designed by: C.Conrad 04/2013 Checked by:
21 August 2015 7:42 AM c:\mylfiles\pw_production\d0199356\ak-f206001ab.dgn [US_Sur_(2D)]

SUMMARY OF QUANTITIES - Schedule A

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	B.1

AMEND	Line Item No.	Pay Item Number	Pay Item Description	Unit	Sheet and Description												Estimated Quantities	Remarks and/or Determination of Estimated Quantity
					Section C	Section D	Section E	Section F	Section G	Section H	Section I	Section J	Section K					
					Typical Section	Plan & Profile	Approach Roads	Erosion Control	Drainage	Reinforced Soil Slopes	Safety Features	Temporary Traffic Control	Permanent Traffic Control			ALLOWANCE	Bid Schedule	
	A0020	15101-0000	MOBILIZATION	LPSM													ALL	
	A0040	15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM													ALL	
	A0060	15301-0010	CONTRACTOR QUALITY CONTROL AND ASSURANCE	LPSM													ALL	
	A0080	15401-0000	CONTRACTOR TESTING	LPSM													ALL	
	A0100	15501-0000	CONSTRUCTION SCHEDULE	LPSM													ALL	
	A0120	15702-1000	SOIL EROSION CONTROL, TEMPORARY DIVERSION CHANNEL	LPSM													ALL	
	A0140	15705-1500	SOIL EROSION CONTROL, SEDIMENT WATTLE(CHECK DAMS)	LNFT				2,510									2,510	
	A0160	15705-1500	SOIL EROSION CONTROL, SEDIMENT WATTLE(SLOPE PROTECTION)	LNFT				29,884									29,884	
	A0180	15705-1500	SOIL EROSION CONTROL, SEDIMENT WATTLE	LNFT				11,636									11,636	
	A0200	15706-1600	SOIL EROSION CONTROL, STABILIZED CONSTRUCTION ENTRANCE	EACH				1									1	
	A0220	15707-1000	SOIL EROSION CONTROL, TEMPORARY TURF ESTABLISHMENT	SLRY				54									54	
	A0240	15801-0000	WATERING FOR DUST CONTROL	MGAL				2,250									2,250	
	A0260	20101-0000	CLEARING AND GRUBBING	ACRE		24.0											24.0	
	A0280	20301-1900	REMOVAL OF PIPE CULVERT	EACH					31								31	
	A0300	20301-2400	REMOVAL OF SIGN	EACH									2				2	
	A0320	20401-0000	ROADWAY EXCAVATION	CUYD		117,072	5,919									6,209	129,200	
	A0340	20402-0000	SUBEXCAVATION	CUYD		2,252										118	2,370	
	A0360	20410-0000	SELECT BORROW(GUY POLE PAD)	CUYD		110											110	
	A0380	20411-0000	SELECT BORROW	TON	31,028	14,021	3,095									2,456	50,600	1.97 TONS/CUYD
	A0400	20450-1000	BORROW, ROCK(SUBEX BACKFILL)	CUYD		2,252										118	2,370	
	A0420	20450-1000	BORROW, ROCK	CUYD		30,463										1,537	32,000	
	A0440	20701-0700	EARTHWORK GEOTEXTILE, TYPE II-A	SQYD		34,966										1,734	36,700	
	A0460	20701-1200	EARTHWORK GEOTEXTILE, TYPE IV-A	SQYD		32,308										1,692	34,000	
	A0480	20703-2000	GEOGRID, BIAXIAL	SQYD		34,966										1,734	36,700	
	A0500	21101-2000	ROADWAY OBLITERATION, METHOD 2	SQYD		3,407											3,407	
	A0520	25101-2000	PLACED RIPRAP, CLASS 2(ENERGY DISSIPATOR)	CUYD					99							21	120	

SUMMARY OF QUANTITIES - Schedule A

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	B.2

AMEND	Line Item No.	Pay Item Number	Pay Item Description	Unit	Sheet and Description: Section C Typical Section	Section D Plan & Profile	Section E Approach Roads	Section F Erosion Control	Section G Drainage	Section H Reinforced Soil Slopes	Section I Safety Features	Section J Temporary Traffic Control	Section K Permanent Traffic Control				ALLOWANCE	Estimated Quantities: Bid Schedule	Remarks and/or Determination of Estimated Quantity
	A0540	25101-2000	PLACED RIPRAP, CLASS 2(RIPRAP HEADWALL)	CUYD					267								33	300	
	A0560	25120-2000	RIPRAP DITCH, CLASS 2	LNFT		3,405											342	3,747	
	A0580	27201-1000	REINFORCED SOIL SLOPE, GEOGRID	SQFT						6,948								6,948	
	A0600	30101-2000	AGGREGATE BASE GRADING D(4-INCH COMPACTED DEPTH)	TON	11,338		2,772										1,390	15,500	1.97 TONS/CUYD
	A0620	30901-2000	EMULSIFIED ASPHALT TREATED AGGREGATE BASE, GRADING D(4-INCH COMPACTED DEPTH)	TON	10,726												1,074	11,800	
	A0640	30905-1200	EMULSIFIED ASPHALT, GRADE CSS-1	TON	215												21	236	
	A0660	40301-0000	HOT ASPHALT CONCRETE PAVEMENT	TON			230										11	241	
	A0680	40910-0800	SURFACE TREATMENT, DESIGNATION 2C	SQYD	47,646												4,754	52,400	
	A0700	40940-1300	EMULSIFIED ASPHALT, GRADE CRS-2P	TON	199												20	219	
	A0720	60201-0800	24-INCH PIPE CULVERT	LNFT					1,922									1,922	
	A0740	60201-1000	36-INCH PIPE CULVERT	LNFT					616									616	
	A0760	60201-1400	60-INCH PIPE CULVERT	LNFT					114									114	
	A0780	60201-1600	72-INCH PIPE CULVERT	LNFT					74									74	
	A0800	60201-1800	84-INCH PIPE CULVERT	LNFT					62									62	
	A0820	60201-2200	108-INCH PIPE CULVERT	LNFT					88									88	
	A0840	61701-1250	GUARDRAIL SYSTEM G4, TYPE 2, CLASS A WOOD POSTS	LNFT		3,925												3,925	
	A0860	61702-0800	TERMINAL SECTION TYPE TANGENT	EACH		14												14	
	A0880	62101-0000	MONUMENT(SETTLEMENT PLATE ASSEMBLY)	EACH	6													6	
	A0900	62201-0250	DUMP TRUCK, 10 CUBIC YARD MINIMUM CAPACITY	HOUR		80												80	
	A0920	62201-1000	WHEEL LOADER, 4 CUBIC YARD MINIMUM RATED CAPACITY	HOUR		40												40	
	A0940	62201-1250	BULLDOZER, 120HP MINIMUM FLYWHEEL POWER	HOUR		40												40	
	A0960	62201-3100	HYDRAULIC EXCAVATOR, 3.0 CUBIC YARD MINIMUM CAPACITY, 165HP MINIMUM FLYWHEEL POWER	HOUR		80												80	
	A0980	62201-3750	CHAIN SAW	HOUR		20												20	
	A1000	62301-0000	GENERAL LABOR	HOUR		40												40	
	A1020	62405-0300	PLACING CONSERVED TOPSOIL, 4-INCH DEPTH	SQYD		18,097											1,803	19,900	

SUMMARY OF QUANTITIES - Schedule A

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	B.3

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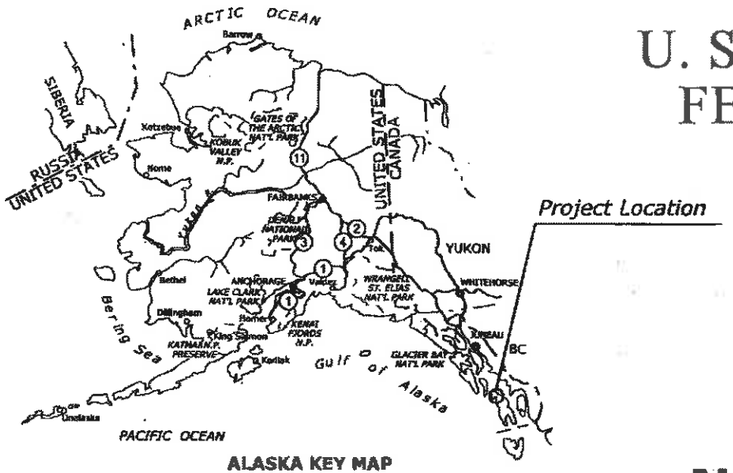
					Typical Section	Plan & Profile	Approach Roads	Erosion Control	Drainage	Reinforced Soil Slopes	Safety Features	Temporary Traffic Control	Permanent Traffic Control				ALLOWANCE	Bid Schedule
	A1040	62503-0000	TURF ESTABLISHMENT	SLRY		54												54	
	A1060	63302-0000	SIGN SYSTEM	SQFT									53					53	
	A1080	63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH								4						4	
	A1100	63502-1000	TEMPORARY TRAFFIC CONTROL, CONE, TYPE 36-INCH	EACH								150						150	
	A1120	63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH								60						60	
	A1140	63503-0400	TEMPORARY TRAFFIC CONTROL, CONCRETE BARRIER	LNFT								1,170						1,170	
	A1160	63504-1000	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	SQFT								241						241	
	A1180	63509-1000	TEMPORARY TRAFFIC CONTROL, FLAGGER	X HR RA								7,000						7,000	
A003	A1182	63701-0000	FIELD OFFICE	EACH													1	1	
A003	A1184	63704-0000	VEHICLE	EACH													2	2	
	A1200	64631-0000	ROADSIDE DEVELOPMENT(BIOFILTRARTION SWALE)	LNFT					1,628									1,628	
	A1220	64703-6000	MITIGATION, FISH PASSAGE BOULDER	EACH					46									46	
	A1240	64704-1000	MITIGATION, STREAMBED MATERIAL	CUYD					355									355	

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	A.1

U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION



ALASKA KEY MAP

PLANS FOR PROPOSED PROJECT

AK USFS 2060(1)

NAUKATI ROAD RECONSTRUCTION

PRINCE OF WALES-HYDER CENSUS AREA
TONGASS NATIONAL FOREST
PRINCE OF WALES ISLAND
ALASKA

LENGTH 2.494 MILES

TYPE OF CONSTRUCTION:

Grading, drainage, and base

DESIGN DESIGNATION:

ADT (2014)	*<100*
ADT (2034)	*NO DATA AVALIABLE*
V	*30 MPH*
e(max)	*0.060*

SPECIFICATION:

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

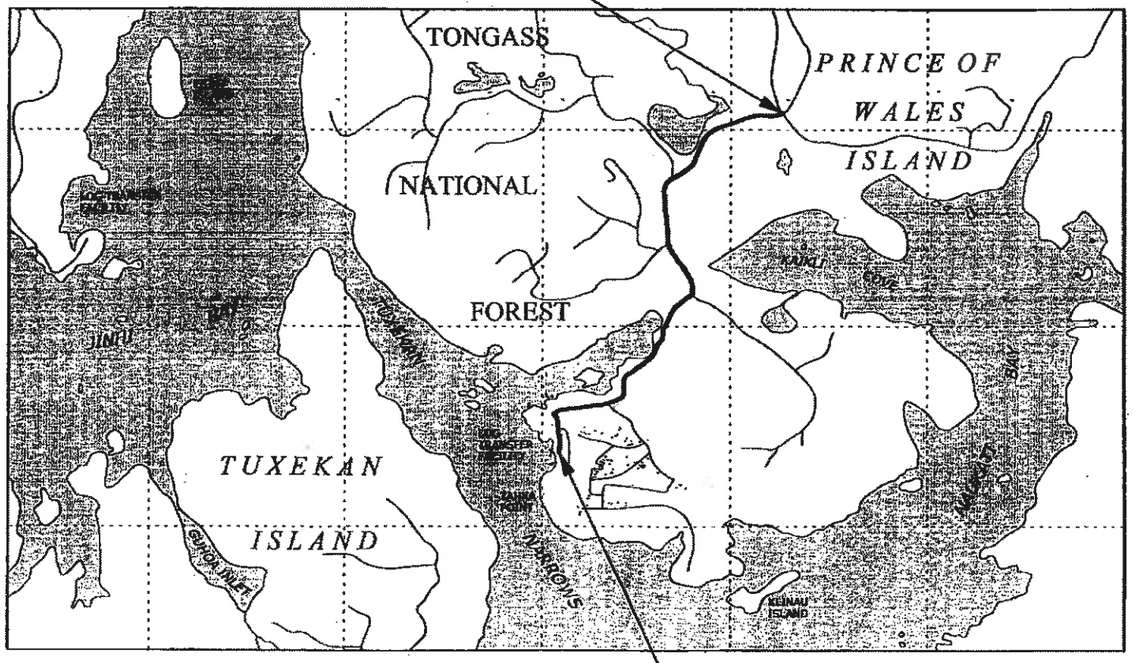
FEDERAL LANDS HIGHWAY
COMMITMENT TO EXCELLENCE

PLANS PREPARED BY
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
WESTERN FEDERAL LANDS HIGHWAY DIVISION
VANCOUVER, WASHINGTON

PROJECT MANAGER
N. CHRISTENSEN

N

BEGIN PROJECT
10+13.42



END PROJECT
141+80

SCALE IN MILES
1.0 0.5 0 1.0

SECTION INDEX

See Sheet A.2 for Index to Sheets

APPROVED:

Director, Project Delivery,
Western Federal Lands Highway Division

DATE 8/21/15

Checked by: 04/2013 | Designed by: C.Conrad | 8/21/2015 | ...\ak-2060(1)aa.dgn [US_Sor_f20]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	A.2

INDEX TO SHEETS

INDEX TO SHEETS

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

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	A.3

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 Section		
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		

NO SCALE

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

U.S. CUSTOMARY DETAIL

PLAN SYMBOLS AND ABBREVIATIONS

DETAIL APPROVED FOR USE 11/2001

REVISED: 9/2005 1/2007 10/2009

DETAIL W101-1

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STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	A.4

PRINCE OF WALES ISLAND

TONGASS NATIONAL FOREST

TUXEKAN NARROWS

TUXEKAN ISLAND

KAIKLI COVE

NAUKATI BAY

LITTLE NAUKATI BAY

NAUKATI BAY

TAHKA POINT

LOG TRANSFER FACILITY

FH 43

NORTH PRINCE OF WALES HIGHWAY

FS 2060

FS 2060-200

FS 2060-300

BEGIN PROJECT
10+13.42

END PROJECT
141+80

N

SCALE IN FEET
0 200 400 600 800

VICINITY MAP

...\ak-f2060001ac.dgn [US_Sur_ft2D] | Designed by: Rodney Meadows, PE | 8/21/2015 | Checked by: | 03/2010 | --/---

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					TYPICAL SECTIONS	PLAN & PROFILE	APPROACH ROADS	EROSION SEDIMENT CONTROL	DRAINAGE	REINFORCED SOIL SLOPES	SAFETY FEATURES	TEMPORARY TRAFFIC CONTROL PLAN	PERMANENT TRAFFIC CONTROL	ALLOWANCE	Bid Schedule	
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	A0060	15301-0010	CONTRACTOR QUALITY CONTROL AND ASSURANCE	LPSM											ALL	
	A0080	15401-0000	CONTRACTOR TESTING	LPSM											ALL	
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MileStone: 100%
Date Completed: 09/02/15
Report Date: 09/02/15

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	A0780	60201-1000	36-INCH PIPE CULVERT	LNFT					616						616	
	A0800	60201-1400	60-INCH PIPE CULVERT	LNFT					114						114	
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	A0860	60201-2200	108-INCH PIPE CULVERT	LNFT					88						88	
	A0880	61701-1250	GUARDRAIL SYSTEM G4, TYPE 2, CLASS A WOOD POSTS	LNFT		3,925									3,925	
	A0900	61702-0800	TERMINAL SECTION TYPE TANGENT	EACH		14									14	
	A0920	62101-0000	MONUMENT (SETTLEMENT PLATE ASSEMBLY)	EACH	6										6	
	A0940	62201-0250	DUMP TRUCK, 10 CUBIC YARD MINIMUM CAPACITY	HOUR		80									80	
	A0960	62201-1000	WHEEL LOADER, 4 CUBIC YARD MINIMUM RATED CAPACITY	HOUR		40									40	
	A0980	62201-1250	BULLDOZER, 120HP MINIMUM FLYWHEEL POWER	HOUR		40									40	
	A1000	62201-3100	HYDRAULIC EXCAVATOR, 3.0 CUBIC YARD MINIMUM CAPACITY, 165HP MINIMUM FLYWHEEL POWER	HOUR		80									80	
	A1020	62201-3750	CHAIN SAW	HOUR		20									20	
	A1040	62301-0000	GENERAL LABOR	HOUR		40									40	
	A1060	62405-0300	PLACING CONSERVED TOPSOIL, 4-INCH DEPTH	SQYD		18,097								1,803	19,900	
	A1080	62503-0000	TURF ESTABLISHMENT	SLRY		54									54	
	A1100	63302-0000	SIGN SYSTEM	SQFT									53		53	
	A1120	63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH								4			4	
	A1140	63502-1000	TEMPORARY TRAFFIC CONTROL, CONE, TYPE 36-INCH	EACH								150			150	
	A1160	63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH								60			60	
	A1180	63503-0400	TEMPORARY TRAFFIC CONTROL, CONCRETE BARRIER	LNFT								1,170			1,170	
	A1200	63504-1000	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	SQFT								241			241	
	A1220	63509-1000	TEMPORARY TRAFFIC CONTROL, FLAGGER	FXHR								7,000			7,000	
	A1240	64631-0000	ROADSIDE DEVELOPMENT (BIOFILTRARTION SWALE)	LNFT					1,628						1,628	
	A1260	64703-6000	MITIGATION, FISH PASSAGE BOULDER	EACH					46						46	
	A1280	64704-1000	MITIGATION, STREAMBED MATERIAL	CUYD					355						355	

A7070 20410-0000 Select Borrow Contract Quantity (plangty) CUYD
A7071 63704-0000 Vehicle month
A7080 40301-0000 Added Hot Asphalt Concrete Pavement TON
A7081 63100-0000 Permanent Pavement Markings LFSM
A0600 30101-2000 Aggregate Base Grading D TON

24439 CM006
1 CM006
5937 CM0007
1 CM0007
5900 CM0007

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Date: JUL 10 2017 By: Jim Jozovich

FEDERAL HIGHWAY ADMINISTRATION
Federal Lands Highway

See FAR 52.236-21(e) for limitations of Government's responsibility in approving this document.

MileStone: 100%
Date Completed: 09/02/15
Report Date: 09/02/15

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STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	C.1

TYPICAL SECTION QUANTITIES 1/

ITEM	DESCRIPTION	QUANTITY	UNIT	ESTIMATING VALUE
20411-0000	SELECT BORROW	31,028	TON	1.97 TONS/CUYD
30101-2000	AGGREGATE BASE GRADING D (4-INCH COMPACTED DEPTH)	11,338	TON	5,755 CUYD @ 1.97 TONS/CUYD
30901-2000	EMULSIFIED ASPHALT TREATED BASE, GRADING D (4-INCH COMPACTED DEPTH)	10,726	TON	5,445 CUYD 1.97 TONS/CUYD
30905-1200	EMULSIFIED ASPHALT GRADE CSS-1	215	TON	2% of 30901-1200
	SURFACE TREATMENT AGGREGATES (FOR INFORMATION ONLY, NOT MEASURED FOR PAYMENT)	1,906	TON	95,292 @ 40 LBS/SQYD 2000 LBS/TON
40910-0800	SURFACE TREATMENT DESIGNATION 2C	47,646	SQYD	
40940-1300	EMULSIFIED ASPHALT GRADE CRS-2P	199	TON	47,646 SQYD @ 1.0 GAL/SQYD, 240 GAL/TON of 40910-0800

CURVE WIDENING TABLE

LOCATION			SIDE	CURVE WIDENING	TRANSITION LENGTH (OUT/IN)	
12+07.52	to	15+29.70	RT.	4.3	36.67	197.07
13+32.63	to	16+09.23	LT.	2.6	197.07	25.93
17+80.03	to	21+14.24	LT.	4.3	36.67	200
19+24.27	to	24+08	RT.	2.6	200	200
22+24.87	to	26+21.44	LT.	5	200	193.61
24+27.83	to	28+70.89	RT.	5	193.61	200
26+70.89	to	29+43.64	LT.	5	200	36.67
31+59.04	to	33+26.37	LT.	3	28.57	28.57
34+97.87	to	38+66.06	LT.	2	18	200
37+90.52	to	43+76.50	RT.	5	200	200
41+99.82	to	44+64.62	LT.	3.6	200	32.59
48+13.90	to	53+83.25	LT.	3	28.57	200
52+66.48	to	56+53.80	RT.	3	200	173.16
58+24.12	to	63+39.48	RT.	3.6	179.35	194.15
61+45.33	to	63+85.01	LT.	5	194.15	36.67
65+27.93	to	67+21.64	LT.	4.3	36.67	36.67
74+01.97	to	75+89.78	RT.	2	130.97	18
78+07.14	to	80+87.96	RT.	2.6	25.93	25.93
82+22.74	to	86+46.03	RT.	2.6	25.93	200
86+87.84	to	91+09.83	LT.	2.6	200	25.93
101+47.37	to	105+77.24	RT.	3	28.57	200
103+85.13	to	107+14.45	LT.	3.6	200	32.59
111+07.24	to	114+32.43	LT.	5.8	36.67	200
112+32.43	to	118+21.23	RT.	5.8	200	187.44
120+08.77	to	124+92.67	RT.	2.6	200	186.7
123+05.97	to	127+28.85	LT.	2.6	186.7	175.53
125+53.32	to	129+66.68	RT.	2	175.53	200
127+85.24	to	130+37.04	LT.	3.6	200	25.93
132+76.66	to	135+49.54	LT.	5	36.67	36.67
138+61.92	to	141+80	LT.	2.6	25.93	111.36
140+68.64	to	141+80	RT.	5	111.36	0

ITEM 62101-0000 MONUMENT (SETTLEMENT PLATE ASSEMBLY)

STATION	QUANTITY (EACH)
22+75	1 ✓
49+00	1 ✓
51+00	1 ✓
59+00	1 ✓
~~114+25~~	~~1~~
~~114+75~~	~~1~~
TOTAL	6

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Date: 10 JUL 2017 By: Jim Jozovich

FEDERAL HIGHWAY ADMINISTRATION
Federal Lands Highway

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FOOTNOTE:

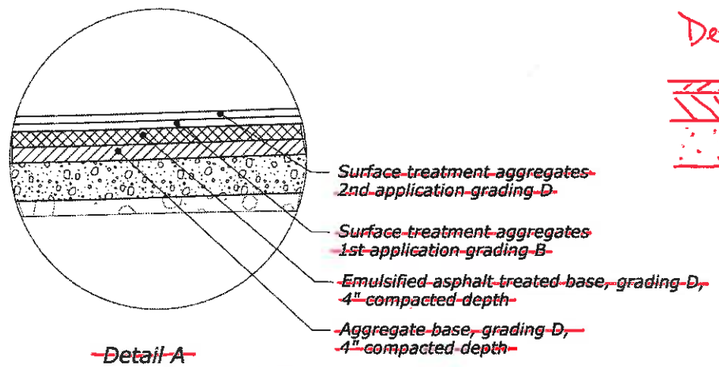
1/ Includes quantities for turnouts and guardrail widening.

TABULATION OF TYPICAL SECTION QUANTITIES

Designed by: C. Conrad | 07/2014 | Checked by:
8 July 2015 8:39 AM

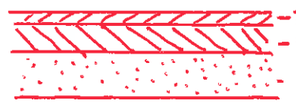
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	C.2

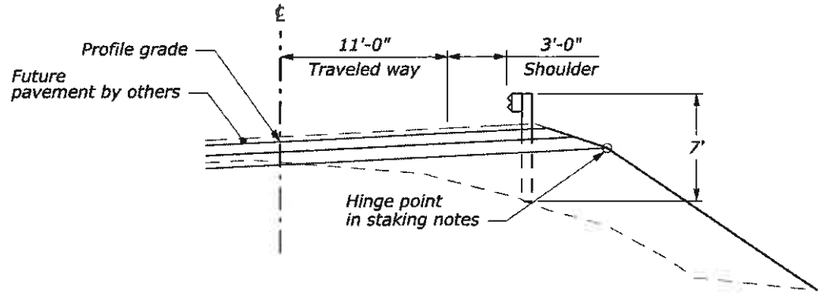
Designed by: C. Conrad | Checked by: | 04/2013 | 19 August 2015 10:49 AM | c:\mvyfiles\pw_product\d0199360\ak-f206001cd.dgn [US_Sur_ft2D]



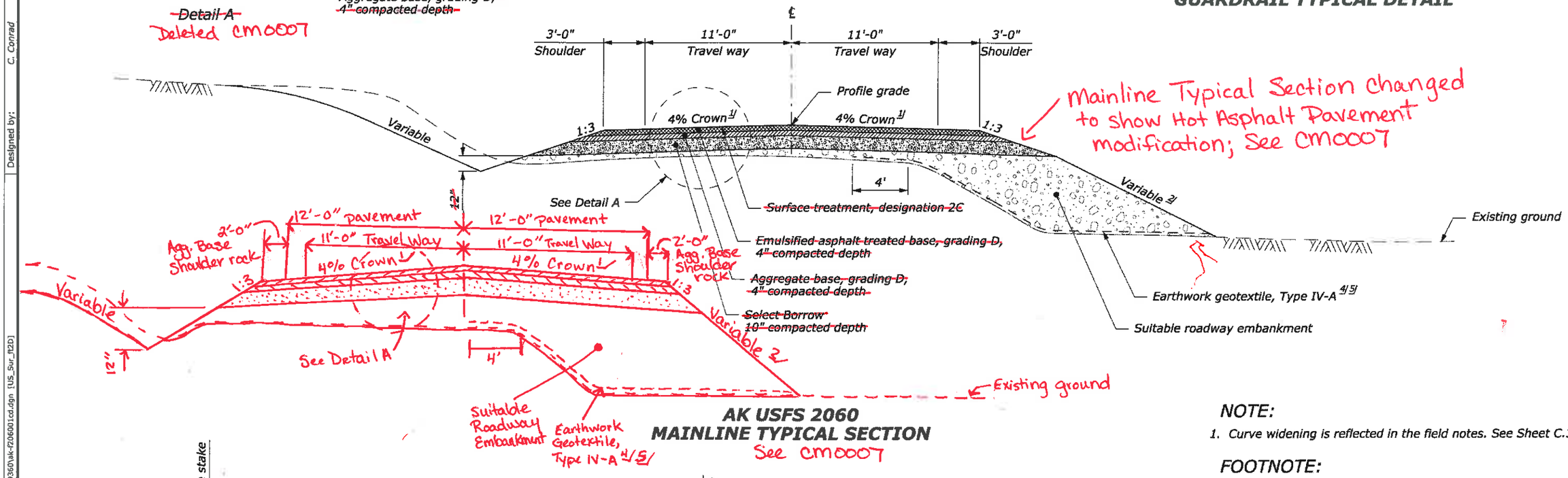
~~Detail A~~
Deleted CM0007

Detail A: See CM0007



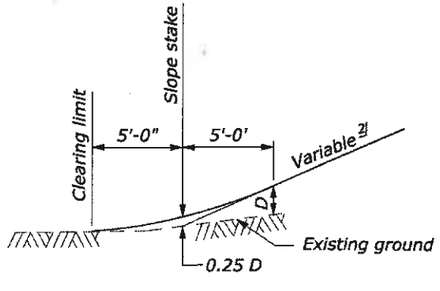


GUARDRAIL TYPICAL DETAIL

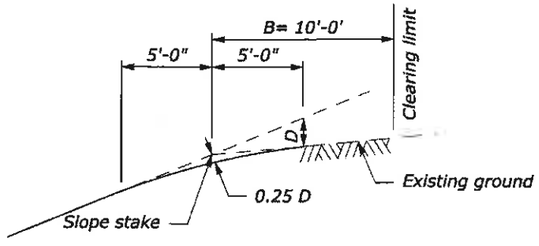


Mainline Typical Section changed to show Hot Asphalt Pavement modification; See CM0007

AK USFS 2060
MAINLINE TYPICAL SECTION
See CM0007



FILL SLOPE 3/
ROUNDING DETAIL



CUT SLOPE 3/
ROUNDING DETAIL

NO SCALE

NOTE:

1. Curve widening is reflected in the field notes. See Sheet C.3

FOOTNOTE:

1/ Superelevate roadway on curves at the rate 'e' as indicated on the plan and profile curve data. See Sheets D.3-7.

2/ Construct slopes as shown in the Staking Report.

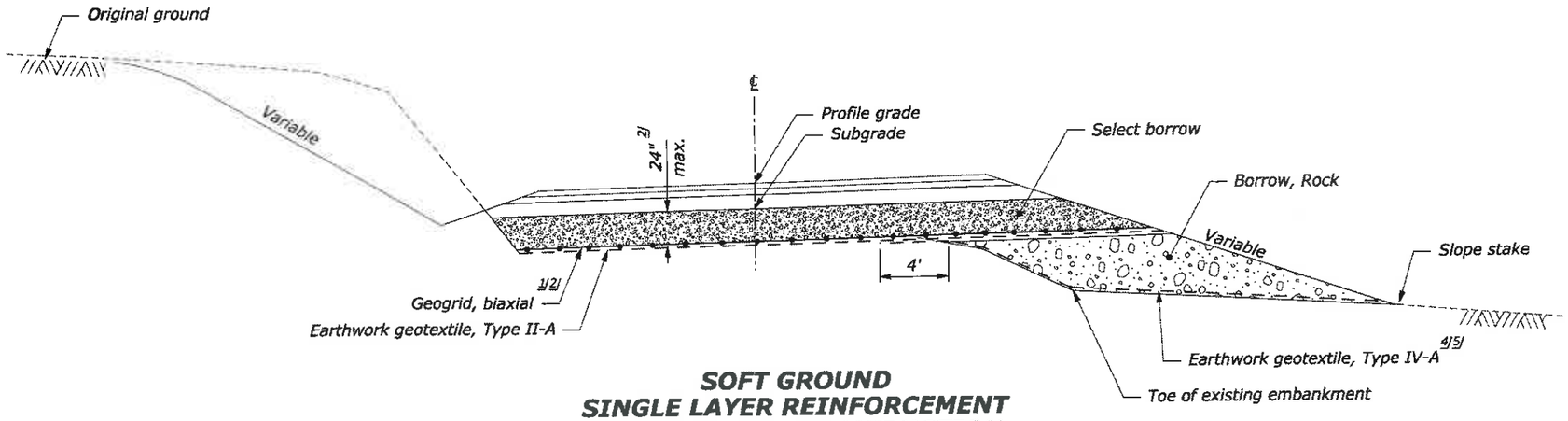
3/ For cut heights less than "B" reduce "B" to the cut height dimension and reduce the front slope rounding distance proportionally.

4/ Extend geotextile, Type IV-A, 4-feet beyond existing shoulder hinge point.

5/ See Sheet D.2 for locations and quantities.

✓ **TYPICAL SECTION**

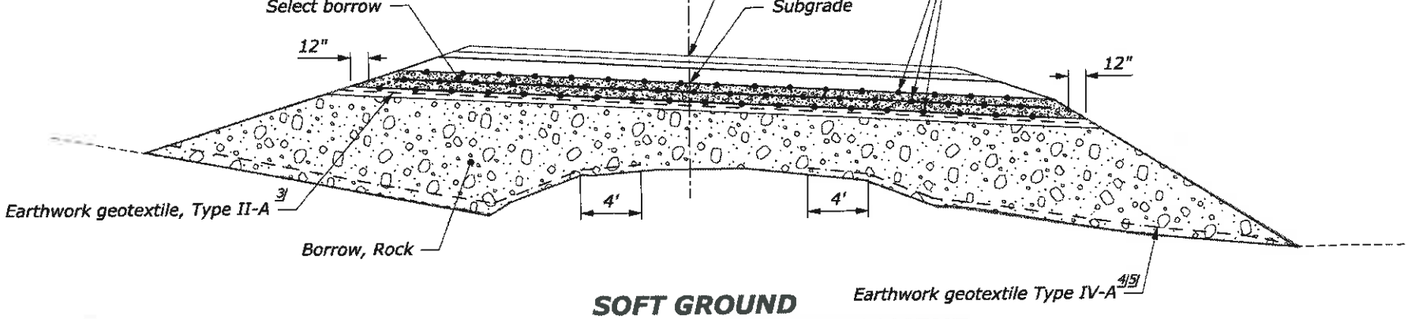
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	C.3



SOFT GROUND
SINGLE LAYER REINFORCEMENT
EMBANKMENT CONSTRUCTION

SINGLE LAYER GEOGRID REINFORCEMENT

STATION TO STATION	GEOGRID
~~13+00 to 13+90~~	~~Full width~~
25+50 to 27+50	Full width ✓
29+50 to 40+25	Full width ✓
40+25 to 44+20	LT of CL ✓
53+50 to 55+50	Full width ✓
66+00 to 66+80	Full width ✓
~~88+75 to 90+10~~	~~RT of CL~~
~~90+10 to 95+00~~	~~RT of CL and Full width~~
97+50 to ~~103+00~~ 100+50	~~RT of CL and Full width~~ ✓
113+50 to 115+75 5/	Full width ✓
127+00 to 131+50	LT of CL ✓



SOFT GROUND
TRI-LAYER GEOGRID REINFORCEMENT
DETAIL

TRI-LAYER GEOGRID REINFORCEMENT

STATION TO STATION	GEOGRID
21+75 to 23+50 6/	Full width ✓
40+25 to 44+50	RT of CL ✓
44+50 to 45+75	~~Full width~~ RT of CL ✓
48+00 to 53+50 6/	Full width ✓
55+50 to 60+50 6/	Full width ✓
60+50 to 61+30	LT of CL ✓

NOTE:

1. See Mainline Typical Section for proposed surfacing structure.
2. Construct slopes in the Staking Report.
3. See Section 204.

FOOTNOTE:

1/ Extend geogrid to within 1-foot of embankment slope in fill sections and to original ground in cut sections.

2/ Place geotextile, Type II-A no greater than 24-inches below subgrade. Lay geogrid directly on top of geotextile.

3/ Place geotextile Type II-A 22-inches below bottom of surface course. Lay geogrid directly on top of geotextile. Follow with two additional layers of geogrid placed in 6-inch lifts of select borrow.

4/ Extend geotextile, Type IV-A, 4-feet beyond existing shoulder hinge point.

5/ See Sheet D.2 for locations and quantities.

6/ See Sheet C.4.

NO SCALE

EMBANKMENT CONSTRUCTION DETAILS ✓

Designed by: -/---- Checked by: -/----
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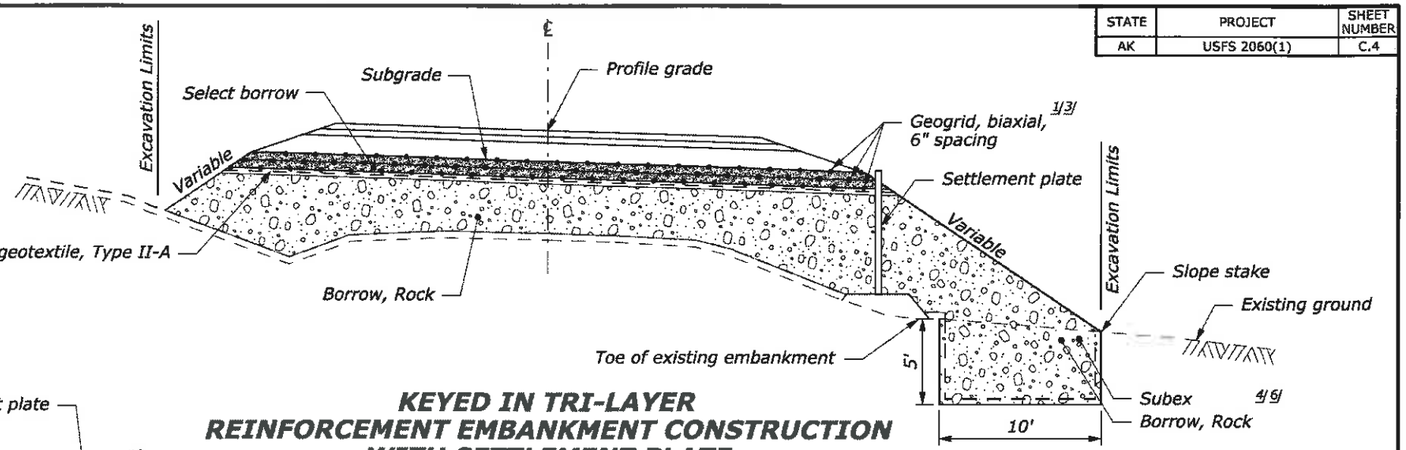
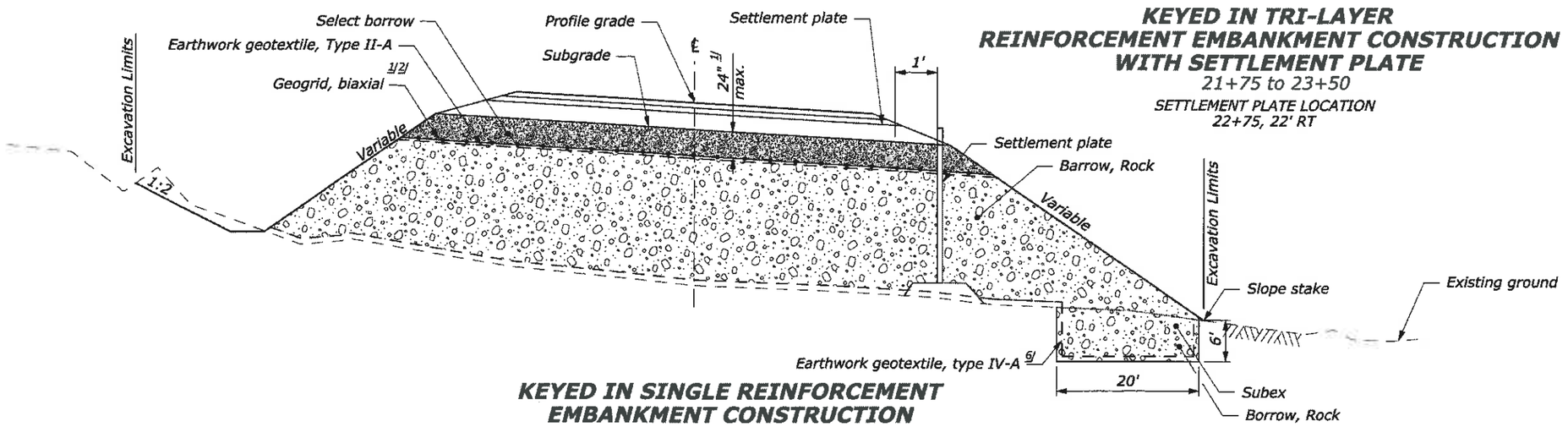
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	C.4



KEYED IN TRI-LAYER REINFORCEMENT EMBANKMENT CONSTRUCTION WITH SETTLEMENT PLATE

21+75 to 23+50

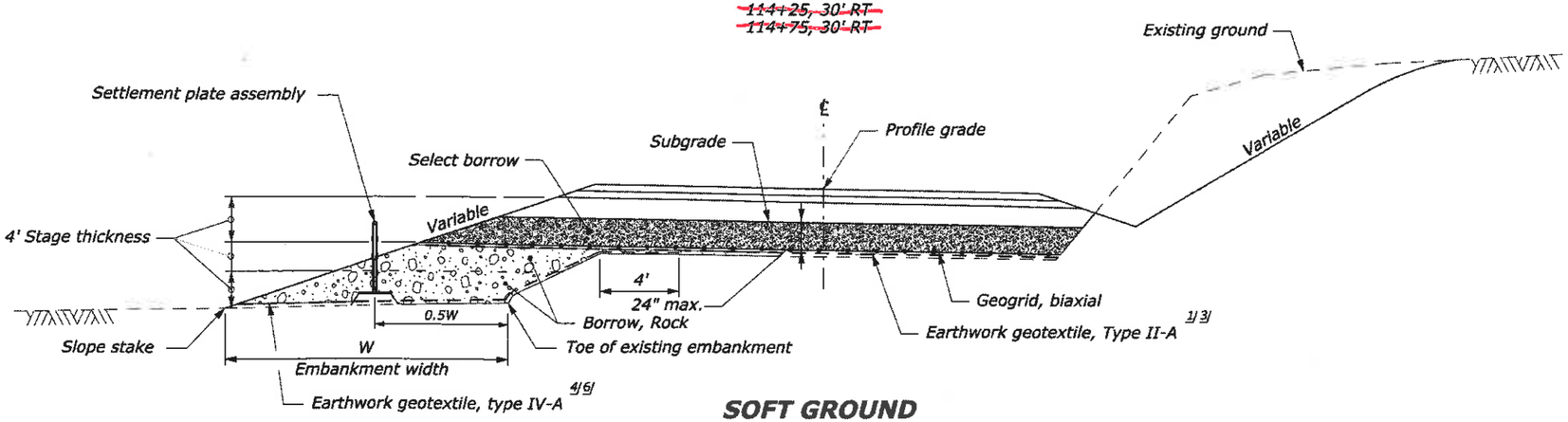
SETTLEMENT PLATE LOCATION
22+75, 22' RT



KEYED IN SINGLE REINFORCEMENT EMBANKMENT CONSTRUCTION WITH SETTLEMENT PLATE

113+50 to 115+75

SETTLEMENT PLATE LOCATION
~~114+25, 30' RT~~
~~114+75, 30' RT~~



SOFT GROUND STAGED EMBANKMENT CONSTRUCTION WITH SETTLEMENT PLATE

48+50 to 53+50
58+50 to 60+50

SETTLEMENT PLATE LOCATIONS
49+00, 0.5W ✓
51+00, 0.5W ✓
59+00, 0.5W ✓

NOTE:

1. See mainline typical section for proposed surfacing structure.
2. Construct slopes as shown in the Staking Report.
3. See Section 204.

FOOTNOTE:

1/ Extend geogrid to within 1-foot of embankment slope in fill sections and to original ground in cut sections.

2/ Place geotextile, Type II-A no greater than 24-inches below subgrade. Lay geogrid directly on top of geotextile.

3/ Place geotextile, Type II-A 22-inches below bottom of surface course. Lay geogrid directly on top of geotextile. Follow with two additional layers of geogrid placed in 6 inch lifts of select borrow.

4/ Extend geotextile, Type IV-A, 4-feet beyond existing shoulder hinge point.

5/ Extend geotextile, Type IV-A, under entire embankment.

6/ See sheet D.2 for locations and quantities.

NO SCALE

✓ EMBANKMENT ✓ CONSTRUCTION DETAILS

Designed by: C. KNUTH 11/2010 | Checked by: M. JOHNSON 11/2010 | 8/21/2015

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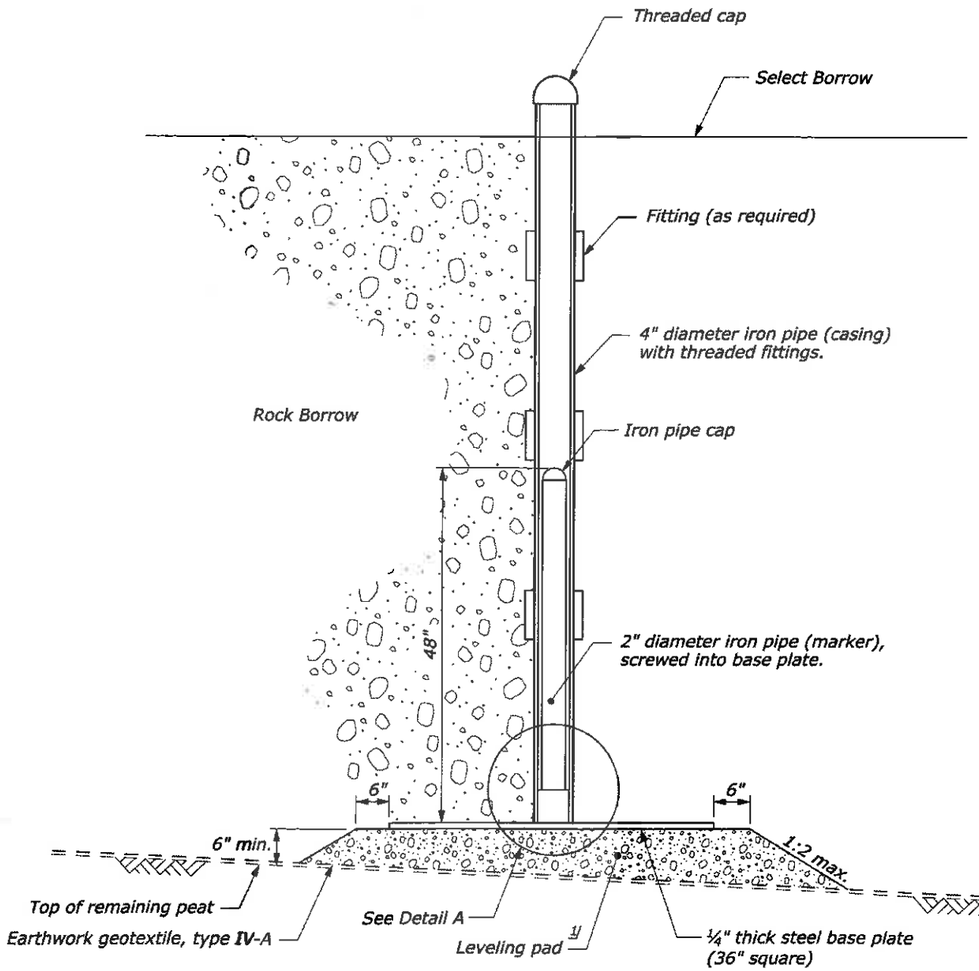
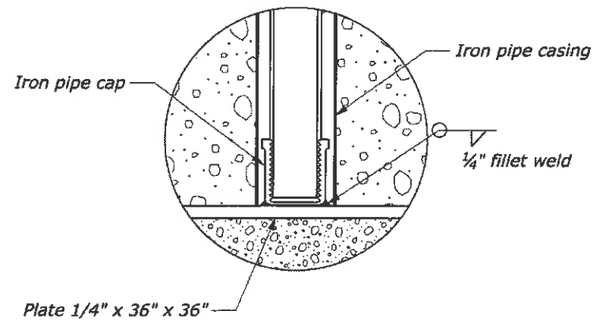
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	C.5



SETTLEMENT PLATE ASSEMBLY



DETAIL A

NOTE:

1. *See Subsection 621.03A.*

FOOTNOTE:

1/ *Construct an aggregate leveling pad to provide a level, stable foundation for the settlement plate assembly.*

SETTLEMENT PLATE DETAILS ✓

C. KNUTH 11/2010 | M. JOHNSON 11/2010 | Checked by: | 8/21/2015 | Designed by: | ...\ak-f206001cg.dgn [US_Sur2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	D.1

ROADWAY QUANTITIES

20101-0000 CLEARING AND GRUBBING (ACRE)	20401-0000 ROADWAY EXCAVATION (CUYD)	20402-0000 SUBEXCAVATION (CUYD)	20450-1000 BORROW, ROCK, (SUBEX BACKFILL) (CUYD)	EMBANKMENT 1/ (CUYD)	CONSERVED 2/ TOPSOIL (CUYD)	62503-0000 TURF ESTABLISHMENT (SLRY)
24	117,072	601	601	51,440	5,230	54

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SOFT GROUND SINGLE LAYER REINFORCEMENT EMBANKMENT QUANTITIES

STATION			SIDE	20402-0000 SUBEXCAVATION (CUYD)	20411-0000 SELECT BORROW (TON)	20450-1000 BORROW, ROCK (CUYD)	20450-1000 BORROW ROCK (SUBEX BACKFILL) (CUYD)	20703-0700 GEOTEXTILE, TYPE IIA (SQYD)	20703-2000 GEOGRID, BIAXIAL (SQYD)
~~13+08~~	~~to~~	~~13+90~~	~~Full width~~		~~577~~	~~403~~		~~583~~	~~583~~
25+50	to	27+50	Full width		922	174		~~1,031~~ 888.89	~~1,031~~ 888.89 ✓
29+50	to	40+25	Full width		2,443	1,253		~~4,318~~ 4658.34	~~4,318~~ 4658.34 ✓
40+25	to	~~44+20~~ 44+50	Left of CL		459	63		~~921~~ 1038.89	~~921~~ 1038.89 ✓
53+50	to	55+50	Full width		597	23		~~738~~ 920	~~738~~ 920 ✓
66+00	to	66+80	Full width		382	58		~~437~~ 313.33	~~437~~ 313.33 ✓
~~88+75~~	~~to~~	~~90+10~~	~~Right of CL~~		~~95~~	~~8~~		~~127~~	~~127~~ ✓
~~90+10~~	~~to~~	~~95+00~~	~~Full width~~		~~2,384~~	~~8,874~~		~~2,543~~	~~2,543~~ ✓
97+50	to	~~103+00~~ 100+00	Full width		221	453		~~1,627~~ 1000	~~1,627~~ 1000 ✓
113+50	to	115+75	Full width	1,286	1,704	10,706	1,286	~~1,361~~ 1150	~~1,361~~ 1150 ✓
127+00	to	131+50	Left of CL		749	168		~~1,160~~ 937.78	~~1,160~~ 937.78 ✓
			TOTALS	**1,286**	**10,533**	**22,183**	**1,286**	~~14,846~~ 10,967.23	~~14,846~~ 10,967.23

20411-0000 SELECT BORROW (GUY POLE PAD)

LOCATION	SIDE	VOLUME (CUYD)
~~18+65~~	~~LT~~	~~55~~ ✓
~~45+61~~	~~LT~~	~~55~~ ✓
	TOTAL	~~110~~

SOFT GROUND TRI-LAYER REINFORCEMENT EMBANKMENT QUANTITIES

STATION			SIDE	20402-0000 SUBEXCAVATION (CUYD)	20411-0000 SELECT BORROW (TON)	20450-1000 BORROW, ROCK (CUYD)	20450-1000 BORROW ROCK (SUBEX BACKFILL) (CUYD)	20703-0700 GEOTEXTILE, TYPE IIA (SQYD)	20703-2000 GEOGRID, BIAXIAL (SQYD)
21+75	to	23+50	Full width	365	534	2,733	365	~~2,514~~ 791.22	~~2,514~~ 2274.99 ✓
40+25	to	44+50	Right of CL		473	797		~~2,022~~ 826.39	~~2,022~~ 2452.93 ✓
~~44+50~~	~~to~~	~~45+75~~	~~Full width~~ RT of CL		213	228		~~1,014~~ 243.06	~~1,014~~ 756.95 ✓
48+00	to	53+50	Full width		581	2,382		~~7,021~~ 2536.11	~~7,021~~ 7241.67 ✓
55+50	to	60+50	Full width		1,527	1,875		~~6,853~~ 2343.43	~~6,853~~ 6793.83 ✓
60+50	to	61+30	Left of CL		160	265		~~696~~ 313.33	~~696~~ 508.27 ✓
			TOTALS	**365**	**3,488**	**8,280**	**365**	~~20,120~~ 6,959.54	~~20,120~~ 20,018.64

☑ APPROVED
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Date: JUL 10 2017 By: Jim Jozovich

FEDERAL HIGHWAY ADMINISTRATION
Federal Lands Highway

See FAR 52.236-21(e) for limitations of Government's responsibility in approving this document.

FOOTNOTE:

1/ Quantity Includes:
13,861 Cuyd Normal Embankment - Not measured for payment. Information only quantity
7,116 Cuyd (14,021 Ton) Select Borrow (Section D) - Pay Item 20102-0000
30,463 Cuyd Rock Borrow (Section D) - Pay Item 20450-1000

2/ Not measured for payment. Information only quantity.

TABULATION OF PLAN QUANTITIES ✓

Designed by: C. Conrad 04/2013 Checked by: --/----
21 August 2015 9:19 AM c:\myfiles\pw_production\d0199361\ak-f2060018a.dgn [US_Sur_ft2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	D.2

ITEM 20701-1200 GEOTEXTILE TYPE IV-A

LEFT			AREA (SQYD)	RIGHT			AREA (SQYD)
10+13	to	11+06	409	10+13	to	12+11	870
11+33	to	13+86	491	12+52	to	23+80	3,995
21+50	to	22+50	309	24+55	to	27+75	829
41+25	to	44+25	737	29+75	to	45+98	4,962
47+25	to	54+28	1,054	47+67	to	49+50	533
54+92	to	61+43	1,403	55+76	to	59+51	754.0
66+00	to	67+43	256	66+40	to	66+90	187.0
71+06	to	75+70	122	80+50	to	83+00	742
75+86	to	71+33	1,011	86+25	to	88+50	261
113+24	to	118+00	1,334	90+05	to	95+10	4,780
127+02	to	131+03	920	101+75	to	103+50	750
135+00	to	136+66	725	112+90	to	120+36	3,800
				130+00	to	132+50	445
				140+21	to	141+60	549
SUBTOTAL LT.			8,851	SUBTOTAL RT.			23,457
				TOTAL			32,308

31+40 to 40+52 2288.34 ✓ 43+77 to 45+75 710.6 ✓
81+40 to 82+00 100 ✓ 500+20 to 501+50 390 ✓
120+28 to 122+50 518 ✓ Subtotal RT 22,317.53 ✓
Subtotal LT 10,840.69 ✓

Total 33,158.22 ✓

21101-1000 ROADWAY OBILITERATION, METHOD 2

LOCATION			SIDE	AREA (SQYD)
67+32	to	71+07	LT	700
94+17	to	95+25	LT	195
95+48	to	97+31	RT	499
113+61	to	117+07	LT	2013
			TOTAL	3,407

83+00 to 88+00 RT 955.56 ✓
105+35 to 113+00 RT 1741.7 ✓
122+10 to 124+20 LT 90.56 ✓
Total 6,190.09 ✓

25120-2000 RIPRAP DITCH, CLASS 2

LOCATION LEFT			Length (LNFT)	LOCATION RIGHT			Length (LNFT)
21+25	to	21+50	26	47+50	to	47+67	17
44+33	to	46+28	192	49+50	to	49+75	27.53
62+50	to	64+50	183	54+00	to	54+25	19.20
69+00	to	69+96	96	63+31	to	64+50	125
91+50	to	93+78	220	69+00	to	69+50	50
94+65	to	95+20	55	71+05	to	71+94	91.89
96+92	to	97+45	53	74+00	to	80+50	630
110+32	to	113+42	310	95+20	to	95+75	53.55
117+90	to	118+98	115	96+75	to	97+25	50
122+75	to	124+34	164	110+75	to	112+65	210
132+75	to	133+25	45	123+35	to	123+65	30
137+35	to	138+00	65	127+06	to	128+00	100
138+60	to	140+68	194	136+90	to	138+00	120
			1960 ✓	138+75	to	140+22	165
SUBTOTAL LT.			1,718	SUBTOTAL RT.			1,687
				TOTAL			3,405

1,753 ✓
3,713 ✓
133+88
95

GUARDRAIL QUANTITIES

LOCATION			LT/RT	61701-1250 GUARDRAIL SYSTEM G4, TYPE 2, CLASS A WOOD POSTS	61702-0800 TERMINAL SECTION TYPE TANGENT (EACH)
34+75	to	38+00	RT	325	2
59+00	to	61+50	LT	250	2
87+50	to	95+00	RT	700	2
97+46	to	110+00	RT	1,250	2
112+09	to	119+98	RT	700	2
113+71	to	116+65	LT	300	2
124+38	to	128+38	LT	400	2
			TOTALS	3,925	14

62405-0300 PLACING CONSERVED TOPSOIL, 4" DEPTH

LOCATION LEFT			AREA (SQYD)	LOCATION RIGHT			AREA (SQYD)
10+13	to	13+75	477	10+13	to	27+75	2,858
21+50	to	22+52	147	29+54	to	45+68	2,325
47+24	to	62+56	1,338	47+58	to	49+57	245
66+05	to	68+00	103	55+76	to	59+51	222
69+93	to	81+23	694	80+49	to	83+27	333
113+41	to	115+52	513	86+26	to	88+50	121
120+19	to	122+50	365	90+04	to	95+10	3,598
124+35	to	131+04	638	97+47	to	104+89	1,115
135+43	to	136+53	73	109+40	to	110+50	80
				112+90	to	120+50	2,230
				130+00	to	132+50	167
				133+53	to	134+35	156
				134+58	to	136+02	110
				140+22	to	141+78	189
SUBTOTAL LEFT			4,348	SUBTOTAL RIGHT			13,749
						TOTAL	18,097

See CM004

25104-5000 Keyed Riprap, Class 4 (Riprap Blanket)

Location Left	Volume (CuYD)	Location Right	Volume (CuYD)
14+00 to 17+75	620.37	50+94 to 51+06	5.33
18+02 to 19+50	127.48	52+40 to 52+85	80
20+25 to 20+69	31.78	54+50 to 55+50	200
26+06 to 24+60	260.74	59+84 to 60+08	9.33
26+93 to 27+50	30.52	61+00 to 64+50	833.33
29+25 to 39+75	1545.38	69+80 to 70+20	60.74
40+64 to 40+83	8.44		
70+71 to 71+07	25		
141+40 to 141+80	35.56		
Subtotal LT. ✓	2685.27	Subtotal RT	1188.73
TOTAL			3,874

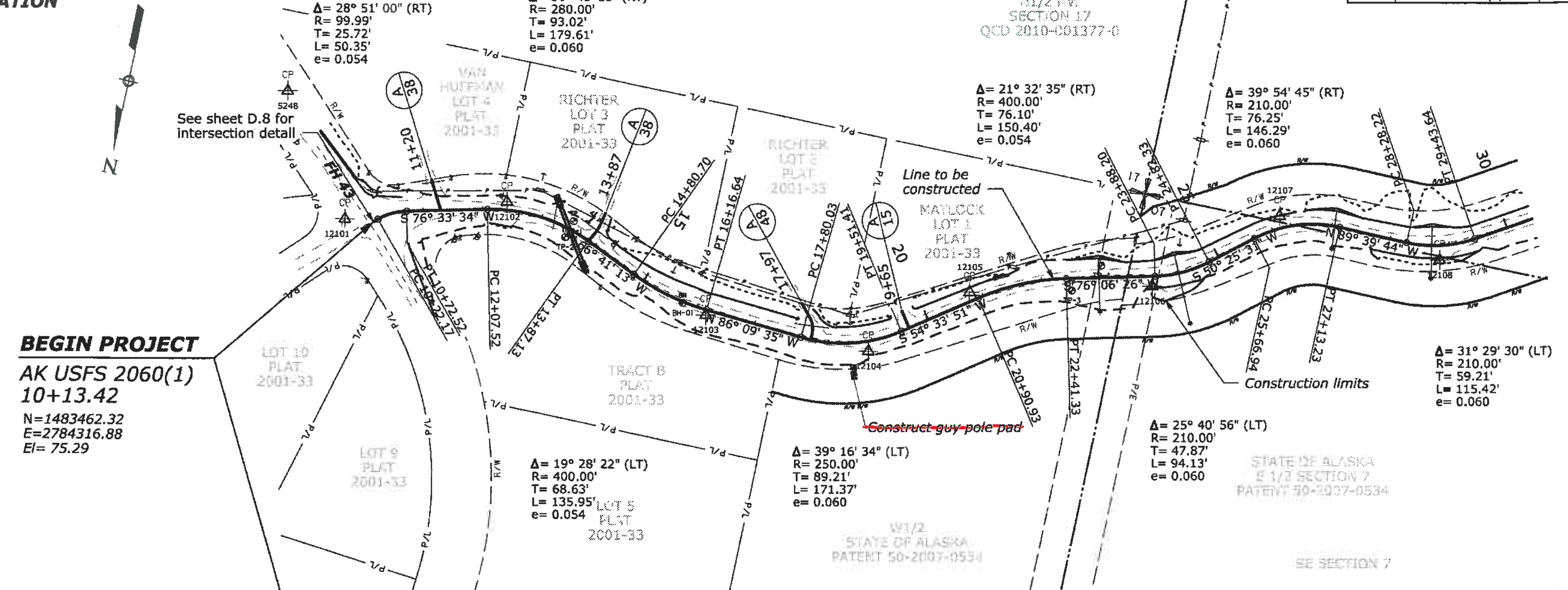
TABULATION OF PLAN QUANTITIES ✓

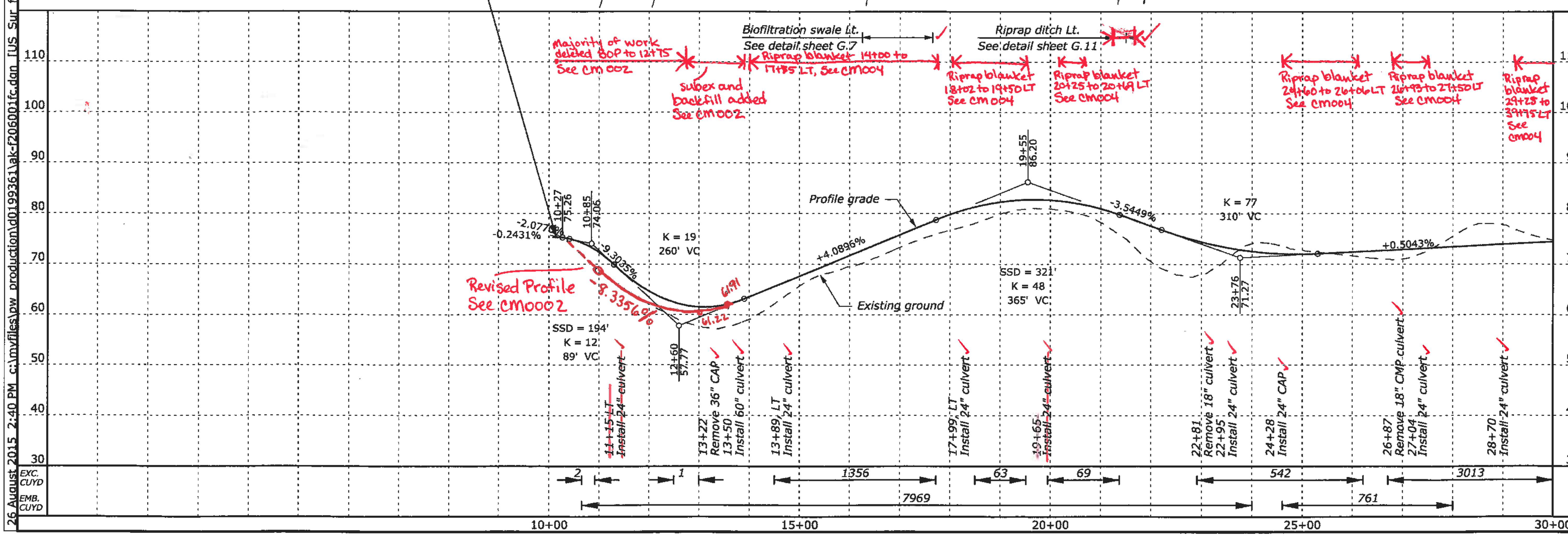
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	D.3

UTILITY CONTACT INFORMATION

ALASKA POWER AND TELEPHONE

Glen D. Martin
Mgr. Permitting/Licensing/Compliance
Alaska Power & Telephone Company
P.O. Box 3222
Port Townsend, WA 98368
Office: (360) 385-1733 x122
Cell: (360) 808-4518
Fax: (360) 385-7538
email: glen.m@aptalaska.com





LEGEND:

Ⓣ Tangent terminal

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STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	D.4

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STATE OF ALASKA
N1/2 NE
SECTION 18
PATENT 50-2007-0534

STATE OF ALASKA
FDR 2060
100' R/W RESERVED TO USA
SECTIONS 7,8,18
PATENT 50-2007-0534

STATE OF ALASKA
N1/2 NE
SECTION 18
PATENT 50-2007-0534

STATE OF ALASKA
S1/2 NE
SECTION 13
BOOK 131 PAGE 207?

PC 31+54.28
PT 33+31.13
PC 34+85.87
PT 36+96.16
PC 39+53.85
PT 42+13.16
PC 43+64.82
PT 44+67.03
PC 48+09.14
PT 52+16.59
PC 56+37.14
PT 58+40.79
PC 59+68.46
PT 55+13.98
PC 54+33.14

Δ= 28° 57' 02" (LT)
R= 350.00'
T= 90.35'
L= 176.85'
e= 0.056

Δ= 24° 05' 10" (LT)
R= 500.00'
T= 106.67'
L= 210.19'
e= 0.050

Δ= 64° 19' 04" (RT)
R= 231.00'
T= 145.24'
L= 259.31'
e= 0.060

Δ= 19° 31' 14" (LT)
R= 300.00'
T= 51.60'
L= 102.21'
e= 0.058

Δ= 66° 41' 59" (LT)
R= 350.00'
T= 230.34'
L= 407.45'
e= 0.056

Δ= 13° 13' 59" (RT)
R= 350.00'
T= 40.60'
L= 80.84'
e= 0.056

Δ= 7° 39' 05" (LT)
R= 1,525.00'
T= 101.98'
L= 203.65'
e= 0.028

S 58° 50' 46" W
S 29° 53' 44" W
S 5° 48' 34" W
S 70° 07' 38" W
S 50° 46' 54" W
S 16° 05' 35" E
S 72° 36' 11" E
N 10° 30' 21" E

Line to be constructed
Construct guy-pole pad
See sheet E.3
Construction Limits

LEGEND:
Ⓣ Tangent terminal

Riprap ditch Lt. See detail sheet G.11 ✓
Riprap Blanket 29+25 to 39+75 LT See CM004
Guardrail Rt. ~~34+75 to 38+00~~ 34+38 39+37
Riprap lined ditch Lt. See detail sheet G.11 ✓
Riprap ditch Lt. See detail sheet G.11 ✓
Riprap Blanket 40+44 to 40+83 LT See CM004
Riprap ditch Rt. See detail sheet G.11
Riprap Blanket 50+94 to 51+06 RT See CM004
Riprap Blanket 52+40 to 52+85 RT See CM004
Biofiltration swale Rt. See detail sheet G.7 ✓
Guardrail Lt. ~~59+00 to 61+50~~ 59+63 61+48
Riprap Blanket 54+50 to 55+50 RT See CM004
Riprap ditch Rt. See detail sheet G.11 ✓
Riprap Blanket 59+34 to 60+08 RT See CM004
Riprap ditch Rt. See detail sheet G.11 ✓

Profile grade
Existing ground
+0.5043%
-1.8746%
+5.0269%
-0.5585%
-0.6733%
SSD = 804'
K = 294
700' VC
K = 64
415' VC
SSD = 276'
K = 30
165' VC
SSD = 4396'
K = 1009
255' VC
34+95 76.92
41+85 63.98
46+50 87.36
57+75 81.15

30+50 Remove log culvert ✓
32+27 Remove 18" culvert ✓
32+29 Install 24" culvert ✓
36+66 Install 24" culvert ✓
38+50 Install 24" culvert ✓
39+68 Remove 18" culvert ✓
~~Install 24" culvert~~
40+73 Remove 18" CAP ✓
40+82 Install 24" culvert ✓ 36"
~~41+79 Remove 18" CMP culvert~~
41+81 Install 24" culvert ✓
42+17 Remove 18" culvert ✓
42+19 Install 24" culvert ✓
43+81 Remove 18" culvert ✓
43+87 Install 24" culvert ✓
48+68 Remove 18" culvert ✓
48+72 Install 24" culvert ✓
51+00 Install 24" culvert ✓
51+04 Remove 18" culvert ✓
57+65 Remove 24" culvert ✓
57+76 Install 84" culvert ✓
59+95 Install 24" culvert ✓
59+96 Remove 18" CMP culvert ✓

	30+00 to 35+00	35+00 to 40+00	40+00 to 45+00	45+00 to 50+00	50+00 to 55+00	55+00 to 60+00
EXC. CUYD	3,125	1,433		2,957		19
EMB. CUYD			9,832			

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STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	D.5

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N

STATE OF ALASKA
S1/2 NE
SECTION 18
BOOK 131 PAGE 207?

STATE OF ALASKA
GOVT LOT 3
SECTION 18
QCD 2010-001377-0

STATE OF ALASKA
NW SE
SECTION 18

STATE OF ALASKA
SE SE
SECTION 18
QCD 2010-001377-0

STATE OF ALASKA
GOVT LOT 7
SECTION 18

STATE OF ALASKA
GOVT LOT 7
SECTION 19

STATE OF ALASKA
NW SE
SECTION 19

Construction Limits

See sheet E.4

See sheet E.3

Line to be constructed

Roadway obliteration

Realignment CM004
82+15.33 > 116+70.46
See FHWA survey notes
See CM004

Roadway obliteration
83+00 > 88+00 RT

Steepen rock cutslope
73+00 to 77+00 RT
From 1v:1h to 1v:.5h
See CM003

Δ= 42° 45' 17" (RT)
R= 300.00'
T= 117.43'
L= 223.86'
e= 0.058

Δ= 23° 36' 48" (LT)
R= 231.00'
T= 48.29'
L= 95.20'
e= 0.060

Δ= 42° 41' 16" (LT)
R= 260.00'
T= 101.60'
L= 193.71'
e= 0.060

Δ= 12° 28' 45" (LT)
R= 600.00'
T= 65.60'
L= 130.68'
e= 0.050

Δ= 7° 41' 05" (RT)
R= 1,500.00'
T= 100.74'
L= 201.18'
e= 0.028

Δ= 11° 19' 35" (RT)
R= 500.00'
T= 49.58'
L= 98.84'
e= 0.050

Δ= 42° 20' 51" (RT)
R= 400.00'
T= 154.94'
L= 295.64'
e= 0.054

Δ= 37° 49' 09" (RT)
R= 400.00'
T= 137.03'
L= 264.03'
e= 0.054

Δ= 37° 38' 02" (LT)
R= 400.00'
T= 136.30'
L= 262.73'
e= 0.054

PC 59+68.46
PT 61+92.33
PC 62+89.81
PT 63+85.01
PC 65+27.93
PT 67+23.64
PT 71+26.83
PC 72+17.46
PT 74+18.64
PC 75+02.94
PT 76+01.78
PC 77+99.23
PT 80+95.37
PC 82+15.33
PT 84+79.36
PC 88+54.52
PC 89+57.64

LEGEND:

Ⓣ Tangent terminal

Guardrail Lt. 59+00 to 61+50

Riprap ditch Lt. See detail sheet G.11

Riprap ditch Rt. See detail sheet G.11

Riprap Blanket 59+84 to 60+08 RT See CM004

Riprap Blanket 61+00 to 61+50 RT See CM004

Riprap Blanket 69+30 to 70+20 RT See CM004

Riprap Blanket 70+71 to 71+07 LT See CM004

Biofiltration swale Lt. See detail sheet G.7

Biofiltration swale Rt. See detail sheet G.7

Riprap ditch Rt. See detail sheet G.11

Profile grade

Existing ground

-0.5585%
SSD = 267'
K = 31
195' VC
63+30 77.97

-6.9359%
K = 40
340' VC
66+00 59.25

+1.4724%
68+80 63.37

-7.9920%
SSD = 204'
K = 19
180' VC

K = 28
240' VC
70+90 46.59

+0.5526%
K = 56
255' VC
73+70 48.13

+5.0867%
SSD = 436'
K = 88
700' VC
81+70 88.83

-2.8420%
K = 81
480' VC
89+60 66.38

62+36 Remove 18" CMP culvert
Install 24" culvert

66+61 Remove 24" culvert
66+74 Install 18" culvert

67+47 Remove 18" CMP culvert
67+53 Install 24" culvert

71+48 Remove 24" CAP culvert
71+51 Install 24" CAP culvert

87+89 Install 24" culvert
87+90 Remove 18" culvert

Reinforced Soil Slope
See sheets H.1-6 for details
Deleted, See CM004

	60+00 to 65+00	65+00 to 70+00	70+00 to 75+00	75+00 to 80+00	80+00 to 85+00	85+00 to 90+00
EXC. CUYD	3945.93	19,161.26			7,857	
EMB. CUYD	841	356	2,962		249	

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	D.6

STATE OF ALASKA GOVT LOT 7 SECTION 18

STATE OF ALASKA GOVT LOT 7 SECTION 19

STATE OF ALASKA GOVT LOT 11 SECTION 19

LOT 7 BLOCK 9 PLAT 2005-14

LOT 1 BLOCK 9 PLAT 2005-14

HIGHLEDGE DRIVE

FDR 2060
66' R/W RESERVED TO USA
SECTION 19
PATENT 50-2005-0128

Steepen rock cut Slope 92+00 to 93+50 LT From 1v:1h to 1v:.5h See cm003 And cm004

Roadway obliteration

Construction limits

Line to be constructed

Roadway obliteration 95+00 > 98+00 RT

Roadway Obliteration 105+35 > 113+00 RT

See sheet E.4

2500 Approach Rd. moved to 119+83 See Sheet E.4

Δ= 37° 38' 02" (LT)
R= 400.00'
T= 136.30'
L= 262.73'
e= 0.054

Δ= 14° 02' 40" (RT)
R= 700.00'
T= 86.23'
L= 171.59'
e= 0.042

Δ= 43° 52' 01" (RT)
R= 350.00'
T= 140.94'
L= 267.97'
e= 0.056

Δ= 31° 50' 39" (LT)
R= 300.00'
T= 85.58'
L= 166.74'
e= 0.058

Δ= 47° 30' 42" (LT)
R= 190.00'
T= 83.62'
L= 157.55'
e= 0.060

Δ= 82° 50' 12" (RT)
R= 190.00'
T= 167.62'
L= 274.70'
e= 0.060

Δ= 6° 29' 52" (LT)
R= 1,500.00'
T= 85.15'
L= 170.11'
e= 0.028

LEGEND:

Ⓣ *Tangent terminal*

Riprap lined ditch Lt. See detail sheet G.11

Riprap lined ditch Rt. See detail sheet G.11

Guardrail Rt. 93+45 to 95+00 87+50 95+25

Guardrail Rt. 97+46 to 110+00 97+13 104+89

Guatdrail Lt. 113+71 to 116+65 113+22 115+89

Guardrail Rt. 112+88 to 119+88 112+51 120+26

SSD = 260'
K = 29
190' VC

+3.0608%

-3.4712%

K = 59
215' VC

96+15
86.42

98+20
79.31

K = 1483
500' VC

+0.1629%

104+16
80.28

+0.5001%

SSD = 313'
K = 45
375' VC

110+05
83.22

Profile grade

-7.7805%

K = 49
640' VC

115+15
43.54

+5.1965%

SSD = 233'
K = 20
130' VC

119+55
66.41

Existing ground

Reinforced Soil Slope
See sheets H.1-6 for details
Deleted, See cm004

90+96 87+50 Install 36" culvert

94+27 94+00 Install 24" culvert 94+32 Remove 18" culvert

97+98 Install 36" culvert 98+03 Remove 18" culvert

103+40 Remove 24" culvert 103+42 103+56 Install 24" culvert

109+88 Install 24" culvert

114+70 Remove 18" culvert 114+82 Install 36" culvert

116+51 Remove 18" culvert 116+70 Install 24" culvert

119+58 Install 24" culvert

	90+00	95+00	100+00	105+00	110+00	115+00	120+00
EXC. CUYD	22	5,697	32,525			20	657
EMB. CUYD	100,134	81	455	2	112	14,866	

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STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	D.7

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STATE OF ALASKA GOVT LOT 11 SECTION 19

STATE OF ALASKA GOVT LOT 9 SECTION 19

STATE OF ALASKA GOVT LOT 12 SECTION 19

USA GOVT LOT 10 SECTION 19

USA GOVT LOT 177 SECTION 24

STATE OF ALASKA GOVT LOT 9 SECTION 19

FDR 2060
66' R/W RESERVED TO USA
SECTION 19
PATENT 50-2009-0125

MEANDER LINE

Δ= 23° 28' 23" (RT)
R= 400.00'
T= 83.10'
L= 163.87'
e= 0.054

Roadway Obliteration
122+70 to 124+20 LT

Line to be constructed

Approach Deleted

Δ= 11° 12' 37" (RT)
R= 500.00'
T= 49.07'
L= 97.83'
e= 0.050

Δ= 66° 31' 51" (LT)
R= 235.00'
T= 154.16'
L= 272.88'
e= 0.060

Δ= 18° 14' 13" (LT)
R= 400.00'
T= 64.20'
L= 127.32'
e= 0.054

Δ= 17° 40' 20" (LT)
R= 300.00'
T= 46.64'
L= 92.53'
e= 0.054

See sheet E.5

Construction Limits

See sheet E.6

See sheet E.7

Line to be constructed

See sheet E.7

Construction Limits

See sheet E.8

Δ= 36° 46' 14" (LT)
R= 410.00'
T= 136.27'
L= 263.13'
e= 0.054

EOP 141+80

Existing surface

Aggregate base grading D
8" compacted depth

Select borrow
10" compacted depth

CONNECTION DETAIL

END PROJECT
AK USFS 2060(1)
141+80
N=1474857.08
E=2778459.34
El=32.94

LEGEND:

Ⓣ Tangent terminal

Riprap ditch Lt.
See detail sheet G.11

Riprap ditch Rt.
See detail sheet G.11

124+38 to 128+38
Guardrail, LT

Guardrail Rt.
112+51 to 120+26

Biofiltration swale Rt.
See detail sheet G.7

Riprap Blanket
141+40 to 141+80 LT
See CM004

-1.2106%
-7.4199%
-1.0011%
+1.9673%
-1.9337%
+9.6758%
-8.2847%
+0.6513%

SSD = 266'
K = 30
185' VC

K = 49
315' VC

K = 56
165' VC

SSD = 314'
K = 19
75' VC

K = 26
305' VC

SSD = 164'
K = 13
225' VC

K = 20
175' VC

Profile grade

Existing ground

121+90 Install 24" culvert
121+92 Remove 18" CMP culvert

126+62 Remove 18" culvert
126+64 Install 24" culvert

130+67 Remove 24" CAP
130+93 Install 72" CAP culvert

133+88 Install 36" culvert

135+00 Install 24" culvert

136+39 Remove 36" culvert

140+18 Remove 18" culvert

141+35 Install 24" culvert
Remove 24" culvert

EXC. CUYD	14,316.44		308	6237	
EMB. CUYD	1044	1,585		79	

120+00 125+00 130+00 135+00 140+00 145+00 150+00

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	D.8

BEGIN PROJECT
AK USFS 2060(1)
10+13.42
N=1483462.32
E=2784316.88
El= 75.29

CP
12101

N

Centerline FH-43

Edge of traveled way

15:1 Taper

15:1 Taper

R=30

P/L

R=30'

P/L

P/L

Hot asphalt concrete pavement apron

Edge of traveled way

Edge of traveled way

15:1 Taper

15:1 Taper

11+00

P/L

P/L

P/L

P/L

P/L

12+00

CP
12102

BOP 10+13.42
FH 43 Edge of travel way

See plan sheet C.2
See CM0007

~~Surface treatment, designation 2C~~

~~Emulsified asphalt treated base, grading D 4" compacted depth~~

~~Aggregate base, grading D 4" compacted depth~~

Hot asphalt concrete pavement
4" depth

Aggregate base grading D
8" compacted depth

Select borrow
10" compacted depth

FH 43 CONNECTION DETAIL

FH-43 INTERSECTION DETAIL

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PROJECT : Naukati Road
DATE OF FIELD WORK : 10/2012

PROJECT UNITS : US SURVEY FOOT
COORDINATE SYSTEM : Alaska SPCS zone 1 (5001) NAD83 (2011)
EPOCH DATE : 2010.000
VERTICAL DATUM : NAVD88 based on GEOID 12A

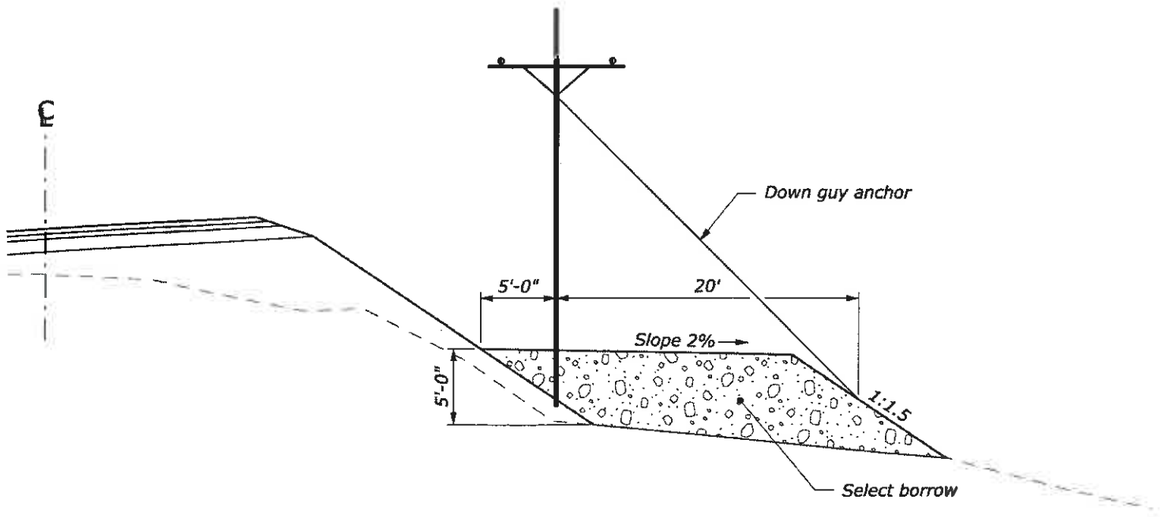
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	D.9

POINT NUMBER	PROJECT COORDINATES			GEO COORDINATES				DESCRIPTION
	NORTH	EAST	ELEVATION	LATITUDE	LONGITUDE	ELLIPSOID HEIGHT	COMBINED FACTOR	
5248	1483282.148	2784502.904	99.130	55°53'39.81377"N	133°11'11.45477"W	89.465	0.99992611	Found 1" YPC CP 197
12101	1483468.082	2784364.684	75.956	55°53'41.65589"N	133°11'13.85613"W	66.294	0.99992721	Set RPA RPC on rebar
12102	1483382.963	2784105.679	58.274	55°53'40.83494"N	133°11'18.40955"W	48.613	0.99992815	Set RPA RPC on rebar
12103	1483494.280	2783741.422	68.407	55°53'41.95723"N	133°11'24.78487"W	58.75	0.99992775	Set RPA RPC on rebar
12104	1483495.175	2783463.746	78.401	55°53'41.98518"N	133°11'29.65519"W	68.747	0.99992736	Set RPA RPC on rebar
12105	1483363.524	2783319.705	77.456	55°53'40.69758"N	133°11'32.19776"W	67.801	0.99992747	Set RPA RPC on rebar
12106	1483289.591	2783025.791	73.574	55°53'39.98908"N	133°11'37.36196"W	63.921	0.99992776	Set RPA RPC on rebar
12107	1483131.689	2782842.942	70.919	55°53'38.44536"N	133°11'40.58830"W	61.266	0.99992798	Set RPA RPC on rebar
12108	1483145.583	2782566.418	77.160	55°53'38.60118"N	133°11'45.43671"W	67.51	0.99992776	Set RPA RPC on rebar
12109	1482933.148	2782237.467	71.864	55°53'36.52988"N	133°11'51.23204"W	62.215	0.99992816	Set RPA RPC on rebar
12110	1482661.891	2782082.452	72.884	55°53'33.86698"N	133°11'53.98365"W	63.235	0.99992822	Set RPA RPC on rebar
12111	1482142.344	2782017.224	66.489	55°53'28.75091"N	133°11'55.19037"W	56.837	0.99992867	Set RPA RPC on rebar
12112	1481887.940	2781529.741	85.614	55°53'26.27655"N	133°12'03.77053"W	75.965	0.99992796	Set RPA RPC on rebar
12113	1481596.216	2781282.254	79.667	55°53'23.41808"N	133°12'08.14588"W	70.019	0.99992838	Set RPA RPC on rebar
12114	1481088.743	2781352.738	78.509	55°53'18.41184"N	133°12'06.97057"W	68.856	0.99992853	Set RPA RPC on rebar
12115	1480459.841	2781414.142	78.087	55°53'12.20943"N	133°12'05.96913"W	68.427	0.99992868	Set RPA RPC on rebar
12116	1480275.083	2781289.241	73.325	55°53'10.39692"N	133°12'08.18154"W	63.665	0.99992899	Set RPA RPC on rebar
12117	1479929.964	2781285.217	60.449	55°53'06.99580"N	133°12'08.29342"W	50.786	0.99992968	Set RPA RPC on rebar
12118	1479819.442	2781455.311	58.576	55°53'05.89508"N	133°12'05.32399"W	48.91	0.99992974	Set RPA RPC on rebar
12119	1479617.864	2781533.104	43.422	55°53'03.90314"N	133°12'03.98405"W	33.753	0.99993049	Set RPA RPC on rebar
12120	1479296.152	2781857.410	55.750	55°53'00.71053"N	133°11'58.33603"W	46.075	0.99992987	Set RPA RPC on rebar
12121	1478976.771	2782004.385	74.500	55°52'57.55285"N	133°11'55.79738"W	64.82	0.99992901	Set RPA RPC on rebar
12122	1478622.154	2781949.379	80.326	55°52'54.06158"N	133°11'56.80462"W	70.643	0.99992883	Set RPA RPC on rebar
12123	1478131.918	2781381.150	65.618	55°52'49.26834"N	133°12'06.82665"W	55.937	0.99992982	Set RPA RPC on rebar
12124	1477629.228	2781278.778	81.391	55°52'44.32087"N	133°12'08.68174"W	71.707	0.99992921	Set RPA RPC on rebar
12125	1477521.391	2781143.330	85.706	55°52'43.26716"N	133°12'11.06940"W	76.022	0.99992907	Set RPA RPC on rebar
12126	1477353.703	2781168.165	77.906	55°52'41.61281"N	133°12'10.65403"W	68.22	0.99992948	Set RPA RPC on rebar
12127	1476986.145	2780913.155	81.114	55°52'38.00738"N	133°12'15.16878"W	71.427	0.99992949	Set RPA RPC on rebar
12128	1476873.632	2780557.935	85.408	55°52'36.92225"N	133°12'21.40984"W	75.724	0.99992942	Set RPA RPC on rebar
12129	1476421.325	2780161.036	71.510	55°52'32.49090"N	133°12'28.42169"W	61.825	0.99993031	Set RPA RPC on rebar
12130	1476068.432	2780292.484	46.415	55°52'29.00414"N	133°12'26.15905"W	36.724	0.99993155	Set RPA RPC on rebar
12131	1475972.025	2780063.172	51.837	55°52'28.06923"N	133°12'30.19046"W	42.145	0.99993139	Set RPA RPC on rebar
12132	1475934.407	2779732.223	62.295	55°52'27.72043"N	133°12'35.99665"W	52.605	0.999931	Set RPA RPC on rebar
12133	1475800.762	2779387.107	59.308	55°52'26.42607"N	133°12'42.06244"W	49.619	0.99993128	Set RPA RPC on rebar
12134	1475730.979	2778618.056	24.510	55°52'25.78883"N	133°12'55.55239"W	14.826	0.9999332	Set RPA RPC on rebar
12135	1475219.549	2778326.156	51.042	55°52'20.76739"N	133°13'00.72884"W	41.355	0.99993215	Set RPA RPC on rebar
12136	1474899.504	2778400.866	29.140	55°52'17.60824"N	133°12'59.45635"W	19.448	0.99993324	Set RPA RPC on rebar
N1	1474699.636	2778328.401	14.225	55°52'15.64313"N	133°13'00.74980"W	4.531	0.99993402	Found 2" AC marked "N1 4382S AKDOT"
N2	1474826.672	2778316.334	9.454	55°52'16.89594"N	133°13'00.94659"W	-0.238	0.99993422	Found 2" AC marked "N2 4382S AKDOT"

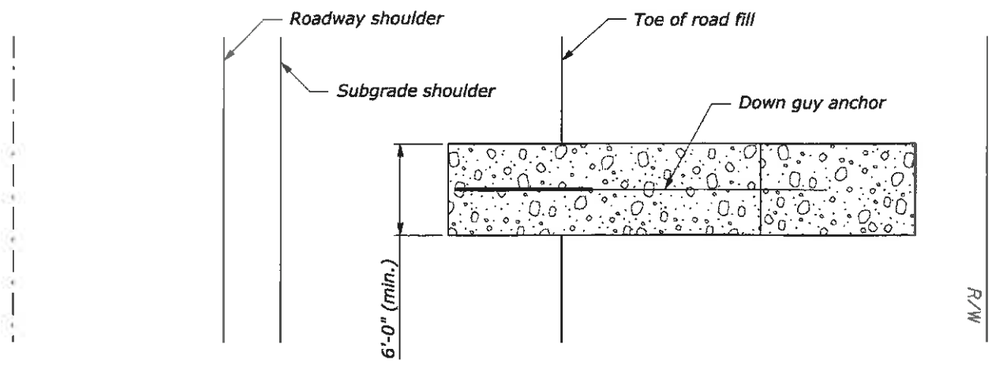
Note: To precisely check distances between points as measured on the ground, inverse the state plane coordinates and divide the computed distance by a mean combined factor of the two points.

SURVEY CONTROL

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	D.10



GUY POLE PAD DETAIL
PROFILE VIEW



GUY POLE PAD DETAIL
PLAN VEW

NOTES

1. *Construct pad for placement of guy pole.*
2. *Stockpile 5 cuyd of select borrow at a location directed by CO.*
3. *Remain within right of way and clearing limits.*

GUY POLE PAD DETAIL

Designed by: | Checked by: | c:\myfiles\pw_production\d0199361\ak-f206001fj.dgn [US_Sur_ft20] | 21 August 2015 9:32 AM

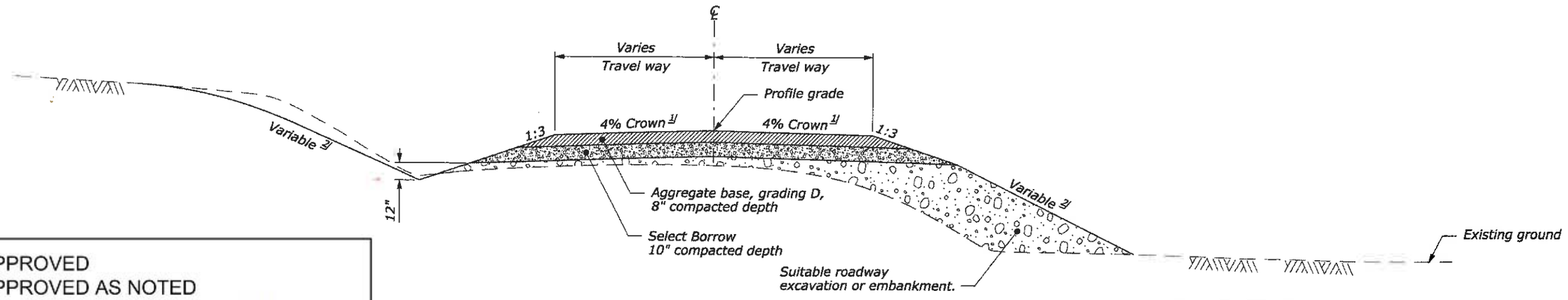
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	E.1

RECEIVED
JUL 08 2017
BY PROJECT ENGINEER

DRIVEWAY AND APPROACH ROAD QUANTITIES

STATION	20401-0000 ROADWAY EXCAVATION (CUYD)	20411-0000 SELECT BORROW (TON)	30101-2000 AGGREGATE BASE GRADING D (TON)	40301-0000 HOT ASPHALT CONCRETE PAVEMENT (TON)	EMBANKMENT 1/ (CUYD)
FH43	993	-	518	230	739
11+20 LT	3/	3/	3/	-	3/
13+87 LT	19	54	32	-	20
17+97 LT	51	62	44	-	5
19+65 LT	13	33	23	-	-
46+08 RT	106	245	170	-	36
67+08 RT	114	203	146	-	15
81+46 LT	139	183	128	-	27
~~119+58 LT~~ 119+83 LT	1,625	455	329	-	-
~~124+33 LT~~	~~541~~	~~37~~	~~96~~	~~-~~	~~1~~
133+49 RT	196	440	312	-	187
134+35 RT	53	415	297	-	578
135+21 LT	115	233	168	-	32
136+93 LT	354	255	182	-	6
139+68 RT	1,516	210	144	-	82
140+55 RT	83	270	183	-	236
TOTALS	**5,919**	**3,095**	**2,772**	**230**	**3,254**

40+00 LT



APPROACH ROAD TYPICAL
46+08 RT, 67+08 RT,
81+46 LT, ~~119+58 LT~~, 119+83 LT
133+49 RT, 134+35 RT,
135+21 LT, 136+93 LT,
139+68 RT, 140+55 RT

FOOTNOTE:
1/ For information only. Not measured for payment.
2/ Construct slopes as shown in the Staking Report.
3/ Quantities to be measured in field.

☑ APPROVED
☐ APPROVED AS NOTED
☐ RETURNED FOR CORRECTION

Date: JUL 10 2017 By: Jim Jozovich

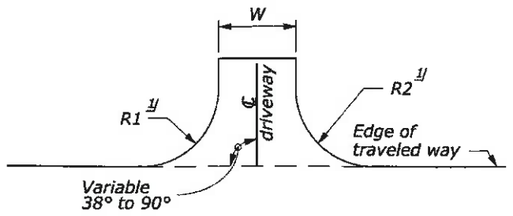
FEDERAL HIGHWAY ADMINISTRATION
Federal Lands Highway

See FAR 52.236-21(e) for limitations of Government's responsibility in approving this document.

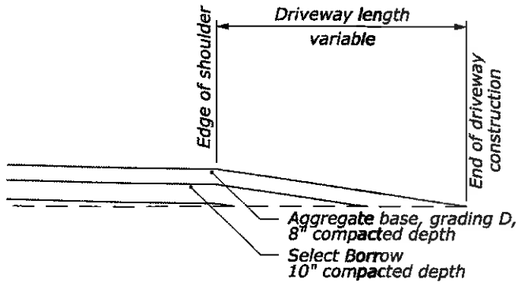
TABULATION OF APPROACH ROAD QUANTITIES

Designed by: C. CONRAD | Checked by: | 07/2014 | --/--/----
c:\myfiles\pw_production\d0229149\sk-f206001ga.dgn [US_Swr_ft2D]
26 August 2015 1:27 PM

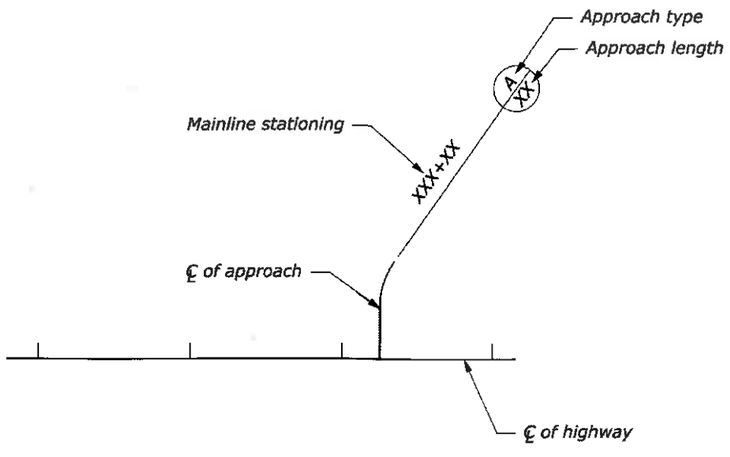
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	E.2



Existing Driveway Approach Type A Plan Detail



Existing Driveway Approach Type A Profile



DRIVEWAY APPROACH ROAD LOCATION SYMBOL

DRIVEWAY APPROACH TABLE			
MAINLINE STATION	W	R1	R2
11+20 LT	MATCH EXISTING	MATCH EXISTING	MATCH EXISTING
13+87 LT	14	17	17
17+97 LT	14	12	42
19+65 LT	18	15	15
~~124+33 RT~~	~~14~~	~~90~~	~~10~~

FOOTNOTE:

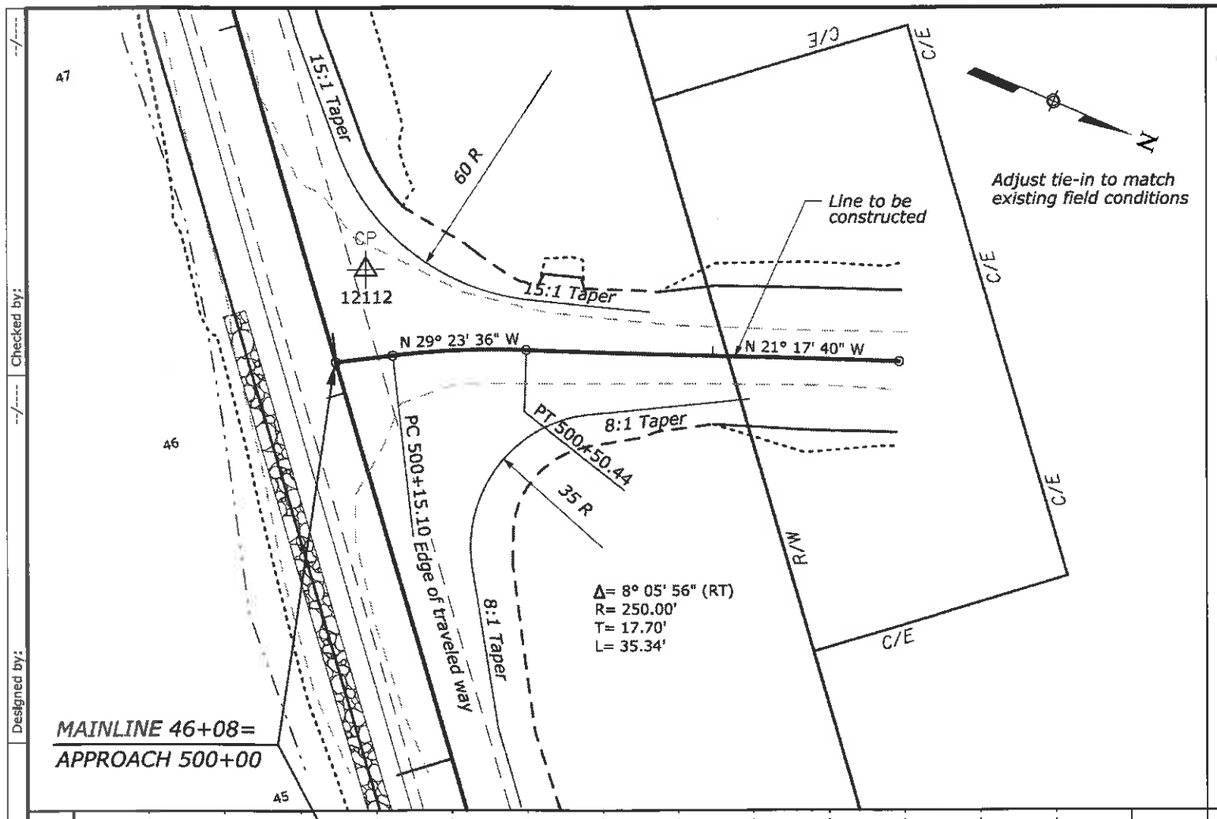
1/ Continue approach radius as required if connection is at an angle.

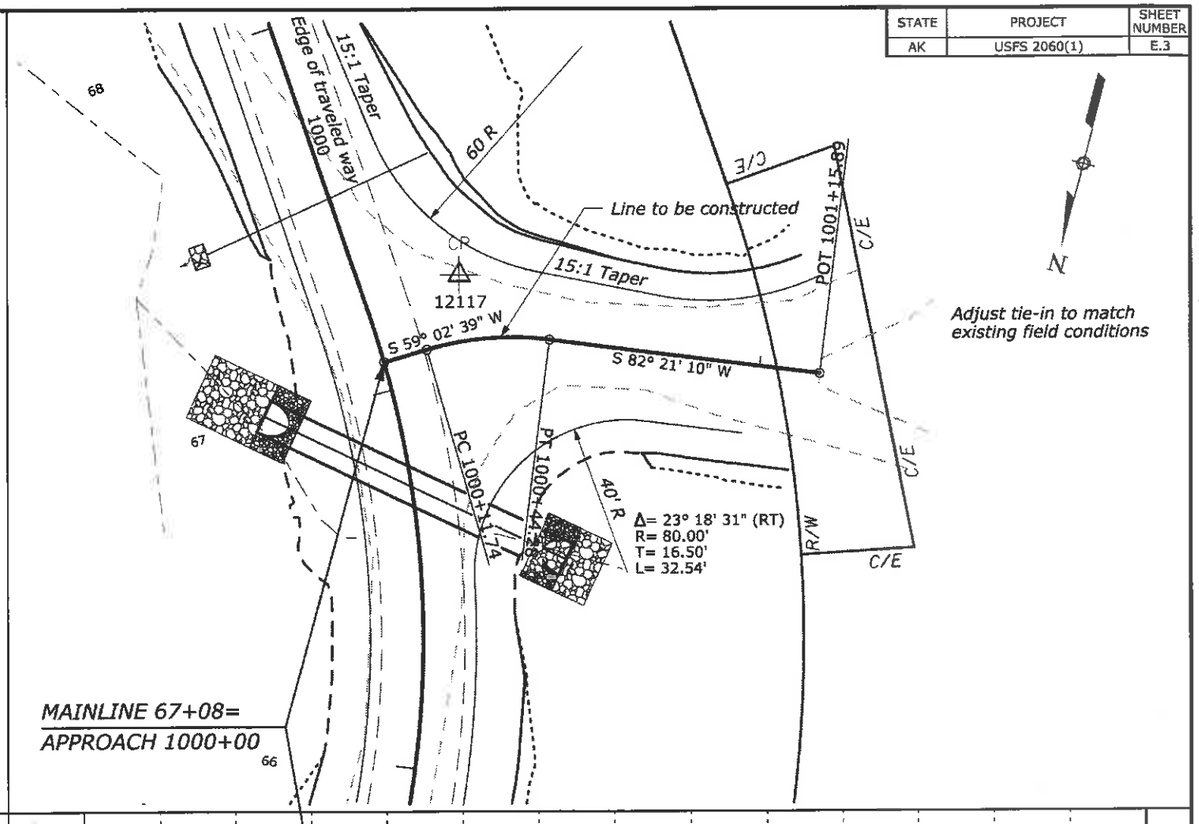
TABULATION OF DRIVEWAY APPROACH QUANTITIES ✓

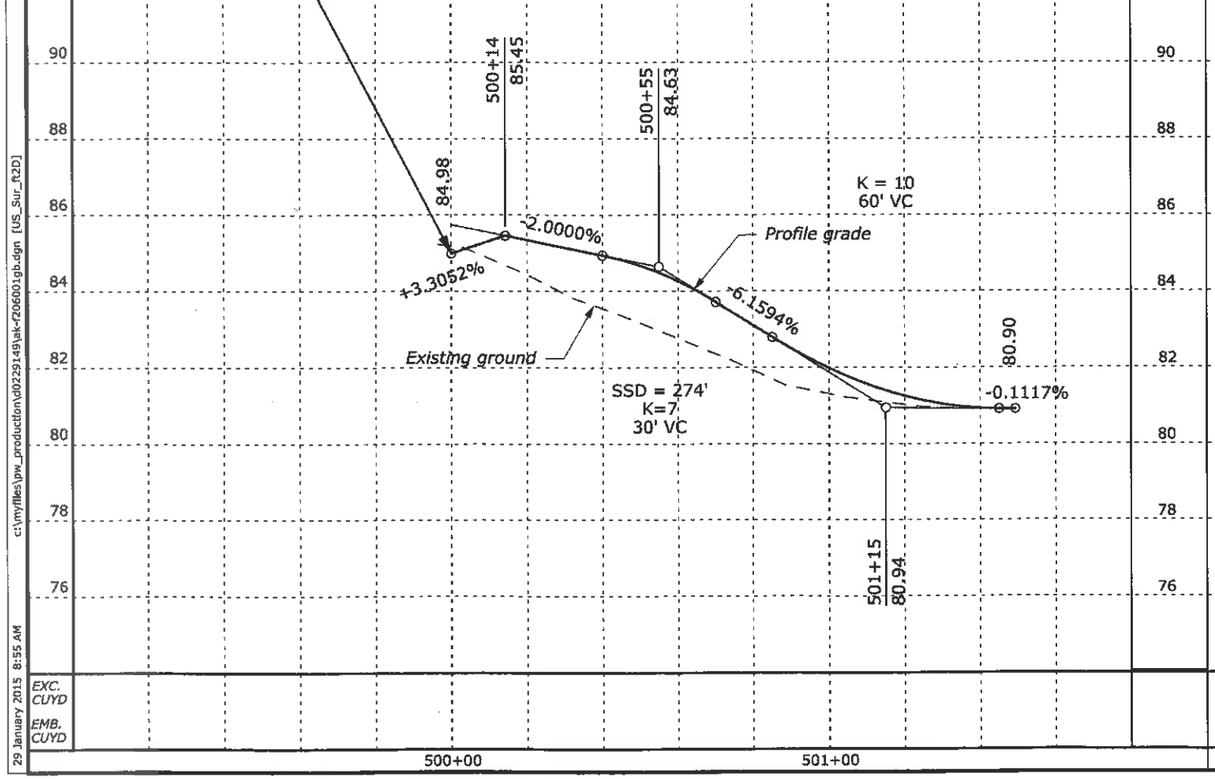
Designed by: C. CONRAD | 07/2014 | Checked by:

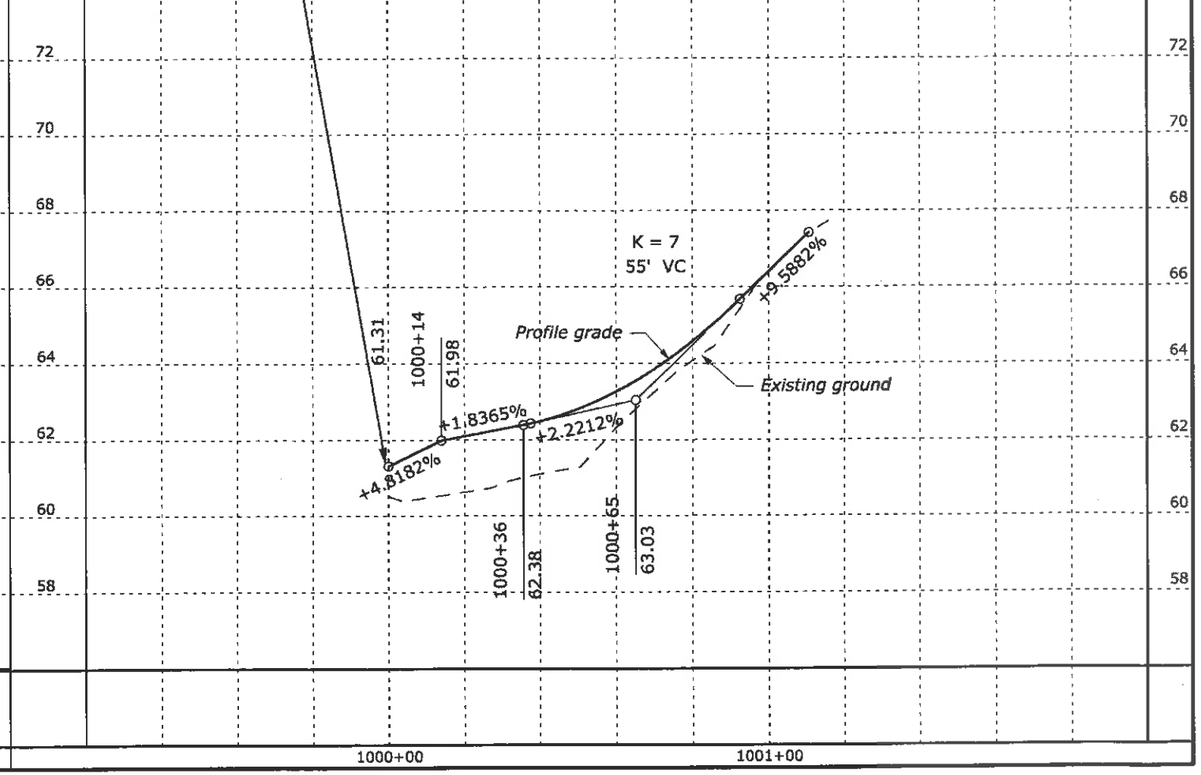
29 January 2015 8:55 AM c:\myfiles\pw_production\d0229149\ak-f206001gh.dgn [US_Sur_ft2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	E.3

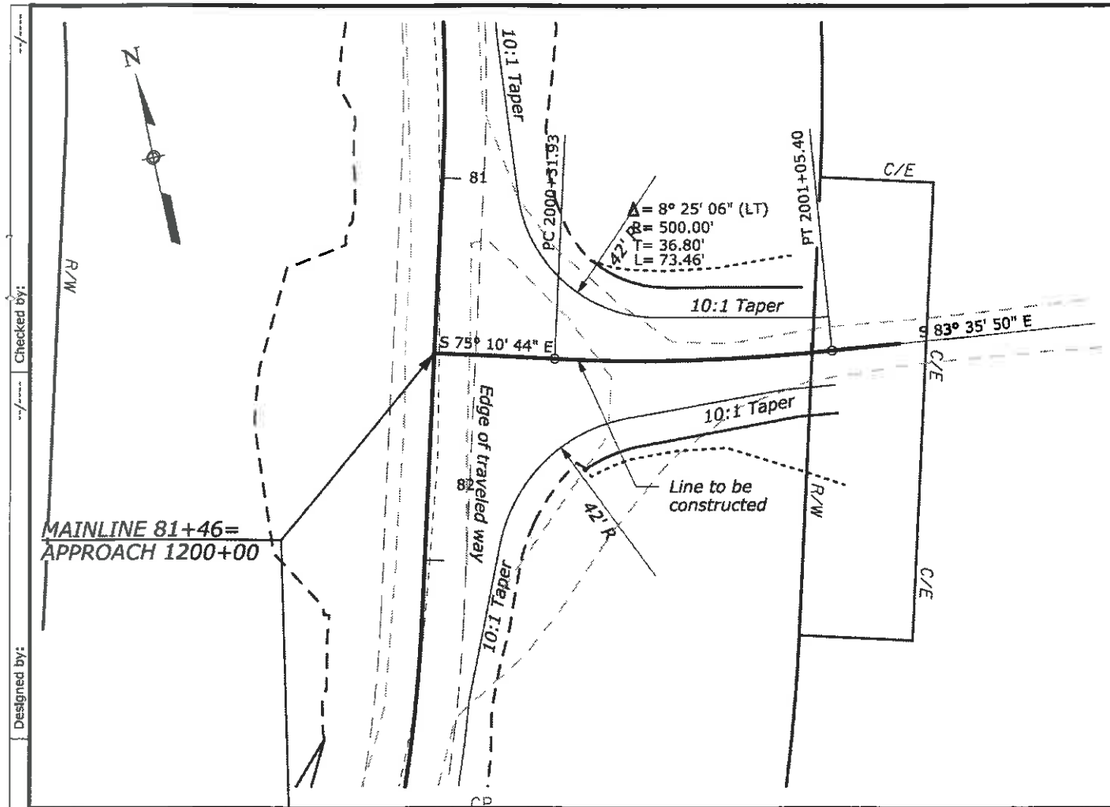


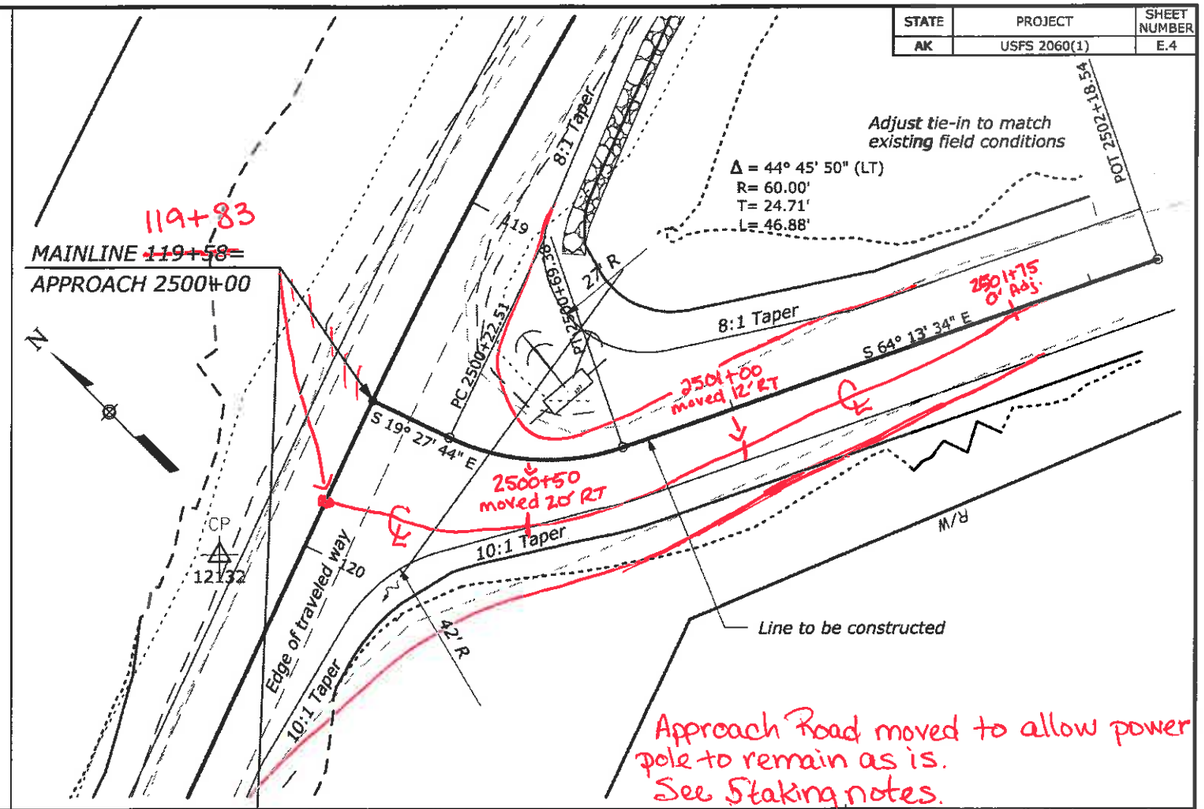


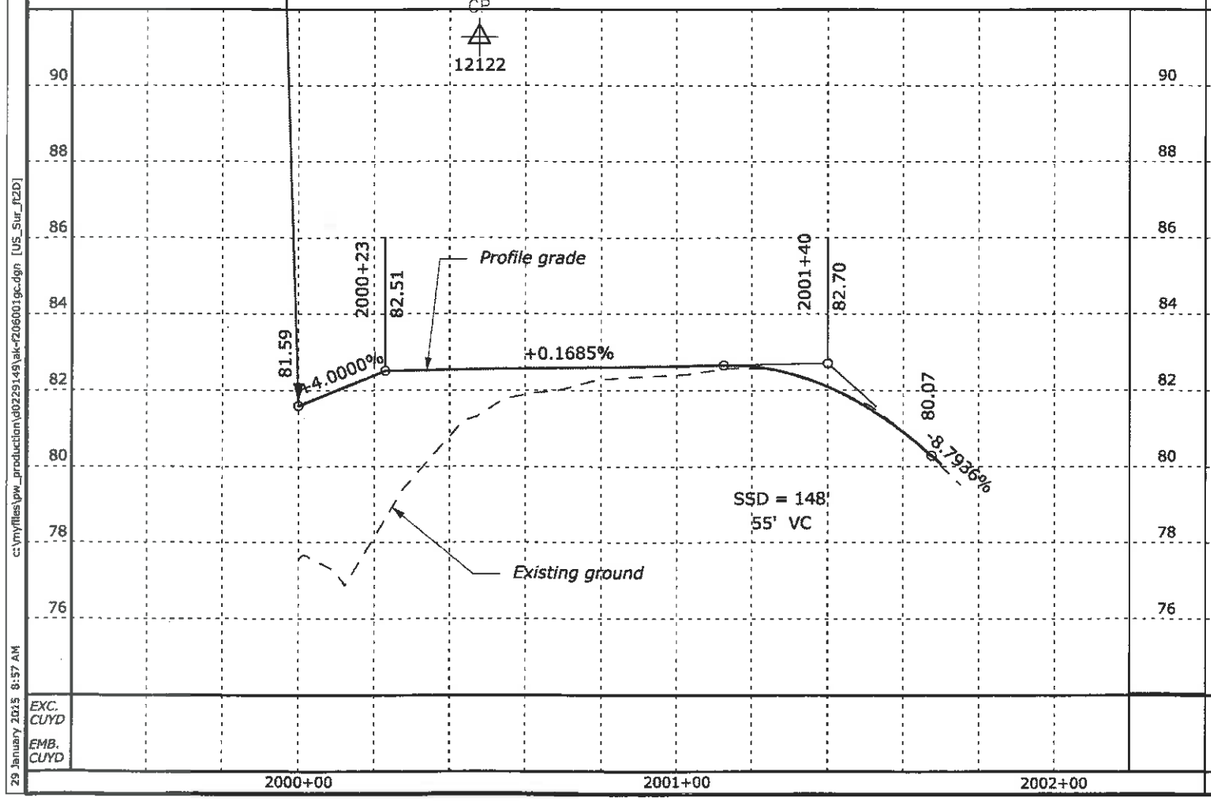


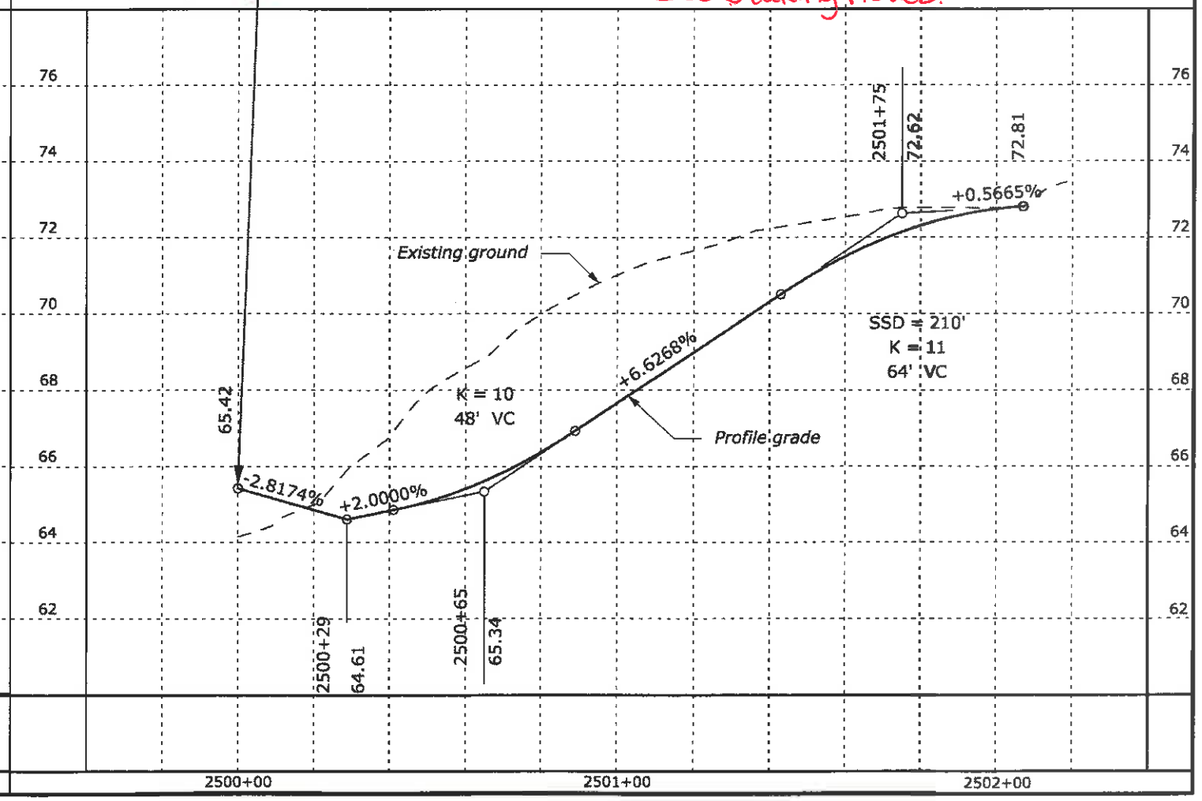


STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	E.4









STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	E.5

N

CP
5255

R/W

MAINLINE 133+50=
APPROACH 3500+00

134

133

22' R

42' R

10:1 Taper

Line to be constructed

Adjust tie-in to match
existing field conditions

N 39° 04' 52" W

N 21° 56' 24" W

N 13° 01' 00" W

POT 3501+95.92

10:1 Taper

PC 3500+33.95

47' R

PT 3500+93.78

PC 3501+13.19

R/W

PT 3501+59.91

Edge of traveled way

10:1 Taper

Δ= 17° 08' 27" (RT)
R= 200.00'
T= 30.14'
L= 59.83'

Δ= 8° 55' 24" (RT)
R= 300.00'
T= 23.41'
L= 46.72'

3500+14
26.04

3500+55
25.63

25.20

-1.0000%

+6.0000%

-6.6075%

K = 10
80' VC

Profile grade

Existing ground

19.50

+1.1707%

SSD = 220'
K = 10
55' VC

3501+55
19.02

30
28
26
24
22
20
18
16

EXC, CUYD

EMB, CUYD

3500+00

3501+00

3502+00

Designed by:
Checked by:
30 January 2015 11:04 AM
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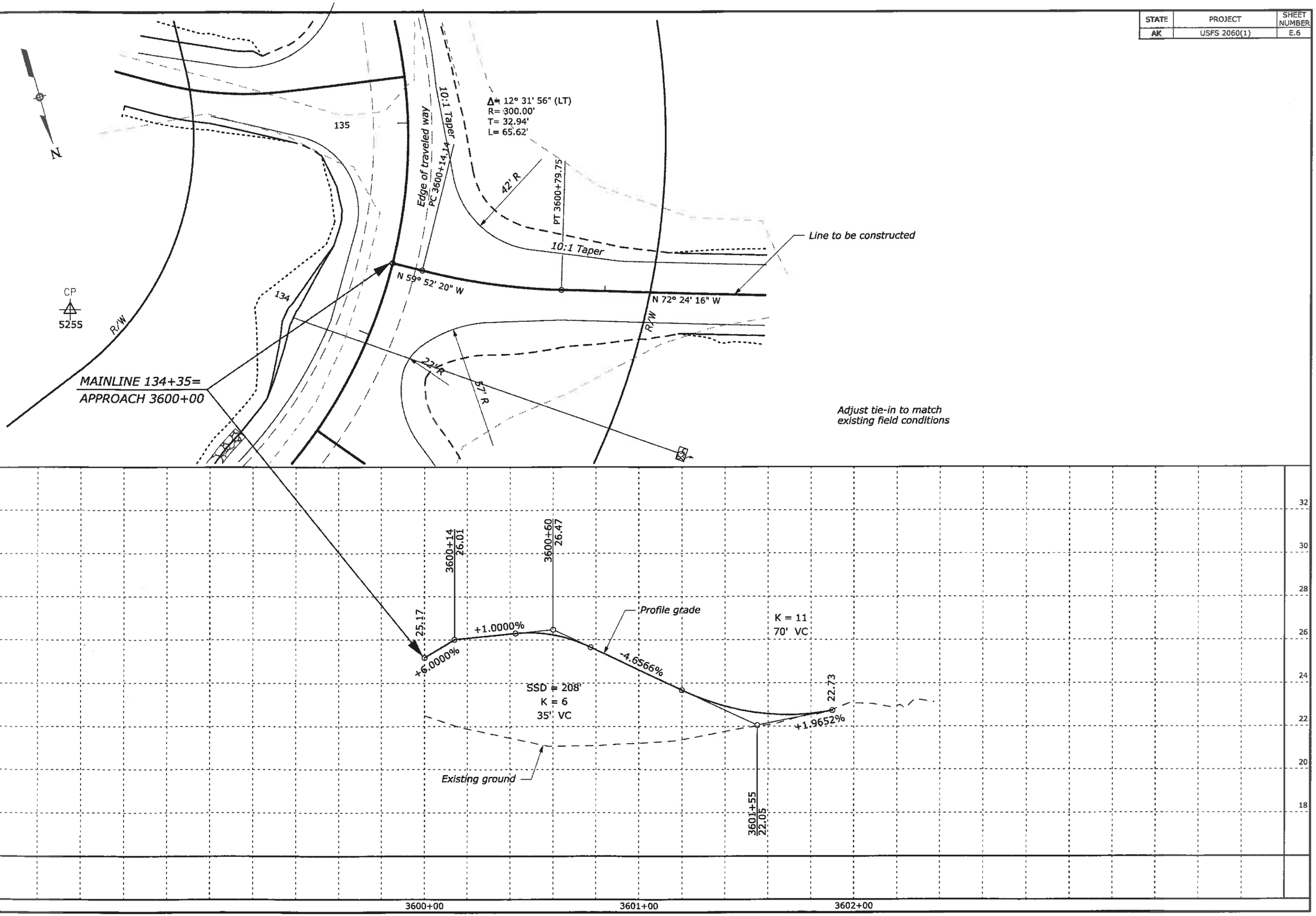
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	E.6



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30 January 2015 11:05 AM

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	E.7

N

8:1 Taper

Adjust tie-in to match existing field conditions

CP 5255

35' R

Line to be constructed

135

M/W

8:1 Taper

POT 4001+36.28

S 80° 58' 43" E

PC 4000+57.09

S 59° 34' 34" E

10:1 Taper

45'R

PT 4001+13.12

10:1 Taper

136

Δ= 21° 24' 10" (RT)
R= 150.00'
T= 28.35'
L= 56.03'

MAINLINE 135+21=
APPROACH 4000+00

N

136

15:1 Taper

60' R

Line to be constructed

15:1 Taper

POT 4501+33.69

Adjust tie-in to match existing field conditions

S 87° 51' 20" E

137

S 63° 53' 13" E

8:1 Taper

PC 4500+21.56

35' R

PT 4500+72.76

Δ= 23° 58' 07" (RT)
R= 120.00'
T= 25.47'
L= 50.20'

8:1 Taper

138

CP 12135

MAINLINE 136+93=
APPROACH 4500+00

32 30 28 26 24 22 20

34 32 30 28 26 24 22 20

27.96

-5.5143%

+0.1385%

+0.1385%

-0.1109%

4001+10
26.51

26.48

4000+28
26.39

Profile grade

Existing ground

52 50 48 46 44 42 40 38

52 50 48 46 44 42 40 38

50.98

+12.9197%

K = 6
82' VC

41.58

-4.0000%

-0.5000%

4500+11
41.14

4500+14
41.02

4500+55
40.81

Profile grade

Existing ground

EXC. CUYD

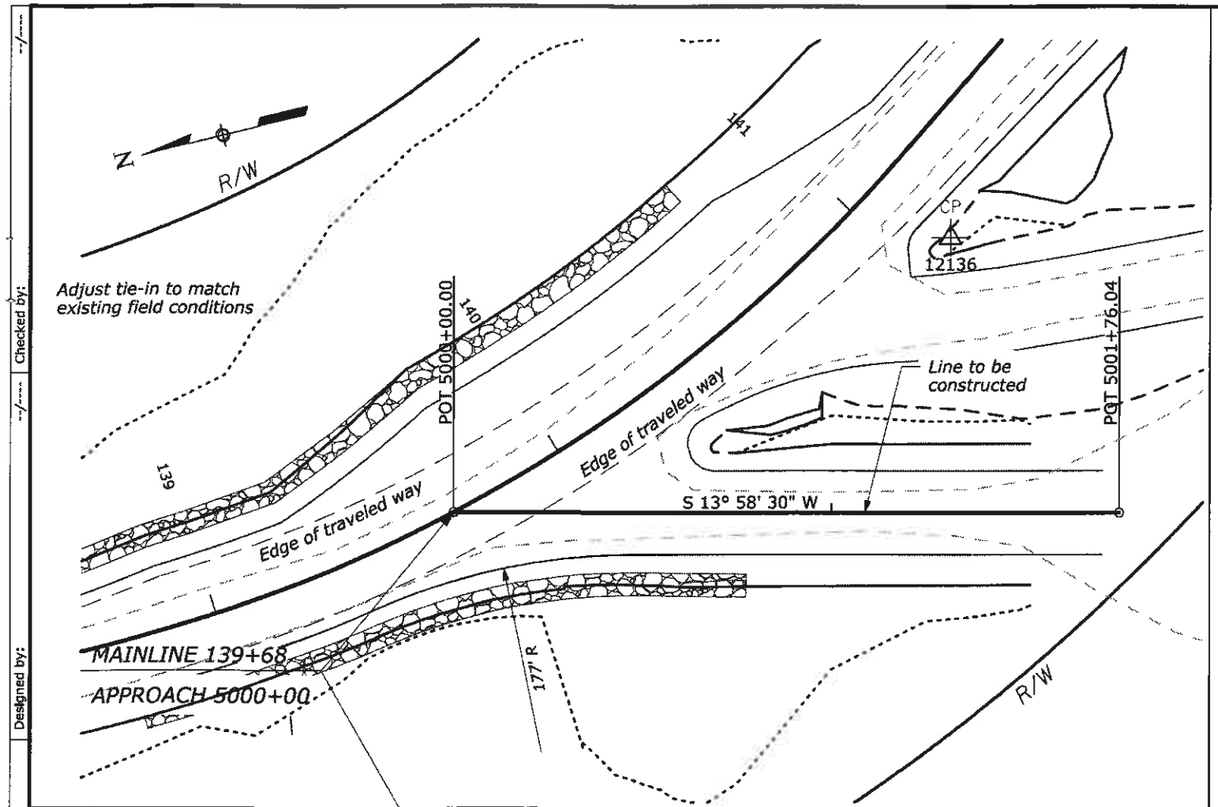
EMB. CUYD

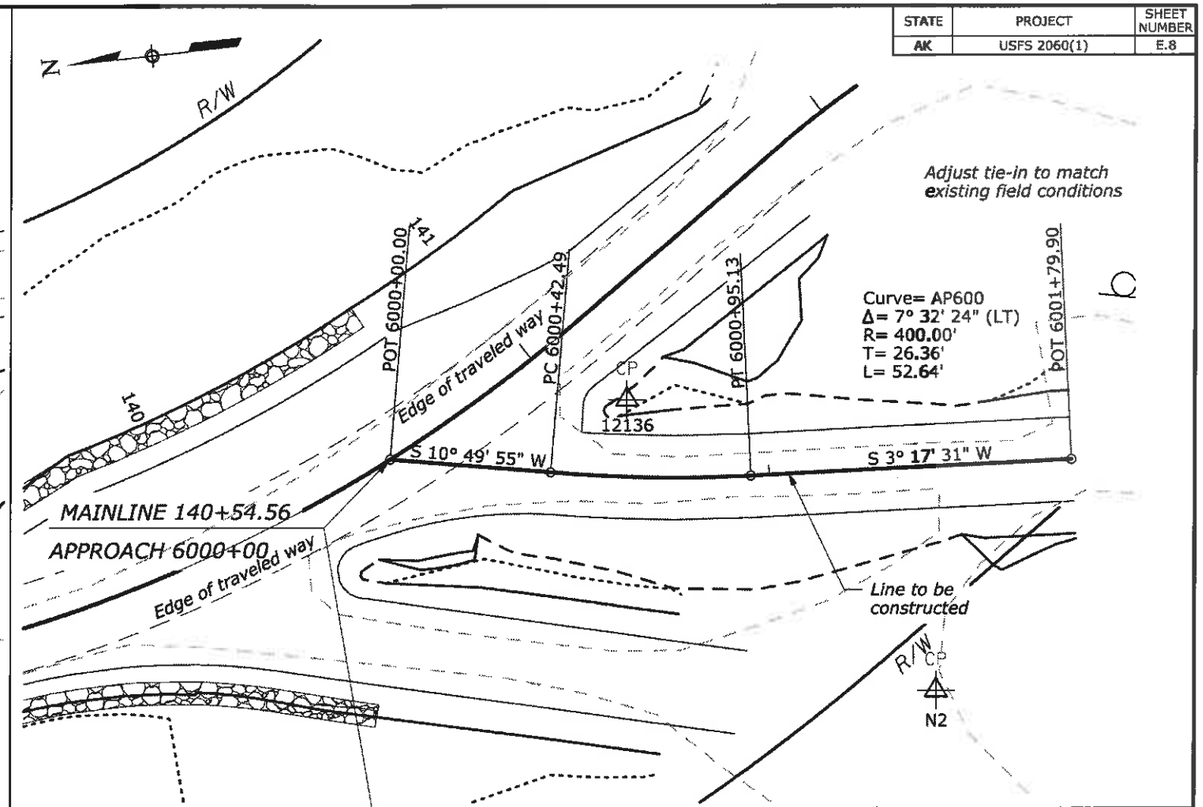
4000+00 4001+00 4500+00 4501+00

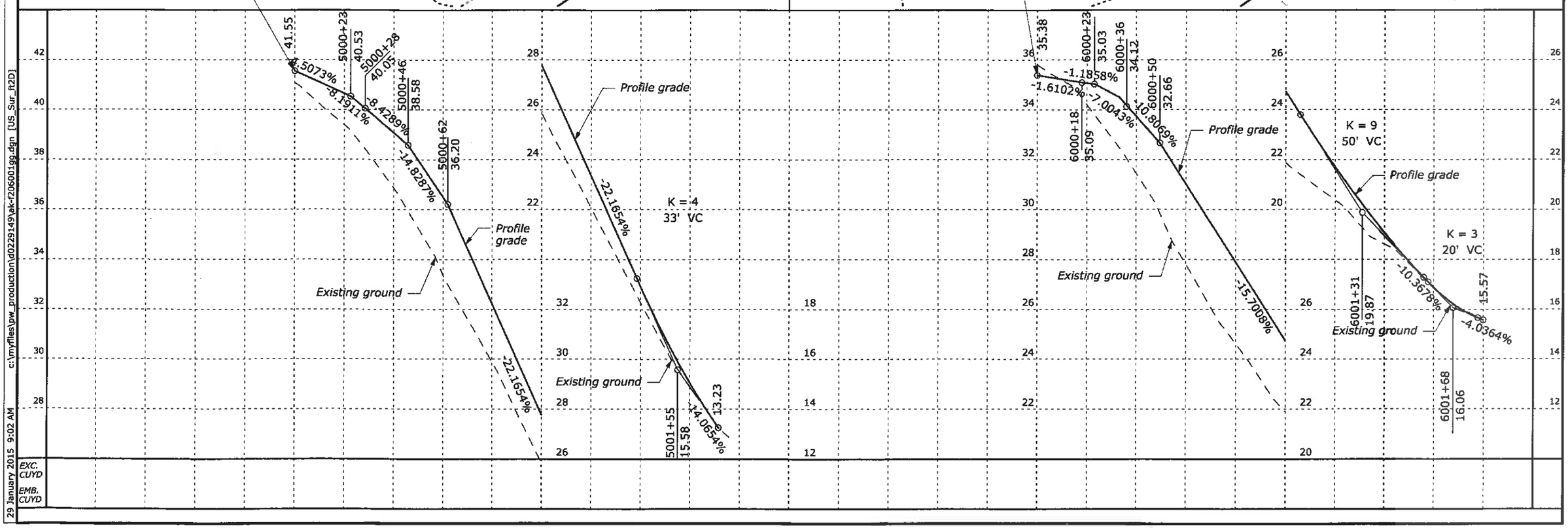
Designed by: -/---- Checked by: -/----

30 January 2015 11:06 AM c:\myfiles\pw_production\d0229149\ak-f206001gf.dgn [US_Sur_ft2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	E.8







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STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	F.1

EROSION CONTROL QUANTITIES

ITEM NO	DESCRIPTION		
15702-1000	SOIL EROSION CONTROL, TEMPORARY DIVERSION CHANNEL		
15706-1600	SOIL EROSION CONTROL, STABILIZED CONSTRUCTION ENTRANCE		
15707-1000	SOIL EROSION CONTROL, TEMPORARY TURF ESTABLISHMENT		
15801-0000	WATERING FOR DUST CONTROL	MGAL	2,250

ITEM 15705-1500 SOIL EROSION CONTROL, SEDIMENT WATTLE (CHECK DAMS) TEMPORARY

LOCATION	QUANTITY (LNFT)	LOCATION RIGHT	QUANTITY (LNFT)
10+18 to 10+40	40	27+75 to 29+14	30
14+31 to 16+25	80	46+00 to 47+67	80
17+80 to 19+45	60	51+44 to 54+10	60
19+85 to 21+25	60	60+40 to 63+31	60
23+39 to 23+85	20	67+00 to 67+27	30
24+72 to 28+27	130	68+25 to 69+00	40
29+14 to 31+85	60	83+00 to 86+25	130
32+73 to 36+22	80	95+75 to 96+75	40
37+10 to 39+24	50	105+40 to 107+00	40
42+65 to 43+50	30	120+35 to 123+35	60
46+28 to 47+25	40	123+52 to 124+45	50
67+43 to 69+00	60	132+50 to 133+54	80
81+20 to 82+49	100	138+00 to 138+75	20
83+00 to 85+00	80	140+33 to 141+34	140
95+25 to 96+92	180	39+68 to 40+75	
98+65 to 102+81	90	41+79	
103+87 to 105+41	40	44+00	
106+29 to 109+84	80		
115+52 to 116+25	20		
118+98 to 120+18	140		
131+00 to 132+75	40		
133+25 to 133+00	50		
135+00 to 135+50	20		
137+20 to 137+34	30		
138+00 to 138+60	20		
140+75 to 141+80	50		
SUBTOTAL LT	1,650	SUBTOTAL RT	860
		TOTAL	2,510

38+50

ITEM 15705-1500 SOIL EROSION CONTROL, SEDIMENT WATTLE TEMPORARY

LOCATION LEFT	QUANTITY (LNFT)	LOCATION RIGHT	QUANTITY (LNFT)
10+13 to 13+73	540	10+13.42 to 13+33	364
43+49 to 58+60	1,490	19+00 to 21+60	260
61+30 to 62+56	133	25+25 to 35+75	1,095
64+50 to 81+20	1,700	37+50 to 45+73	886
120+19 to 122+50	243	46+00 to 46+46	74
124+35 to 134+58	1,040	47+68 to 49+50	196
135+43 to 137+02	250	55+77 to 59+51	382
42+20 to 44+00		66+25 to 66+68	108
48+36 to 57+76		80+49 to 81+18	67
60+00		82+13 to 83+00	85
66+30 to 72+60		86+25 to 90+05	400
128+50 to 131+00		97+43 to 101+75	425
		102+45 to 105+39	310
		107+00 to 110+50	355
		116+55 to 117+12	60
		119+88 to 120+35	55
		130+00 to 132+50	490
		133+52 to 134+30	229
		134+58 to 136+01	262
		140+22 to 140+48	32
		141+08 to 141+78	105
SUBTOTAL LT	5,396	SUBTOTAL RT	6,240
		TOTAL	11,636

ITEM 15705-1500 SOIL EROSION CONTROL, SEDIMENT WATTLE (SLOPE PROTECTION)

LOCATION LEFT	QUANTITY (LNFT)	LOCATION RIGHT	QUANTITY (LNFT)
14+68 to 17+71	647	10+61 to 10+93	148
19+90 to 20+75	117	13+33 to 19+00	692
22+52 to 26+25	598	21+60 to 24+55	466
26+60 to 38+48	2,682	24+75 to 25+25	60
38+84 to 41+13	452	35+75 to 37+50	276
41+25 to 43+12	501	50+56 to 51+75	137
58+62 to 61+30	262	52+74 to 55+77	1,226
62+65 to 64+25	288	59+51 to 60+39	83
85+00 to 90+00	1,793	60+47 to 65+00	916
90+70 to 91+38	91	67+15 to 77+00	3,918
91+85 to 93+70	874	81+18 to 82+13	149
93+78 to 94+66	116	90+05 to 95+10	2,157
95+25 to 98+40	912	95+10 to 97+43	169
99+85 to 100+75	375	101+80 to 102+45	232
101+76 to 113+42	3,511	105+50 to 107+00	173
113+75 to 115+26	263	112+90 to 116+54	808
117+90 to 119+09	319	117+12 to 119+88	526
137+19 to 141+80	1,086	122+39 to 123+75	188
		124+18 to 129+85	1,960
		136+20 to 140+23	643
		140+47 to 141+08	71
		66+60 to 66+80	
SUBTOTAL LT	14,887	SUBTOTAL RT	14,997
		TOTAL	29,884

TABULATION OF EROSION/SEDIMENT CONTROL QUANTITIES

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060 (1)	F.2

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28 July 2015 8:19 AM

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
N½ NW¼
SECTION 17
QCD 2010-001377-0

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
N½ NE¼
SECTION 18
PATENT 50-2007-0534

003

VAN HUFFMAN
LOT 4
PLAT 2001-33

004

RICHTER
LOT 3
PLAT 2001-33

005

RICHTER
LOT 2
PLAT 2001-33

006

MATLOCK
LOT 1
PLAT 2001-33

BEGIN PROJECT
AK USFS 2060(1)
10+13.42
N= 1,483,462.32
E= 2,784,316.88
EL= 75.29

~~Install sediment wattle check dam spacing per detail sheet F.12~~

Install sediment wattle per details on sheet F.12 ✓

Clearing limit ✓

Line to be constructed ✓

Place riprap at culvert inlet ✓

Construct stabilized construction entrance

FH 2059

FH 20

Install sediment wattle per details on sheet F.12 ✓

Place riprap at culvert outlet ✓

~~Provide Setiment wattle, slope protection per details on sheet F.11~~ ✓

Install sediment wattle check dam spacing per detail sheet F.12 ✓

~~Provide Setiment wattle, slope protection per details on sheet F.11~~ ✓

Construct biofiltation swale 16+25 to 17+64 Lt. per detail sheet G.7 ✓

Install Riprap Blanket 14+00 to 17+75 LT CM004

Install Riprap Blanket CM004 18+02 to 19+50 LT

Provide Setiment wattle, soil stabilization per details on sheet F.11 ✓

Install sediment wattle check dam spacing per detail sheet F.12 ✓

Riprap lined ditch per details on sheet G.10 ✓

Provide Setiment wattle, soil stabilization per details on sheet F.11 ✓

Riprap lined ditch per details on sheet G.10 ✓

Install sediment wattle check dam spacing per detail sheet F.12 ✓

~~Provide Setiment wattle, slope protection per details on sheet F.11~~ ✓

CM004 20+25 to 20+69 LT Install Riprap Blanket

Install Riprap Blanket 24+60 to 26+06 LT CM004

Place riprap at culvert outlet ✓

Clearing limit ✓

~~Provide Setiment wattle, slope protection per details on sheet F.11~~ ✓

Install sediment wattle per details on sheet F.12 ✓

Place riprap at culvert outlet ✓

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
E½ SECTION 7
PATENT 50-2007-0534

007

TRACT B
PLAT 2001-33

Provide Setiment wattle, soil stabilization per details on sheet F.11 ✓

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
W½ SECTION 08
PATENT 50-2007-0534

LOT 10
PLAT 2001-33

LEGEND :

- 0 Check Dam
- Sediment Wattle
- Slope Protection
- Storm Water Flow
- Existing Wetland

NOTE:

1. Sediment wattle lines shown are for illustration only. See Sediment Wattle Detail drawings for location installation details.
2. Apply temporary slope protection w/in 14 days where construction activities have ceased.

SEDIMENTATION AND EROSION CONTROL PLANS 10+13.42 TO 25+00

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060 (1)	F.3

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
N½ NW¼
SECTION 17
QCD 2010-001377-0

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
N½ NE¼
SECTION 18
PATENT 50-2007-0534

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
E½ SECTION 7
PATENT 50-2007-0534

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
N½ NE¼
SECTION 18
PATENT 50-2007-0534

Install Riprap Blanket 24+60 to 26+06 LT CMP04

Provide Sediment wattle, slope protection per details on sheet F.11

Install sediment wattle check dam spacing per detail sheet F.12

Clearing limit

Line to be constructed

Install Riprap Blanket 26+93 to 27+50 LT CMP04

Provide Sediment wattle, slope protection per details on sheet F.11

Install sediment wattle check dam spacing per detail sheet F.12

Provide Sediment wattle, slope protection per details on sheet F.11

Install sediment wattle check dam spacing per detail sheet F.12

Install Riprap Blanket 29+25 to 29+75 LT CMP04

Provide Sediment wattle, slope protection per details on sheet F.11

Riprap lined ditch per details on sheet G.10

APAT Approach Rd.

Place riprap at culvert outlet

Install sediment wattle per details on sheet F.12

Provide Sediment wattle, slope protection per details on sheet F.11

Place riprap at culvert outlet

Provide Sediment wattle, slope protection per details on sheet F.11

Place riprap at culvert outlet

Install sediment wattle per details on sheet F.12

Clearing limit

Place riprap at culvert outlet

SEDIMENTATION AND EROSION CONTROL PLANS 25+00 TO 40+00

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28 July 2015 8:17 AM

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	F.4

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Clearing limits

Install Riprap blanket 40+64 to 40+93 LT CM004

Riprap lined ditch per details on sheet G.10

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Install sediment wattle check dam spacing per detail sheet F.12

Line to be constructed

Riprap lined ditch per details on sheet G.10

Install sediment wattle check dam spacing per detail sheet F.12

Place riprap at culvert outlet

Install sediment wattle per details on sheet F.12

Place riprap at culvert outlet

Install sediment wattle per details on sheet F.12

Place riprap at culvert outlet

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
S½ NE¼
SECTION 18
BOOK 131 PAGE 207?

Install sediment wattle per details on sheet F.12

Install Riprap Blanket 54+50 to 55+50 RT CM004

Construct biofiltation swale 54+25 to 55+75 Rt. per detail sheet G.7

Riprap lined ditch per details on sheet G.10

Install Riprap Blanket 52+40 to 52+85 RT CM004

Install sediment wattle check dam spacing per detail sheet F.12

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Install Riprap Blanket 50+94 to 51+06 RT CM004

Riprap lined ditch per details on sheet G.10

Clearing limits

Riprap lined ditch per details on sheet G.10

Install sediment wattle per details on sheet F.12

~~Install sediment wattle check dam spacing per detail sheet F.12~~

~~Install sediment wattle check dam spacing per detail sheet F.12~~

Riprap lined ditch per details on sheet G.10

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
N½ NE¼
SECTION 18
PATENT 50-2007-0534

SEDIMENTATION AND EROSION CONTROL PLANS 40+00 TO 55+00

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060 (1)	F.5

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 3
SECTION 18
QCD 2010-001377-0

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
S½ NE¼
SECTION 18
BOOK 131 PAGE 207?

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
NW¼ SE¼
SECTION 18

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Place riprap at culvert outlet ✓

Install sediment wattle per details on sheet F.12 ✓

Install sediment wattle per details on sheet F.12 ✓

Place riprap at culvert outlet ✓

Install sediment wattle per details on sheet F.12 ✓

Riprap lined ditch per details on sheet G.10 ✓

Install sediment wattle check dam spacing per detail sheet F.12 ✓

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Riprap lined ditch per details on sheet G.10 ✓

Install sediment wattle per details on sheet F.12 ✓

Place riprap at culvert outlet

Install Riprap Blanket 54+50 to 55+50 RT CM004

Place riprap at culvert inlet ✓

Install sediment wattle per details on sheet F.12 ✓

Install sediment wattle check dam spacing per detail sheet F.12 ✓

Riprap lined ditch per details on sheet G.10 ✓

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Install Riprap Blanket 59+84 to 60+05 RT CM004

Install sediment wattle check dam spacing per detail sheet F.12 ✓

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Riprap lined ditch per details on sheet G.10 ✓

Install Riprap Blanket 61+00 to 64+50 RT CM004

~~Construct biofiltation swale 64+50 to 66+23 Lt. per detail sheet G.7~~

Place riprap at culvert inlet ✓

Riprap lined ditch per details on sheet G.10 ✓

Install sediment wattle check dam spacing per detail sheet F.12 ✓

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Construct biofiltation swale 69+50 to 71+05 Rt. per detail sheet G.7 ✓

Install Riprap Blanket 69+80 to 70+20 RT CM004

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
S½ NE¼
SECTION 18
BOOK 131 PAGE 207?

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
NW SE
SECTION 18

SEDIMENTATION AND EROSION CONTROL PLANS 55+00 TO 70+00

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STATE	PROJECT	SHEET NUMBER
AK	USFS 2060 (1)	F.6

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 3
SECTION 18
QCD 2010-001377-0

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
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SECTION 18
QCD 2010-001377-0

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
NW¼ SE¼
SECTION 18

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
NW¼ SE¼
SECTION 18

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 7
SECTION 18

Install sediment wattle per details on sheet F.12

Clearing limits

Line to be constructed

~~Install sediment wattle check dam spacing per detail sheet F.12~~

Realignment 82+15.33 to 116+10.46 CM004 See FHWA survey notes

Place riprap at culvert outlet

Install Riprap Blanket 70+71 CM004 to 71+07 LT

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Riprap lined ditch per details on sheet G.10

Construct biofiltation swale 71+94 to ~~74+00~~ 73+25 Rt. per detail sheet G.7

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Riprap lined ditch per details on sheet G.10

~~Install sediment wattle check dam spacing per detail sheet F.12~~

Install sediment wattle check dam spacing per detail sheet F.12

Clearing limits

Construct biofiltation swale 69+50 to 71+05 Rt.

Install Riprap Blanket 69+80 to 70+20 RT CM004

SEDIMENTATION AND EROSION CONTROL PLANS 70+00 TO 85+00

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060 (1)	F.7

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
SE¼ SE¼
SECTION 18
QCD 2010-001377-0

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 7
SECTION 18

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 7
SECTION 19

Construct biofiltation swale 85+00 to 87+44 Lt. per detail sheet G.7 ✓

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Line to be constructed ✓

Construct biofiltation 89+00 swale 88+00 to ~~90+00~~ Lt. per detail sheet G.7
90+00 to 91+00 LT ✓

Place riprap at culvert outlet ✓

Install sediment wattle per details on sheet F.12 ✓

Place riprap at culvert outlet

Place riprap at culvert outlet

~~Install sediment wattle check dam spacing per detail sheet F.12~~

Riprap lined ditch per details on sheet G.10 ✓

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

~~Install sediment wattle check dam spacing per detail sheet F.12~~

Clearing limit ✓

Riprap lined ditch per details on sheet G.10 ✓

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Place riprap at culvert outlet ✓

Clearing limit ✓

Riprap lined ditch per details on sheet G.10 ✓

~~Install sediment wattle check dam spacing per detail sheet F.12~~

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

~~Install sediment wattle per details on sheet F.12~~

Place riprap at culvert outlet ✓

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 7
SECTION 19

SEDIMENTATION AND EROSION CONTROL PLANS 85+00 TO 100+00

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STATE	PROJECT	SHEET NUMBER
AK	USFS 2060 (1)	F.8

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 7
SECTION 19

LOT 2
BLOCK 9
PLAT 2005-14

Realignment
82+15.33 to 116+70.46
CM004
See FHWA survey notes

008

LOT 1
BLOCK 9
PLAT 2005-14

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 11
SECTION 19

Provide Sediment wattle, slope protection per details on sheet F.11

Install sediment wattle check dam spacing per detail sheet F.12

Riprap lined ditch per details on sheet G.10

Clearing limit

Line to be constructed

Place riprap at culvert outlet

Install sediment wattle per details on sheet F.12

Provide Sediment wattle, slope protection per details on sheet F.11

Install sediment wattle check dam spacing per detail sheet F.12

Provide Sediment wattle, slope protection per details on sheet F.11

Install sediment wattle per details on sheet F.12

Clearing limit

Install sediment wattle per details on sheet F.12

Place riprap at culvert outlet

Riprap lined ditch per details on sheet G.10

Provide Sediment wattle, slope protection per details on sheet F.11

Place riprap at culvert outlet

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 7
SECTION 19

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 11
SECTION 19

SEDIMENTATION AND EROSION CONTROL PLANS 100+00 TO 115+00

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STATE	PROJECT	SHEET NUMBER
AK	USFS 2060 (1)	F.9

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001
STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 11
SECTION 19

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STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 9
SECTION 19

001
STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 9
SECTION 19

001
STATE OF ALASKA
DEPT. OF
NATURAL RESOURCES
GOV'T LOT 11
SECTION 19

008
LOT 1
BLOCK 9
PLAT 2005-14

HUCKLEBERRY DRIVE

Install sediment wattle per details on sheet F.12 ✓

Place riprap at culvert outlet ✓

Riprap lined ditch per details on sheet G.10 ✓

Clearing limits ✓

Line to be constructed ✓

~~Install sediment wattle check dam spacing per detail sheet F.12~~

~~Install sediment wattle per details on sheet F.12~~

Construct biofiltation swale 128+00 to 129+75 Rt. per detail sheet G.7 ✓

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Riprap lined ditch per details on sheet G.10 ✓

Construct biofiltation swale 124+47 to 126+22 Rt. per detail sheet G.7 ✓

~~Install sediment wattle check dam spacing per detail sheet F.12~~

Approach Rd Deleted

Riprap lined ditch per details on sheet G.10 ✓

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Install sediment wattle check dam spacing per detail sheet F.12 ✓

Realignment 82+15.53 to 116+70.46 Chkd'd See FHWA Survey notes

~~Install sediment wattle check dam spacing per detail sheet F.12~~

Install sediment wattle per details on sheet F.12 ✓

Clearing limits ✓

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

Riprap lined ditch per details on sheet G.10 ✓

Place riprap at culvert outlet ✓

~~Provide Sediment wattle, slope protection per details on sheet F.11~~

115 120 125 130

R/W

SEDIMENTATION AND EROSION CONTROL PLANS 115+00 TO 130+00

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060 (1)	F.10

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Install sediment wattle per details on sheet F.12

Place riprap at culvert inlet

130

R/W

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 9
SECTION 19

Install sediment wattle check dam spacing per detail sheet F.12

Riprap lined ditch per details on sheet G.10

Line to be constructed

LEASE AREA
NAUKATI FACILITIES
2004-004194-0

009

USA
GOV'T LOT 10
SECTION 19

Place riprap at culvert outlet

Install sediment wattle per details on sheet F.12

Install sediment wattle check dam spacing per detail sheet F.12

Place riprap at culvert outlet

Riprap lined ditch per details on sheet G.10

Install sediment wattle check dam spacing per detail sheet F.12

135

140

001

STATE OF ALASKA
DEPT. OF NATURAL RESOURCES
GOV'T LOT 12
SECTION 19

Provide Sediment wattle, slope protection per details on sheet F.12

Riprap lined ditch per details on sheet G.10

Clearing limit

Install Riprap Blanket 141+40 to 141+80 LT CM004

Install sediment wattle check dam spacing per detail sheet F.12

END PROJECT
AK USFS 2060(1)
141+80
N= 1,474,857.08
E= 2,778,459.34
EL= 32.94

Place riprap at culvert outlet
Install 24" Culvert 141+75

LOG TRANSFER EASEMENT ET AL
BOOK 110 PAGE 49

Place riprap at culvert outlet

Riprap ditch

Permanent Sediment Trap

Install sediment wattle per details on sheet F.12

Install sediment wattle per details on sheet F.12

Clearing limit

009

USA
GOV'T LOT 10
SECTION 19

Riprap lined ditch per details on sheet G.10

Install sediment wattle check dam spacing per detail sheet F.12

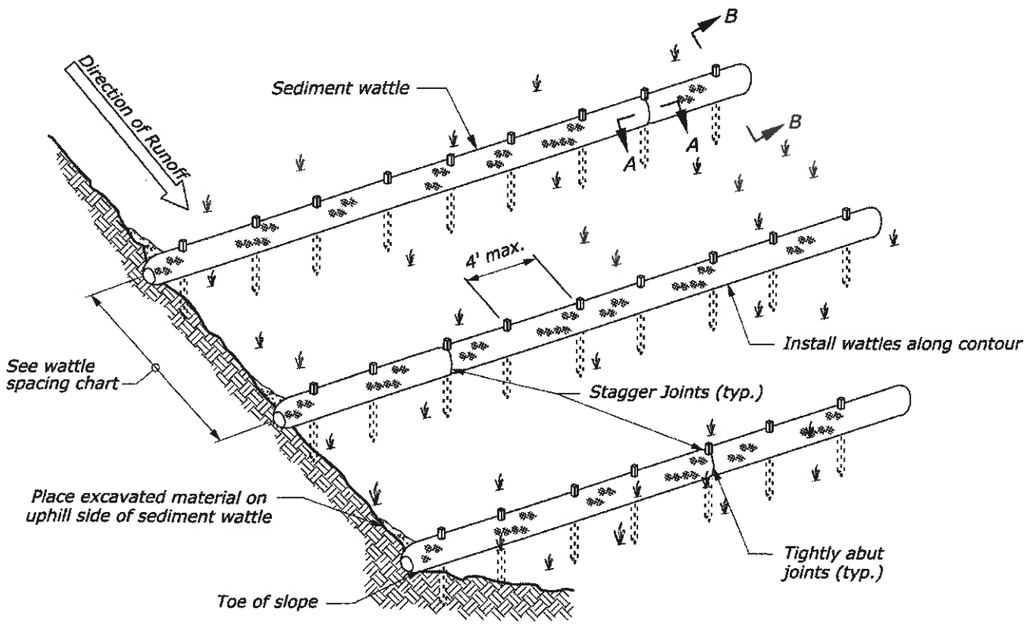
Riprap lined ditch per details on sheet G.10

Provide Sediment wattle, slope protection per details on sheet F.12

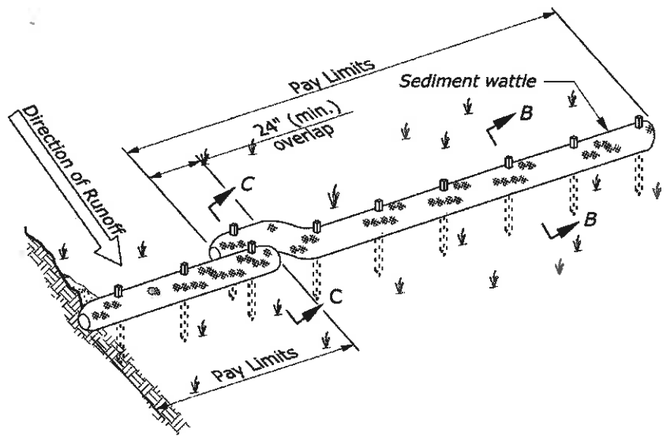
Provide Sediment wattle, slope protection per details on sheet F.12

SEDIMENTATION AND EROSION CONTROL PLANS 130+00 TO 141+80

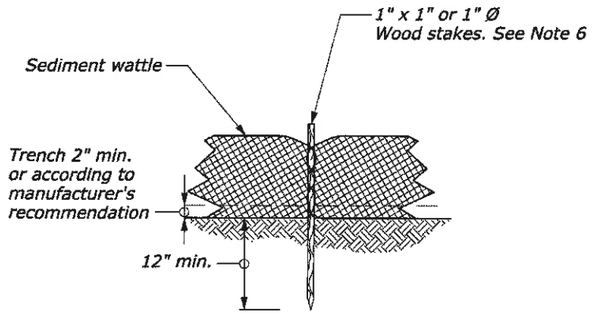
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060 (1)	F.11



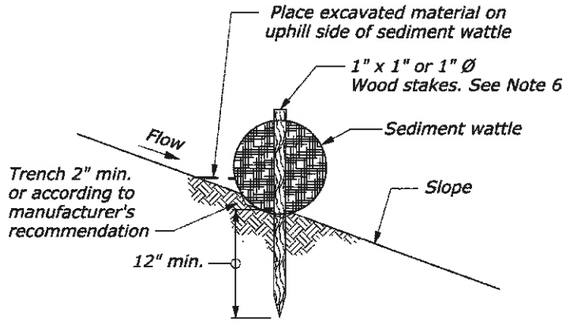
SEDIMENT WATTLE SLOPE PROTECTION INSTALLATION



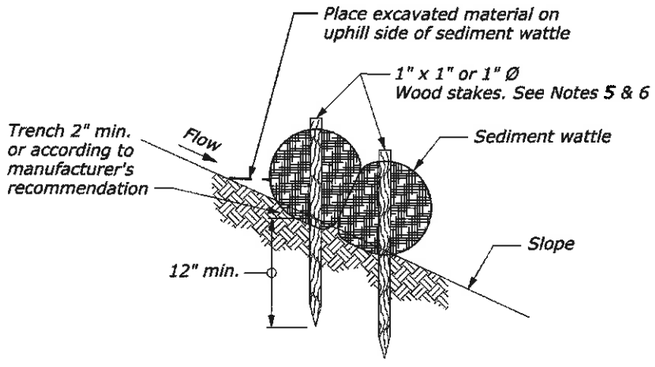
ALTERNATE WATTLE JOINT DETAIL SLOPE PROTECTION INSTALLATION



SECTION A-A
WATTLE JOINT DETAIL



SECTION B-B
STAKE DETAIL



SECTION C-C
WATTLE LAPPING DETAIL

NO SCALE

ALONG SLOPE SPACING *	
SLOPE %	SPACING (FT)
1:4 or flatter	60
1:4 - 1:3	45
1:3 - 1:2	30
1:2 - 1:1	15

* Spacing calculated based on 12" Ø min. sediment wattle.

NOTE:

1. Repair any rills or gullies prior to installation.
2. For slope ratios in between those shown in the Wattle Spacing Table, apply spacing intervals per the steeper slope ratio given. Start the wattle placement at the toe of slope and then space up the slope per table.
3. Construct trenches along the slope contour and perpendicular to water flow. Remove all rocks, clods, vegetation or other obstructions to ensure wattles will have direct contact with the trenches.
4. Place sediment wattles in continuous contact with trench bottom and sides. Compact soil backfill against upstream side of wattle to ensure storm water is forced flow through wattle rather than under it. Curve terminal ends of wattles upgrade to ensure containment and prevent channeling.
5. Abut adjacent wattles tightly or overlap wattles 24" minimum to prevent sediment passing through the field joint. Drive stakes at 6" from wattle end angles towards the adjacent wattle and space stakes at 4' max. Do not crush wattle while staking.
6. Expose stakes 2" min. above top of wattle. Remove and replace crushed or damaged wattle during the installation. Place a stake on either side of the damaged area terminating the wattle segment.

SEDIMENT WATTLE DETAILS ✓

SHEET 1 OF 2

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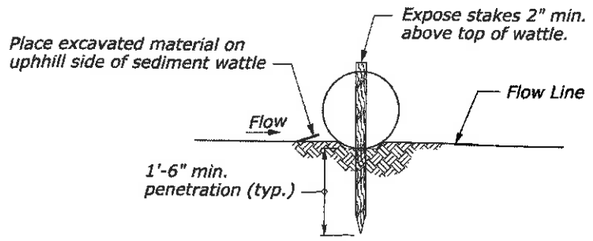
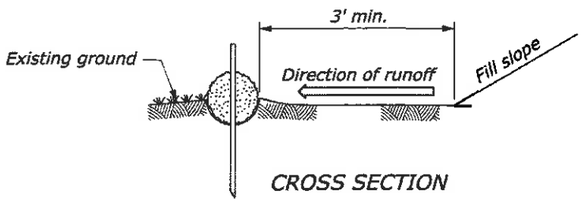
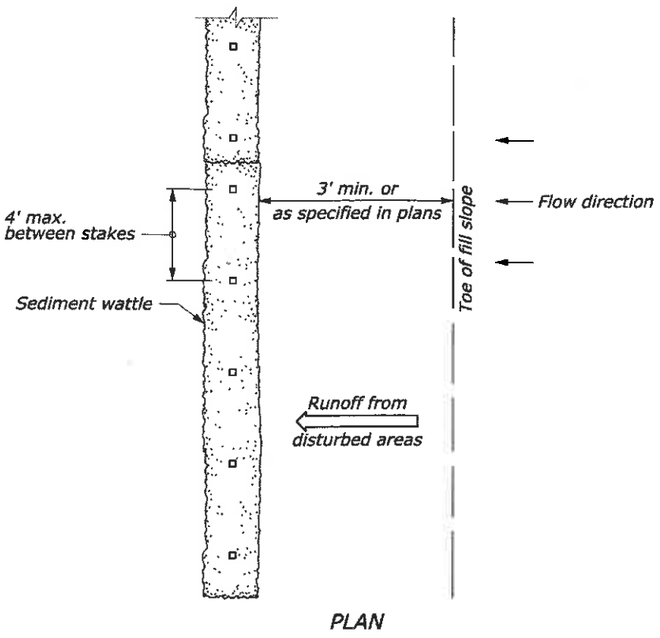
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060 (1)	F.12



STAKING DETAIL

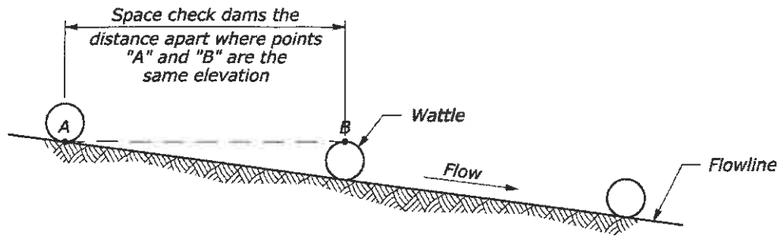


CROSS SECTION

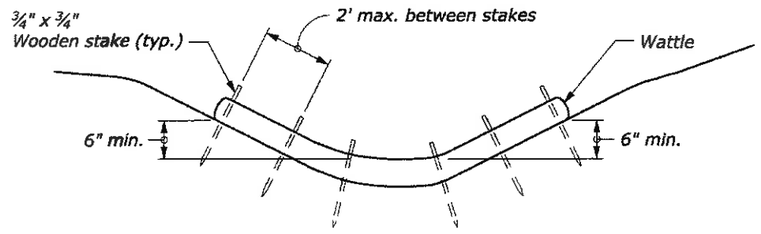


PLAN

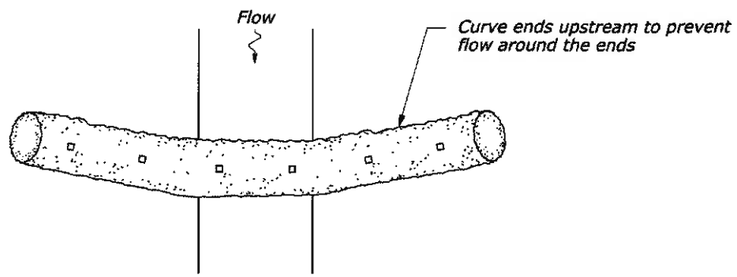
INSTALLATION BEYOND TOE OF SLOPE



PROFILE



CROSS SECTION



PLAN

INSTALLATION ALONG DITCH

ALONG DITCH SPACING*

DITCH GRADE	SPACING (S) max. (FT)
1%	100
2%	50
3%	30
4%	25
5%	15
7%	10

* Spacing calculated based on 12" Ø min. sediment wattle.

NOTE:

1. Repair all rills or gullies prior to installation.
2. Install check dams in ditches perpendicular to the flowline.
3. Do not crush wattle while staking. **Drive stakes at each** end and at maximum space as shown.
4. For narrow ditches either cut wattles to fit ditch width and close cut ends or substitue biobags.

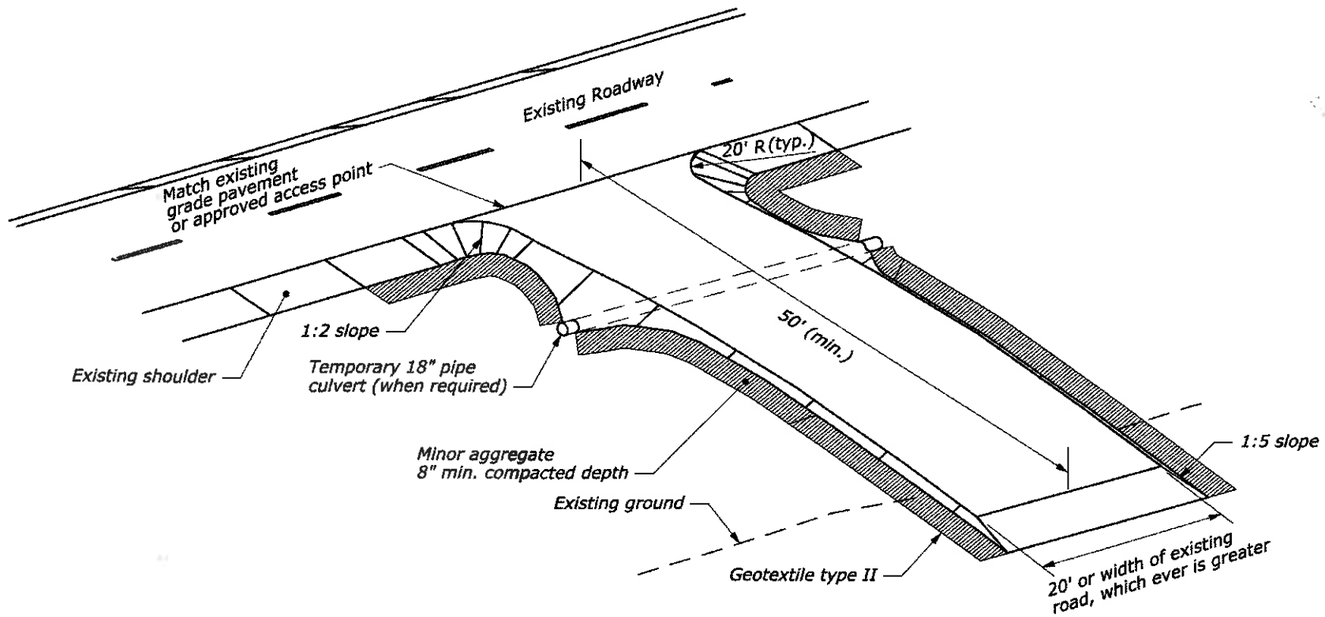
NO SCALE

SEDIMENT WATTLE DETAILS ✓

SHEET 2 OF 2

Designed by: C. Conrad | Checked by: | 02/25/14 | c:\myfiles\pw_production\d0199362\ak-f20600dl.dgn [US Customary] | 31 July 2014 2:00 PM

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	F.13



TYPICAL STABILIZED CONSTRUCTION ENTRANCE/ EXIT

NOTE:

1. *Modifications may be necessary to match field conditions*
2. *Construct drainage ditches along entrance when required. Install temporary 18-inches min. diameter pipe culverts where entrance crosses existing drainage ditches. Minimum culvert cover is 12-inches.*
3. *Place geotextile, type II-B, over the entire area prior to placing the aggregate base.*
4. *See SCR Section 157 for maintenance and clean up.*

STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAILS

Note: The quantities shown hereon are approximate and are subject to field adjustments.

TABULATION OF DRAINAGE QUANTITIES

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.1

PAY ITEM NUMBER			20301 -1900	25101 -2000	25101 -2000	60201 -0800	60201 -1000	60201 -1400	60201 -1600	60201 -1800	60201 -2200							
Station	ESTIMATED MAXIMUM COVER	STRUCTURAL EXCAVATION	REMOVAL OF PIPE CULVERT	PLACED RIPRAP, CLASS 2 (RIPRAP HEADWALL)	PLACED RIPRAP, CLASS 2 (ENERGY DISSIPATOR)	24-INCH PIPE CULVERT	36-INCH PIPE CULVERT	60-INCH PIPE CULVERT	72-INCH PIPE CULVERT	84-INCH PIPE CULVERT	108-INCH PIPE CULVERT				SKEW ANGLE	Allowable Pipe Material (See key below)	BEVELS 1V:nH Lt	BEVELS 1V:nH Rt	REMARKS See below for numbered notes
	FEET	CUYD	EACH	CUYD	CUYD	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT							
~~11+15~~						~~32~~										~~A,P~~		~~Driveway Left~~
✓ 13+22			1 ✓															
✓ 13+50				35 ✓				114 ✓								A ✓		
✓ 13+89			1 ✓			~~36~~ 40.5 ✓										~~A,P~~ ✓		Driveway Left ✓
✓ 17+99			1 ✓			~~36~~ 40.5 ✓										~~A,P~~ ✓		Driveway Left ✓
19+65																~~A,P~~ ✓		Driveway Left ✓
✓ 22+81			1 ✓															
✓ 22+95	14	32			2.8 ✓	~~89~~ 61.1 ✓										~~A,P~~ ✓		
✓ 24+28	9	118			~~5~~ 2.4 ✓	~~86~~ 59 ✓										~~A,P~~ ✓		
✓ 26+87			1 ✓															
✓ 27+04	6	38			~~2~~ 3.5 ✓	~~64~~ 59 ✓										A,P ✓		
✓ 28+70	9	103			2.2 ✓	~~83~~ 63.1 ✓										~~A,P~~ ✓		
✓ 32+27			1 ✓															
✓ 32+29	9	65			~~2~~ 3.1 ✓	~~72~~ 58.5 ✓										~~A,P~~ ✓		
✓ 36+66	13	69			~~2~~ 4 ✓	~~73~~ 62.3 ✓										~~A,P~~ ✓		
38+50 ~~39+68~~	5	46	1 ✓		~~2~~ 3.1 ✓	~~74~~ 63.4 ✓										~~A,P~~ ✓		
✓ 40+73			1 ✓															
✓ 40+82	5	47			2 ✓	~~72~~	65 ✓									~~A,P~~ ✓		
~~✓ 41+79~~			~~1~~ ✓															
✓ 41+81	6	35	1 ✓		2	66										A,P		
✓ 42+17			1 ✓															
✓ 42+19	7	32			~~2~~ 1.1 ✓	~~65~~ 59.2 ✓										~~A,P~~ ✓		
✓ 43+81			1 ✓															
✓ 43+87	10	80			~~2~~ 1.1 ✓	~~79~~ 81.5 ✓										~~A,P~~ ✓		
✓ 48+68			1 ✓															
✓ 48+72	10	38			~~2~~ 1.1 ✓	~~74~~ 69 ✓										~~A,P~~ ✓		
✓ 51+00	4	8			~~2~~ 1.1 ✓	~~72~~ 61.2 ✓										~~A,P~~ ✓		
✓ 51+04			1 ✓															
✓ 57+65			1 ✓															
✓ 57+76				61 ✓						62 ✓						A ✓		
✓ 59+95	8	16			~~2~~ 1.1 ✓	~~67~~ 62 ✓										~~A,P~~ ✓		
✓ 59+96			1 ✓															
✓ 62+36	4	51	1 ✓		~~2~~ 1.7 ✓	~~83~~ 57.9 ✓										~~A,P~~ ✓		
✓ 66+61			1 ✓															
✓ 66+74				93 ✓							88 ✓					A ✓		
CUMULATIVE TOTAL	778		18	189	33	1223	0	114	0	62	88							

RECEIVED
JUL 08 2017
BY PROJECT ENGINEER

☑ APPROVED
☐ APPROVED AS NOTED
☐ RETURNED FOR CORRECTION

Date: JUl 10 2017 By: Jim Jozovich

FEDERAL HIGHWAY ADMINISTRATION
Federal Lands Highway

See FAR 52.236-21(e) for limitations of Government's responsibility in approving this document.

NOTE:
Plastic pipe is not allowed when final installation is exposed. Furnish metal end sections for all plastic pipe including those specified with bevels. See Std. 602-5 for acceptable cell class. ✓

CM005:
Changes outlet location of non-continuous flow cross drain/ditch relief culverts from toe-of-fill to mid-fill slope.

Allowable Pipe Material
A Aluminum
P Plastic

D. Checker | Checked by: 8/2013 | Designed by: 30-Jan-2015 10:08 | c:\myfiles\pw_production\d0199354\[ak-f206001-Drainage.xlsx]Sheet
C. Conrad

Note: The quantities shown hereon are approximate and are subject to field adjustments.

TABULATION OF DRAINAGE QUANTITIES

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.2

PAY ITEM NUMBER			20301 -1900	25101 -2000	25101 -2000	60201 -0800	60201 -1000	60201 -1400	60201 -1600	60201 -1800	60201 -2200													
Station	ESTIMATED MAXIMUM COVER	STRUCTURAL EXCAVATION	REMOVAL OF PIPE CULVERT	PLACED RIPRAP, CLASS 2 (RIPRAP HEADWALL)	PLACED RIPRAP, CLASS 2 (ENERGY DISSIPATOR)	24-INCH PIPE CULVERT	36-INCH PIPE CULVERT	60-INCH PIPE CULVERT	72-INCH PIPE CULVERT	84-INCH PIPE CULVERT	108-INCH PIPE CULVERT									SKEW ANGLE	Allowable Pipe Material (See key below)	BEVELS 1V:nH	BEVELS 1V:nH	REMARKS See below for numbered notes
	FEET	CUYD	EACH	CUYD	CUYD	LNFT	LNFT	LNFT	LNFT	LNFT	LNFT											Lt	Rt	
PREVIOUS SHEET:		778	18	189	33	1223		114		62	88													
✓67+47			1 ✓																					
✓67+53	5	50	1 ✓		2 ✓	~~65~~ 58.6 ✓															~~A~~,P ✓			
✓71+48			1 ✓																					
✓71+51	5	40			2 ✓	60 ✓															~~A~~,P ✓			
✓87+89	7	63			~~10~~ 2.22 ✓	~~72~~ 63 ✓															~~A~~,P ✓			
✓87+90			1 ✓																					
89+50 ~~90+96~~	21	328			~~2~~ 4 ✓		~~121~~ 74 ✓														~~A~~,P ✓			
94+00 ~~94+27~~	17	75			~~2~~ 13.33 ✓		~~105~~ 65.2 ✓														~~A~~,P ✓			
✓94+32			1 ✓																					
✓97+98	15	80			13 ✓		~~72~~ 62 ✓														~~A~~,P ✓			
✓98+03			1 ✓																					
✓103+40			1 ✓																					
103+56 ~~103+42~~	4	39			~~14~~ 2.67 ✓	63 ✓															~~A~~,P ✓			
✓109+88	7	43			~~11~~ 2.22 ✓	~~57~~ 63.1 ✓															~~A~~,P ✓			
✓114+70			1 ✓																					
✓114+82	24	5			~~2~~ 11.61 ✓		~~128~~ 103.5 ✓														~~A~~,P ✓			
✓116+51			1 ✓																					
✓116+70	5	44			2.22 ✓	~~80~~ 63.2 ✓															~~A~~,P ✓			
~~119+58~~						~~76~~																		~~Approach LT~~
✓121+90			1 ✓																					
✓121+92	6	37			~~2~~ 1.33 ✓	~~69~~ 67 ✓															~~A~~,P ✓			
~~124+04~~																								~~Driveway Right~~
✓126+62			1 ✓																					
✓126+64	10	113			2 ✓	~~77~~ 63 ✓															~~A~~,P ✓			
✓130+67			1 ✓																					
✓130+93				78 ✓					74 ✓												A ✓			
✓133+88	3	196					~~190~~ 75.6 ✓														~~A~~,P ✓			
135+00 ~~136+17~~	3	25			~~2~~ 1.3 ✓	~~80~~ 86.2 ✓															~~A~~,P ✓			
✓136+39			1 ✓																					
✓ 30+50																								
✓ 140+18																								
✓ 141+75					2.67 ✓	53.2 ✓																		
PROJECT TOTAL		1916	31	267	99	1922	616	114	74	62	88													

NOTE:

Plastic pipe is not allowed when final installation is exposed. Furnish metal end sections for all plastic pipe including those specified with bevels. See Std. 602-5 for acceptable cell class. ✓

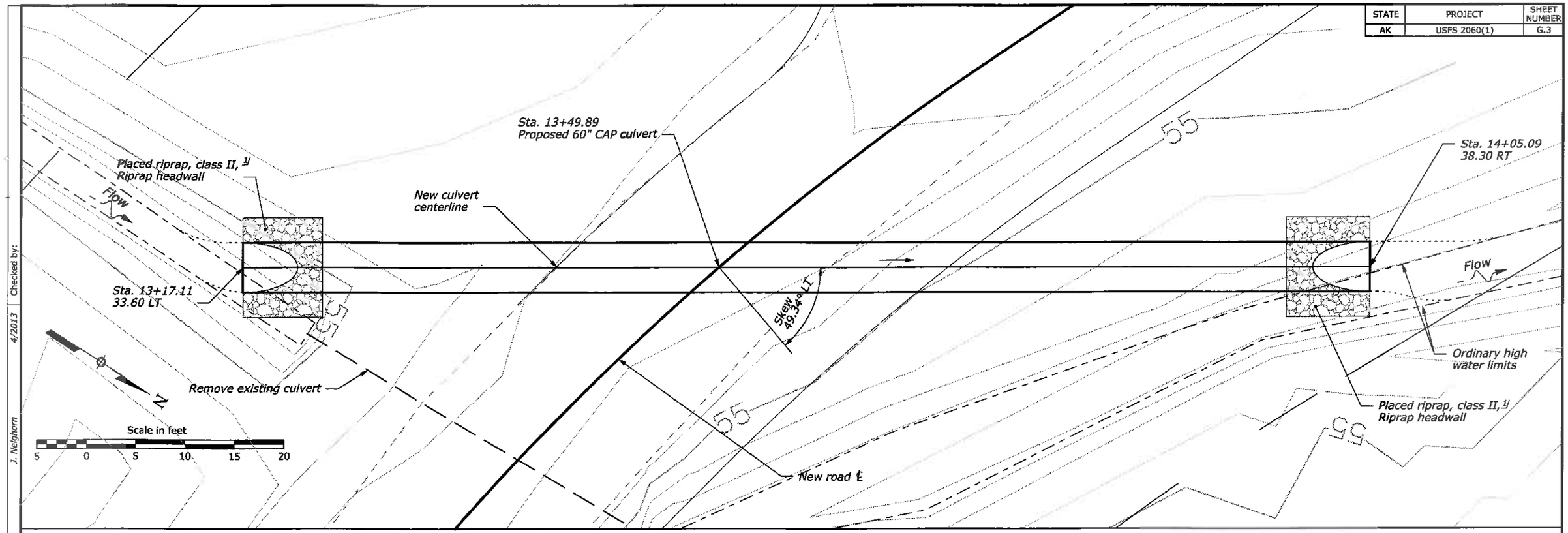
→ CMOOS:
Changes outlet location of non-continuous flow cross drain/ditch relief culverts from toe-of-fill to mid-fill slope.

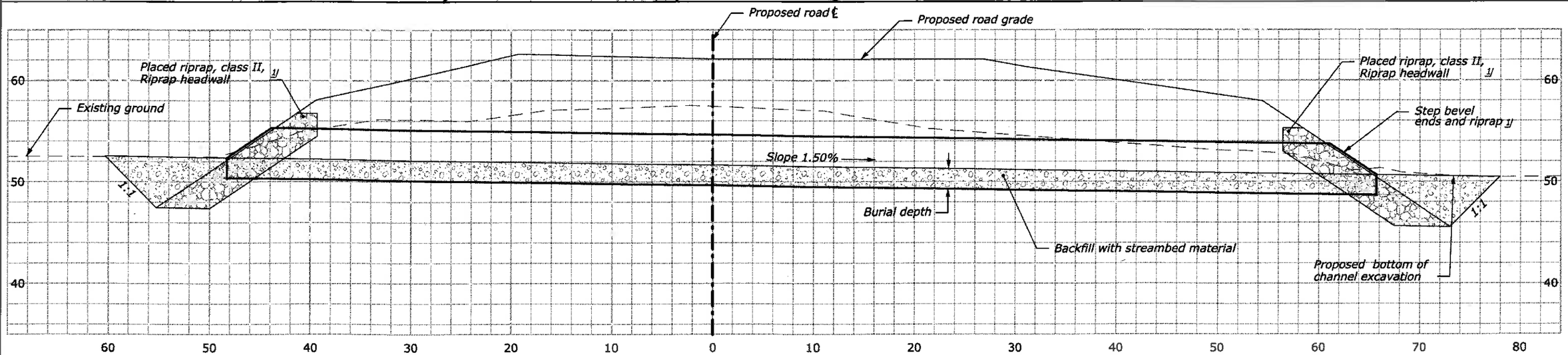
Allowable Pipe Material
A Aluminum
P Plastic

Designed by: C. Conrad 8/2013 Checked by: D. Checker --/--

30-Jan-2015 10:08 c:\myfiles\pw_production\d0199354\[ak-f206001-Drainage.xlsx]Sheet (2)

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.3





FOOTNOTE:
1/ See Sheet G.8

HYDRAULIC INFORMATION

Q_2: 10 CFS HW$_{50}$: 53.2 ft
Q_{50}: 22 CFS
ACTIVE CHANNEL WIDTH: 4.5 ft

PIPE

TYPE: CAP, ROUND SPAN: 60 in RISE: 60 in
LENGTH: 114 ft WALL THICKNESS: 0.135 in
PIPE SLOPE: 0.0150 ft/ft FLOWLINE SLOPE: 0.0150 ft/ft

INLET

INV N/E/EL: 1483364.35/2784021.01/50.38
BURIAL DEPTH: 24 in
LOWER BEVEL HEIGHT: 24 in
BEVEL: STEP, 1.5(h):1(v)
HEADWALL: RIPRAP

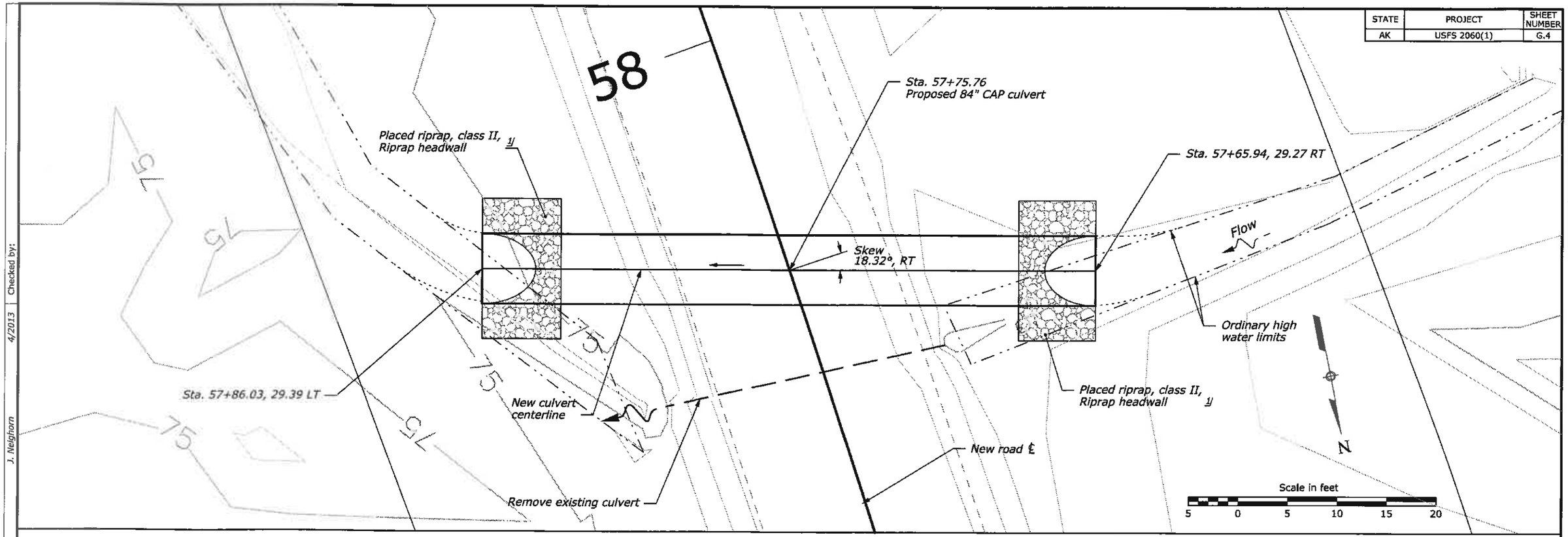
OUTLET

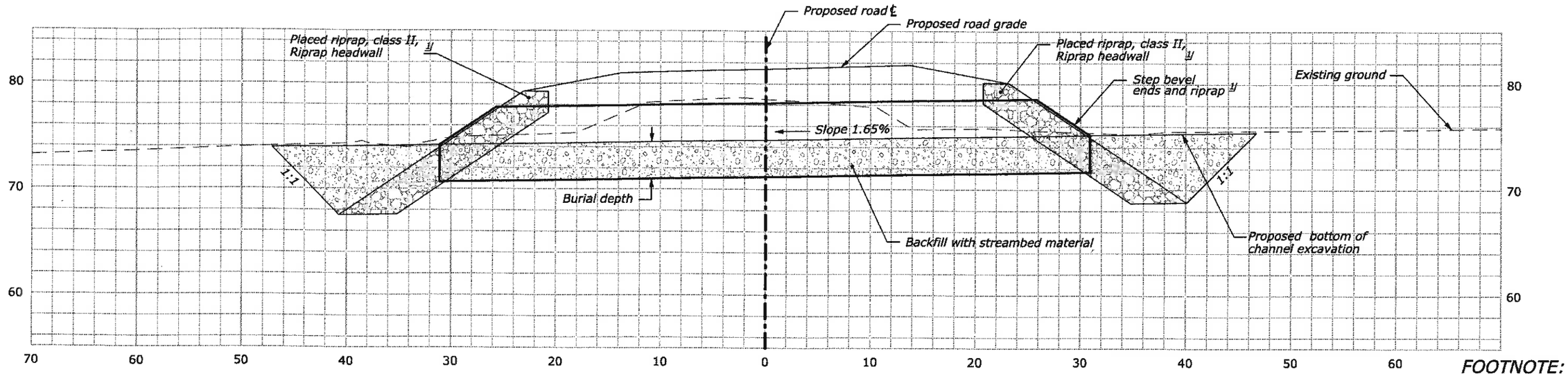
INV N/E/EL: 1483459.37/2783958.02/48.67
BURIAL DEPTH: 24 in
LOWER BEVEL HEIGHT: 24 in
BEVEL: STEP, 1.5(h):1(v)
HEADWALL: RIPRAP

STA. 13+50 ✓
60" DIAMETER CULVERT

Designed by: J. Neighorn | Checked by: | 4/2013 | 1/30/2015
...\ak-2060001Culvert_Plan_Profile1.dgn [US_Sur2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.4





FOOTNOTE:

1/ See Sheet G.8

HYDRAULIC INFORMATION

Q_2: 18 CFS HW_{50}: 76.9 ft

Q_{50}: 42 CFS

ACTIVE CHANNEL WIDTH: 5.0 ft

PIPE

TYPE: CAP, ROUND SPAN: 84 in RISE: 84 in

LENGTH: 62 ft WALL THICKNESS: 0.105 in

PIPE SLOPE: 0.0165 ft/ft FLOWLINE SLOPE: 0.0165 ft/ft

INLET

INV N/E/EL: 1480852.40/2781348.04/71.68

BURIAL DEPTH: 42 in

LOWER BEVEL HEIGHT: 42 in

BEVEL: STEP, 1.5(h):1(v)

HEADWALL: RIPRAP

OUTLET

INV N/E/EL: 1480840.75/2781408.93/70.66

BURIAL DEPTH: 42 in

LOWER BEVEL HEIGHT: 42 in

BEVEL: STEP, 1.5(h):1(v)

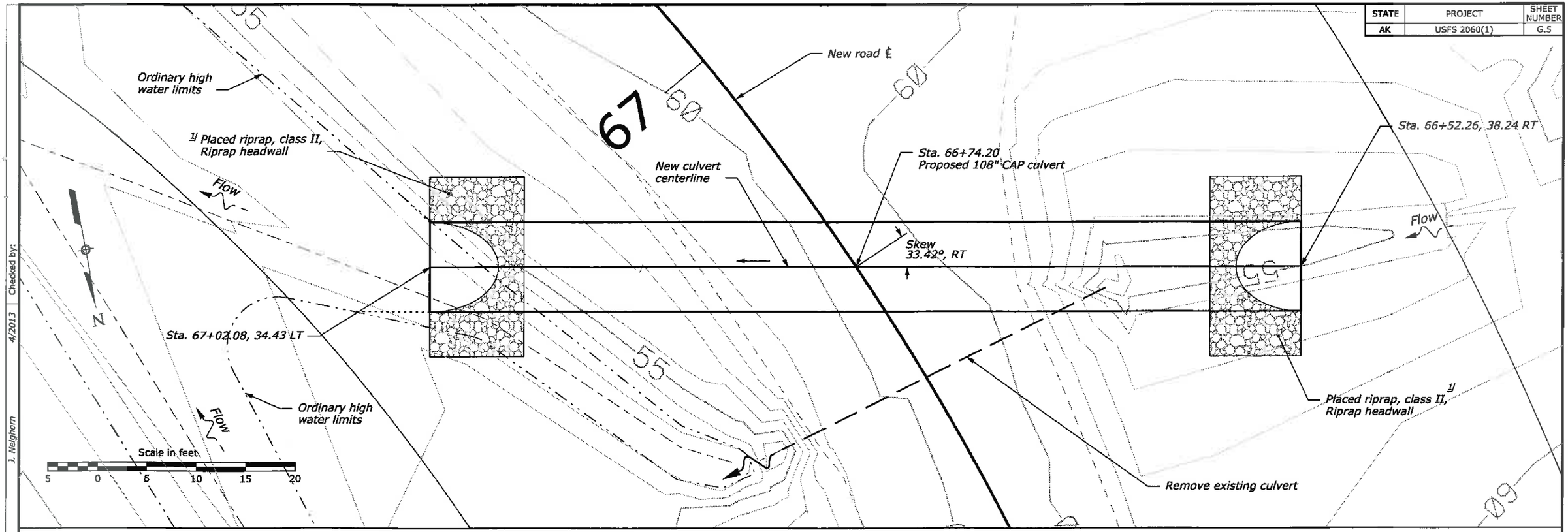
HEADWALL: RIPRAP

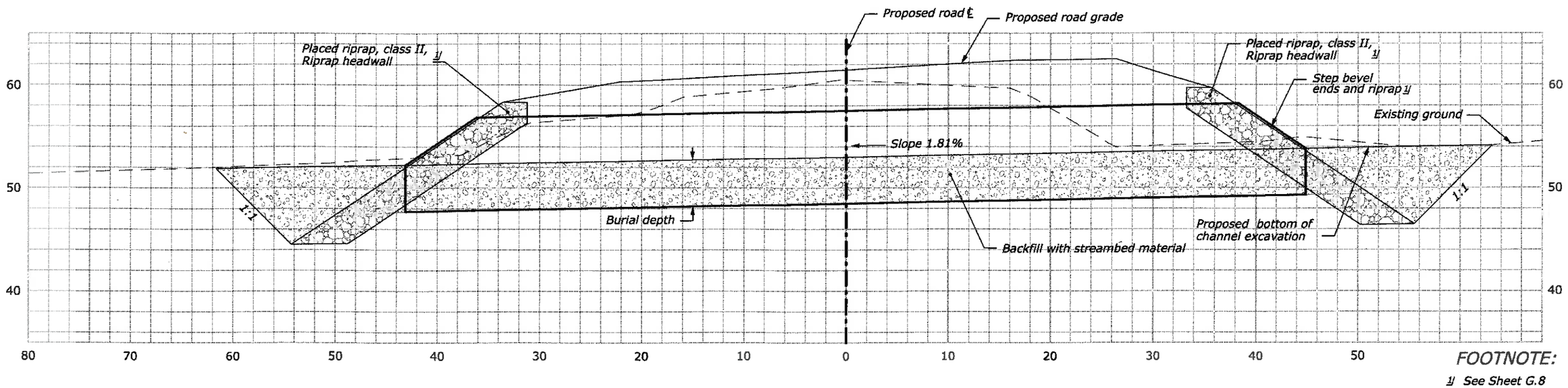
STA. 57+76 ✓
84" DIAMETER CULVERT

Designed by: | 1/30/2015 | Checked by: | J. Neighorn | 4/2013 | by:

...\ak-f20600\Culvert_Plan_Profile2.dgn [US_Sur2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.5





FOOTNOTE:

1/ See Sheet G.8

HYDRAULIC INFORMATION

Q_2: 24 CFS HW_{50}: 55.7 ft

Q_{50}: 56 CFS

ACTIVE CHANNEL WIDTH: 7.0 ft

PIPE

TYPE: CAP, ROUND SPAN: 108 in RISE: 108 in

LENGTH: 88 ft WALL THICKNESS: 0.135 in

PIPE SLOPE: 0.0180 ft/ft FLOWLINE SLOPE: 0.0181 ft/ft

INLET

INV N/E/EL: 1479994.81/2781239.16/49.31

BURIAL DEPTH: 54 in

LOWER BEVEL HEIGHT: 54 in

BEVEL: STEP, 1.5(h):1(v)

HEADWALL: RIPRAP

OUTLET

INV N/E/EL: 1479978.84/2781325.70/47.72

BURIAL DEPTH: 54 in

LOWER BEVEL HEIGHT: 54 in

BEVEL: STEP, 1.5(h):1(v)

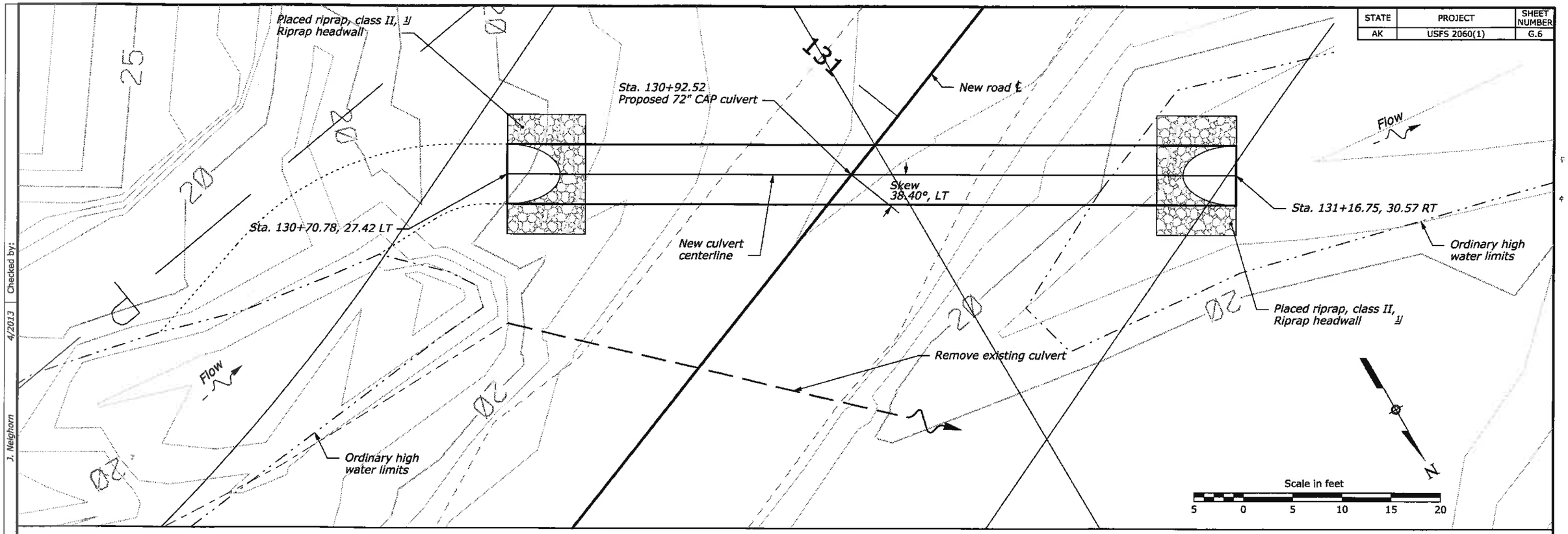
HEADWALL: RIPRAP

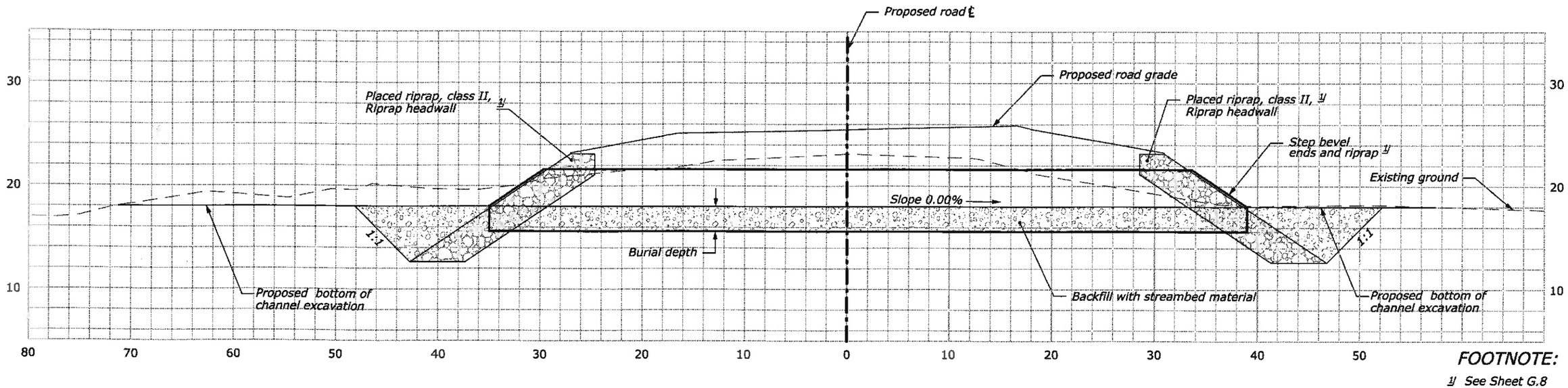
STA. 66+74 ✓
108" DIAMETER CULVERT

Designed by: J. Neighorn | Checked by: | 4/2013 | 1/30/2015

...\ak-f206001\Culvert_Plan_Profile3.dgn [US_Sur2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.6





FOOTNOTE:

1/ See Sheet G.8

HYDRAULIC INFORMATION

Q_2 : 35 CFS HW_{50} : 21.7 ft

Q_{50}: 84 CFS

ACTIVE CHANNEL WIDTH: 6 ft

PIPE

TYPE: CAP, ROUND SPAN: 72 in RISE: 72 in

LENGTH: 74 ft WALL THICKNESS: 0.164 in

PIPE SLOPE: 0.0000 ft/ft FLOWLINE SLOPE: 0.0000 ft/ft

INLET

INV N/E/EL: 1475721.27/2778713.92/15.63

BURIAL DEPTH: 29 in

LOWER BEVEL HEIGHT: 29 in

BEVEL: STEP, 1.5(h):1(v)

HEADWALL: RIPRAP

OUTLET

INV N/E/EL: 1475758.57/2778650.02/15.63

BURIAL DEPTH: 29 in

LOWER BEVEL HEIGHT: 29 in

BEVEL: STEP, 1.5(h):1(v)

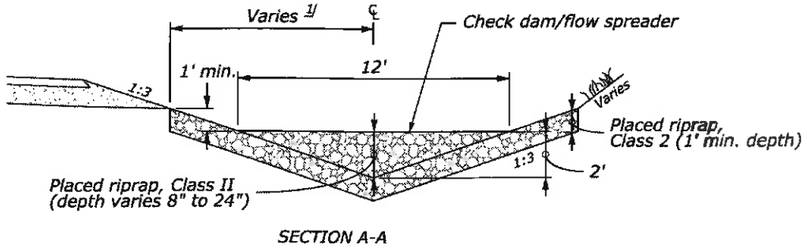
HEADWALL: RIPRAP

STA. 130+93 ✓
72" DIAMETER CULVERT

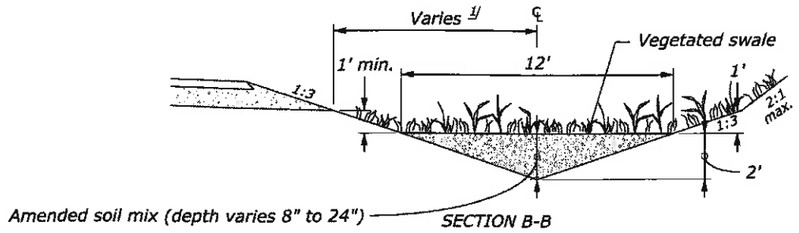
Designed by: 1/30/2015 | Checked by: 4/2013 | J. Neighorn

...\ak-f20600\Culvert_Plan_Profile4.dgn {US_Sur2D}

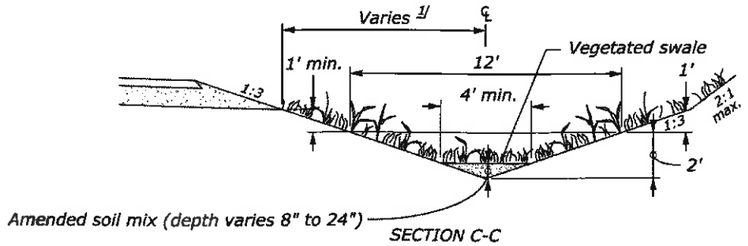
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.7



SECTION A-A



SECTION B-B



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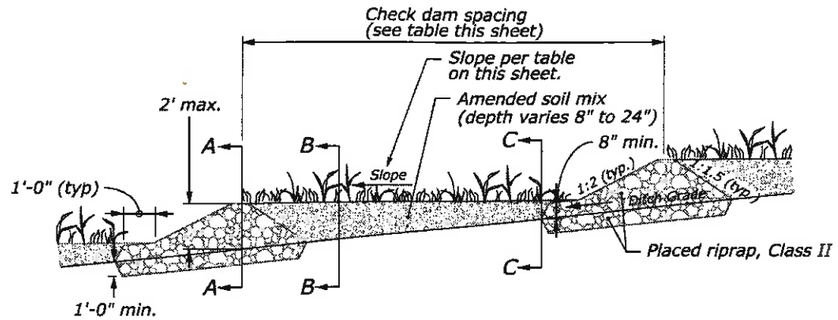


PROFILE VIEW

BIOFILTRATION SWALE

ITEM 64631-0000
ROADSIDE DEVELOPMENT (BIOFILTRATION SWALE)

STATION RANGE Begin		End	LT/RT	MIN. WIDTH (FT)	SLOPE (%)	MAX. CHECKDAM SPACING (FT)	LENGTH (LNFT)
16+25	to	17+65	LT	4	1	50	140 ✓
54+25	to	55+75	RT	4	1	50	~~143~~ 150 ✓
~~64+50~~	to	~~66+25~~	RT	4	1	50	~~186~~
69+50	to	71+05	RT	4	1	50	~~160~~ 155 ✓
71+94	to	~~74+00~~ 73+25	RT	4	1	50	~~203~~ 131 ✓
85+00	to	87+44	LT	4	1	50	~~245~~ 244 ✓
88+00	to	~~90+00~~ 89+00	LT	4	1	50	~~189~~ 100 ✓
124+47	to	126+22	RT	4	1	50	~~184~~ 175 ✓
128+00	to	129+75	RT	4	1	50	~~178~~ 175 ✓
						TOTAL	1,628
✓ 90+00	to	91+00	LT	4	1	50	100 ✓

Notes:
1. Adjust check dam spacing as needed to meet minimum and maximum swale dimensions per the design ditch grade.

FOOTNOTE:

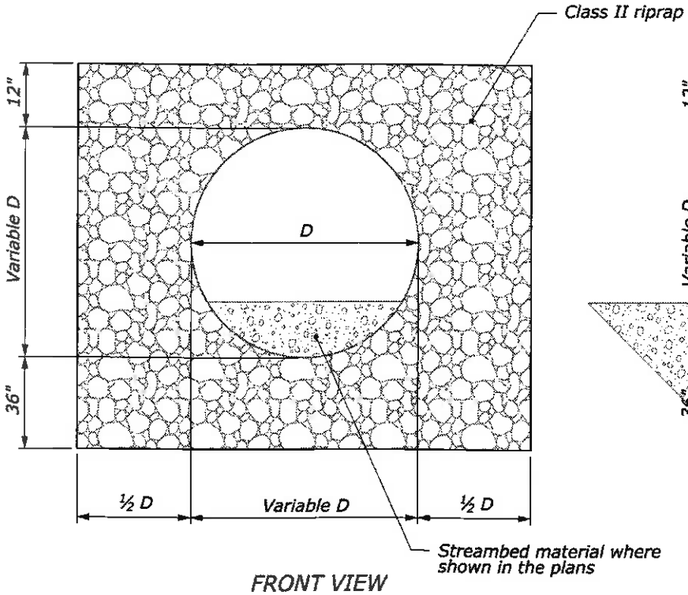
1/ Construct ditches at locations and depths according to the staking report

DRAINAGE DETAILS

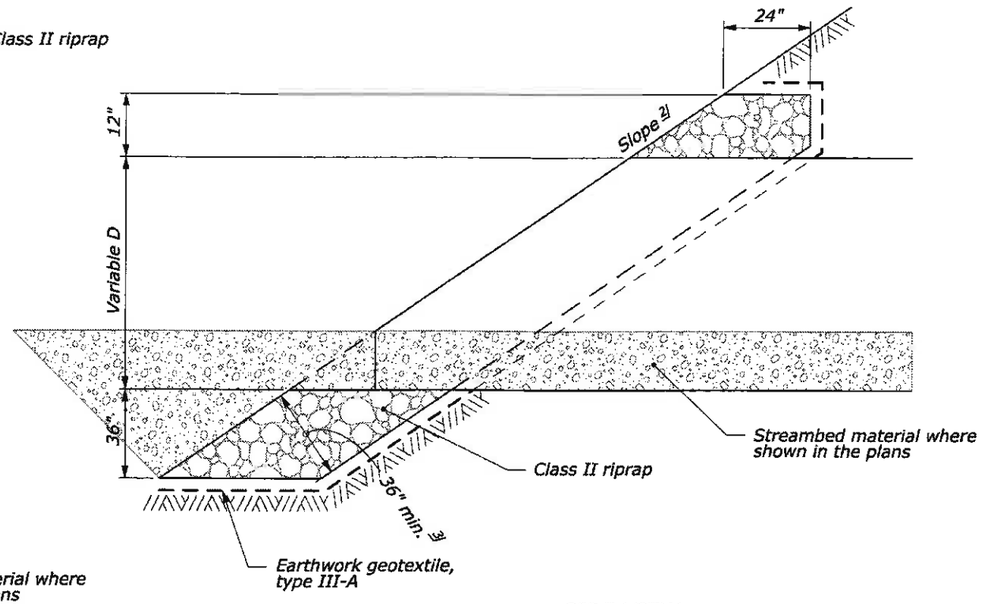
Designed by: 9/3/2015 Checked by:

...\Drainage_Details1.dgn [US_Sur2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS_2060(1)	G.8

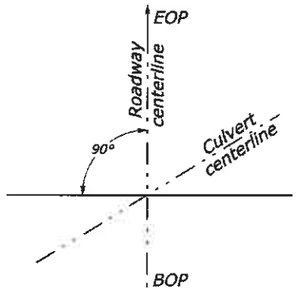


FRONT VIEW

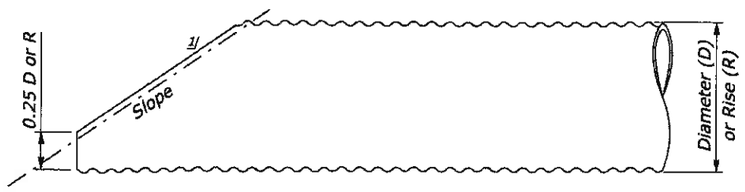


SIDE VIEW

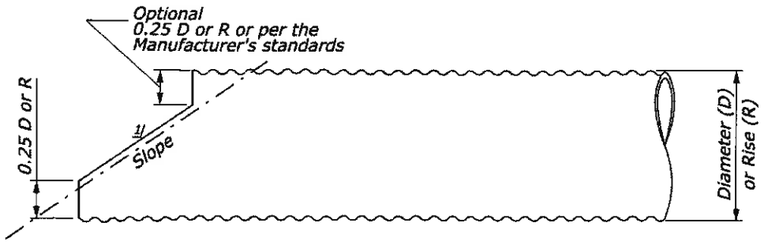
RIPRAP HEADWALL



SKEW ANGLE DIAGRAM



(DIAMETER OR SPAN LESS THAN 48-INCHES)



(DIAMETER OR SPAN GREATER OR EQUAL TO 48-INCHES)

PIPE BEVEL DETAIL

RIPRAP HEADWALL QUANTITIES
(FOR INFORMATION ONLY)

LOCATION	EARTHWORK GEOTEXTILE TYPE III-A (SQYD)
13+50	81
57+76	120
66+74	163
130+93	101
TOTALS	**464**

NOTE:

1. Contractor to field verify all invert elevations, prior to installation.
2. Earthwork geotextile, type III-A is subsidiary to 251.
3. See sheet G.1-2 for class II riprap quantities.
4. Place earthwork geotextile between riprap and existing ground, beneath and at all sides of placed riprap.

FOOTNOTE:

1/ Bevel to match roadway embankment.

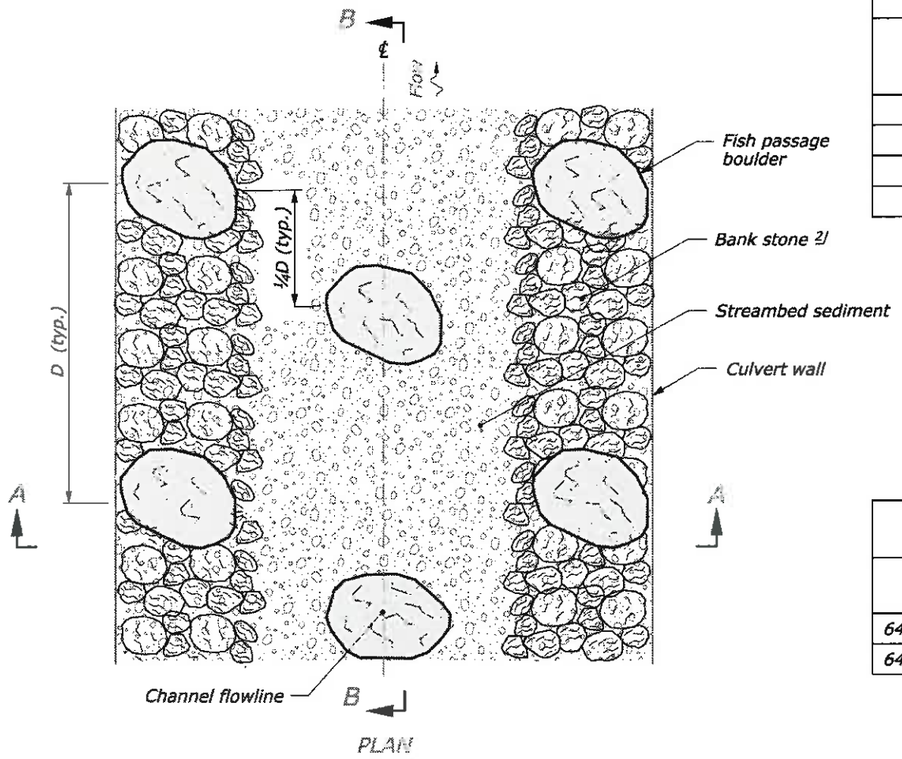
2/ Riprap end treatment slope to match roadway embankment slope.

3/ Construct riprap end treatment to a thickness of 36-inches or as shown on site specific details, whichever is greater.

DRAINAGE DETAILS

Checked by:
Designed by:
1/30/2015
...\Drainage_Details2.dgn [US_Sur20]

STATE	PROJECT	SHEET NUMBER
AK	USFS_2060(1)	G.9

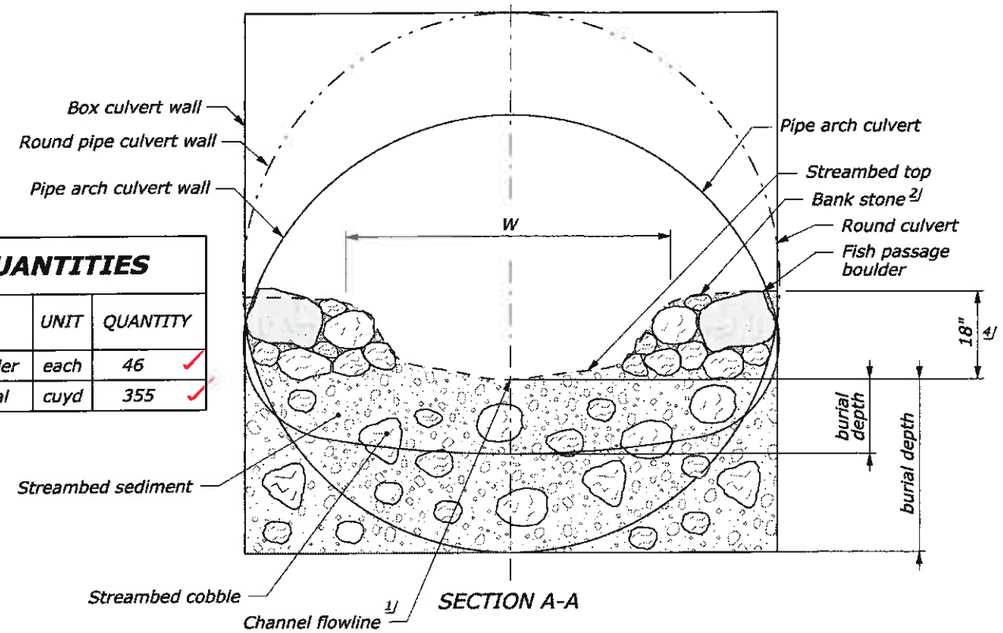


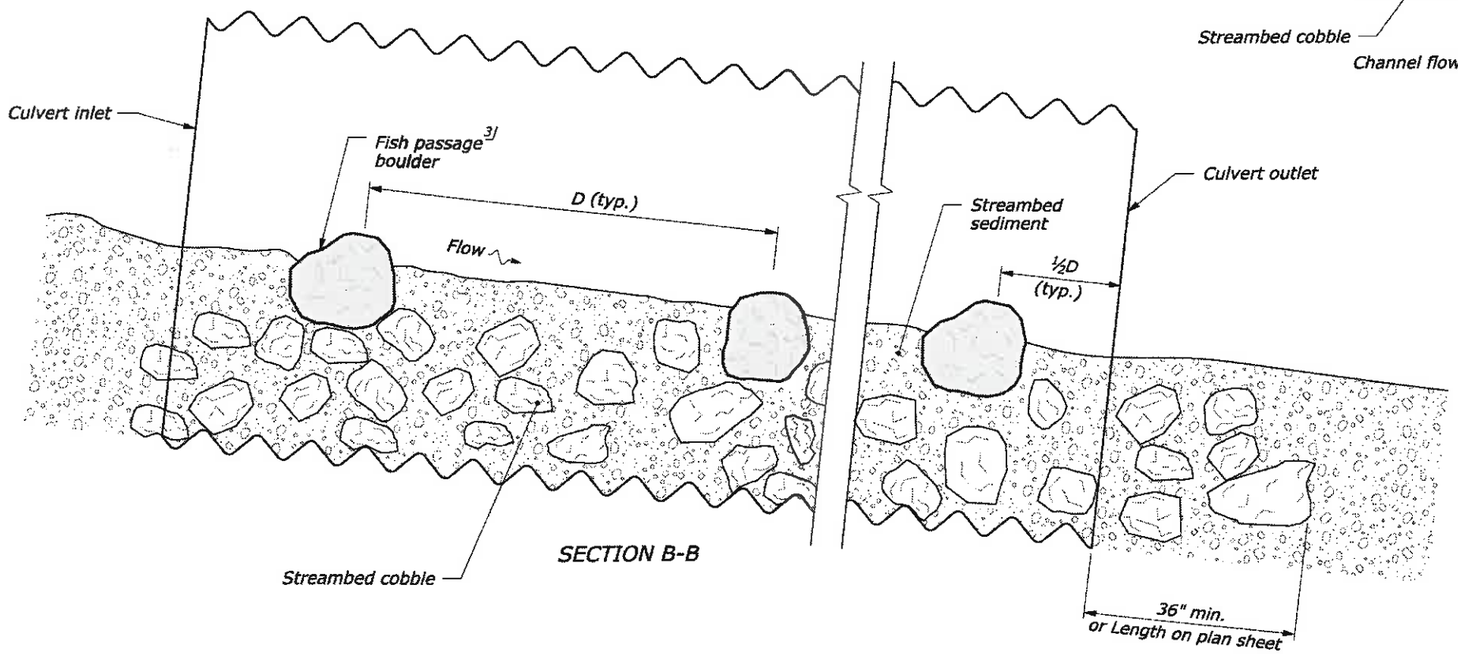
INFILL INFORMATIONAL QUANTITIES 5/

LOCATION	D (ft)	W (ft)	STREAMBED COBBLE GRADATION (in)	STREAMBED COBBLE (cuyd)	STREAMBED SEDIMENT (cuyd)	FISH PASSAGE BOULDER DIAMETER (in +/- 4)	BANK STONE (cuyd)
STA. 13+49.89	5	4.5	Class A	18	27	NA	NA
STA. 57+75.76	7	5	Class C	32	50	16	6
STA. 66+74.20	9	7	Class C	64	100	30	8
STA. 130+92.52	6	6	Class A	20	30	NA	NA
				134	207	46	14

MITIGATION QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
64703-6000	Fish passage boulder	each	46
64704-1000	Streambed material	cuyd	355





NOTE:

1. Mix streambed cobbles evenly throughout streambed sediment.
2. See special contract requirements for streambed sediment, streambed cobble, and bank stone gradations.
3. Stagger in-channel fish passage boulder within the culvert span.

FOOTNOTE:

1/ Slope streambed aggregate towards flowline to ensure parabolic shape.

2/ Construct well defined banks with bank stone and streambed sediment where listed in the infill quantities table.

3/ Embed fish passage boulders within active channel ¾ smallest dimension.

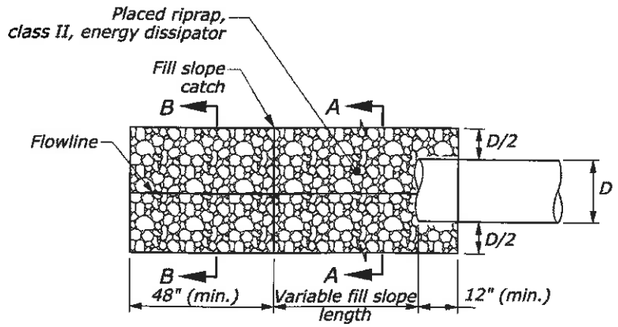
4/ 18-inches or as specified on plan sheet.

5/ Quantities included in Item 64704-1000 Mitigation, Streambed Material except Item 64703-6000 Fish Passage Boulders.

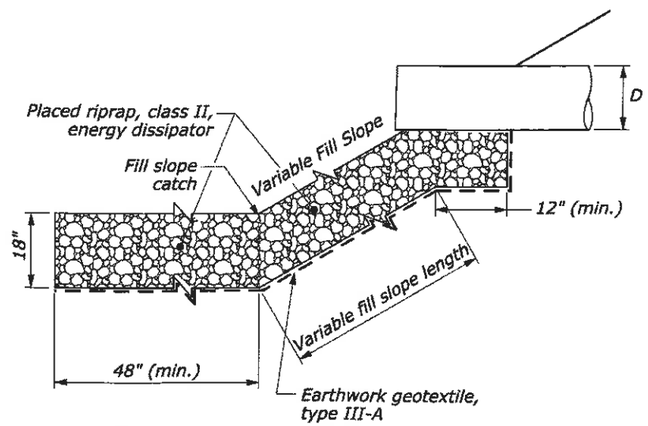
Not to scale

SIMULATED STREAM CULVERT TREATMENT

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.10



ENERGY DISSIPATOR - PLAN

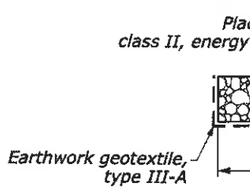


ENERGY DISSIPATOR - ELEVATION

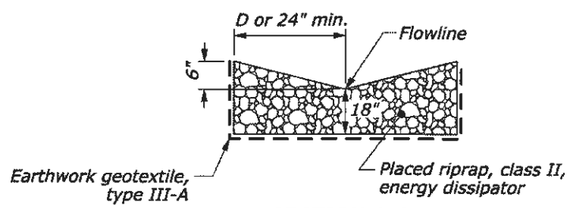
ENERGY DISSIPATOR QUANTITIES
(FOR INFORMATION ONLY)

LOCATION	EARTHWORK GEOTEXTILE TYPE III-A (SQYD)	LOCATION	EARTHWORK GEOTEXTILE TYPE III-A (SQYD)
✓ 22+95	7	✓ 62+36	6
✓ 24+28	16	✓ 67+53	6
✓ 27+04	6	✓ 71+51	6
✓ 28+70	6	✓ 87+89	33
✓ 32+29	6	✓ ~~90+96~~ 89+50	8
✓ 36+66	6	✓ ~~94+27~~ 94+00	8
✓ ~~39+68~~ 39+50	6	✓ 97+98	38
✓ 40+82	6	✓ ~~103+42~~ 103+56	45
~~41+81~~	~~6~~	✓ 109+88	34
✓ 42+19	6	✓ 114+82	8
✓ 43+87	6	✓ 116+70	6
✓ 48+72	6	✓ 121+92	6
✓ 51+00	6	✓ 126+64	6
✓ 59+95	6	✓ ~~136+17~~ 135+00	6
SUBTOTAL	99	SUBTOTAL	220
		TOTALS	**319**

✓ 141+75



SECTION B-B



SECTION A-A

NOTE:

1. *Place riprap in energy dissipators at the following rates:*

Outlet Diameter	Section	Placed Riprap, Class II	Earthwork Geotextile, Type III-A
24"	A-A	0.26 cuyd/ft	0.89 sqyd/ft
24"	B-B	0.22 cuyd/ft	0.78 sqyd/ft
36"	A-A	0.39 cuyd/ft	1.11 sqyd/ft
36"	B-B	0.33 cuyd/ft	1.00 sqyd/ft
48"	A-A	0.52 cuyd/ft	1.33 sqyd/ft
48"	B-B	0.44 cuyd/ft	1.22 sqyd/ft
60"	A-A	0.65 cuyd/ft	1.56 sqyd/ft
60"	B-B	0.56 cuyd/ft	1.44 sqyd/ft
2-36"	A-A	0.71 cuyd/ft	1.67 sqyd/ft
2-36"	B-B	0.61 cuyd/ft	1.56 sqyd/ft

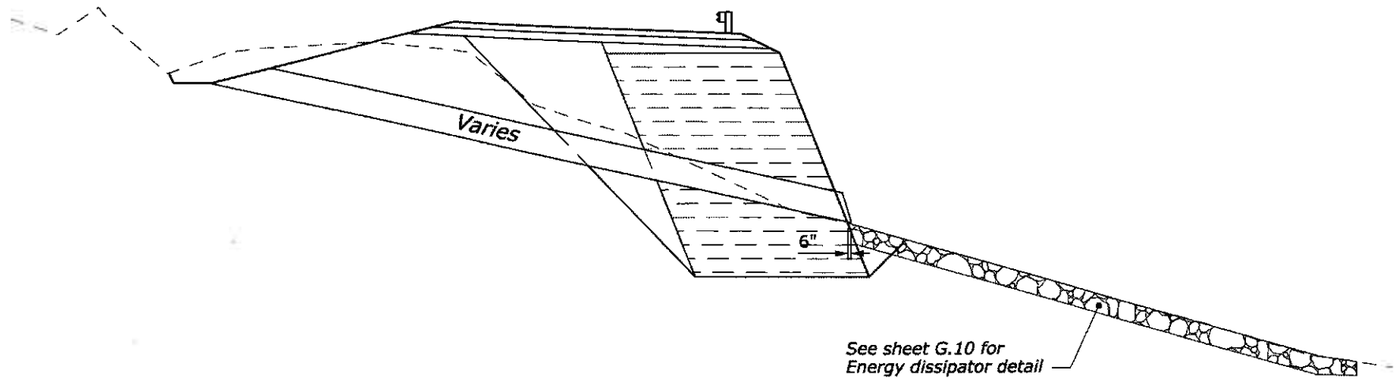
2. *Earthwork geotextile, type III-A is subsidiary to 251.*
3. *See sheet G.1-2 for class II riprap quantities.*

NO SCALE

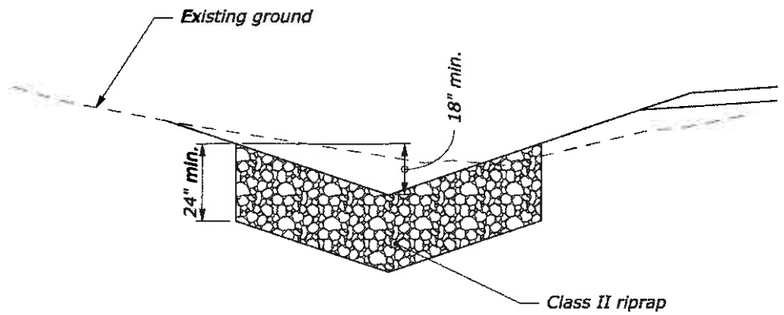
ENERGY DISSIPATOR DETAILS ✓

Designed by: --/---- Checked by: --/---- 30 January 2015 8:26 AM c:\myfiles\pw_production\d0199358\ak-f206001ed.dgn [US_Sur_ft2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.11



~~RSS SLOPE CULVERT DETAIL~~
Deleted, See cm004



RIPRAP LINED DITCH

NOTE:

1. Place riprap in ditches at the following rates:

Location	Riprap ditch, Class II
Mainline	0.22 cuyd/ft

2. See sheet D.2 for location and quantities.
3. Grade ditch to define well established flowline.
4. Eliminate backslope portion of ditch at rockery locations.

~~RSS SLOPE CULVERT~~ AND RIPRAP LINED DITCH DETAIL

Designed by: C. Conrad | 08/2014 | Checked by: --/---

28 January 2015 2:51 PM c:\myfiles\pw_production\d0193558\ak-f20600 1RSS.dgn [US_Sur_R2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.12

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

1/30/2015

...\ak-f20600\std\0201.dgn [US Customary]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.13

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

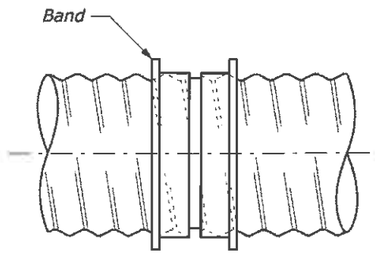
[2] For helically corrugated pipe with rerolled ends, the nominal corrugations size refers to the dimension of the end corrugation in the pipe.

[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.

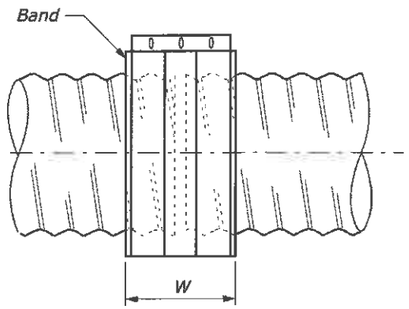
[6] Smooth sleeve-type couplers and flat bands may be used for pipe diameters of 12" or less. Use a matching metal having a nominal thickness of not less than 0.040 inch for steel, or 0.036 inch for aluminum, or a plastic with an equivalent strength to metal.



SLEEVE JOINT

Smoother sleeve with center stop.
Stab type joint

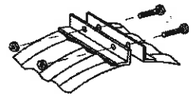
SMOOTH SLEEVE BAND



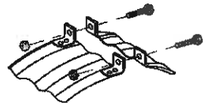
FLAT BAND

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.

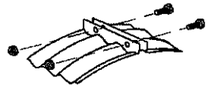


Band Angle

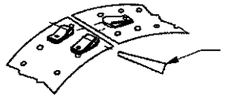


Oval Lug

Bar & Strap

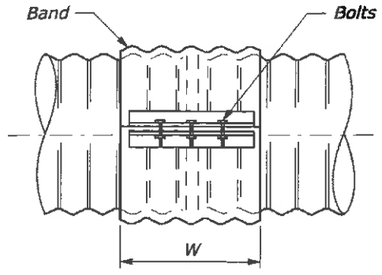


Integral Flange

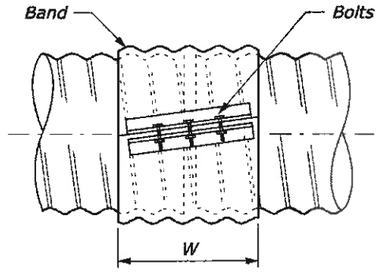


Wedge and Strap

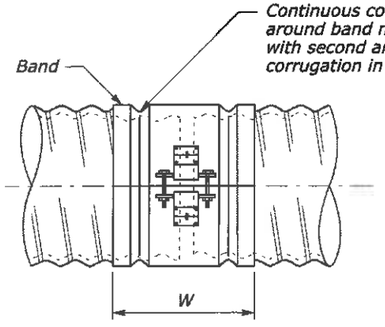
STANDARD BAND CONNECTIONS



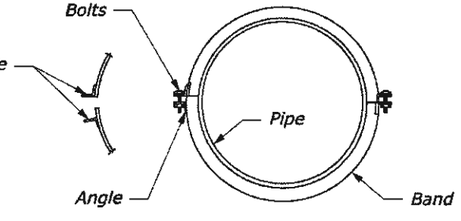
SIDE VIEW



SIDE VIEW



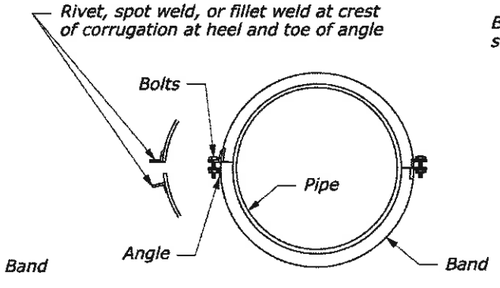
SIDE VIEW



END VIEW

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

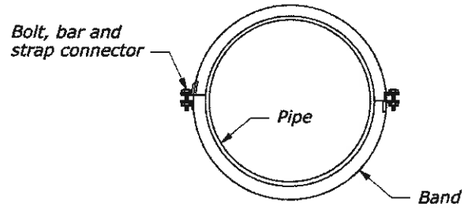
ANNULAR BAND



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 ✓

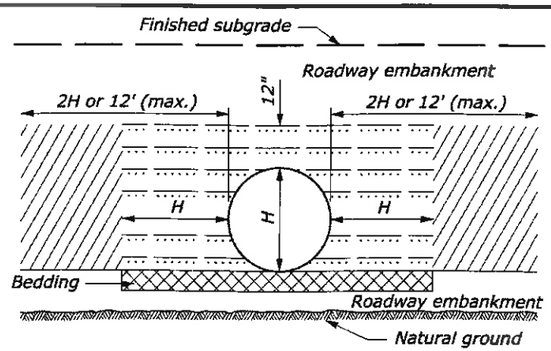
STANDARD APPROVED FOR USE 12/1993
REVISED: 4/1994 6/2005

STANDARD 602-2

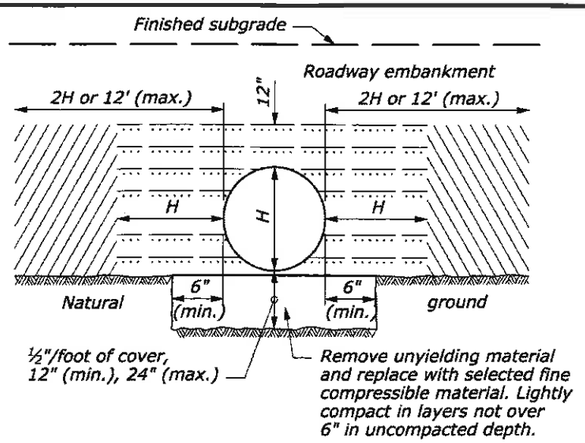
1/30/2015

...\ak-f20600\std602d2.dgn [US Customary]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.14

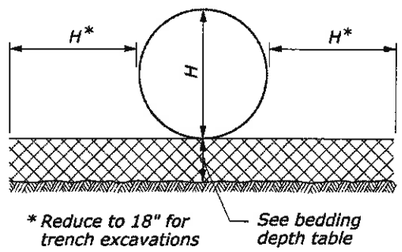


ABOVE NATURAL GROUND



ON UNYIELDING MATERIAL

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

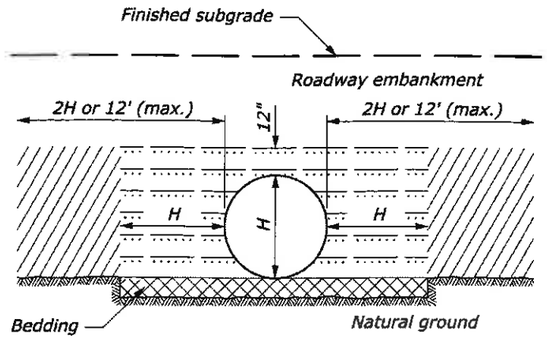


PIPE BEDDING

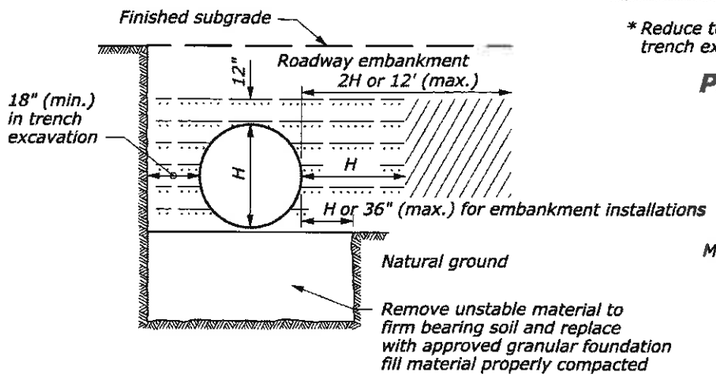
NOTE:

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.

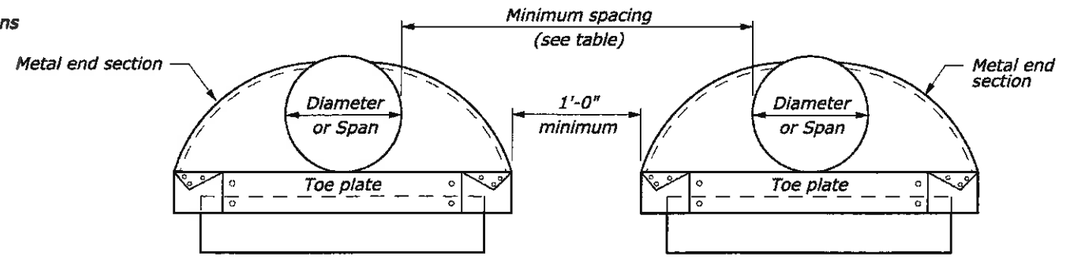
MINIMUM SPACING	
DIAMETER or SPAN	SPACING
UP to 48"	24"
48" and UP	Half diameter or span OR 36" whichever is less



ON NATURAL GROUND

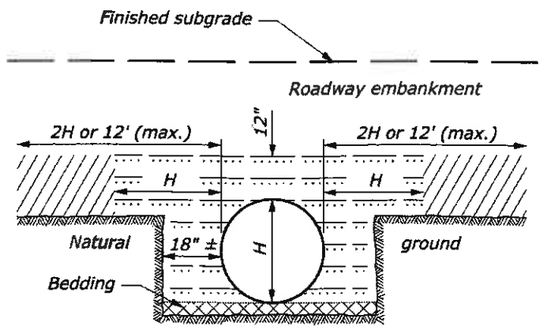


ON UNSTABLE MATERIAL

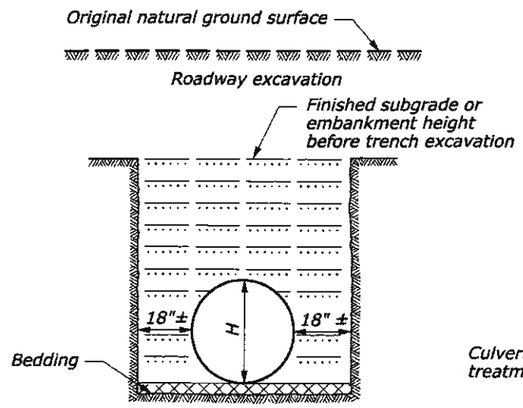


ELEVATION

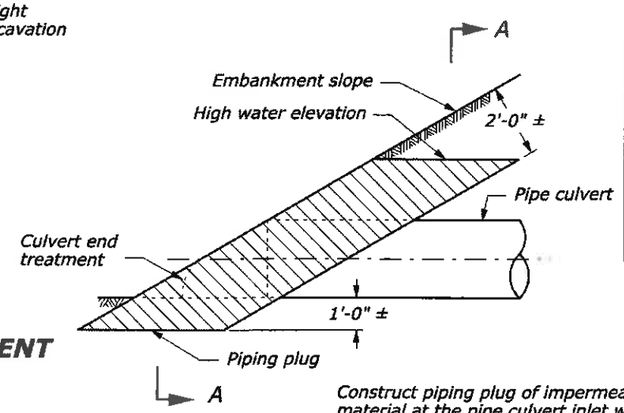
MULTIPLE PIPE INSTALLATION

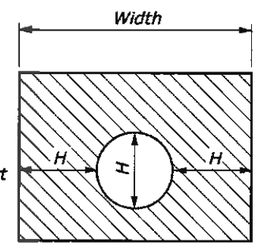


ABOVE AND BELOW NATURAL GROUND



BELOW NATURAL GROUND OR TRENCH EXCAVATION IN EMBANKMENT





SECTION A-A

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

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

1/30/2015

...\ak-f2060015s60203.dgn [US Customary]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	G.15

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

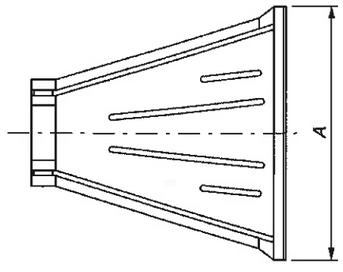
FILL HEIGHT TABLE AND MINIMUM CELL CLASSIFICATION NUMBER PER ASTM D 1784

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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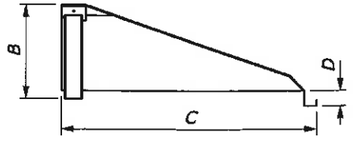
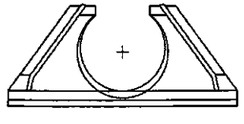


SIDE



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	64	37	65	6
30	88	36	63.5	6
36	88	43	66.5	6

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

1/30/2015

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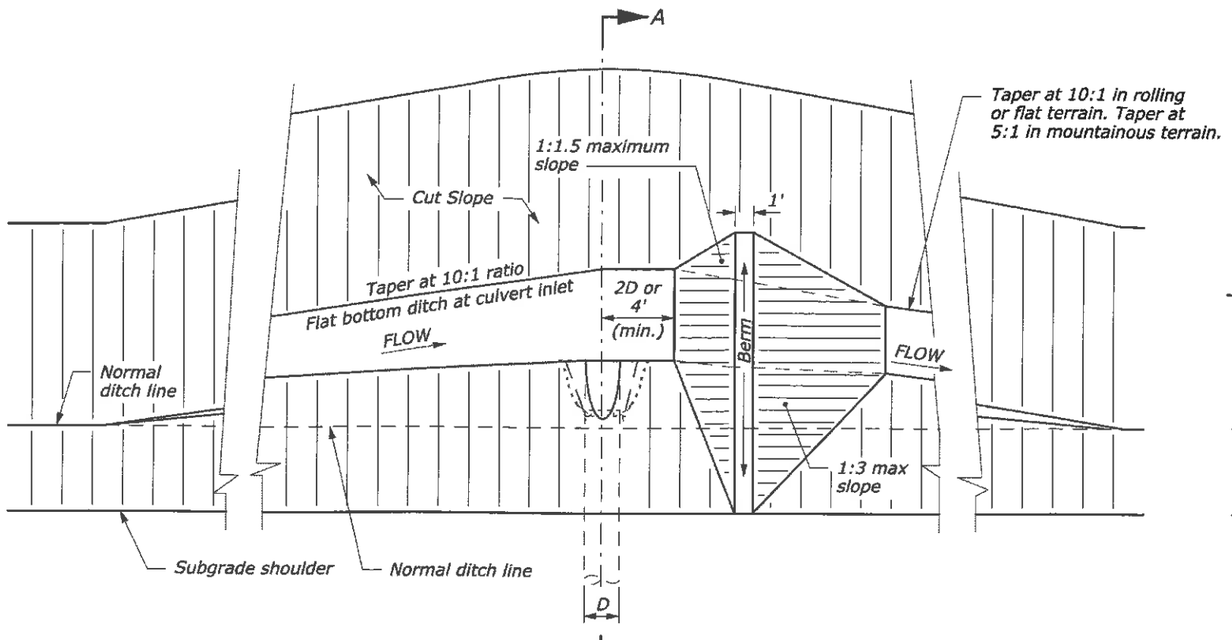
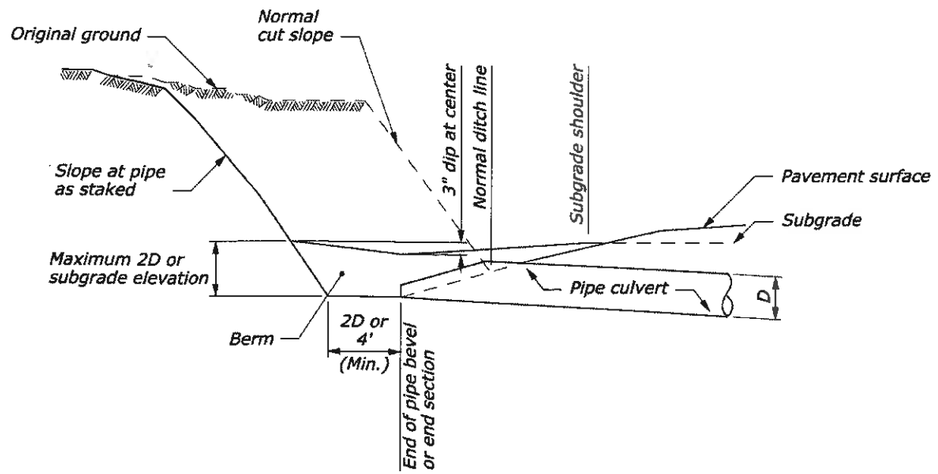
STATE	PROJECT	SHEET NUMBER
ID	USFS 2060(1)	G.16

NOTE:

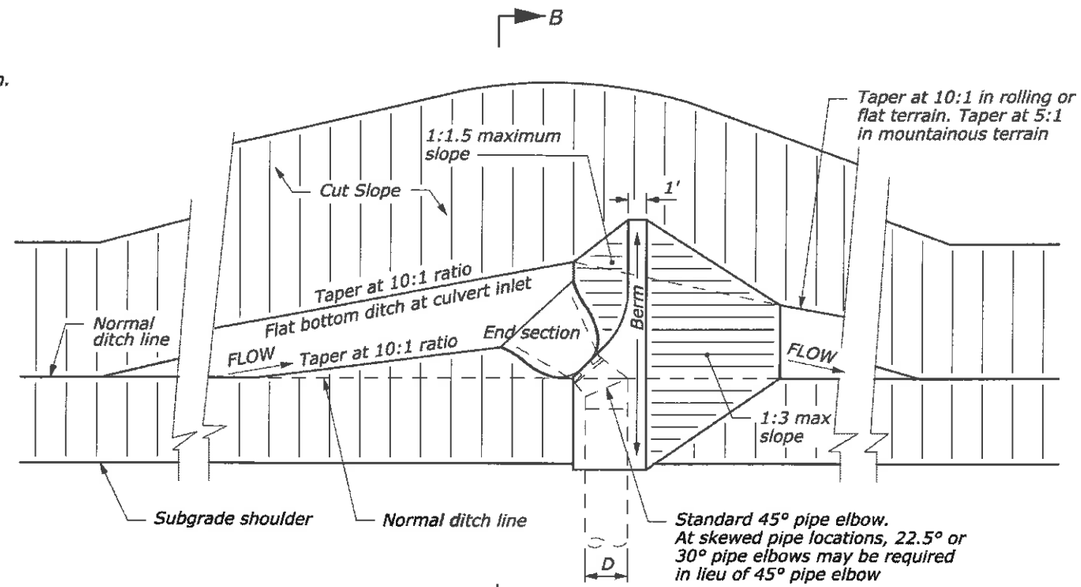
1. *D equals the diameter of all round pipe or the rise dimension of all pipe arch culverts.*



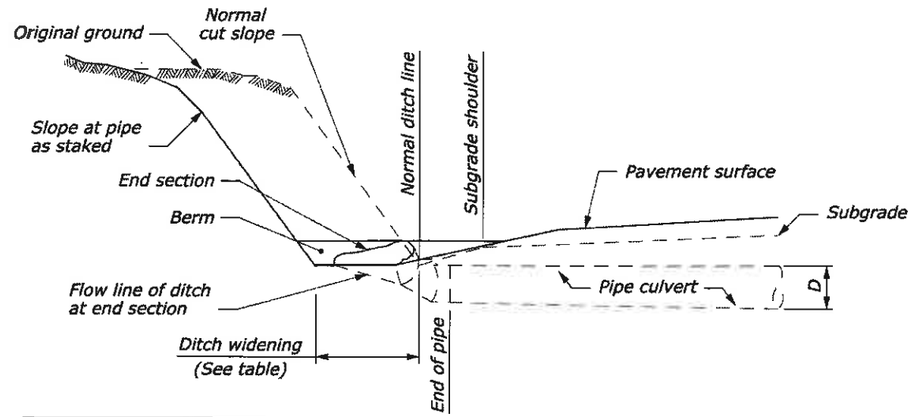
PLAN



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

1/30/2015

...\pkk-FD6001st602D6.dgn [US Customary]

REINFORCED SOIL SLOPE QUANTITIES

Deleted, See CMOD4

STATION	27201-1000 REINFORCED SOIL SLOPE, GEOGRID (SQFT)	INFORMATIONAL QUANTITIES NOT MEASURED FOR PAYMENT									
		STRUCTURAL EXCAVATION (CUYD)	SELECT GRANULAR BACKFILL (CUYD)	UNCLASSIFIED BORROW (CUYD)	GEOGRID (SQYD)	EARTHWORK GEOTEXTILE TYPE 1-A (SQYD)	EARTHWORK GECTEXTILE TYPE 1-B (SQYD)	ROLLED EROSION CONTROL PRODUCT TYPE 5B (SQYD)	4" SOLID OUTLET DRAIN PIPE (LNFT)	4" PERFORATED PIPE (LNFT)	GEOCOMPOSITE SHEET DRAIN (LNFT)
~~88+50 to 90+05~~	~~1,690~~	275	638	275	1,901	535	40	65	20	200	32
~~97+50 to 100+60~~	~~5,258~~	1,176	3,365	1,348	8,028	1,708	70	500	210	350	60
TOTALS	**~~6,948~~**	**1,451**	**4,003**	**1,623**	**9,929**	**2,243**	**110**	**565**	**230**	**550**	**92**

☑ APPROVED
☐ APPROVED AS NOTED
☐ RETURNED FOR CORRECTION

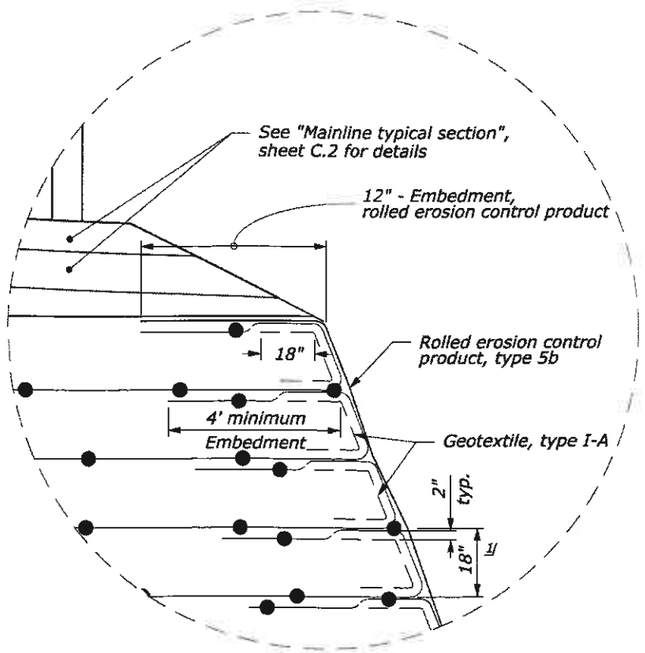
Date: JUL 10 2017 By: Jim Jozovich

FEDERAL HIGHWAY ADMINISTRATION
Federal Lands Highway

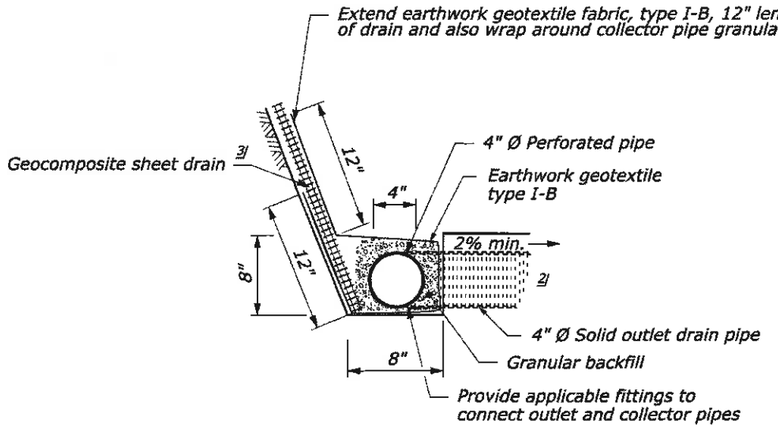
See FAR 52.236-21(e) for limitations of Government's responsibility in approving this document.

~~TABULATION OF REINFORCED SOIL SLOPE QUANTITIES~~

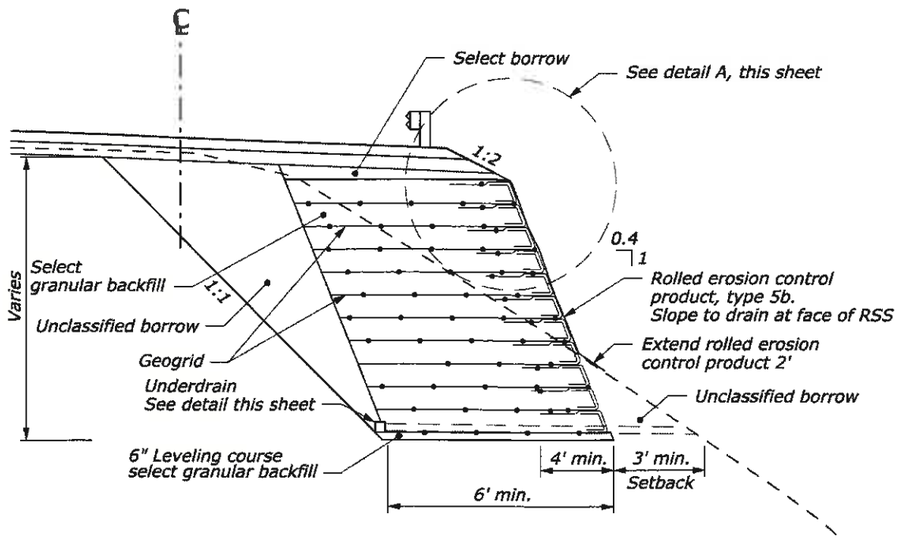
Designed by: C. Conrad | 08/2014 | Checked by:
19 August 2015 12:21 PM c:\my files\pw_productfon\d0230789\ak-f2060013wb.dgn [US_Sur_f2D]



DETAIL A
RSS FACING



STANDARD UNDERDRAIN SYSTEM (GEOCOMPOSITE UNDERDRAIN SYSTEM)



REINFORCED SOIL SLOPE (RSS)

88+50 to 90+05
97+50 to 100+60

NOTE:

1. Place permanent rolled erosion control mat, type 5B, over the face of the RSS and the disturbed ground at the toe of the RSS. Embed a minimum of 12-inch of the mat between the top layer of geogrid and bottom of aggregate base.
2. Place outlet drain pipes at all low spots along RSS and maximum 50-foot spacing.

FOOTNOTE:

1/ Do not exceed 18-inch vertical spacing between geogrid layers.

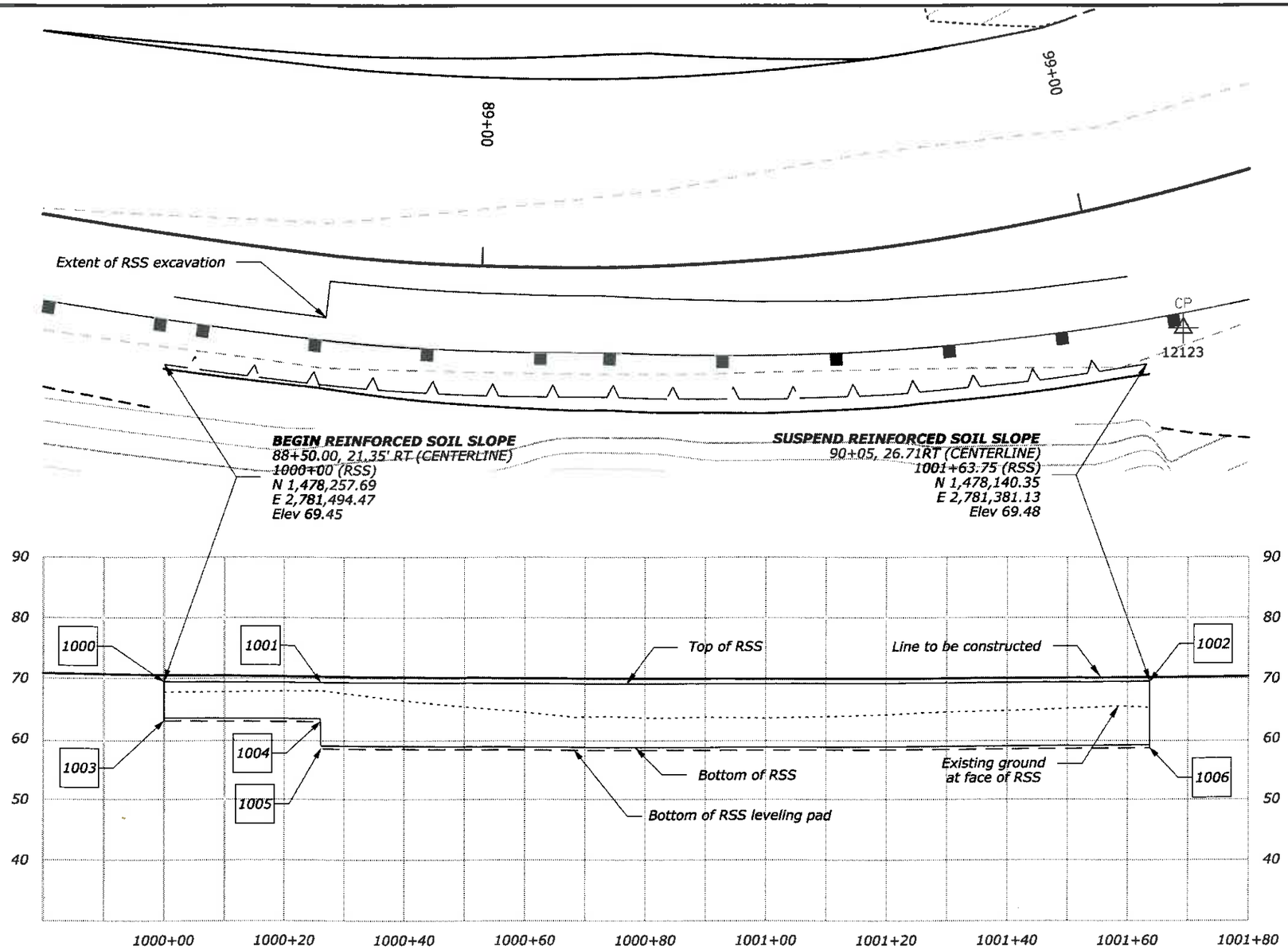
2/ Daylight outlet drain pipe through fill in embankment sections.

3/ Place 4-foot wide geocomposite sheet drains at the beginning and end stations of the RSS and then place drains 10-feet on center.

Deleted, See CM004

~~REINFORCED SOIL SLOPE TYPICAL SECTION~~

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	H.3



POINT	NORTHING	EASTING	ELEVATION	CENTERLINE		RSS SLOPE		DESCRIPTION
				STATION	OFFSET	STATION	OFFSET	
1000	1,478,257.69	2,781,494.47	69.45	88+50.00	21.35	1000+00	0.00	TOP OF RSS SLOPE
1001	1,478,241.40	2,781,474.09	69.30	88+75.00	21.32	1000+26.09	0.00	TOP OF RSS SLOPE
1002	1,478,140.35	2,781,381.13	69.48	90+05.00	26.71	1001+63.75	0.00	TOP OF RSS SLOPE
1003	1,478,259.77	2,781,492.88	62.95	88+50.00	23.97	1000+00	2.62	BOTTOM OF LEVELING PAD
1004	1,478,243.46	2,781,472.48	62.80	88+74.90	23.94	1000+25.99	2.61	BOTTOM OF LEVELING PAD
1005	1,478,244.76	2,781,471.24	58.30	88+75.00	25.73	1000+26.09	4.41	BOTTOM OF LEVELING PAD
1006	1,478,142.72	2,781,377.41	58.48	90+04.90	31.12	1001+63.75	4.40	BOTTOM OF LEVELING PAD

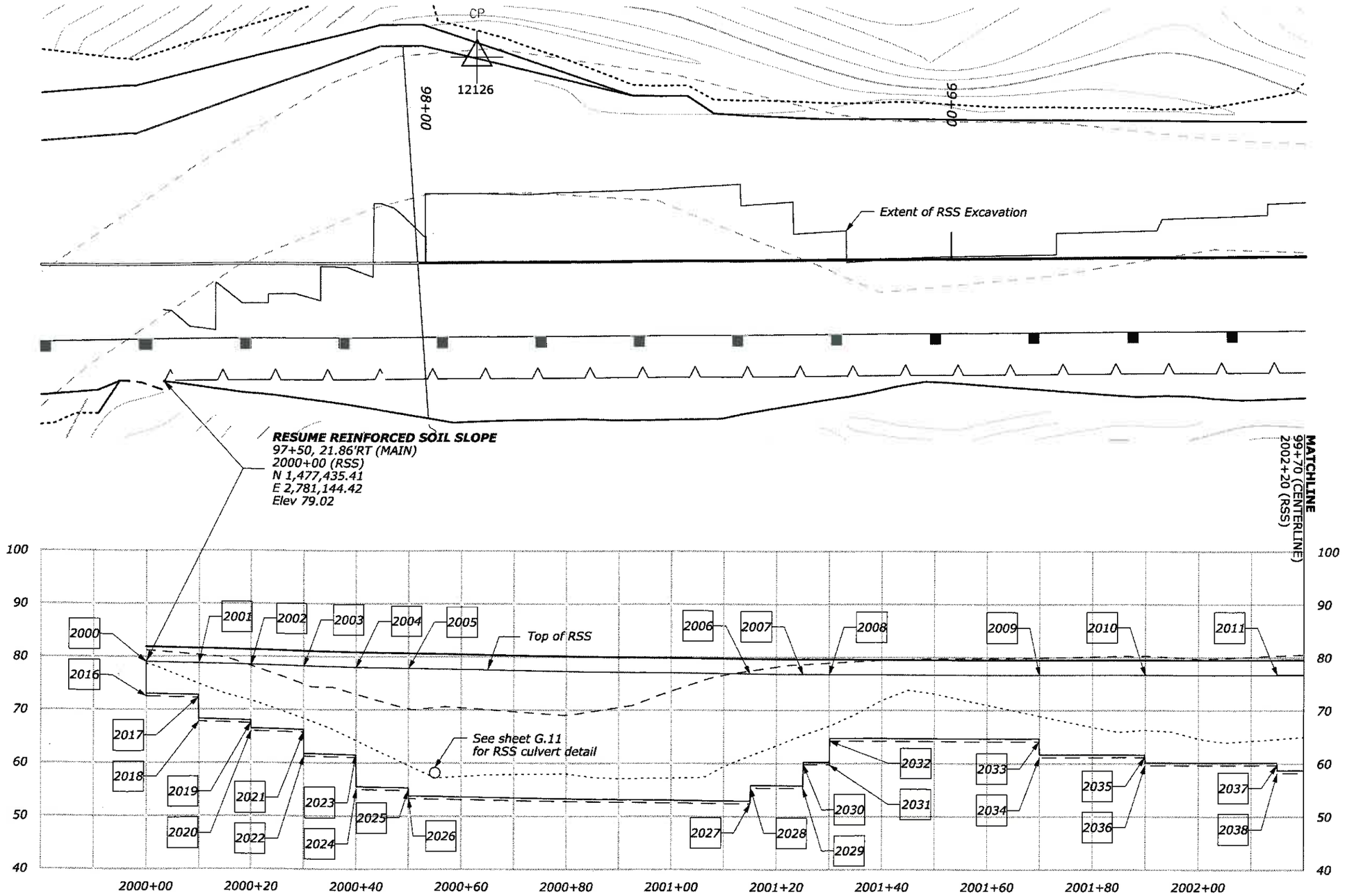
Deleted, See CM004

~~REINFORCED SOIL SLOPE (RSS) PLAN AND PROFILE 88+50 TO 90+05~~

Designed by: | Checked by:

28 October 2014 8:53 AM c:\myfiles\pw_production\d0230789\ak-f206001wc.dgn [US_Sur_ft2D]

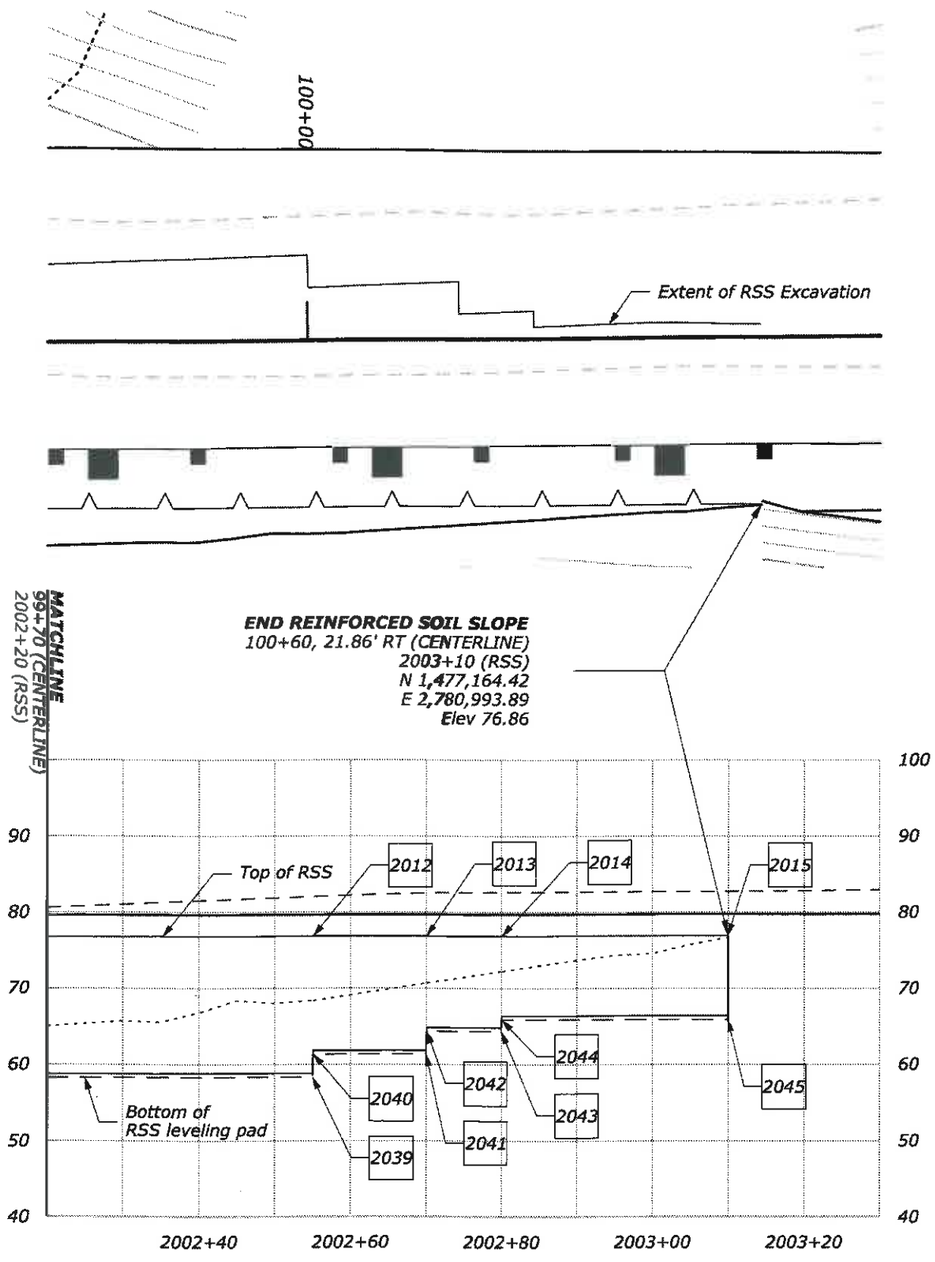
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	H.4



Deleted, See CM004

~~REINFORCED SOIL SLOPE (RSS) PLAN AND PROFILE 97+50 TO 99+70~~

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	H.5



POINT	NORTHING	EASTING	ELEVATION	CENTERLINE		RSS SLOPE		DESCRIPTION
				STATION	OFFSET	STATION	OFFSET	
2000	1,477,435.41	2,781,144.42	79.02	97+50	21.86	2000+00	0	TOP OF RSS SLOPE
2001	1,477,426.67	2,781,139.57	78.75	97+60	21.86	2000+10	0	TOP OF RSS SLOPE
2002	1,477,417.93	2,781,134.71	78.49	97+70	21.86	2000+20	0	TOP OF RSS SLOPE
2003	1,477,409.19	2,781,129.86	78.25	97+80	21.86	2000+30	0	TOP OF RSS SLOPE
2004	1,477,400.45	2,781,125.00	78.02	97+90	21.86	2000+40	0	TOP OF RSS SLOPE
2005	1,477,391.70	2,781,120.15	77.81	98+00	21.86	2000+50	0	TOP OF RSS SLOPE
2006	1,477,334.88	2,781,088.58	76.88	98+65	21.86	2001+15	0	TOP OF RSS SLOPE
2007	1,477,326.14	2,781,083.73	76.80	98+75	21.86	2001+25	0	TOP OF RSS SLOPE
2008	1,477,321.77	2,781,081.30	76.76	98+80	21.86	2001+30	0	TOP OF RSS SLOPE
2009	1,477,286.80	2,781,061.87	76.64	99+20	21.86	2001+70	0	TOP OF RSS SLOPE
2010	1,477,269.32	2,781,052.16	76.67	99+40	21.86	2001+90	0	TOP OF RSS SLOPE
2011	1,477,247.46	2,781,040.02	76.71	99+65	21.86	2002+15	0	TOP OF RSS SLOPE
2012	1,477,212.50	2,781,020.60	76.77	100+05	21.86	2002+55	0	TOP OF RSS SLOPE
2013	1,477,199.38	2,781,013.32	76.80	100+20	21.86	2002+70	0	TOP OF RSS SLOPE
2014	1,477,190.64	2,781,008.46	76.81	100+30	21.86	2002+80	0	TOP OF RSS SLOPE
2015	1,477,164.42	2,780,993.89	76.86	100+60	21.86	2003+10	0	TOP OF RSS SLOPE

Deleted, See CM004

~~REINFORCED SOIL SLOPE (RSS)~~ ~~PLAN AND PROFILE~~ ~~99+70 TO 100+60~~

Designed by: | Checked by: | 28 October 2014 9:02 AM | c:\mylfiles\pw_production\d0230789\ak-f206001wg.dgn [US_Sur_R2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	H.6

POINT	NORTHING	EASTING	ELEVATION	CENTERLINE		RSS SLOPE		DESCRIPTION
				STATION	OFFSET	STATION	OFFSET	
2016	1,477,436.68	2,781,142.14	72.52	97+50	24.48	2000+00	2.61	BOTTOM OF LEVELING PAD
2017	1,477,428.03	2,781,137.33	72.24	97+59.90	24.48	2000+09.90	2.62	BOTTOM OF LEVELING PAD
2018	1,477,428.81	2,781,135.71	67.75	97+60	26.28	2000+10	4.41	BOTTOM OF LEVELING PAD
2019	1,477,420.15	2,781,130.92	67.49	97+69.90	26.26	2000+19.90	4.39	BOTTOM OF LEVELING PAD
2020	1,477,420.36	2,781,130.34	65.99	97+70	26.87	2000+20	5	BOTTOM OF LEVELING PAD
2021	1,477,411.71	2,781,125.53	65.73	97+79.90	26.87	2000+29.90	5.01	BOTTOM OF LEVELING PAD
2022	1,477,412.49	2,781,123.91	61.27	97+80	28.67	2000+30	6.8	BOTTOM OF LEVELING PAD
2023	1,477,403.84	2,781,119.10	61.02	97+89.90	28.67	2000+39.90	6.81	BOTTOM OF LEVELING PAD
2024	1,477,404.91	2,781,116.96	55.02	97+90	31.06	2000+40	9.2	BOTTOM OF LEVELING PAD
2025	1,477,396.26	2,781,112.14	54.82	97+99.90	31.08	2000+49.90	9.21	BOTTOM OF LEVELING PAD
2026	1,477,396.46	2,781,111.58	53.31	98+00	31.68	2000+50	9.8	BOTTOM OF LEVELING PAD
2027	1,477,339.65	2,781,080.01	52.38	98+64.99	31.67	2001+14.99	9.81	BOTTOM OF LEVELING PAD
2028	1,477,338.97	2,781,081.02	55.38	98+65.10	30.46	2001+15.10	8.6	BOTTOM OF LEVELING PAD
2029	1,477,330.31	2,781,076.21	55.31	98+75	30.46	2001+25	8.59	BOTTOM OF LEVELING PAD
2030	1,477,329.36	2,781,077.73	59.79	98+75.10	28.67	2001+25.10	6.8	BOTTOM OF LEVELING PAD
2031	1,477,325.07	2,781,075.35	59.76	98+80	28.67	2001+30	6.8	BOTTOM OF LEVELING PAD
2032	1,477,324.11	2,781,076.88	64.26	98+80.10	26.86	2001+30.10	5	BOTTOM OF LEVELING PAD
2033	1,477,289.32	2,781,057.54	64.14	99+19.90	26.88	2001+69.90	5.01	BOTTOM OF LEVELING PAD
2034	1,477,289.81	2,781,056.46	61.14	99+20	28.06	2001+70	6.19	BOTTOM OF LEVELING PAD
2035	1,477,272.42	2,781,046.78	61.17	99+39.90	28.08	2001+89.90	6.21	BOTTOM OF LEVELING PAD
2036	1,477,272.62	2,781,046.22	59.67	99+40	28.66	2001+90	6.8	BOTTOM OF LEVELING PAD
2037	1,477,250.85	2,781,034.13	59.71	99+64.90	28.66	2002+14.90	6.8	BOTTOM OF LEVELING PAD
2038	1,477,251.06	2,781,033.55	58.21	99+65	29.27	2002+15	7.4	BOTTOM OF LEVELING PAD
2039	1,477,216.09	2,781,014.13	58.28	100+05	29.27	2002+55	7.4	BOTTOM OF LEVELING PAD
2040	1,477,215.42	2,781,015.13	61.27	100+05.10	28.07	2002+55.10	6.2	BOTTOM OF LEVELING PAD
2041	1,477,202.39	2,781,007.90	61.30	100+20	28.06	2002+70	6.19	BOTTOM OF LEVELING PAD
2042	1,477,201.72	2,781,008.90	64.30	100+20.10	26.86	2002+70.10	4.99	BOTTOM OF LEVELING PAD
2043	1,477,193.07	2,781,004.09	64.32	100+30	26.86	2002+80	5	BOTTOM OF LEVELING PAD
2044	1,477,192.69	2,781,004.56	65.81	100+30.10	26.27	2002+80.10	4.4	BOTTOM OF LEVELING PAD
2045	1,477,166.55	2,780,990.04	65.86	100+60	26.27	2003+10	4.4	BOTTOM OF LEVELING PAD

Deleted, See CM004

~~REINFORCED SOIL SLOPE (RSS)~~
~~PLAN AND PROFILE~~
~~99+70 TO 100+60~~

Designed by: --/---- Checked by: --/----
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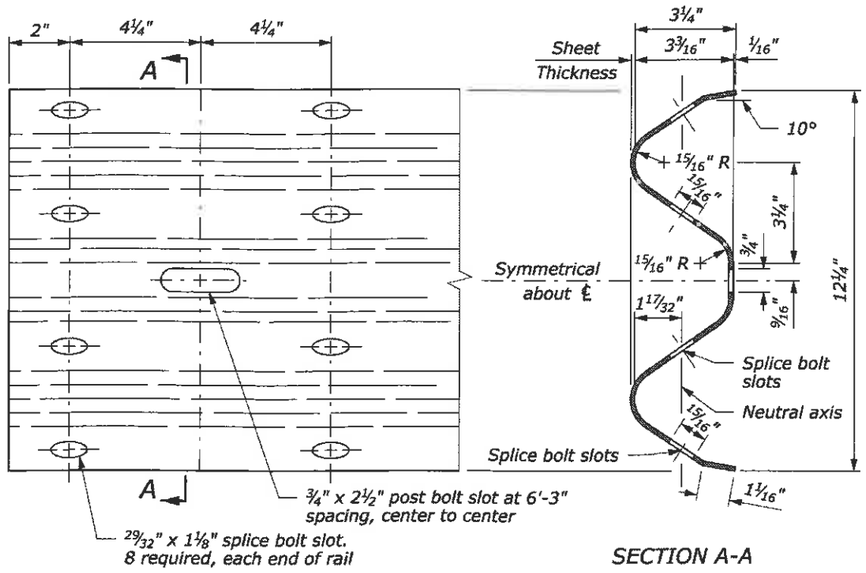
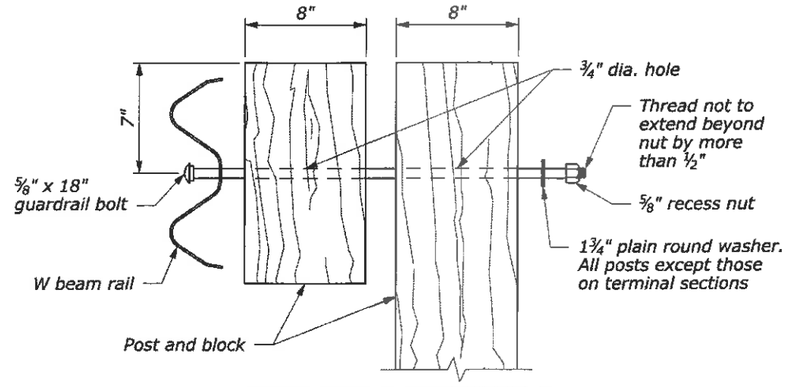
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	I.1



RAIL ELEVATION

SECTION A-A

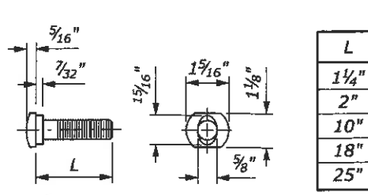
W BEAM RAIL



POST BOLT ASSEMBLY

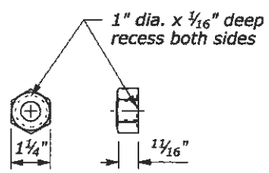
NOTE:

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.



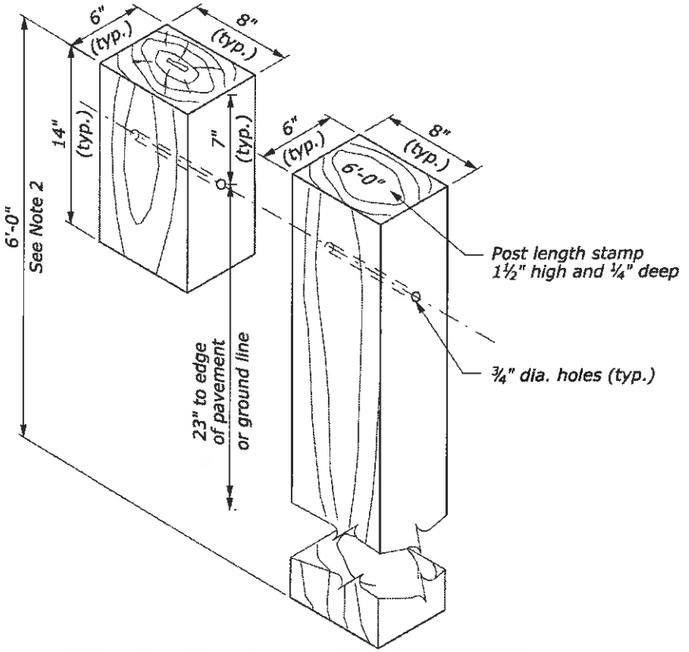
⅝" GUARDRAIL BOLT

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

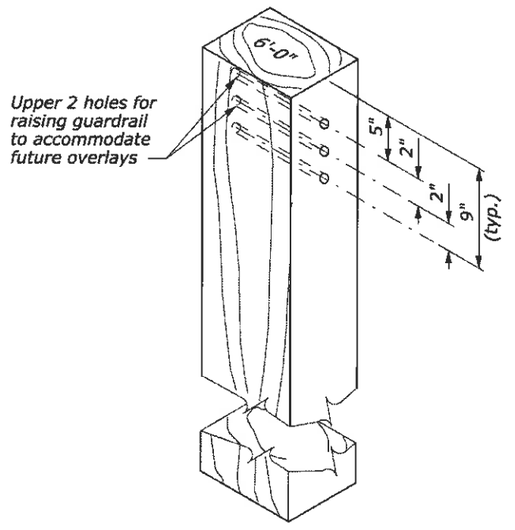


⅝" RECESS NUT

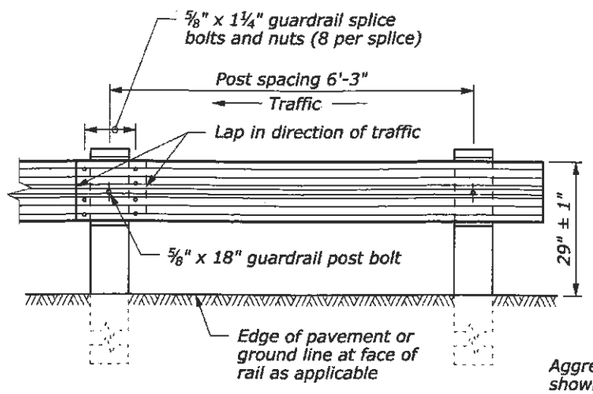
GUARDRAIL BOLT AND RECESS NUT



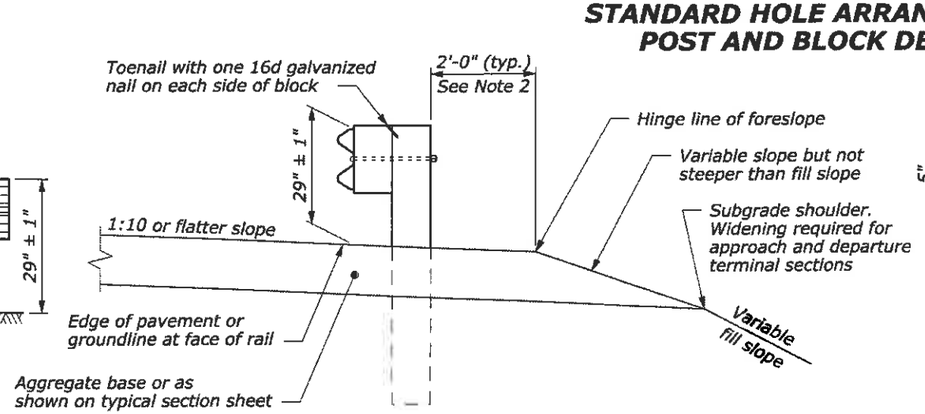
STANDARD HOLE ARRANGEMENT POST AND BLOCK DETAIL



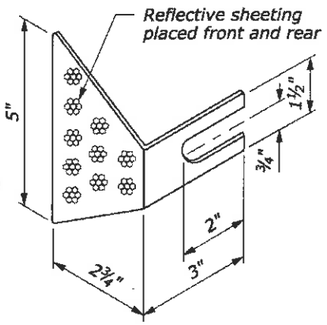
ALTERNATE HOLE ARRANGEMENT POST AND BLOCK DETAIL



POST SPACING STANDARD POST SECTION



TYPICAL GUARDRAIL CROSS SECTION



REFLECTOR TAB
(See Note 4)

NO SCALE

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

U.S. CUSTOMARY STANDARD

G4 W-BEAM GUARDRAIL WOOD POSTS ✓

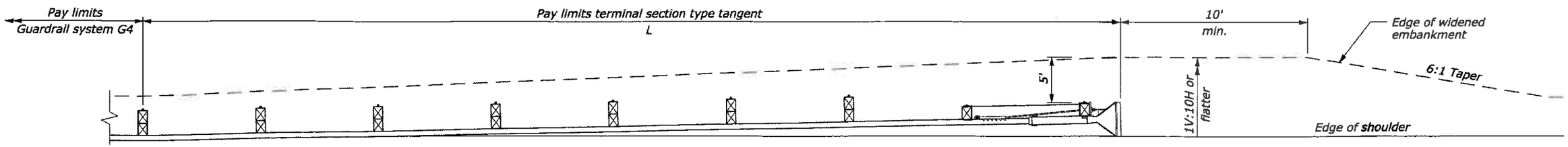
STANDARD APPROVED FOR USE 1/1994
REVISED: 4/1994 6/2005
DRAFT: 10/2013

STANDARD 617-10

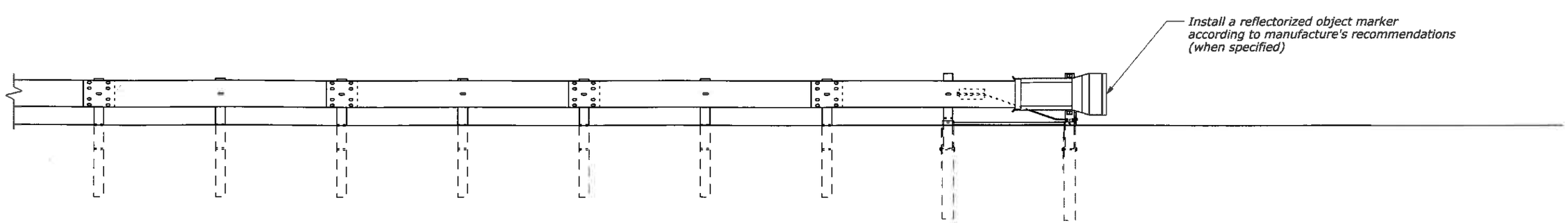
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	T.2

NOTE:

1. *Install a tangent 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. *Install terminal at a 1:50 taper, ensuring that end piece is entirely off shoulder.*
3. *See manufacturer's drawings for other details.*



PLAN



ELEVATION

TEST LEVEL	L (ft)
2 (≤ 45 mph)	25
3 (> 45 mph)	37.5 or 50

NO SCALE

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

U.S. CUSTOMARY STANDARD

G4 W-BEAM GUARDRAIL TYPE TANGENT TERMINAL

STANDARD APPROVED FOR USE 6/2005

REVISED:
DRAFT: 2/2007

STANDARD 617-20

...\as2060(1)st617(20.dgn [US Customary] 1/30/2015

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	J.1

RECEIVED
JUL 08 2017
BY PROJECT ENGINEER

☑ APPROVED
☐ APPROVED AS NOTED
☐ RETURNED FOR CORRECTION

Date: JUL 10 2017 By: Jim Jozovich

FEDERAL HIGHWAY ADMINISTRATION
Federal Lands Highway

See FAR 52.236-21(e) for limitations of Government's responsibility in approving this document.

SUMMARY OF TEMPORARY TRAFFIC CONTROL QUANTITIES

ITEM	DESCRIPTION	UNIT	QUANTITY
63502-0600	Temporary traffic control, barricade, type 3	each	4 ✓
63502-1000	Cone, type 36-inch	each	150 ✓
63502-1300	Drum	each	60 ✓
~~63503-0400~~	~~Temporary traffic control, concrete barrier~~	~~lnft~~	~~1,170~~ See CM004 ✓
63509-1000	Temporary traffic control, flagger	fix hr rate	~~7000~~ 1920 ✓ See CM0001 ✓
63506-0600	Temporary traffic control, Pilot Car	HR	1800 ✓ See CM001 ✓

ITEM 63504-1000 TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN

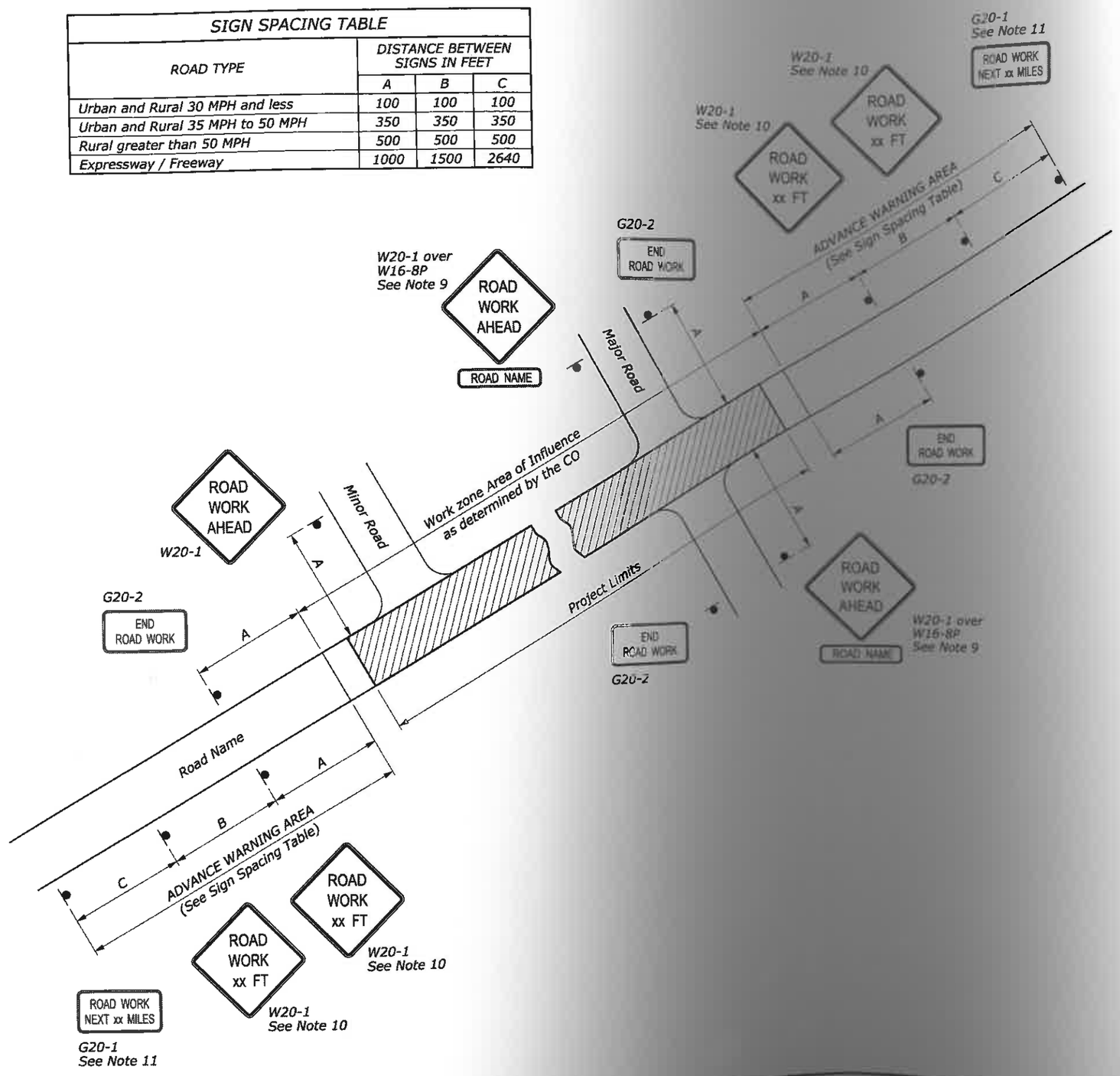
SIGN NUMBER	MUTCD NUMBER	LEGEND	SIZE (In X In.)	NUMBER OF SIGNS	QUANTITY (Sqft.)
1	G20-1	ROAD WORK NEXT 3 MILES	36 x 18	2	9 ✓
2	G20-2	END ROAD WORK	36 x 18	5	22.5 ✓
3	W13-1P	20 MPH	24 x 24	2	8 ✓
4	W16-2P	100 FEET	24 x 18	4	12 ✓
5	W20-1	ROAD WORK 200 FEET	36 x 36	2	18 ✓
6	W20-1	ROAD WORK 100 FEET	36 x 36	2	18 ✓
7	W20-1	ROAD WORK AHEAD	36 x 36	5	45 ✓
8	W20-4	ONE LANE ROAD AHEAD	36 x 36	4	36 ✓
9	W20-7a	FLAGGER SYMBOL	36 x 36	4	36 ✓
10	W3-4	BE PREPARED TO STOP	36 x 36	4	36 ✓
				TOTAL	240.5 ✓

TABULATION OF TEMPORARY TRAFFIC CONTROL QUANTITIES ✓

Designed by: C. Conrad 07/2014 Checked by:
21 October 2014 12:42 PM c:\myfiles\pw_production\d0229143\ak-f206001na.dgn [US_Sur_ft2D]

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	J.2

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. Erect all project advance warning signs before starting construction work.
2. Not all details shown on the temporary traffic control sheets may be applicable to this project. The Contractor may add or delete information and details in this traffic control plan as necessary to accommodate actual operations.
3. Where advance warning signs, placed as shown, interfere with permanent signs, locate the warning signs as determined by the CO for best results. Vary messages as required.
4. Additional or different message signs may be required to fit the actual construction conditions.
5. Install advisory speed plates under the W20 series warning signs as needed to indicate a maximum recommended speed through the construction area.
6. Ensure all sign supports exposed to impact by traffic meet the requirements of NCHRP-350 or MASH for crashworthiness.
7. Maintain two-way traffic during all non-work hours except as approved by the CO.
8. Do not store traffic control devices along the roadway when not in use. Cover post-mounted signs when not applicable.
9. If W20-1 is placed on a roadway other than that on which the actual construction work occurs, include a supplementary plaque indicating the name of the road on which the construction does occur (applies to major roads only).
10. The message on the W20-1 signs may be "ROAD WORK AHEAD" or may specify the distance to the work area in feet or in miles. Install an additional W20-1 sign when approach speeds exceed 50 MPH. When used place the two W20-1 signs "B" feet apart according to the Sign Spacing Table.
11. For work zones that are 2 miles or more in length, install G20-1 signs at each end of the project. Show the distance on the G20-1 sign to the nearest whole mile.
12. If signing on a roadway under a jurisdiction other than the client agency, verify that an encroachment permit has been obtained.
13. State standards may be used as an alternative if approved by the CO.
14. Refer to the Section 635 of the Special Contract Requirements for allowable retroreflective sheeting types.

NO SCALE

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

U.S. CUSTOMARY STANDARD

TEMPORARY TRAFFIC CONTROL
ADVANCE SIGNING

STANDARD APPROVED FOR USE 6/2005	STANDARD
REVISED: DRAFT: 9/2010	635-1

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	J.3

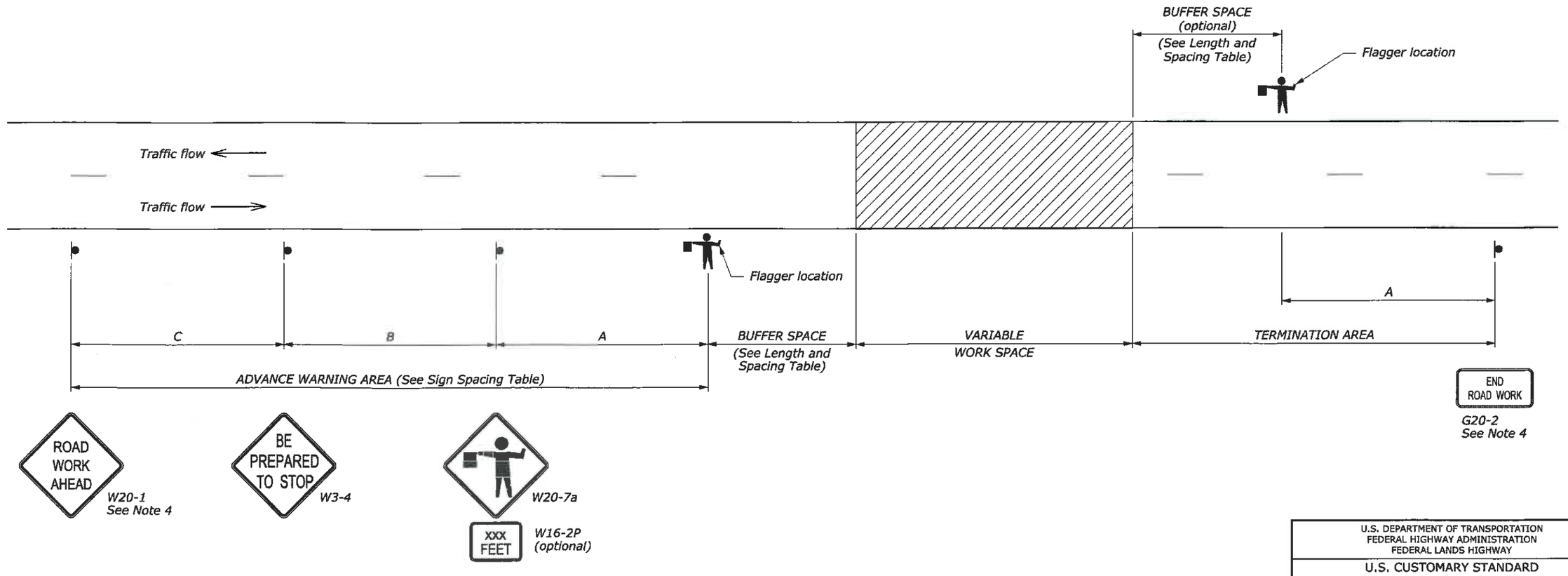
LENGTH AND SPACING TABLE	
APPROACH SPEED*	BUFFER SPACE LENGTH
MPH	FEET
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

* 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

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	J.4

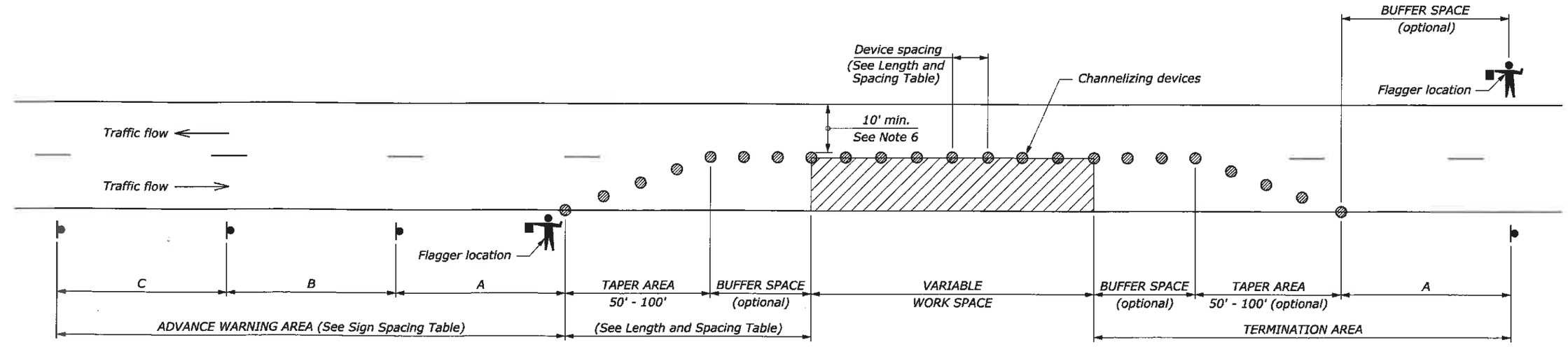
LENGTH AND SPACING TABLE				
APPROACH SPEED*	BUFFER SPACE LENGTH	CHANNELIZING DEVICE		
		TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	SPACING IN FEET		
20	115	20	40	40
25	155	20	50	50
30	200	20	60	60
35	250	20	70	70
40	305	20	80	80
45	360	20	90	90
50	425	20	100	100
55	495	20	110	110
60	570	20	120	120
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.



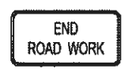
W20-1
See Note 4

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

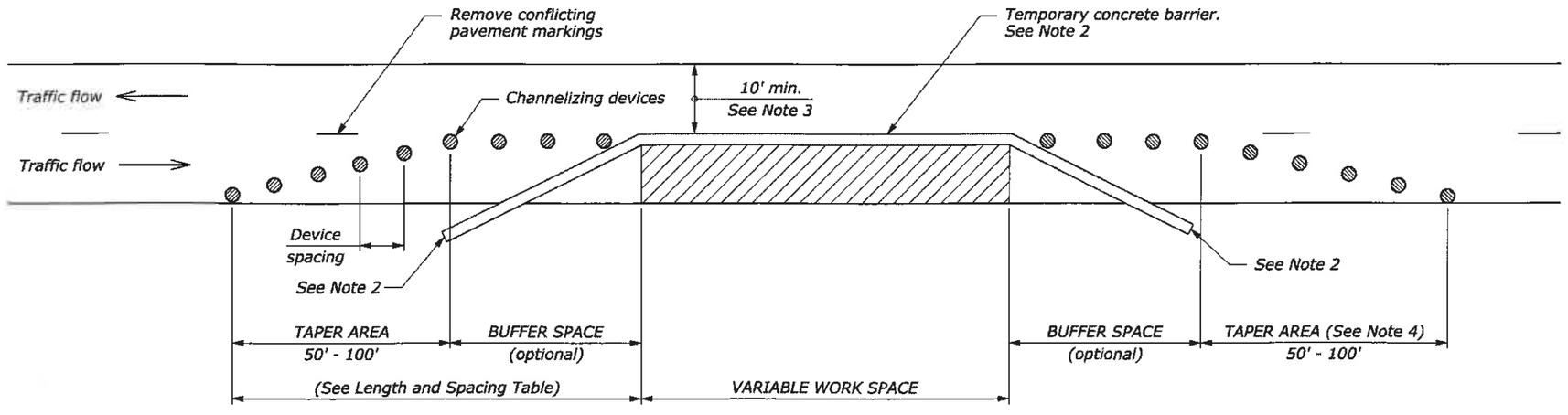
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	J.5

LENGTH AND SPACING TABLE					
APPROACH SPEED* MPH	BUFFER SPACE LENGTH FEET	CHANNELIZING DEVICE			CONCRETE BARRIER FLARE RATE
		TAPER AREA	BUFFER SPACE	WORK SPACE	
		SPACING IN FEET			
20	115	20	40	40	1:8
25	155	20	50	50	1:8
30	200	20	60	60	1:8
35	250	20	70	70	1:9
40	305	20	80	80	1:10
45	360	20	90	90	1:12
50	425	20	100	100	1:14
55	495	20	110	110	1:16
60	570	20	120	120	1:16
65	645	20	130	130	1:16
70	730	20	140	140	1:16

* Approach speed based on the regulatory posted speed, not the advisory speed.

NOTE:

1. Install signs and other devices for single lane closure according to Standard 635-6, 7, 8, or 9. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
2. Place barrier according to the AASHTO Roadside Design Guide. Terminate barrier ends outside the clear zone or protect the ends of the barrier with a crash cushion. Include reflectors on barrier at 25' intervals.
3. For project specific minimum width, refer to Special Contract Requirements, Section 156.
4. Place channelizing devices at downstream taper during non-work hours or when access is not needed.
5. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.
6. Reduce or eliminate drums and barrier in downstream taper if necessary to provide access to work space.



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NO SCALE

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

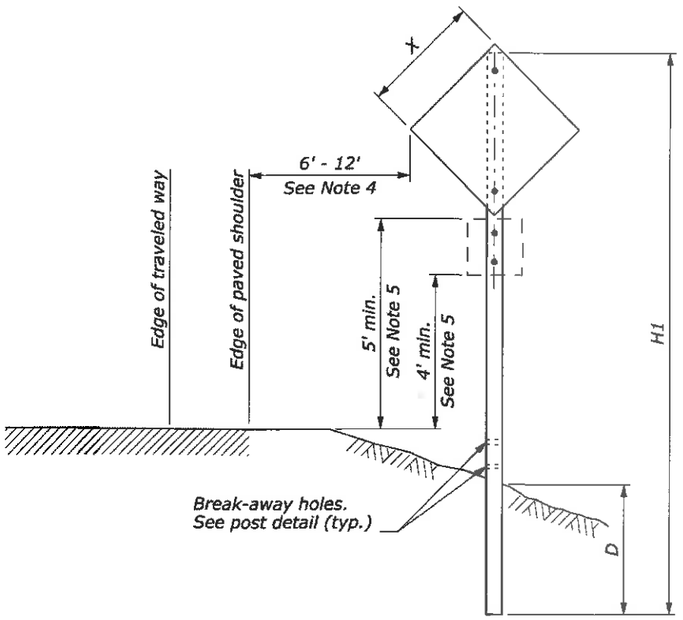
U.S. CUSTOMARY STANDARD

TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH TEMPORARY BARRIER)

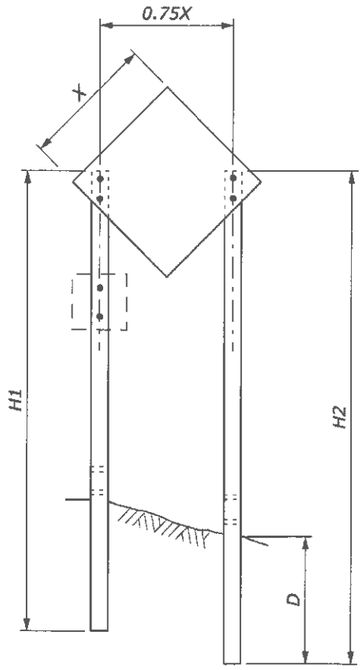
STANDARD APPROVED FOR USE 6/2005
REVISED:
DRAFT: 9/2010

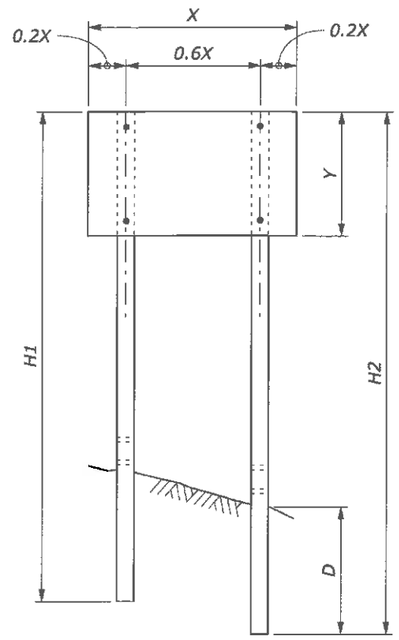
STANDARD 635-13

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	J.6



SINGLE POST SIGN





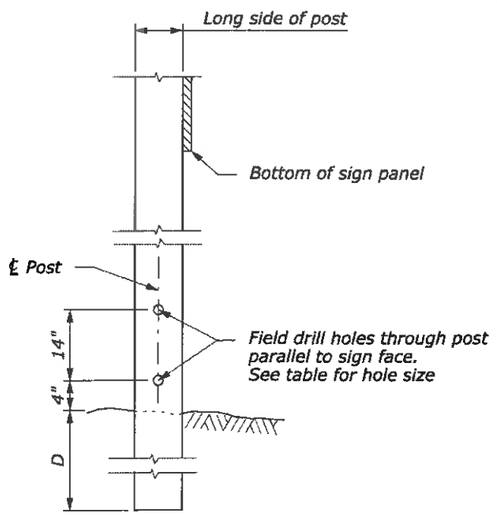
TWO POST SIGN

NOTE:

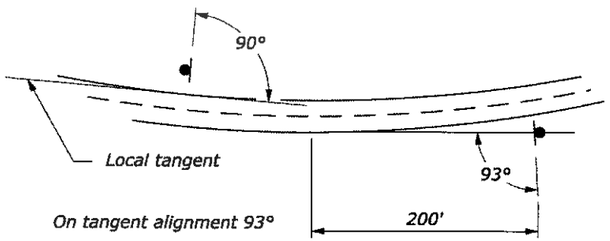
1. Attach sign panels with a minimum of **2** - ¼" dia. bolts per post.
2. H1 and H2 = Overall post length. Select post lengths to fit field conditions.
3. D = Post embedment depth for average soil conditions.
4. In rural areas where lateral distance is limited, a minimum lateral offset of 2' may be 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

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	K.1

ITEM 20301-2400 REMOVAL OF SIGN

LOCATION	SIGN LEGEND	QUANTITY (EACH)
12+29 LT	MILE 2	1
14+24 LT	Forest Doad Destination sign	1
	TOTAL	2

ITEM 63302-0000 SIGN SYSTEM

SIGN NUMBER	MUTCD NUMBER	LOCATION	SIGN LEGEND	SIZE (In X In.)	NUMBER OF SIGNS	QUANTITY (Sqft)
1	R1-1	10+18 LT	STOP	30 x 30	1	6.25
2	R2-1		SPEED LIMIT 30	24 x 30	1	5
3	W3-1	12+88 LT	Stop Ahead Symbol	30 x 30	1	6.25
4	FRD-1	14+24 LT	Forest Road Destination Sign	72 x 36	1	18
	M1-7		FOREST ROUTE 20	18 x 18	1	2.25
	M6-4		Directional arrow	21 x 15	1	2.19
	FM4-6		END	12 x 8	1	0.67
	FM1-7H		2060	12 x 8	1	0.67
5	R7-1	140+25 LT	NO PARKING ANY TIME	12 x 18	1	1.50
6	R2-1	141+80 LT	SPEED LIMIT 30	24 x 30	1	5
7	R2-1	141+80 RT	SPEED LIMIT 10	24 x 30	1	5
				TOTAL		53

☑ APPROVED
☐ APPROVED AS NOTED
☐ RETURNED FOR CORRECTION

Date: JUL 10 2017 By: Jim Jozovich

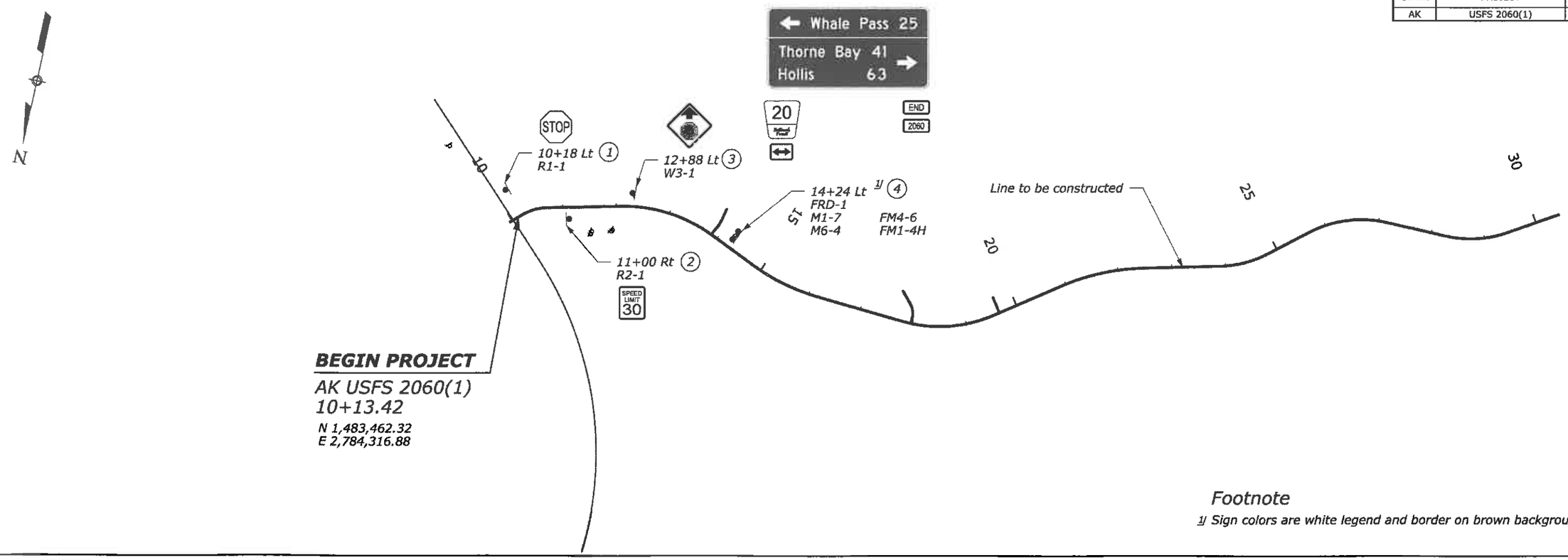
FEDERAL HIGHWAY ADMINISTRATION
Federal Lands Highway

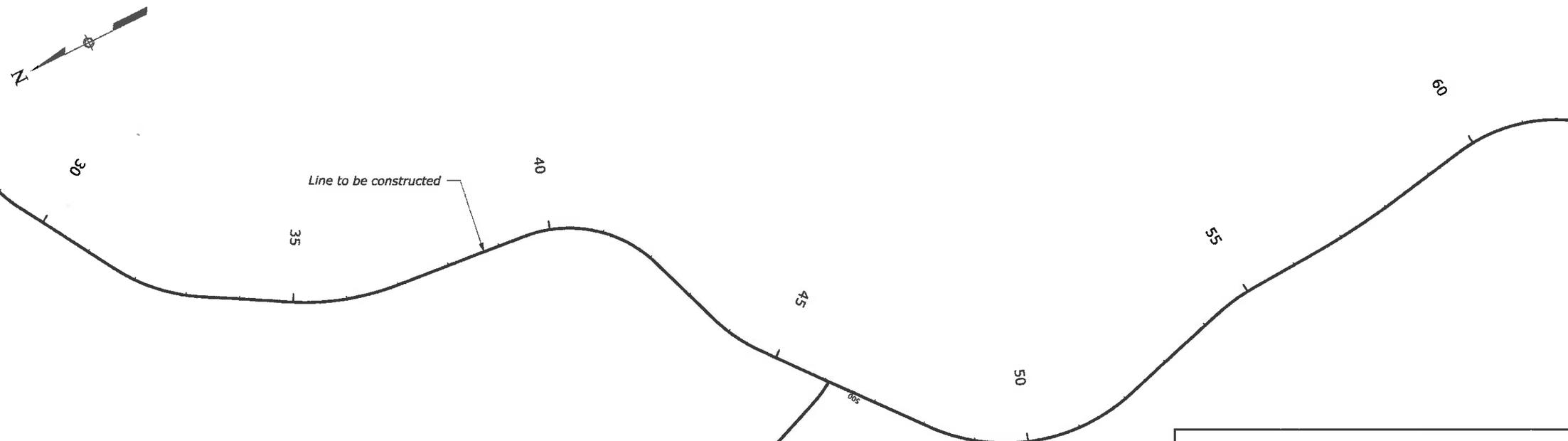
See FAR 52.236-21(e) for limitations of Government's responsibility in approving this document.

TABULATION OF TEMPORARY TRAFFIC CONTROL QUANTITIES

Designed by: C. Conrad | 07/2014 | Checked by:
c:\myfiles\pw_production\d0229144\ak-f206001pa.dgn {US_Sur_R2D}
21 August 2015 8:26 AM

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	K.2





Footnote

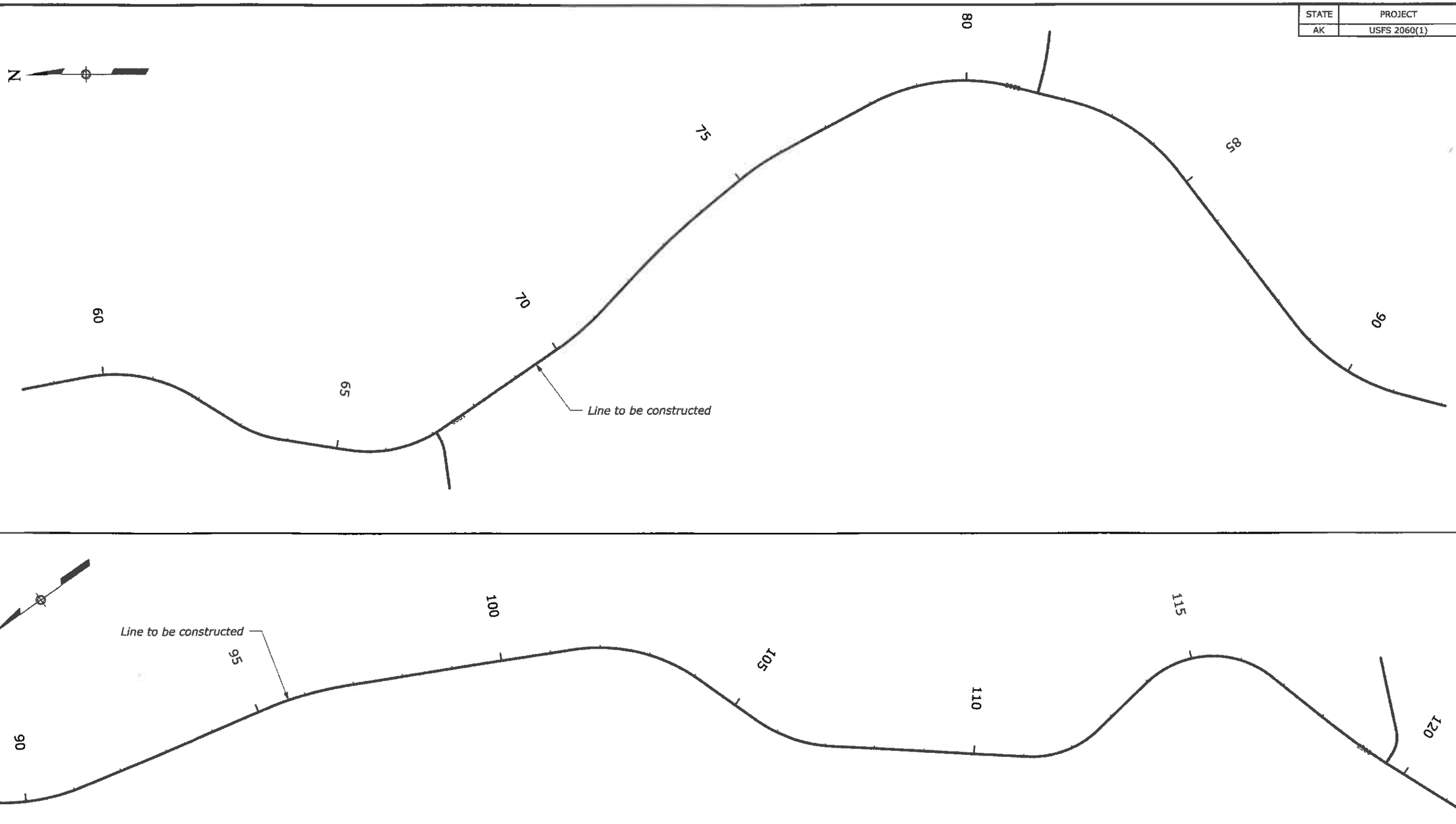
1/ Sign colors are white legend and border on brown background.

PERMANENT TRAFFIC CONTROL PLAN 10+13 TO 60+00

Designed by: Checked by:

12 January 2015 1:12 PM c:\myfiles\pw_production\d0229144\akf206001pb.dgn [US_Sur_ft2D]

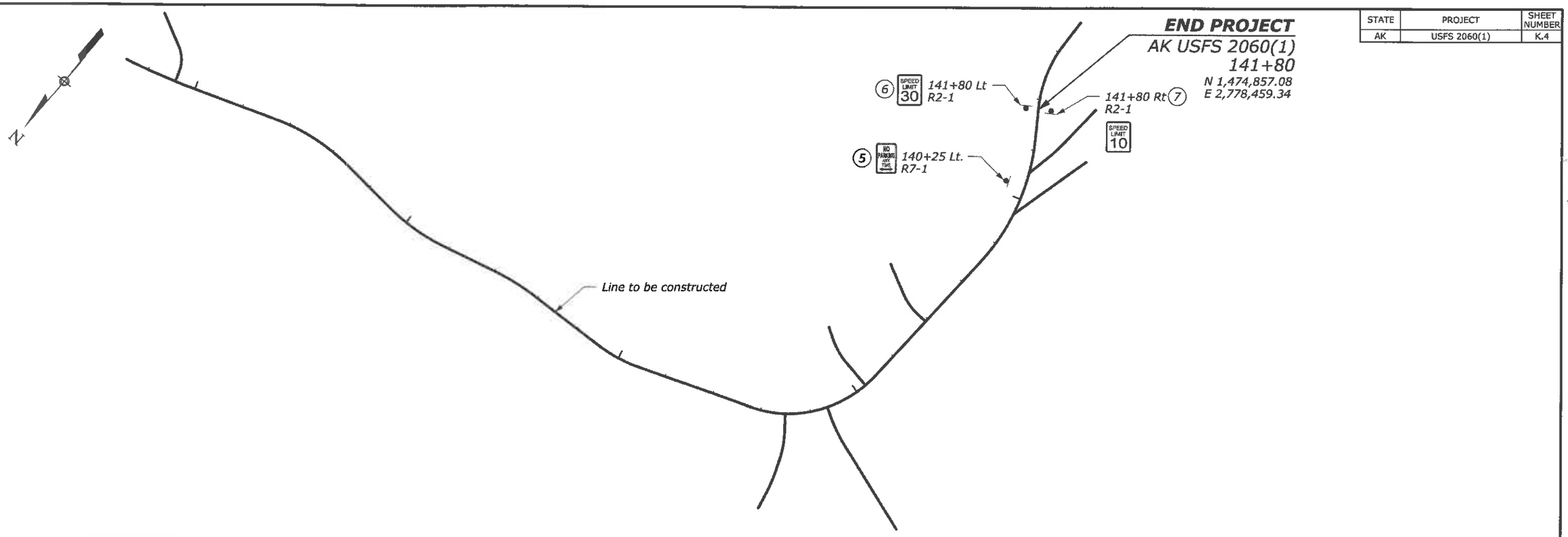
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	K.3



PERMANENT TRAFFIC CONTROL PLAN 60+00 TO 120+00

Designed by: | Checked by: | c:\mvfiles\pw_production\d0229144\ak-f206001pc.dgn [US_Sur_ft2D] | 12 January 2015 1:12 PM

STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	K.4



PERMANENT TRAFFIC CONTROL PLAN
120+00 TO 141+80

Designed by: | Checked by: | --/---- | --/----

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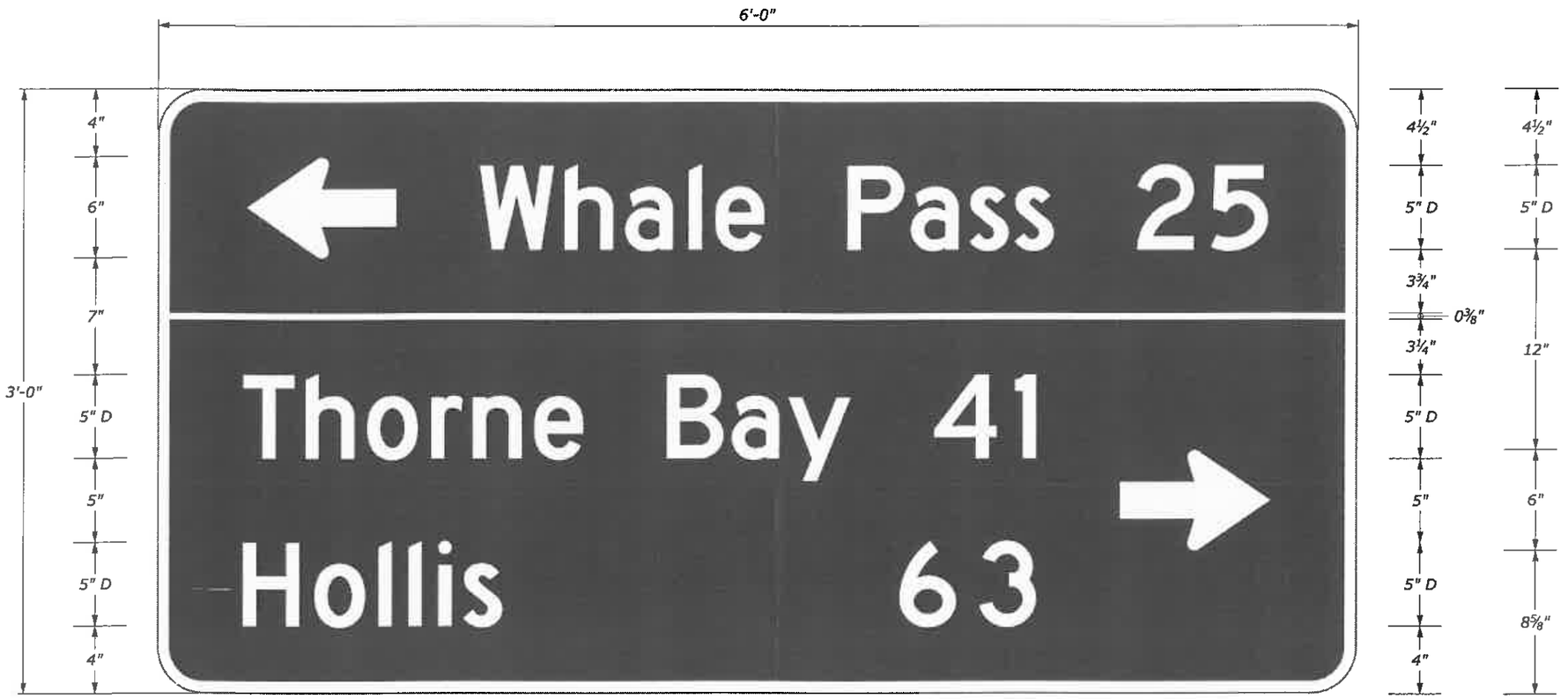


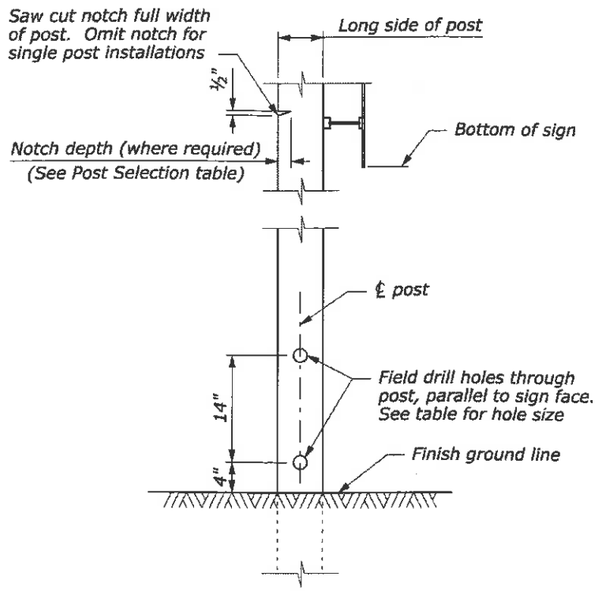
FRD-1 [1]

FOOTNOTE

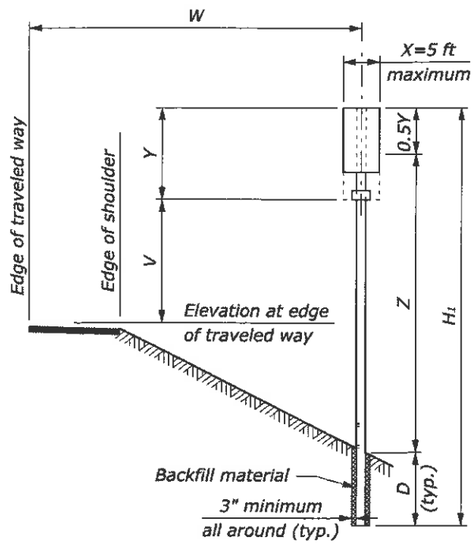
[1] Sign colors are white legend and border on brown background.

PERMANENT SIGN DETAIL

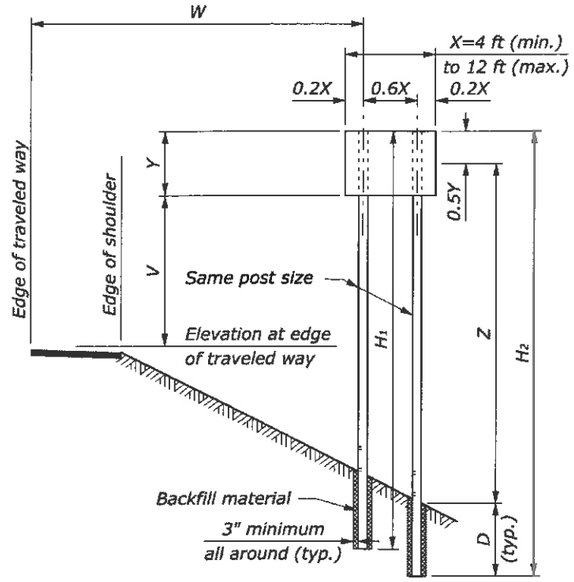
STATE	PROJECT	SHEET NUMBER
AK	USFS 2060(1)	K.6



POST DETAIL



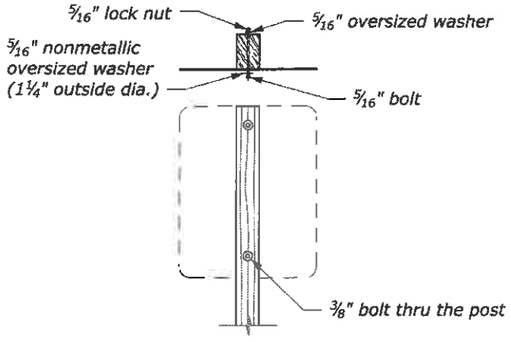
SINGLE POST SIGNS



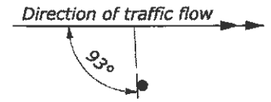
TWO POST SIGNS

NOTE:

1. Traffic barrier protection is required for all posts larger than 6" x 8" when located within the clear zone or if the post is vulnerable to being struck when placed outside the clear zone.
2. H_1 thru H_4 indicate overall post length. Select post lengths to fit field conditions.
3. D is the minimum post embedment depth for average soil conditions. See Wood Post Selection Table below.
4. Z is the height from ground line to mid-height of sign at the longest post.
5. For the purpose of post selection X and Y are as follows:
   - Single sign, or back to back signs: X and Y are the overall dimensions of the signs.
   - Multiple sign installations: X and Y are the dimensions of a rectangle enclosing all the signs.



TYPICAL MOUNTING FOR SIGNS WITHOUT ANGLES

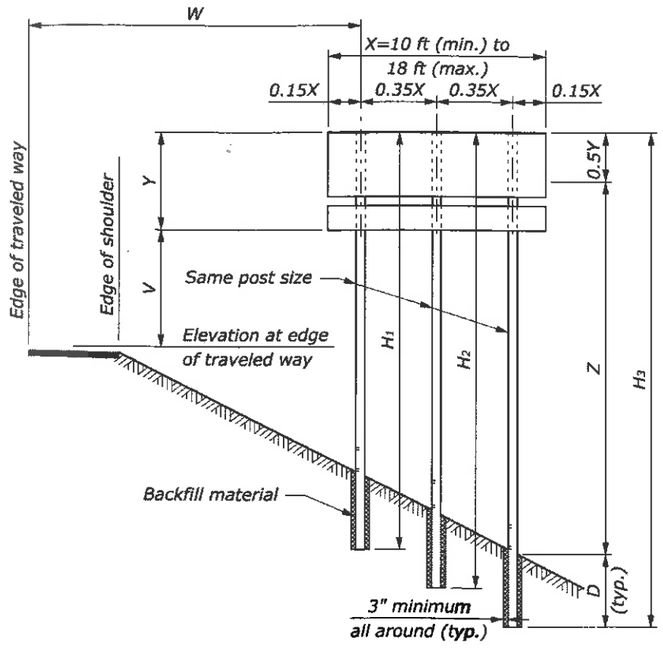


SIGN INSTALLATION ANGLE

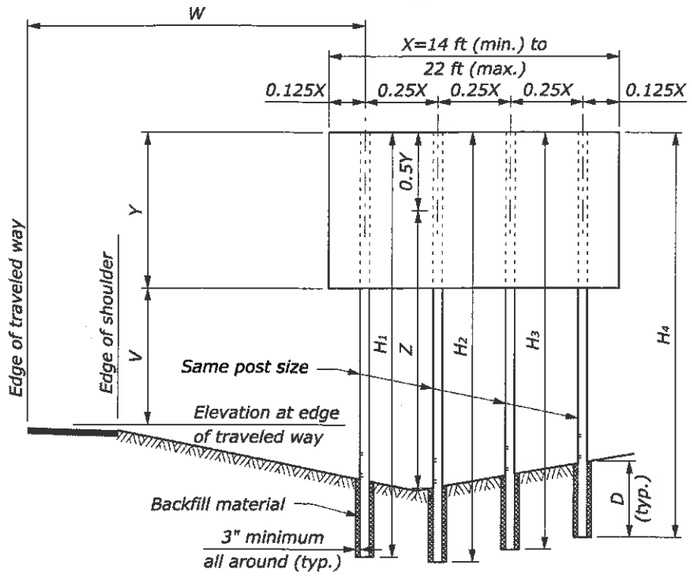
For all retroflectorized signs where W > 25'

MINIMUM DISTANCE TO SIGN		
Location	Lateral Offset (W)	Mounting Height (V)
Rural Districts	6 ft	5 ft
Business or Residence Districts	2 ft from curb	7 ft

V may be reduced by 1 foot in rural districts for a secondary sign mounted below another sign.



THREE POST SIGNS



FOUR POST SIGNS

WOOD POST SELECTION TABLE						
POST SIZE (inch)	NUMBER OF POSTS 1	2	3	4	D	Notch depth and hole diameter
	Product of X-Y-Z in CUFT					
4 x 4	80	155	235	310	3'-0"	-
4 x 6	180	385	545	725	4'-0"	1¾"
6 x 6	235	475	710	950	4'-0"	1¾"
6 x 8	300	850	1280	1700	4'-0"	2½"
6 x 10	385	1180	1170	2360	5'-0"	-
8 x 10	575	1610	2410	3215	5'-0"	-
8 x 12	775	2310	3465	4620	6'-0"	-

Values shown are the maximum permitted. If the product of XYZ exceeds the limit for the largest post, use steel post installation.

NO SCALE

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

U.S. CUSTOMARY DETAIL

PERMANENT SIGN INSTALLATION WOOD POSTS ✓

DETAIL APPROVED FOR USE --/----
REVISED: 2/1998
DRAFT: 10/2009

DETAIL W633-7