

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	A.1

# U. S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION



PLANS FOR PROPOSED PROJECT  
WA JEFF 91420(1)

## UPPER HOH RIVER ROAD PHASE 2

OLYMPIC NATIONAL PARK  
JEFFERSON COUNTY, WASHINGTON

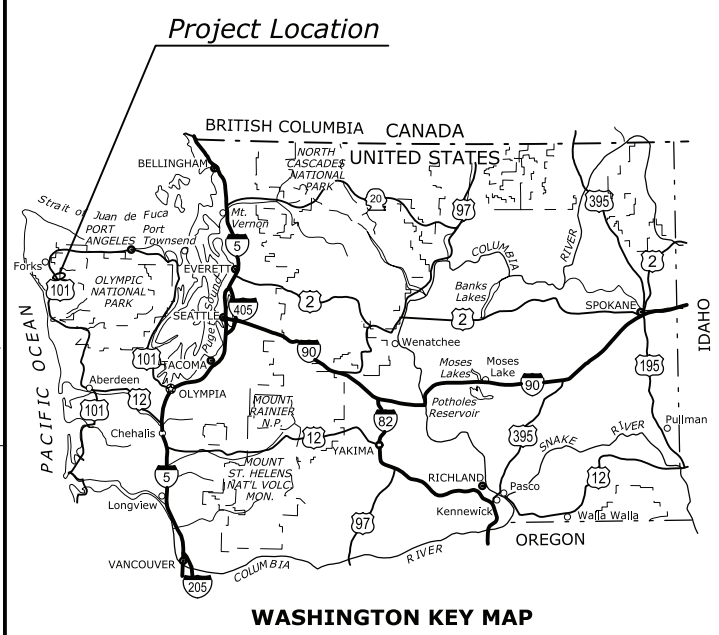
SCHEDULE A LENGTH 0.046 MILES  
(0.046 Miles of Roadway Construction; Bank Stabilization at C1, C2, & C4; and MP 4.0 AOP Pipe)

SCHEDULE B LENGTH 0.046 MILES  
(All Work Under Schedule A; and Mitigation)

SCHEDULE C LENGTH 0.311 MILES  
(All Work Under Schedule B; 0.265 Miles of Roadway Construction; and Tower Creek Bridge Construction)

SCHEDULE D LENGTH 0.577 MILES  
(All Work Under Schedule C; 0.266 Miles of Roadway Construction; and Canyon Creek Bridge Construction)

SECTION INDEX	
A.	GENERAL INFORMATION
B.	SUMMARY OF QUANTITIES
C.	TYPICAL SECTIONS
D.	PLAN & PROFILE
E.	APPROACH ROADS
F.	EROSION/SEDIMENT CONTROL
G.	BRIDGE
H.	DRAINAGE
I.	ROADSIDE FEATURES
J.	SOIL NAIL RETAINING WALL
K.	TEMPORARY TRAFFIC CONTROL PLAN
L.	PERMANENT TRAFFIC CONTROL PLAN
M.	MITIGATION



**TYPE OF CONSTRUCTION:**

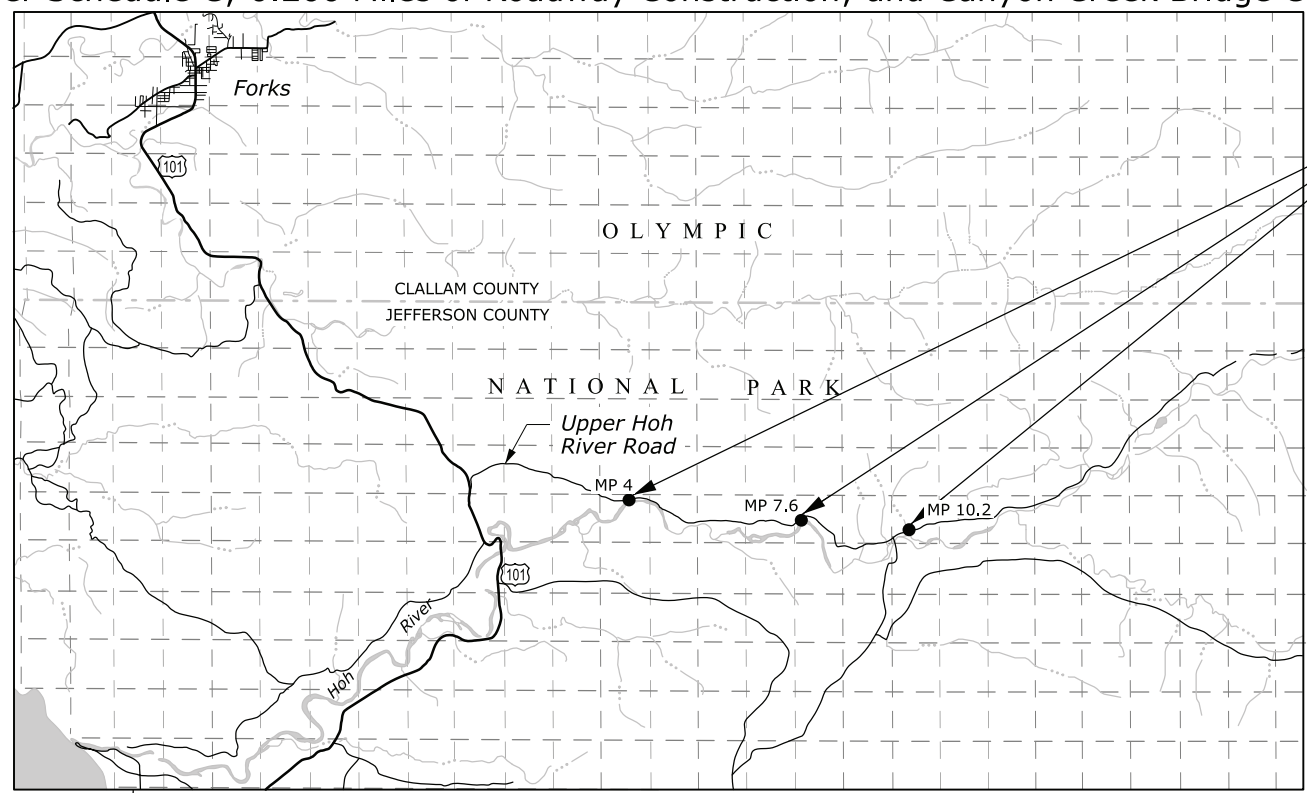
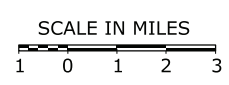
Bank stabilization, AOP pipe  
Bridge construction, Roadway  
Construction and Mitigation

**DESIGN DESIGNATION:**

ADT (2018)	600
ADT (YR+20)	770
Seasonal ADT (2018)	1050
Seasonal ADT (YR+20)	1400
V	35 MPH
e (max)	0.060

**SPECIFICATION:**

Standard Specifications for  
Construction of Roads and Bridges  
on Federal Highway Projects, FP-14



**PROJECT LOCATIONS**

See Sheet A.4  
for Vicinity Map

**APPROVED:**

BRENT L COE

Acting Chief of Engineering,  
Western Federal Lands Highway Division

Digitally signed by BRENT L COE  
Date: 2020.10.22 15:50:22 -07'00'  
DATE

01/2019 Checked by: C. Conrad  
 Designed by: C. Conrad  
 c:\pw-work\020326\wa-a2013020-aa.dgn [US\_Sur.#20]  
 22 October 2020 10:53 AM

PROJECT MANAGER  
K. Loftsgaarden

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

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	A.2

INDEX TO SHEETS	
<b>A. GENERAL INFORMATION</b>	
A.1	TITLE SHEET
A.2	INDEX TO SHEETS
A.3	PLAN SYMBOLS AND ABBREVIATIONS
A.4	VICINITY MAP
A.5	STAGING/STOCKPILE SITE
<b>B. SUMMARY OF QUANTITIES</b>	
B.1-10	SUMMARY OF QUANTITIES
<b>C. TYPICAL SECTIONS</b>	
C.1	TABULATION OF TYPICAL SECTION QUANTITIES
C.2	TYPICAL SECTION
<b>D. PLAN &amp; PROFILE</b>	
D.1-2	TABULATION OF PLAN AND PROFILE QUANTITIES
D.3-4	SCHEDULE A (SITE C1 & C.2) PLAN AND PLAN
D.5	SCHEDULE A (SITE C2) MP 4.0 AOP PLAN AND PROFILE
D.6-7	SCHEDULE C (TOWER CREEK) PLAN AND PROFILE
D.8	SCHEDULE A (SITE C4) PLAN
D.9-10	SCHEDULE D (CANYON CREEK) PLAN AND PROFILE
D.11	SURVEY CONTROL
<b>E. APPROACH ROADS</b>	
E.1	APPROACH ROAD TYPICAL SECTION
E.2-3	APPROACH ROAD PLAN AND PROFILE
<b>F. EROSION/SEDIMENT CONTROL</b>	
F.1-2	TABULATION OF EROSION/SEDIMENT CONTROL QUANTITIES
F.3-8	EROSION/SEDIMENT CONTROL PLAN
F.9	STD DETAIL W157-1 SILT FENCE
F.10	STD DETAIL W157-15 CHECK DAM MODERATE GRADES
F.11	STD DETAIL W157-16 CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT
F.12	STD DRWG 157-5 TEMPORARY DIVERSION CHANNELS
F.13	STD DETAIL W157-17 TEMPORARY DIVERSION BERM METHODS
F.14	STD DETAIL W157-21 FIBER ROLL
F.15	STD DETAIL E629-01 SLOPE STABILIZATION WITH MATTING

INDEX TO SHEETS	
<b>G. BRIDGE</b>	
G.1	TABULATION OF QUANTITIES (SCHEDULES C & D)
G.2	TOWER CREEK BRIDGE PLAN AND ELEVATION
G.3	TOWER CREEK BRIDGE GENERAL NOTES
G.4	TOWER CREEK BRIDGE FOUNDATION LAYOUT
G.5-7	TOWER CREEK BRIDGE ABUTMENT DETAILS
G.8	TOWER CREEK BRIDGE TYPICAL SECTION AND FRAMING PLAN
G.9	TOWER CREEK BRIDGE EXTERIOR GIRDER
G.10	TOWER CREEK BRIDGE INTERIOR GIRDER
G.11	TOWER CREEK BRIDGE GIRDER SECTIONS
G.12	TOWER CREEK BRIDGE EXTERIOR GIRDER TOP FLANGE
G.13	TOWER CREEK BRIDGE INTERIOR GIRDER TOP FLANGE
G.14	TOWER CREEK BRIDGE GIRDER DETAILS
G.15	TOWER CREEK BRIDGE BRIDGE RAILING
G.16	TOWER CREEK BRIDGE THRIE BEAM TRANSITION
G.17	TOWER CREEK BRIDGE REINFORCING STEEL BAR LIST
G.18	TOWER CREEK BRIDGE EPOXY COATED REINFORCING STEEL BAR LIST
G.19	TOWER CREEK BRIDGE APPROACH SLAB
G.20	CANYON CREEK BRIDGE PLAN AND ELEVATION
G.21	CANYON CREEK BRIDGE GENERAL NOTES
G.22	CANYON CREEK BRIDGE FOUNDATION LAYOUT
G.23-25	CANYON CREEK BRIDGE ABUTMENT DETAILS
G.26	CANYON CREEK BRIDGE TYPICAL SECTION AND FRAMING PLAN
G.27	CANYON CREEK BRIDGE EXTERIOR GIRDER
G.28	CANYON CREEK BRIDGE INTERIOR GIRDER
G.29	CANYON CREEK BRIDGE GIRDER SECTIONS
G.30	CANYON CREEK BRIDGE EXTERIOR GIRDER TOP FLANGE
G.31	CANYON CREEK BRIDGE INTERIOR GIRDER TOP FLANGE
G.32	CANYON CREEK BRIDGE GIRDER DETAILS
G.33	CANYON CREEK BRIDGE BRIDGE RAILING
G.34	CANYON CREEK BRIDGE THRIE BEAM TRANSITION
G.35	CANYON CREEK BRIDGE REINFORCING STEEL BAR LIST
G.36	CANYON CREEK BRIDGE EPOXY COATED REINFORCING STEEL BAR LIST
G.37	CANYON CREEK BRIDGE APPROACH SLAB

INDEX TO SHEETS	
<b>H. DRAINAGE</b>	
H.1-2	TABULATION OF QUANTITIES
H.3-7	MITIGATION BANK STABILIZATION PLAN
H.8	BANK STABILIZATION WOOD BUFFER w/ DOLOSSE DETAILS
H.9-13	MP 4.0 AOP CULVERT DETAILS
H.14	TOWER CREEK BRIDGE PLAN AND PROFILE
H.15	CANYON CREEK BRIDGE PLAN AND PROFILE
<b>I. ROADSIDE FEATURES</b>	
I.1	ROADSIDE BARRIER TABULATION OF QUANTITIES
I.2	G4 AND MGS W-BEAM GUARDRAIL INSTALLATION IN ROCK
I.3	MGS W-BEAM GUARDRAIL STEEL POSTS
I.4	MGS W-BEAM GUARDRAIL LONG-SPAN SYSTEM
I.5	MGS W-BEAM GUARDRAIL TYPE TANGENT TERMINAL
<b>J. SOIL NAIL RETAINING WALL</b>	
J.1	TABULATION OF SOIL NAIL RETAINING WALL QUANTITIES
J.2	SOIL NAIL RETAINING WALL PLAN AND PROFILE 73+70 TO 74+94
J.3	SOIL NAIL RETAINING WALL TYPICAL SPECIFICATIONS AND INFORMATIONAL QUANTITIES
J.4	SOIL NAIL RETAINING WALL TYPICAL SECTION DETAILS
J.5	SOIL NAIL RETAINING WALL LAYOUT TYPICAL
J.6-7	SOIL NAIL RETAINING WALL TYPICAL DETAILS
<b>K. TEMPORARY TRAFFIC CONTROL PLAN</b>	
K.1-2	TABULATION OF TEMPORARY TRAFFIC CONTROL QUANTITIES
K.3	TTC CONSTRUCTION PHASE 1 TOWER CREEK BRIDGE
K.4	TTC CONSTRUCTION PHASE 2 TOWER CREEK BRIDGE
K.5	TTC CONSTRUCTION PHASE 1 CANYON CREEK BRIDGE
K.6	TTC CONSTRUCTION PHASE 2 CANYON CREEK BRIDGE

INDEX TO SHEETS	
K.7-8	CONCRETE BARRIER (PRECAST)
K.9	STD DRWG 635-1 TEMPORARY TRAFFIC CONTROL ADVANCE SIGNING
K.10	STD DRWG 635-2 TEMPORARY PAVEMENT MARKINGS
K.11	STD DRWG 635-4 TEMPORARY TRAFFIC CONTROL FOR DIVERSION
K.12	STD DRWG 635-5 TEMPORARY TRAFFIC CONTROL ROAD CLOSURE LAYOUT (WITH FLAGGERS)
K.13	STD DRWG 635-6 TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH FLAGGERS)
K.14	STD DRWG 635-9 TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH SIGNALS)
K.15	STD DRWG 635-13 TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH TEMPORARY BARRIER)
K.16	STD DRWG 635-14 TEMPORARY TRAFFIC CONTROL SIGN INSTALLATION WOOD POSTS
<b>L. PERMANENT TRAFFIC CONTROL PLAN</b>	
L.1	TABULATION OF PERMANENT TRAFFIC CONTROL QUANTITIES
L.2-4	PERMANENT TRAFFIC CONTROL PLANS
L.5-6	LINEAR PAVEMENT MARKING PAVEMENT MARKERS
L.7	STD DETAIL W633-7 PERMANENT SIGN INSTALLATION WOOD POSTS
L.8	STD DETAIL W633-80 WASHINGTON DELINEATORS
L.9	STD DETAIL W634-2 LINEAR PAVEMENT MARKINGS
<b>M. MITIGATION</b>	
M.1	TABULATION OF (MITIGATION) CHANNEL HABITAT PRESERVATION QUANTITIES
M.2	TABULATION OF (MITIGATION) WETLAND MITIGATION QUANTITIES
M.3-6	CHANNEL HABITAT PRESERVATION CHANNEL PLUG DETAILS
M.7	CHANNEL PLUG DETAILS
M.8	GRAVEL-COBBLE BANK STABILIZATION TYPICAL SECTIONS
M.9	MITIGATION GRADING PLAN
M.10	MITIGATION GRADING SECTIONS
M.11	MITIGATION PLANTING PLAN
M.12	MITIGATION PLANT SCHEDULE DETAILS
M.13	MITIGATION DETAILS

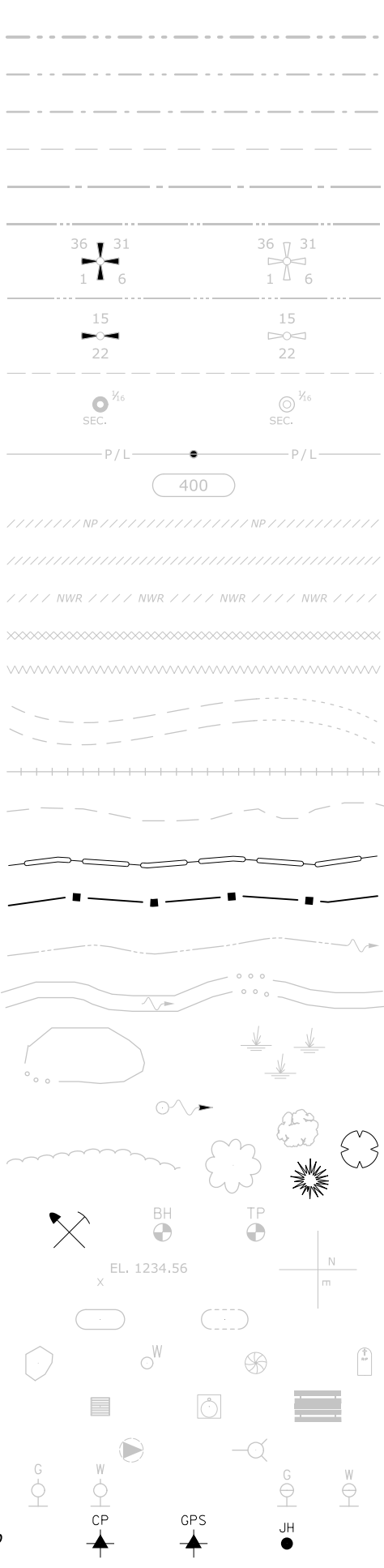
## INDEX TO SHEETS

22 October 2020 11:14 AM  
 c:\pw-work\020326\wa-a2013020-ab.dgn [US\_Sur\_f2D]  
 Designed by: C. Conrad  
 01/2019  
 Checked by:

$\Delta$	total central angle
$\Delta c$	curve central angle
$\emptyset$	diameter
$\theta_s$	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
$\text{€}$	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)

National Boundary	
State Boundary	
County Boundary	
City Boundary	
Township or Range Line	
Section Line	
Section Corner (Found, Projected)	
1/4 Section Line	
1/4 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	
Fiber Roll or 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	



	EXISTING	PROPOSED
Slope Stake Limits		
Fence		
Gate with Fence		
Cattleguard		
Guardrail		
Concrete Barrier		
Retaining Wall		
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		
Box Culvert		
Underdrain		
Overhead/Above Ground Utilities		
Underground Utilities		
<p>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</p>		
Poles (Power, Telephone, Joint Use, Light, Support w/Anchor)		
Miscellaneous Utility Features		
<p>EM = electric meter, T = telephone pedestal, TV = CATV pedestal, UP = transformer or junction box, WF = water fountain</p>		
Building		
Right-of-Way Line with Monument		
Permanent Easement		
Construction Easement	- no symbol -	
Riprap		

NO SCALE

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

U.S. CUSTOMARY DETAIL

**PLAN SYMBOLS AND ABBREVIATIONS**

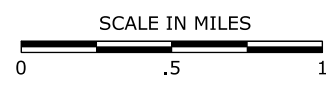
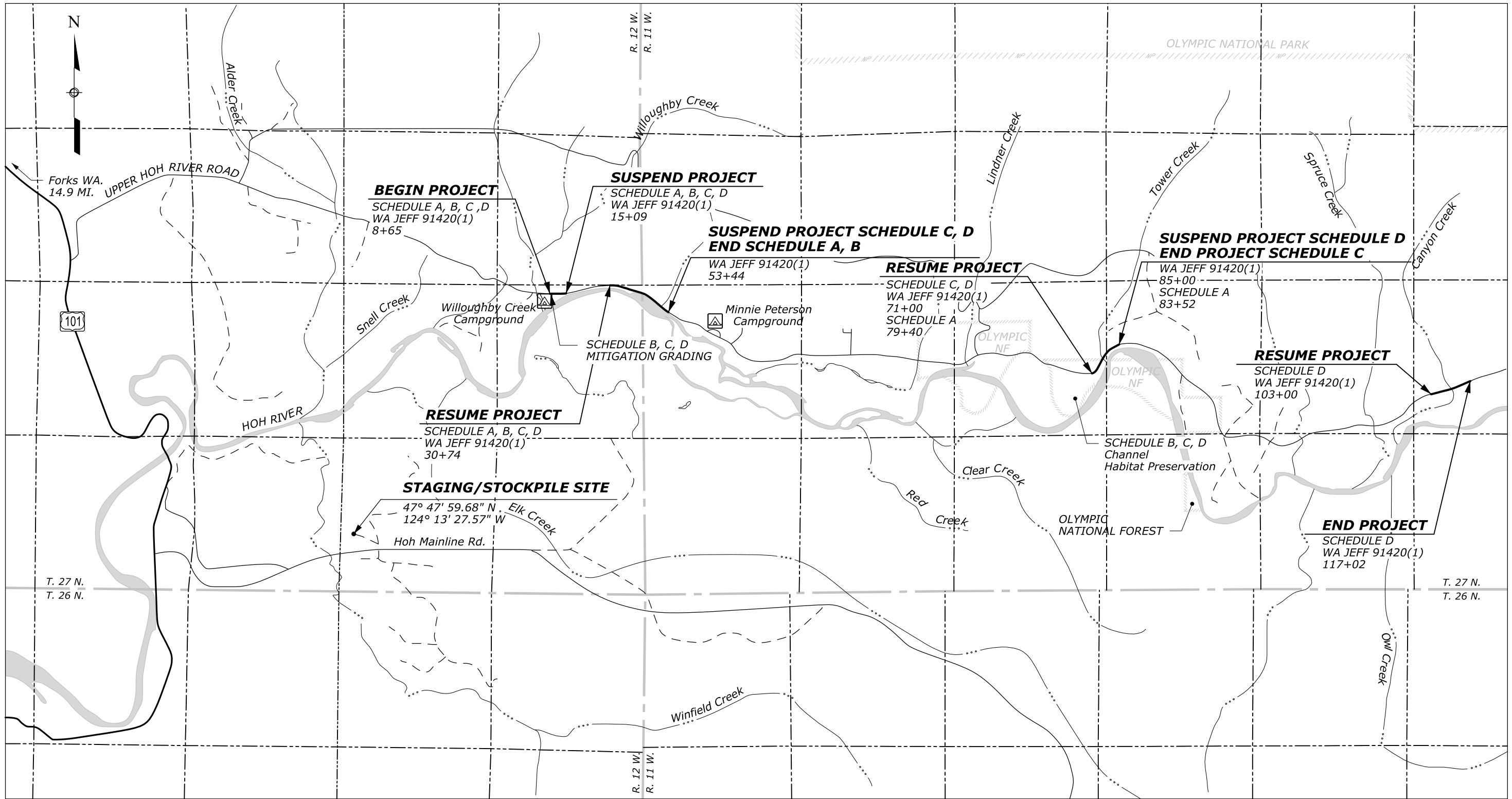
DETAIL APPROVED FOR USE 11/2001  
 REVISSED: 9/2005 1/2007 10/2009 10/2014

DETAIL W101-1

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

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	A.4

22 October 2020 1:18 PM  
 c:\pw-work\020326\WA-a2013020 Lac.dgn [US\_Sur\_f2D]  
 Designed by: C. Conrad  
 Checked by: 01/2019



# VICINITY MAP

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	A.5



**STAGING/STOCKPILE  
SITE**

8 July 2020 1:33 PM | c:\pw-work\02020226\WA-a2013020\_af.dgn [US\_Sur\_ft2D] | Designed by: C. Conrad | Checked by: 01/2019

# SUMMARY OF QUANTITIES - Schedule A

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	B.1

A M E N D	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	SECTION L	SECTION M			A003
					TYPICAL SECTIONS	PLAN & PROFILE	APPROACH ROADS	EROSION/ SEDIMENT CONTROL	BRIDGE	DRAINAGE	ROADSIDE FEATURES	SOIL NAIL RETAINING WALL	TEMPORARY TRAFFIC CONTROL	PERMANENT TRAFFIC CONTROL	MITIGATION			ALLOWANCE
	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											ALL	
	A0140	15705-0100	SOIL EROSION CONTROL, SILT FENCE	LNFT				600								60	660	
	A0160	15706-0200	SOIL EROSION CONTROL, CHECK DAM (FILTER ROCK)	EACH				6								1	7	
	A0180	20101-0000	CLEARING AND GRUBBING	ACRE	0.3												0.3	
	A0200	20301-1900	REMOVAL OF PIPE CULVERT (60 - INCH DIAMETER)	EACH		1											1	
	A0220	20315-0000	SAWCUTTING PAVEMENT	LNFT		42											42	
	A0240	20401-0000	ROADWAY EXCAVATION	CUYD		347										43	390	
	A0260	20701-0300	SEPARATION-STABILIZATION GEOTEXTILE, CLASS 1, TYPE C	SQYD						100							100	
	A0280	20810-0000	SHORING AND BRACING	LPSM						All							ALL	
	A0300	25101-0300	PLACED RIPRAP, METHOD A, CLASS 3	CUYD						100						10	110	
	A0320	25101-0600	PLACED RIPRAP, METHOD A, CLASS 6	CUYD						1,740							1,740	
	A0340	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON	575											55	630	
	A0360	40301-0100	ASPHALT CONCRETE PAVEMENT, TYPE 1	TON	130											10	140	
	A0380	41201-0000	TACK COAT	TON	0.26											0.04	0.30	
	A0400	60220-0000	PRECAST REINFORCED CONCRETE BOX CULVERT (20-FT SPAN x 18-FT RISE)	LNFT						40							40	
	A0420	62201-0250	DUMP TRUCK, 10 CUBIC YARD MINIMUM CAPACITY	HOUR													20	
	A0440	62201-3400	HYDRAULIC EXCAVATOR, 1 CUBIC YARD MINIMUM CAPACITY WITH THUMB ATTACHMENT	HOUR													20	
	A0460	62301-0000	GENERAL LABOR	HOUR													20	
	A0480	62502-0000	TURF ESTABLISHMENT	SQYD				1,404								156	1,560	
	A0500	62632-0000	PLANTINGS (POLE PLANTINGS)	LPSM						All							ALL	
	A0520	62901-0000	ROLLED EROSION CONTROL PRODUCT	SQYD				1,404								156	1,560	
	A0540	63309-0900	DELINEATOR, TYPE FLEXIBLE (BROWN)	EACH										6			6	
	A0560	63401-0300	PAVEMENT MARKINGS, TYPE B, SOLID (YELLOW)	LNFT										980		100	1,080	
	A0580	63401-0300	PAVEMENT MARKINGS, TYPE B, SOLID (WHITE)	LNFT										980		100	1,080	
	A0600	63406-0400	RAISED PAVEMENT MARKER, PLOWABLE, BI-DIRECTIONAL REFLECTIVE (YELLOW)	EACH										3			3	
	A0620	63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH										4			4	
	A0640	63502-1000	TEMPORARY TRAFFIC CONTROL, CONE, TYPE 36-INCH	EACH										45			45	
	A0660	63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH										26			26	
	A0680	63502-1500	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE A	EACH										4			4	

A003 Revised by Amendment A003  
 Amendment Review Date: 12/29/20  
 Report Date: 12/29/20

# SUMMARY OF QUANTITIES - Schedule A

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	B.2

A M E N D	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	SECTION L	SECTION M	A003		Bid Schedule
					TYPICAL SECTIONS	PLAN & PROFILE	APPROACH ROADS	EROSION/ SEDIMENT CONTROL	BRIDGE	DRAINAGE	ROADSIDE FEATURES	SOIL NAIL RETAINING WALL	TEMPORARY TRAFFIC CONTROL	PERMANENT TRAFFIC CONTROL	MITIGATION	ALLOWANCE		Bid Schedule
	A0700	63502-1600	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE B	EACH										4		4		
	A0720	63502-1700	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE C	EACH										26		26		
	A0740	63502-2000	TEMPORARY TRAFFIC CONTROL, PORTABLE CHANGEABLE MESSAGE SIGN	EACH										2		2		
	A0760	63502-2100	TEMPORARY TRAFFIC CONTROL, CRASH CUSHION	EACH										2		2		
	A0780	63502-3100	TEMPORARY TRAFFIC CONTROL, TRAFFIC SIGNAL SYSTEM	EACH										2		2		
	A0800	63503-0400	TEMPORARY TRAFFIC CONTROL, CONCRETE BARRIER	LNFT										990		990		
	A0820	63503-1000	TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE (PERIMETER)	LNFT		620									60	680		
	A0840	63504-1000	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	SQFT										318		318		
	A0860	63504-2000	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKINGS, SYMBOLS AND LETTERS (STOP LINE)	SQFT										48		48		
	A0880	63506-0500	TEMPORARY TRAFFIC CONTROL, FLAGGER	HOUR										2,580		2,580		
	A0900	63506-0600	TEMPORARY TRAFFIC CONTROL, PILOT CAR	HOUR										1,820		1,820		
	A0920	63507-0700	TEMPORARY TRAFFIC CONTROL, TRAFFIC CONTROL SUPERVISOR	DAY										224		224		
	A0940	64703-8000	MITIGATION, BANK STABILIZATION (WOOD BUFFER w/ DOLOSSE)	EACH						29						29		
	A0960	64704-1000	MITIGATION, STREAMBED MATERIAL	CUYD						630						630		
	A0980	64704-1700	MITIGATION, BANK STABILIZATION (COARSE WOODY DEBRIS)	CUYD						11,600						11,600		
	A1000	65001-1000	CONSTRUCT AND MAINTAIN DIVERSION (FLOW DIVERSION)	LPSM						All						ALL		

C:\Users\Clinton.Choy\Desktop\PS&E Review Engineer\Reviews\WA\_JEFF 91420(1)\_Upper Hoh River Road Phase 2\Amendments\A003\B-Sheets.xlsm\Sheet (2)

29-Dec-2020 12:23 PM

# SUMMARY OF QUANTITIES - Schedule B

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	B.3

A M E N D	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	SECTION L	SECTION M	A003		
					TYPICAL SECTIONS	PLAN & PROFILE	APPROACH ROADS	EROSION/ SEDIMENT CONTROL	BRIDGE	DRAINAGE	ROADSIDE FEATURES	SOIL NAIL RETAINING WALL	TEMPORARY TRAFFIC CONTROL	PERMANENT TRAFFIC CONTROL	MITIGATION	ALLOWANCE	Bid Schedule	
	B0020	15101-0000	MOBILIZATION	LPSM													ALL	
	B0040	15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM													ALL	
	B0060	15301-0010	CONTRACTOR QUALITY CONTROL AND ASSURANCE	LPSM													ALL	
	B0080	15401-0000	CONTRACTOR TESTING	LPSM													ALL	
	B0100	15501-0000	CONSTRUCTION SCHEDULE	LPSM													ALL	
	B0120	15702-1000	SOIL EROSION CONTROL, TEMPORARY DIVERSION CHANNEL	LPSM		All											ALL	
	B0140	15705-0100	SOIL EROSION CONTROL, SILT FENCE	LNFT				600								60	660	
	B0160	15706-0200	SOIL EROSION CONTROL, CHECK DAM (FILTER ROCK)	EACH				6								1	7	
	B0180	20101-0000	CLEARING AND GRUBBING	ACRE	0.3												0.3	
	B0200	20301-1900	REMOVAL OF PIPE CULVERT (60 - INCH DIAMETER)	EACH													1	
	B0220	20315-0000	SAWCUTTING PAVEMENT	LNFT													42	
	B0240	20401-0000	ROADWAY EXCAVATION	CUYD												43	390	
	B0260	20701-0300	SEPARATION-STABILIZATION GEOTEXTILE, CLASS 1, TYPE C	SQYD							100						100	
	B0280	20810-0000	SHORING AND BRACING	LPSM							All						ALL	
	B0300	25101-0300	PLACED RIPRAP, METHOD A, CLASS 3	CUYD							100					10	110	
	B0320	25101-0600	PLACED RIPRAP, METHOD A, CLASS 6	CUYD							1,740						1,740	
	B0340	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON	575											55	630	
	B0360	40301-0100	ASPHALT CONCRETE PAVEMENT, TYPE 1	TON	130											10	140	
	B0380	41201-0000	TACK COAT	TON	0.26											0.04	0.30	
	B0400	60220-0000	PRECAST REINFORCED CONCRETE BOX CULVERT (20-FT SPAN x 18-FT RISE)	LNFT							40						40	
	B0420	62201-0250	DUMP TRUCK, 10 CUBIC YARD MINIMUM CAPACITY	HOUR													20	
	B0440	62201-3400	HYDRAULIC EXCAVATOR, 1 CUBIC YARD MINIMUM CAPACITY WITH THUMB ATTACHMENT	HOUR													20	
	B0460	62301-0000	GENERAL LABOR	HOUR													20	
	B0480	62502-0000	TURF ESTABLISHMENT	SQYD				1,404								156	1,560	
	B0500	62632-0000	PLANTINGS (WETLAND BUFFER ENHANCEMENT PLANTING MIX)	LPSM											All		ALL	
	B0520	62632-0000	PLANTINGS (POLE PLANTINGS)	LPSM							All						ALL	
	B0540	62632-0000	PLANTINGS (CHANNEL HABITAT PRESERVATION - POLE PLANTING)	LPSM											All		ALL	
	B0560	62632-0000	PLANTINGS (WETLAND CREATION PLANTING MIX)	LPSM											All		ALL	
	B0580	62901-0000	ROLLED EROSION CONTROL PRODUCT	SQYD				1,404								156	1,560	
	B0600	63309-0900	DELINEATOR, TYPE FLEXIBLE (BROWN)	EACH											6		6	
	B0620	63401-0300	PAVEMENT MARKINGS, TYPE B, SOLID (YELLOW)	LNFT											980	100	1,080	
	B0640	63401-0300	PAVEMENT MARKINGS, TYPE B, SOLID (WHITE)	LNFT											980	100	1,080	
	B0660	63406-0400	RAISED PAVEMENT MARKER, PLOWABLE, BI-DIRECTIONAL REFLECTIVE (YELLOW)	EACH											3		3	

A003 Revised by Amendment A003  
 Amendment Review Date: 12/29/20  
 Report Date: 12/29/20

C:\Users\Clinton.Choy\Desktop\PS&E Review Engineer\Reviews\WA\_JEFF 91420(1), Upper Hoh River Road Phase 2\Amendments\A003\B-Sheets.xlsm\Sheet (3) 29-Dec-2020 12:23 PM



# SUMMARY OF QUANTITIES - Schedule B

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	B.4

A M E N D	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	SECTION L	SECTION M			A003
					TYPICAL SECTIONS	PLAN & PROFILE	APPROACH ROADS	EROSION/ SEDIMENT CONTROL	BRIDGE	DRAINAGE	ROADSIDE FEATURES	SOIL NAIL RETAINING WALL	TEMPORARY TRAFFIC CONTROL	PERMANENT TRAFFIC CONTROL	MITIGATION			ALLOWANCE
	B0680	63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH										4		4		
	B0700	63502-1000	TEMPORARY TRAFFIC CONTROL, CONE, TYPE 36-INCH	EACH										45		45		
	B0720	63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH										26		26		
	B0740	63502-1500	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE A	EACH										4		4		
	B0760	63502-1600	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE B	EACH										4		4		
	B0780	63502-1700	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE C	EACH										26		26		
	B0800	63502-2000	TEMPORARY TRAFFIC CONTROL, PORTABLE CHANGEABLE MESSAGE SIGN	EACH										2		2		
	B0820	63502-2100	TEMPORARY TRAFFIC CONTROL, CRASH CUSHION	EACH										2		2		
	B0840	63502-3100	TEMPORARY TRAFFIC CONTROL, TRAFFIC SIGNAL SYSTEM	EACH										2		2		
	B0860	63503-0400	TEMPORARY TRAFFIC CONTROL, CONCRETE BARRIER	LNFT										990		990		
	B0880	63503-1000	TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE (PERIMETER)	LNFT		620									60	680		
	B0900	63504-1000	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	SQFT										318		318		
	B0920	63504-2000	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKINGS, SYMBOLS AND LETTERS (STOP LINE)	SQFT										48		48		
	B0940	63506-0500	TEMPORARY TRAFFIC CONTROL, FLAGGER	HOUR										2,680		2,680		
	B0960	63506-0600	TEMPORARY TRAFFIC CONTROL, PILOT CAR	HOUR										1,820		1,820		
	B0980	63507-0700	TEMPORARY TRAFFIC CONTROL, TRAFFIC CONTROL SUPERVISOR	DAY										224		224		
	B1000	64701-1000	MITIGATION, WETLANDS MITIGATION	LPSM											All	ALL		
	B1020	64703-8000	MITIGATION, BANK STABILIZATION (WOOD BUFFER w/ DOLOSSE)	EACH						29						29		
	B1040	64703-8000	MITIGATION, BANK STABILIZATION (CHANNEL HABITAT PRESERVATION - CHANNEL PLUG)	EACH											24	24		
	B1060	64704-1000	MITIGATION, STREAMBED MATERIAL	CUYD						630						630		
	B1080	64704-1700	MITIGATION, BANK STABILIZATION (CHANNEL HABITAT PRESERVATION - COARSE WOODY DEBRIS)	CUYD											1,680	1,680		
	B1100	64704-1700	MITIGATION, BANK STABILIZATION (COARSE WOODY DEBRIS)	CUYD						11,600						11,600		
	B1120	65001-1000	CONSTRUCT AND MAINTAIN DIVERSION (CHANNEL HABITAT PRESERVATION - FLOW DIVERSION)	LPSM											All	ALL		
	B1140	65001-1000	CONSTRUCT AND MAINTAIN DIVERSION (FLOW DIVERSION)	LPSM						All						ALL		

A003 Revised by Amendment A003  
 Amendment Review Date: 12/29/20  
 Report Date: 12/29/20

C:\Users\Clinton.Choy\Desktop\PS&E Review Engineer\Reviews\WA\_JEFF 91420(1), Upper Hoh River Road Phase 2\Amendments\A003\B-Sheets.xlsm\Sheet (4) 29-Dec-2020 12:23 PM

# SUMMARY OF QUANTITIES - Schedule C

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	B.5

A M E N D	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	SECTION L	SECTION M			A003
					TYPICAL SECTIONS	PLAN & PROFILE	APPROACH ROADS	EROSION/ SEDIMENT CONTROL	BRIDGE	DRAINAGE	ROADSIDE FEATURES	SOIL NAIL RETAINING WALL	TEMPORARY TRAFFIC CONTROL	PERMANENT TRAFFIC CONTROL	MITIGATION			ALLOWANCE
	C0020	15101-0000	MOBILIZATION	LPSM													ALL	
	C0040	15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM													ALL	
	C0060	15215-4000	SURVEY AND STAKING, PERMANENT MONUMENT AND MARKER (PROPERTY CORNER)	EACH		1											1	
	C0080	15301-0010	CONTRACTOR QUALITY CONTROL AND ASSURANCE	LPSM													ALL	
	C0100	15401-0000	CONTRACTOR TESTING	LPSM													ALL	
	C0120	15501-0000	CONSTRUCTION SCHEDULE	LPSM													ALL	
	C0140	15702-1000	SOIL EROSION CONTROL, TEMPORARY DIVERSION CHANNEL	LPSM		All											ALL	
	C0160	15705-0100	SOIL EROSION CONTROL, SILT FENCE	LNFT				2,440								240	2,680	
	C0180	15706-0200	SOIL EROSION CONTROL, CHECK DAM (FILTER ROCK)	EACH				12								2	14	
	C0200	15706-0200	SOIL EROSION CONTROL, CHECK DAM (FILTER ROCK)	EACH				15								2	17	
	C0220	20101-0000	CLEARING AND GRUBBING	ACRE	2.5												2.5	
	C0240	20301-1100	REMOVAL OF GATE	EACH		1											1	
	C0260	20301-1900	REMOVAL OF PIPE CULVERT (60 - INCH DIAMETER)	EACH		1											1	
	C0280	20301-1900	REMOVAL OF PIPE CULVERT (18-INCH DIAMETER)	EACH		1											1	
	C0300	20301-2400	REMOVAL OF SIGN	EACH		6											6	
	C0320	20302-1200	REMOVAL OF GUARDRAIL	LNFT		229											229	
	C0340	20304-2000	REMOVAL OF BRIDGE	LPSM					All								ALL	
	C0360	20315-0000	SAWCUTTING PAVEMENT	LNFT		86											86	
	C0380	20401-0000	ROADWAY EXCAVATION	CUYD		4,921	60									499	5,480	
	C0400	20701-0300	SEPARATION-STABILIZATION GEOTEXTILE, CLASS 1, TYPE C	SQYD						1,299							1,299	
	C0420	20801-0000	STRUCTURE EXCAVATION	CUYD				245									245	
	C0440	20803-0000	STRUCTURAL BACKFILL	CUYD				200									200	
	C0460	20810-0000	SHORING AND BRACING	LPSM					All								ALL	
	C0480	21101-1000	ROADWAY OBLITERATION, METHOD 1	SQYD		708										72	780	
	C0500	25101-0300	PLACED RIPRAP, METHOD A, CLASS 3	CUYD					100							10	110	
	C0520	25101-0400	PLACED RIPRAP, METHOD A, CLASS 4	CUYD					1,377								1,377	
	C0540	25101-0600	PLACED RIPRAP, METHOD A, CLASS 6	CUYD					1,740								1,740	
	C0560	25210-0000	ROCKERY	SQFT								1,465					1,465	
	C0580	25701-0500	CONTRACTOR FURNISHED SOIL NAIL RETAINING WALL DESIGN	LPSM								All					ALL	
	C0600	25902-0000	SOIL NAIL RETAINING WALL	SQFT								1,465					1,465	
	C0620	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON	3,995		161									414	4,570	
	C0640	40301-0100	ASPHALT CONCRETE PAVEMENT, TYPE 1	TON	875				85							100	1,060	
	C0660	41201-0000	TACK COAT	TON	1.95											0.05	2.00	
	C0680	55101-2200	STEEL PIPE PILE, IN PLACE	LNFT					785								785	
	C0700	55104-1000	DYNAMIC PILE LOAD TEST	EACH					2								2	
	C0720	55201-0200	STRUCTURAL CONCRETE, CLASS A (AE)	CUYD					40								40	

A003 Revised by Amendment A003  
 Amendment Review Date: 12/29/20  
 Report Date: 12/29/20

C:\Users\Clinton.Choy\Desktop\PS&E Review Engineer\Reviews\WA\_JEFF 91420(1), Upper Hoh River Road Phase 2\Amendments\A003\B-Sheets.xlsm\Sheet (5)

29-Dec-2020 12:23 PM

# SUMMARY OF QUANTITIES - Schedule C

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	B.6

A M E N D	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	SECTION L	SECTION M			A003
					TYPICAL SECTIONS	PLAN & PROFILE	APPROACH ROADS	EROSION/ SEDIMENT CONTROL	BRIDGE	DRAINAGE	ROADSIDE FEATURES	SOIL NAIL RETAINING WALL	TEMPORARY TRAFFIC CONTROL	PERMANENT TRAFFIC CONTROL	MITIGATION			ALLOWANCE
	C0740	55201-0800	STRUCTURAL CONCRETE, CLASS D (AE)	CUYD					37								37	
	C0760	55202-2000	STRUCTURAL CONCRETE, CLASS D (AE), FOR APPROACH SLABS, TYPE 2	SQYD					59								59	
	C0780	55235-0000	EXPANSION JOINTS	LNFT					58								58	
	C0800	55302-2700	PRECAST, PRESTRESSED CONCRETE DECKED BULB TEE GIRDER, 53-INCH	LNFT					595								595	
	C0820	55401-1000	REINFORCING STEEL	LB					5,100								5,100	
	C0840	55401-2000	REINFORCING STEEL, EPOXY COATED	LB					5,150								5,150	
	C0860	55601-1100	BRIDGE RAILING, STEEL, TWO RAIL	LNFT					356								356	
	C0880	55901-0000	MEMBRANE WATERPROOFING	SQYD					350								350	
	C0900	56401-1000	BEARING DEVICE, ELASTOMERIC	EACH					10								10	
	C0920	60220-0000	PRECAST REINFORCED CONCRETE BOX CULVERT (20-FT SPAN x 18-FT RISE)	LNFT						40							40	
	C0940	61701-4650	GUARDRAIL SYSTEM MGS, TYPE 2, CLASS B STEEL POSTS	LNFT							100						100	
	C0960	61702-1500	TERMINAL SECTION, TYPE MGS TANGENT	EACH							4						4	
A003	<del>C0980</del>	<del>61707-0000</del>	<del>STRUCTURE TRANSITION RAILING</del>	<del>LNFT</del>							<del>84</del>						<del>84</del>	
	C1000	62201-0250	DUMP TRUCK, 10 CUBIC YARD MINIMUM CAPACITY	HOURL													20	
	C1020	62201-3400	HYDRAULIC EXCAVATOR, 1 CUBIC YARD MINIMUM CAPACITY WITH THUMB ATTACHMENT	HOURL													20	
	C1040	62301-0000	GENERAL LABOR	HOURL													20	
	C1060	62502-0000	TURF ESTABLISHMENT	SQYD				9,827								973	10,800	
	C1080	62632-0000	PLANTINGS (CHANNEL HABITAT PRESERVATION - POLE PLANTING)	LPSM										All			ALL	
	C1100	62632-0000	PLANTINGS (POLE PLANTINGS)	LPSM						All							ALL	
	C1120	62632-0000	PLANTINGS (WETLAND CREATION PLANTING MIX)	LPSM										All			ALL	
	C1140	62632-0000	PLANTINGS (WETLAND BUFFER ENHANCEMENT PLANTING MIX)	LPSM										All			ALL	
	C1160	62901-0000	ROLLED EROSION CONTROL PRODUCT	SQYD				9,827								973	10,800	
	C1180	63302-0000	SIGN SYSTEM	SQFT									37				37	
	C1200	63309-0900	DELINEATOR, TYPE FLEXIBLE (BROWN)	EACH									31				31	
	C1220	63401-0300	PAVEMENT MARKINGS, TYPE B, SOLID (YELLOW)	LNFT									6,580		650		7,230	
	C1240	63401-0300	PAVEMENT MARKINGS, TYPE B, SOLID (WHITE)	LNFT									980		100		1,080	
	C1260	63406-0400	RAISED PAVEMENT MARKER, PLOWABLE, BI-DIRECTIONAL REFLECTIVE (YELLOW)	EACH									3				3	
	C1280	63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH									8				8	
	C1300	63502-1000	TEMPORARY TRAFFIC CONTROL, CONE, TYPE 36-INCH	EACH									73				73	
	C1320	63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH									52				52	
	C1340	63502-1500	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE A	EACH									8				8	

A003 Revised by Amendment A003  
 Amendment Review Date: 12/29/20  
 Report Date: 12/29/20

# SUMMARY OF QUANTITIES - Schedule C

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	B.7

A M E N D	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	SECTION L	SECTION M	A003		Bid Schedule
					TYPICAL SECTIONS	PLAN & PROFILE	APPROACH ROADS	EROSION/ SEDIMENT CONTROL	BRIDGE	DRAINAGE	ROADSIDE FEATURES	SOIL NAIL RETAINING WALL	TEMPORARY TRAFFIC CONTROL	PERMANENT TRAFFIC CONTROL	MITIGATION	ALLOWANCE		Bid Schedule
	C1360	63502-1600	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE B	EACH										8		8		
	C1380	63502-1700	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE C	EACH										59		59		
	C1400	63502-2000	TEMPORARY TRAFFIC CONTROL, PORTABLE CHANGEABLE MESSAGE SIGN	EACH										2		2		
	C1420	63502-2100	TEMPORARY TRAFFIC CONTROL, CRASH CUSHION	EACH										4		4		
	C1440	63502-3100	TEMPORARY TRAFFIC CONTROL, TRAFFIC SIGNAL SYSTEM	EACH										4		4		
	C1460	63503-0400	TEMPORARY TRAFFIC CONTROL, CONCRETE BARRIER	LNFT										1,670		1,670		
	C1480	63503-1000	TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE (PERIMETER)	LNFT		3,870									390	4,260		
	C1500	63504-1000	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	SQFT										565		565		
	C1520	63504-2000	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKINGS, SYMBOLS AND LETTERS (STOP LINE)	SQFT										96		96		
	C1540	63506-0500	TEMPORARY TRAFFIC CONTROL, FLAGGER	HOUR										3,760		3,760		
	C1560	63506-0600	TEMPORARY TRAFFIC CONTROL, PILOT CAR	HOUR										2,360		2,360		
	C1580	63507-0700	TEMPORARY TRAFFIC CONTROL, TRAFFIC CONTROL SUPERVISOR	DAY										303		303		
	C1600	64701-1000	MITIGATION, WETLANDS MITIGATION	LPSM											All	ALL		
	C1620	64703-8000	MITIGATION, BANK STABILIZATION (WOOD BUFFER w/ DOLOSSE)	EACH						29						29		
	C1640	64703-8000	MITIGATION, BANK STABILIZATION (CHANNEL HABITAT PRESERVATION - CHANNEL PLUG)	EACH										24		24		
	C1660	64704-1000	MITIGATION, STREAMBED MATERIAL	CUYD						1,288						1,288		
	C1680	64704-1700	MITIGATION, BANK STABILIZATION (COARSE WOODY DEBRIS)	CUYD						11,600						11,600		
	C1700	64704-1700	MITIGATION, BANK STABILIZATION (CHANNEL HABITAT PRESERVATION - COARSE WOODY DEBRIS)	CUYD										1,680		1,680		
	C1720	65001-1000	CONSTRUCT AND MAINTAIN DIVERSION (CHANNEL HABITAT PRESERVATION - FLOW DIVERSION)	LPSM											All	ALL		
	C1740	65001-1000	CONSTRUCT AND MAINTAIN DIVERSION (FLOW DIVERSION)	LPSM						All						ALL		

C:\Users\Clinton.Choy\Desktop\PS&E Review Engineer\Reviews\WA\_JEFF 91420(1)\_Upper Hoh River Road Phase 2\Amendments\A003\B-Sheets.xlsm\Sheet (7)

29-Dec-2020 12:23 PM

# SUMMARY OF QUANTITIES - Schedule D

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	B.8

A M E N D	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	SECTION L	SECTION M			A003
					TYPICAL SECTIONS	PLAN & PROFILE	APPROACH ROADS	EROSION/ SEDIMENT CONTROL	BRIDGE	DRAINAGE	ROADSIDE FEATURES	SOIL NAIL RETAINING WALL	TEMPORARY TRAFFIC CONTROL	PERMANENT TRAFFIC CONTROL	MITIGATION			ALLOWANCE
	D0020	15101-0000	MOBILIZATION	LPSM													ALL	
	D0040	15201-0000	CONSTRUCTION SURVEY AND STAKING	LPSM													ALL	
	D0060	15215-4000	SURVEY AND STAKING, PERMANENT MONUMENT AND MARKER (PROPERTY CORNER)	EACH		1											1	
	D0080	15301-0010	CONTRACTOR QUALITY CONTROL AND ASSURANCE	LPSM													ALL	
	D0100	15401-0000	CONTRACTOR TESTING	LPSM													ALL	
	D0120	15501-0000	CONSTRUCTION SCHEDULE	LPSM													ALL	
	D0140	15702-1000	SOIL EROSION CONTROL, TEMPORARY DIVERSION CHANNEL	LPSM		All											ALL	
	D0160	15705-0100	SOIL EROSION CONTROL, SILT FENCE	LNFT				4,605								465	5,070	
	D0180	15706-0200	SOIL EROSION CONTROL, CHECK DAM (FILTER ROCK)	EACH				48								5	53	
	D0200	15706-0200	SOIL EROSION CONTROL, CHECK DAM (FILTER ROCK)	EACH				36								4	40	
	D0220	20101-0000	CLEARING AND GRUBBING	ACRE	5.6												5.6	
	D0240	20301-0300	REMOVAL OF BOX CULVERT	EACH		1											1	
	D0260	20301-1100	REMOVAL OF GATE	EACH		1											1	
	D0280	20301-1900	REMOVAL OF PIPE CULVERT (60 - INCH DIAMETER)	EACH		1											1	
	D0300	20301-1900	REMOVAL OF PIPE CULVERT (18-INCH DIAMETER)	EACH		1											1	
	D0320	20301-2400	REMOVAL OF SIGN	EACH		8											8	
	D0340	20302-1200	REMOVAL OF GUARDRAIL	LNFT		229											229	
	D0360	20304-2000	REMOVAL OF BRIDGE	LPSM				All									ALL	
	D0380	20315-0000	SAWCUTTING PAVEMENT	LNFT		128											128	
	D0400	20401-0000	ROADWAY EXCAVATION	CUYD		15,295	392									1,573	17,260	
	D0420	20701-0300	SEPARATION-STABILIZATION GEOTEXTILE, CLASS 1, TYPE C	SQYD						1,948							1,948	
	D0440	20801-0000	STRUCTURE EXCAVATION	CUYD				265									265	
	D0460	20803-0000	STRUCTURAL BACKFILL	CUYD				685									685	
	D0480	20810-0000	SHORING AND BRACING	LPSM					All								ALL	
	D0500	21101-1000	ROADWAY OBLITERATION, METHOD 1	SQYD		1,310										130	1,440	
	D0520	25101-0300	PLACED RIPRAP, METHOD A, CLASS 3	CUYD					100							10	110	
	D0540	25101-0400	PLACED RIPRAP, METHOD A, CLASS 4	CUYD					2,126								2,126	
	D0560	25101-0600	PLACED RIPRAP, METHOD A, CLASS 6	CUYD					1,740								1,740	
	D0580	25210-0000	ROCKERY	SQFT							1,465						1,465	
	D0600	25701-0500	CONTRACTOR FURNISHED SOIL NAIL RETAINING WALL DESIGN	LPSM							All						ALL	
	D0620	25902-0000	SOIL NAIL RETAINING WALL	SQFT							1,465						1,465	
	D0640	30202-2000	ROADWAY AGGREGATE, METHOD 2	TON	7,433		539									798	8,770	
	D0660	40301-0100	ASPHALT CONCRETE PAVEMENT, TYPE 1	TON	1,624			170								176	1,970	
	D0680	41201-0000	TACK COAT	TON	3.63											0.37	4.00	
	D0700	55101-2200	STEEL PIPE PILE, IN PLACE	LNFT				1,630									1,630	
	D0720	55104-1000	DYNAMIC PILE LOAD TEST	EACH				4									4	

A003 Revised by Amendment A003  
 Amendment Review Date: 12/29/20  
 Report Date: 12/29/20

# SUMMARY OF QUANTITIES - Schedule D

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	B.9

A M E N D	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	SECTION L	SECTION M			A003
					TYPICAL SECTIONS	PLAN & PROFILE	APPROACH ROADS	EROSION/ SEDIMENT CONTROL	BRIDGE	DRAINAGE	ROADSIDE FEATURES	SOIL NAIL RETAINING WALL	TEMPORARY TRAFFIC CONTROL	PERMANENT TRAFFIC CONTROL	MITIGATION	ALLOWANCE		Bid Schedule
	D0740	55201-0200	STRUCTURAL CONCRETE, CLASS A (AE)	CUYD					80								80	
	D0760	55201-0800	STRUCTURAL CONCRETE, CLASS D (AE)	CUYD					74								74	
	D0780	55202-2000	STRUCTURAL CONCRETE, CLASS D (AE), FOR APPROACH SLABS, TYPE 2	SQYD					118								118	
	D0800	55235-0000	EXPANSION JOINTS	LNFT					116								116	
	D0820	55302-2700	PRECAST, PRESTRESSED CONCRETE DECKED BULB TEE GIRDER, 53-INCH	LNFT					1,190								1,190	
	D0840	55401-1000	REINFORCING STEEL	LB					10,010								10,010	
	D0860	55401-2000	REINFORCING STEEL, EPOXY COATED	LB					10,300								10,300	
	D0880	55601-1100	BRIDGE RAILING, STEEL, TWO RAIL	LNFT					712								712	
	D0900	55901-0000	MEMBRANE WATERPROOFING	SQYD					700								700	
	D0920	56401-1000	BEARING DEVICE, ELASTOMERIC	EACH					20								20	
	D0940	60220-0000	PRECAST REINFORCED CONCRETE BOX CULVERT (20-FT SPAN x 18-FT RISE)	LNFT						40							40	
	D0960	61701-4650	GUARDRAIL SYSTEM MGS, TYPE 2, CLASS B STEEL POSTS	LNFT							200						200	
	D0980	61702-1500	TERMINAL SECTION, TYPE MGS TANGENT	EACH							8						8	
A003	<del>D1000</del>	<del>61707-0000</del>	<del>STRUCTURE TRANSITION RAILING</del>	LNFT							168						168	
	D1020	62201-0250	DUMP TRUCK, 10 CUBIC YARD MINIMUM CAPACITY	HOUR													20	
	D1040	62201-3400	HYDRAULIC EXCAVATOR, 1 CUBIC YARD MINIMUM CAPACITY WITH THUMB ATTACHMENT	HOUR													20	
	D1060	62301-0000	GENERAL LABOR	HOUR													20	
	D1080	62502-0000	TURF ESTABLISHMENT	SQYD				25,774							2,576		28,350	
	D1100	62632-0000	PLANTINGS (CHANNEL HABITAT PRESERVATION - POLE PLANTING)	LPSM										All			ALL	
	D1120	62632-0000	PLANTINGS (WETLAND CREATION PLANTING MIX)	LPSM										All			ALL	
	D1140	62632-0000	PLANTINGS (WETLAND BUFFER ENHANCEMENT PLANTING MIX)	LPSM										All			ALL	
	D1160	62632-0000	PLANTINGS (POLE PLANTINGS)	LPSM					All								ALL	
	D1180	62901-0000	ROLLED EROSION CONTROL PRODUCT	SQYD				25,774							2,576		28,350	
	D1200	63302-0000	SIGN SYSTEM	SQFT									55				55	
	D1220	63309-0900	DELINEATOR, TYPE FLEXIBLE (BROWN)	EACH									43				43	
	D1240	63401-0300	PAVEMENT MARKINGS, TYPE B, SOLID (YELLOW)	LNFT									12,190		1,210		13,400	
	D1260	63401-0300	PAVEMENT MARKINGS, TYPE B, SOLID (WHITE)	LNFT									980		100		1,080	
	D1280	63406-0400	RAISED PAVEMENT MARKER, PLOWABLE, BI-DIRECTIONAL REFLECTIVE (YELLOW)	EACH									3				3	
	D1300	63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH									12				12	
	D1320	63502-1000	TEMPORARY TRAFFIC CONTROL, CONE, TYPE 36-INCH	EACH									107				107	
	D1340	63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH									77				77	

A003 Revised by Amendment A003  
Amendment Review Date: 12/29/20  
Report Date: 12/29/20

C:\Users\Clinton.Choy\Desktop\PS&E Review Engineer\Reviews\WA\_JEFF 91420(1)\_Upper Hoh River Road Phase 2\Amendments\A003\B-Sheets.xlsm\Sheet (9) 29-Dec-2020 12:23 PM

# SUMMARY OF QUANTITIES - Schedule D

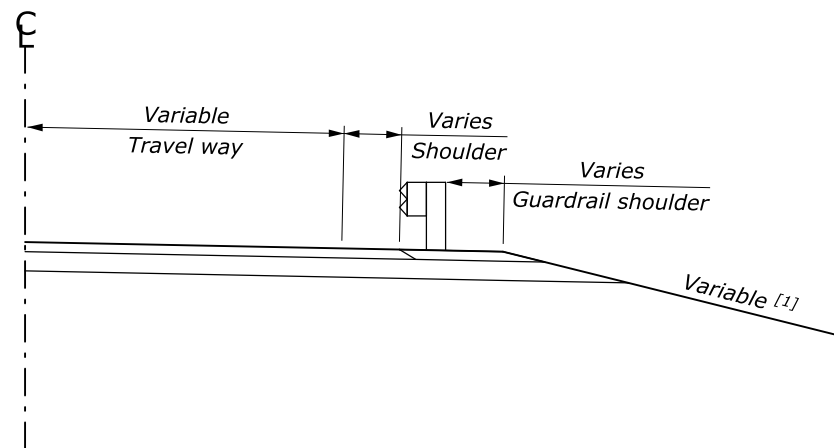
STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	B.10

A M E N D	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	SECTION L	SECTION M	A003		Bid Schedule
					TYPICAL SECTIONS	PLAN & PROFILE	APPROACH ROADS	EROSION/ SEDIMENT CONTROL	BRIDGE	DRAINAGE	ROADSIDE FEATURES	SOIL NAIL RETAINING WALL	TEMPORARY TRAFFIC CONTROL	PERMANENT TRAFFIC CONTROL	MITIGATION	ALLOWANCE		Bid Schedule
	D1360	63502-1500	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE A	EACH										12		12		
	D1380	63502-1600	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE B	EACH										12		12		
	D1400	63502-1700	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE C	EACH										91		91		
	D1420	63502-2000	TEMPORARY TRAFFIC CONTROL, PORTABLE CHANGEABLE MESSAGE SIGN	EACH										2		2		
	D1440	63502-2100	TEMPORARY TRAFFIC CONTROL, CRASH CUSHION	EACH										6		6		
	D1460	63502-3100	TEMPORARY TRAFFIC CONTROL, TRAFFIC SIGNAL SYSTEM	EACH										6		6		
	D1480	63503-0400	TEMPORARY TRAFFIC CONTROL, CONCRETE BARRIER	LNFT										2,450		2,450		
	D1500	63503-1000	TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE (PERIMETER)	LNFT		3,870									390	4,260		
	D1520	63504-1000	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	SQFT										812		812		
	D1540	63504-2000	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKINGS, SYMBOLS AND LETTERS (STOP LINE)	SQFT										144		144		
	D1560	63506-0500	TEMPORARY TRAFFIC CONTROL, FLAGGER	HOUR										4,740		4,740		
	D1580	63506-0600	TEMPORARY TRAFFIC CONTROL, PILOT CAR	HOUR										2,850		2,850		
	D1600	63507-0700	TEMPORARY TRAFFIC CONTROL, TRAFFIC CONTROL SUPERVISOR	DAY										376		376		
	D1620	64701-1000	MITIGATION, WETLANDS MITIGATION	LPSM											All	ALL		
	D1640	64703-8000	MITIGATION, BANK STABILIZATION (CHANNEL HABITAT PRESERVATION - CHANNEL PLUG)	EACH											24	24		
	D1660	64703-8000	MITIGATION, BANK STABILIZATION (WOOD BUFFER w/ DOLOSSE)	EACH						29						29		
	D1680	64704-1000	MITIGATION, STREAMBED MATERIAL	CUYD						1,493						1,493		
	D1700	64704-1700	MITIGATION, BANK STABILIZATION (COARSE WOODY DEBRIS)	CUYD						11,600						11,600		
	D1720	64704-1700	MITIGATION, BANK STABILIZATION (CHANNEL HABITAT PRESERVATION - COARSE WOODY DEBRIS)	CUYD											1,680	1,680		
	D1740	65001-1000	CONSTRUCT AND MAINTAIN DIVERSION (FLOW DIVERSION)	LPSM						All						ALL		
	D1760	65001-1000	CONSTRUCT AND MAINTAIN DIVERSION (CHANNEL HABITAT PRESERVATION - FLOW DIVERSION)	LPSM											All	ALL		

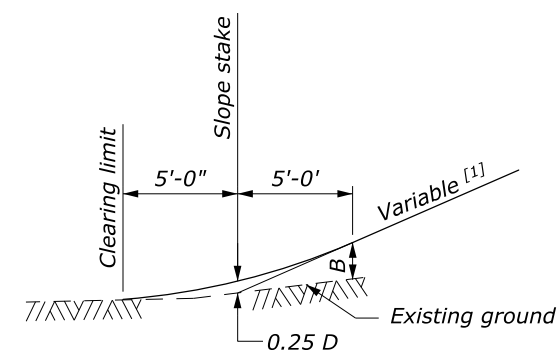
C:\Users\Clinton.Choy\Desktop\PS&E Review Engineer\Reviews\WA\_JEFF 91420(1)\_Upper Hoh River Road Phase 2\Amendments\A003\B-Sheets.xlsm\Sheet (10)

### TYPICAL SECTION QUANTITIES

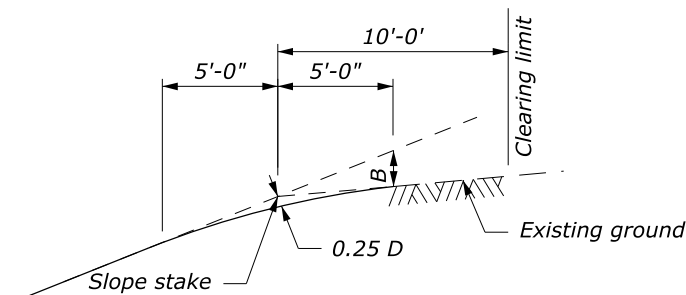
ITEM NUMBER	DESCRIPTION	SCHEDULE A		SCHEDULE B		SCHEDULE C				SCHEDULE D		NOTE		
		TOTAL		TOTAL		TOWER CREEK	TOTAL			CANYON CREEK	TOTAL			
20101-0000	CLEARING AND GRUBBING	0.3	ACRE	0.3	ACRE	2.2	ACRE	2.5	ACRE	3.1	ACRE	5.6	ACRE	
30202-2000	ROADWAY AGGREGATE, METHOD 2	575	TON	575	TON	3,420	TON	3,995	TON	3,438	TON	7,433	TON	3.94 TON/CUYD
40301-0100	ASPHALT CONCRETE PAVEMENT, TYPE 1	130	TON	130	TON	745	TON	875	TON	749	TON	1,624	TON	1.94 TON/CUYD
41201-0000	TACK COAT	0.26	TON	0.26	TON	1.69	TON	1.95	TON	1.68	TON	3.63	TON	0.10 GAL/SQYD, 240 GAL/TON



**GUARDRAIL TYPICAL SECTION**



**FILL SLOPE ROUNDING DETAIL [2]**



**CUT SLOPE ROUNDING DETAIL [2]**

**FOOTNOTE:**

- [1] Construct slopes as shown in the Staking Report.
- [2] For cut heights less than "B" reduce "B" to the cut height dimension and reduce the front slope rounding distance proportionally.

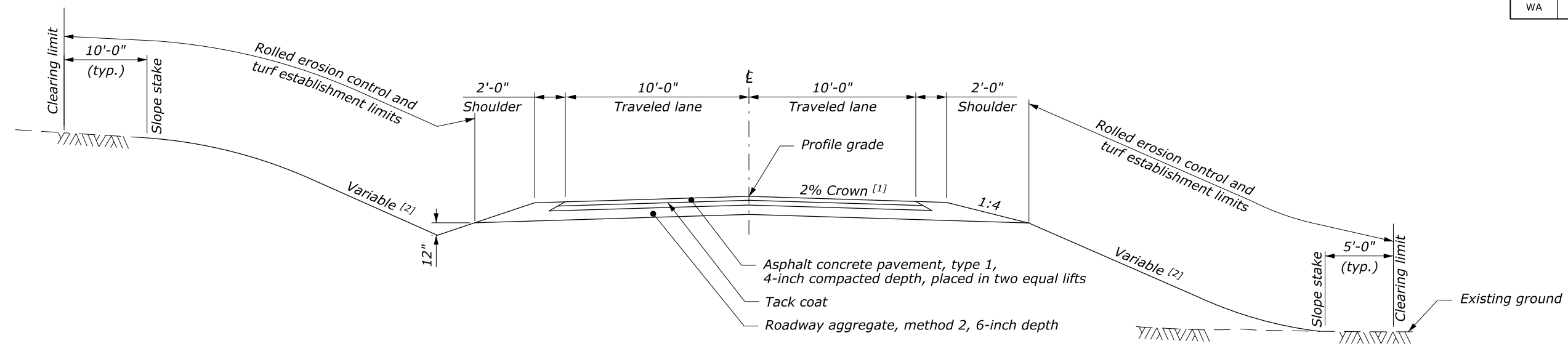
**TABULATION OF TYPICAL SECTION QUANTITIES**

8 September 2020 9:39 AM  
 c:\pw-work\0203230\wa-a2013020ca.dgn [C.1 - Tabulation of Typical Section Quantities]  
 Designed by: C. Conrad  
 01/2019  
 Checked by:



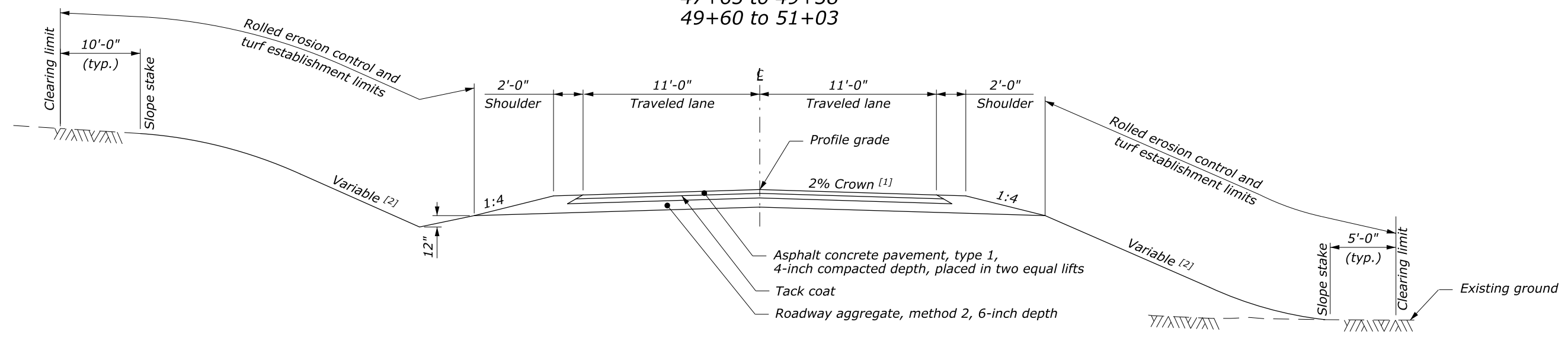
STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	C.2

31 August 2020 6:47 AM  
 c:\pw-work\0203030\wa-a2013020ca.dgn [C.2 - Typical Section US\_Sur\_f2D]  
 Designed by: C. Conrad  
 Checked by: 01/2019



**MAINLINE TYPICAL SECTION**

**SCHEDULE A** <sup>[3]</sup>  
 47+65 to 49+38  
 49+60 to 51+03



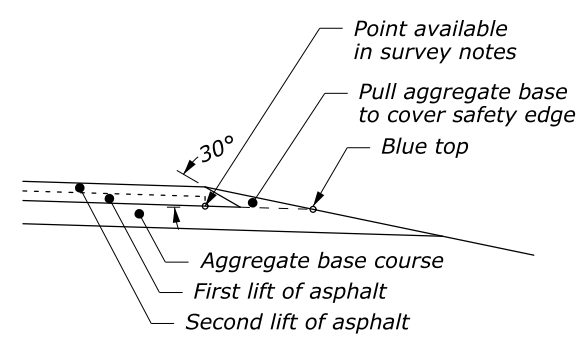
**MAINLINE TYPICAL SECTION**

**SCHEDULE C (TOWER CREEK)** <sup>[4]</sup> 71+00 to 76+87  
 78+07 to 85+00

**SCHEDULE D (CANYON CREEK)** <sup>[5]</sup> 103+00 to 108+35  
 109+55 to 117+02

**FOOTNOTE:**

- <sup>[1]</sup> Superelevate roadway on curves at the rate 'e' as indicated on the plan and profile curve data.
- <sup>[2]</sup> Construct slopes as shown in the Staking Report.
- <sup>[3]</sup> 49+38 to 49+60 - MP.4.0 AOP. See Section H for details.
- <sup>[4]</sup> 76+87 to 78+07 - Tower Creek Bridge. See Section G for details.
- <sup>[5]</sup> 180+35 to 109+55 - Canyon Creek Bridge. See Section G for details.



**SAFETY EDGE DETAIL**

**TYPICAL SECTION**

<b>15215-4000 SURVEY AND STAKING, PERMANENT MONUMENT AND MARKER (PROPERTY CORNER)</b>		
LOCATION	QUANTITY (EACH)	REMARK
76+73 LT	1	SCHEDULE C, D

<b>15702-1000 SOIL EROSION CONTROL, TEMPORARY DIVERSION CHANNEL</b>	
(LPSM)	REMARK
ALL	SCHEDULE A, B
	SCHEDULE C (TOWER CREEK)
	SCHEDULE D (CANYON CREEK)

<b>20301-0300 REMOVAL OF BOX CULVERT</b>		
LOCATION	QUANTITY (EACH)	REMARK
108+89	1	SCHEDULE D

<b>20301-1100 REMOVAL OF GATE</b>		
LOCATION	QUANTITY (EACH)	REMARK
78+36 LT	1	SCHEDULE C, D

<b>20301-1900 REMOVAL OF PIPE CULVERT (18-INCH DIAMETER)</b>		
LOCATION	QUANTITY (EACH)	REMARK
76+68 LT - RT	1	SCHEDULE C, D

<b>20301-1900 REMOVAL OF PIPE CULVERT (60-INCH DIAMETER)</b>		
LOCATION	QUANTITY (EACH)	REMARK
49+49	1	SCHEDULE A,B,C,D

<b>20301-2400 REMOVAL OF SIGN</b>		
LOCATION	QUANTITY (EACH)	REMARK
73+71 RT	1	TOWER CREEK
77+08 RT	1	
77+10 RT	1	
77+80 RT	1	
77+83 RT	1	
81+68 RT	1	
	<b>6</b>	
104+67 RT	1	CANYON CREEK
104+69 LT	1	
	<b>8</b>	<b>TOTAL SCHEDULE D</b>

<b>20302-1200 REMOVAL OF GUARDRAIL</b>		
LOCATION	QUANTITY (LNFT)	REMARK
76+55 to 77+12 LT	53	EXISTING TOWER CREEK BRIDGE APPROACH RAIL
76+55 to 77+09 RT	56	
77+80 to 78+46 LT/RT	50	
77+78 to 78+30 RT	70	
<b>TOTAL SCHEDULE C, D</b>	<b>229</b>	

**TABULATION OF  
PLAN AND PROFILE  
QUANTITIES**

8 September 2020 10:35 AM  
 c:\pw-work\0203231\wa-a2013020\_fa.dgn [US\_Sur\_ft2D]  
 Designed by: C. Conrad  
 01/2019 Checked by:

<b>20315-0000 SAWCUTTING PAVEMENT</b>		
STA	(LNFT)	REMARK
48+30	21	
50+75	21	
	<b>42</b>	<b>TOTAL SCHEDULE A, B</b>
71+00	22	TOWER CREEK
85+00	22	
	<b>86</b>	<b>TOTAL SCHEDULE C</b>
103+00	22	CANYON CREEK
117+03	20	
	<b>128</b>	<b>TOTAL SCHEDULE D</b>

<b>ROADWAY QUANTITIES<sup>[1]</sup></b>			
LOCATION	ITEM 20401-0000 ROADWAY EXCAVATION (CUYD)	FOR INFO ONLY EMBANKMENT (CUYD)	REMARK
47+90 to 51+03	<b>347</b>	-	<b>SCHEDULE A, B</b>
71+00 to 85+00	4,574	853	Tower Creek
	<b>4,921</b>	<b>853</b>	<b>SCHEDULE C</b>
103+00 to 117+03	10,374	2,396	Canyon Creek
	<b>15,295</b>	<b>3,249</b>	<b>SCHEDULE D</b>

<b>21101-1000 ROADWAY OBLITERATION, METHOD 1</b>		
LOCATION	QUANTITY (SQYD)	REMARK
76+36 to 76+79	53	TOWER CREEK
78+13 to 81+34	655	
	<b>708</b>	<b>TOTAL SCHEDULE C</b>
105+79 to 108+43	119	CANYON CREEK
	19	
	62	
109+28 to 110+07	402	
	<b>1,310</b>	<b>TOTAL SCHEDULE D</b>

<b>63503-1000 TEMPORARY TRAFFIC CONTROL, PLASTIC FENCE (PERIMETER)</b>		
LOCATION	(LNFT)	REMARK
8+65 to 11+00	<b>620</b>	<b>TOTAL SCHEDULE A, B</b>
71+00 to 85+00 L	1,690	Tower Creek Clearing limits
71+00 to 85+00 R	1,560	
	<b>3,870</b>	<b>TOTAL SCHEDULE C, D</b>

**FOOTNOTE**

<sup>[1]</sup> Excavation and embankment volumes shown are not adjusted for shrink and swell.



**TABULATION OF  
PLAN AND PROFILE  
QUANTITIES**

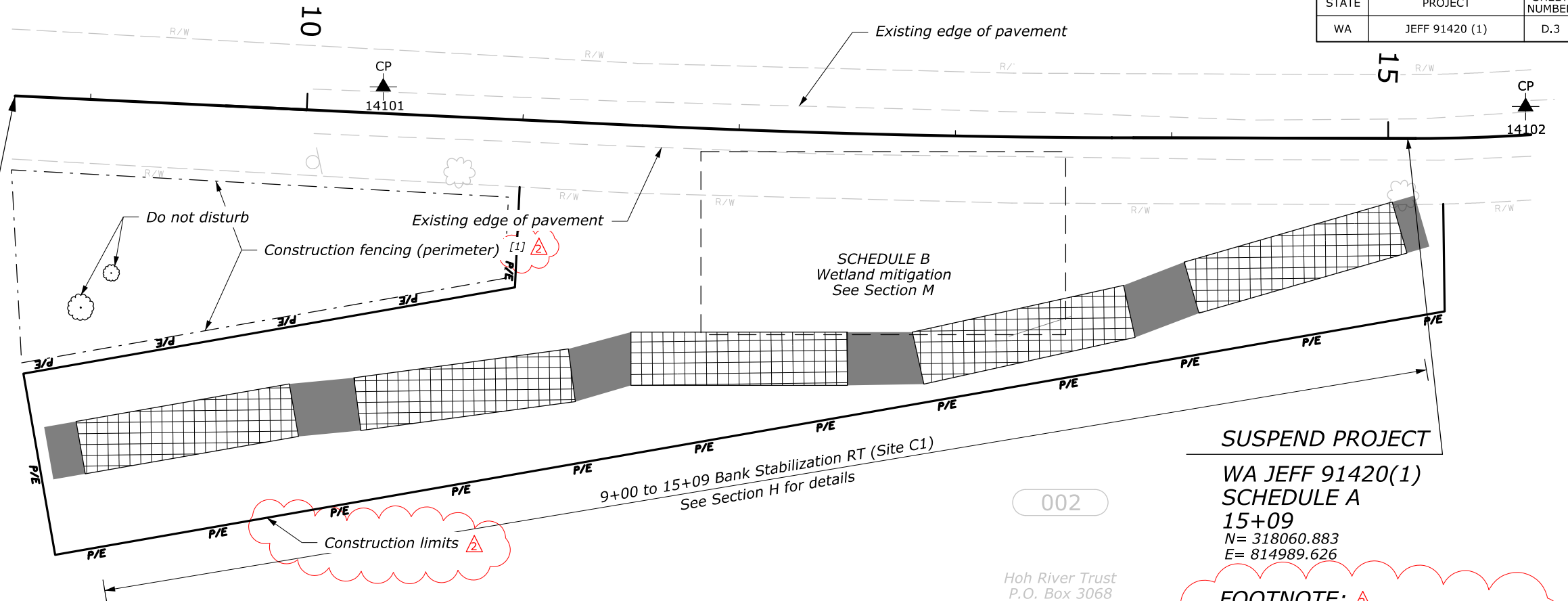
10/2016 Checked by: C. Conrad  
 8 September 2020 10:35 AM  
 c:\pw-work\0203231\wa-a2013020\_fa.dgn [US\_Sur\_ft2D]

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420 (1)	D.3

**BEGIN PROJECT**  
 WA JEFF 91420(1)  
 SCHEDULE A  
 8+65  
 N= 318,080.507  
 E= 814,346.092

**LEGEND**

-  Wood Buffer with Dolosse unit
-  Temporary work pad



**SUSPEND PROJECT**  
 WA JEFF 91420(1)  
 SCHEDULE A  
 15+09  
 N= 318060.883  
 E= 814989.626

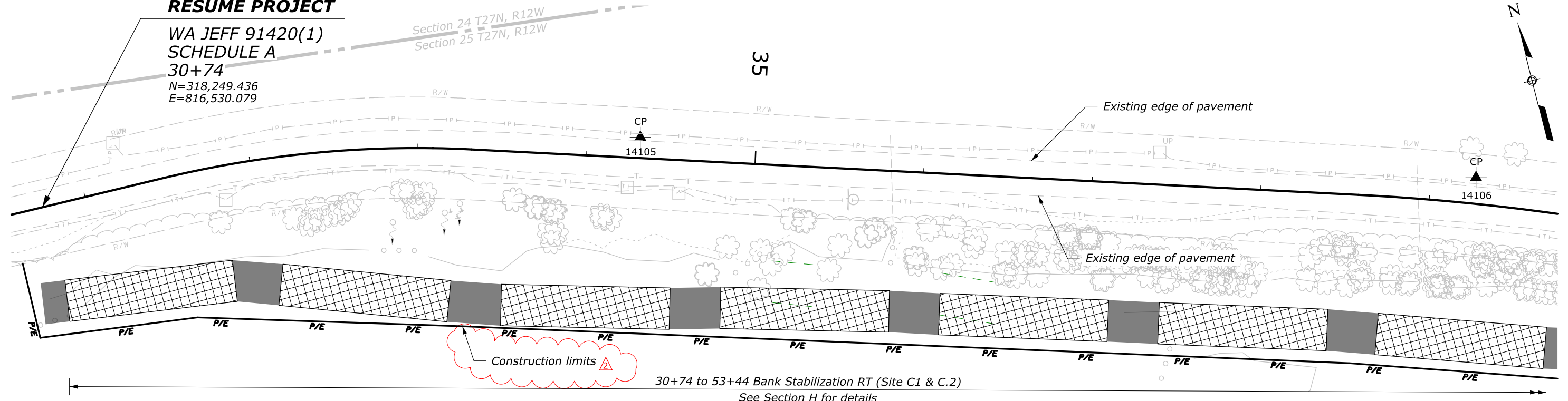
**FOOTNOTE:**   
 [1] Included in the construction limits for purpose of installing the construction fence

Hoh River Trust  
 P.O. Box 3068  
 Port Angeles, WA  
 98362

**RESUME PROJECT**  
 WA JEFF 91420(1)  
 SCHEDULE A  
 30+74  
 N=318,249.436  
 E=816,530.079

Section 24 T27N, R12W  
 Section 25 T27N, R12W

35



**Construction limits** 

30+74 to 53+44 Bank Stabilization RT (Site C1 & C.2)  
 See Section H for details

001

State of Washington  
 Dept. of Natural Resources  
 P.O. Box 47014  
 Olympia, WA  
 98504-7014



 Revised by Amendment A002

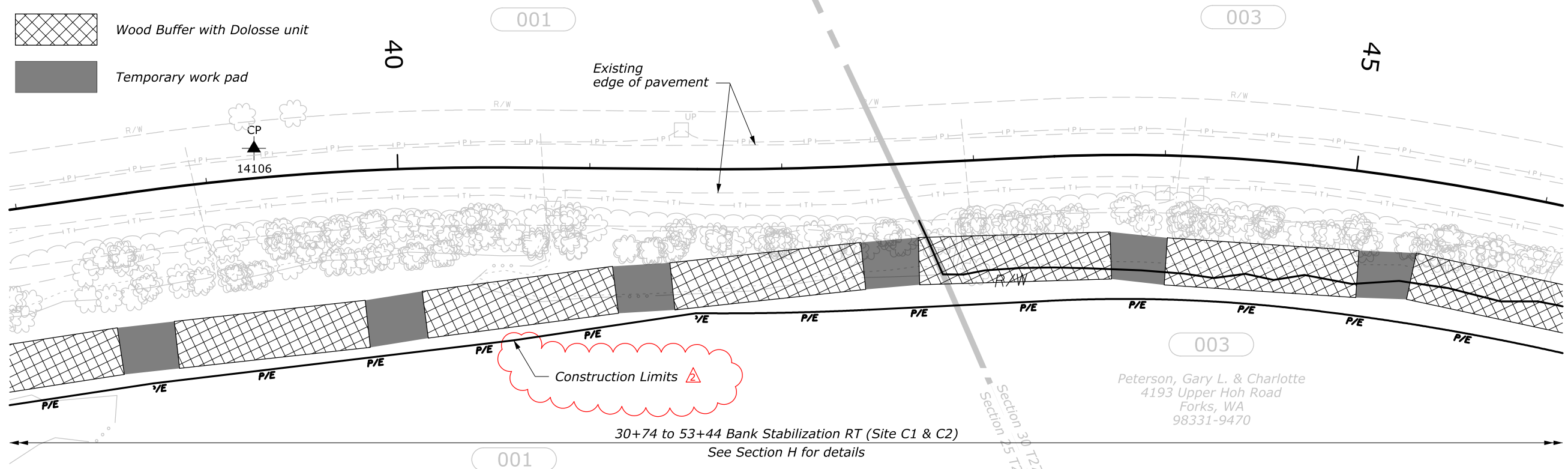
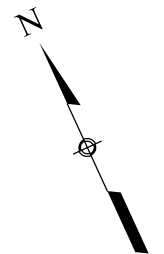
**SCHEDULE A (SITE C.1 & C.2)  
 PLAN AND PLAN  
 9+00 TO 39+00**

01/2019 Checked by: C. Conrad  
 Designed by: C. Conrad  
 c:\pw-work\0203231\wa-a2013020\_fb.dgn [US\_Sur\_ft2D]  
 17 December 2020 3:02 PM

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420 (1)	D.4

**LEGEND**

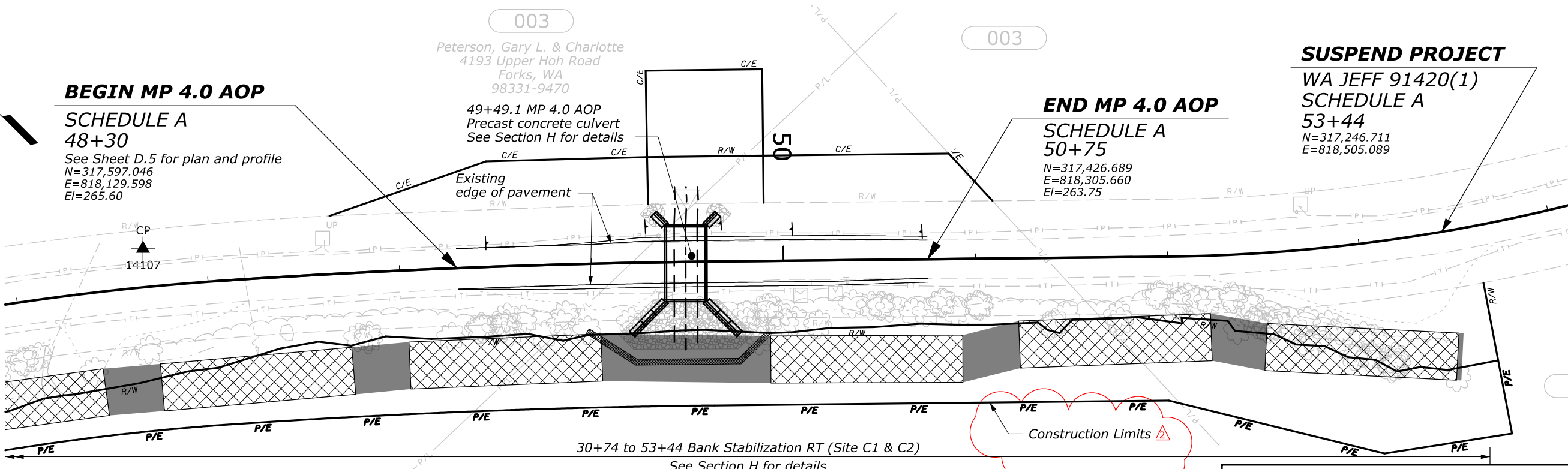
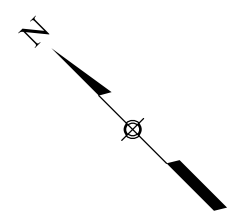
-  Wood Buffer with Dolosse unit
-  Temporary work pad



State of Washington  
 Dept. of Natural Resources  
 P.O. Box 47014  
 Olympia, WA  
 98504-7014

Peterson, Gary L. & Charlotte  
 4193 Upper Hoh Road  
 Forks, WA  
 98331-9470

01/2019 Checked by: C. Conrad  
 Designed by: C. Conrad  
 c:\pw-work\0203231\wa-a2013020\_fc.dgn [US\_Sur\_ft2D]  
 17 December 2020 2:59 PM



**BEGIN MP 4.0 AOP**  
**SCHEDULE A**  
**48+30**  
 See Sheet D.5 for plan and profile  
 N=317,597.046  
 E=818,129.598  
 El=265.60

Peterson, Gary L. & Charlotte  
 4193 Upper Hoh Road  
 Forks, WA  
 98331-9470  
 49+49.1 MP 4.0 AOP  
 Precast concrete culvert  
 See Section H for details

**END MP 4.0 AOP**  
**SCHEDULE A**  
**50+75**  
 N=317,426.689  
 E=818,305.660  
 El=263.75

**SUSPEND PROJECT**  
 WA JEFF 91420(1)  
 SCHEDULE A  
 53+44  
 N=317,246.711  
 E=818,505.089

**SCHEDULE A SITE (C.1 & C.2)**  
**PLAN AND PLAN**  
**39+00 TO 54+00**

△ Revised by Amendment A002

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	D.5

003



$\Delta = 3^\circ 13' 51''$  (RT)  
 $R = 4,522.00'$   
 $T = 127.53'$   
 $L = 255.00'$   
 $e = \text{Normal Crown}$

Peterson, Gary L. & Charlotte  
 4193 Upper Hoh Road  
 Forks, WA  
 98331-9470

003

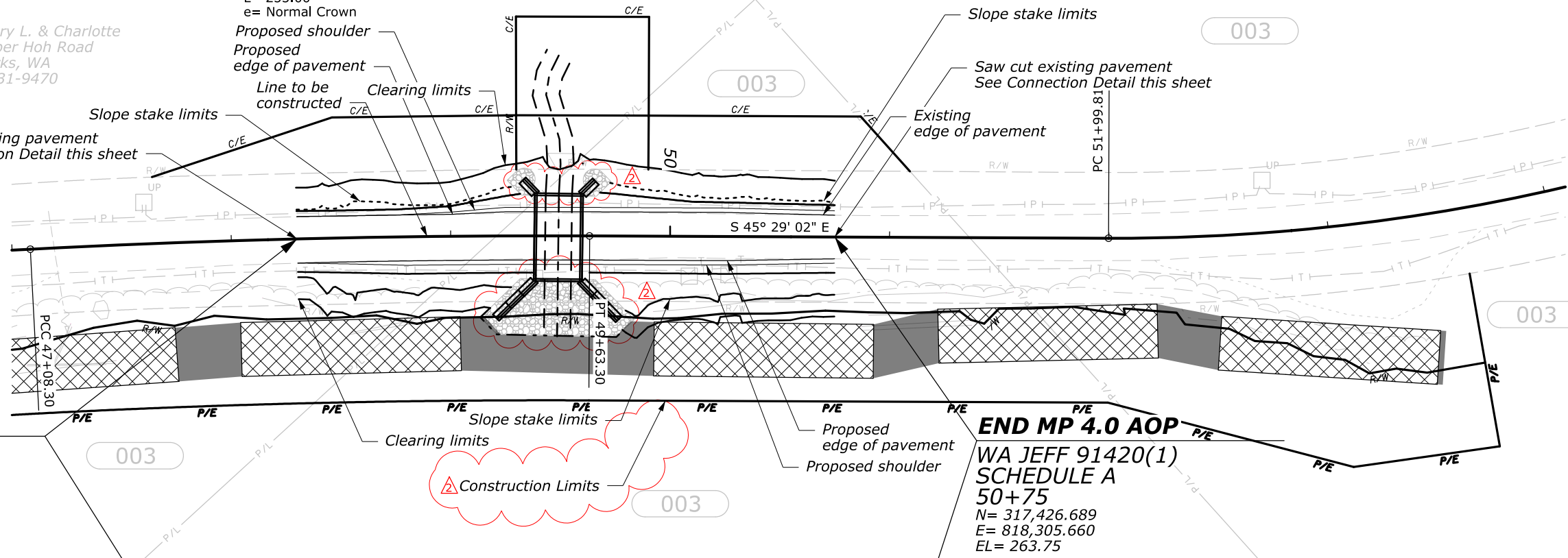
003

**LEGEND**

-  Wood Buffer with Dolosse unit
-  Temporary work pad

Saw cut existing pavement  
 See Connection Detail this sheet

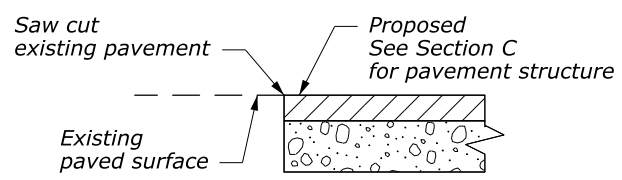
CP  
 14107



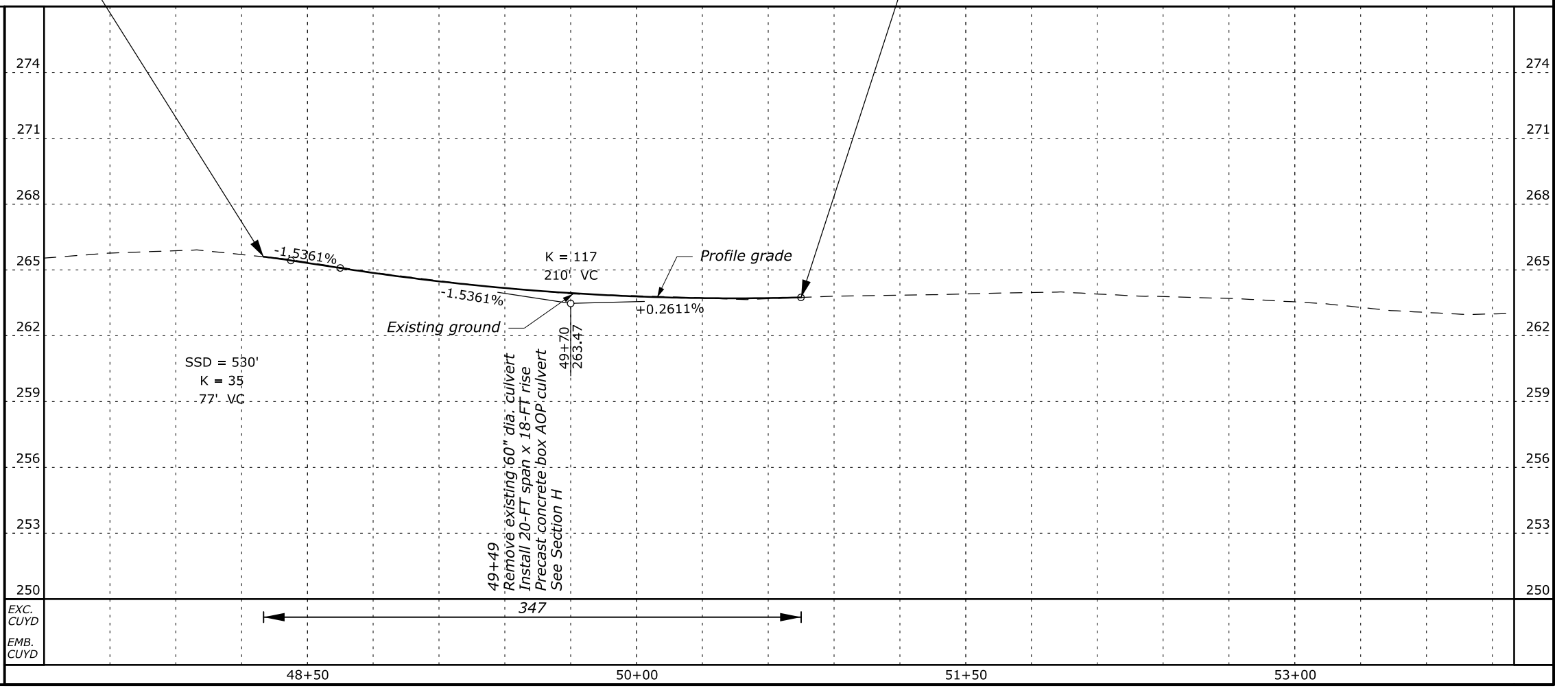
**BEGIN MP 4.0 AOP**  
 WA JEFF 91420(1)  
 SCHEDULE A  
 48+30  
 N= 317,597.046  
 E= 818,129.598  
 EL= 265.60

**END MP 4.0 AOP**  
 WA JEFF 91420(1)  
 SCHEDULE A  
 50+75  
 N= 317,426.689  
 E= 818,305.660  
 EL= 263.75

Revised by Amendment A002

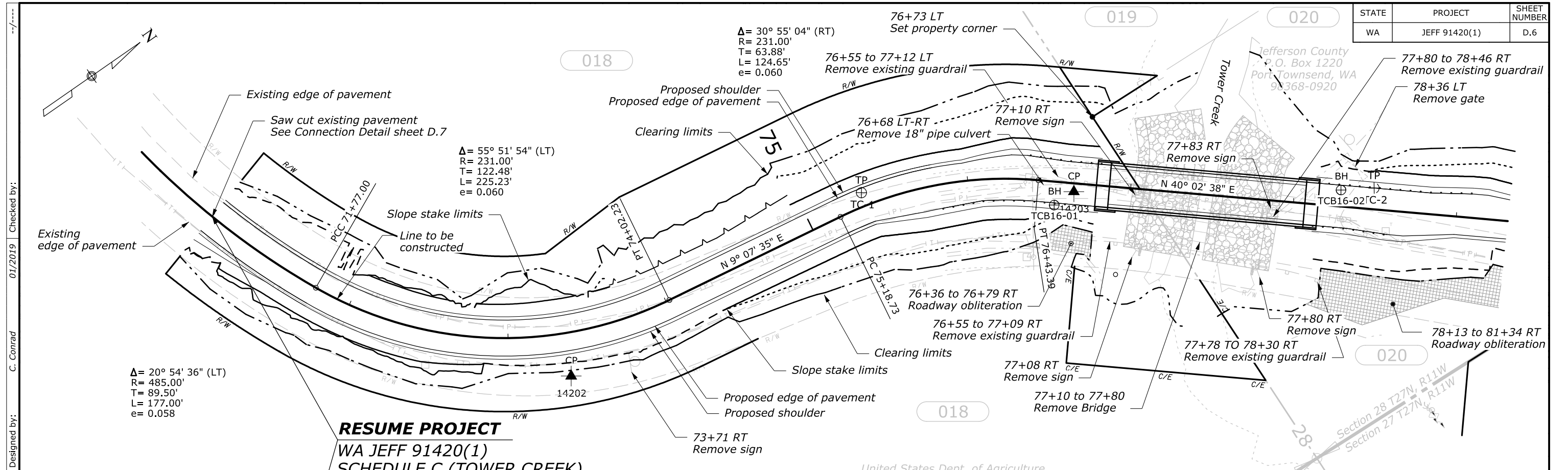


**CONNECTION DETAIL**



00/2019 Checked by: C. Conrad  
 Designed by: C:\pw-work\0203231\wa-a2013020\_fa.dgn [Sheet Cell]  
 26 May 2020 9:22 AM

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	D.6



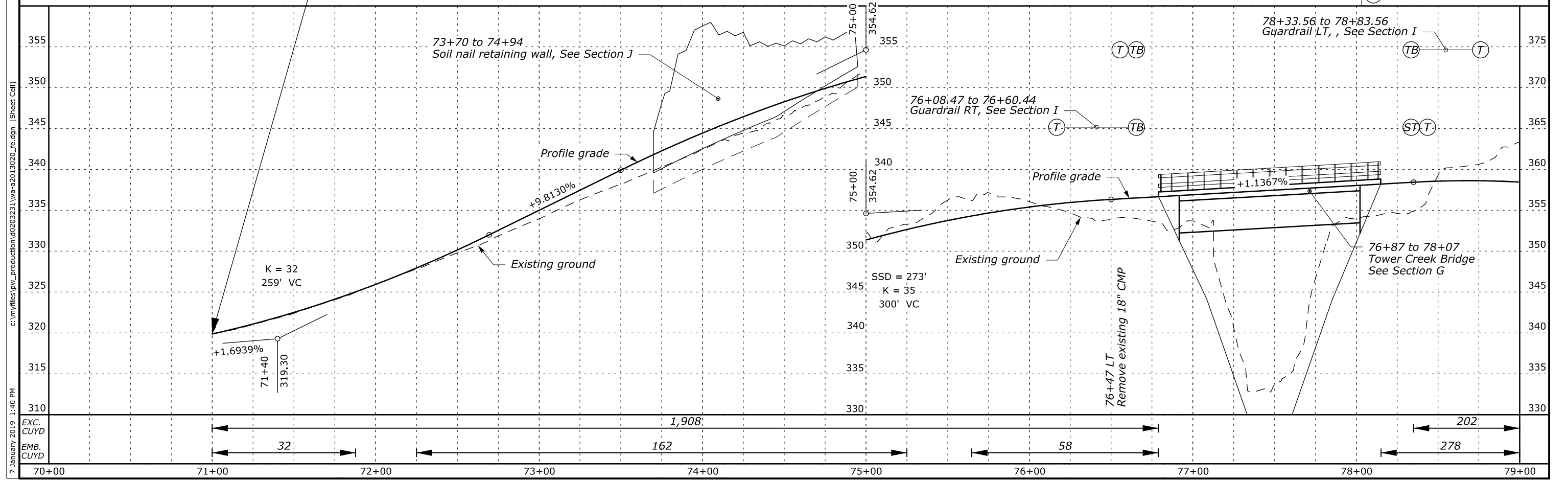
**RESUME PROJECT**  
**WA JEFF 91420(1)**  
**SCHEDULE C (TOWER CREEK)**  
**71+00**  
 N=314,584.308  
 E=833,008.593  
 El=319.87

United States Dept. of Agriculture  
 Olympic National Forest  
 1835 Black Lake Blvd. S.W.  
 Olympia, WA  
 98512-5607

**LEGEND**

(T)	Tangent Terminal
(TB)	Thrie Beam Transition

01/2019 Checked by: C. Conrad  
 Designed by: C. Conrad  
 7 January 2019 1:40 PM  
 c:\myfiles\pw\_production\02020221\wa-a2013020\_fe.dgn [Sheet Cell]





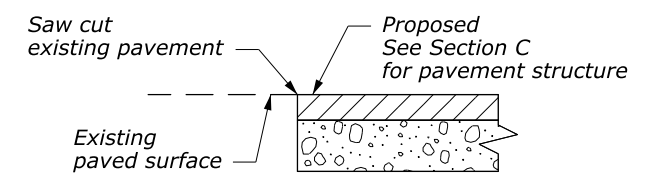
STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	D.7

$\Delta = 31^\circ 16' 07''$  (RT)  
 $R = 340.00'$   
 $T = 95.15'$   
 $L = 185.55'$   
 $e = 0.060$

TP  
 TC-4

**LEGEND**

-  Wood Buffer with Dolosse unit
-  Temporary work pad

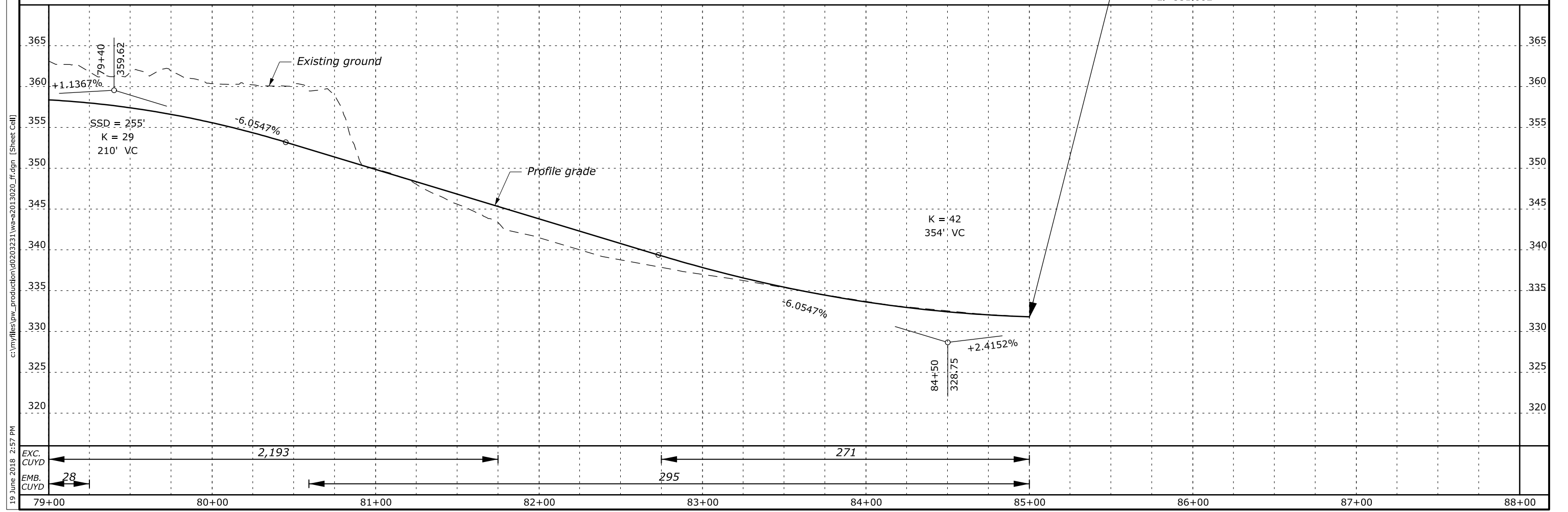
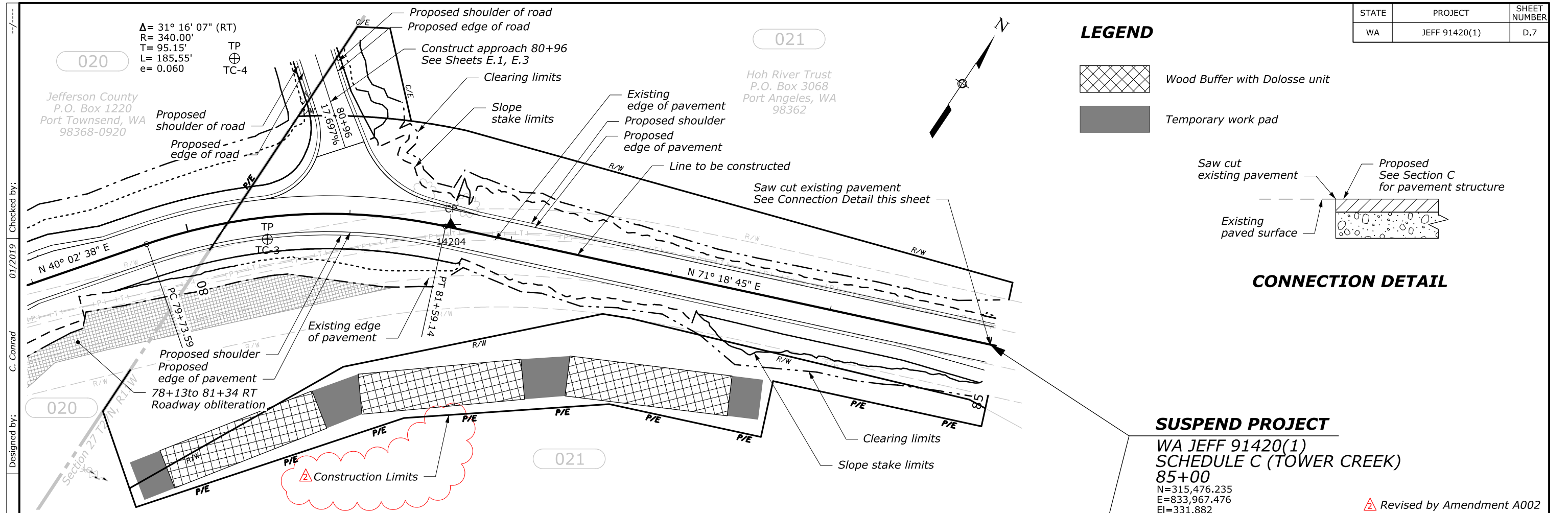


**CONNECTION DETAIL**

**SUSPEND PROJECT**

WA JEFF 91420(1)  
 SCHEDULE C (TOWER CREEK)  
 85+00  
 N=315,476.235  
 E=833,967.476  
 El=331.882

 Revised by Amendment A002



01/2019 Checked by: C. Conrad  
 Designed by: C. Conrad  
 19 June 2018 2:57 PM  
 c:\myfiles\pw\_production\02020221\wa-a2013020\_ff.dgn [Sheet Cell]



STATE	PROJECT	SHEET NUMBER
WA	JEFF 912420(1)	D.8

020

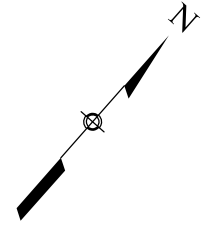
Jefferson County  
P.O. Box 1220  
Port Townsend, WA  
98368-0920

**RESUME PROJECT**

WA JEFF 91420(1)  
SCHEDULE A  
79+40  
N=315237.981  
E=833471.626

021

Hoh River Trust  
P.O. Box 3068  
Port Angeles, WA  
98362

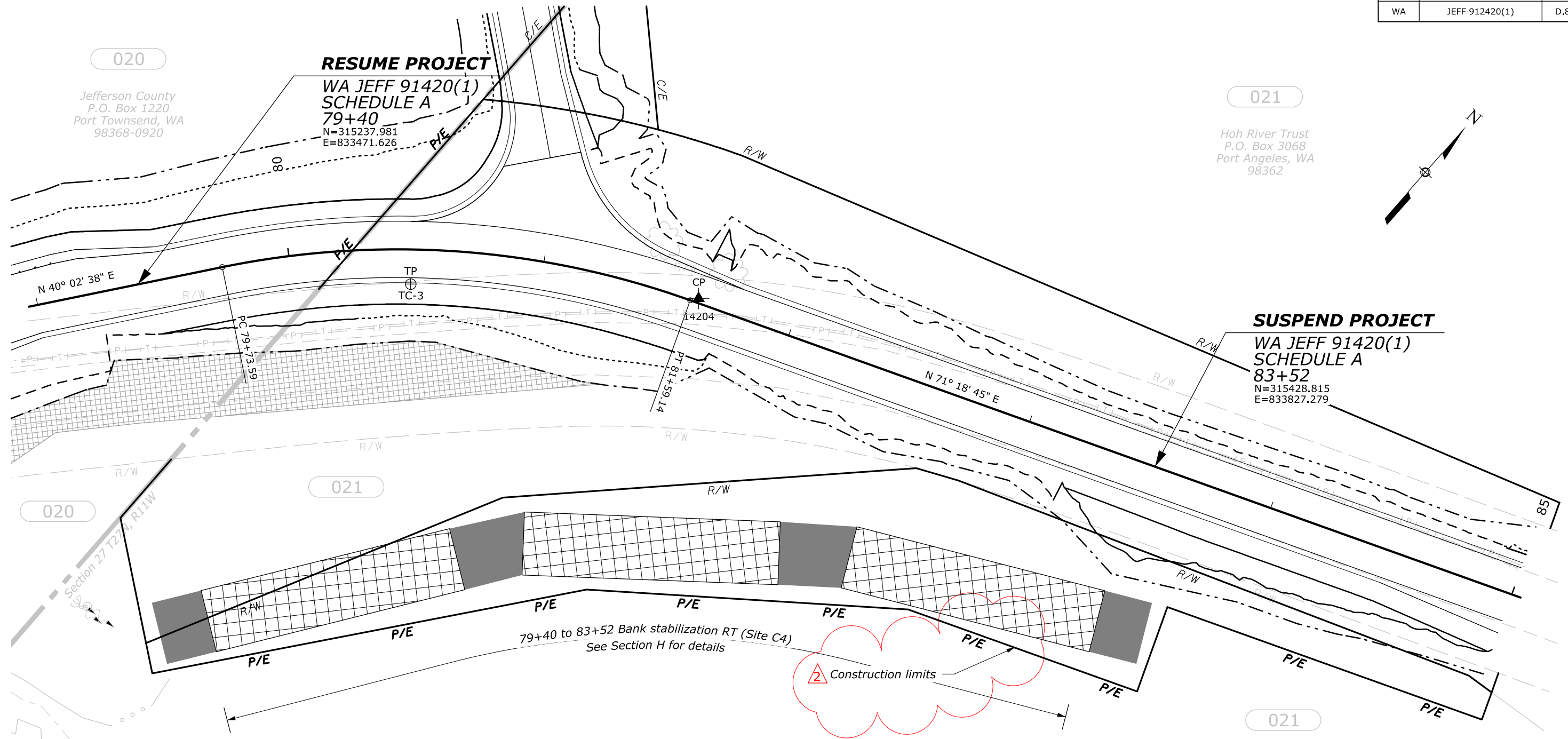


Checked by:

Designed by:

c:\pw-work\020323\wa-a2013020\_fg.dgn [US\_Sur\_ft2D]

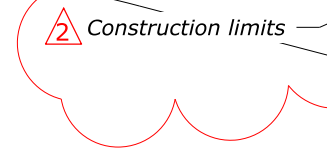
17 December 2020 8:44 AM





**SUSPEND PROJECT**

WA JEFF 91420(1)  
SCHEDULE A  
83+52  
N=315428.815  
E=833827.279

79+40 to 83+52 Bank stabilization RT (Site C4)  
See Section H for details



**LEGEND**

-  Wood Buffer with Dolosse unit
-  Temporary work pad

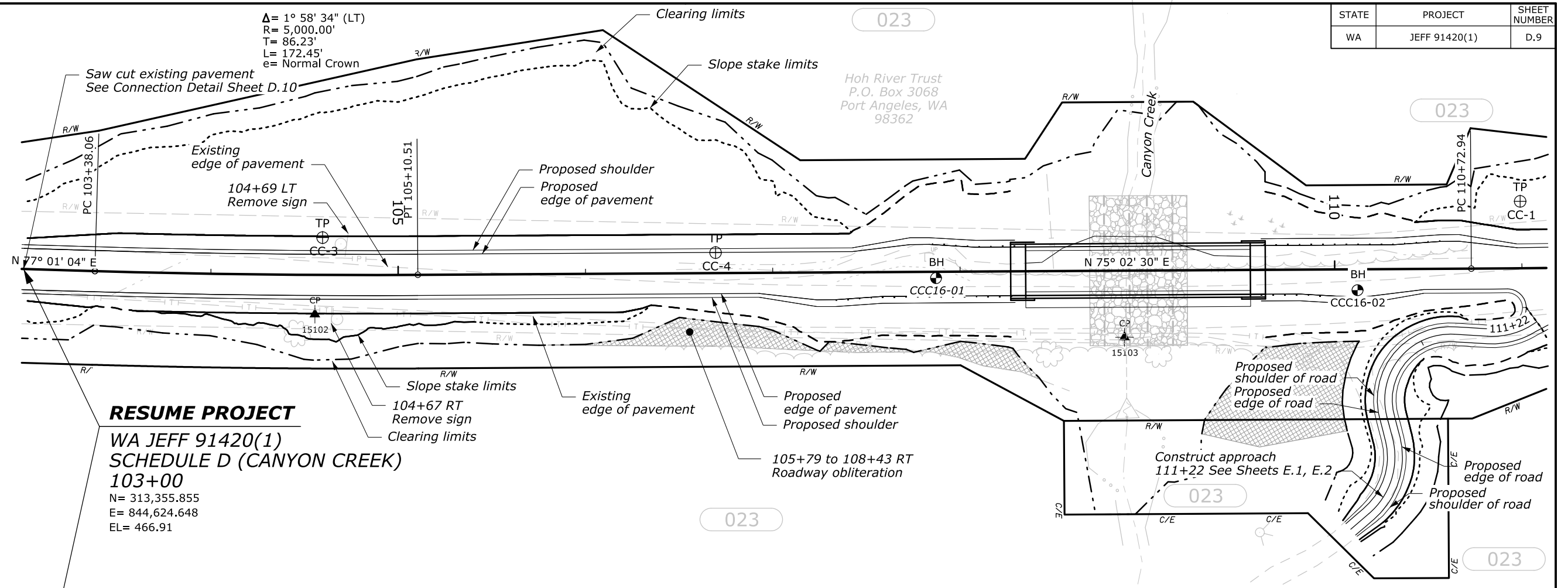
 Revised by Amendment A002

**SCHEDULE A (SITE C4)  
PLAN  
79+40 to 83+52**

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	D.9

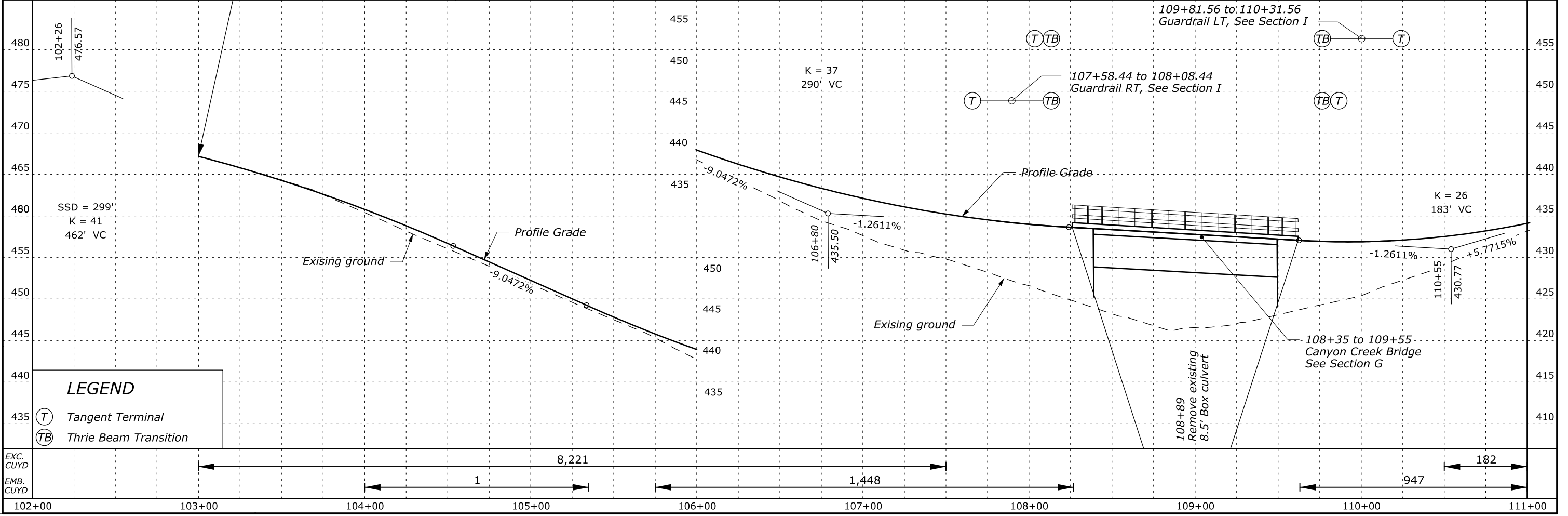
$\Delta = 1^\circ 58' 34''$  (LT)  
 $R = 5,000.00'$   
 $T = 86.23'$   
 $L = 172.45'$   
 $e = \text{Normal Crown}$

023  
 Hoh River Trust  
 P.O. Box 3068  
 Port Angeles, WA  
 98362



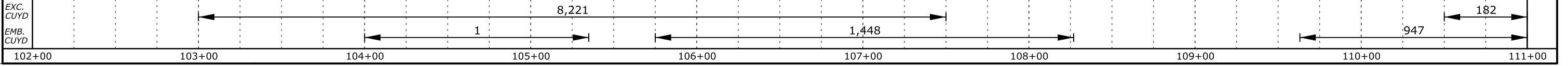
**RESUME PROJECT**  
 WA JEFF 91420(1)  
 SCHEDULE D (CANYON CREEK)  
 103+00  
 $N = 313,355.855$   
 $E = 844,624.648$   
 $EL = 466.91$

10 July 2019 3:01 PM  
 c:\pw-work\020323\wa-a2013020\_rh.dgn [Sheet Cell]  
 Designed by: C. Conrad  
 Checked by: 01/2019

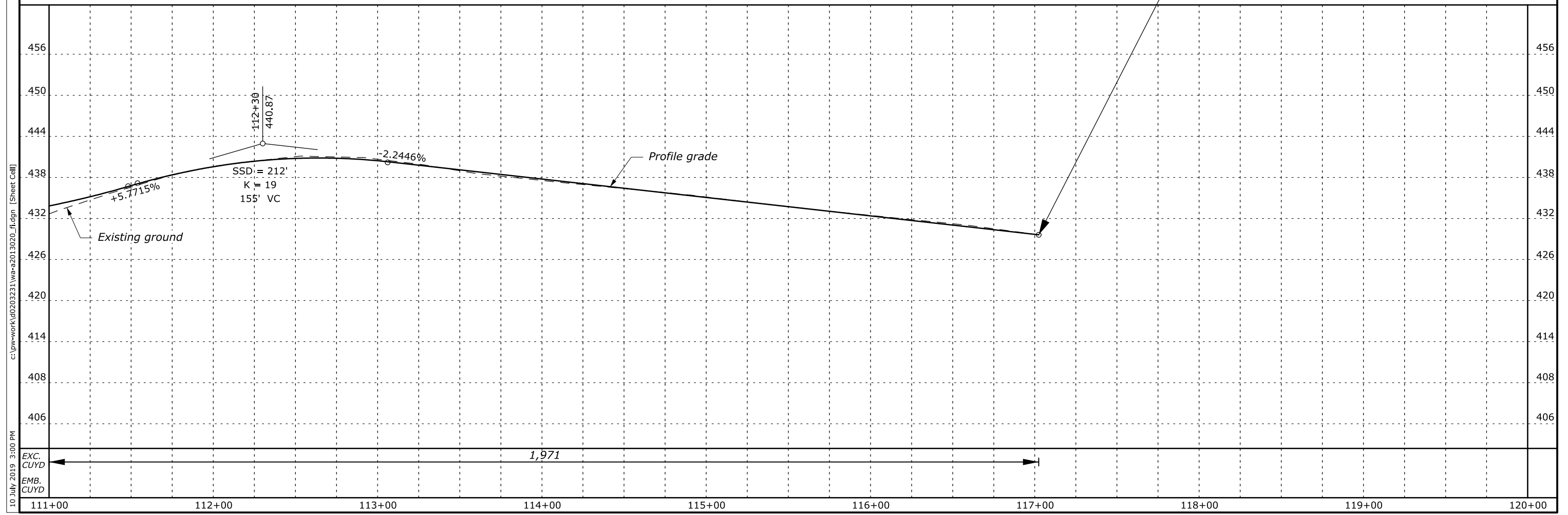
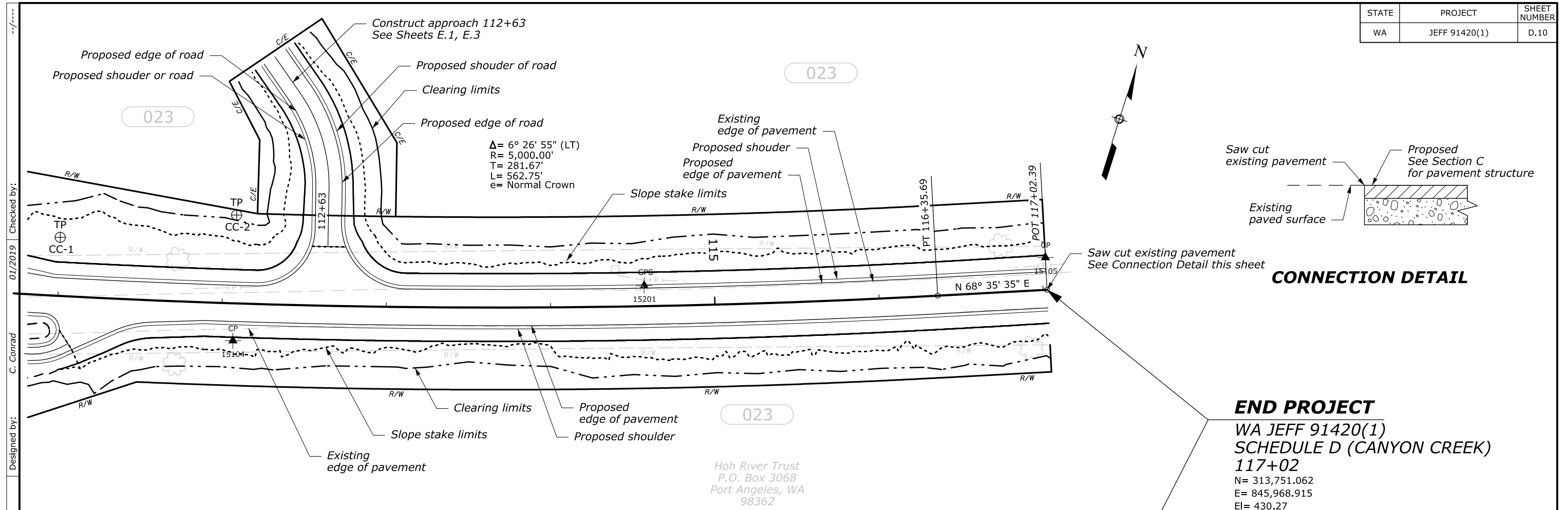


**LEGEND**

(T)	Tangent Terminal
(TB)	Thrie Beam Transition



STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	D.10



PROJECT :Upper Hoh River Road Phase II  
 DATE OF FIELD WORK : Multiple Entries

PROJECT UNITS : US Survey feet  
 COORDINATE SYSTEM : Washington North SPCS NAD83 (2011)  
 EPOCH DATE : 2010.0000  
 VERTICAL DATUM : Orthometric Elevations based on the NAVD88 GEOID12a

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	D.11

POINT NUMBER	STATE PLANE COORDINATES			GEO COORDINATES				DESCRIPTION
	NORTH	EAST	ELEVATION	LATITUDE	LONGITUDE	ELLIPSOID HEIGHT	COMBINED FACTOR	
14101	318084.634	814516.241	263.715	47°49'21.131812"N	124°11'46.884347"W	190.0434	0.999946398	5/8" IR w/FHWA alum cap
14102	318075.550	815044.102	258.512	47°49'21.269761"N	124°11'39.150453"W	184.8708	0.999946641	5/8" IR w/FHWA alum cap
14103	318189.977	815661.312	261.974	47°49'22.663836"N	124°11'30.187403"W	188.3737	0.999946439	5/8" IR w/FHWA alum cap
14104	318287.533	816196.549	267.244	47°49'23.856100"N	124°11'22.413577"W	193.6797	0.999946156	5/8" IR w/FHWA alum cap
14105	318202.896	816883.772	273.245	47°49'23.317165"N	124°11'12.298156"W	199.7194	0.999945881	5/8" IR w/FHWA alum cap
14106	318058.574	817358.013	268.427	47°49'22.097993"N	124°11'05.262894"W	194.925	0.999946141	5/8" IR w/FHWA alum cap
14107	317720.188	818021.262	265.454	47°49'19.046402"N	124°10'55.336851"W	191.98	0.999946357	5/8" IR w/FHWA alum cap
14108	317181.933	818570.991	263.333	47°49'13.975179"N	124°10'46.945757"W	189.8687	0.999946585	5/8" IR w/FHWA alum cap
14109	316885.540	819033.827	266.444	47°49'11.251273"N	124°10'39.981168"W	192.9958	0.999946503	5/8" IR w/FHWA alum cap
14201	314548.286	832915.588	315.930	47°48'54.107252"N	124°07'15.286696"W	243.1943	0.999944539	5/8" IR w/FHWA alum cap
14202	314708.038	833214.646	337.198	47°48'55.808473"N	124°07'11.008755"W	264.4853	0.999943478	5/8" IR w/FHWA alum cap
14203	315024.560	833299.002	354.046	47°48'58.965002"N	124°07'09.971844"W	281.3507	0.999942592	5/8" IR w/FHWA alum cap
14204	315369.617	833646.722	344.209	47°49'02.513818"N	124°07'05.097220"W	271.5477	0.999942971	5/8" IR w/FHWA alum cap
14205	315501.550	834113.426	332.119	47°49'04.011196"N	124°06'58.347325"W	259.4898	0.999943509	5/8" IR w/FHWA alum cap
14206	315363.957	834897.980	336.463	47°49'02.984534"N	124°06'46.775795"W	263.872	0.999943326	5/8" IR w/FHWA alum cap
15101	313328.367	844445.539	472.402	47°48'46.903304"N	124°04'25.744567"W	400.2607	0.99993722	5/8" IR w/FHWA alum cap
15102	313371.769	844781.286	454.101	47°48'47.470727"N	124°04'20.856431"W	381.9797	0.999938079	5/8" IR w/FHWA alum cap
15103	313469.032	845202.637	422.588	47°48'48.604723"N	124°04'14.748315"W	350.4945	0.999939554	5/8" IR w/FHWA alum cap
15104	313565.819	845508.219	437.729	47°48'49.685905"N	124°04'10.334566"W	365.6557	0.999938802	5/8" IR w/FHWA alum cap
15105	313769.402	845961.811	431.176	47°48'51.881486"N	124°04'03.819791"W	359.1346	0.999939057	5/8" IR w/FHWA alum cap
15201	313676.362	845735.295	435.111	47°48'50.870119"N	124°04'07.078488"W	363.0539	0.999938896	5/8" IR w/FHWA alum cap
15202	313848.898	846188.102	424.522	47°48'52.759183"N	124°04'00.556016"W	352.4958	0.999939352	5/8" IR w/FHWA alum cap

**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**

D. Checker

Checked by:

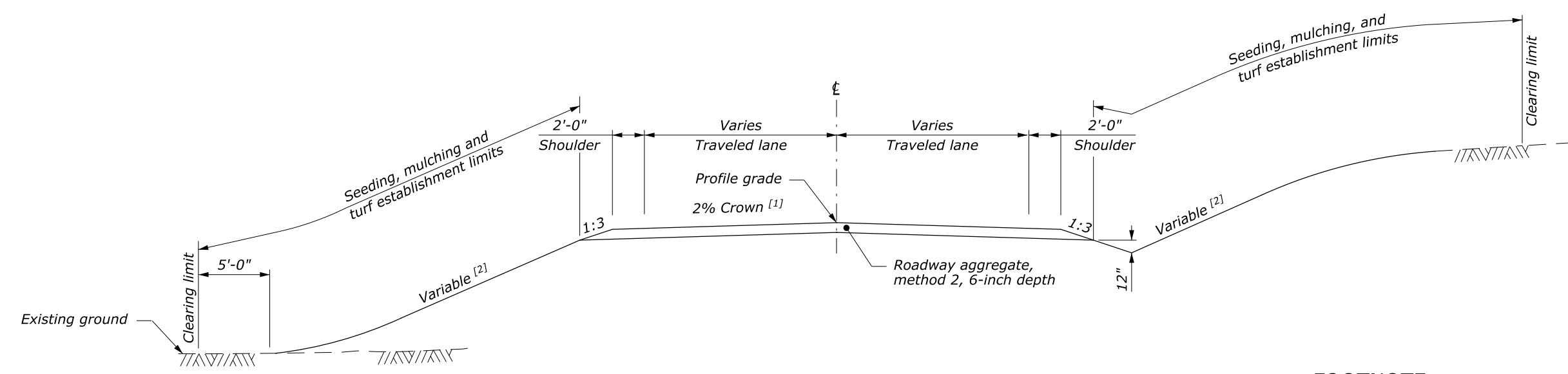
A. Designer

Designed by:

D:\Projects\Washington\Hoh River Road\2018\Infinity\Hoh\_River\_Road\_sites\Exported

18-Jul-2019 4:25 PM

ROADWAY APPROACH QUANTITIES						
APPROACH	TRAVED LANE WIDTH	SHOULDER WIDTH	ITEM 20401-0000 ROADWAY EXCAVATION	ITEM 30202-2000 ROADWAY AGGREGATE, METHOD 2	FOR INFO ONLY EMBANKMENT	REMARK
	(FT)	(FT)	(CUYD)	(TON)	(CUYD)	
80+96	10	2	60	161	-	TOWER CREEK
<b>TOTAL</b>			<b>60</b>	<b>161</b>	<b>-</b>	<b>SCHEDULE C</b>
111+22	8	2	67	180	34	CANYON CREEK
112+63	4	2	265	198	-	
<b>TOTAL</b>			<b>392</b>	<b>539</b>	<b>34</b>	<b>SCHEDULE D</b>



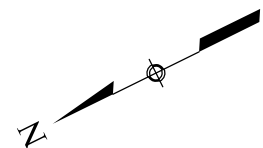
**APPROACH TYPICAL SECTION**

**FOOTNOTE:**  
<sup>[1]</sup> Superelevate roadway on curves at the rate 'e' as indicated on the plan and profile curve data.  
<sup>[2]</sup> Construct slopes as shown in the Staking Report.

**APPROACH ROAD TYPICAL SECTION**

8 September 2020 12:41 PM  
 c:\pw-work\0203232\wa-a2013020-ja.dgn [US\_Sur\_ft2D]  
 Designed by: C. Conrad  
 01/2019  
 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	E.2



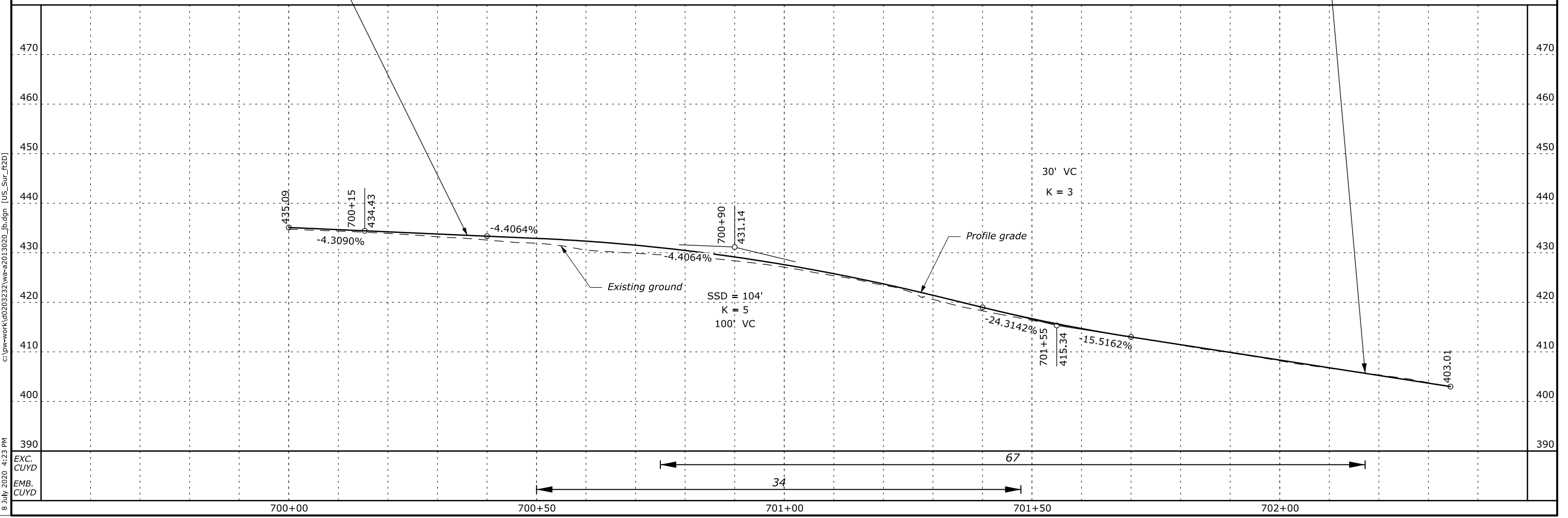
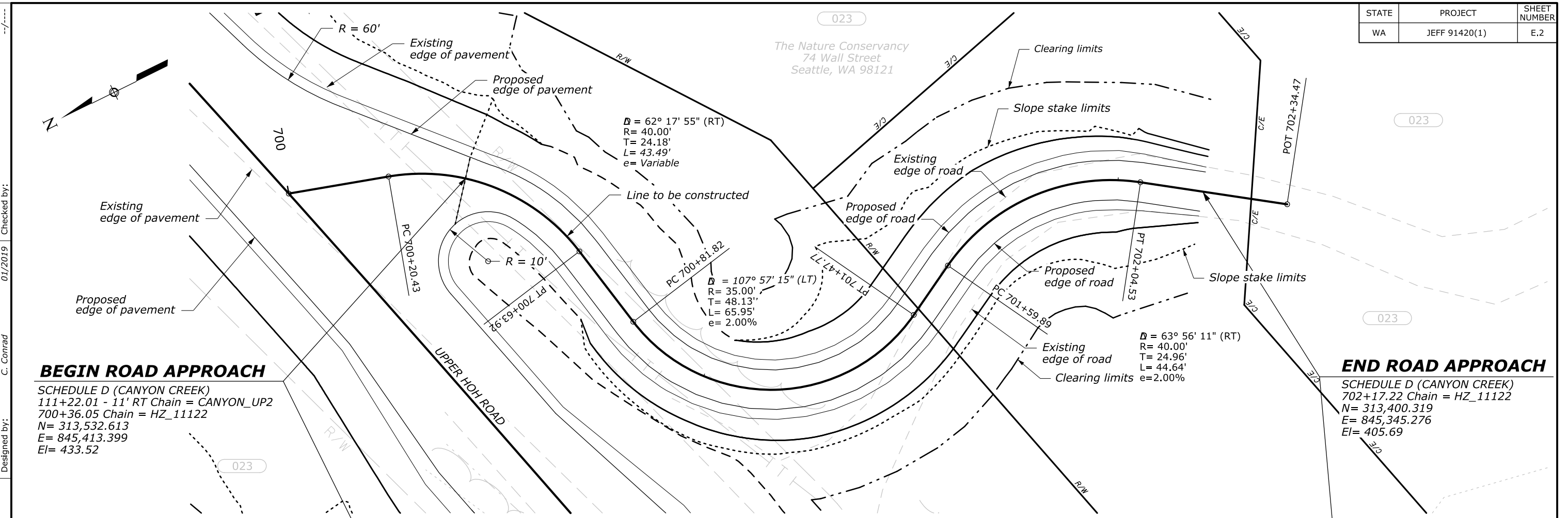
023  
The Nature Conservancy  
74 Wall Street  
Seattle, WA 98121

**BEGIN ROAD APPROACH**

SCHEDULE D (CANYON CREEK)  
111+22.01 - 11' RT Chain = CANYON\_UP2  
700+36.05 Chain = HZ\_11122  
N= 313,532.613  
E= 845,413.399  
EI= 433.52

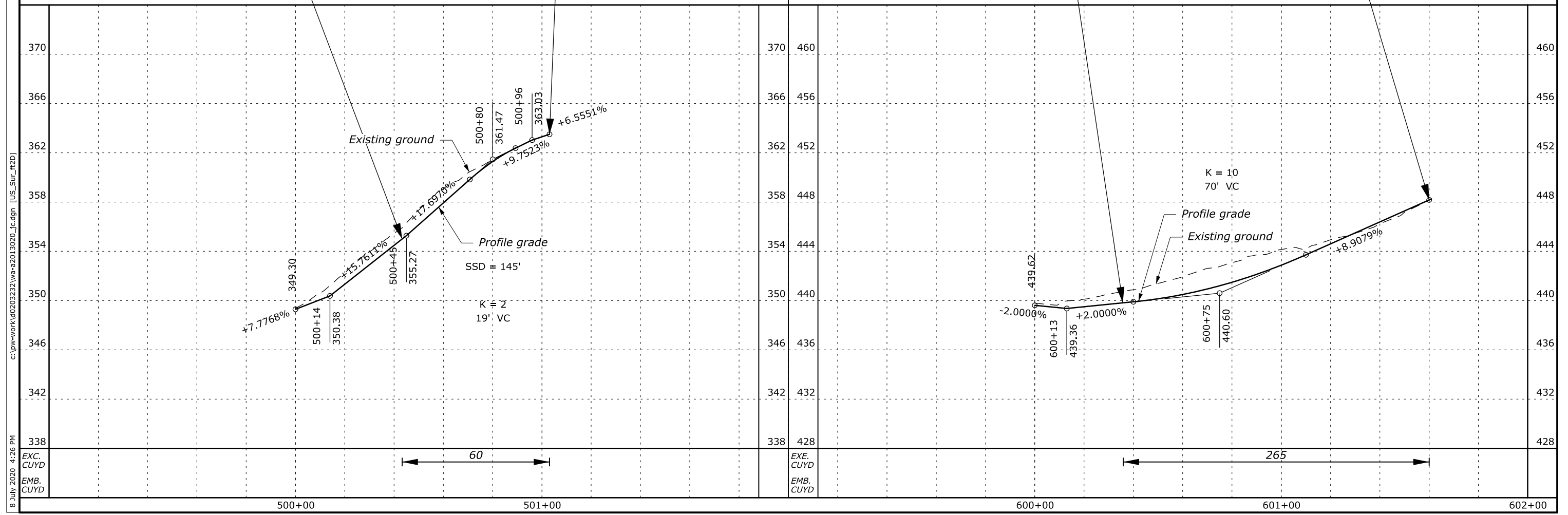
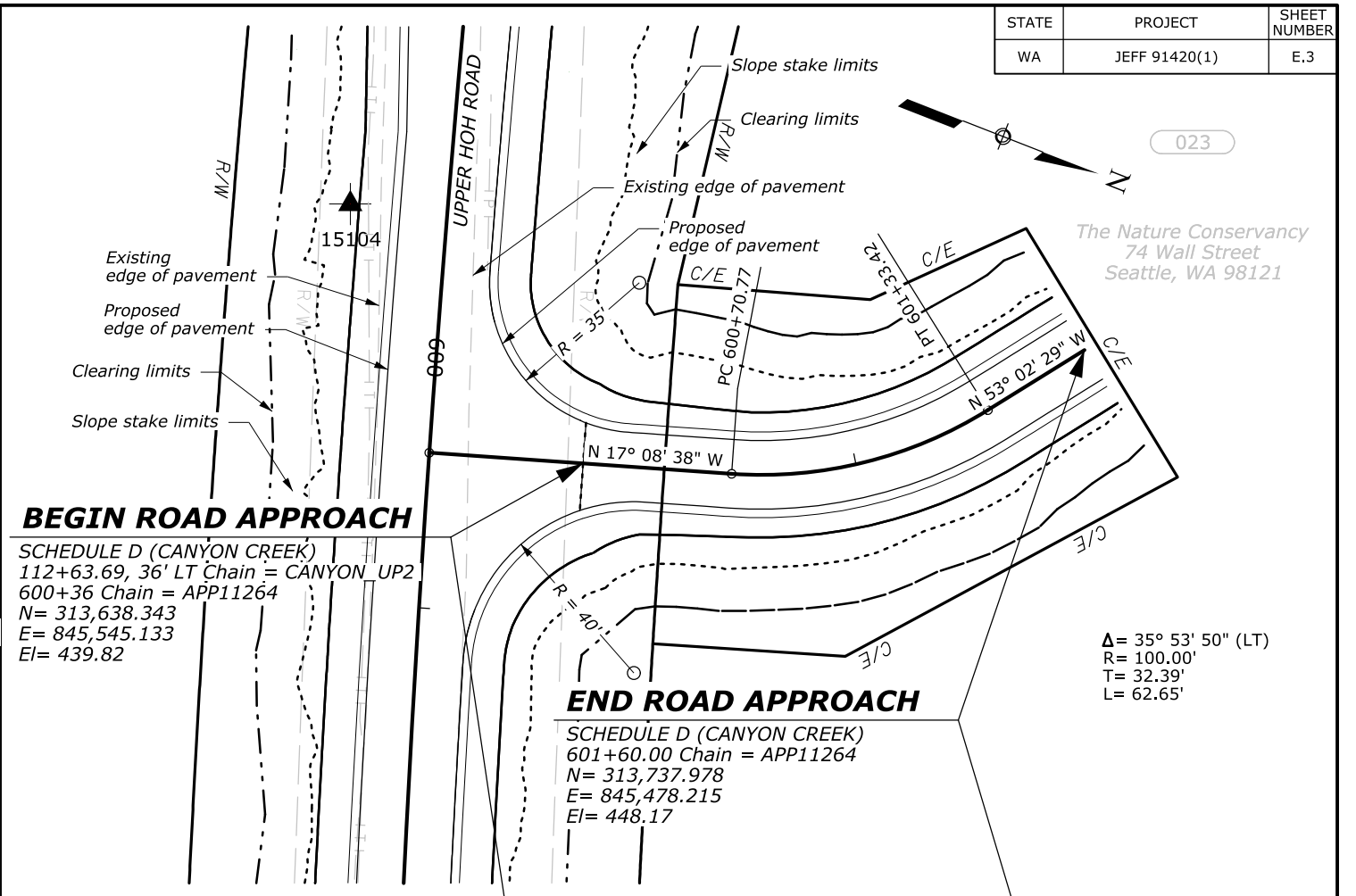
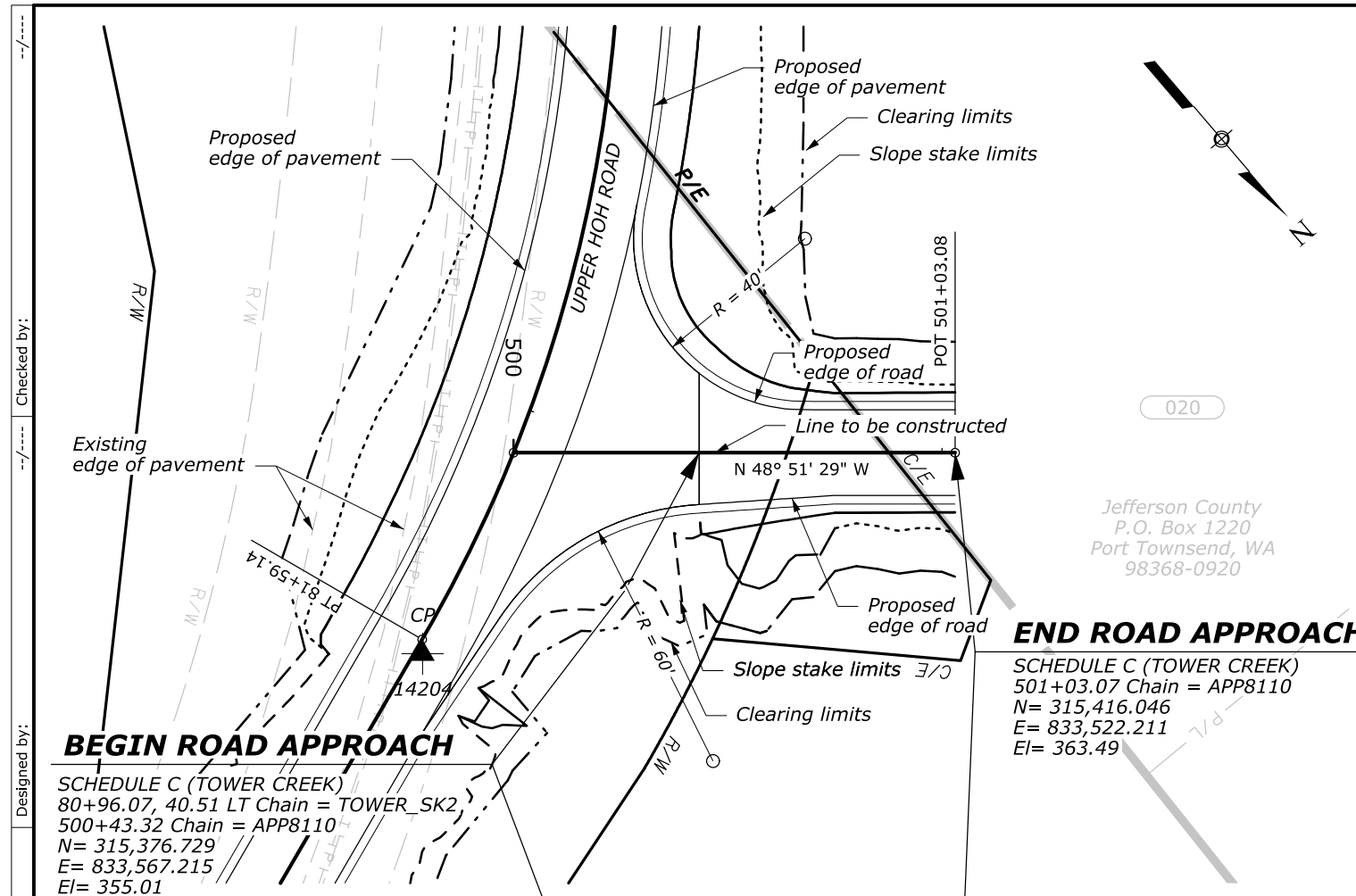
**END ROAD APPROACH**

SCHEDULE D (CANYON CREEK)  
702+17.22 Chain = HZ\_11122  
N= 313,400.319  
E= 845,345.276  
EI= 405.69



01/2019 Checked by: C. Conrad  
 Designed by: C. Conrad  
 c:\pw-work\0203232\wa-a2013020\_jb.dgn [US\_Sur\_ft2D]  
 8 July 2020 4:23 PM

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	E.3



8 July 2020 4:26 PM  
 c:\pw-work\0203232\wa-a2013020\_jc.dgn [US\_Sur.ft2D]  
 EXC. CUYD  
 EMB. CUYD  
 500+00 501+00 600+00 601+00 602+00

**ITEM 15705-0100  
SOIL EROSION CONTROL,  
SILT FENCE**

LOCATION	SIDE	QUANTITY (LNFT)	REMARKS
48+30 to 50+75	RT	420	MP 4 AOP
49+25 to 49+71	LT	100	MP 4 AOP STREAM BANK
	LT	80	
<b>TOTAL SCHEDULE A, B</b>		<b>600</b>	
71+00 to 77+39	RT	700	TOWER CREEK
77+57 to 85+00	RT	760	
	77+43	LT/RT	TOWER CREEK STREAM BANK
	77+51	LT/RT	
<b>TOTAL SCHEDULE C</b>		<b>2,440</b>	
103+00 to 108+71	RT	600	CANYON CREEK
107+23 to 108+31	LT	130	
109+49 to 110+50	LT	115	
109+18 to 110+07	RT	100	
110+50 to 117+03	RT	700	
	108+75	LT/RT	CANYON CREEK STREAM BANK
	109+14	LT/RT	
701+50 to 702+17	LT	50	APPROACH 111+22
701+85 to 702+17	RT	50	
<b>TOTAL SCHEDULE D</b>		<b>4,605</b>	

**FILTER ROCK CHECK DAM WITH  
ROLLED EROSION CONTROL PRODUCT**

LOCATION	SIDE	ITEM 15706-0200 SOIL EROSION CONTROL, CHECK DAM (FILTER ROCK)  (EACH)	ROLLED EROSION CONTROL PRODUCT <sup>[1]</sup>  SQYD	REMARKS
73+60 to 75+15	LT	7	155	TOWER CREEK
80+50 to 80+74	LT	2	24	
500+43 to 501+03	LT	3	60	APP 81+10 LT
500+43 to 501+03	RT	3	60	
<b>TOTAL SCHEDULE C</b>		<b>15</b>	<b>299</b>	
103+00 to 107+52	LT	16	444	CANYON CREEK
700+37 to 700+46	LT	1	88	APP 111+22 RT
700+75 to 702+17	RT	10	45	
701+04 to 702+17	LT	6	92	
<b>TOTAL SCHEDULE D</b>		<b>33</b>	<b>968</b>	

**ITEM 15706-0200  
SOIL EROSION CONTROL, CHECK DAM  
(FILTER ROCK)**

LOCATION	SIDE	QUANTITY (EACH)	REMARKS
48+30 to 49+31	LT	3	MP4 AOP
49+70 to 50+75	LT	3	
<b>TOTAL SCHEDULE A, B</b>		<b>6</b>	
75+15 to 76+79	LT	2	TOWER CREEK
78+50 to 80+50	LT	4	
<b>TOTAL SCHEDULE C</b>		<b>12</b>	
110+45 to 112+44	LT	4	CANYON CREEK
112+71 to 117+02	LT	5	
111+14 to 117+02	RT	9	
601+43 to 601+60	LT	3	APP 112+64 LT
601+43 to 601+60	RT	3	
<b>TOTAL SCHEDULE D</b>		<b>36</b>	

**FOOTNOTE:**  
[1] Quantity tabulated in ITEM 62901-0000. See Sheet F.2.

**TABULATION OF  
EROSION/SEDIMENT  
CONTROL QUANTITIES**

8 September 2020 2:20 PM c:\pw-work\0203227\wa-a2013020\_da.dgn [US\_Sur\_ft2D] 01/2019 Checked by: C. Conrad Designed by:



**ITEM 62502-0000  
TURF ESTABLISHMENT**

LOCATION	SIDE	QUANTITY (SQYD)	REMARKS
48+30 to 50+75	LT	586	MP 4 AOP
48+30 to 50+75	RT	818	
<b>TOTAL SCHEDULE A, B</b>		<b>1,404</b>	
71+00 to 76+89	LT	2,051	WEST APPROACH TOWER CREEK BRIDGE
71+00 to 76+79	RT	1,351	
76+79 to 77+39	LT/RT	452	WEST BANK TOWER CREEK
77+51 to 78+15	LT/RT	512	EAST BANK TOWER CREEK
78+15 to 80+72	LT	922	EAST APPROACH <sup>[1]</sup> TOWER CREEK BRIDGE
78+15 to 85+00	RT	2,389	
80+89 to 85+00	LT	746	
<b>TOTAL SCHEDULE C</b>		<b>9,827</b>	
103+00 to 108+27	LT	4,470	WEST APPROACH CANYON CREEK BRIDGE
	RT	1,674	
108+27 to 108+90	LT/RT	2,918	WEST BANK CANYON CREEK
109+03 to 109+63	LT/RT	1,152	EAST BANK CANYON CREEK
109+63 to 117+03	LT	847	EAST APPROACH <sup>[1]</sup> CANYON CREEK BRIDGE
	LT	1,707	
	RT	867	
	RT	2,312	
<b>TOTAL SCHEDULE D</b>		<b>25,774</b>	

**ITEM 62901-0000  
ROLLED EROSION CONTROL PRODUCT**

See Detail Sheet F.15

LOCATION	SIDE	QUANTITY (SQYD)	REMARKS
48+30 to 50+75	LT	586	MP 4 AOP
48+30 to 50+75	RT	818	
<b>TOTAL SCHEDULE A, B</b>		<b>1,404</b>	
71+00 to 76+89	LT	2,051	WEST APPROACH TOWER CREEK BRIDGE
71+00 to 76+79	RT	1,351	
76+79 to 77+39	LT/RT	452	WEST BANK TOWER CREEK
77+51 to 78+15	LT/RT	512	EAST BANK TOWER CREEK
78+15 to 80+72	LT	922	EAST APPROACH <sup>[1]</sup> TOWER CREEK BRIDGE
78+15 to 85+00	LT	2,389	
80+89 to 85+00	RT	746	
<b>TOTAL SCHEDULE C</b>		<b>9,827</b>	
103+00 to 108+27	LT	4,470	WEST APPROACH CANYON CREEK BRIDGE
	RT	1,674	
108+27 to 108+90	LT/RT	2,918	WEST BANK CANYON CREEK
109+03 to 109+63	LT/RT	1,152	EAST BANK CANYON CREEK
109+63 to 117+03	LT	847	EAST APPROACH <sup>[1]</sup> CANYON CREEK
	LT	1,707	
	RT	867	
	RT	2,312	
<b>TOTAL SCHEDULE D</b>		<b>25,774</b>	

**FOOTNOTE:**

<sup>[1]</sup> Quantity shown includes approaches.

**TABULATION OF  
EROSION/SEDIMENT  
CONTROL QUANTITIES**

8 September 2020 2:21 PM  
 c:\pw-work\0203227\wa-a2013020\_da1.dgn [US\_Sur\_ft2D]  
 Designed by: C. Conrad  
 01/2019 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420 (1)	F.3

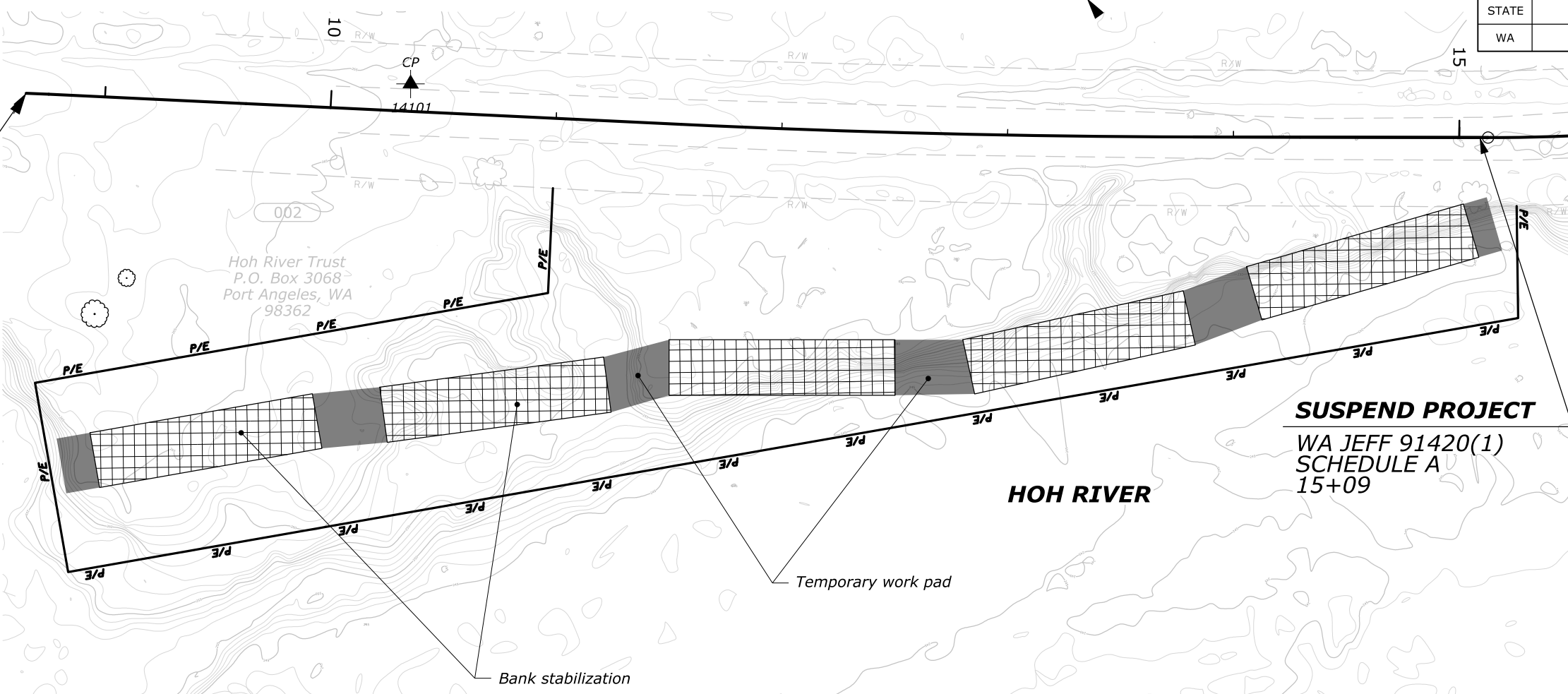


**BEGIN PROJECT**

WA JEFF 91420(1)  
SCHEDULE A  
8+65

**LEGEND:**

- Flow Arrow
- Silt Fence
- Filter Rock Check Dam
- Inlet Protection
- Bank Stabilization
- Temporary Work Pad
- Roadway Obliteration
- Turf Establishment with Rolled Erosion Control Product

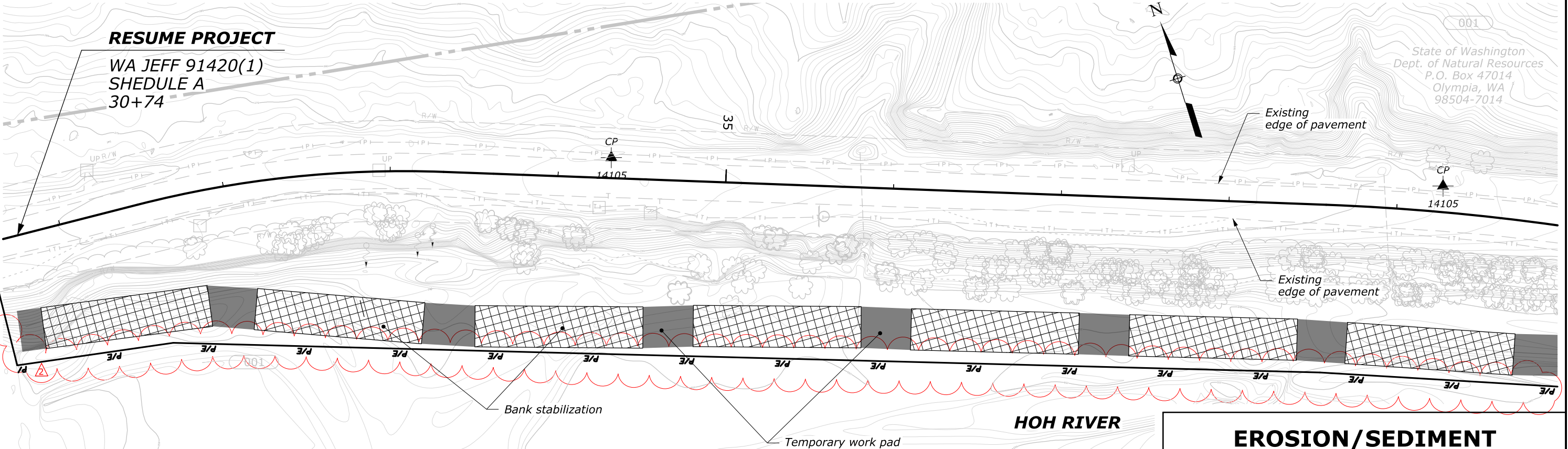


**SUSPEND PROJECT**

WA JEFF 91420(1)  
SCHEDULE A  
15+09

**RESUME PROJECT**

WA JEFF 91420(1)  
SCHEDULE A  
30+74

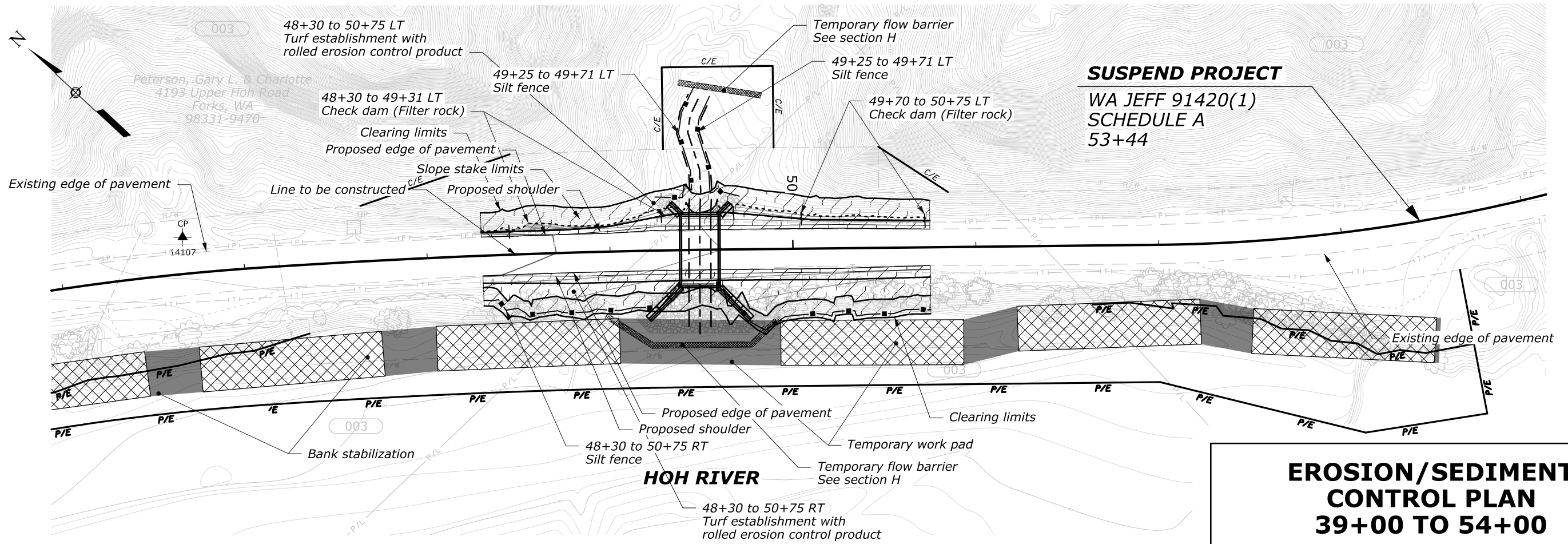
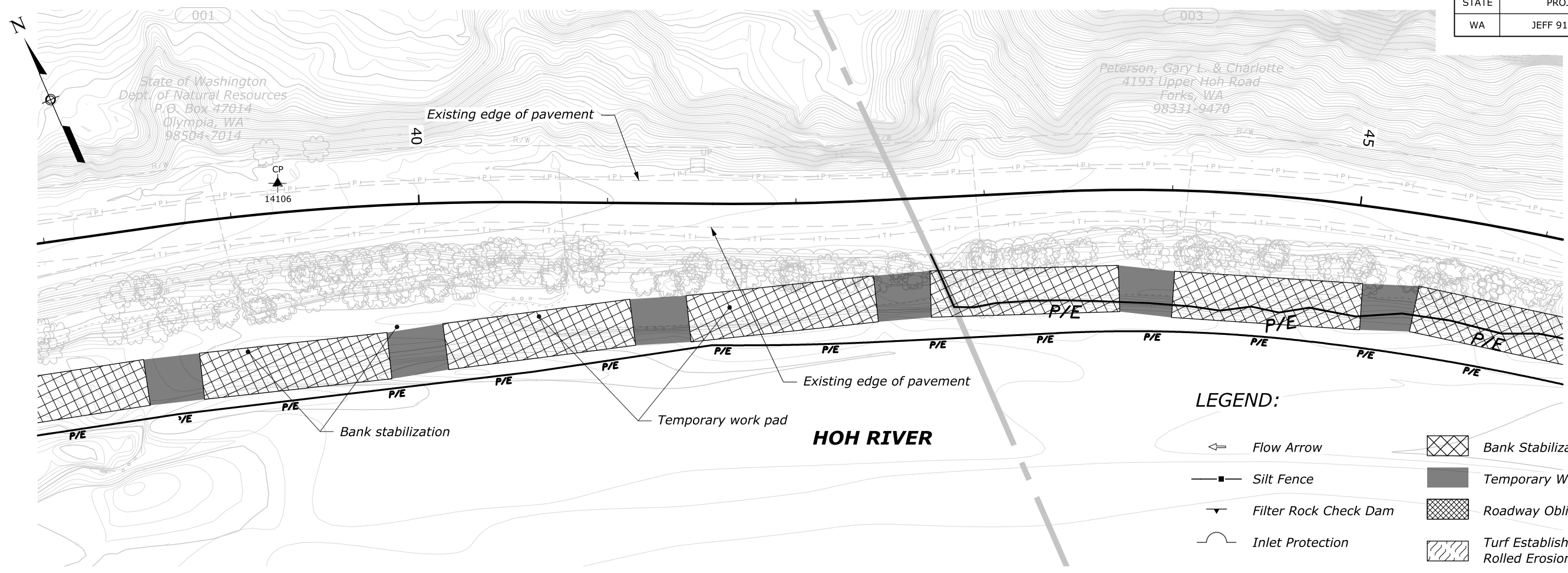


**EROSION/SEDIMENT CONTROL PLAN  
9+00 TO 39+00**

Revised by amendment A002

01/2019 Checked by: C. Conrad  
 Designed by: c:\pw-work\0203227\wa-a2013020\_db.dgn [US\_Sur\_f22]  
 17 December 2020 9:47 AM

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420 (1)	F.4

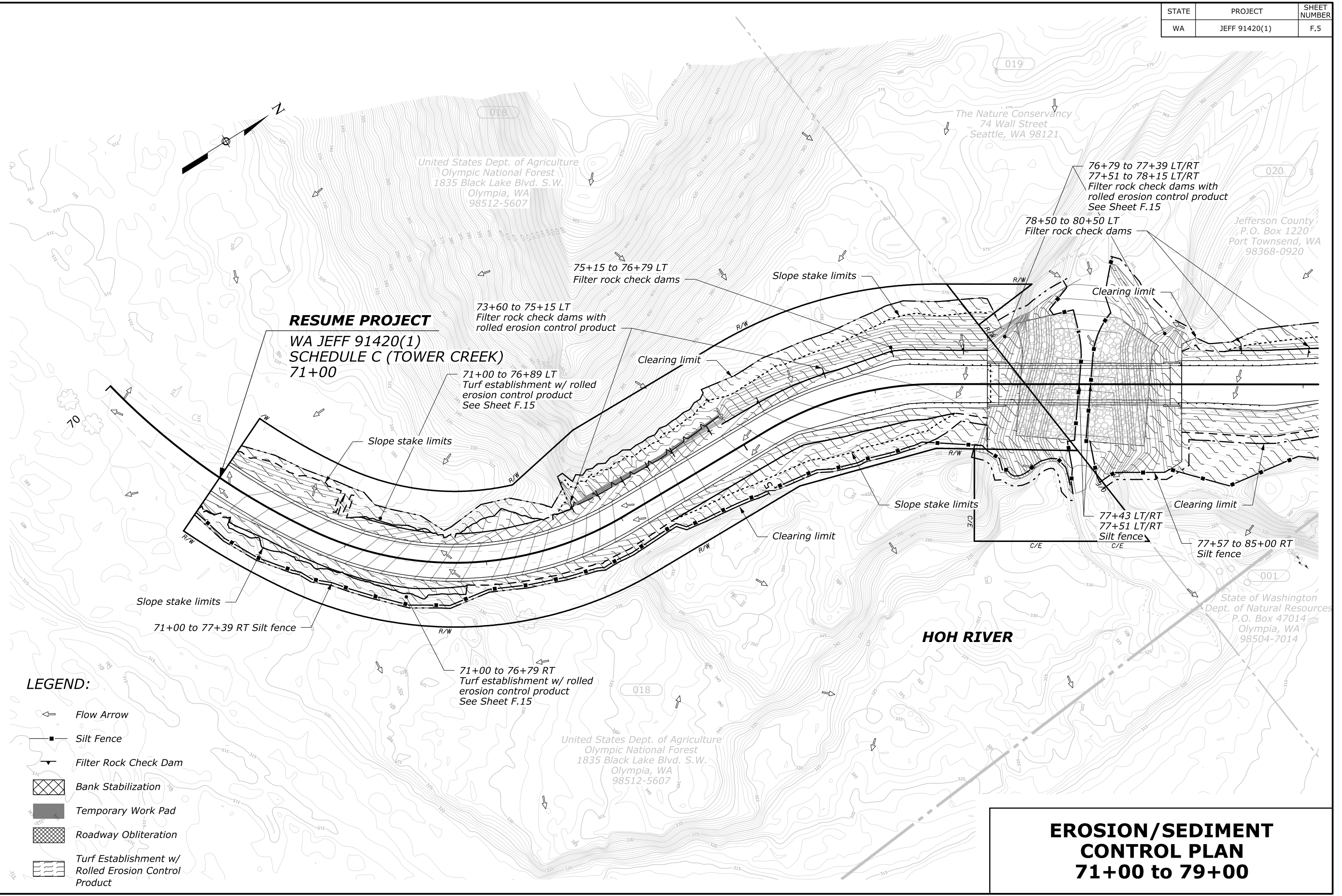


**EROSION/SEDIMENT CONTROL PLAN**  
**39+00 TO 54+00**

01/2019 Checked by: C. Conrad  
 Designed by: C. Conrad  
 9 July 2020 8:40 AM  
 c:\pw-work\0203227\wa-a2013020\_dc.dgn [US\_Sur\_f2d]

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	F.5

01/2017 Checked by: C. Conrad  
 Designed by: C. Conrad  
 9 July 2020 8:41 AM  
 c:\pw-work\0203227\wa-a2013020\_dd.dgn [US\_Sur\_ft2D]



**RESUME PROJECT**  
**WA JEFF 91420(1)**  
**SCHEDULE C (TOWER CREEK)**  
**71+00**

- LEGEND:**
- Flow Arrow
  - Silt Fence
  - Filter Rock Check Dam
  - Bank Stabilization
  - Temporary Work Pad
  - Roadway Obliteration
  - Turf Establishment w/  
Rolled Erosion Control  
Product

**EROSION/SEDIMENT  
 CONTROL PLAN  
 71+00 to 79+00**

United States Dept. of Agriculture  
 Olympic National Forest  
 1835 Black Lake Blvd. S.W.  
 Olympia, WA  
 98512-5607

The Nature Conservancy  
 74 Wall Street  
 Seattle, WA 98121

Jefferson County  
 P.O. Box 1220  
 Port Townsend, WA  
 98368-0920

State of Washington  
 Dept. of Natural Resources  
 P.O. Box 47014  
 Olympia, WA  
 98504-7014

71+00 to 77+39 RT Silt fence

71+00 to 76+79 RT  
 Turf establishment w/ rolled  
 erosion control product  
 See Sheet F.15

73+60 to 75+15 LT  
 Filter rock check dams with  
 rolled erosion control product

75+15 to 76+79 LT  
 Filter rock check dams

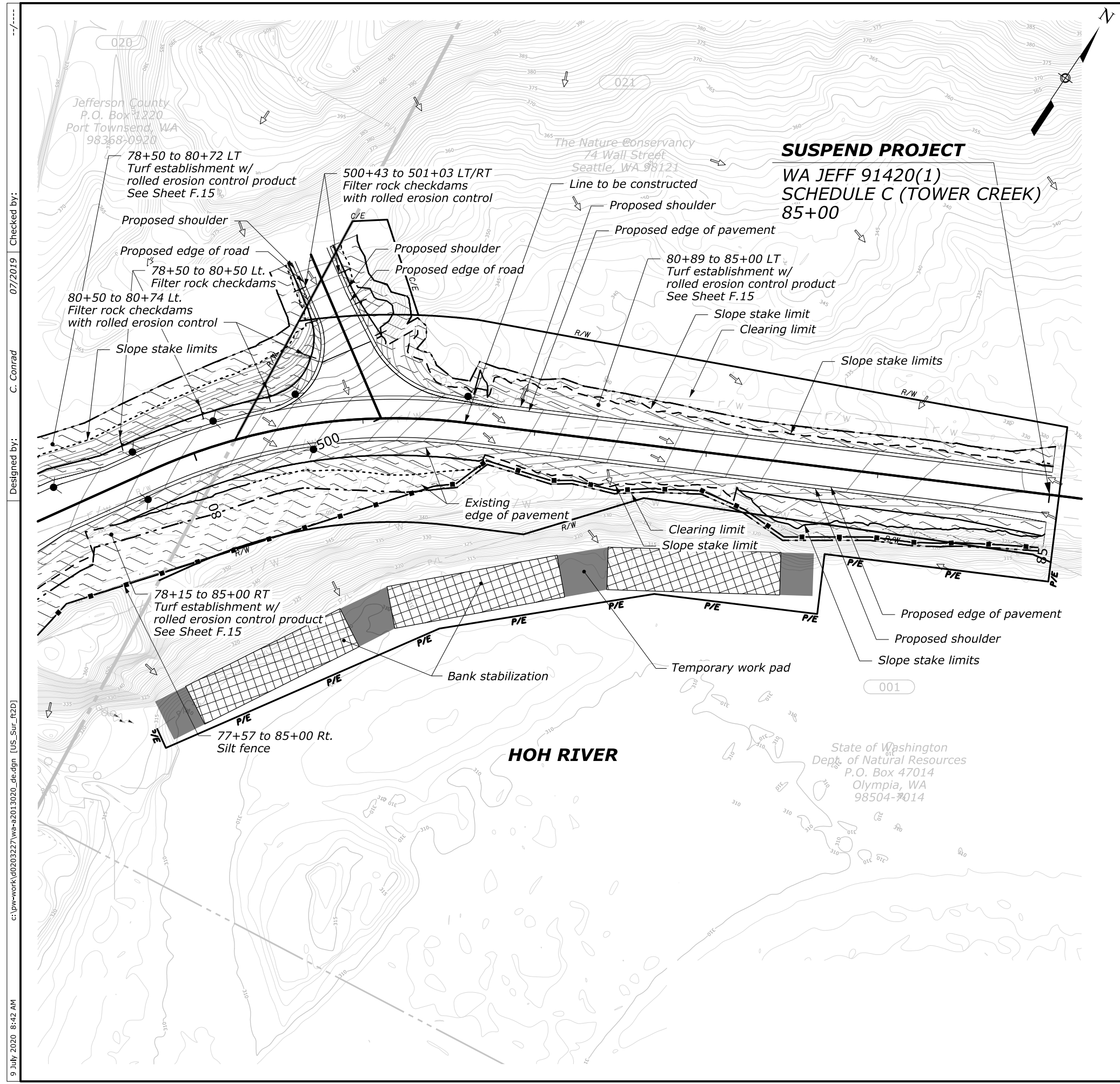
76+79 to 77+39 LT/RT  
 77+51 to 78+15 LT/RT  
 Filter rock check dams with  
 rolled erosion control product  
 See Sheet F.15

78+50 to 80+50 LT  
 Filter rock check dams

77+43 LT/RT  
 77+51 LT/RT  
 Silt fence

77+57 to 85+00 RT  
 Silt fence

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	F.6

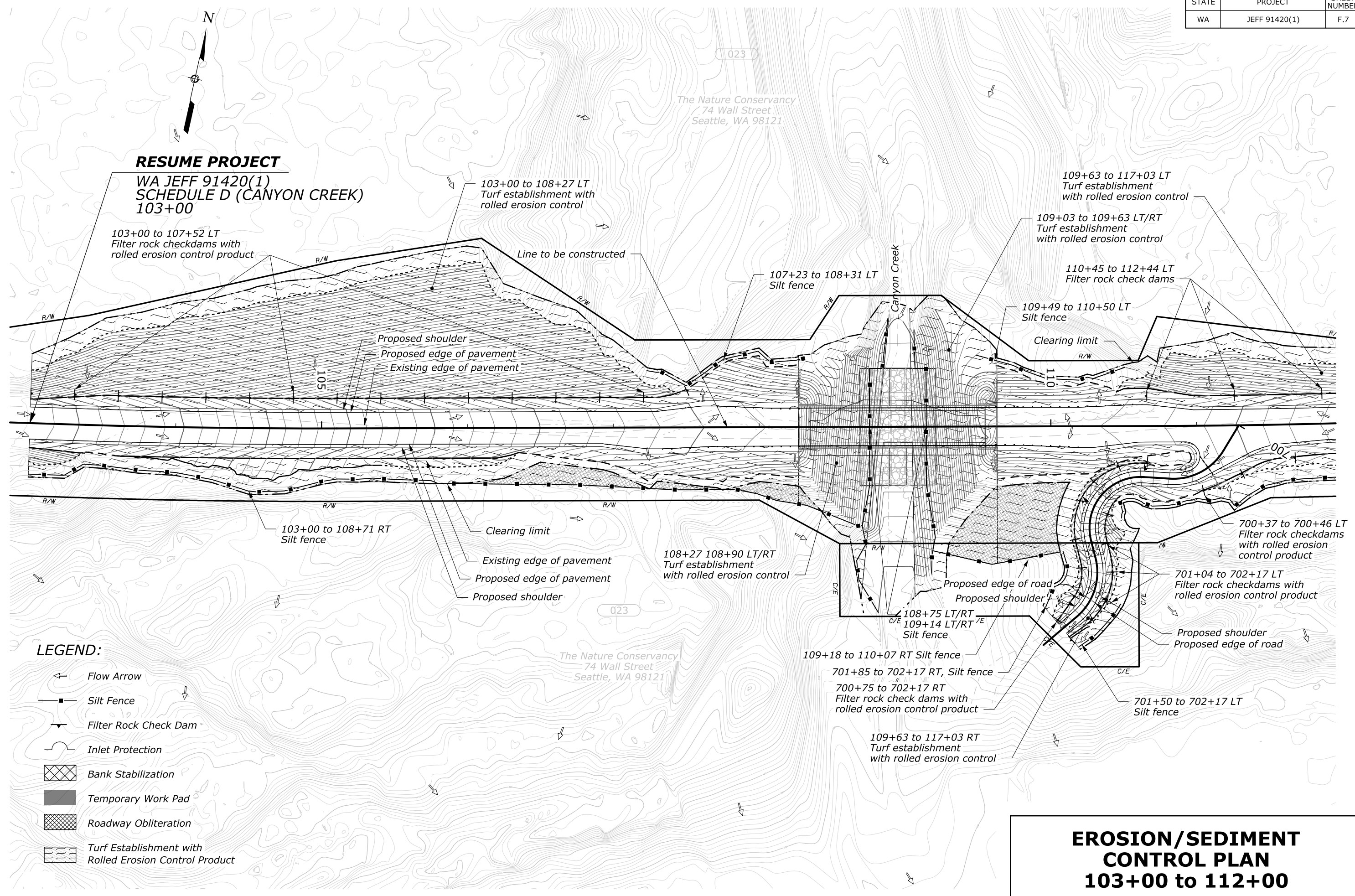


9 July 2020 8:42 AM  
 c:\pw-work\0203227\wa-a2013020\_de.dgn [US\_Sur\_f2D]  
 Designed by: C. Conrad  
 Checked by: 07/2019

**EROSION/SEDIMENT CONTROL PLAN**  
**79+00 to 85+00**

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	F.7

**RESUME PROJECT**  
**WA JEFF 91420(1)**  
**SCHEDULE D (CANYON CREEK)**  
**103+00**



**LEGEND:**

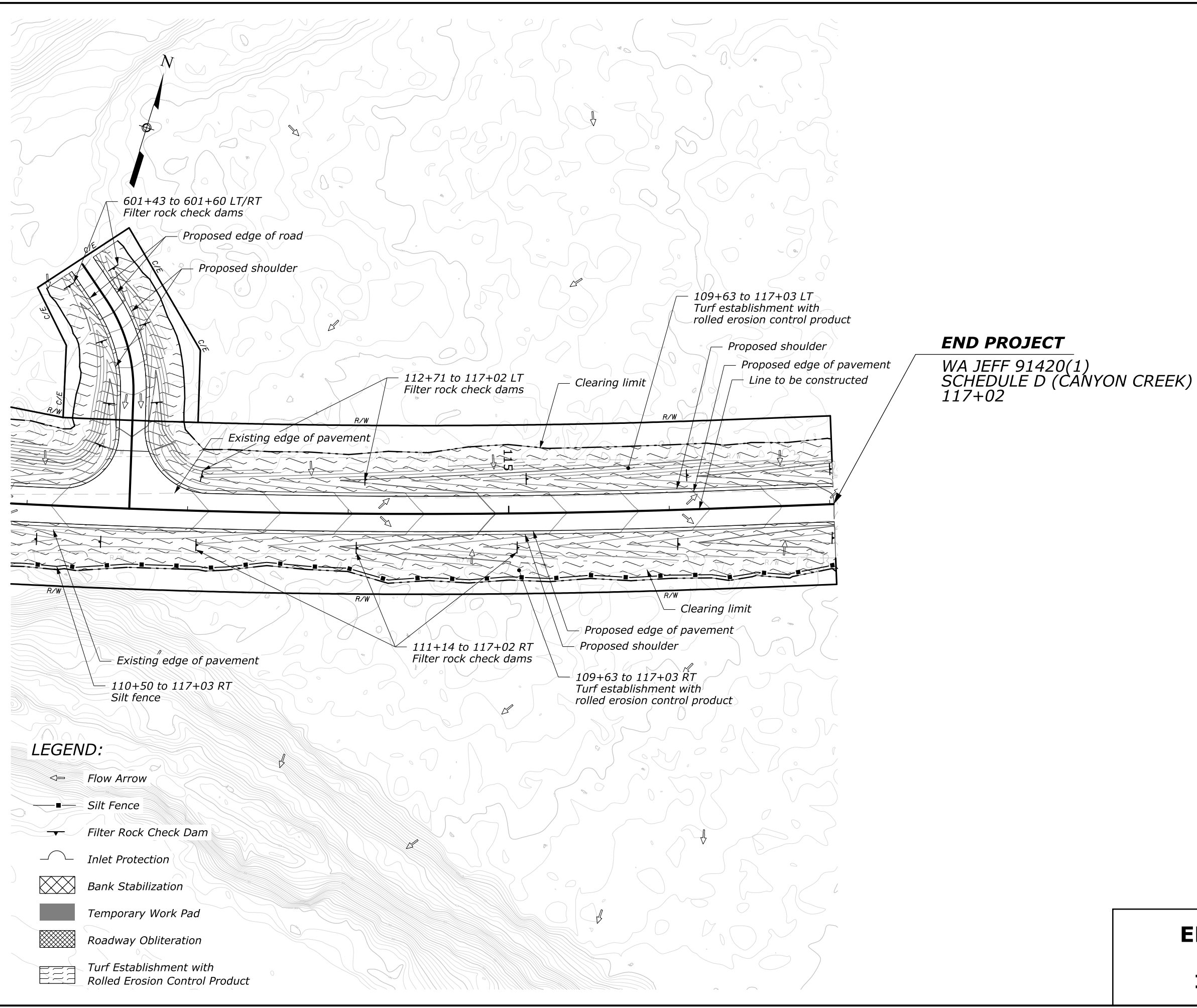
- Flow Arrow
- Silt Fence
- Filter Rock Check Dam
- Inlet Protection
- Bank Stabilization
- Temporary Work Pad
- Roadway Obliteration
- Turf Establishment with Rolled Erosion Control Product

**EROSION/SEDIMENT CONTROL PLAN**  
**103+00 to 112+00**

9 July 2020 8:44 AM  
 c:\pw-work\0203227\wa-a2013020\_df.dgn [US\_Sur\_f.r2D]  
 Designed by: C. Conrad 01/2019 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	F.8

28 May 2020 12:16 PM  
 c:\pw-work\0203227\wa-a2013020\_dg.dgn [US\_Sur\_f2D]  
 Designed by: C. Conrad  
 01/2019  
 Checked by:

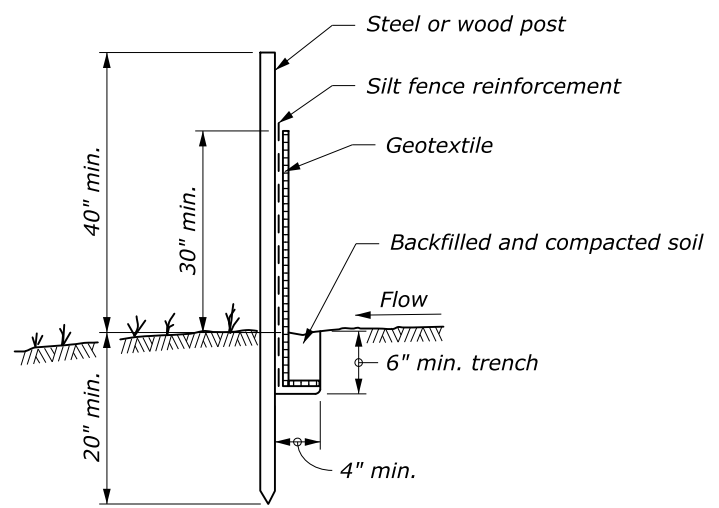


**END PROJECT**  
 WA JEFF 91420(1)  
 SCHEDULE D (CANYON CREEK)  
 117+02

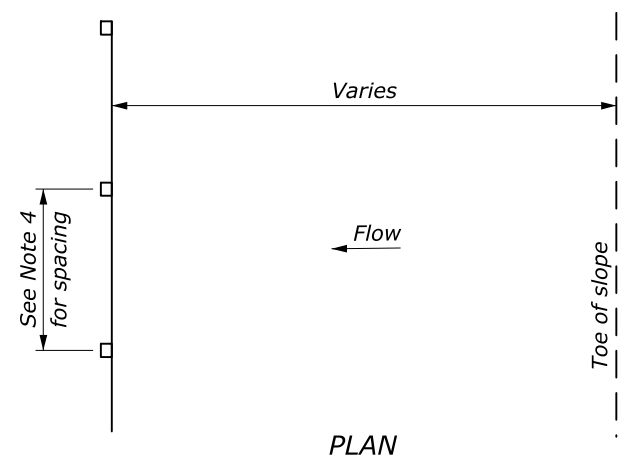
- LEGEND:**
- Flow Arrow
  - Silt Fence
  - Filter Rock Check Dam
  - Inlet Protection
  - Bank Stabilization
  - Temporary Work Pad
  - Roadway Obliteration
  - Turf Establishment with Rolled Erosion Control Product

**EROSION/SEDIMENT CONTROL PLAN**  
**112+00 to 117+02**

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	F.9

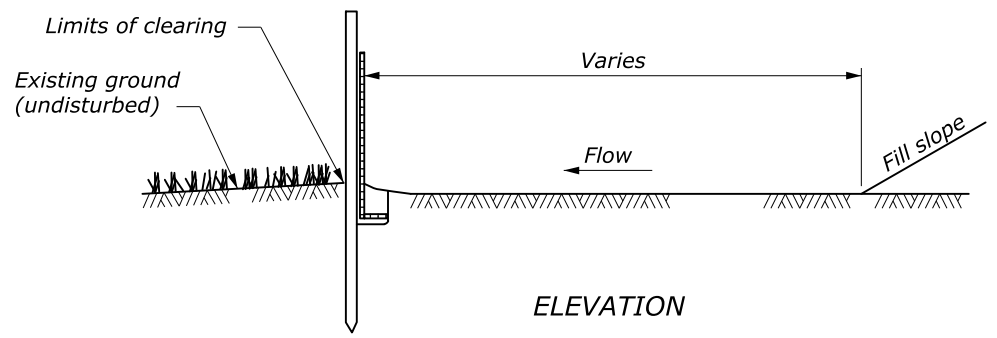
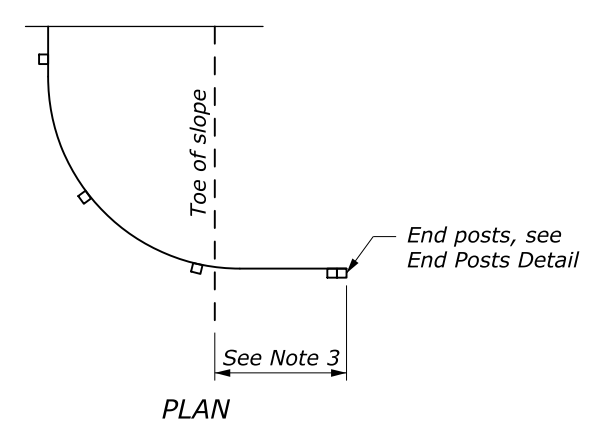


**POST AND GEOTEXTILE INSTALLATION DETAIL**

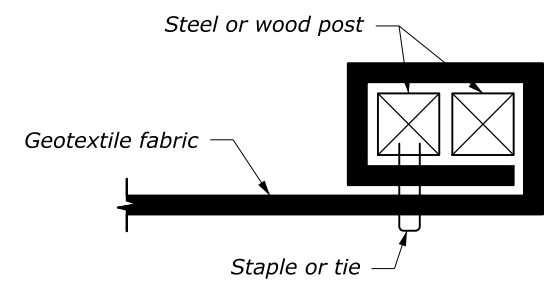


**NOTE:**

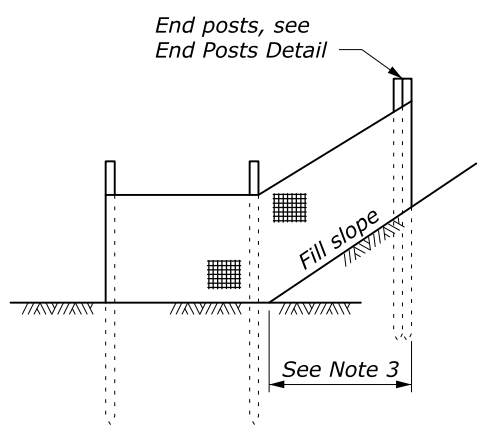
1. Alternate preassembled silt fence options will be allowed as long as specified dimensions are satisfied. Follow manufacturer's recommendations for installation procedures. All types must ensure silt fence remains attached to, and does not slide down, supporting posts.
2. Install silt fence to follow the ground contours as closely as possible.
3. Curve ends of silt fence upgrade to prevent water from running around the ends.
4. 10-foot (max.) spacing with silt fence reinforcement. 6-foot (max.) spacing without silt fence reinforcement.



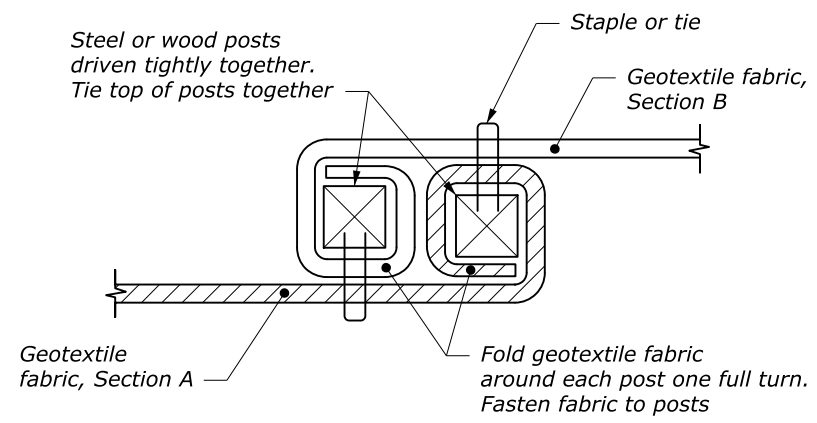
**SILT FENCE INSTALLATION AT TOE OF FILL**



**END POSTS DETAIL**



**END DETAIL**



**POSTS AT JOINTS**

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>SILT FENCE</b>	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-1

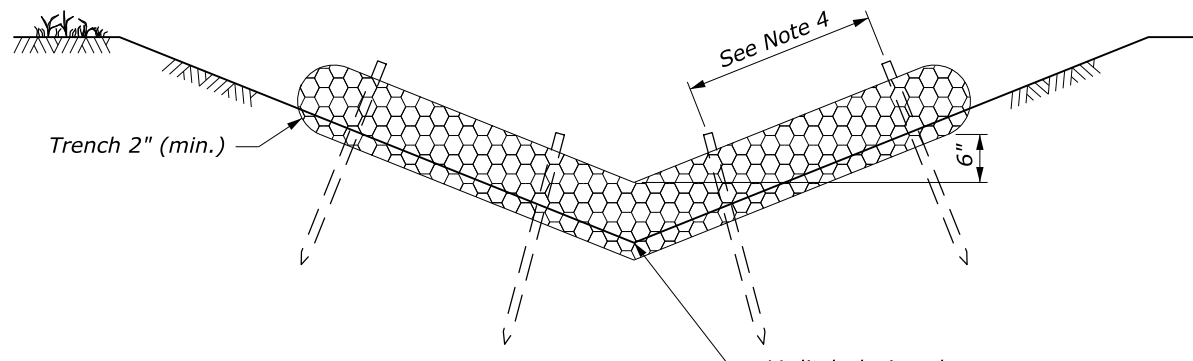
NO SCALE

c:\pw-work\0203227\wa-a2013020\_dh.dgn [USC] 9 March 2020 1:44 PM



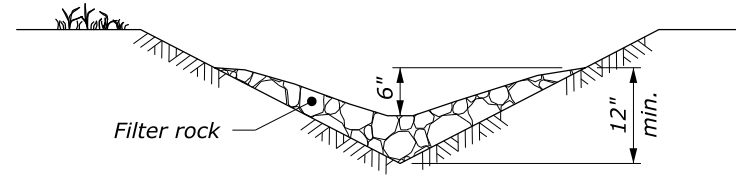
**NOTE:**

1. Construct check dams from fiber rolls, filter rock, or gravel bags as approved by the CO, to meet the functional requirements of the check dam device.
2. Repair all rills or gullies and properly compact prior to installation.
3. Install check dams in ditches perpendicular to the flowline.
4. Stake fiber rolls in place with 1½-inch x 1½-inch wood stakes. Drive stakes at each end of the fiber roll and at 2-foot (max.) spacing.
5. Drive stakes into undisturbed soil of trench bottom. Expose stakes 2-inches (min.) above top of fiber roll.
6. Provide sufficient length to prevent water from flowing around the ends of the fiber roll.
7. Adjust check dam spacing based on site-specific conditions.

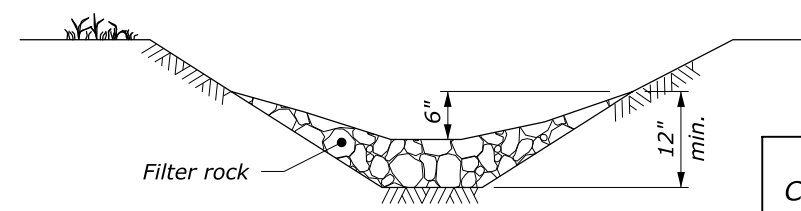


**CROSS SECTION**

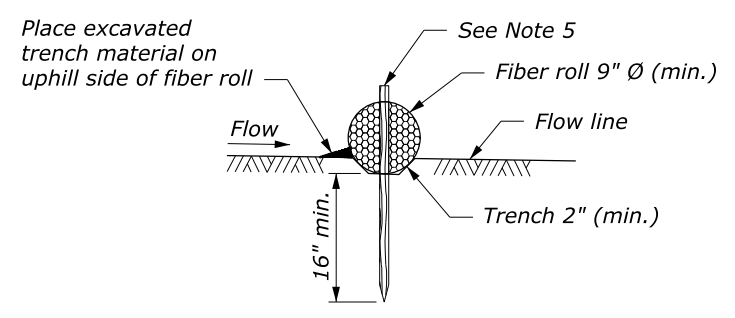
V-ditch design shown. Check dam installation details are similar for flat-bottom ditches



**V-DITCH CROSS SECTION**



**FLAT-BOTTOM DITCH CROSS SECTION**



**FIBER ROLL STAKING DETAIL**

FIBER ROLL CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60

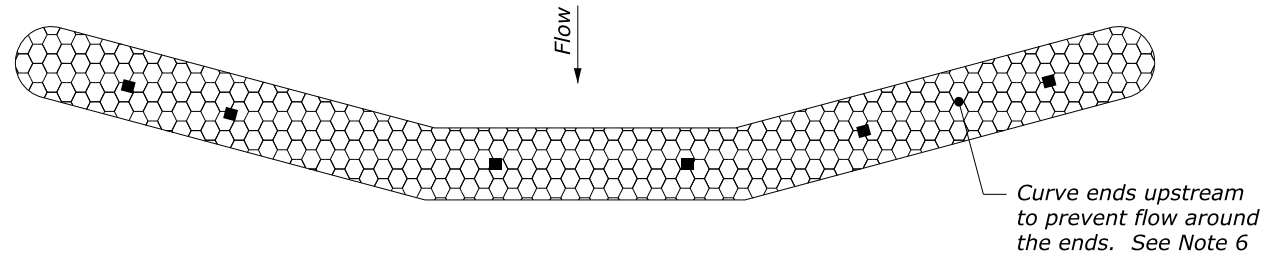
\* Spacing calculated based on 9" Ø minimum fiber roll. Do not use fiber roll check dams on ditch grades steeper than 5%.

FILTER ROCK CHECK DAM SPACING (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60
6%	50

**FILTER ROCK CHECK DAM**

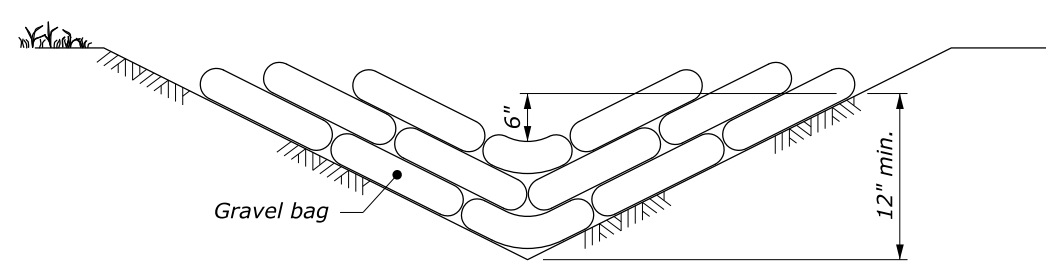
GRAVEL BAG CHECK DAM SPACING* (See Note 7)	
DITCH GRADE	CHECK DAM SPACING (max.) (FT)
2%	150
3%	100
4%	80
5%	60
6%	50

\* Do not use gravel bag check dams on ditch grades steeper than 6%.



**PLAN**

**FIBER ROLL CHECK DAM**



**CROSS SECTION**

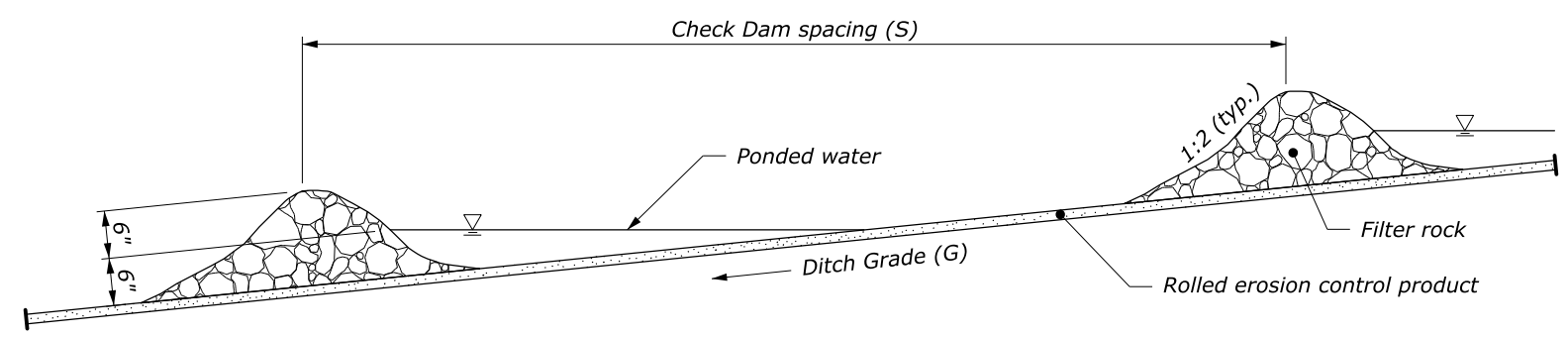
**GRAVEL BAG CHECK DAM**

NO SCALE

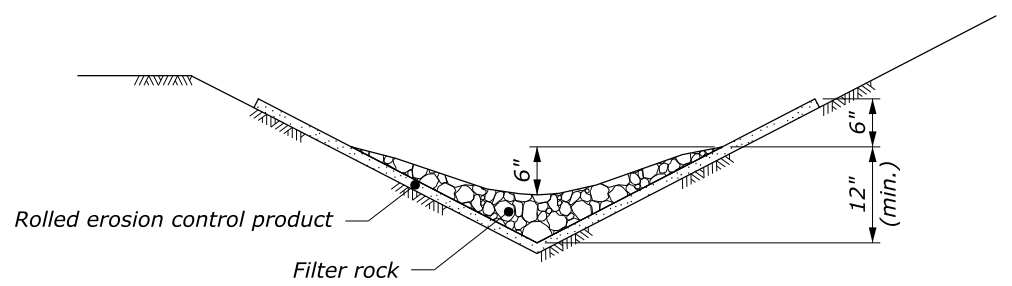
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>CHECK DAM MODERATE GRADES</b>	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-15

**NOTE:**

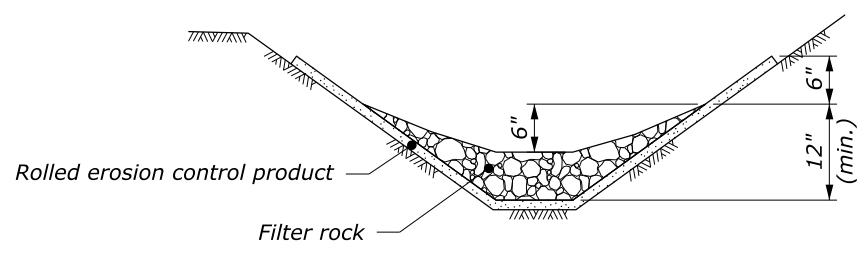
1. Repair all rills or gullies and properly compact prior to installation.
2. Install check dams in ditches perpendicular to the flowline.
3. Adjust check dam spacing based on site-specific conditions.



PROFILE VIEW



CROSS SECTION V-DITCH



CROSS SECTION FLAT-BOTTOM DITCH

FILTER ROCK CHECK DAM SPACING (See Note 3)	
DITCH GRADE (G)	MAX. CHECK DAM SPACING (S) (FT)
7%	40
8% and 9%	30
≥10%	20

**FILTER ROCK CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT**

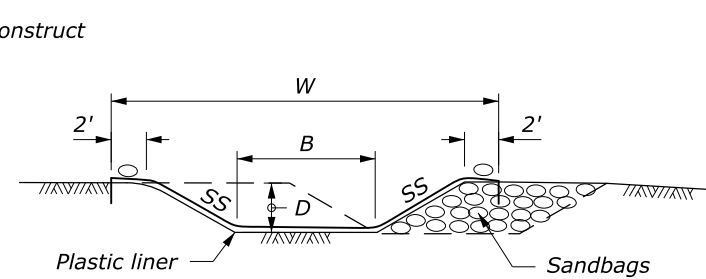
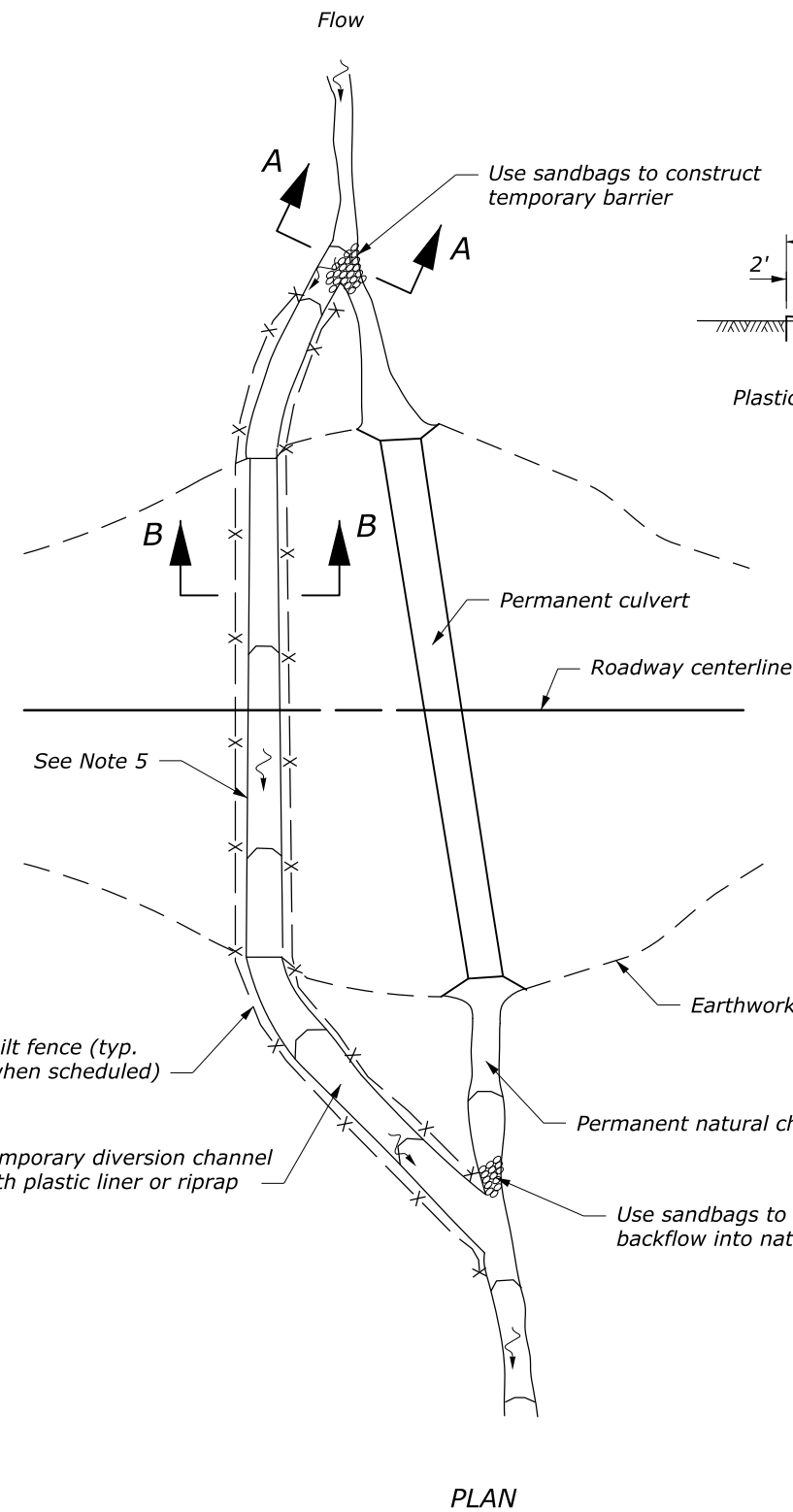
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>CHECK DAM WITH ROLLED EROSION CONTROL PRODUCT</b>	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-16

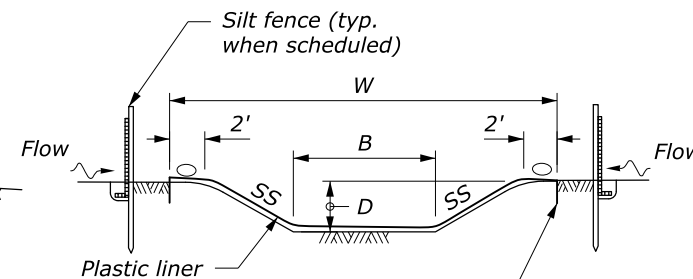
c:\pw-work\0203227\wa-a2013020\_dj.dgn [USC] 17 July 2019 2:03 PM

**NOTE:**

1. See Erosion Control Section for temporary culvert diameter, riprap class, channel dimensions and quantities.
2. Use plastic liner or riprap along the entire length and width of the temporary diversion channel.
3. Construct channel at a minimum grade of 0.5 percent.
4. Do not construct with longitudinal joints if using a plastic liner. Bury the upstream edge of the liner a minimum of 6" deep and secure with riprap or sandbags.
5. When specified replace the portion of the diversion channel through the roadway embankment with temporary culvert. Compact temporary culvert backfill using one of the methods listed in Subsection 204.11(a).



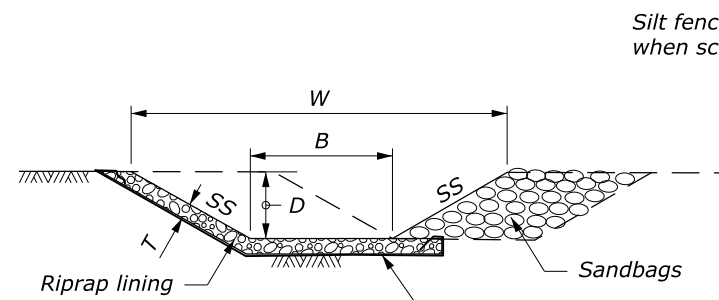
SECTION A-A



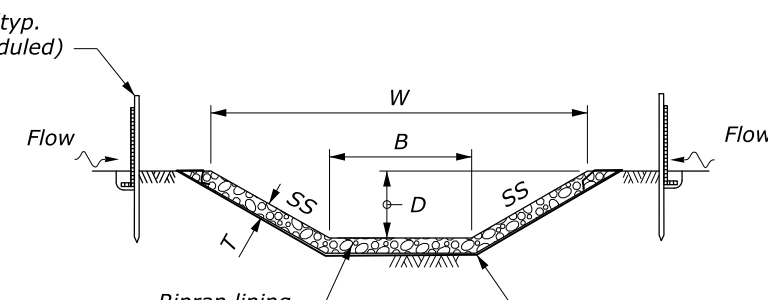
Bury plastic liner 6" deep and secure with sandbags (typ.)

SECTION B-B

**PLASTIC LINED DIVERSION CHANNEL**

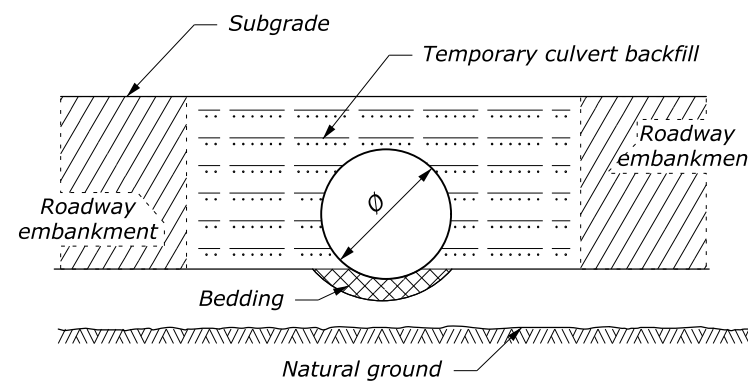


SECTION A-A



SECTION B-B

**RIPRAP LINED DIVERSION CHANNEL**



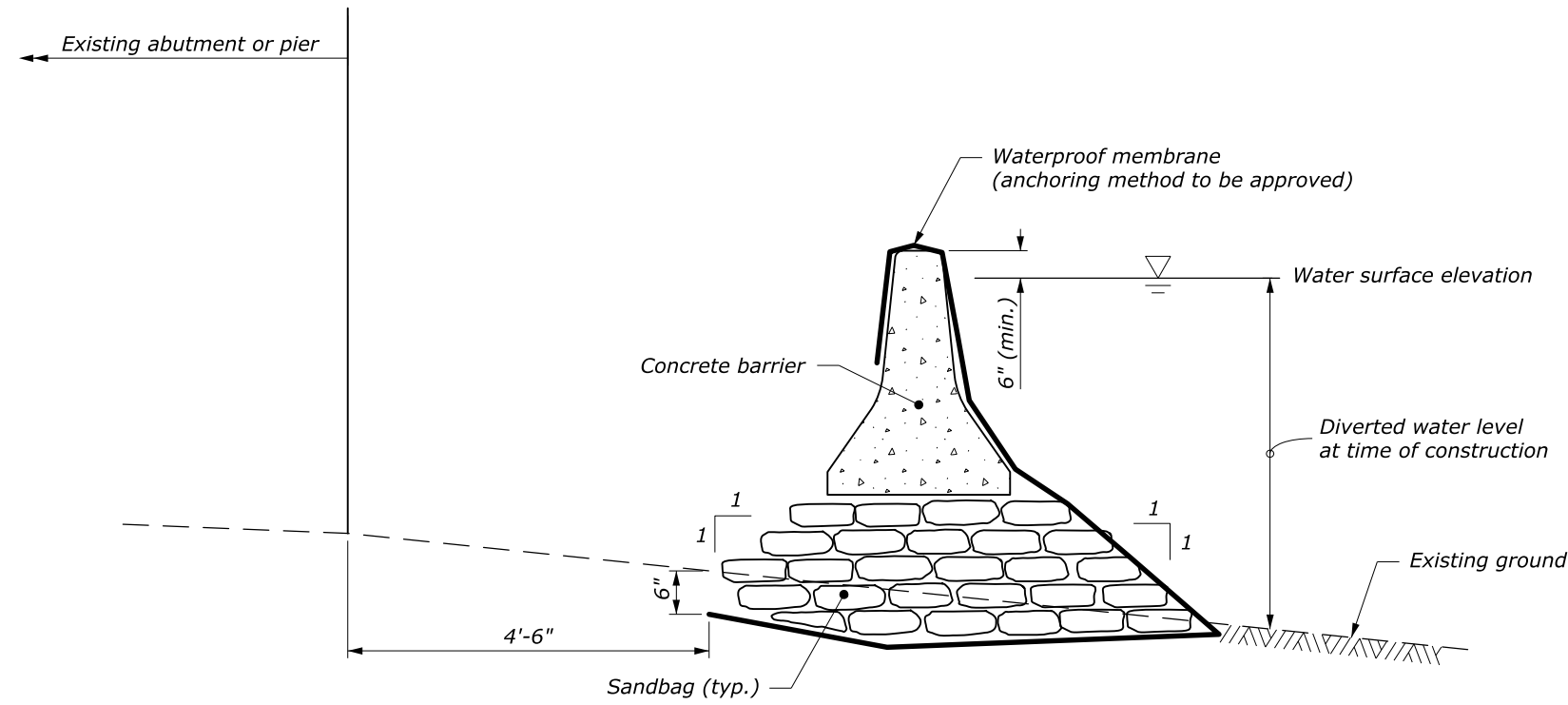
SECTION B-B

**TEMPORARY CULVERT**

**DIVERSION CHANNEL**

NO SCALE

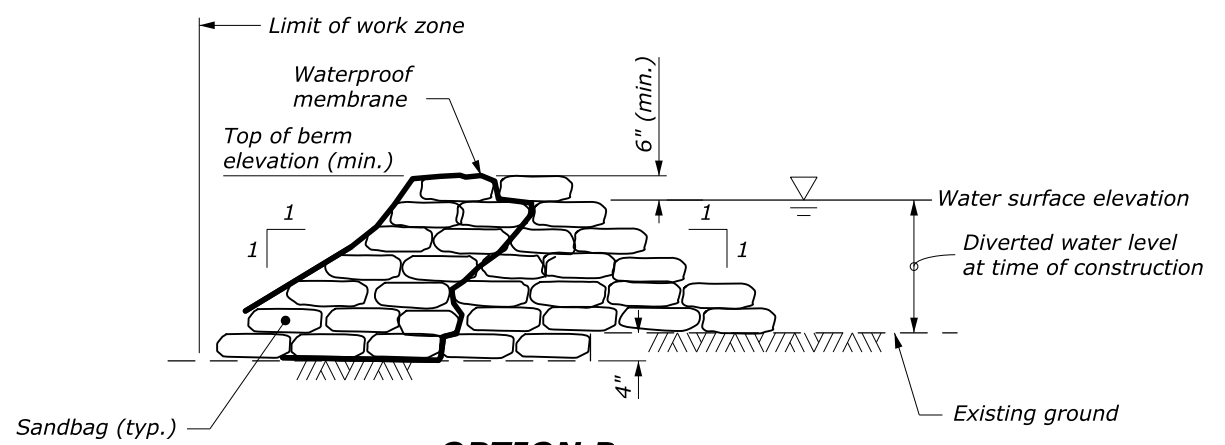
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
<b>TEMPORARY DIVERSION CHANNELS</b>	
STANDARD APPROVED FOR USE 6/2005	STANDARD
REVISED: 6/2007 DRAFT: 3/2014	157-5



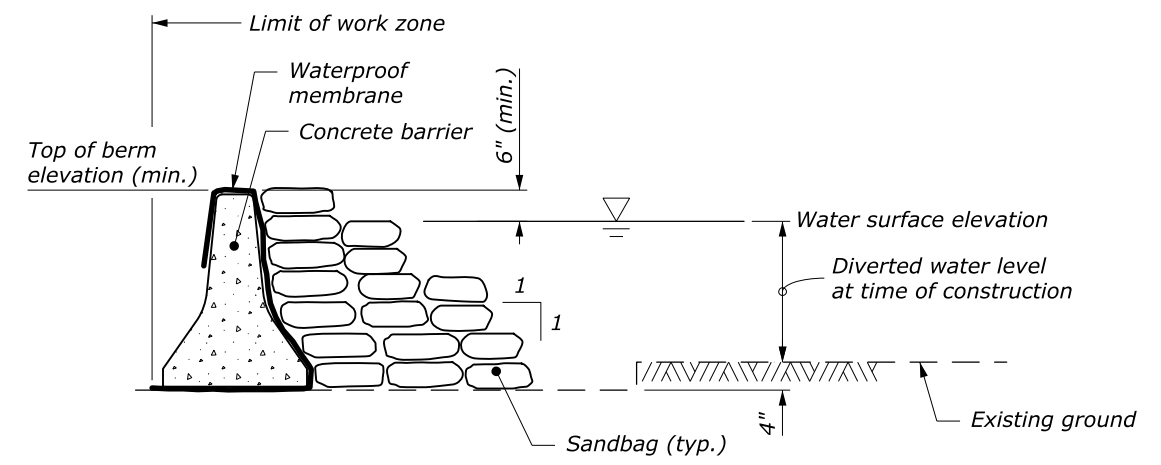
**OPTION A**

**NOTE:**

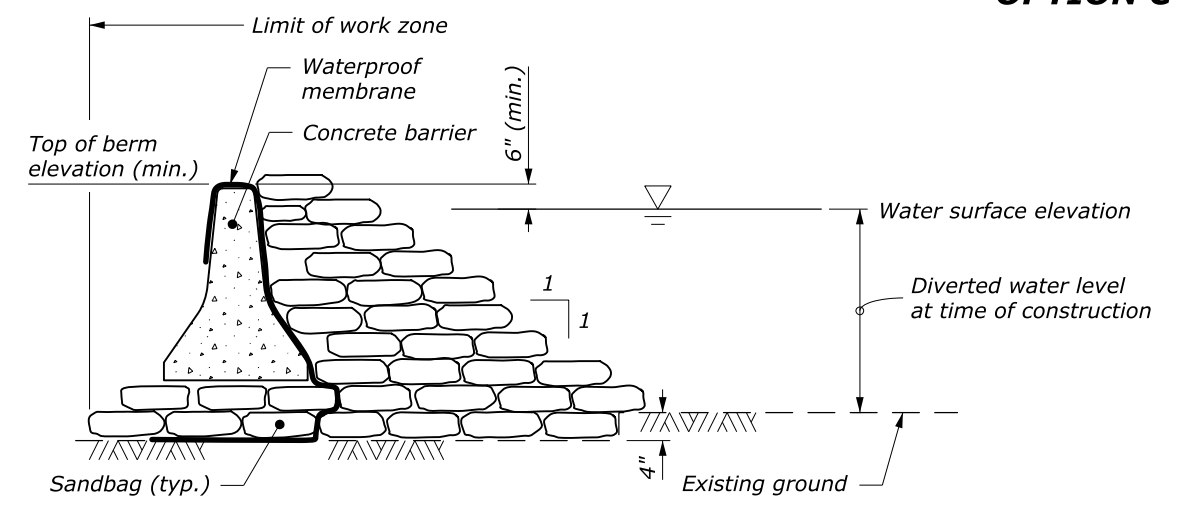
1. These options suggest configurations for diverting a stream during construction operations. Alternate stream diversion methods may be chosen (including any approved prefabricated or portable diversion berms, dams, etc.). As a minimum, provide a temporary diversion berm with a minimum height equal to the water surface elevation with 6" (min.) freeboard. Submit temporary stream diversion plans for approval prior to installation.
2. Place sandbags to form a pyramid by laying equal numbers of bottom rows as there are vertical course. Overlap the upper rows of sandbags above the joints in lower rows.
3. Place a maximum of one diversion in the stream at any given time.
4. While in use, inspect and maintain the temporary diversion berm daily. Repair as needed after rainfall events or as directed. Remove sediment when deposits reach half the height of the sandbag barrier.



**OPTION B**



**OPTION C**

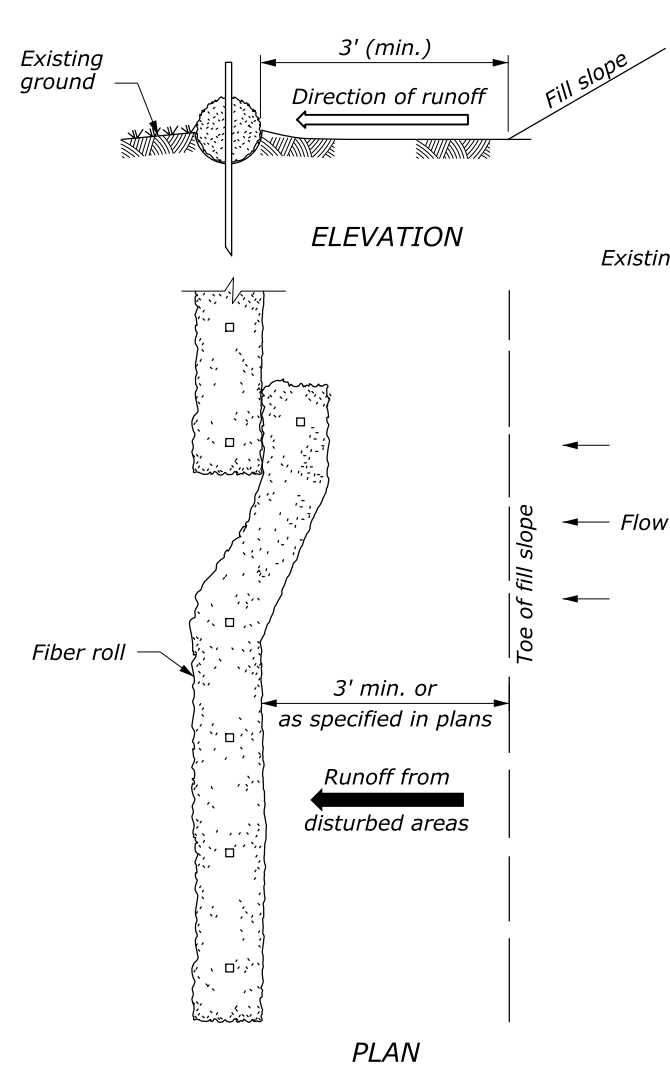


**OPTION D**

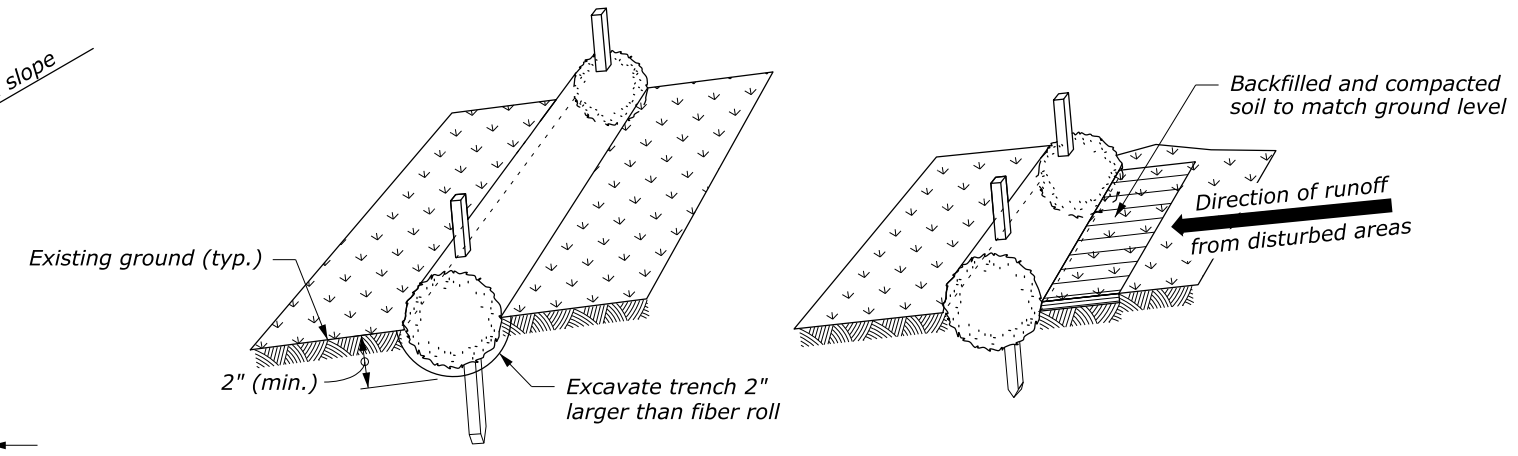
NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>TEMPORARY DIVERSION BERM METHODS</b>	
DETAIL APPROVED FOR USE --/----	DETAIL
REVISED: 7/2016	W157-17

c:\pw-work\0203227\wa-a2013020\_dk.dgn [USC] 17 July 2019 2:37 PM



**INSTALLATION BEYOND TOE OF SLOPE**

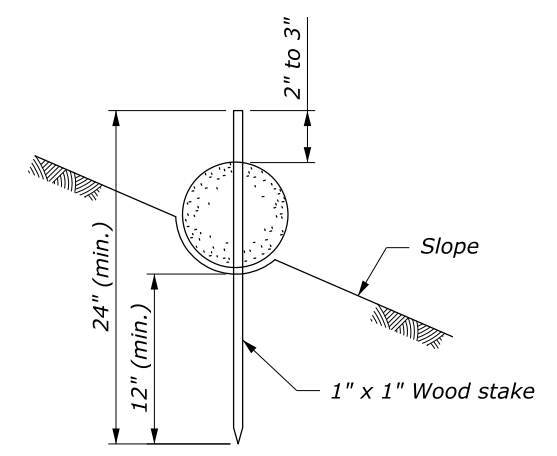


**PROPERLY STAKED AND ENTRENCHED FIBER ROLL**

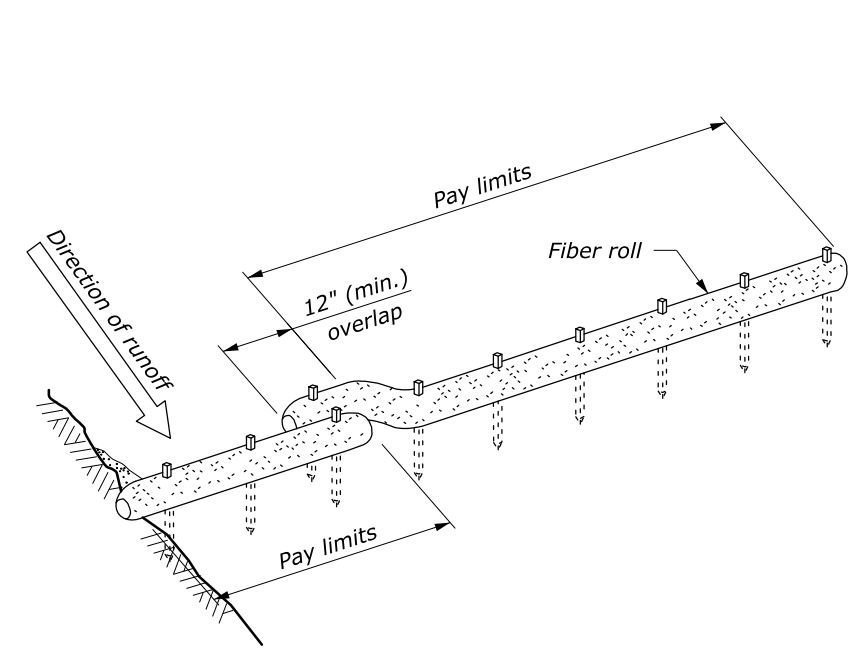
FIBER ROLL SPACING	
Slope	Spacing (FT)
1:4 or flatter	40
1:3	30
1:2	20
1:1	10

STAKES REQUIRED	
Fiber roll length (FT)	Stakes required for each roll
25	8
20	6
12	4

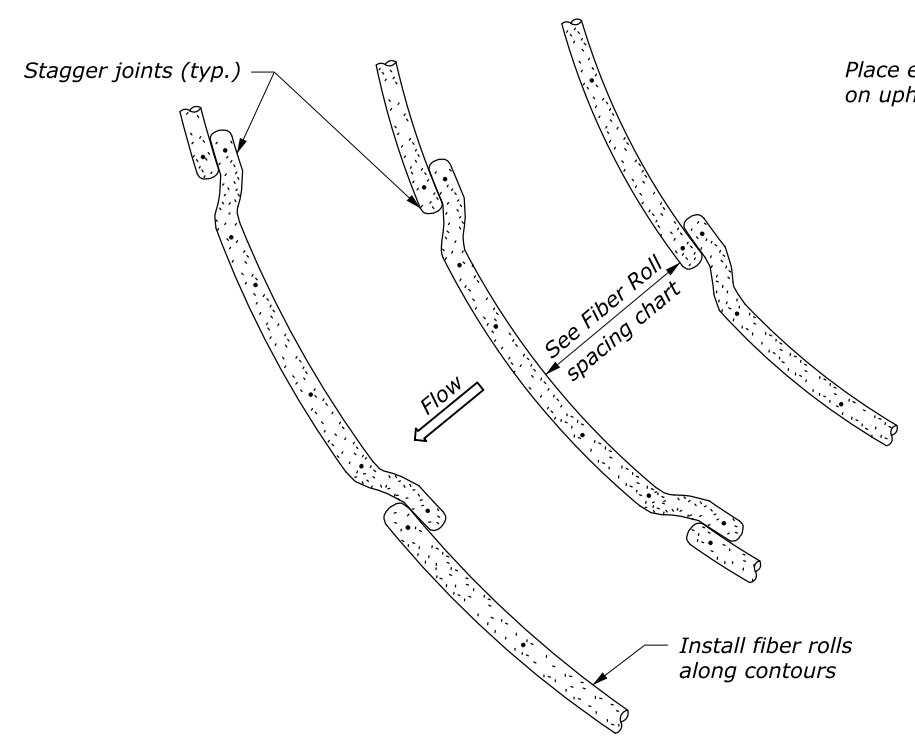
- NOTE:**
1. Drive stakes at each end and at 4-foot spacing until fiber roll is secure to slope. Live stakes may be used for permanent installations. Do not crush fiber roll while staking.
  2. Overlap fiber rolls 12-inch minimum. Drive stakes at 6-inches from fiber roll end angles towards the adjacent fiber roll and space stakes at 4-foot max.



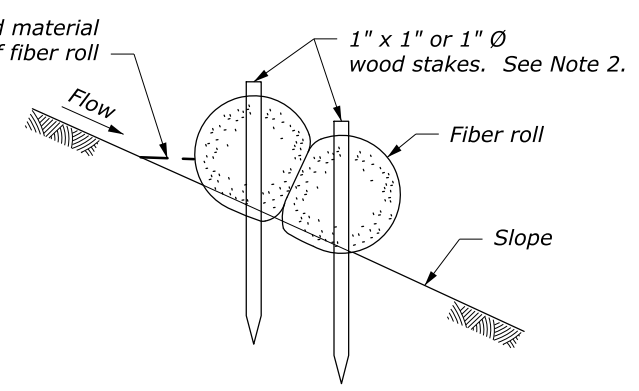
**FIBER ROLL STAKING DETAIL**



**SLOPE PROTECTION INSTALLATION**



**INSTALLATION ALONG SLOPES**



**FIBER ROLL LAPPING DETAIL**

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

U.S. CUSTOMARY DETAIL

**FIBER ROLL**

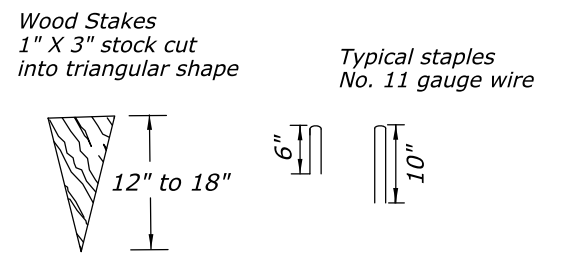
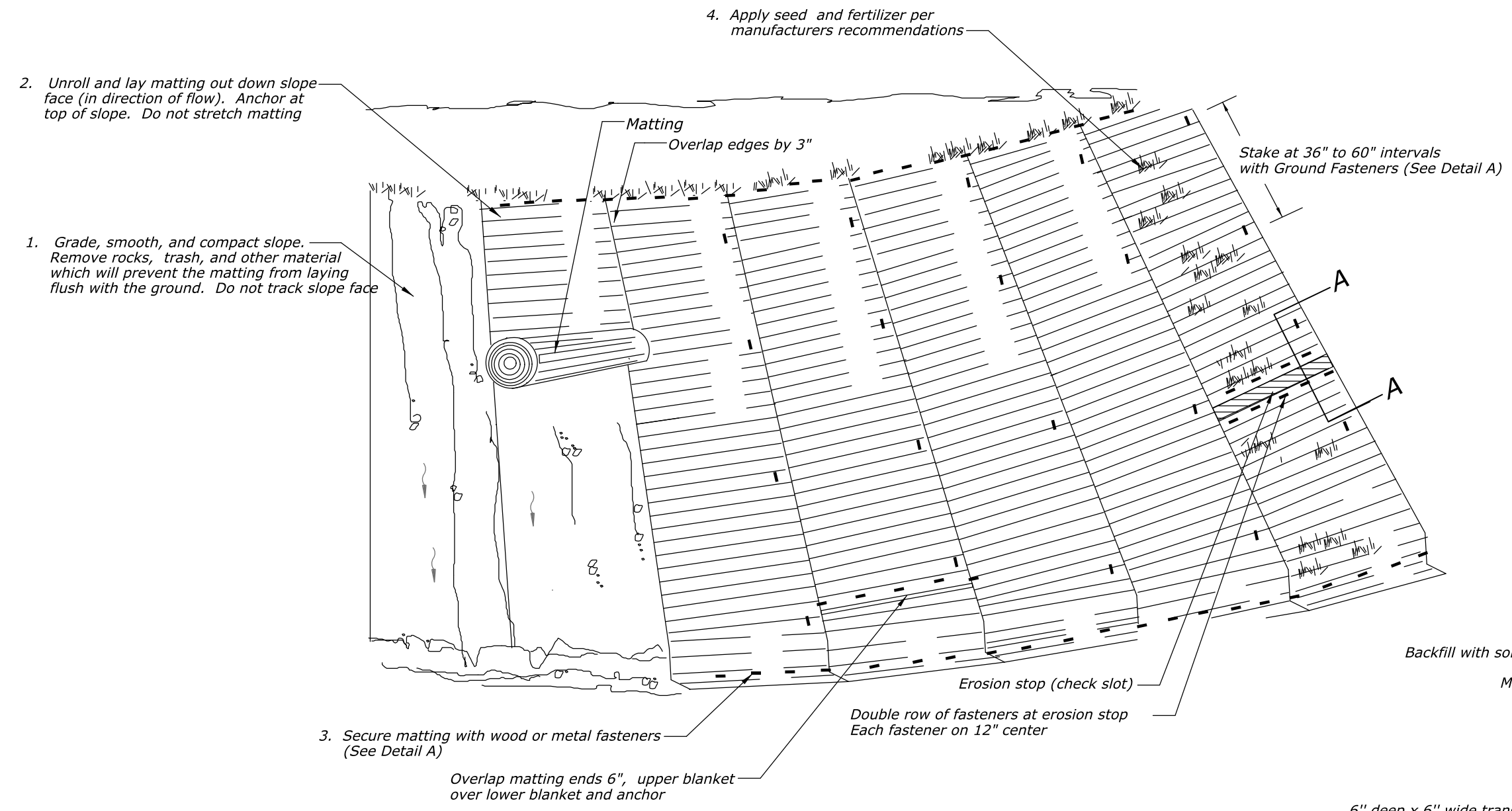
DETAIL APPROVED FOR USE 10/2014  
 REVISIONS: 7/2016  
 DRAFT: 7/2016

DETAIL  
 W157-21

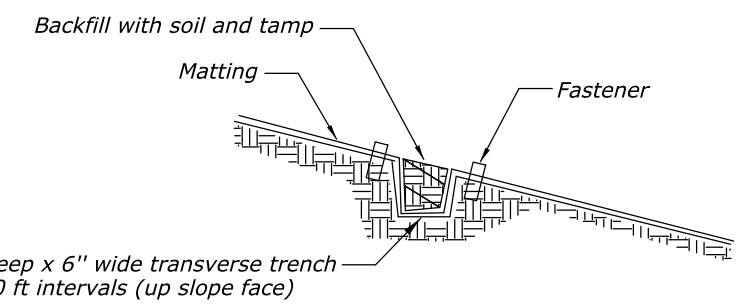
NO SCALE

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	F.15

Checked by: \_\_\_\_\_  
 Designed by: \_\_\_\_\_  
 c:\pw-work\0203227\wa-a2013020\_dh.dgn [US Customary]  
 17 July 2019 2:42 PM



**DETAIL A**  
**Typical Ground Fasteners**



**SECTION A-A**  
**Erosion Stop (Check Slot) Detail**

**DETAIL FOR STABILIZING SLOPES WITH MATTING**

NO SCALE

U.S. CUSTOMARY DETAIL	
<b>SLOPE STABILIZATION WITH MATTING</b>	
DETAIL APPROVED FOR USE	DETAIL
APPROVED: MAY 2011 REVISED: SEPTEMBER 2014	E629-01

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.1

**ESTIMATE OF QUANTITIES**

ITEM NO.	ITEM	QUANTITY		UNIT	NOTES
		SCHEDULE C	SCHEDULE D		
20304-2000	Removal Of Bridge	ALL	ALL	LPSM	
20801-0000	Structure Excavation	245	265	CUYD	
20803-0000	Structure Backfill	200	685	CUYD	
40301-0100	Asphalt Concrete Pavement Type 1	85	170	TON	
55101-2200	Steel Pipe Piles, In Place (24-Inch Diameter X 0.75-Inch)	785	1,630	LNFT	
55104-0000	Dynamic Load Pile Test	2	4	EACH	
55201-0200	Structural Concrete, Class A(AE)	40	80	CUYD	(1)
55201-0800	Structural Concrete, Class D(AE)	37	74	CUYD	(1)
55202-2000	Structural Concrete, Class D(AE), For Approach Slabs, Type 2	59	118	SQYD	(1)
55235-0000	Expansion Joints	58	116	LNFT	
55302-2700	Precast, Prestressed Concrete Deck Bulb Tee Girders, 53-Inch	595	1,190	LNFT	
55401-1000	Reinforcing Steel	5,100	10,010	LB	(1)
55401-2000	Reinforcing Steel, Epoxy Coated	5,150	10,300	LB	(1)
55601-1100	Bridge Railing, Steel, Two Rail	356	712	LNFT	(1)
55901-0000	Membrane Waterproofing	350	700	SQYD	
56401-1000	Bearing Device, Elastometric	10	20	EACH	

(1) Contract Quantity

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

OLYMPIC NATIONAL PARK

TOWER CREEK BRIDGE & CANYON CREEK BRIDGE

**TABULATION OF QUANTITIES  
(SCHEDULES C & D)**

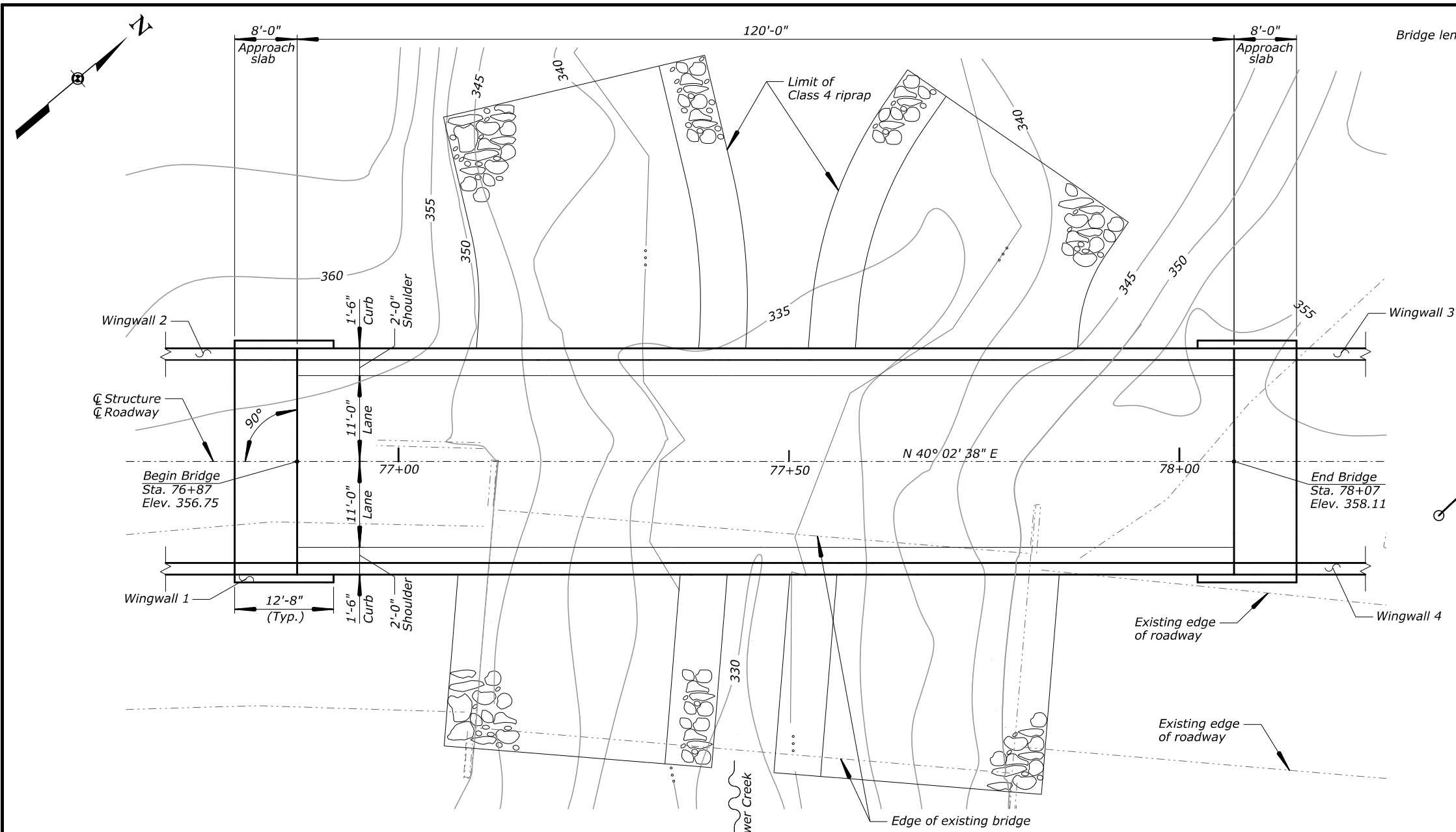
\\f115f1reserve.f1nd.fhwa.dot.gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\NBridge\Microstation\Bridges\Files\XX\091420\PROJECTS\O\_PROJECTS\O\_PROJECTS.dgn 14-Oct-2020 09:20 AM

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	LTE	HC		George Choubah	1 of 1	October 2020	

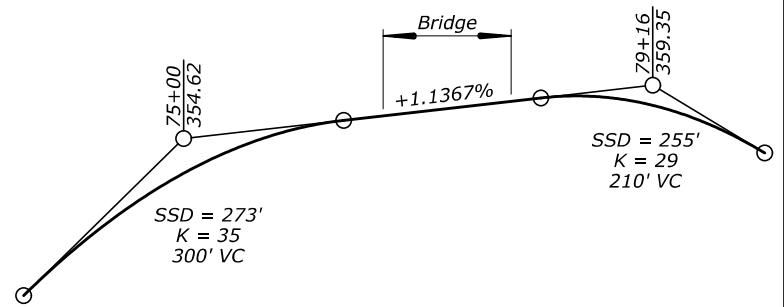
\\ff15f\reserve\hd\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\NBridge\Microstation\Bridge Design Files\Tower Creek\NO\_PROJECTS\ACTUAL FILE: PE\_TOWER.DGN  
 14-Oct-2020 09:21 AM

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.2

Notes:  
 1. See "TOWER CREEK BRIDGE PLAN AND PROFILE" sheet for hydraulic information.

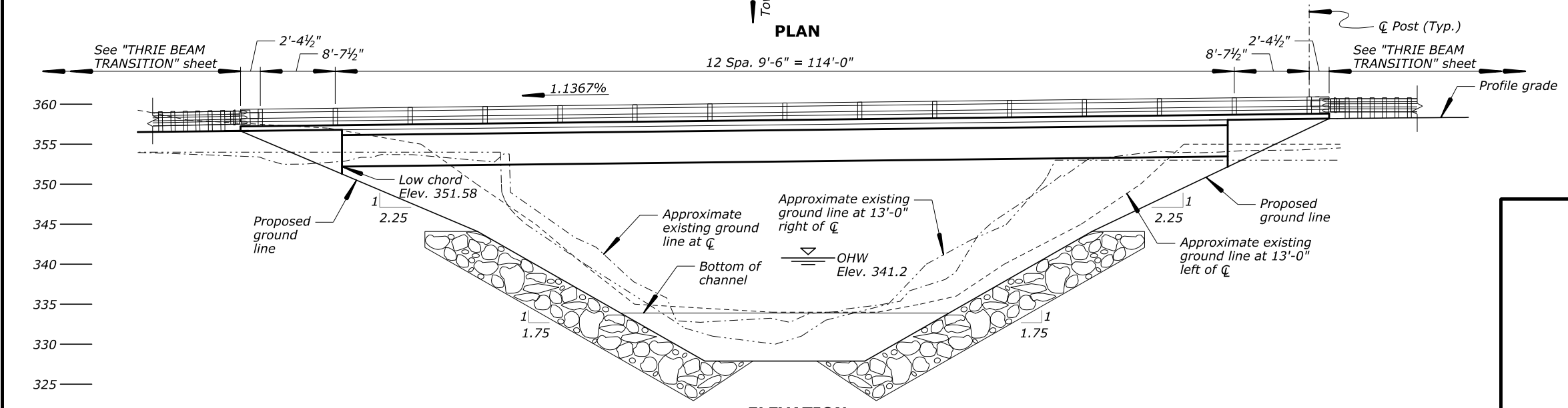


Bridge length = 120'-0"



**PROFILE GRADE**  
No Scale

**PLAN**



**ELEVATION**

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 TOWER CREEK BRIDGE  
  
**PLAN AND ELEVATION**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	1/8" = 1'	George Choubah	1 of 18	October 2020	RG3105-A



STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.3

**GENERAL NOTES:**

**SPECIFICATIONS:**

Construction:

Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14.

Design:

AASHTO LRFD Bridge Design Specifications, 2014, 7th Edition with 2015 Interim Revisions.

**DESIGN LOADING:**

Dead Loads:

Concrete: 150 pcf  
Asphalt wearing surface: 25 psf  
Future asphalt wearing surface: 25 psf

Live Loads:

AASHTO HL-93; maximum dynamic load allowance, IM=33%

**MATERIALS:**

Design stresses:

Class A(AE) Concrete:  $f'c = 4,500 \text{ psi}$  at 28 days  
Class D(AE) Concrete:  $f'c = 5,000 \text{ psi}$  at 28 days  
Class P (Prestressed) Concrete:  $f'c = 9,000 \text{ psi}$  at 28 days  
 $f'ci = 7,500 \text{ psi}$  at time of release  
  
Structural Steel:  $f_y = 50,000 \text{ psi}$   
Reinforcing Steel:  $f_y = 60,000 \text{ psi}$   
Prestressing Steel:  $f_s = 270,000 \text{ psi}$

Concrete:

Furnish Class P (Prestressed) concrete for precast decked bulb tees.  
Furnish Class D(AE) concrete for approach slabs, curbs, diaphragms, and endwalls.  
Furnish Class A(AE) concrete for all other concrete.

Chamfer exposed edges of all concrete  $\frac{3}{4}$ " unless otherwise noted.

Furnish flexible cellular joint filler meeting the requirements of ASTM D1056, Type 2, grade 4 or 5.

Furnish preformed expansion material meeting the requirements of AASHTO M 213.

Reinforcing steel:

Furnish reinforcing steel conforming to AASHTO M 31 or M 322, grade 60 deformed.

Provide epoxy coated reinforcing steel for girders and all reinforcing steel located or anchored in Class D(AE) concrete unless otherwise noted.

Provide standard hooks as defined by ACI SP-66 for bends unless otherwise noted.

Provide 2" cover for reinforcing steel unless otherwise noted.

Prestressing steel:

Furnish grade 270, 0.60" diameter, seven-wire, low-relaxation, prestressing steel conforming to AASHTO M 203.

Pre-tension each strand to a total load of 43,940 lb ( $f'si = 0.75*f's = 202,500 \text{ psi}$ ).

The final estimated effective prestress force per strand is 38,840 lb based on estimated losses of 23.52 ksi.

Bearings:

Provide laminated elastomeric bearing pads conforming to the requirements of Section 18.2 of the AASHTO LRFD Bridge Construction Specifications, with 60 durometer hardness. Bearings are designed according to AASHTO LRFD design method A.

Steel Pipe Piles:

Furnish steel pipe piles conforming to ASTM A 252, grade 3.

**GEOTECHNICAL REPORT:**

For boring logs and other geotechnical information, see Geotechnical Memorandum No. 20-16, dated 07-2016.

ESTIMATE OF QUANTITIES				
ITEM NO.	ITEM	QUANTITY	UNIT	NOTES
20304-2000	Removal of Bridge	1	LPSM	
20801-0000	Structure Excavation	245	CUYD	
20803-0000	Structure Backfill	200	CUYD	
40301-0100	Asphalt Concrete Pavement, Type 1	85	TON	
55101-2200	Steel Pipe Piles, In Place (24-Inch Diameter x 0.75-Inch)	785	LNFT	
55104-0000	Dynamic Pile Load Test	2	EACH	
55201-0200	Structural Concrete, Class A(AE)	40	CUYD	(1)
55201-0800	Structural Concrete, Class D(AE)	37	CUYD	(1)
55202-2000	Structural Concrete, Class D (AE), For Approach Slabs, Type 2	59	SQYD	(1)
55235-0000	Expansion Joints	58	LFNT	
55302-2700	Precast, Prestressed Concrete Deck Bulb Tee Girders, 53-Inch	595	LNFT	
55401-1000	Reinforcing Steel	5,100	LB	(1)
55401-2000	Reinforcing Steel, Epoxy Coated	5,150	LB	(1)
55601-1100	Bridge Railing, Steel, Two Rail	356	LNFT	(1)
55901-0000	Membrane Waterproofing	350	SQYD	
56401-1000	Bearing Device, Elastomeric	10	EACH	

(1) Contract Quantity

**DRAWING INDEX**

DRAWING NO.	DRAWING TITLE
RG3105-A	Plan and Elevation
RG3105-B	General Notes
RG3105-C	Foundation Layout
RG3105-D	Abutment Layout
RG3105-E	Abutment Endwall
RG3105-F	Abutment Wingwall
RG3105-G	Typical Section and Framing Plan
RG3105-H	Exterior Girder
RG3105-I	Interior Girder
RG3105-J	Girder Sections
RG3105-K	Exterior Girder Top Flange
RG3105-L	Interior Girder Top Flange
RG3105-M	Girder Details
RG3105-N	Bridge Railing
RG3105-O	Thrie Beam Transition
RG3105-P	Reinforcing Steel Bar List
RG3105-Q	Epoxy Coated Reinforcing Steel Bar List
RG3105-R	Approach Slab Details

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
OLYMPIC NATIONAL PARK  
  
TOWER CREEK BRIDGE  
  
GENERAL NOTES

14-Oct-2020 09:21 AM \\ff15f1eserve\ff1hd\ffw\adof\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\IN\Bridges\Microstation\Bridges Design Files\Tower Creek\OPROD\EGT\JEFF\FILE: M02 MT 210(1) GN.DGN

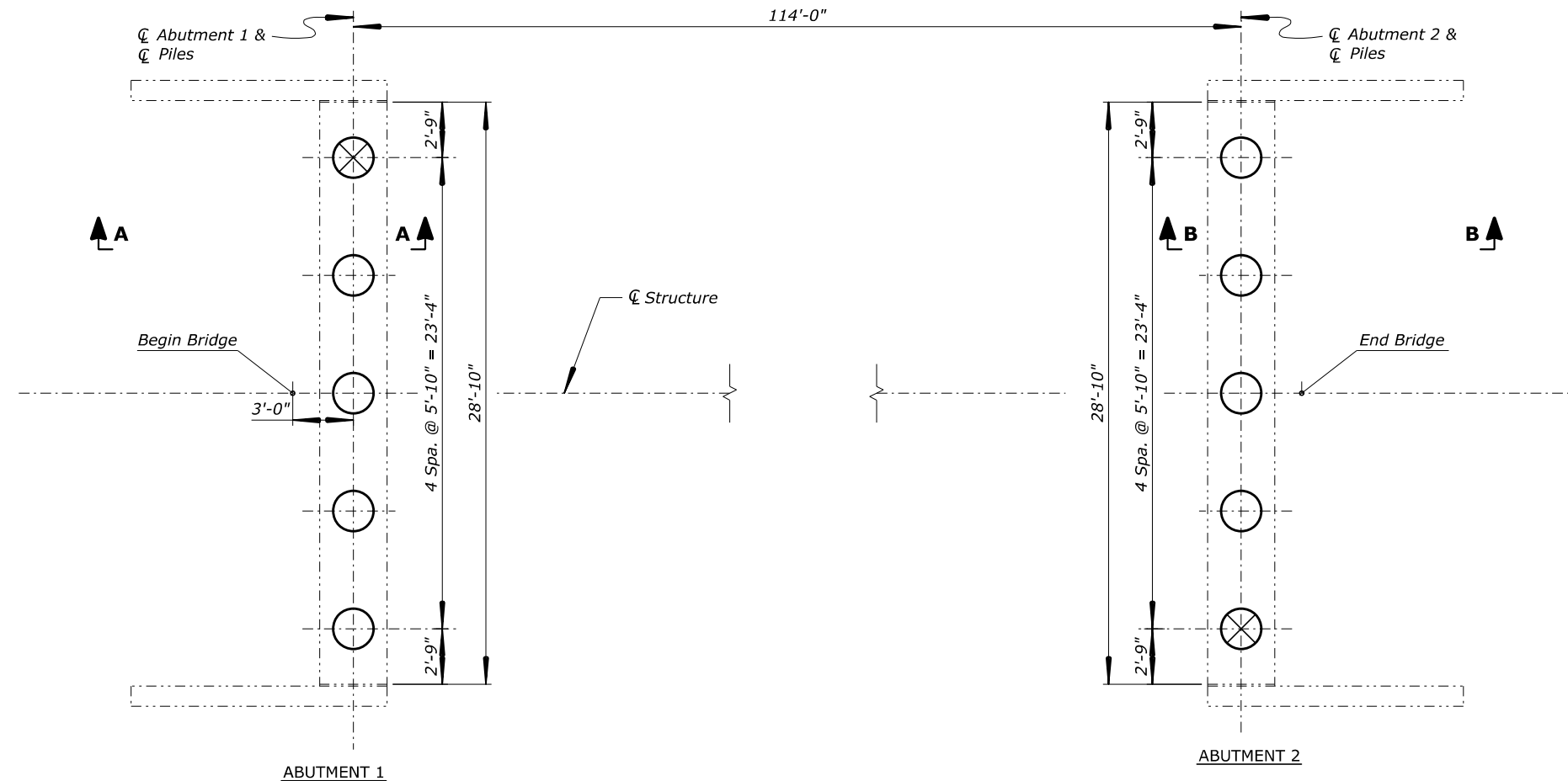
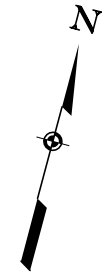
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	AR	HC	No Scale	George Choubah	2 of 18	October 2020	RG3105-B

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.4

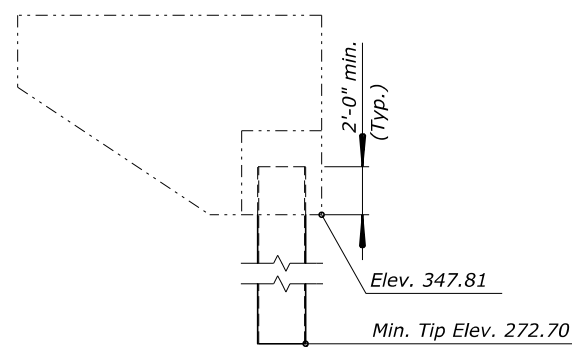
ACTUAL FILE: FL .DGN

\\f115f1reserve.f1nd.fwa.dot.gov\data\PROJECTS\ACCESS\WA\WA\_JEFF\_91420\1\Bridges\Microstation\Bridg Design Files\Tower Creek\0\PROJECTS.dgn

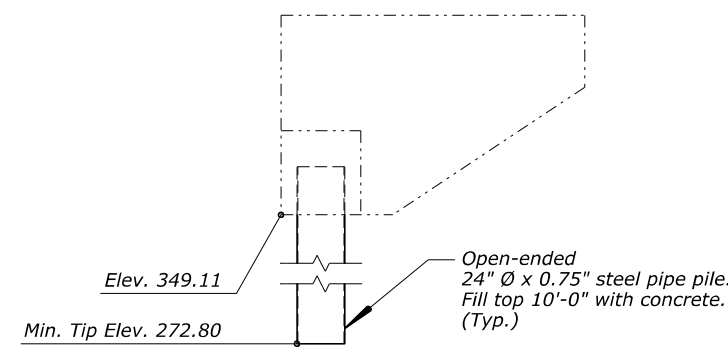
14-Oct-2020 09:21 AM



**FOUNDATION PLAN**



**SECTION A-A**



**SECTION B-B**

Notes:

- Indicates pile location.
- ⊗ Indicates Dynamic Load Test location.

PILE DRIVING INFORMATION			
LOCATION	RESISTANCE FACTOR	REQUIRED COMPRESSIVE NOMINAL BEARING RESISTANCE (kips/pile)*	ESTIMATED TOTAL LENGTH OF PILES
Abut. 1	0.65	260	77.11 ft
Abut. 2	0.65	260	78.31 ft

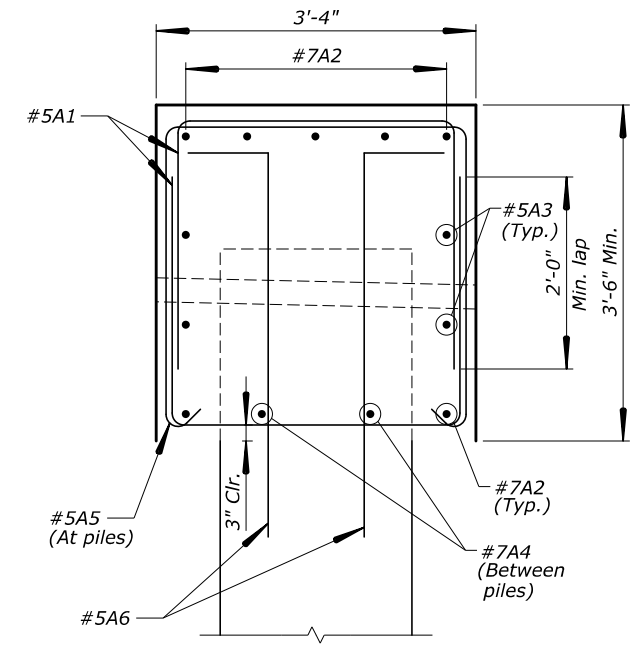
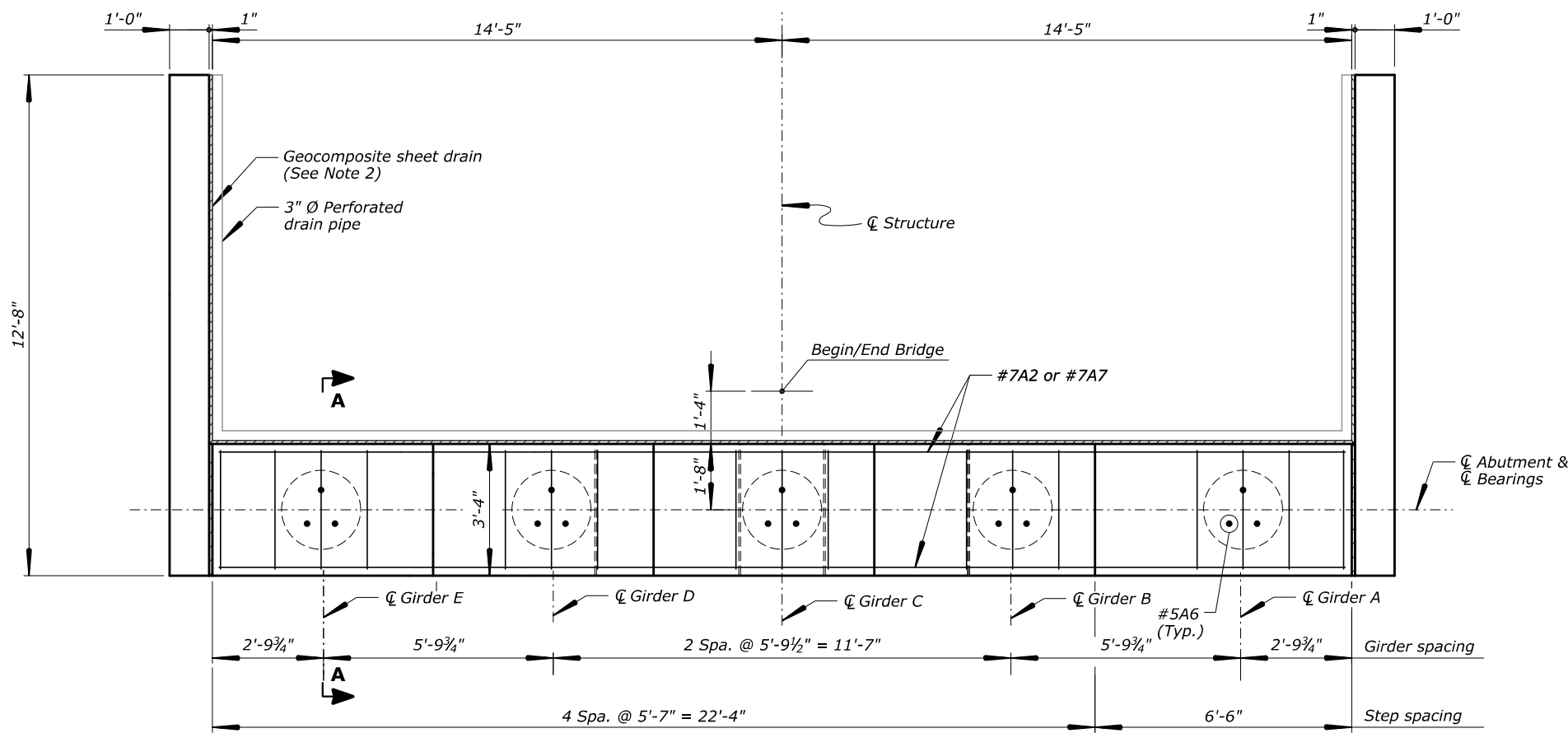
\* Drive piles to the required compressive nominal bearing resistance

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
 OLYMPIC NATIONAL PARK  
 TOWER CREEK BRIDGE  
 FOUNDATION LAYOUT

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	1/4" = 1'	George Choubah	3 of 18	October 2020	RG3105-C

\\fhf15f\reserve\fhf\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_914201\Bridges\Microstation\Bridges Design Files\Tower Creek\NO\_PROJECT\_S&g\TUAL FILE: ABUT LAYOUT.DGN  
 14-Oct-2020 09:21 AM

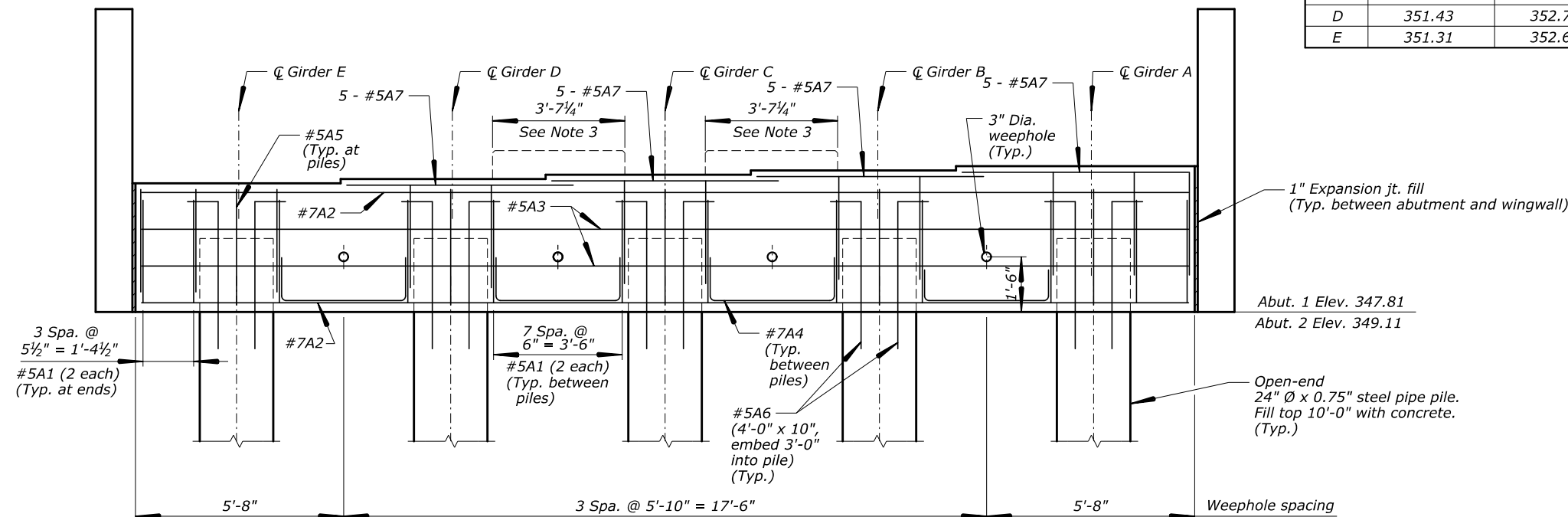
STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.5



BEARING SEAT ELEVATIONS		
GIRDER	ABUT. 1	ABUT. 2
A	351.78	353.07
B	351.66	352.96
C	351.55	352.84
D	351.43	352.73
E	351.31	352.61

Notes:

- See "ABUTMENT WINGWALL" sheet for wingwall details and elevations.
- Install continuous geocomposite sheet drain and 3" dia. perforated drain pipe behind wingwalls and abutment. Cap ends of pipe. Tie perforated wingwall pipes to perforated abutment pipe and daylight through weep holes at face of abutment.
- Cast shear block after girders have been set. Roughen surface of cap at shear block locations. See "ABUTMENT WINGWALL" sheet for details.

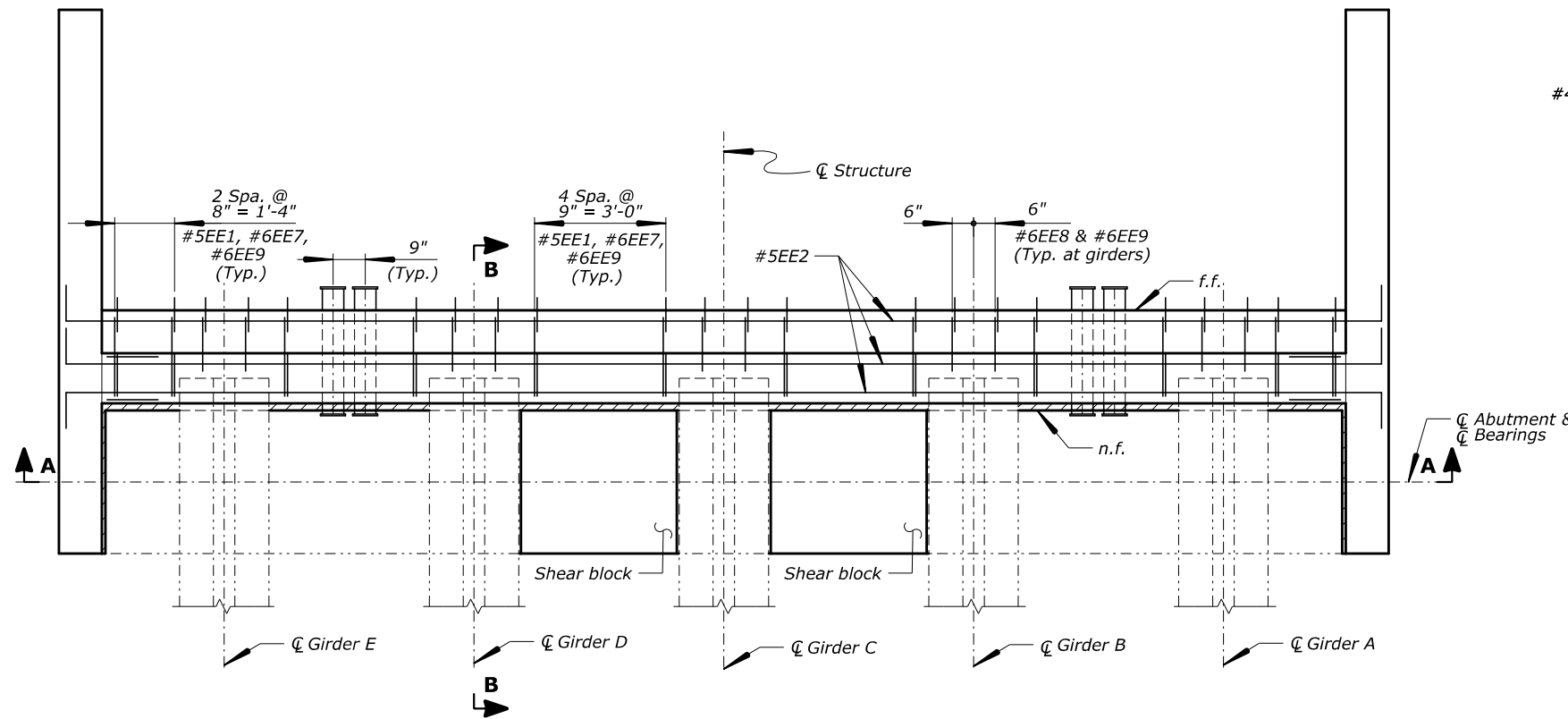


U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 TOWER CREEK BRIDGE  
  
 ABUTMENT LAYOUT

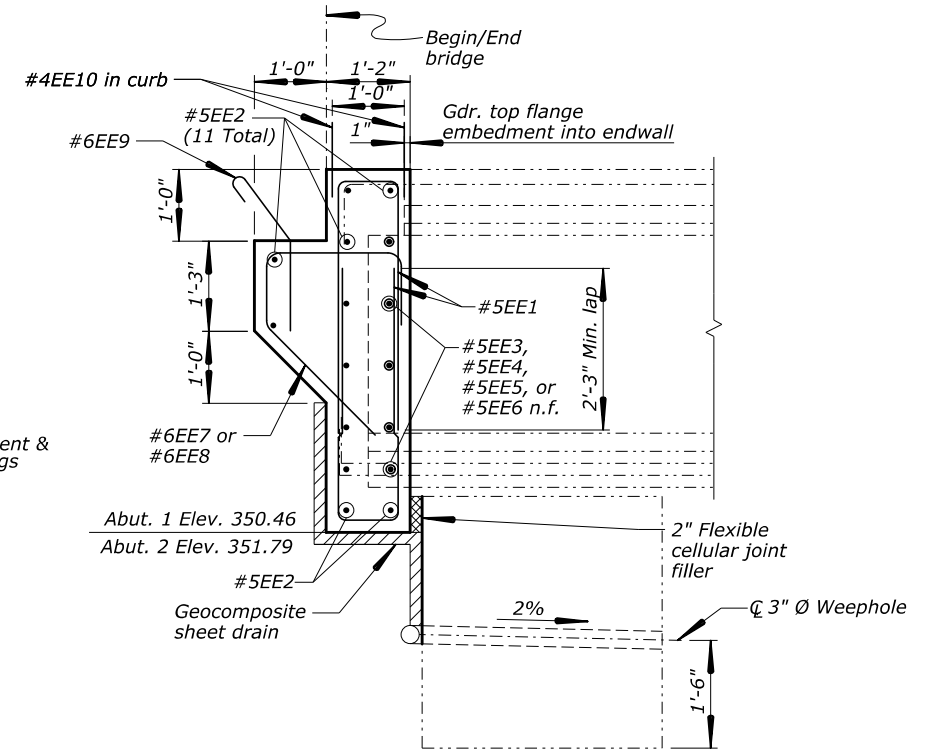
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	4 of 18	October 2020	RG3105-D

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.6

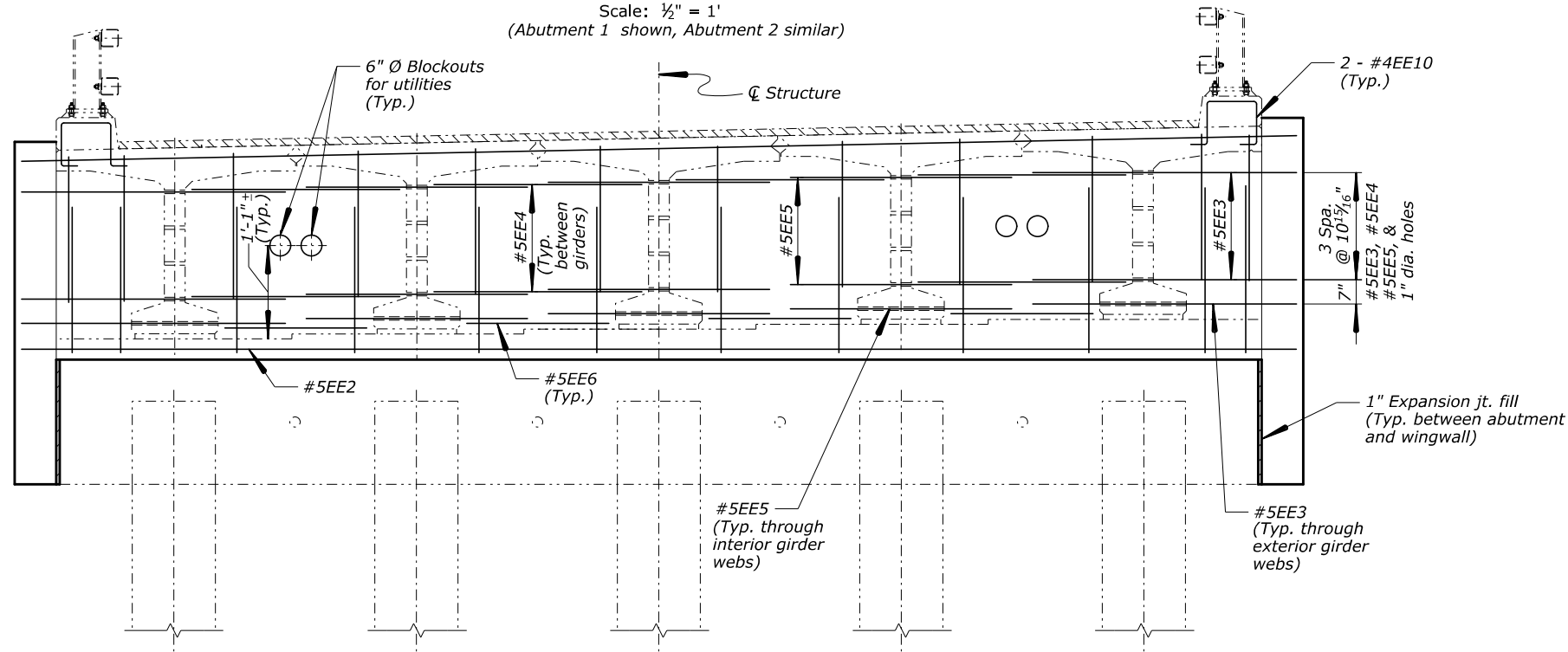
14-Oct-2020 09:21 AM \\F:\157\reserve\1\nd\F\hwa\dot\gov\data\PROJECTS\_ACCESS\WA\WA\_JEFF\_91420\1\Bridges\Microstation\Bridges Design Files\Tower Creek\OPRO\EST\5\Bgr\FILE: ABUT ENDWALL.DGN



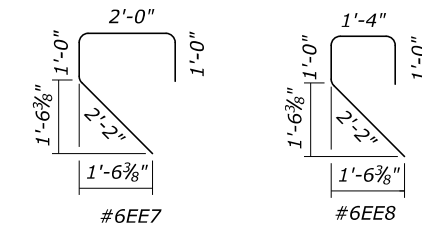
**PLAN**  
Scale: 1/2" = 1'  
(Abutment 1 shown, Abutment 2 similar)



**SECTION B-B**  
Scale: 3/4" = 1'-0"



**VIEW A-A**  
Scale: 1/2" = 1'  
(Abutment 1 shown, Abutment 2 similar)



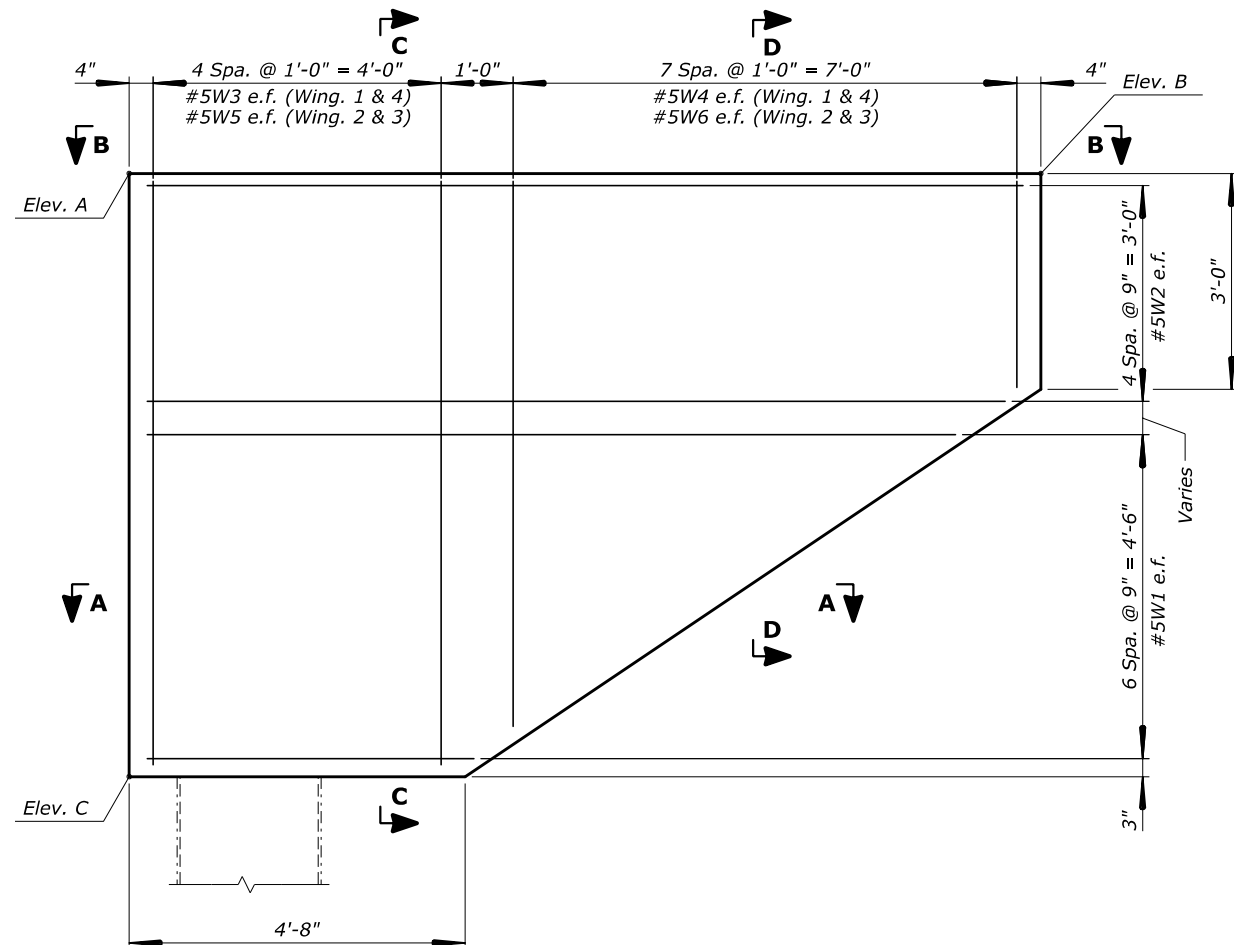
**Key:**  
n.f. = near face  
f.f. = far face  
e.f. = each face

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 TOWER CREEK BRIDGE  
  
**ABUTMENT ENDWALL**

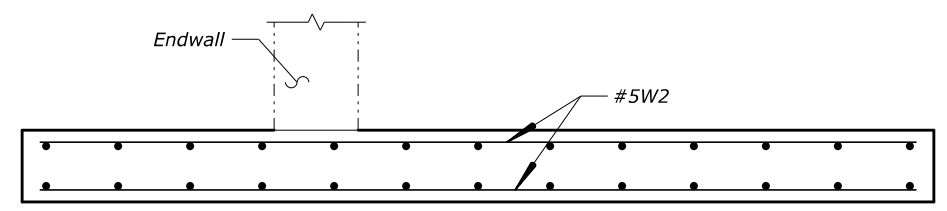
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	5 of 18	October 2020	RG3105-E

14-Oct-2020 08:21 AM \\f11571reserve\fhdf\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_914201\Bridg\Microstation\Bridg\Design\Files\Tower\Creek\NO\_PROJECTS\Hghl\FILE: ABUT WINGWALL.DGN

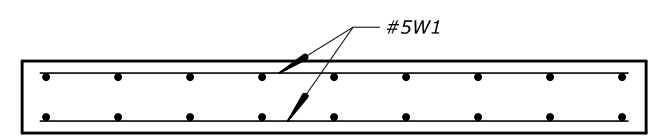
STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.7



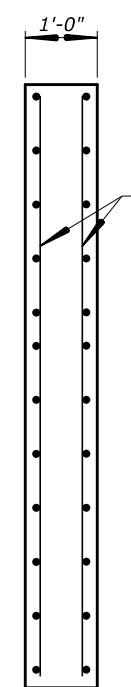
**ELEVATION**  
Scale: 3/4" = 1'-0"



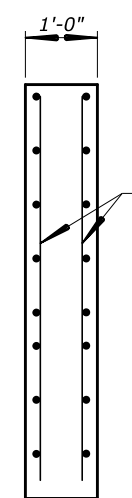
**SECTION B-B**  
Scale: 3/4" = 1'-0"



**SECTION A-A**  
Scale: 3/4" = 1'-0"

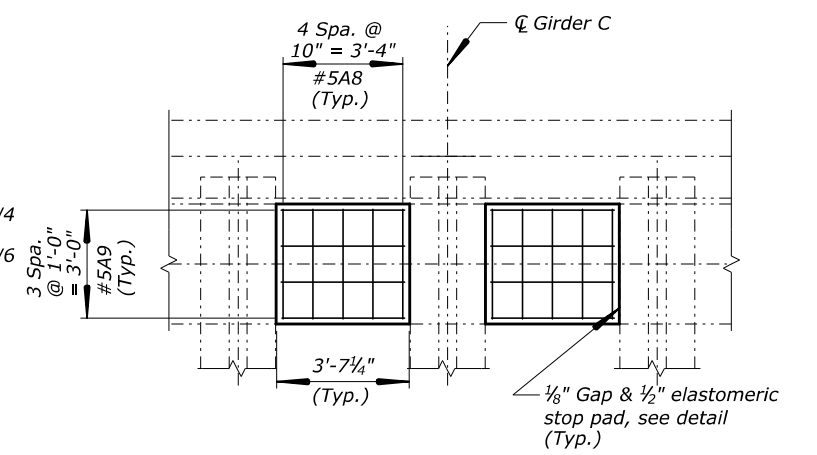


**SECTION C-C**  
Scale: 3/4" = 1'-0"

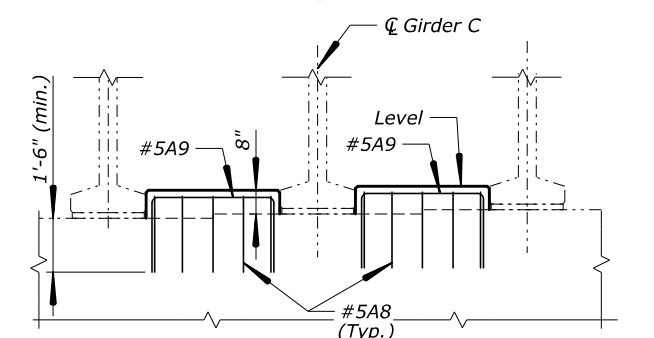


**SECTION D-D**  
Scale: 3/4" = 1'-0"

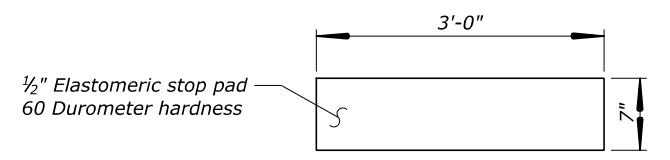
ELEVATIONS				
ELEV.	WING. 1	WING. 2	WING. 3	WING. 4
A	356.51	357.09	358.35	357.77
B	356.37	356.95	358.49	357.91
C	347.81	347.81	349.11	349.11



**SHEAR BLOCK PLAN**  
Scale: 3/8" = 1'-0"



**SHEAR BLOCK ELEVATION**  
Scale: 3/8" = 1'-0"



**ELASTOMERIC STOP PAD DETAIL**  
No Scale  
(8 req'd)

Notes:

1. Cast concrete for shear blocks after placement of girders.
2. Place elastomeric pads after constructing shear blocks. Coat pads with approved cementitious adhesive prior to installation.

Key:

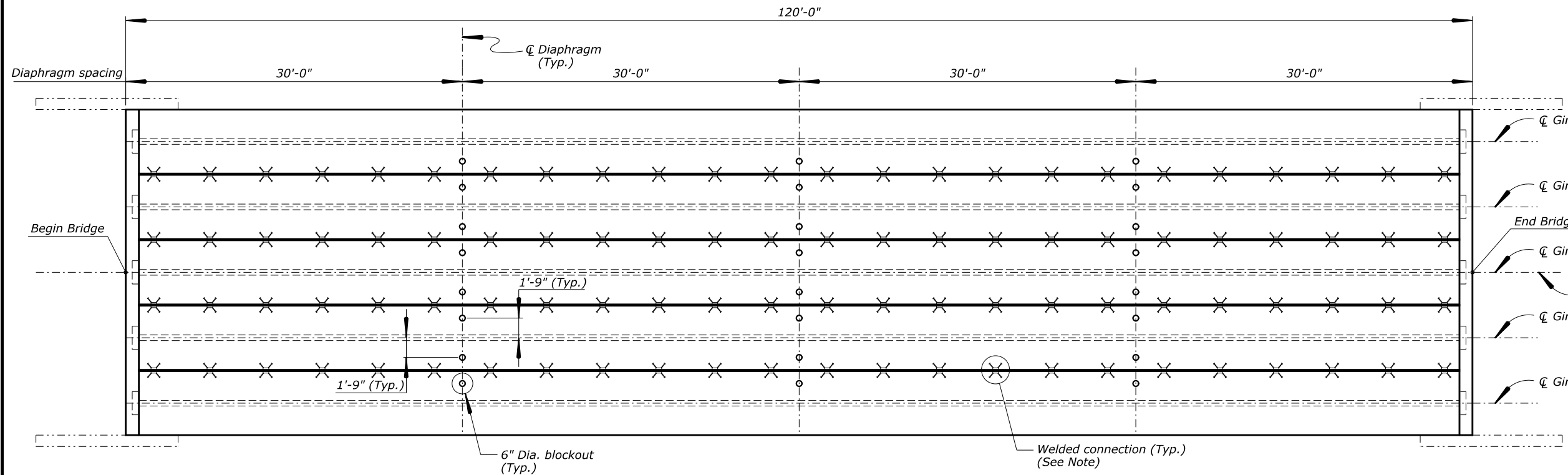
- n.f. = near face
- f.f. = far face
- e.f. = each face

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 TOWER CREEK BRIDGE  
  
 ABUTMENT WINGWALL

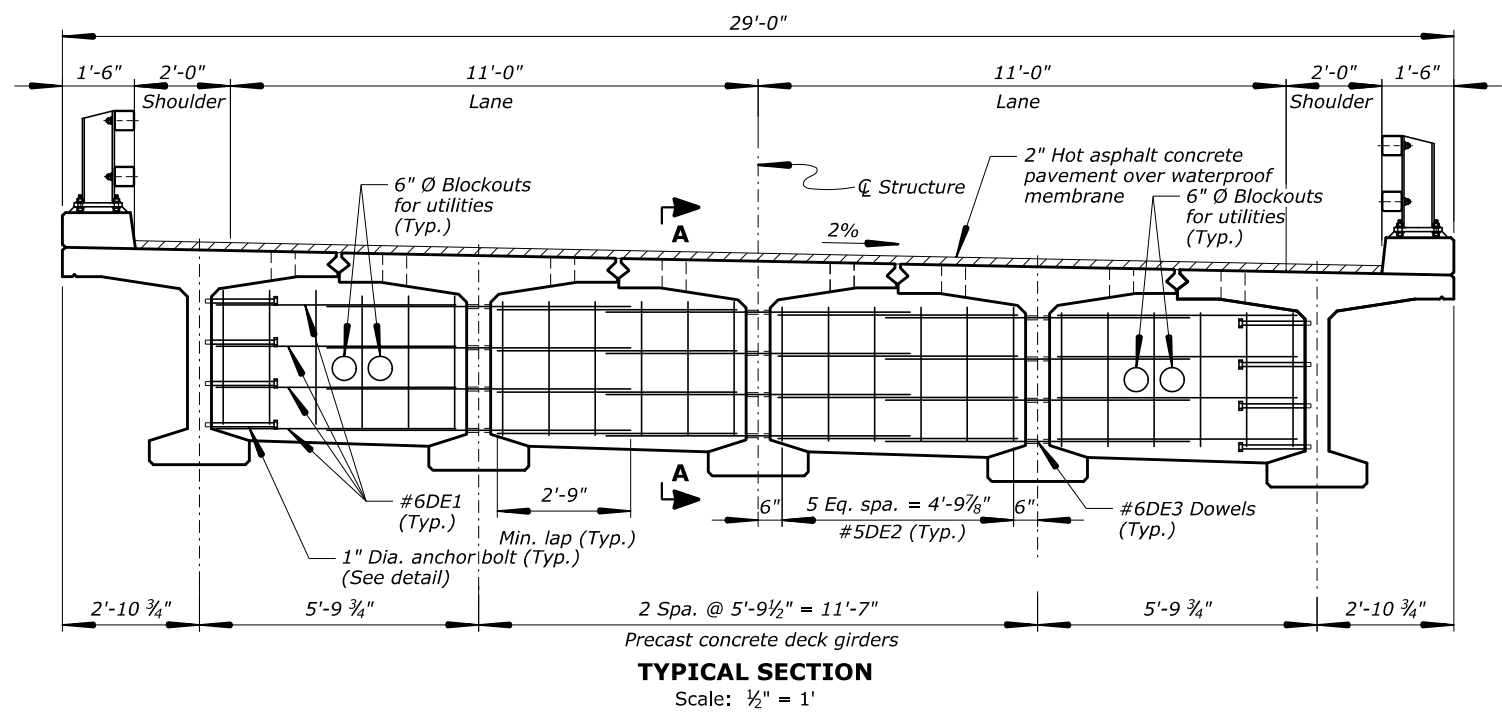
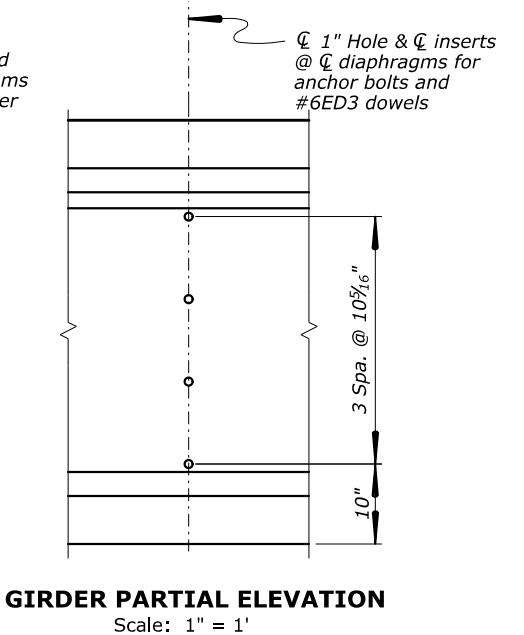
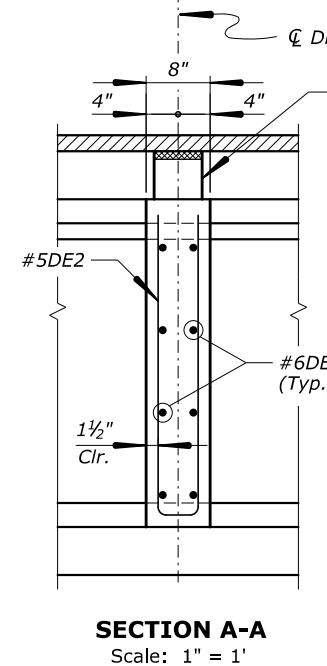
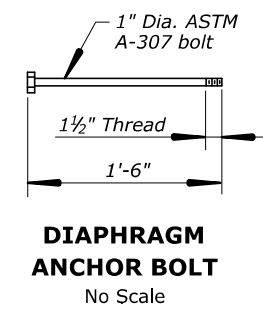
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	6 of 18	October 2020	RG3105-F

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.8

\\\f15\reserve\hd\hwa\dot\gov\data\PROJECTS\_ACCESS\WAWA\_JEFF\_91420\1\Bridge\Microstation\Bridg Design Files\Tower Creek\Tower Creek\ACTUAL FILE: TYPXS.DGN  
 14-Oct-2020 08:21 AM



**FRAMING PLAN**  
Scale:  $\frac{3}{16}'' = 1'$



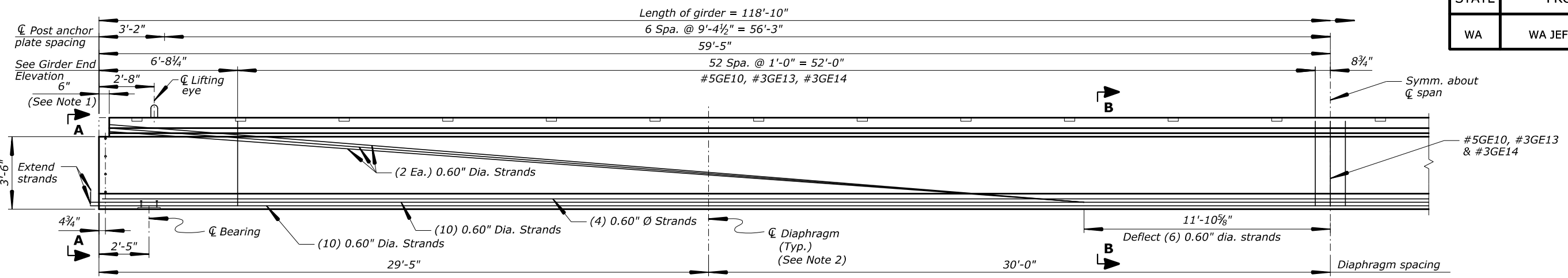
Note:  
See "GIRDER DETAILS" sheet for welded connection details. See "EXTERIOR GIRDER TOP FLANGE" and "INTERIOR GIRDER TOP FLANGE" sheets for welded connection spacing.

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 TOWER CREEK BRIDGE  
  
**TYPICAL SECTION AND FRAMING PLAN**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	7 of 18	October 2020	RG3105-G

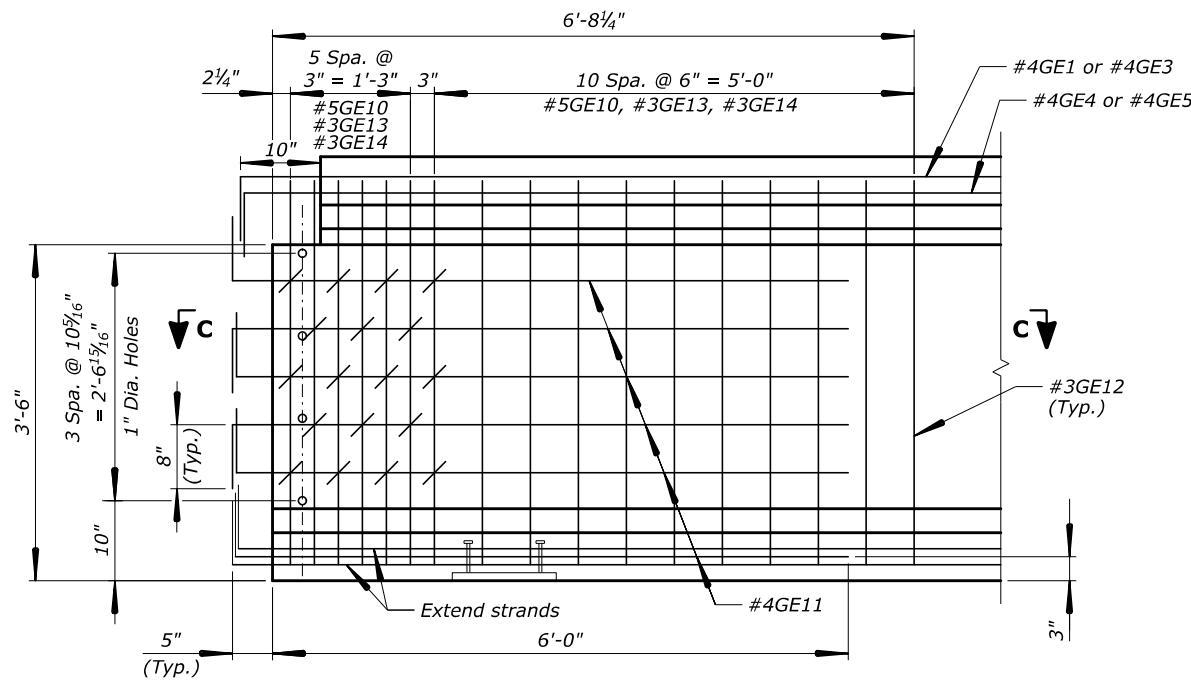
\\fhf15f\reserve\lhd\fhwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_914201\InBridge\Microstation\Bridg Design Files\Tower Creek\O\_PROJECT\88\JUAL FILE: EXT GIRDER.DGN  
 14-Oct-2020 09:21 AM

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.9



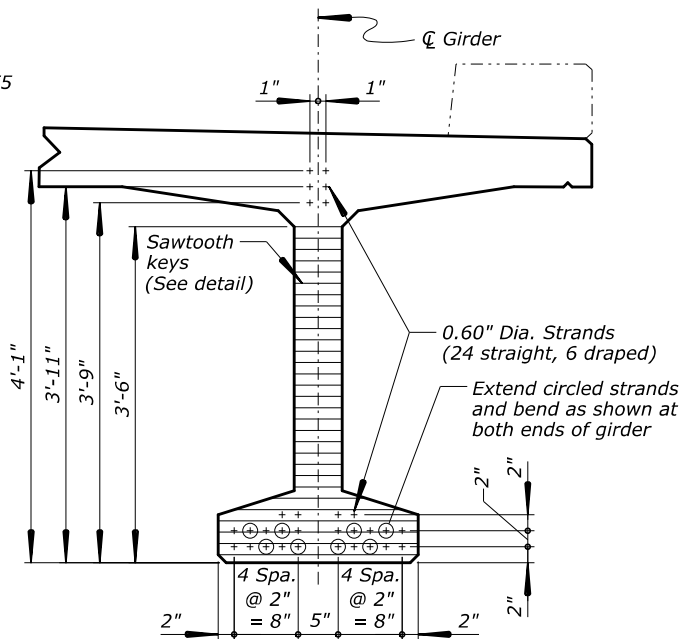
**HALF GIRDER ELEVATION**

Scale: 3/8" = 1'



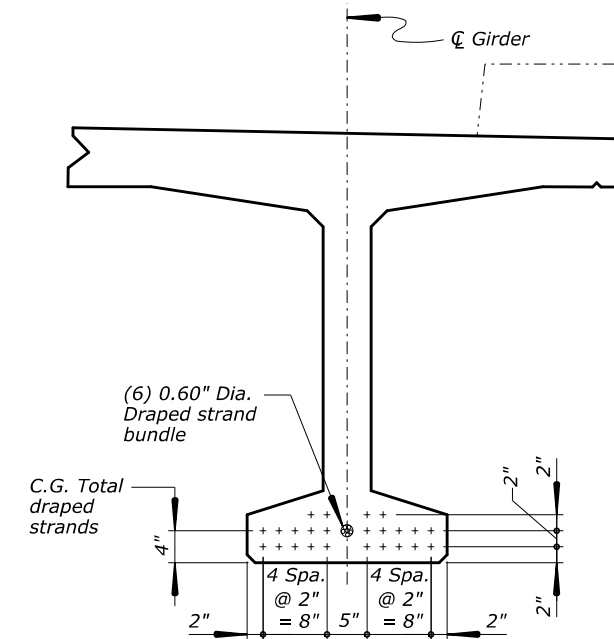
**GIRDER END ELEVATION**

Scale: 1" = 1'



**VIEW A-A**

Scale: 1" = 1'

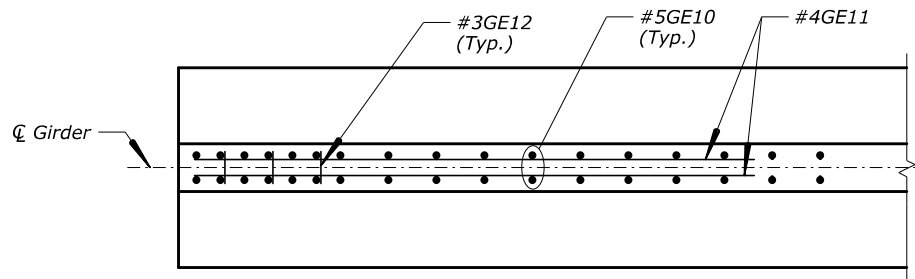


**SECTION B-B**

Scale: 1" = 1'

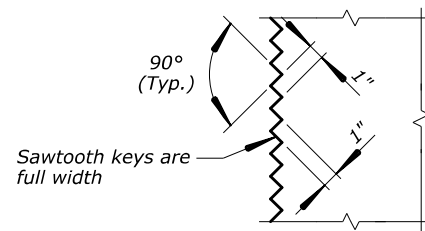
**Notes:**

- Blockout full girder flange width at both ends.
- See "TYPICAL SECTION AND FRAMING PLAN" sheet for diaphragm layout and details.
- See "BRIDGE RAILING" sheet for anchor plate and anchor bolt details.



**SECTION C-C**

Scale: 1" = 1'



**SAWTOOTH KEY DETAIL**

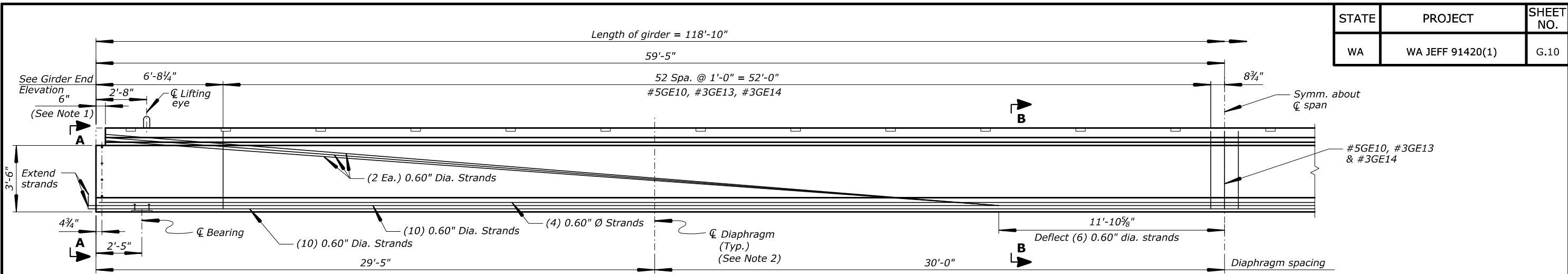
No Scale

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 TOWER CREEK BRIDGE  
  
 EXTERIOR GIRDER

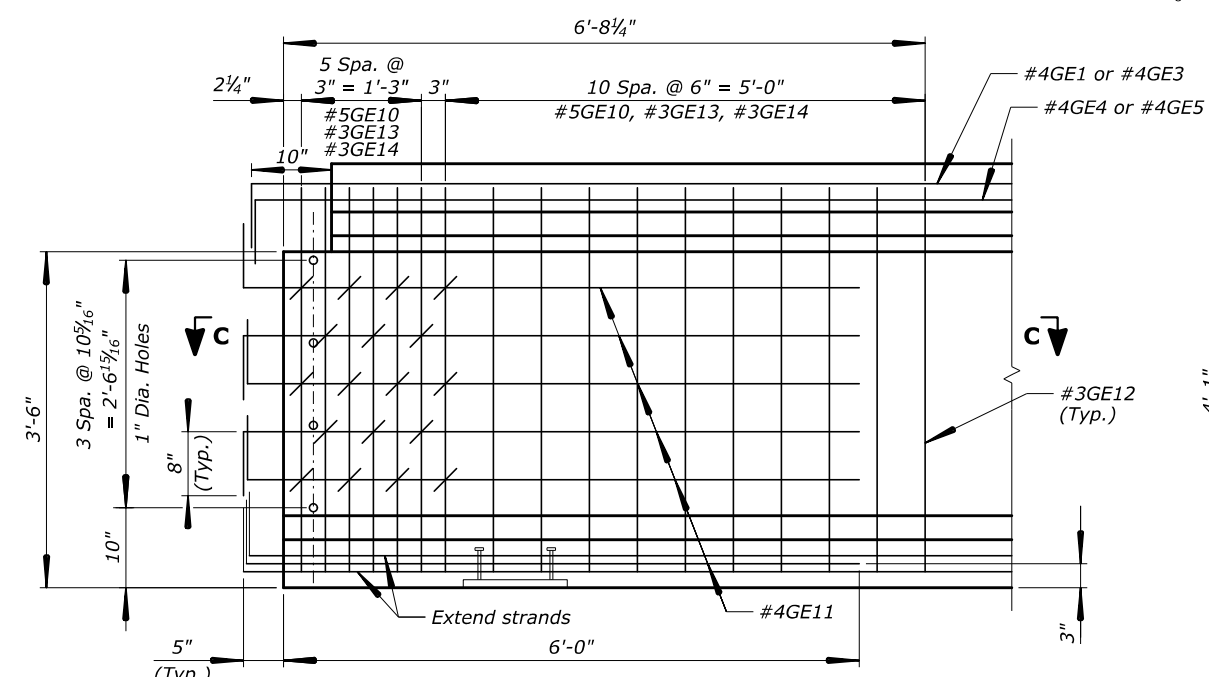
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	8 of 18	October 2020	RG3105-H

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.10

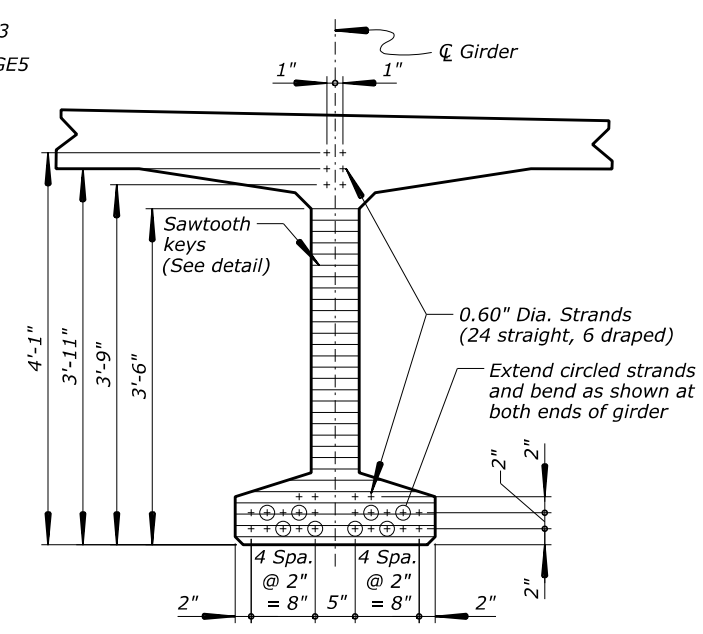
14-Oct-2020 09:21 AM \\F:\157\reserve\1\nd\F\hwa\dot.gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\Bridges\Microstation\Bridges Design Files\Tower Creek\O\_P\PROJECTS\ACTUAL FILE: INT GIRDER.DGN



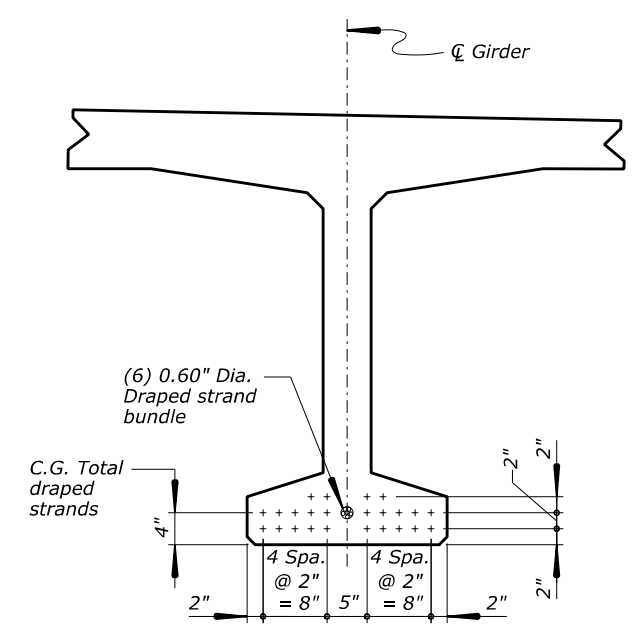
**HALF GIRDER ELEVATION**  
Scale: 3/8" = 1'



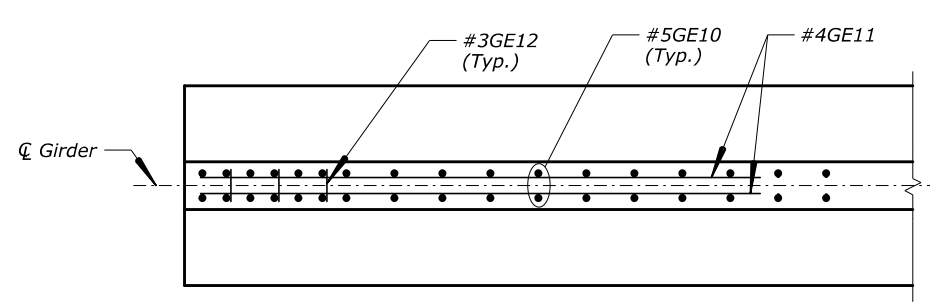
**GIRDER END ELEVATION**  
Scale: 1" = 1'



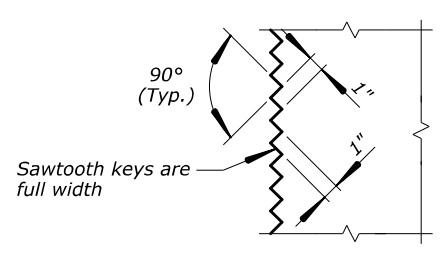
**VIEW A-A**  
Scale: 1" = 1'



**SECTION B-B**  
Scale: 1" = 1'



**SECTION C-C**  
Scale: 1" = 1'



**SAWTOOTH KEY DETAIL**  
No Scale

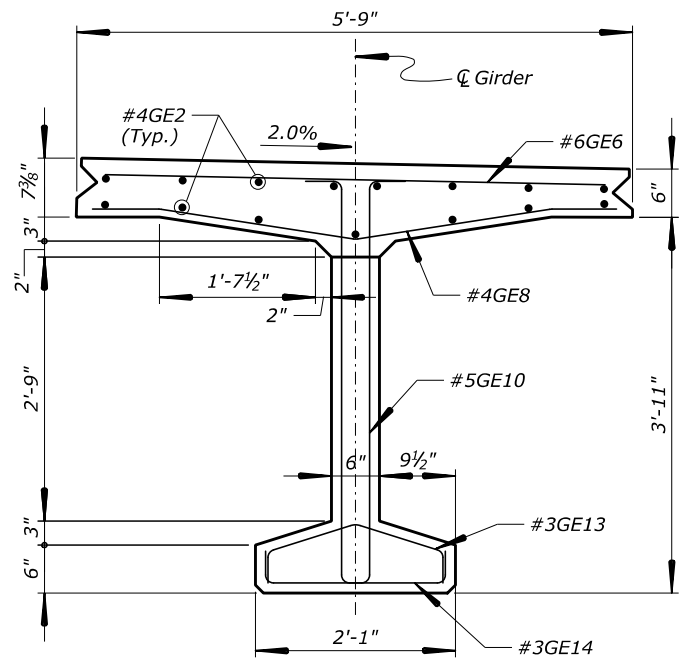
- Notes:
- Blockout full girder flange width at both ends.
  - See "TYPICAL SECTION AND FRAMING PLAN" sheet for diaphragm layout and details.

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 TOWER CREEK BRIDGE  
  
 INTERIOR GIRDER

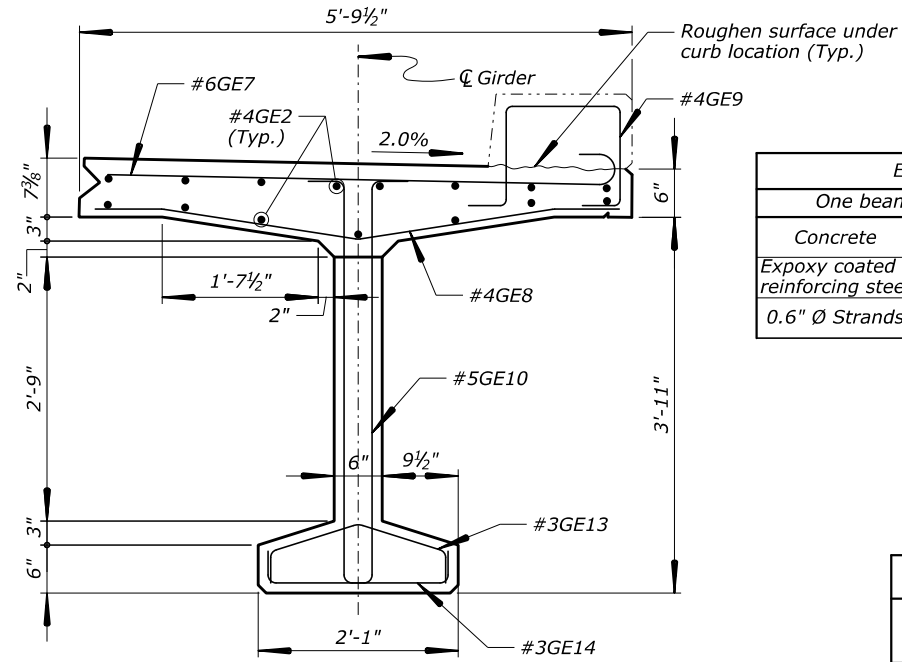
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	9 of 18	October 2020	RG3105-1



I:\Projects\157\reserve\1\nd\F\hwa\dot\gov\data\PROJECTS\\_ACCESS\WAWA\\_JEFF\_91420\1\Bridge\Microstation\Bridg Design Files\Tower Creek\O\_PPROJECT\_Sig\FILE: GIRDER SECT.DGN 14-Oct-2020 09:21 AM



**INTERIOR GIRDER MIDSPAN**  
(Girder "D" shown, Girders "B" and "C" similar)



**EXTERIOR GIRDER MIDSPAN**  
(Girder "E" shown, Girder "A" similar)

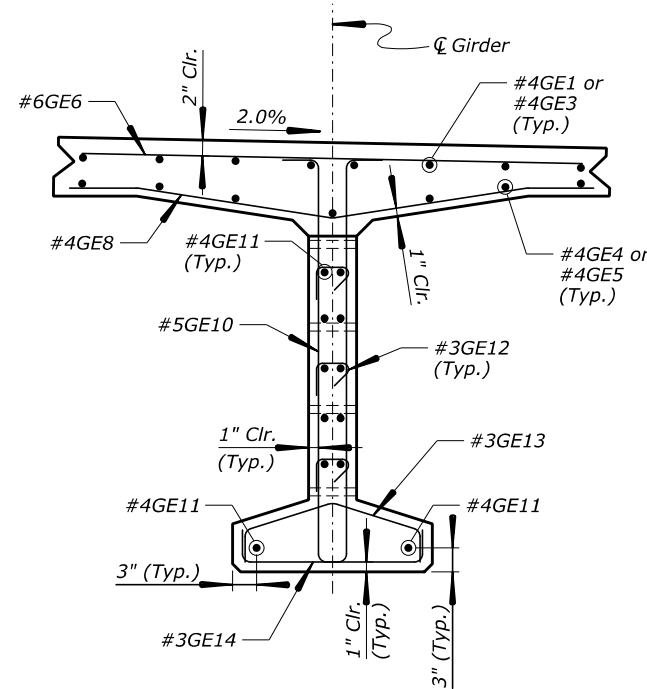
ESTIMATED QUANTITIES			
	One beam only	Int. Girder	Ext. Girder
Concrete	Cu. Yd.	29.1	29.1
Epoxy coated reinforcing steel	Lbs.	4840	5340
0.6" Ø Strands	Ln. Ft.	3600	3600

Notes:

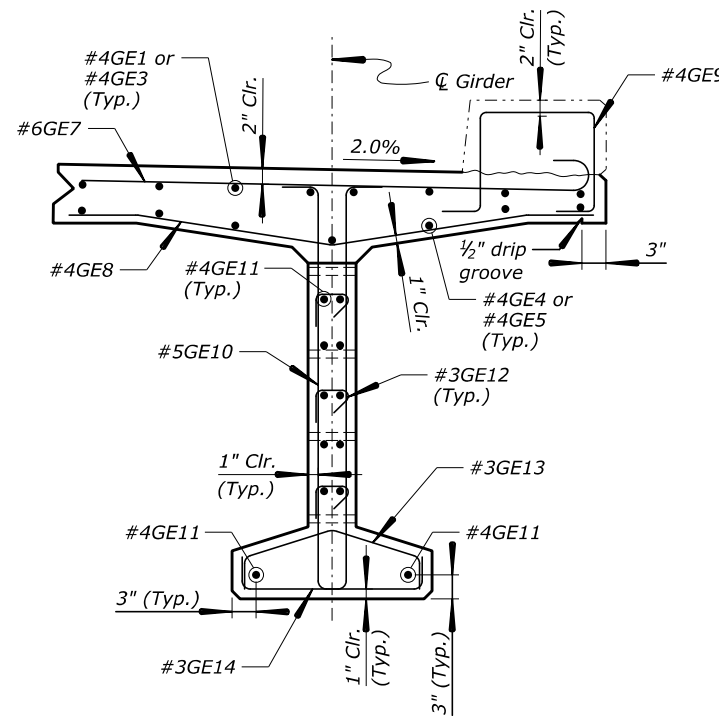
- Cast girders 1/4" longer than shown to allow for shortening due to prestressing.
- Estimated camber at release of strands = 2 7/8".
- Estimated camber at erection (short term) after placing overlay and railing = 4".
- After erection, cutoff lifting loops 1 inch below top of flange and fill with an approved non-shrink grout prior to placing overlay.
- Thicken flange at both ends to compensate for final camber.
- See "EXTERIOR GIRDER TOP FLANGE" and "INTERIOR GIRDER TOP FLANGE" sheets for top flange and curb bars.
- Place inserts on the interior face of exterior girders. Place holes and inserts parallel to skew. Place 1 inch dia. Meadowburke MX-3 Hi-Tensile, 1 inch dia. by 5 1/2" Superior F22 open ferrule insert, 1 inch dia. by 4 7/8" Dayton-Wallier F-62 flared thin slab ferrule insert or approved equal.

REINFORCING STEEL SCHEDULE

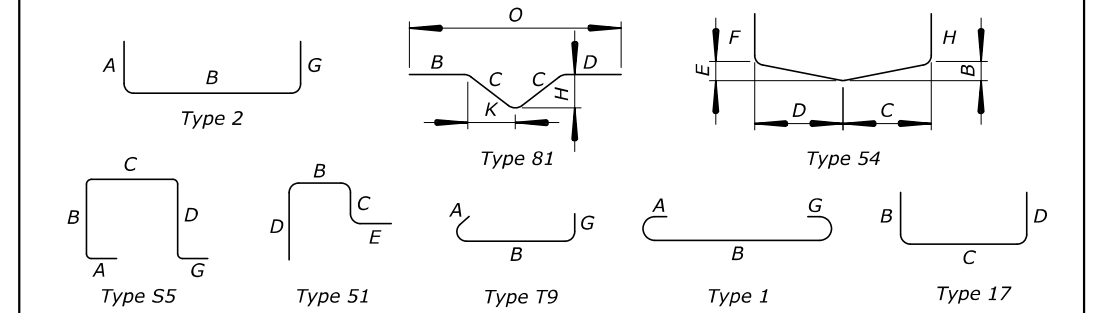
MARK	TYPE	DIMENSION									
		A	B	C	D	E	F	G	H	K	O
#4GE1	2	8"	42'-0"	---	---	---	---	---	---	---	---
#4GE2	STR	---	60'-0"	---	---	---	---	---	---	---	---
#4GE3	2	8"	21'-4"	---	---	---	---	---	---	---	---
#4GE4	2	8"	43'-0"	---	---	---	---	---	---	---	---
#4GE5	2	8"	22'-4"	---	---	---	---	---	---	---	---
#6GE6	STR	---	5'-5"	---	---	---	---	---	---	---	---
#6GE7	1	8"	5'-5 1/2"	---	---	---	---	---	---	---	---
#4GE8	81	---	9"	2'-0 3/4"	9"	---	---	---	3 3/4"	2'-0 1/2"	5'-7"
#4GE9	S5	8"	1'-0"	1'-2 1/4"	1'-0"	---	---	8"	---	---	---
#5GE10	S1	---	1'-1 1/2"	4'-2 1/8"	4"	4 1/2"	---	---	---	---	---
#4GE11	2	8"	6'-5"	---	---	---	---	---	---	---	---
#3GE12	T9	4"	4"	---	---	---	---	4"	---	---	---
#3GE13	S4	---	3 3/4"	1'-0"	1'-0"	3 3/4"	4"	---	4"	---	---
#3GE14	17	---	4"	1'-11"	4"	---	---	---	---	---	---



**INTERIOR GIRDER END**  
(Girder "D" shown, Girders "B" and "C" similar)



**EXTERIOR GIRDER END**  
(Girder "E" shown, Girder "A" similar)

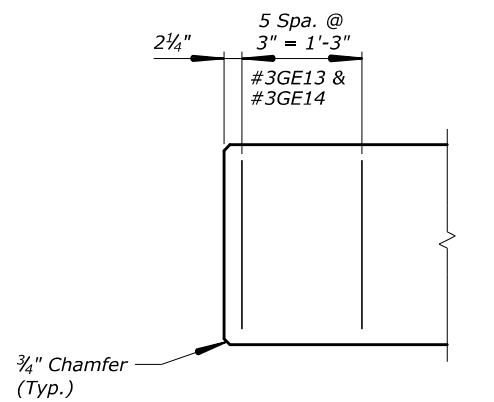
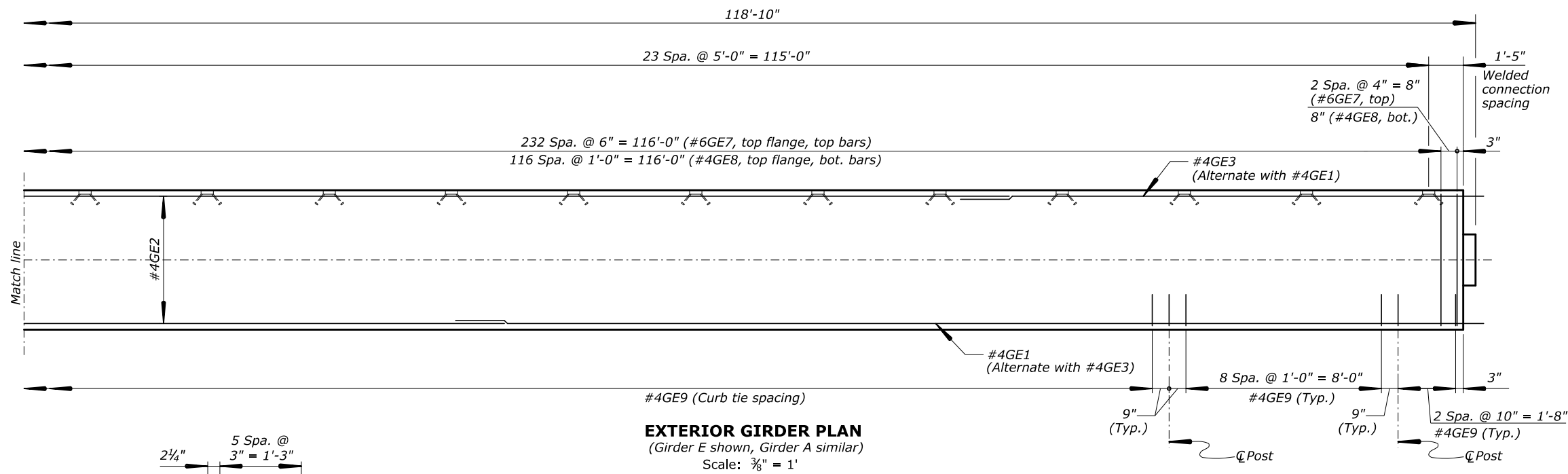
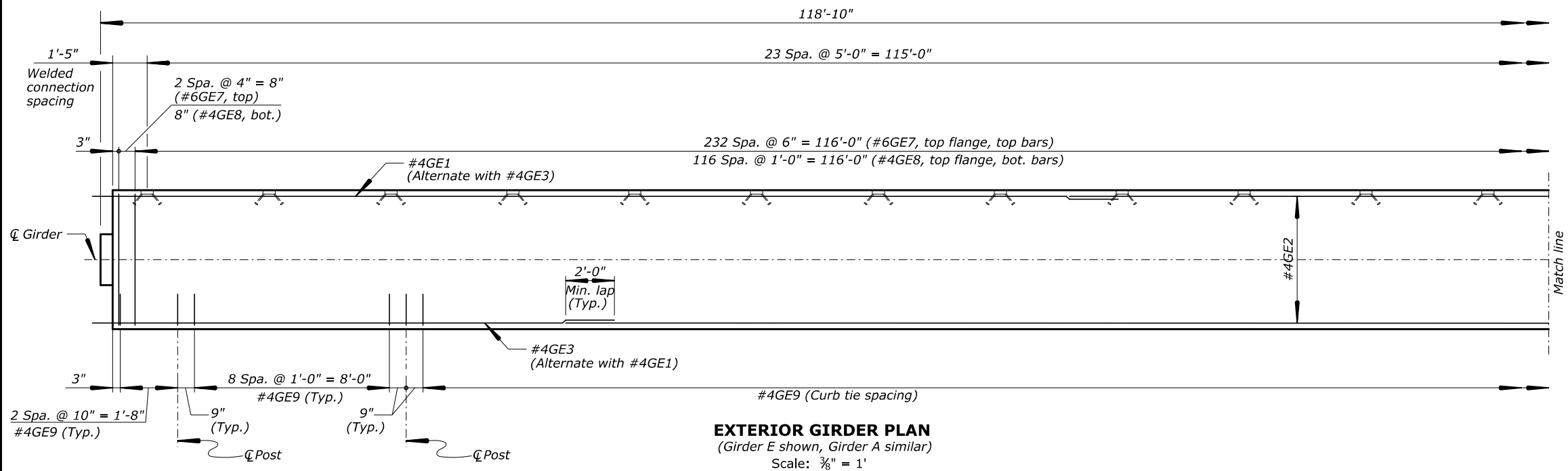


U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
**OLYMPIC NATIONAL PARK**  
  
 TOWER CREEK BRIDGE  
  
**GIRDER SECTIONS**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	1" = 1'	George Choubah	10 of 18	October 2020	RG3105-J

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.12

14-Oct-2020 08:21 AM \\F:\157\reserve\1\hd\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\JEFF\_91420\1\Bridge\Microstation\Bridge Design Files\Tower Creek\NO\_OP\PROJ\JEFF\_91420.dgn FILE: EXT TOP FLANGE.DGN



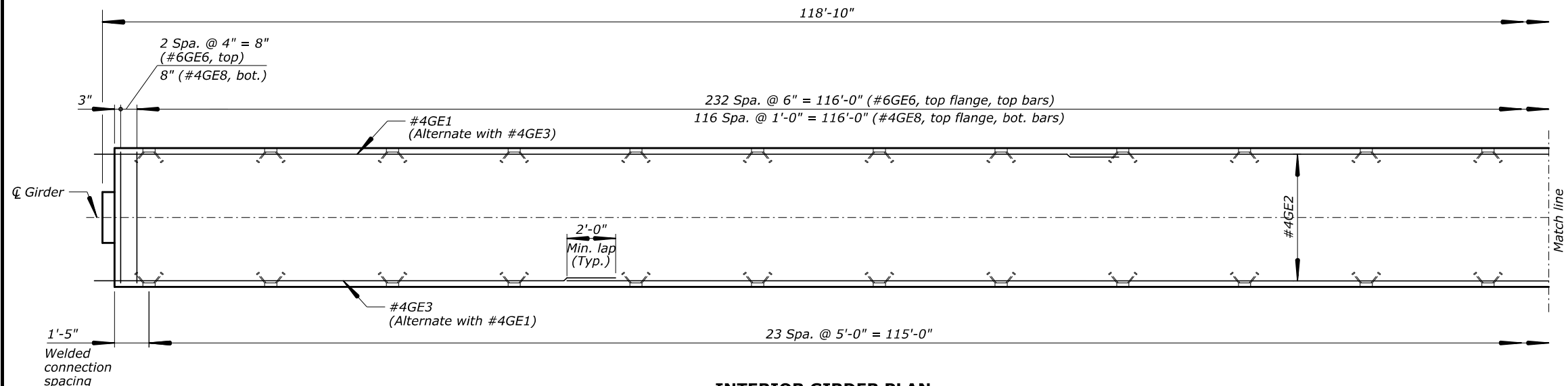
Note:  
Alternate all longitudinal bars to avoid adjacent splices in top and bottom flanges. Top flange-top bars shown. Top flange-bottom bars similar.

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
OLYMPIC NATIONAL PARK  
  
TOWER CREEK BRIDGE  
  
**EXTERIOR GIRDER TOP FLANGE**

NO.	DATE	BY	REVISIONS			DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING		DATE	DRAWING NO.
						AR	BSK	HC	As Shown	George Choubah	11	of 18	October 2020	RG3105-K

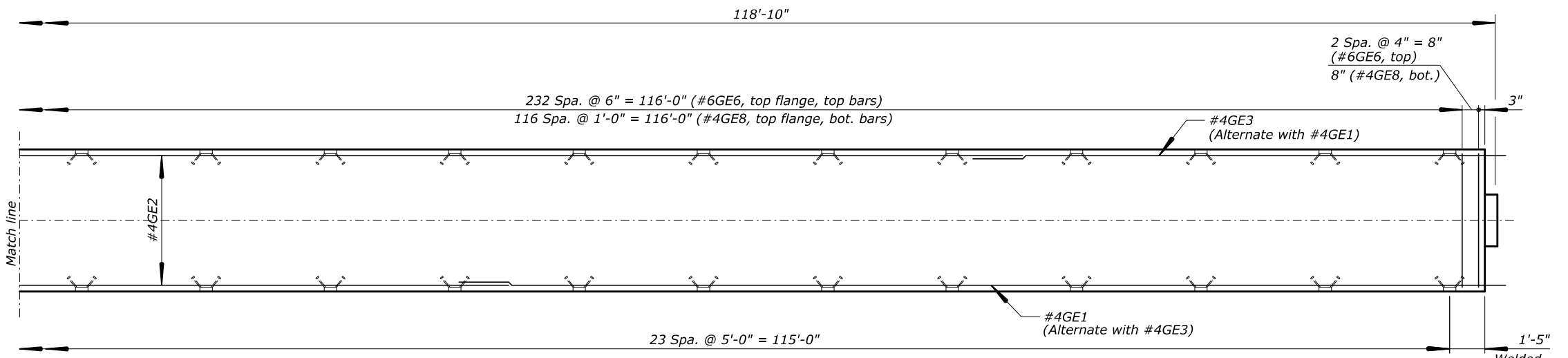
STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.13

\\fhf15f\reserve\fhf\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\Bridge\Microstation\Bridg Design Files\Tower Creek\NO\_OP\PROJECTS\Bridg\FILE: INT TOP FLANGE.DGN  
 14-Oct-2020 09:21 AM



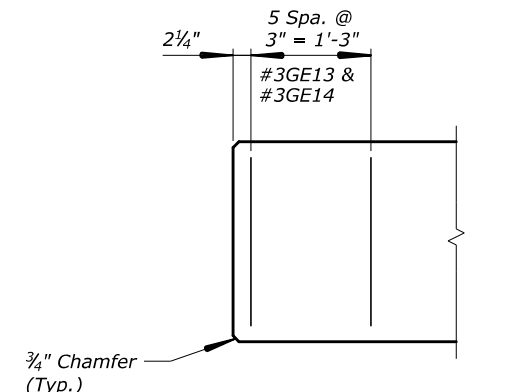
**INTERIOR GIRDER PLAN**

Scale: 3/8" = 1'



**INTERIOR GIRDER PLAN**

Scale: 3/8" = 1'



**BOTTOM FLANGE PLAN**

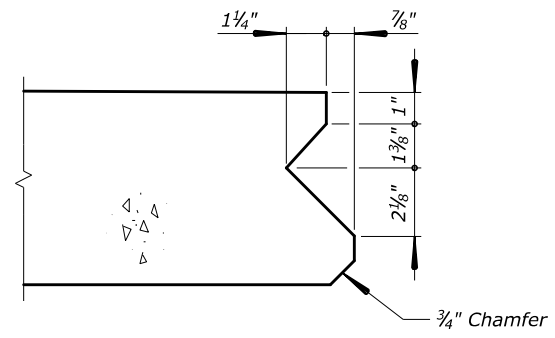
Scale: 1" = 1'

**Note:**  
 Alternate all longitudinal bars to avoid adjacent splices in top and bottom flanges. Top flange-top bars shown. Top flange-bottom bars similar.

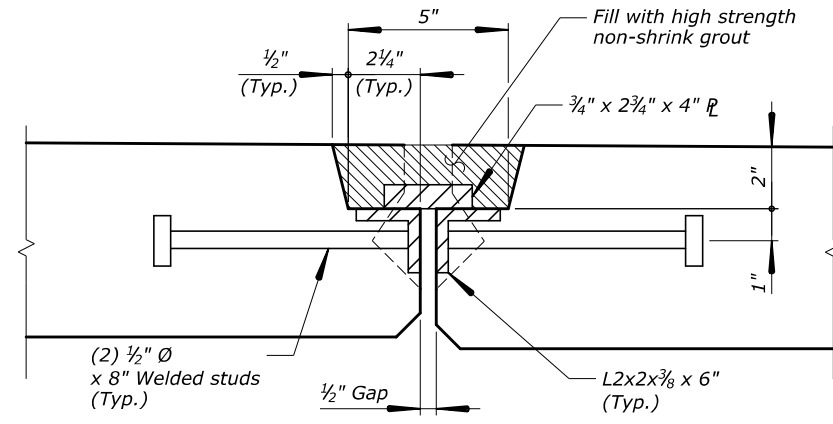
U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 TOWER CREEK BRIDGE  
  
**INTERIOR GIRDER TOP FLANGE**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	12 of 18	October 2020	RG3105-L

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.14

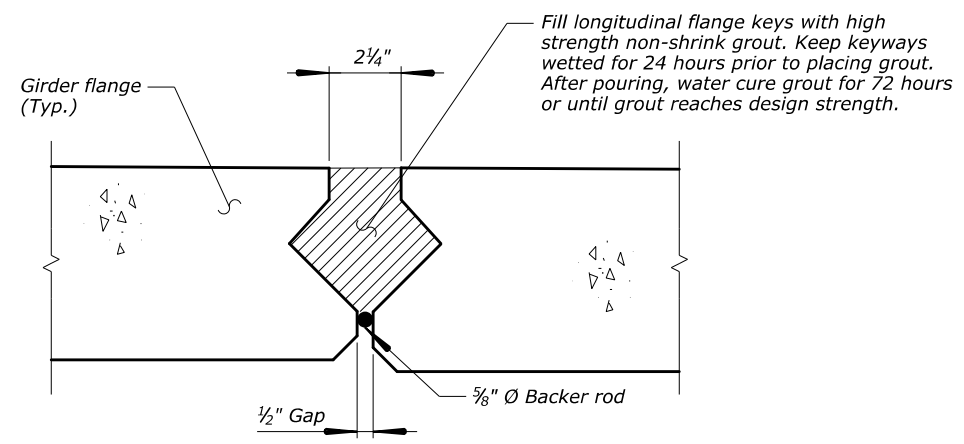


**FLANGE KEY DETAIL**

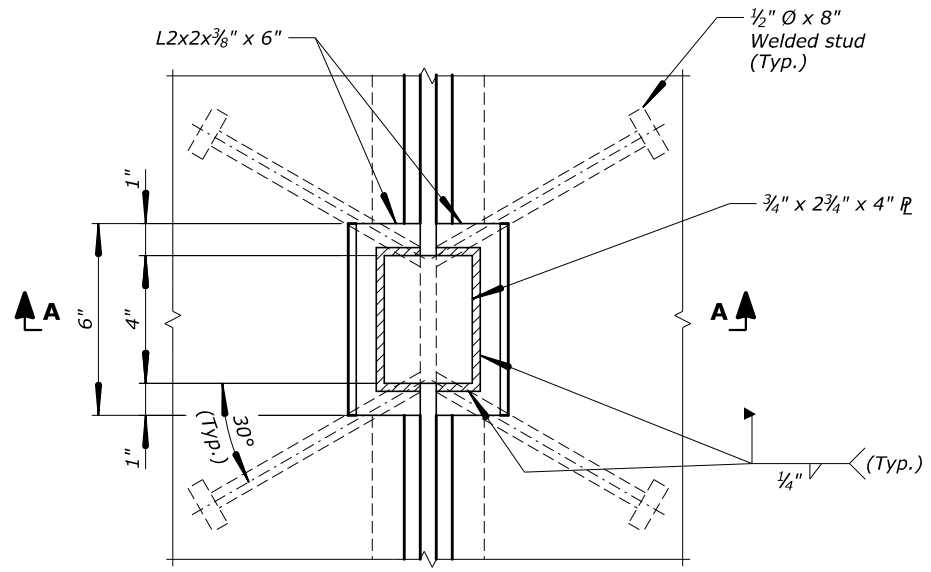


**SECTION A-A**

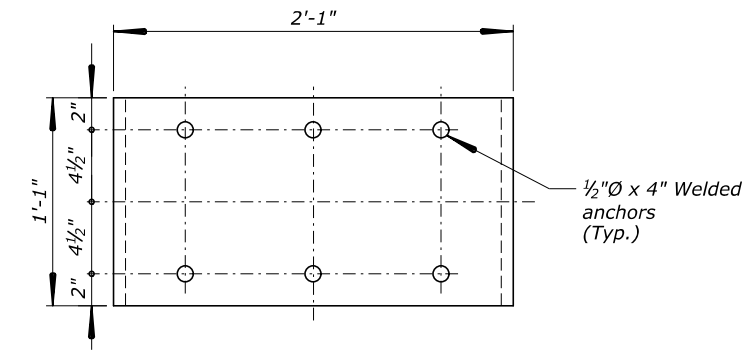
Note:  
Conform to AASHTO M 251 for steel reinforced elastomeric bearing pads. Provide 60 Durometer hardness, elastomer Grade 3 or higher.



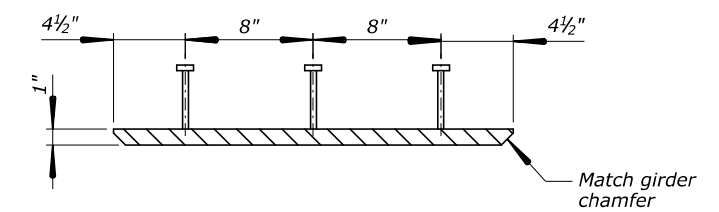
**FLANGE KEY BETWEEN CONNECTIONS**



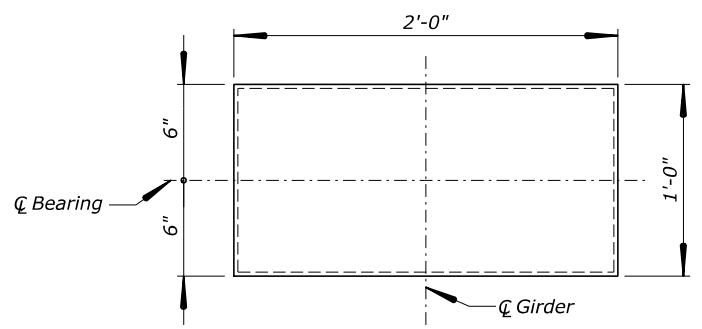
**WELDED CONNECTION DETAIL**



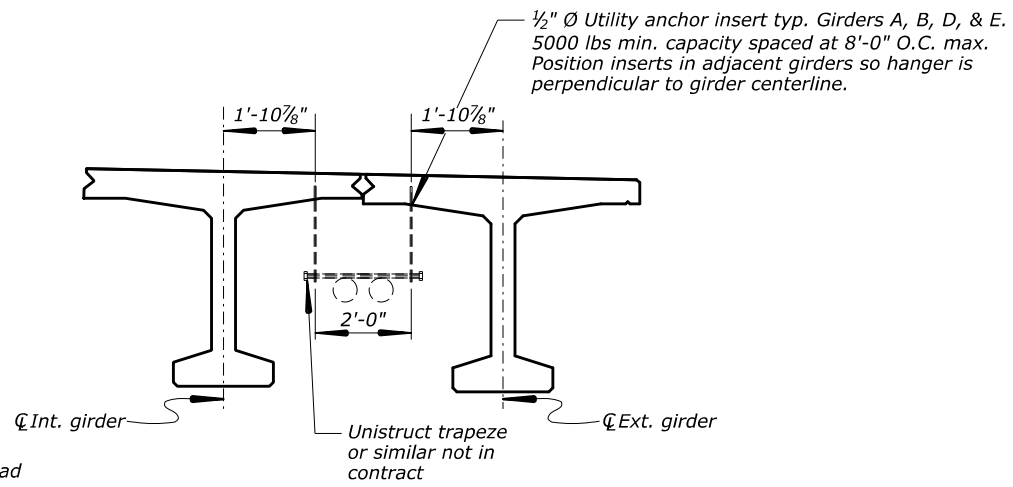
**BEARING PLATE PLAN**



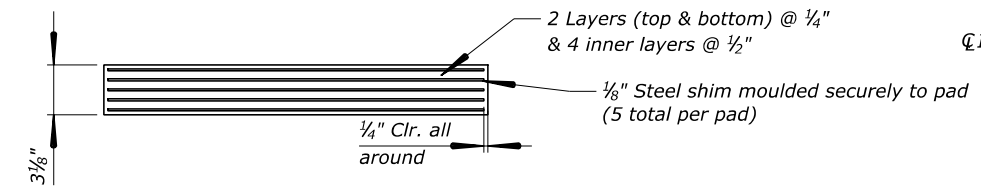
**BEARING PLATE ELEVATION**  
(10 Req'd)



**BEARING PAD PLAN**



**INSERTS FOR UTILITY HANGERS**



**BEARING PAD ELEVATION**  
(10 Req'd)

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
OLYMPIC NATIONAL PARK  
  
TOWER CREEK BRIDGE  
  
GIRDER DETAILS

14-Oct-2020 09:21 AM  
 \\ff1157\reserve\lhd\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\Bridg\Microstation\Bridg\Design\Files\Tower Creek\NO\_PROJECTS\DETAIL FILE: GIRDER DET.DGN

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	No Scale	George Choubah	13 of 18	October 2020	RG3105-M

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.15

**BRIDGE RAILING NOTES:**

**GENERAL:** The Alaska Multi-State Rail meets the TL-2 performance criteria.

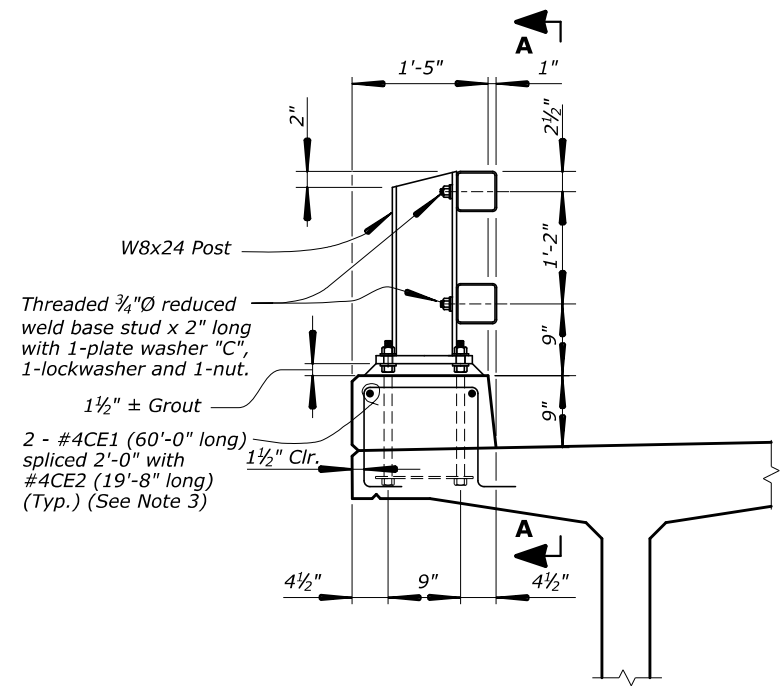
**MATERIALS:** Steel Posts, base plates, plate washers, and splice sleeves shall conform to ASTM A36. Structural tubing for rails shall conform to ASTM A500 or A501, Grade B. All components of the bridge rail shall be hot-dip galvanized after fabrication in accordance with AASHTO M 111 or M 232.

**FABRICATION:** Structural steel shall be shop fabricated. Submit shop drawings to the CO for approval prior to fabrication. Welding shall conform to the ANSI/AASHTO/AWS, and shall be by a certified welder. Welding for welded stud bolts shall conform to ANSI/AASHTO/AWS. All steel shall be fabricated before being galvanized.

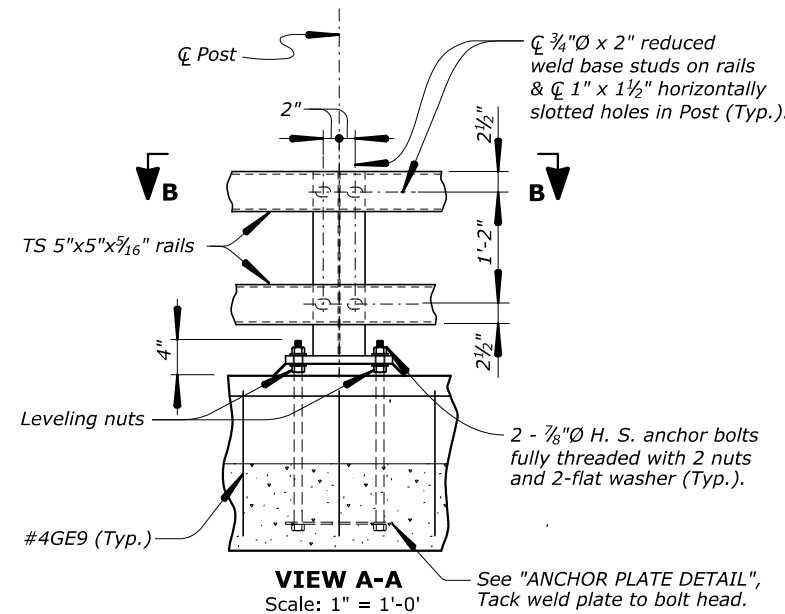
**RAIL SPLICE ASSEMBLIES:** Rail splice assemblies must be provided as shown on the plans. With rails continuous over two or more posts.

**GROUT:** Use grout that has a minimum 24 hours f'c of 3,000 psi.

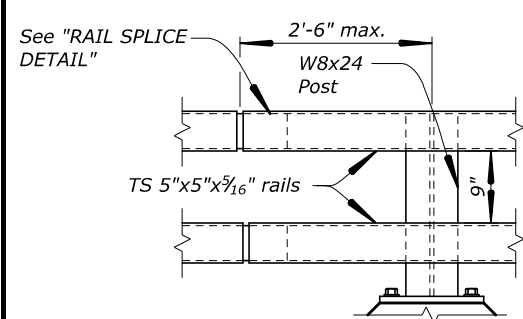
**ERECTION:** No field cutting or welding is permitted unless approved by the CO. All rail Posts shall be set vertically and the railing erected parallel to the girder profile. Contractor shall furnish steel shim plates as required to align railing. The completed installation shall not reflect any unevenness in the structure.



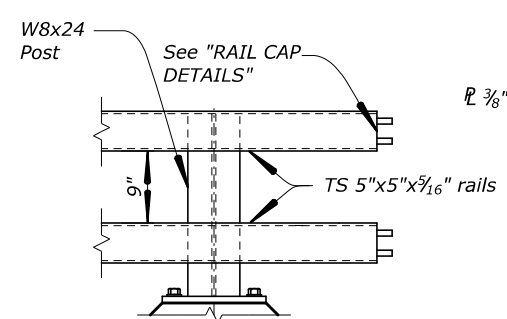
**TYPICAL SECTION**  
Scale: 1" = 1'-0"



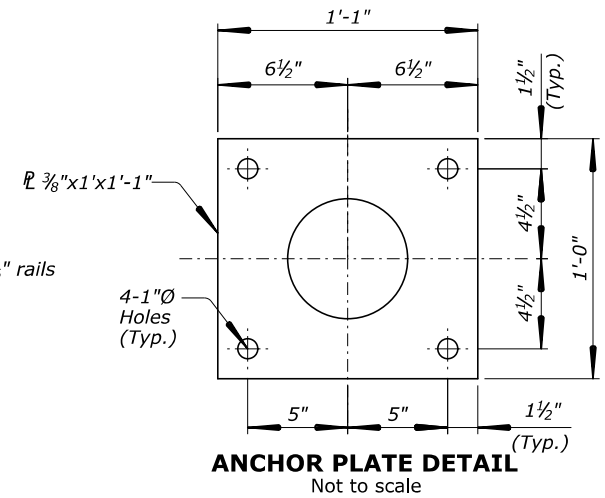
**VIEW A-A**  
Scale: 1" = 1'-0"



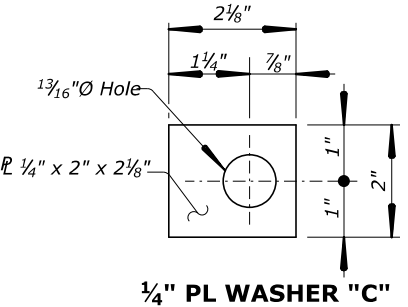
**RAIL SPLICE**  
Scale: 1" = 1'-0"



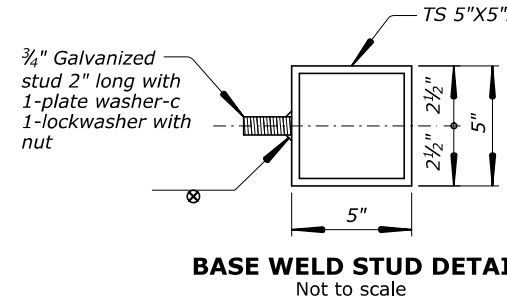
**END SECTION**  
Scale: 1" = 1'-0"



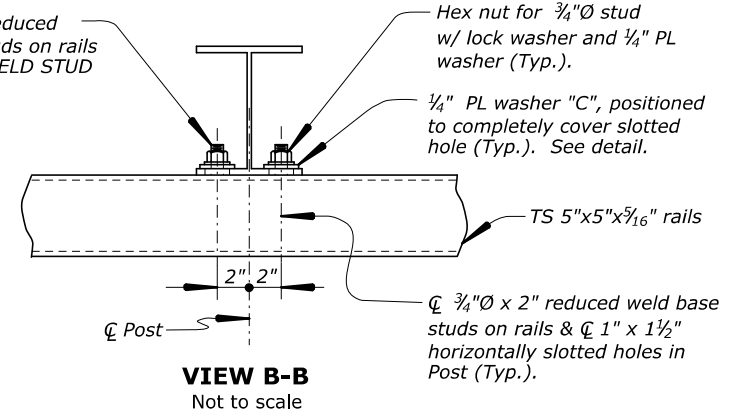
**ANCHOR PLATE DETAIL**  
Not to scale



**1/4" PL WASHER "C"**

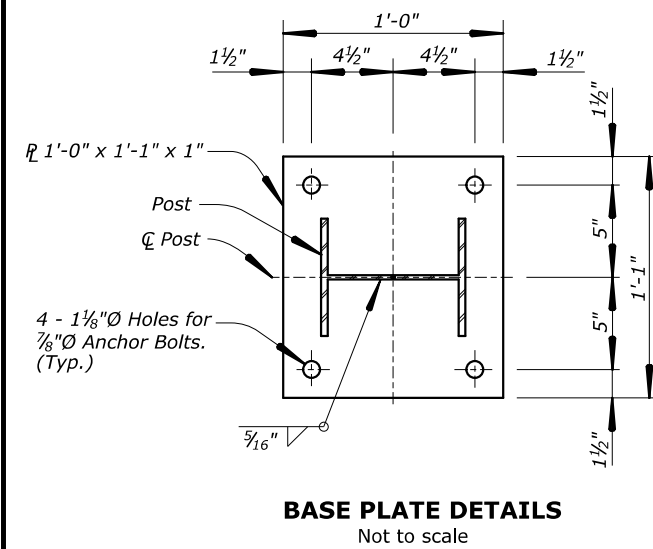


**BASE WELD STUD DETAIL**  
Not to scale

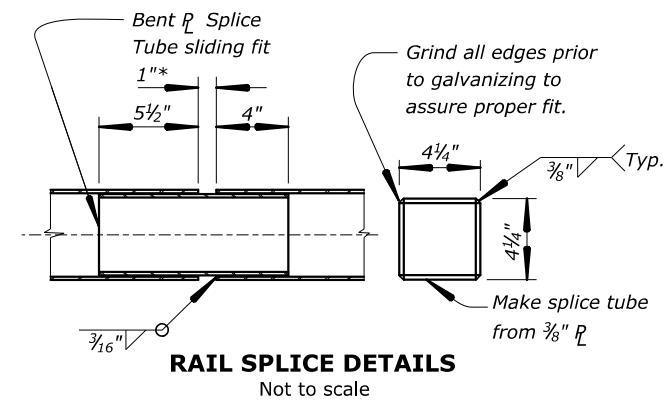


**VIEW B-B**  
Not to scale

- Notes:
1. Set top of Post 2'-8 1/2" above finish grade.
  2. See "GIRDER SECTIONS" and "EXTERIOR GIRDER TOP FLANGE" sheets for curb reinforcement.
  3. Alternate longitudinal curb reinforcement to avoid adjacent splices similar to longitudinal deck reinforcement. Place curb reinforcement continuously from approach slab curb into bridge curb.

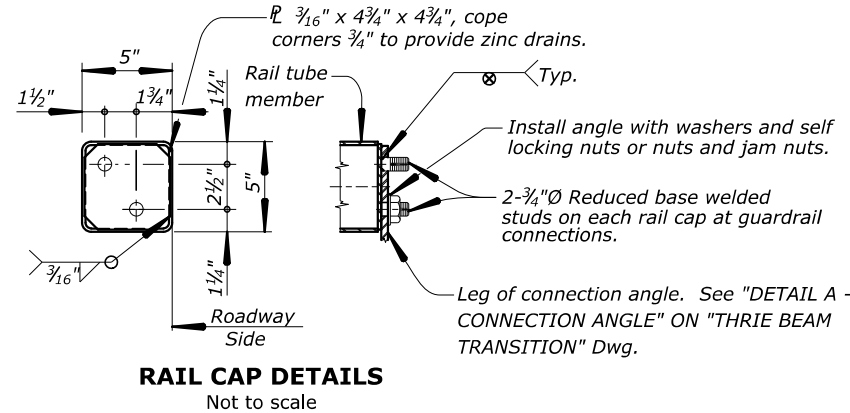


**BASE PLATE DETAILS**  
Not to scale



**RAIL SPLICE DETAILS**  
Not to scale

\* 1" Gap unless noted otherwise on detail plans.



**RAIL CAP DETAILS**  
Not to scale

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

OLYMPIC NATIONAL PARK

TOWER CREEK BRIDGE

BRIDGE RAILING

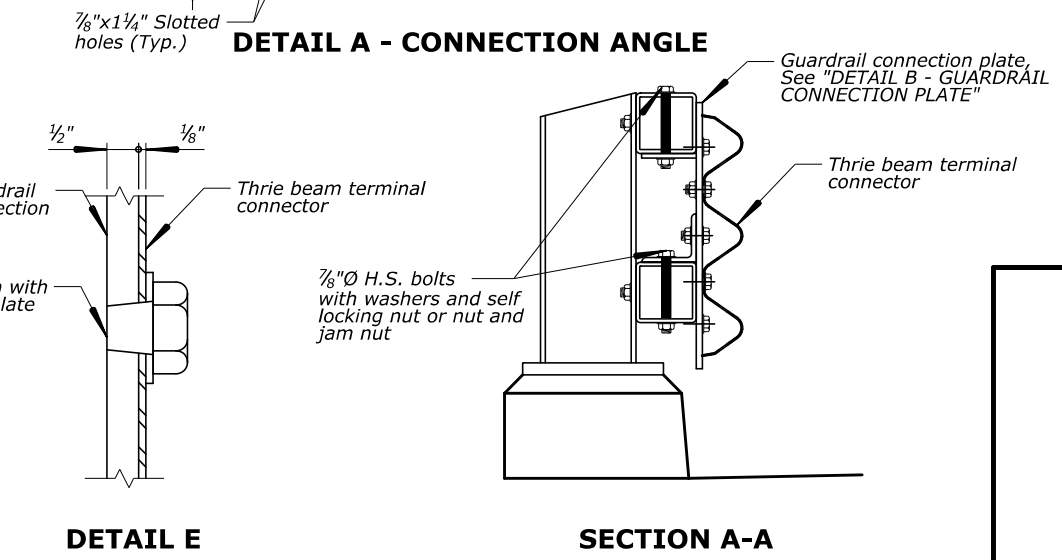
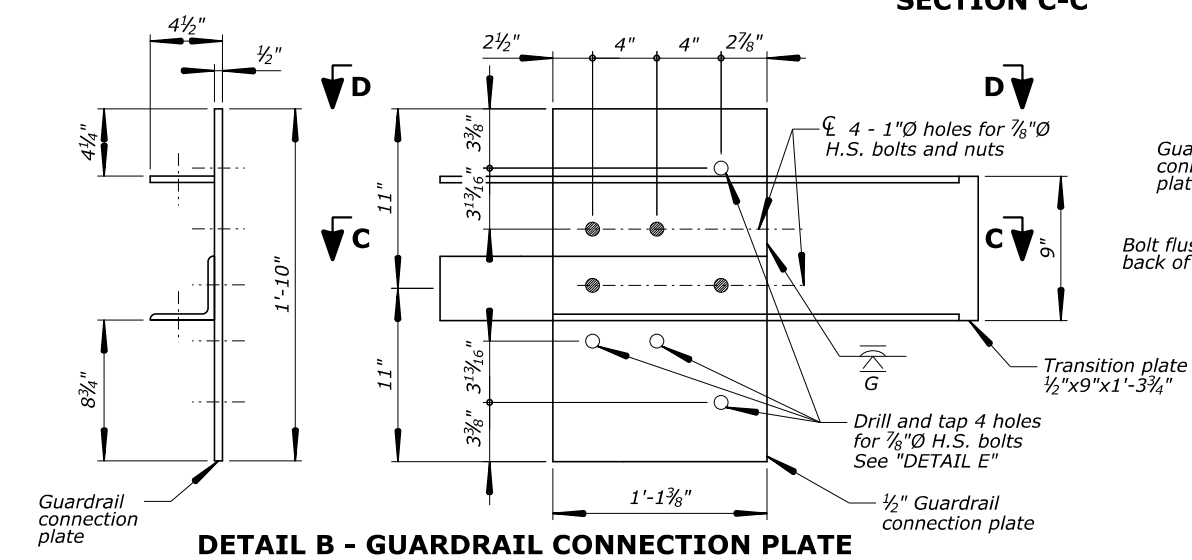
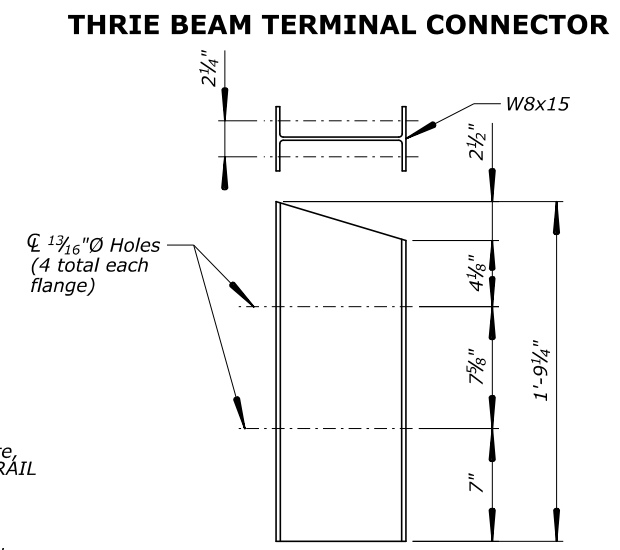
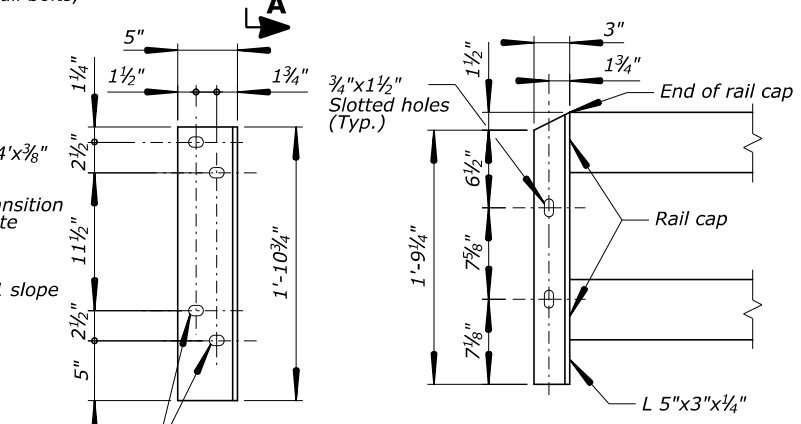
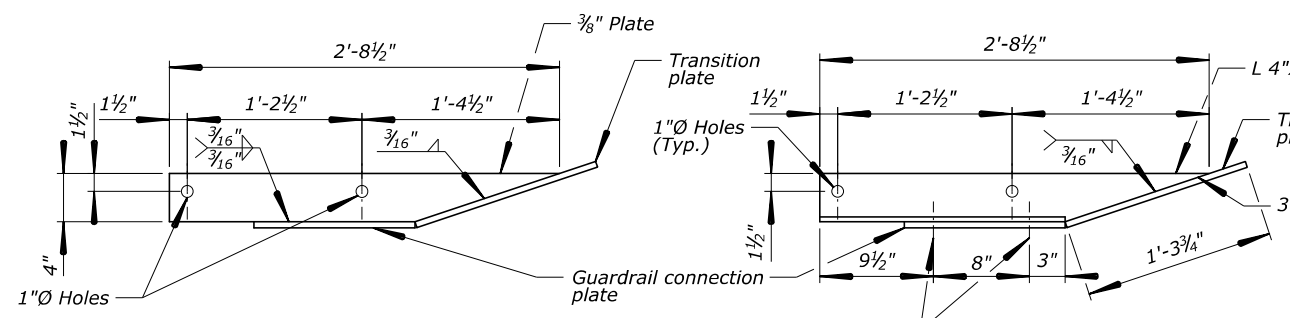
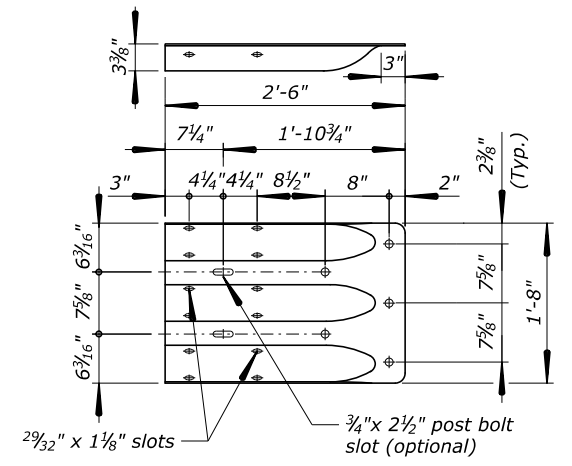
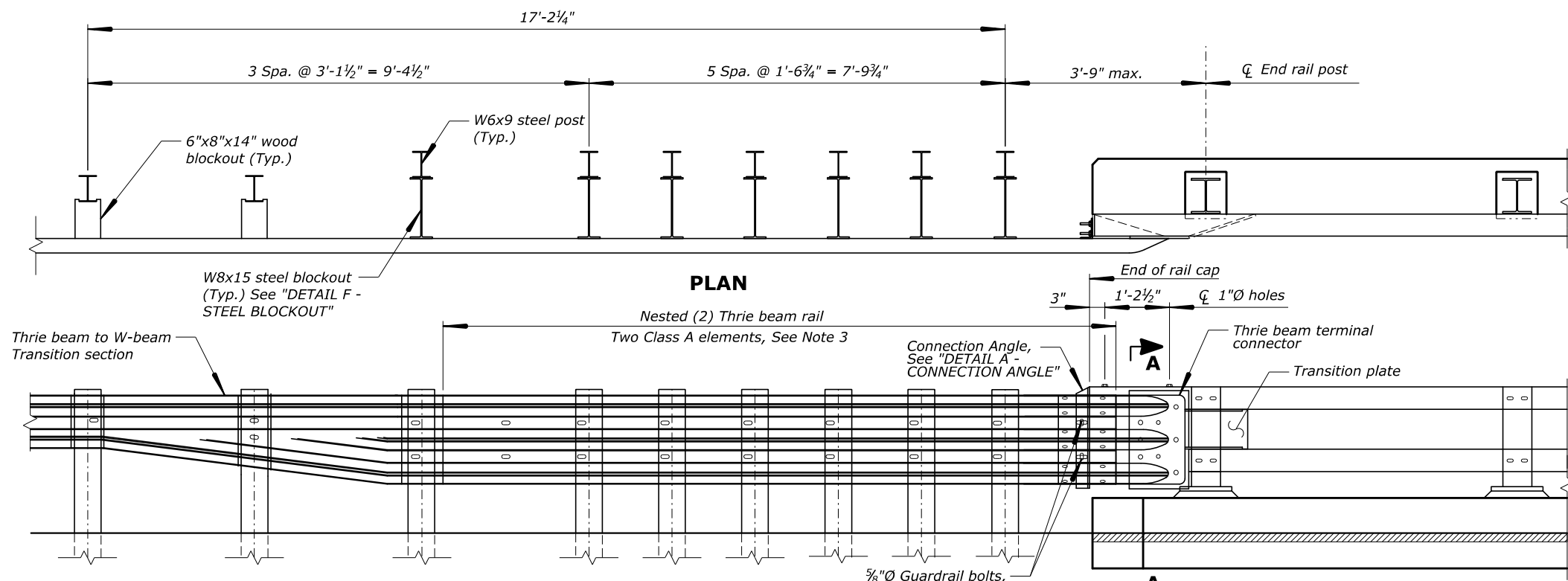
14-Oct-2020 09:21 AM \\F:\157\reserve\1\hd\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\BRIDGE\Microstation\Bridg Design Files\Tower Creek\OLR\RELECTS\dwg\WA\_91420(1)\_Bridge\_Railing.DGN

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	AR	HC	As Shown	George Choubah	14 of 18	October 2020	RG3105-N

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.16

Notes:

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

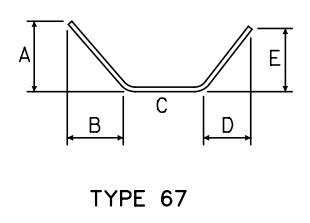
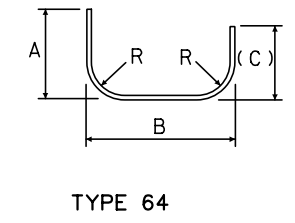
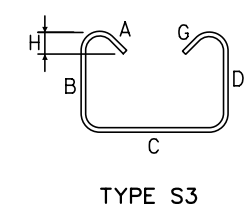
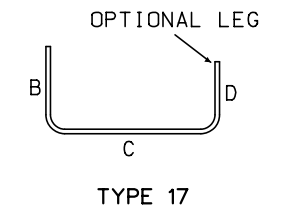
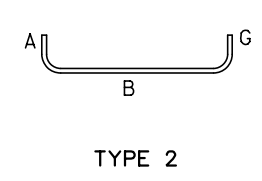
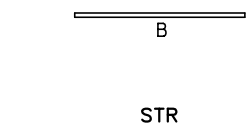


U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
 OLYMPIC NATIONAL PARK  
 TOWER CREEK BRIDGE  
 THRIE BEAM TRANSITION

14-Oct-2020 08:21 AM \\F:\151\reserve\1\h\hwa\dot\gov\data\PROJECTS\_ACCESS\WAWA\_JEFF\_91420\1\BRIDGE\Microstation\Bridge Design Files\TowerCreek\BROCK\EST\10\Agg\1420(1)\_Thrie\_Beam\_Rail.DGN

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	AR	HC	No scale	George Choubah	15 of 18	October 2020	RG3105-O

REINFORCING STEEL SCHEDULE				DIMENSION TABLE																
Abutment																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5A1	5	17	0'-3 3/4"	Vert.																
*7A2	7	STR		Horiz.top & bot.																
*5A3	5	STR		Horiz.ef.																
*7A4	7	17	0'-5 5/16"	Vert.																
*5A5	5	S3	0'-2 9/16"	Vert.																
*5A6	5	2	0'-3 3/4"	Vert.																
*5A7	5	STR		Vert.																
*5A8	5	67	0'-3 3/4"	Horiz.																
*5A9	5	17	0'-3 3/4"	Vert.																
*5A10	5	17	0'-3 3/4"	Vert.																
SUBTOTAL							LBS													
Wingwalls																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5W1	5	STR		Horiz.ef.																
*5W2	5	STR		Horiz.ef.																
*5W3	5	STR		Vert.ef.																
*5W4	5	STR		Vert.ef.																
SUBTOTAL							LBS													
Diaphragm																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*6D1	6	STR		Horiz.ef.																
*5D2	5	64		Vert.																
*5D3	5	STR		Dowels																
SUBTOTAL							LBS													



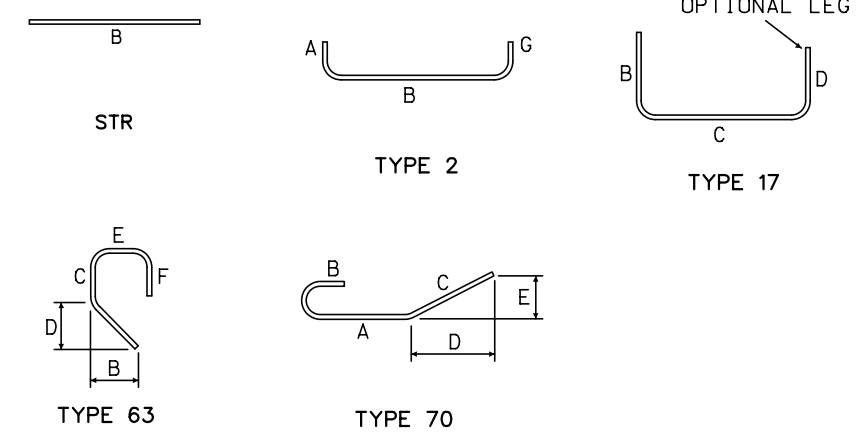
U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 TOWER CREEK BRIDGE  
  
**REINFORCING STEEL BAR LIST**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BK	HC	No Scale	George Choubah	16 of 18	October 2020	RG3105-P

14-Oct-2020 09:21 AM \\fhf115f1reserve\fhf\hwa\data\PROJECTS\ACCESS\WAWA\_JEFF\_914201\Bridge\Microstation\Bridg Design Files\Tower Creek\OPROJ\EST\High FILE: REBAR EPOXY EXT.DGN

REINFORCING STEEL SCHEDULE					DIMENSION TABLE															
Endwall Epoxy																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5EE1	5	17	0'-3 <sup>3</sup> / <sub>4</sub> "	Vert.																
*5EE2	5	2	0'-3 <sup>3</sup> / <sub>4</sub> "	Horiz.																
*5EE3	5	STR		Horiz.																
*5EE4	5	STR		Horiz.																
*5EE5	5	STR		Horiz.																
*5EE6	5	STR		Horiz.																
*5EE7	5	63	0'-3 <sup>3</sup> / <sub>4</sub> "	Vert.																
*5EE8	5	63	0'-3 <sup>3</sup> / <sub>4</sub> "	Vert.																
*5EE9	5	70	0'-3 <sup>3</sup> / <sub>4</sub> "	Vert.																
SUBTOTAL							LBS													
Curb Epoxy																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4CE1	4	STR		Longitudinal																
*4CE2	4	STR		Longitudinal																
SUBTOTAL							LBS													

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.18



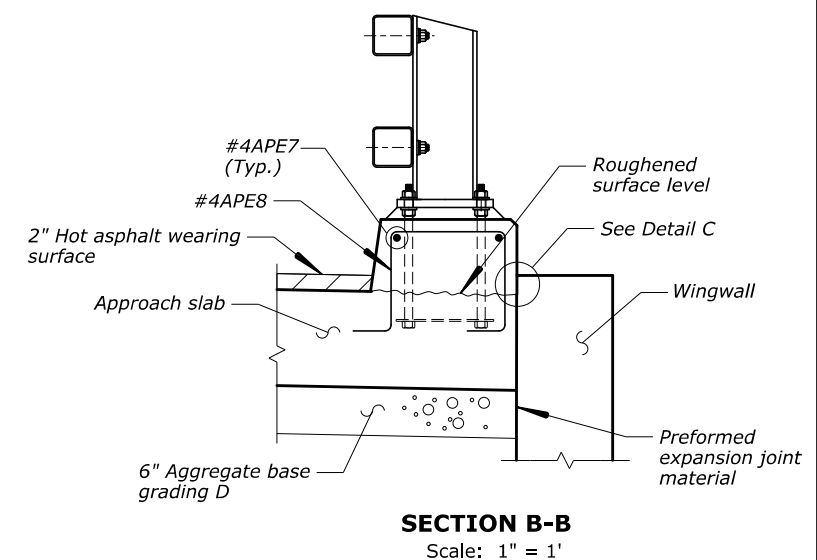
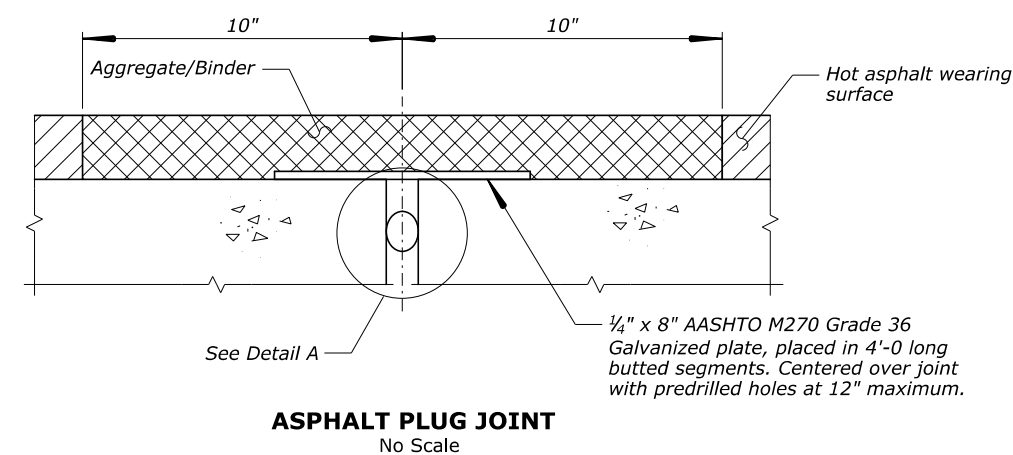
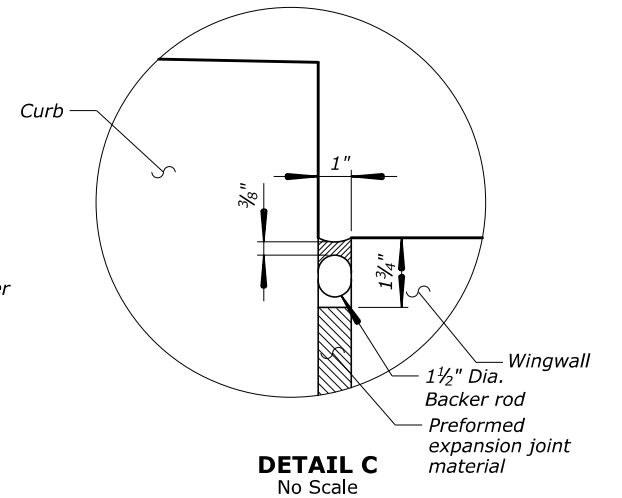
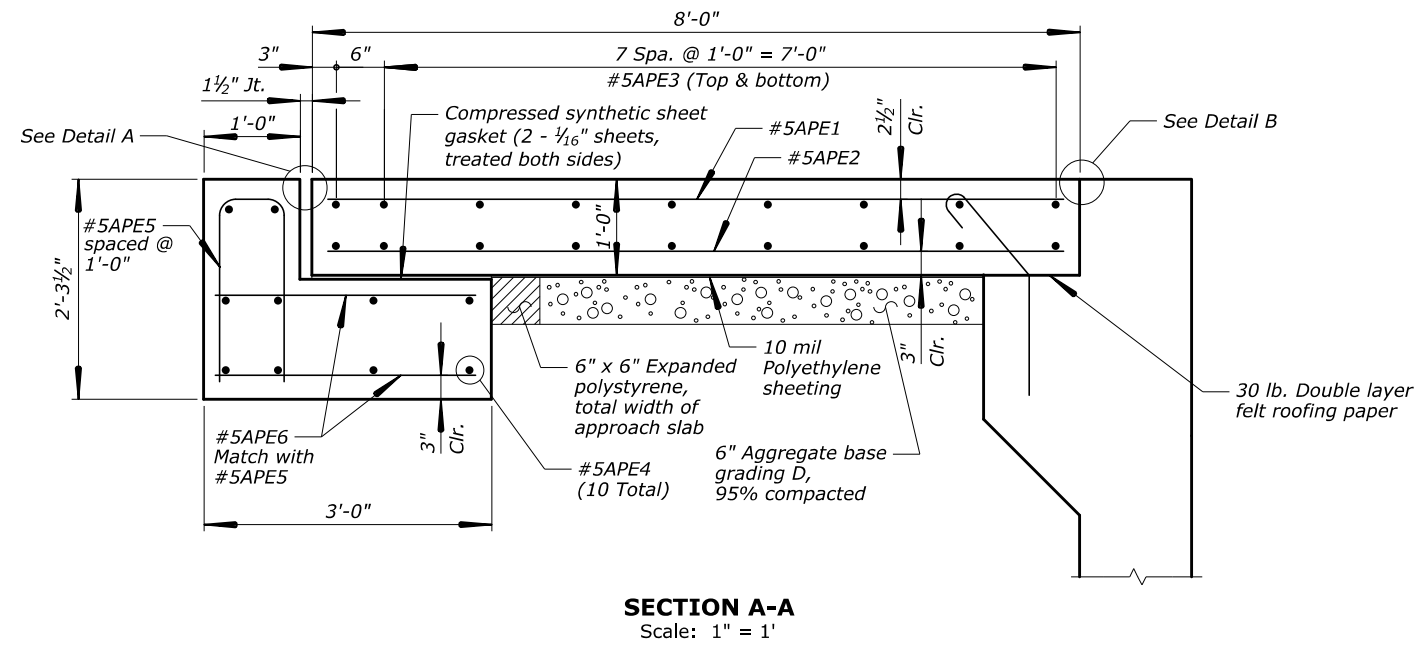
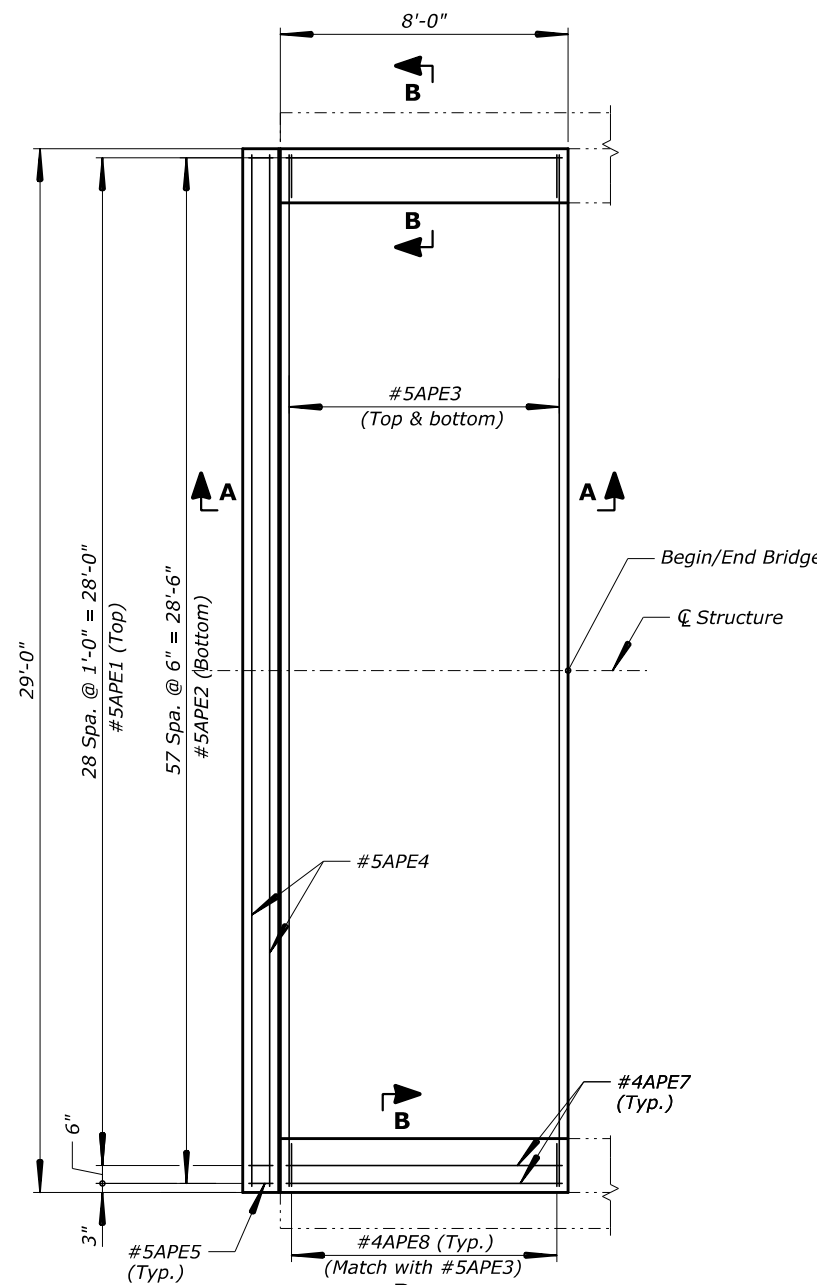
U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 TOWER CREEK BRIDGE  
  
 EPOXY COATED  
 REINFORCING STEEL BAR LIST

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BK	HC	No Scale	George Choubah	17 of 18	October 2020	RG3105-Q



I:\Projects\151\reserve\1\hwa\dot\gov\data\projects\ACCESS\WAWA\_JEFF\_914201\Bridges\Microstation\Bridges Design Files\Tower Creek\O\_P\PROJECT\_S\JEFF\AL FILE: APPROACH SLAB.DGN  
 14-Oct-2020 09:21 AM

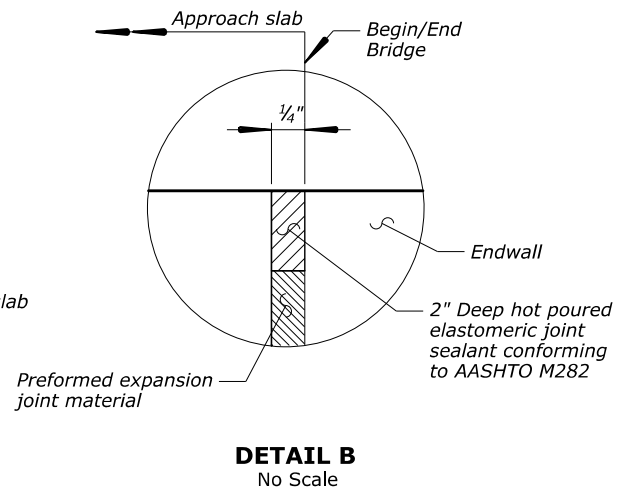
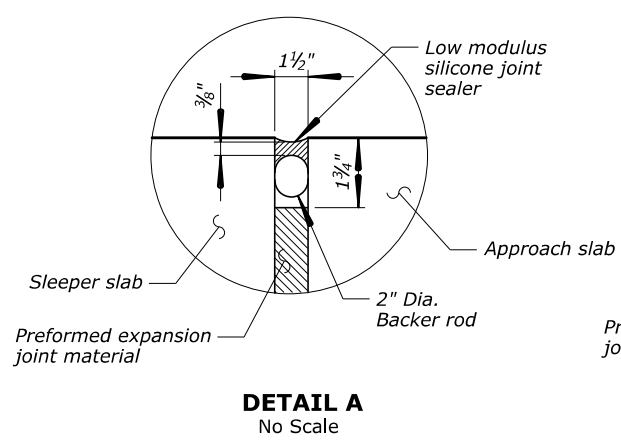
STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.19



- Notes:
- See "GIRDER SECTIONS," "EXTERIOR GIRDER TOP FLANGE," and "BRIDGE RAILING" sheets for curb reinforcement details.
  - See "ABUTMENT LAYOUT" sheet for dowel reinforcement details.
  - All costs associated with furnishing and installing reinforcing steel, compressed synthetic sheet gasket, expanded polystyrene, polyethylene sheeting, double layer felt roofing paper and sleeper slab, is considered incidental to the approach slab.

Slab Length	Slab Width	Concrete (Cu. Yd.)	Reinf. * Steel (Lbs.)	Joint Width
8'-0"	29'-0"	14.5	2010	1 1/2"

\* Does not include dowels



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

OLYMPIC NATIONAL PARK

TOWER CREEK BRIDGE

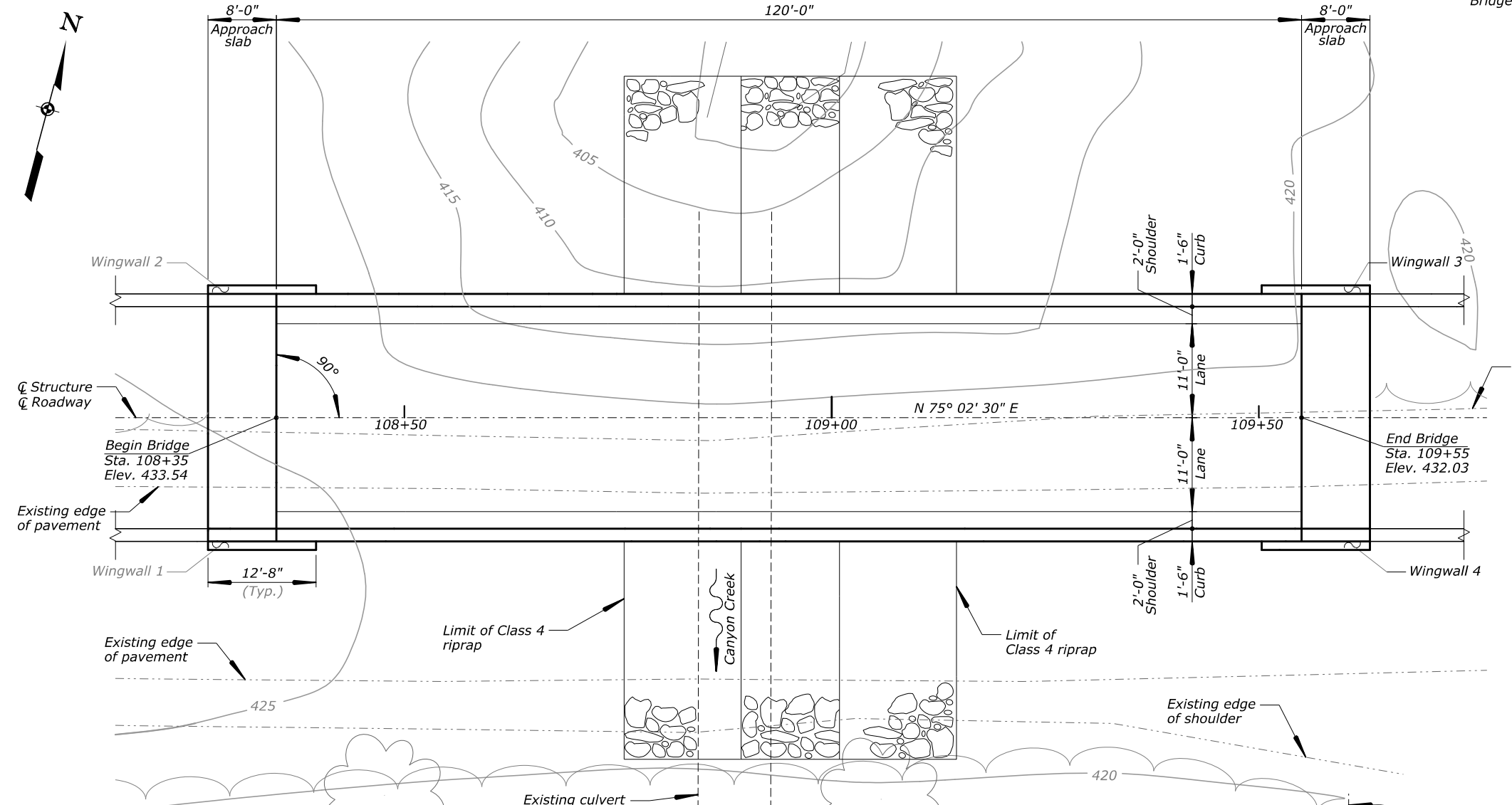
APPROACH SLAB

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	18 of 18	October 2020	RG3105-R

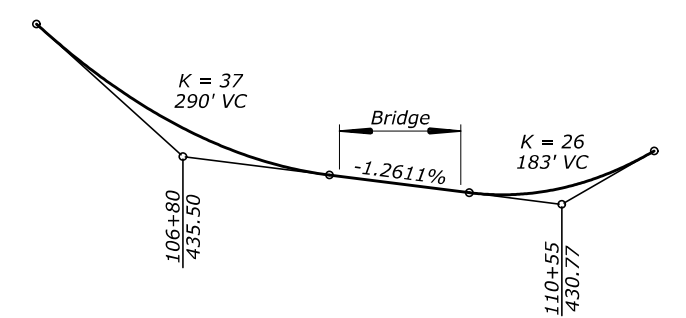
STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.20

Bridge length = 120'-0"

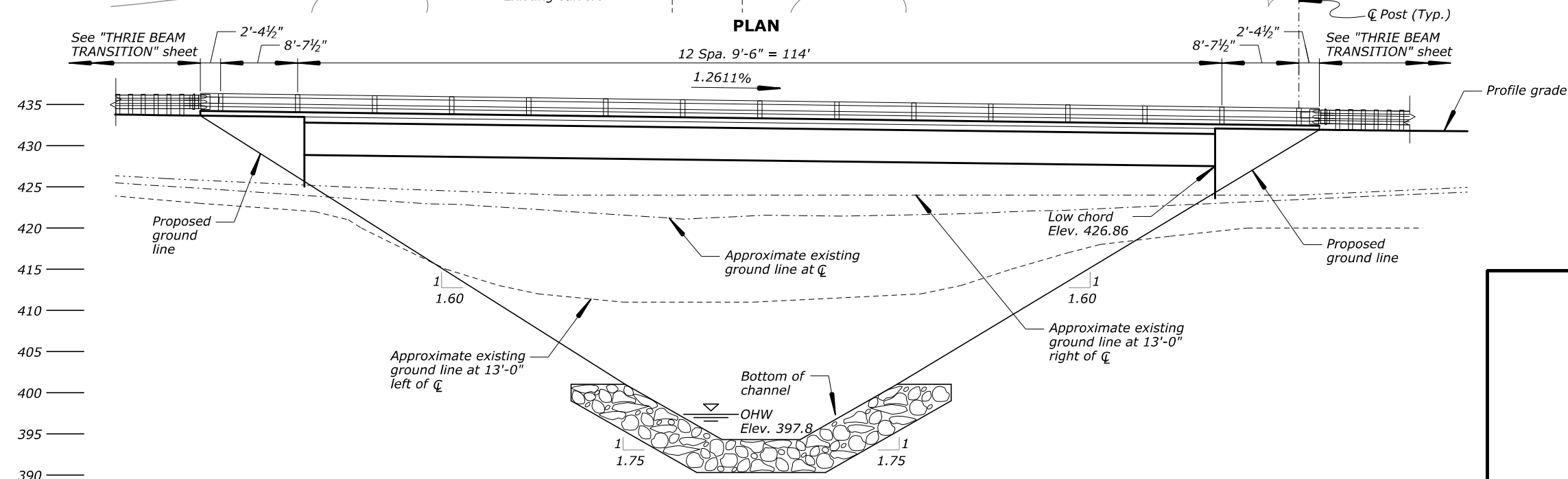
- Notes:
- See "CANYON CREEK BRIDGE PLAN AND PROFILE" sheet for hydraulic information.



**PLAN**



**PROFILE DIAGRAM**  
No Scale



**ELEVATION**

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
 OLYMPIC NATIONAL PARK  
 CANYON CREEK BRIDGE  
 PLAN AND ELEVATION

14-Oct-2020 09:23 AM \\ff115f1reserve1\hd\hwa\dot\gov\data\PROJECTS\_ACCESS\WAWA\_JEFF\_91420\1\Bridge\Microstation\Brdge Design Files\Canyon Creek\O\_PROJ\PROJECTS.dgn ACTUAL FILE: PE.DGN

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	1/8" = 1'	George Choubah	1 of 18	October 2020	RG3106-A

14-Oct-2020 09:23 AM \\F:\157\reserve\1\ndf\hwa\data\PROJECTS\ACCESS\WAWA\_JEFF\_914201\Bridg\Microstation\Bridg\Design Files\Canyon Creek\O\_PPROJ\Bridg\G.N.DGN

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.21

**GENERAL NOTES:**

**SPECIFICATIONS:**

Construction:

Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14.

Design:

AASHTO LRFD Bridge Design Specifications, 2014, 7th Edition with 2015 Interim Revisions.

**DESIGN LOADING:**

Dead Loads:

Concrete: 150 pcf  
 Asphalt wearing surface: 25 psf  
 Future asphalt wearing surface: 25 psf

Live Loads:

AASHTO HL-93; maximum dynamic load allowance, IM=33%

**MATERIALS:**

Design stresses:

Class A(AE) Concrete:  $f'c = 4,500$  psi at 28 days  
 Class D(AE) Concrete:  $f'c = 5,000$  psi at 28 days  
 Class P (Prestressed) Concrete:  $f'c = 9,000$  psi at 28 days  
 $f'ci = 7,500$  psi at time of release

Structural Steel:  $f_y = 50,000$  psi  
 Reinforcing Steel:  $f_y = 60,000$  psi  
 Prestressing Steel:  $f_s = 270,000$  psi

Concrete:

Furnish Class P (Prestressed) concrete for precast decked bulb tees.  
 Furnish Class D(AE) concrete for approach slabs, curbs, diaphragms, and endwalls.  
 Furnish Class A(AE) concrete for all other concrete.

Chamfer exposed edges of all concrete  $\frac{3}{4}$ " unless otherwise noted.

Furnish flexible cellular joint filler meeting the requirements of ASTM D1056, Type 2, grade 4 or 5.

Furnish preformed expansion material meeting the requirements of AASHTO M 213.

Reinforcing steel:

Furnish reinforcing steel conforming to AASHTO M 31 or M 322, grade 60 deformed.

Provide epoxy coated reinforcing steel for girders and all reinforcing steel located or anchored in Class D(AE) concrete unless otherwise noted.

Provide standard hooks as defined by ACI SP-66 for bends unless otherwise noted.

Provide 2" cover for reinforcing steel unless otherwise noted.

Prestressing steel:

Furnish grade 270, 0.60" diameter, seven-wire, low-relaxation, prestressing steel conforming to AASHTO M 203.

Pre-tension each strand to a total load of 43,940 lb ( $f'si = 0.75 * f's = 202,500$  psi).

The final estimated effective prestress force per strand is 38,840 lb based on estimated losses of 23.52 ksi.

Bearings:

Provide laminated elastomeric bearing pads conforming to the requirements of Section 18.2 of the AASHTO LRFD Bridge Construction Specifications, with 60 durometer hardness. Bearings are designed according to AASHTO LRFD design method A.

Steel Pipe Piles:

Furnish steel pipe piles conforming to ASTM A 252, grade 3.

**GEOTECHNICAL REPORT:**

For boring logs and other geotechnical information, see Geotechnical Memorandum No. 20-16, dated 07-2016.

ESTIMATE OF QUANTITIES				
ITEM NO.	ITEM	QUANTITY	UNIT	NOTES
20801-0000	Structure Excavation	20	CUYD	
20803-0000	Structure Backfill	485	CUYD	
40301-0100	Asphalt Concrete Pavement, Type 1	85	TON	
55101-2200	Steel Pipe Piles, In Place (24-Inch Diameter x 0.75-Inch)	845	LNFT	
55104-0000	Dynamic Pile Load Test	2	EACH	
55201-0200	Structural Concrete, Class A(AE)	40	CUYD	(1)
55201-0800	Structural Concrete, Class D(AE)	37	CUYD	(1)
55202-2000	Structural Concrete, Class D (AE), For Approach Slabs, Type 2	59	SQYD	(1)
55235-0000	Expansion Joints	58	LNFT	
55302-2700	Precast, Prestressed Concrete Deck Bulb Tee Girders, 53-Inch	595	LNFT	
55401-1000	Reinforcing Steel	4,910	LB	(1)
55401-2000	Reinforcing Steel, Epoxy Coated	5,150	LB	(1)
55601-1100	Bridge Railing, Steel, Two Rail	356	LNFT	(1)
55901-0000	Membrane Waterproofing	350	SQYD	
56401-1000	Bearing Device, Elastomeric	10	EACH	

(1) Contract Quantity

**DRAWING INDEX**

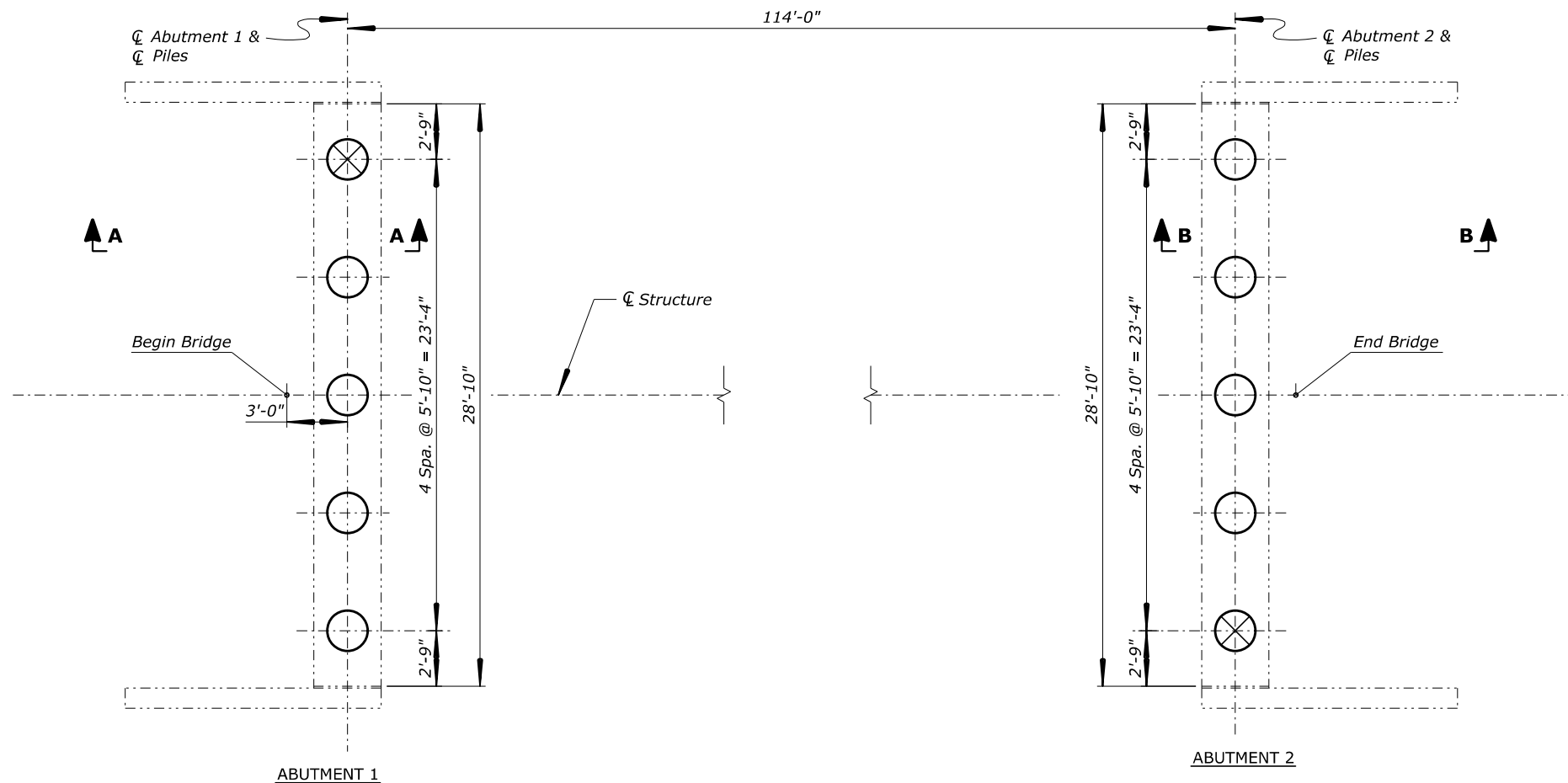
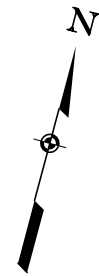
DRAWING NO.	DRAWING TITLE
RG3106-A	Plan and Elevation
RG3106-B	General Notes
RG3106-C	Foundation Layout
RG3106-D	Abutment Layout
RG3106-E	Abutment Endwall
RG3106-F	Abutment Wingwall
RG3106-G	Typical Section and Framing Plan
RG3106-H	Exterior Girder
RG3106-I	Interior Girder
RG3106-J	Girder Sections
RG3106-K	Exterior Girder Top Flange
RG3106-L	Interior Girder Top Flange
RG3106-M	Girder Details
RG3106-N	Bridge Railing
RG3106-O	Thrie Beam Transition
RG3106-P	Reinforcing Steel Bar List
RG3106-Q	Epoxy Coated Reinforcing Steel Bar List
RG3106-R	Approach Slab Details

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
 GENERAL NOTES

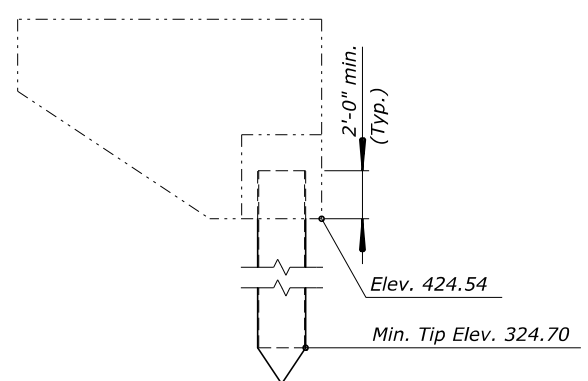
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	AR	HC	No Scale	George Choubah	2 of 18	October 2020	RG3106-B

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.22

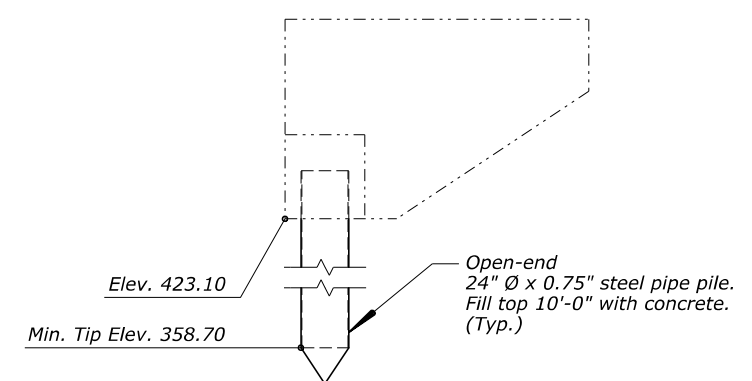
14-Oct-2020 09:23 AM \\f115f1reserve\flnd\fhwa\dot\gov\data\PROJECTS\ACCESS\WA\WA\_JEFF\_91420\IN\Bridges\Microstation\Bridges Design Files\Canyon Creek\K0\_PROJ\PROJECTS.dgn ACTUAL FILE: FL .DGN



**FOUNDATION PLAN**



**SECTION A-A**



**SECTION B-B**

- Notes:
- Indicates pile location.
  - ⊗ Indicates Dynamic Load Test location.

PILE DRIVING INFORMATION			
LOCATION	RESISTANCE FACTOR	REQUIRED COMPRESSIVE NOMINAL BEARING RESISTANCE (kips/pile)*	ESTIMATED TOTAL LENGTH OF PILES
Abut. 1	0.65	260	101.84 ft
Abut. 2	0.65	260	66.40 ft

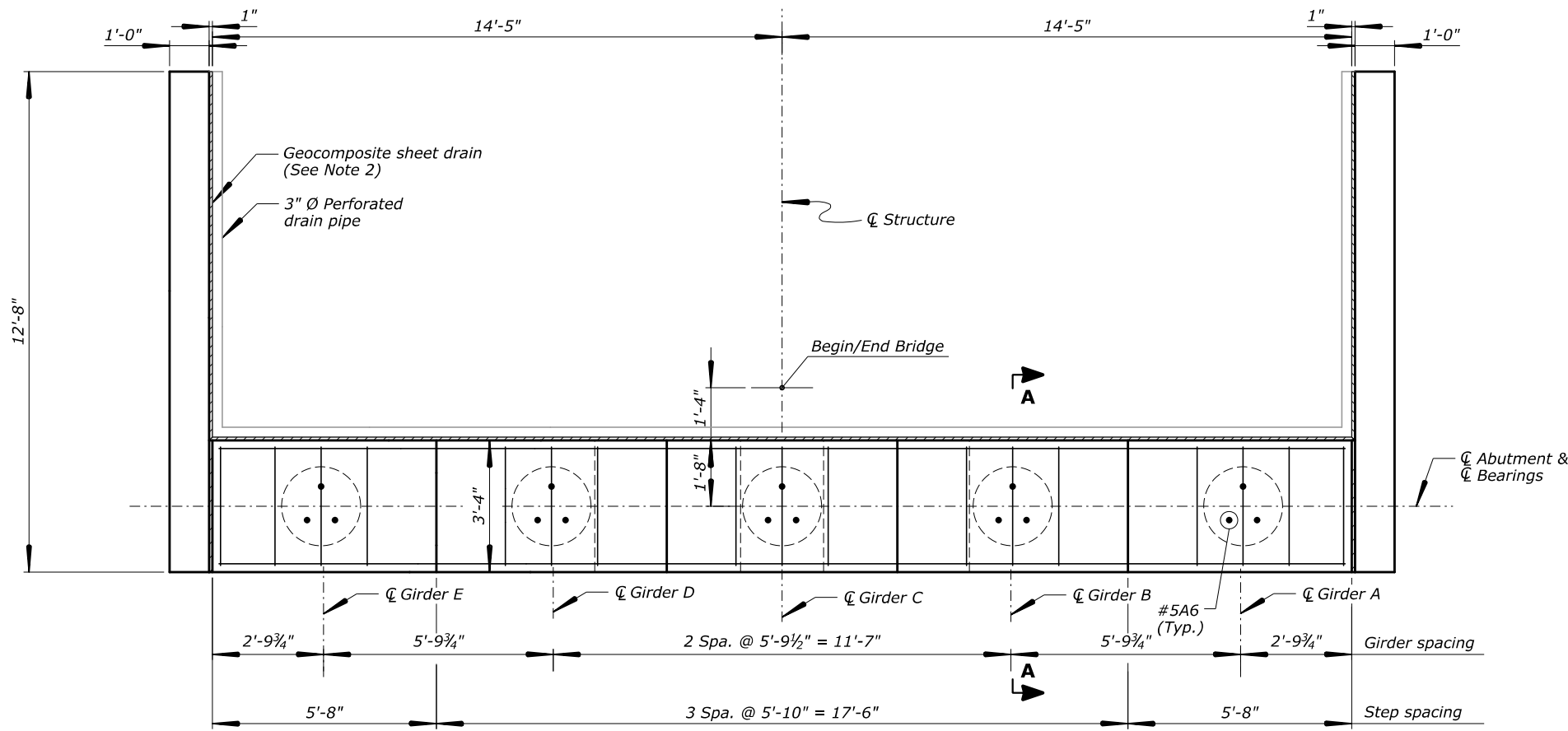
\* Drive piles to the required compressive nominal bearing resistance

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
**FOUNDATION LAYOUT**

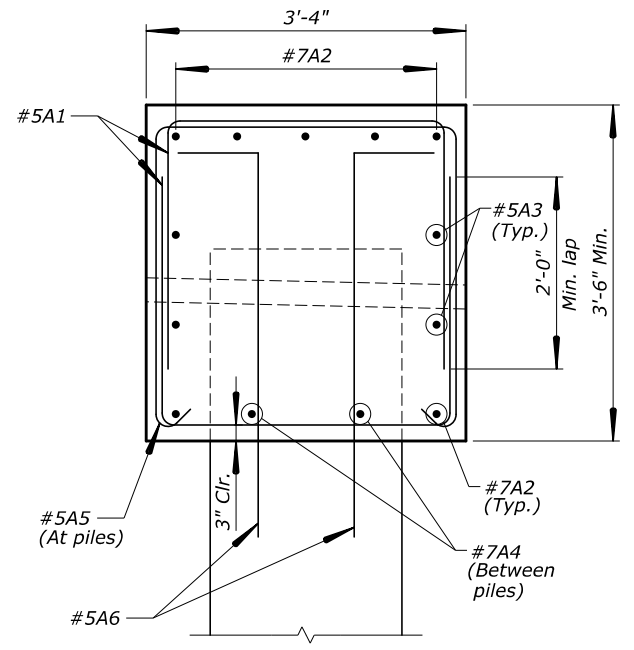
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	1/4" = 1'	George Choubah	3 of 18	October 2020	RG3106-C

I:\Projects\151\reserve\1\hwa\dot\gov\data\PROJECTS\ACCESS\WA\WA\_JEFF\_914201\Bridge\Microstation\Bridg Design Files\Canyon Creek\O\_APPROJECT\SCHEMATIC FILE: ABUT LAYOUT.DGN  
 14-Oct-2020 09:23 AM

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.23



**PLAN**  
 Scale: 1/2" = 1'  
 (Abutment 1 shown, Abutment 2 similar)

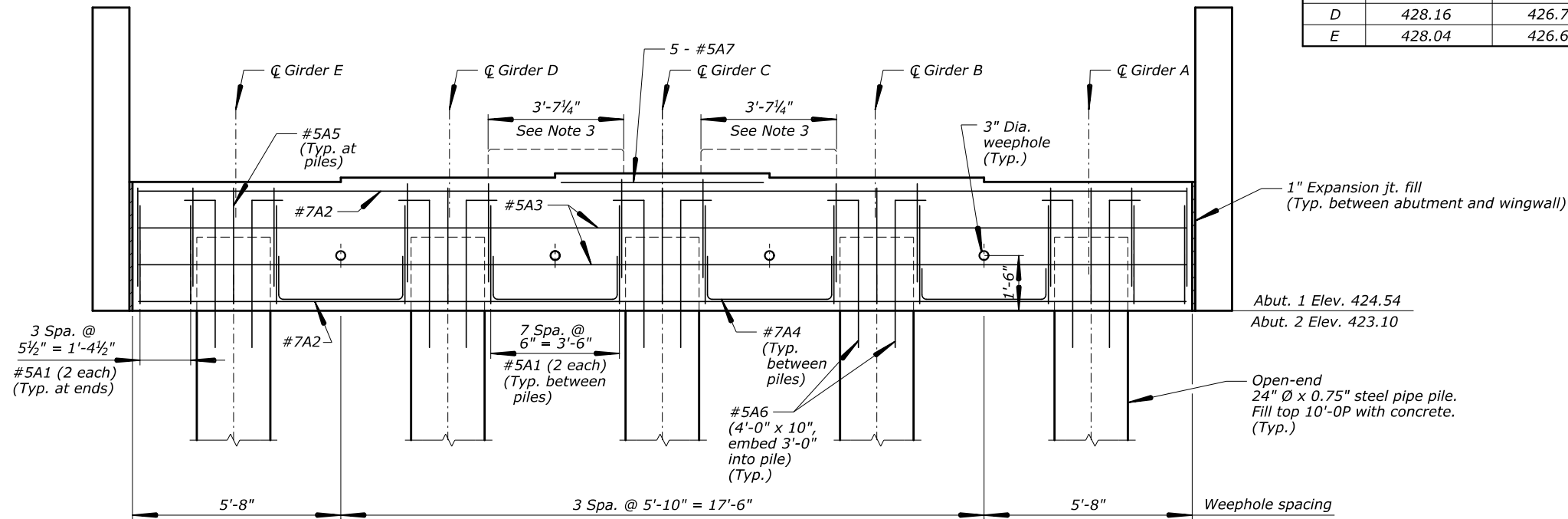


**SECTION A-A**  
 Scale: 1" = 1'

BEARING SEAT ELEVATIONS		
GIRDER	ABUT. 1	ABUT. 2
A	428.04	426.60
B	428.16	426.72
C	428.27	426.83
D	428.16	426.72
E	428.04	426.60

Notes:

- See "ABUTMENT WINGWALL" sheet for wingwall details and elevations.
- Install continuous geocomposite sheet drain and 3" dia. perforated drain pipe behind wingwalls and abutment. Cap ends of pipe. Tie perforated wingwall pipes to perforated abutment pipe and daylight through weep holes at face of abutment.
- Cast shear block after girders have been set. Roughen surface of cap at shear block locations. See "ABUTMENT WINGWALL" sheet for details.

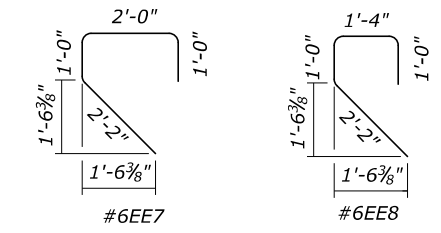
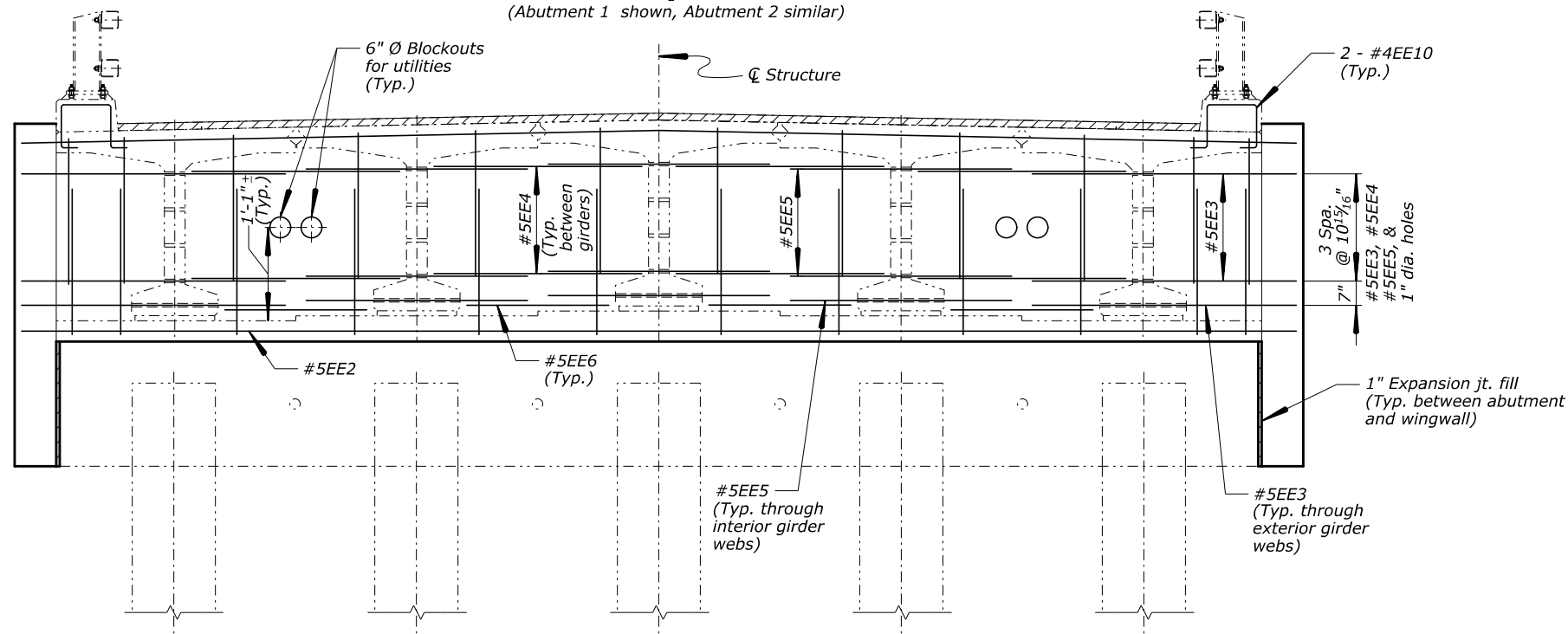
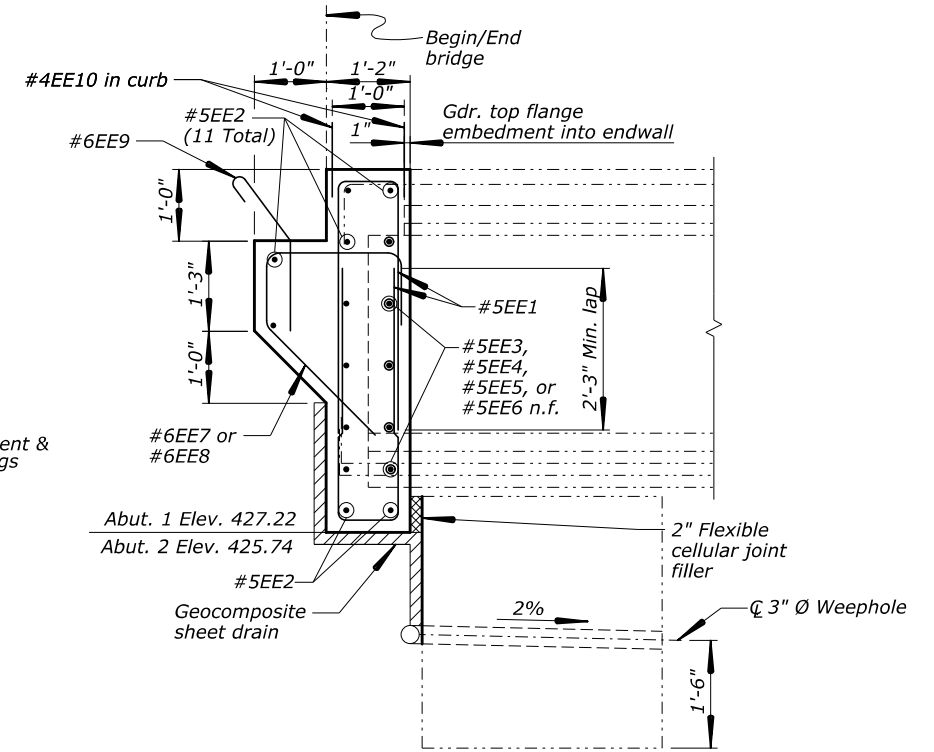
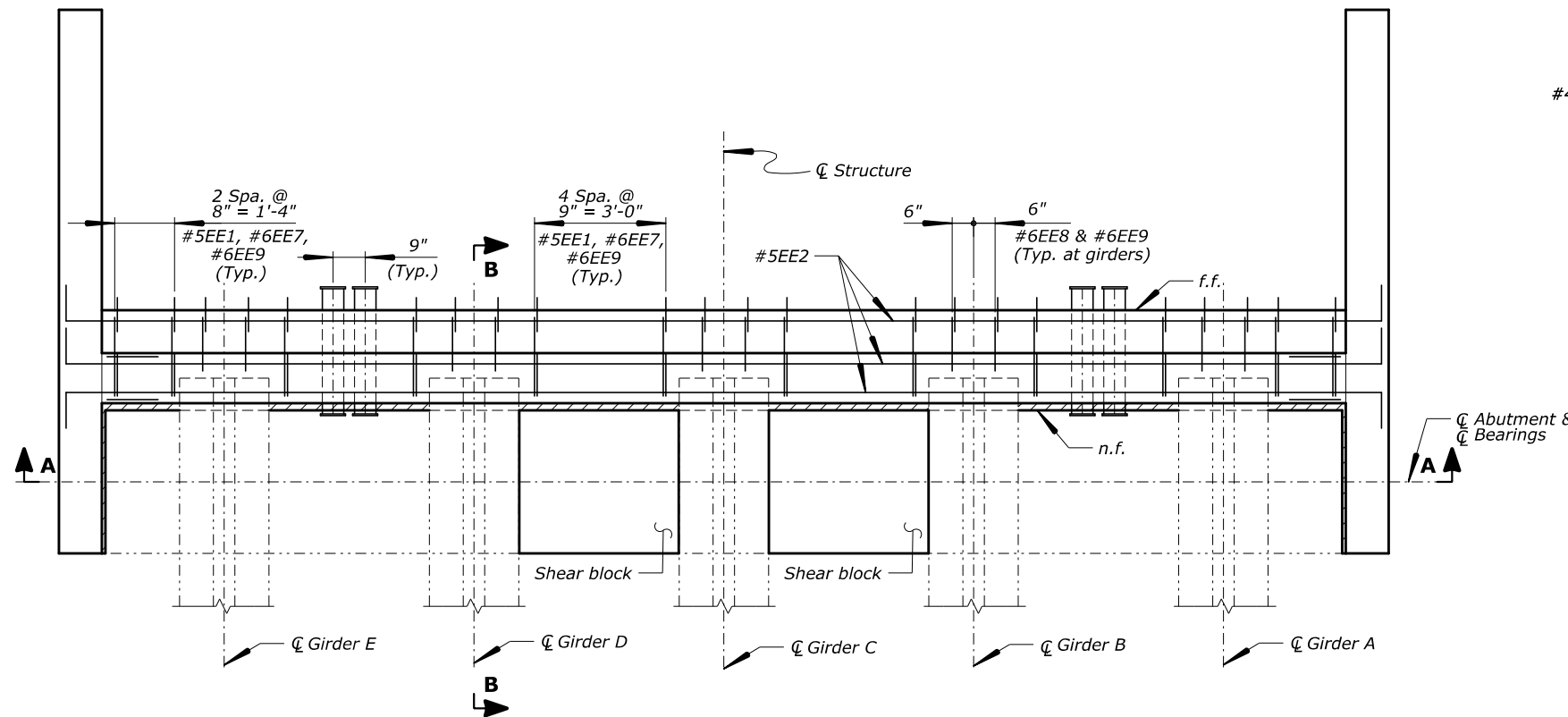


**ELEVATION**  
 Scale: 1/2" = 1'  
 (Abutment 1 shown, Abutment 2 similar)

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
**ABUTMENT LAYOUT**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	4 of 18	October 2020	RG2106-D

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.24



Key:  
n.f. = near face  
f.f. = far face  
e.f. = each face

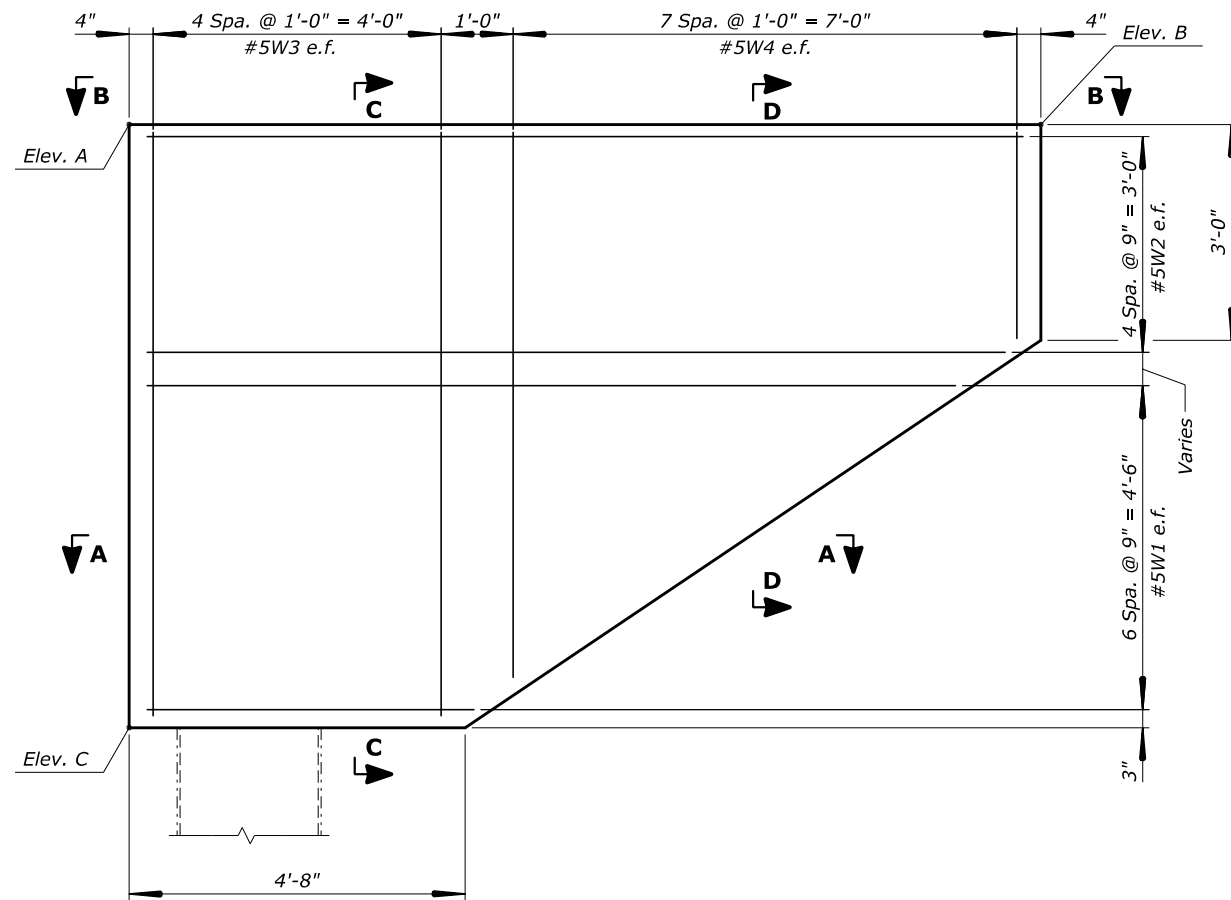
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
OLYMPIC NATIONAL PARK  
  
CANYON CREEK BRIDGE  
  
ABUTMENT ENDWALL

14-Oct-2020 09:23 AM \\F:\157\reserve\1\nd\F\hwa\dot\gov\data\PROJECTS\_ACCESS\WAWA\_JEFF\_91420\1\Bridge\Microstation\Bridg Design\_Files\Canyon Creek\O\_PPROJ\675\675.dgn FILE: ABUT ENDWALL.DGN

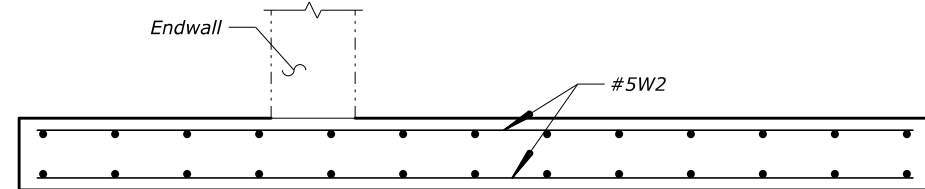
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	5 of 18	October 2020	RG3106-E

14-Oct-2020 09:23 AM \\fhf15f1reserve\fhf\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_914201\Bridge\Microstation\Bridge Design Files\Canyon Creek\O\_P\_P\_R\_O\_J\_E\_C\_T\141014.dgn FILE: ABUT WINGWALL.DGN

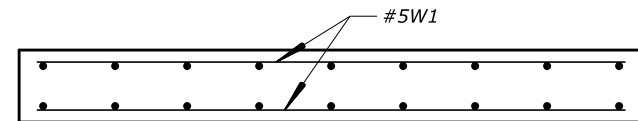
STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.25



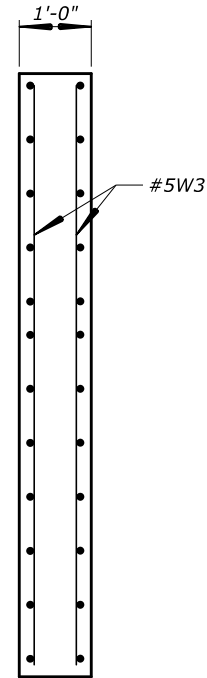
**ELEVATION**  
Scale: 3/4" = 1'-0"



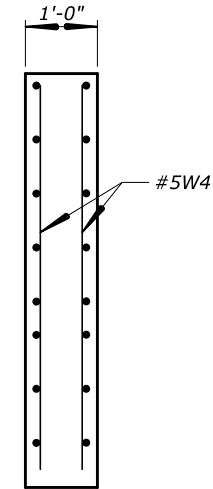
**SECTION B-B**  
Scale: 3/4" = 1'-0"



**SECTION A-A**  
Scale: 3/4" = 1'-0"

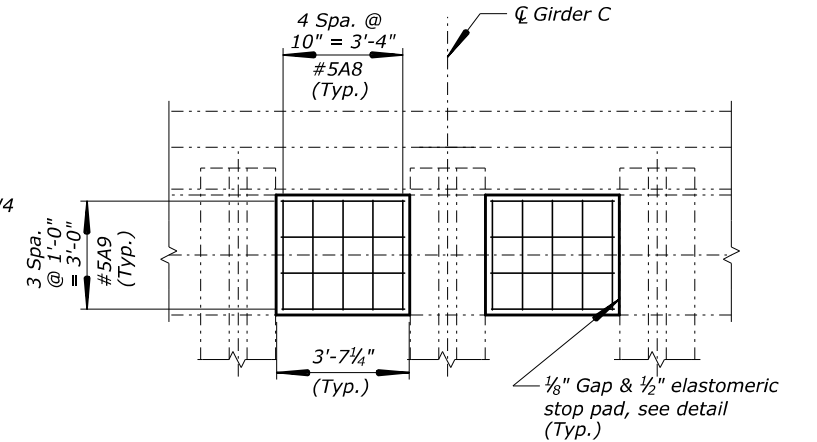


**SECTION C-C**  
Scale: 3/4" = 1'-0"

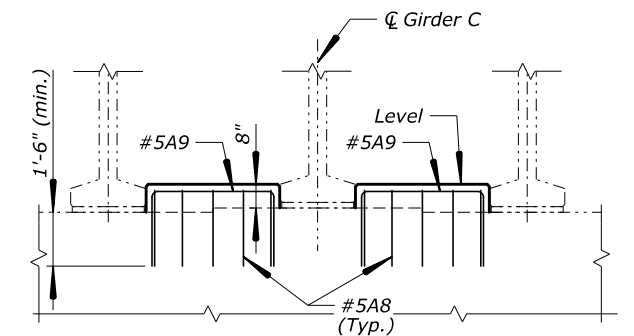


**SECTION D-D**  
Scale: 3/4" = 1'-0"

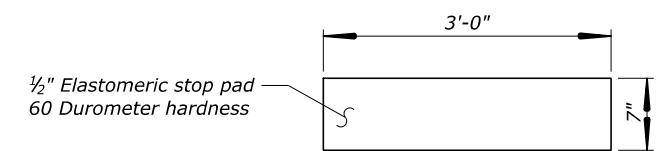
ELEVATIONS		
ELEV.	WING. 1 & 2	WING. 3 & 4
A	433.19	431.80
B	433.35	431.64
C	424.54	423.10



**SHEAR BLOCK PLAN**  
Scale: 3/8" = 1'-0"



**SHEAR BLOCK ELEVATION**  
Scale: 3/8" = 1'-0"



**ELASTOMERIC STOP PAD DETAIL**  
No Scale  
(8 req'd)

**Notes:**

1. Cast concrete for shear blocks after placement of girders.
2. Place elastomeric pads after constructing shear blocks. Coat pads with approved cementitious adhesive prior to installation.

**Key:**

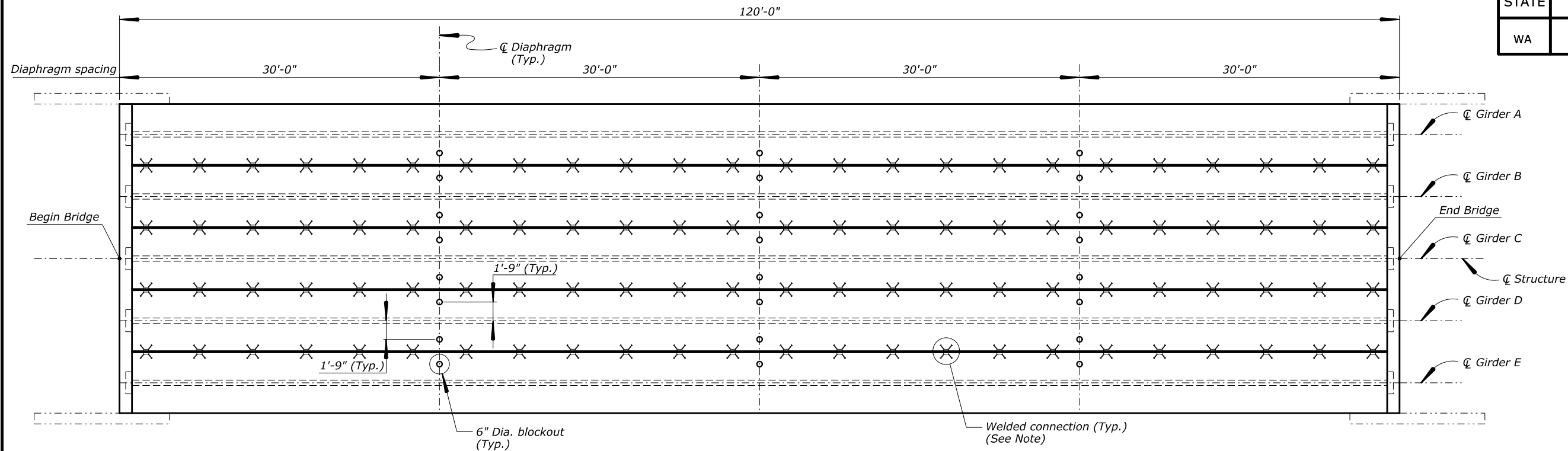
n.f. = near face  
 f.f. = far face  
 e.f. = each face

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
**ABUTMENT WINGWALL**

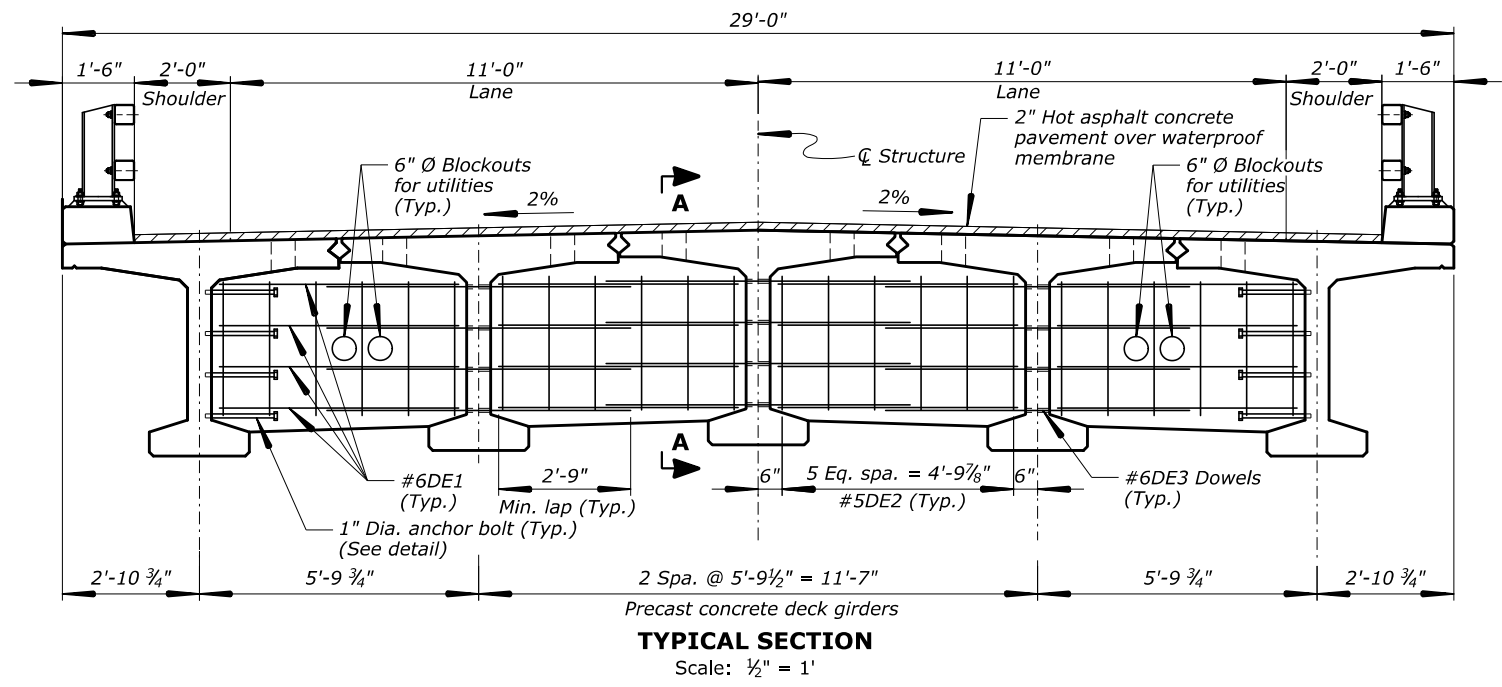
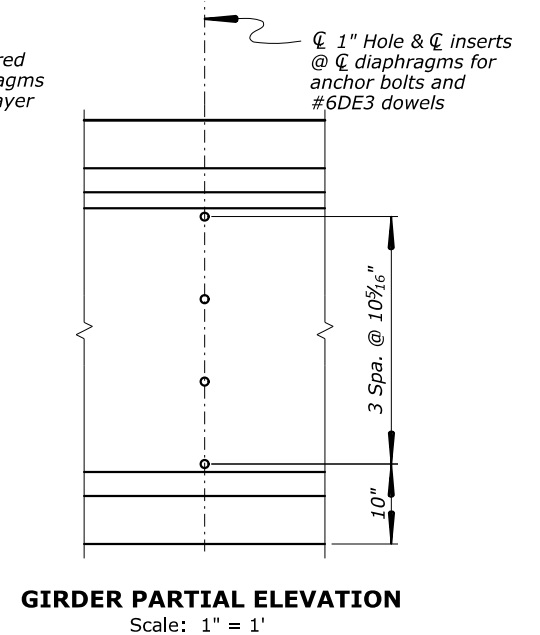
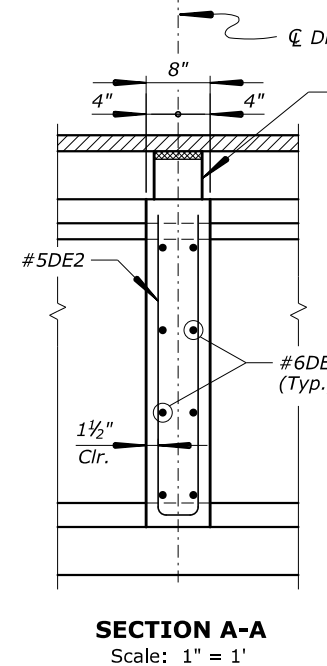
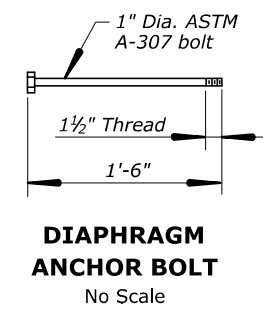
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	6 of 18	October 2020	RG3106-F

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.26

\V\F\151\reserve\1hd\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\Bridge\Microstation\Bridg Design Files\Canyon Creek\O\_APPROJECTS.dgn ACTUAL FILE: TYPXS.DGN  
 14-Oct-2020 09:23 AM



**FRAMING PLAN**  
Scale:  $\frac{3}{16}'' = 1'$



Note:  
See "GIRDER DETAILS" sheet for welded connection details. See "EXTERIOR GIRDER TOP FLANGE" and "INTERIOR GIRDER TOP FLANGE" sheets for welded connection spacing.

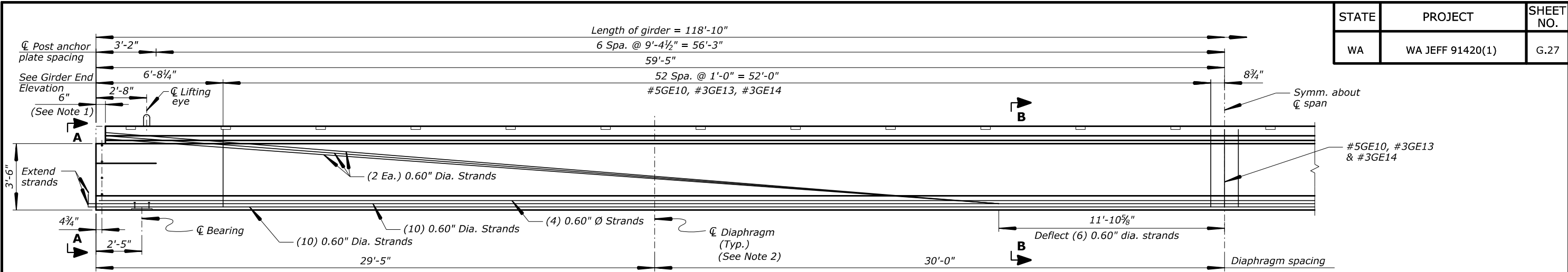
U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
**TYPICAL SECTION AND FRAMING PLAN**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	7 of 18	October 2020	RG3106-G

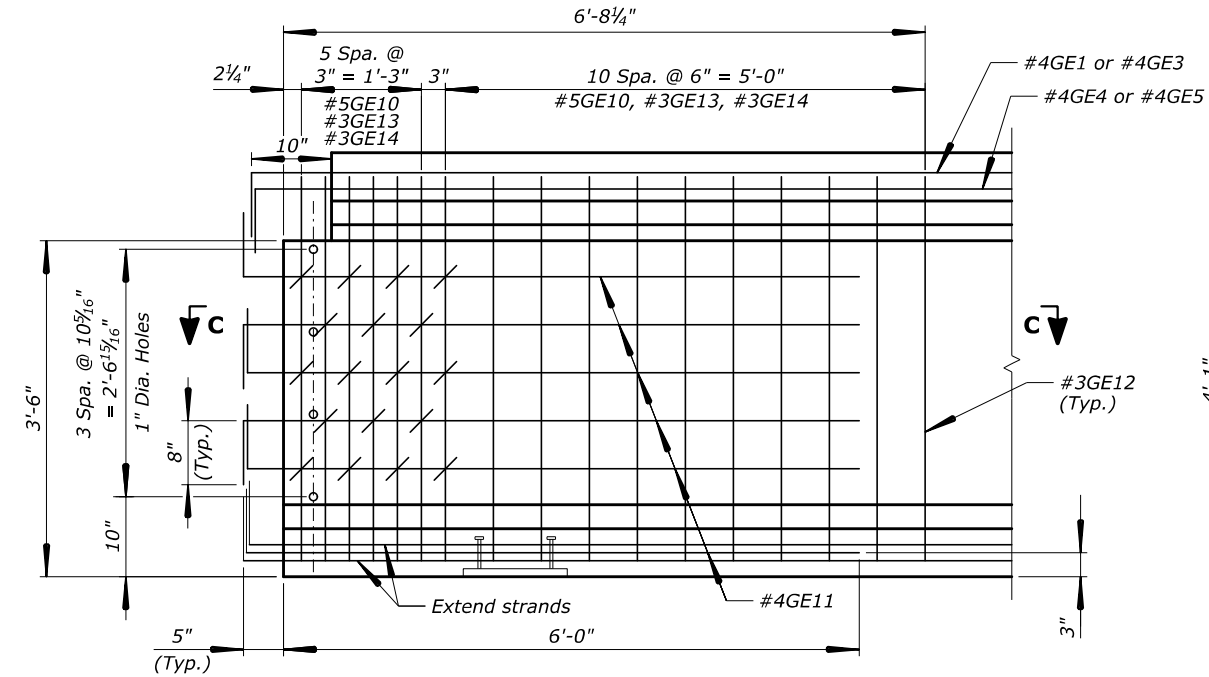


STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.27

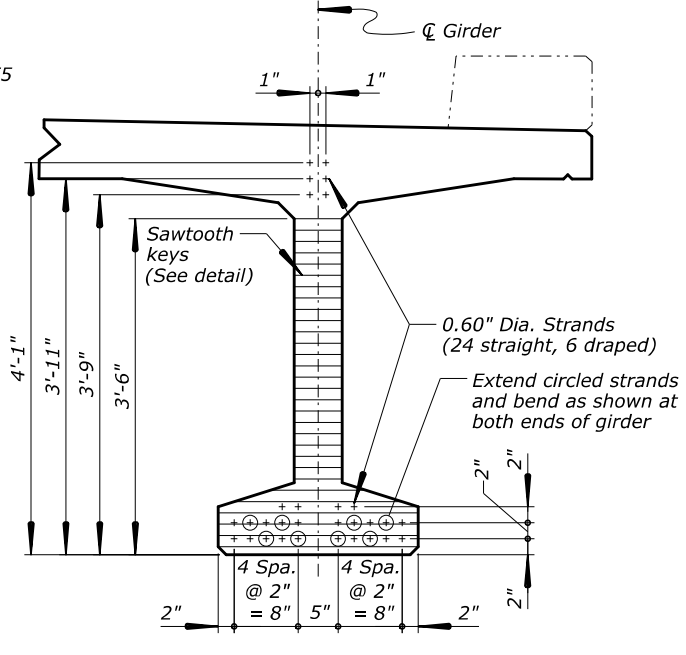
14-Oct-2020 09:23 AM \\F:\15\reserve\1\h\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\Bridge\Microstation\Bridg Design Files\Canyon Creek\K0\_PROJECT\3\GIRDER.DGN



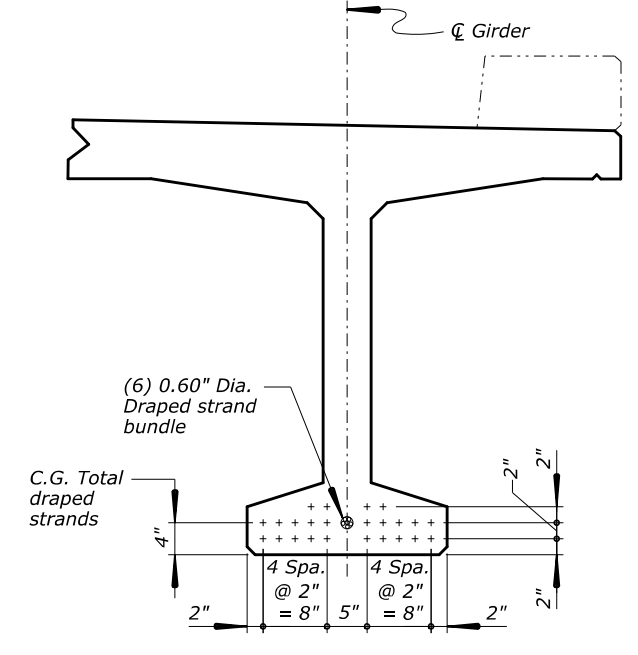
**HALF GIRDER ELEVATION**  
Scale: 3/8" = 1'



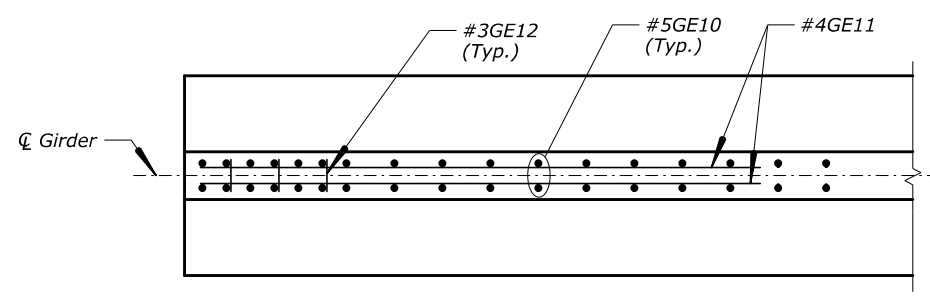
**GIRDER END ELEVATION**  
Scale: 1" = 1'



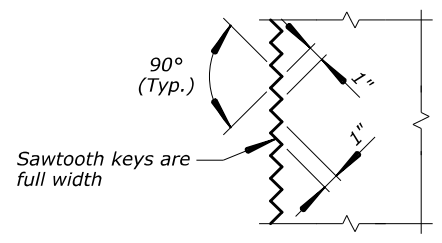
**VIEW A-A**  
Scale: 1" = 1'



**SECTION B-B**  
Scale: 1" = 1'



**SECTION C-C**  
Scale: 1" = 1'



**SAWTOOTH KEY DETAIL**  
No Scale

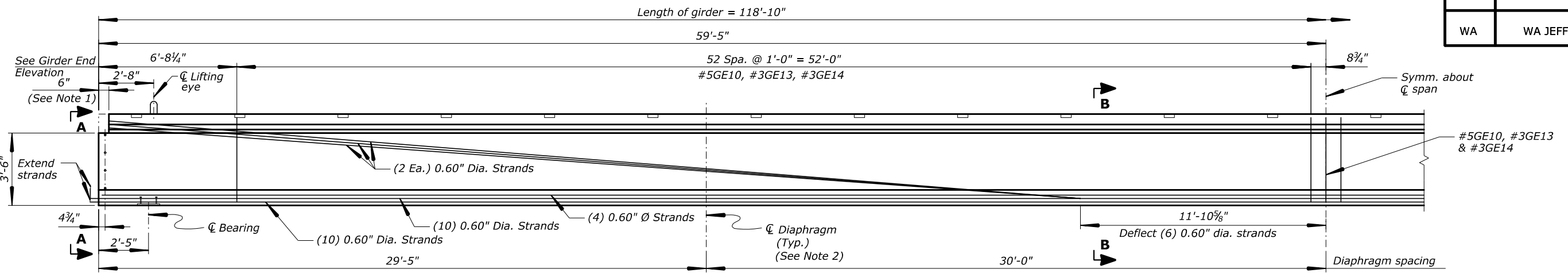
- Notes:
- Blockout full girder flange width at both ends.
  - See "TYPICAL SECTION AND FRAMING PLAN" sheet for diaphragm layout and details.
  - See "BRIDGE RAILING" sheet for anchor plate and anchor bolt details.

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
 EXTERIOR GIRDER

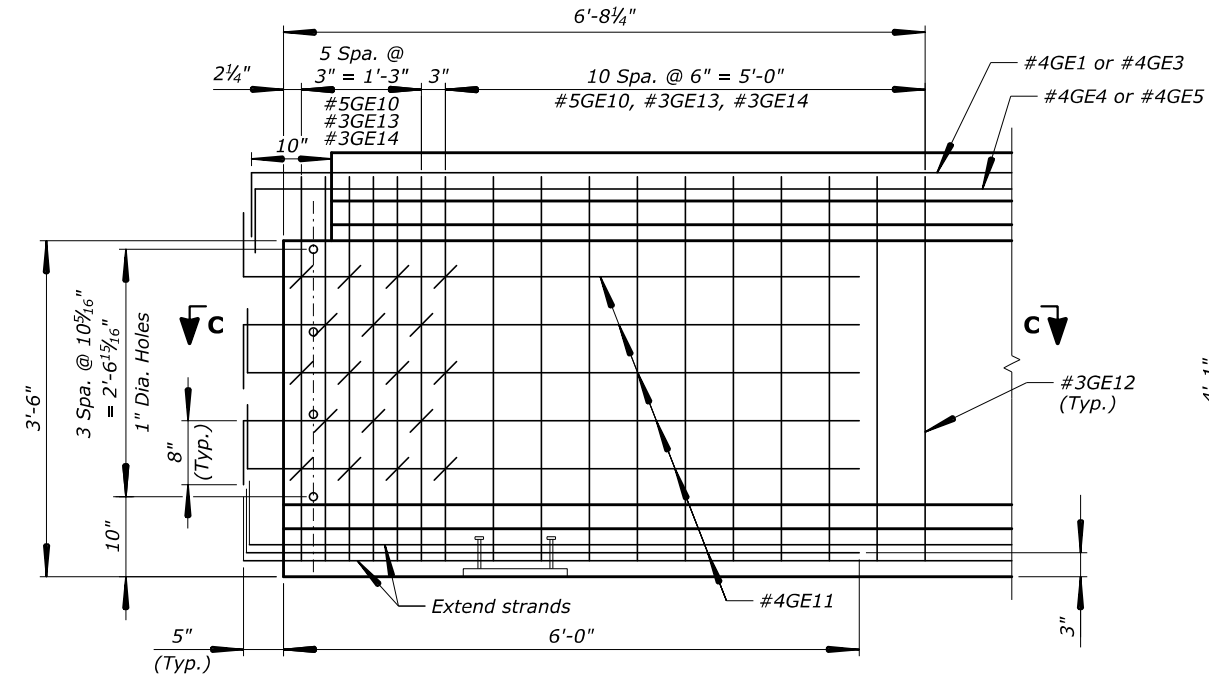
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	8 of 18	October 2020	RG3106-H

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.28

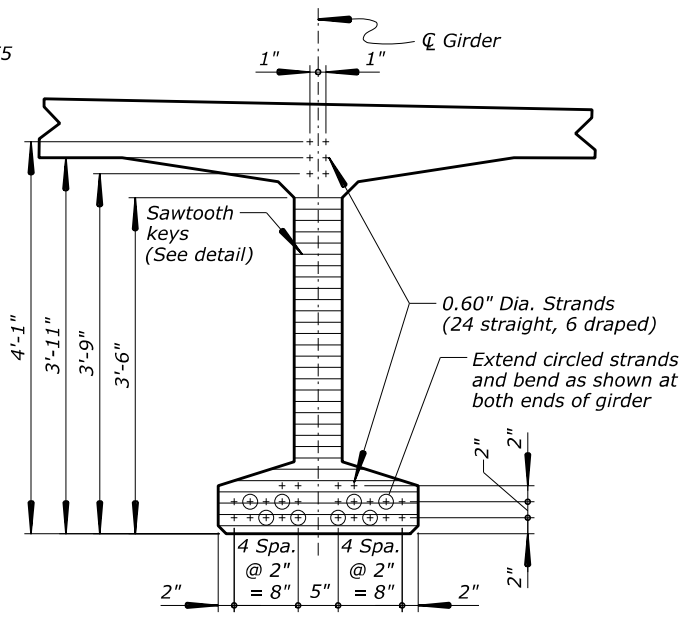
14-Oct-2020 09:23 AM \\fhf15f\reserve\lhd\fhwa\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\IN\Bridge\Microstation\Bridg Design Files\Canyon Creek\K0\_OPPROJECT\GIRDER.DGN



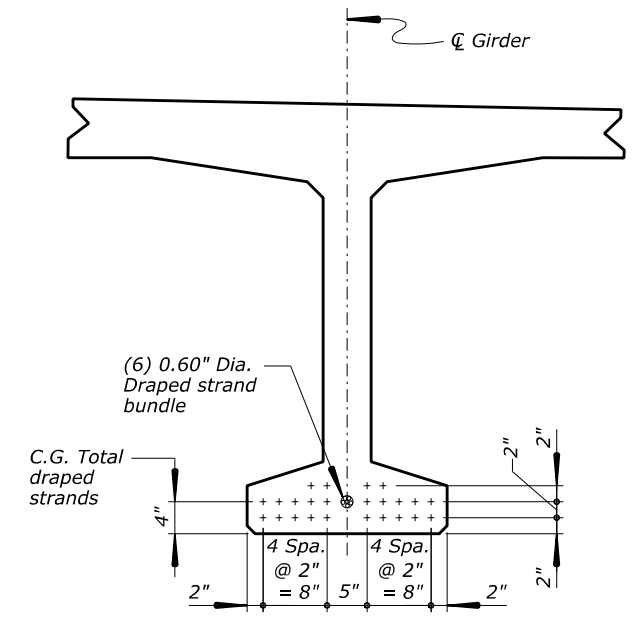
**HALF GIRDER ELEVATION**  
Scale: 3/8" = 1'



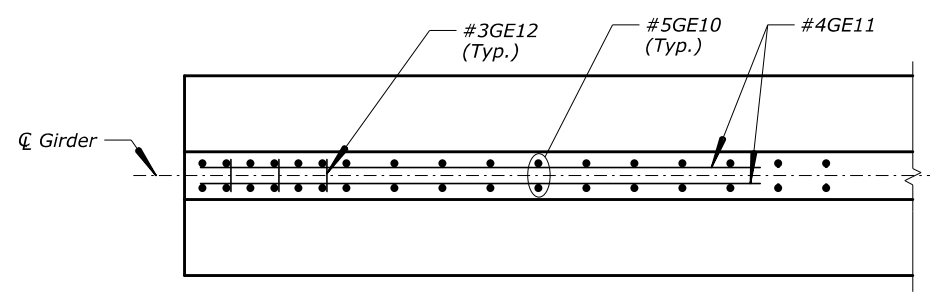
**GIRDER END ELEVATION**  
Scale: 1" = 1'



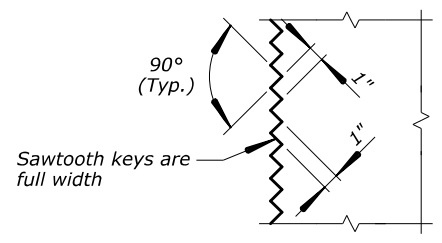
**VIEW A-A**  
Scale: 1" = 1'



**SECTION B-B**  
Scale: 1" = 1'



**SECTION C-C**  
Scale: 1" = 1'

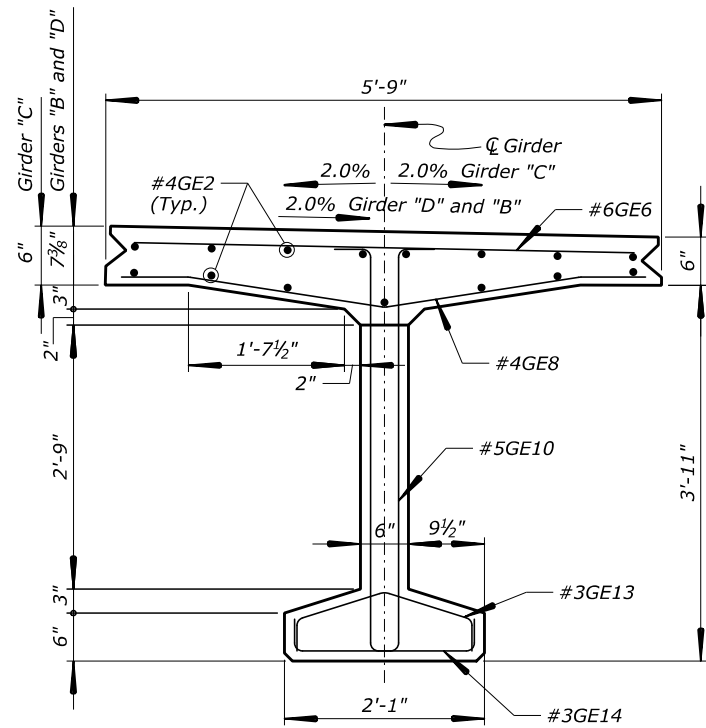


**SAWTOOTH KEY DETAIL**  
No Scale

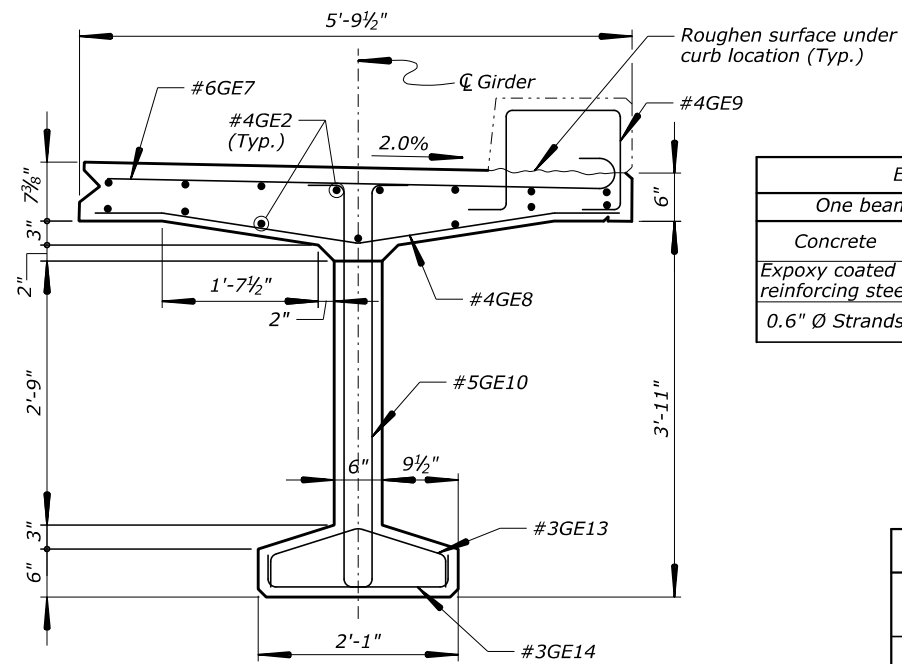
- Notes:
- Blockout full girder flange width at both ends.
  - See "TYPICAL SECTION AND FRAMING PLAN" sheet for diaphragm layout and details.

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
 INTERIOR GIRDER

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	9 of 18	October 2020	RG3106-I



**INTERIOR GIRDER MIDSPAN**  
(Girder "D" shown, Girders "B" and "C" similar)

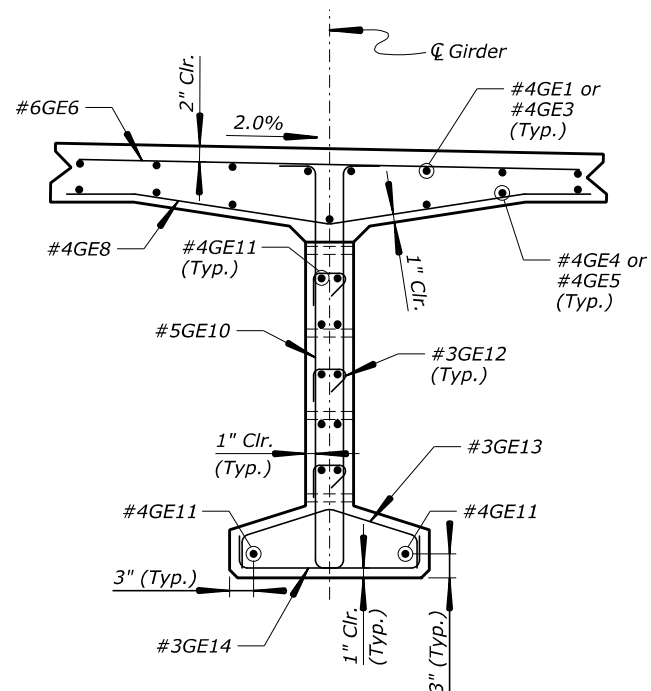


**EXTERIOR GIRDER MIDSPAN**  
(Girder "E" shown, Girder "A" similar)

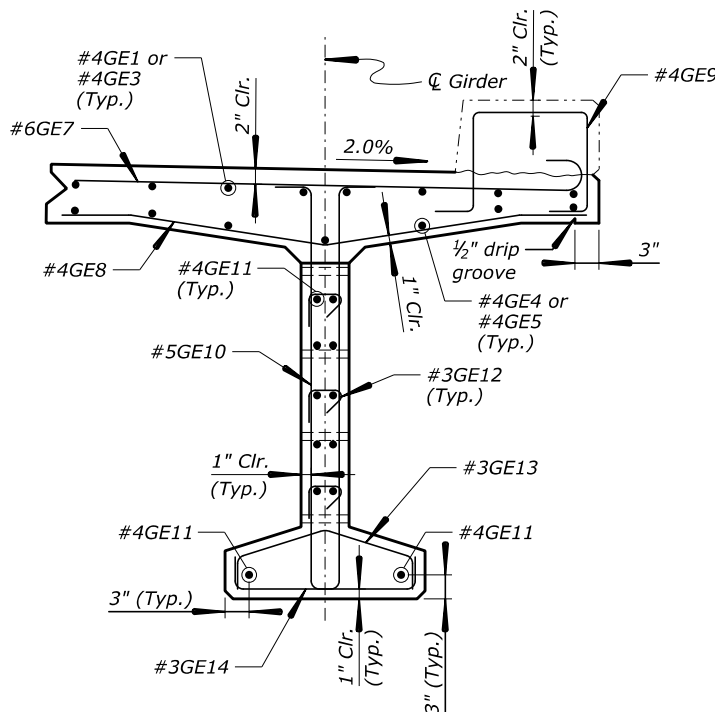
ESTIMATED QUANTITIES			
	One beam only	Int. Girder	Ext. Girder
Concrete	Cu. Yd.	29.1	29.1
Epoxy coated reinforcing steel	Lbs.	4840	5340
0.6" Ø Strands	Ln. Ft.	3600	3600

- Notes:
- Cast girders 1/8" longer than shown to allow for shortening due to prestressing.
  - Estimated camber at release of strands = 2 5/8".
  - Estimated camber after placing overlay and railing = 4".
  - After erection, cutoff lifting loops 1 inch below top of flange and fill with an approved non-shrink grout prior to placing overlay.
  - Thicken flange at both ends to compensate for final camber.
  - See "EXTERIOR GIRDER TOP FLANGE" and "INTERIOR GIRDER TOP FLANGE" sheets for top flange and curb bars.
  - Place inserts on the interior face of exterior girders. Place holes and inserts parallel to skew. Place 1 inch dia. Meadowburke MX-3 Hi-Tensile, 1 inch dia. by 51#2" William F22 open ferrule insert, 1 inch dia. by 45#8" Dayton-Superior F-62 flared thin slab ferrule insert or approved equal.

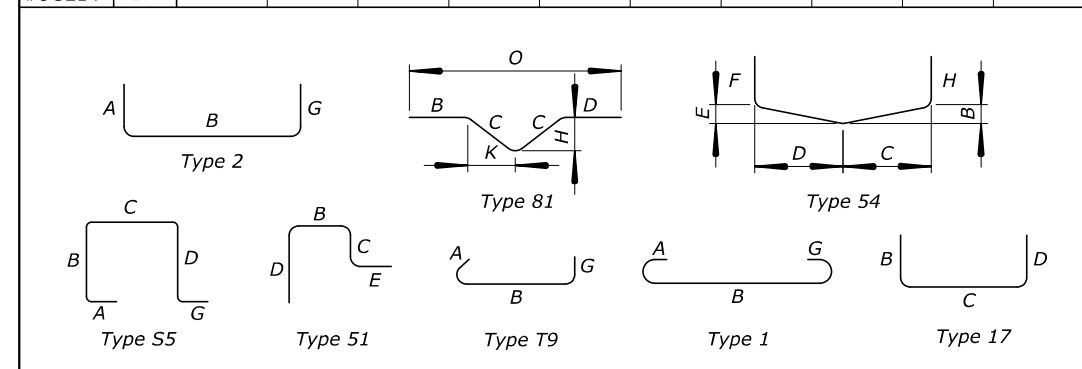
REINFORCING STEEL SCHEDULE											
MARK	TYPE	DIMENSION									
		A	B	C	D	E	F	G	H	K	O
#4GE1	2	8"	42'-0"	---	---	---	---	---	---	---	---
#4GE2	STR	---	60'-0"	---	---	---	---	---	---	---	---
#4GE3	2	8"	21'-4"	---	---	---	---	---	---	---	---
#4GE4	2	8"	43'-0"	---	---	---	---	---	---	---	---
#4GE5	2	8"	22'-4"	---	---	---	---	---	---	---	---
#6GE6	STR	---	5'-5"	---	---	---	---	---	---	---	---
#6GE7	1	8"	5'-5 1/2"	---	---	---	---	---	---	---	---
#4GE8	81	---	9"	2'-0 3/4"	9"	---	---	---	3 3/4"	2'-0 1/2"	5'-7"
#4GE9	S5	8"	1'-0"	1'-2 1/4"	1'-0"	---	---	8"	---	---	---
#5GE10	51	---	1'-1 1/2"	4'-2 1/8"	4"	4 1/2"	---	---	---	---	---
#4GE11	2	8"	6'-5"	---	---	---	---	---	---	---	---
#3GE12	T9	4"	4"	---	---	---	---	4"	---	---	---
#3GE13	54	---	3 3/4"	1'-0"	1'-0"	3 3/4"	4"	---	4"	---	---
#3GE14	17	---	4"	1'-11"	4"	---	---	---	---	---	---



**INTERIOR GIRDER END**  
(Girder "D" shown, Girders "B" and "C" similar)



**EXTERIOR GIRDER END**  
(Girder "E" shown, Girder "A" similar)



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

OLYMPIC NATIONAL PARK

CANYON CREEK BRIDGE

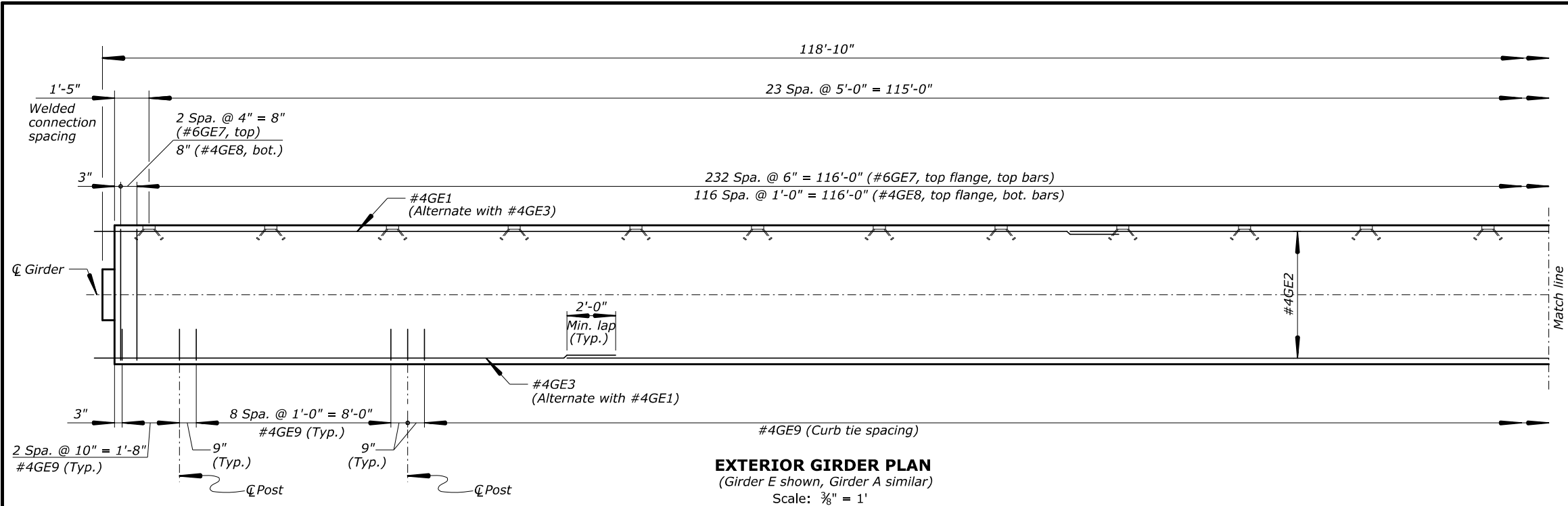
**GIRDER SECTIONS**

14-Oct-2020 09:23 AM \\F:\15f\reserve\1\nd\hwa\dot\gov\data\PROJECTS\_ACCESS\WA\WA\_JEFF\_91420\1\Bridges\Microstation\Bridges Design Files\Canyon Creek\O\_APPROJECTS\GIRDER SECT.DGN

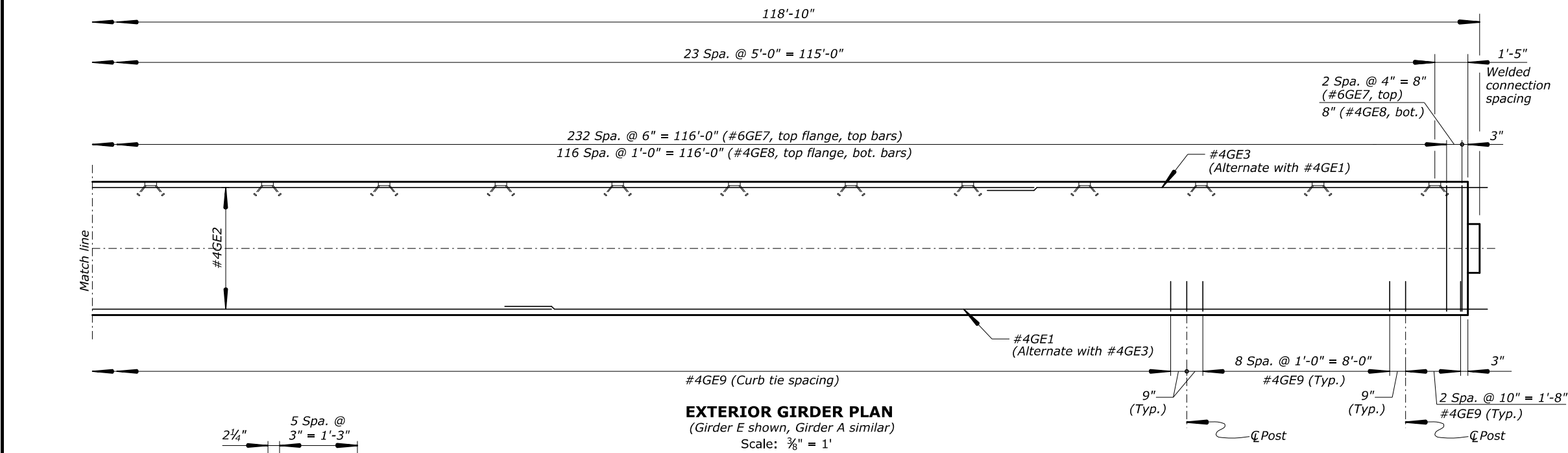
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	1" = 1'	George Choubah	10 of 18	October 2020	RG3106-J

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.30

14-Oct-2020 09:23 AM \\hf115f\reserve\lnd\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\Bridge\Microstation\Bridg Design Files\Canyon Creek\O\_PPRO\BET\91420.dgn FILE: EXT TOP FLANGE.DGN

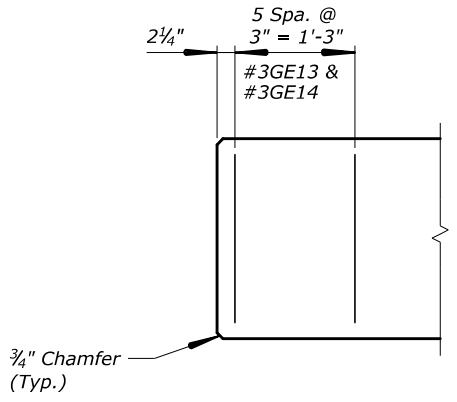


**EXTERIOR GIRDER PLAN**  
(Girder E shown, Girder A similar)  
Scale:  $\frac{3}{8}$ " = 1'



**EXTERIOR GIRDER PLAN**  
(Girder E shown, Girder A similar)  
Scale:  $\frac{3}{8}$ " = 1'

Note:  
Alternate all longitudinal bars to avoid adjacent splices in top and bottom flanges. Top flange-top bars shown. Top flange-bottom bars similar.



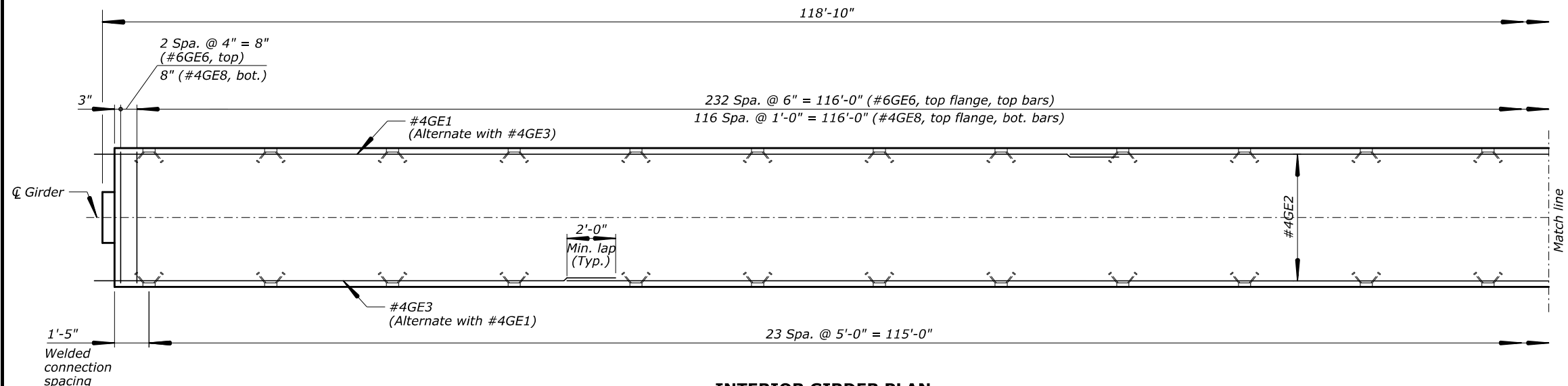
**BOTTOM FLANGE PLAN**  
Scale: 1" = 1'

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
**EXTERIOR GIRDER TOP FLANGE**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	11 of 18	October 2020	RG3106-K

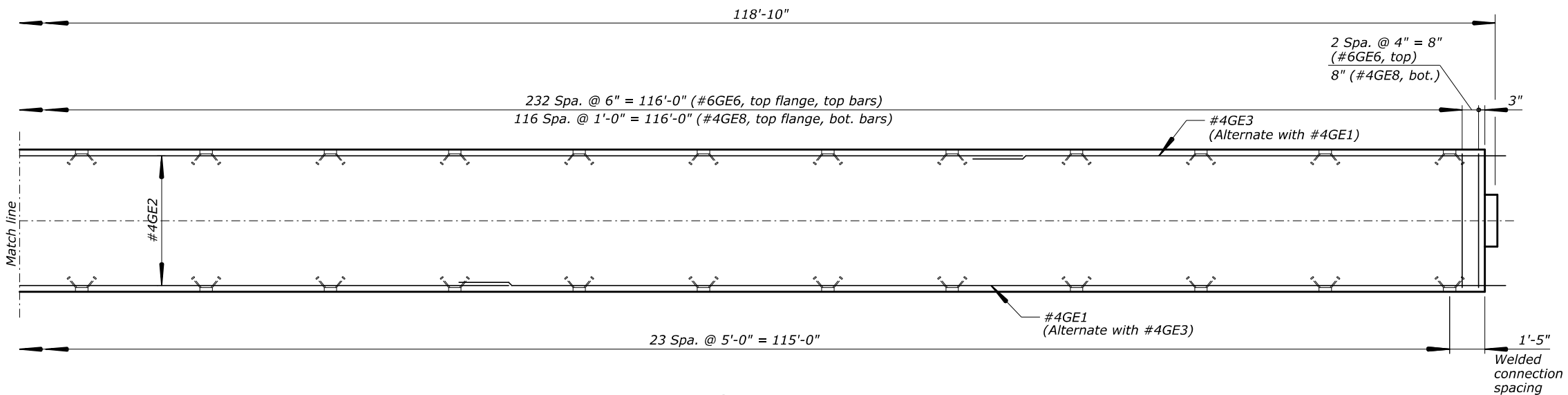
STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.31

14-Oct-2020 09:23 AM \\hf1157\reserve\lhd\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\Bridge\Microstation\Bridg Design Files\Canyon Creek\O\_APPRO\BET\91420\1\INT TOP FLANGE.DGN



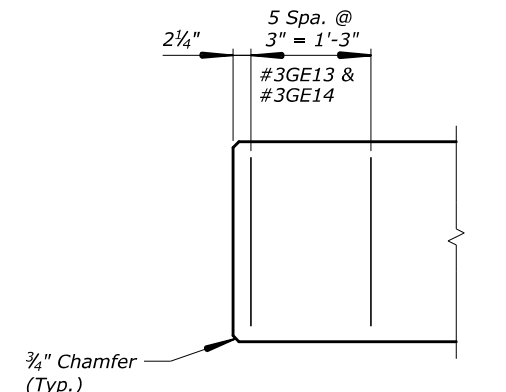
**INTERIOR GIRDER PLAN**

Scale: 3/8" = 1'



**INTERIOR GIRDER PLAN**

Scale: 3/8" = 1'



**BOTTOM FLANGE PLAN**

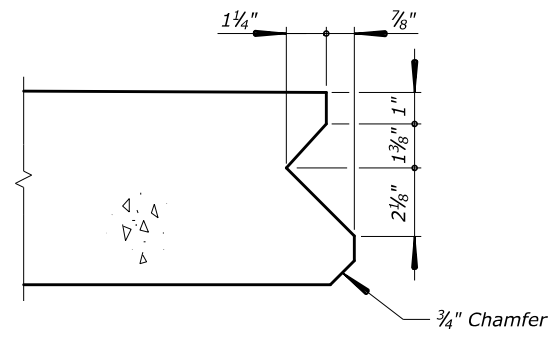
Scale: 1" = 1'

**Note:**  
 Alternate all longitudinal bars to avoid adjacent splices in top and bottom flanges. Top flange-top bars shown. Top flange-bottom bars similar.

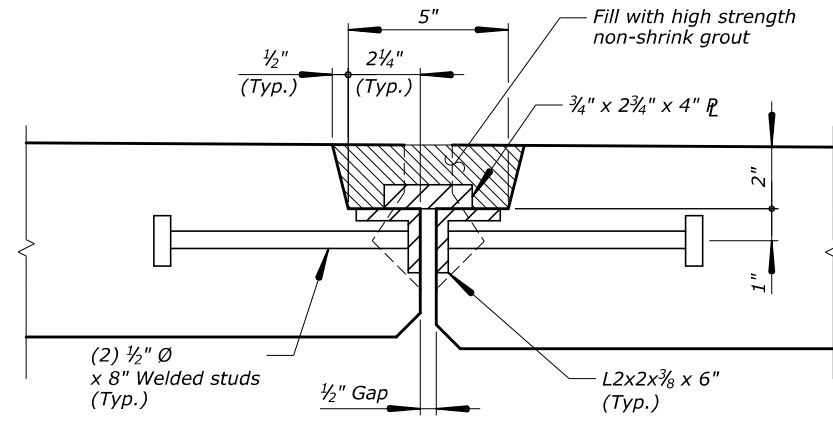
U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
**INTERIOR GIRDER TOP FLANGE**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	12 of 18	October 2020	RG3106-L

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.32

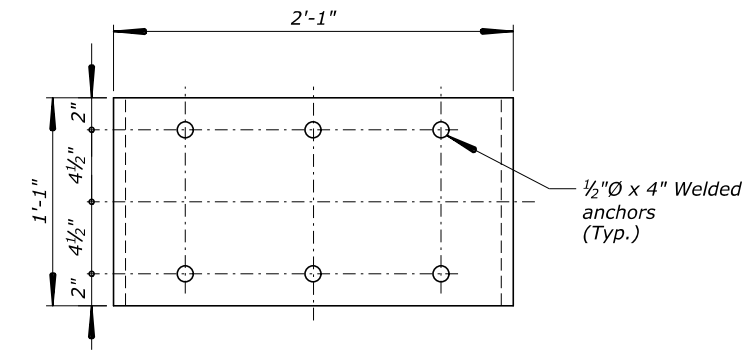


**FLANGE KEY DETAIL**

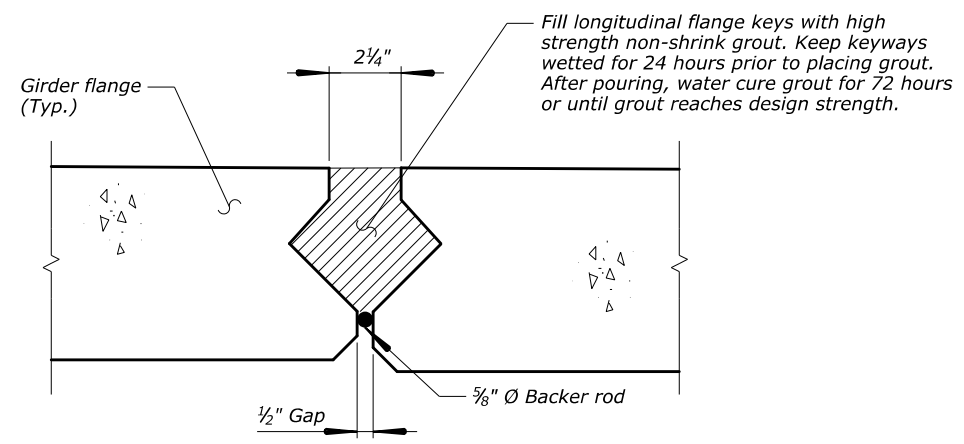


**SECTION A-A**

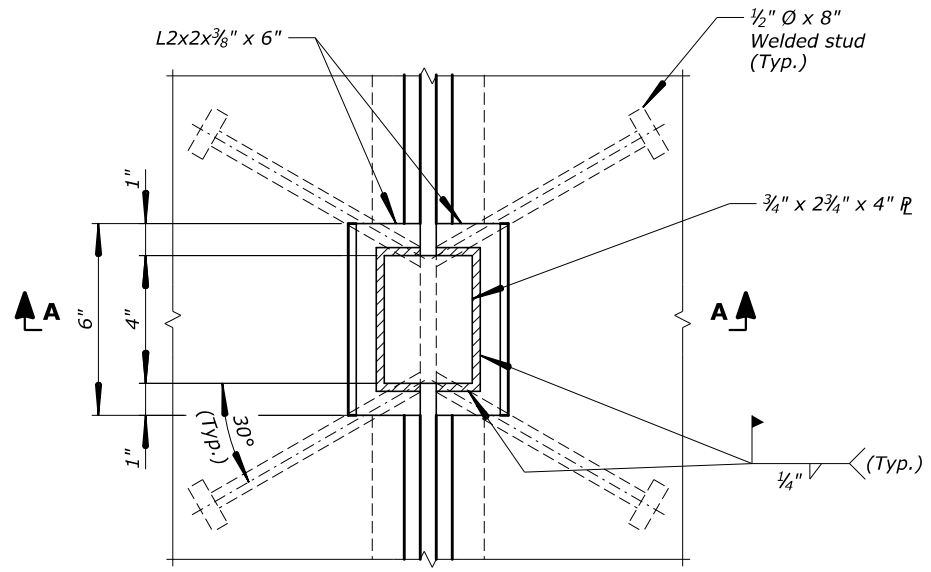
Note:  
Conform to AASHTO M 251 for steel reinforced elastomeric bearing pads. Provide 60 Durometer hardness, elastomer Grade 3 or higher.



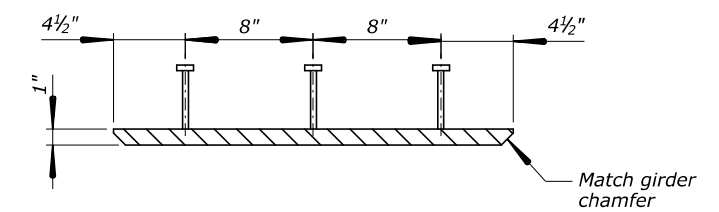
**BEARING PLATE PLAN**



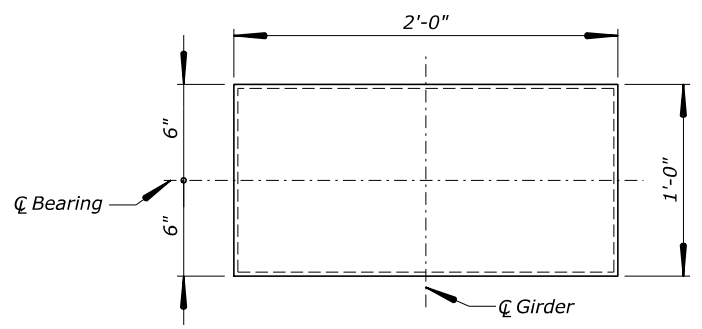
**FLANGE KEY BETWEEN CONNECTIONS**



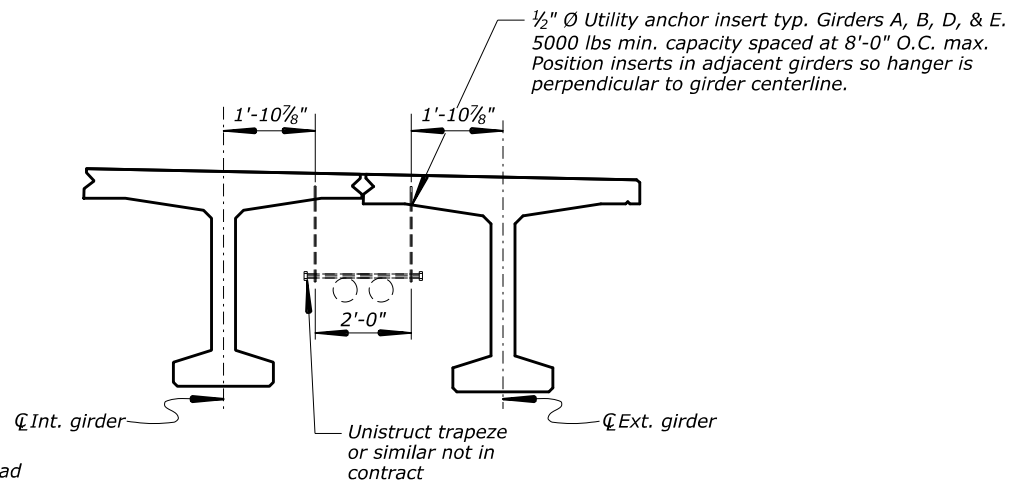
**WELDED CONNECTION DETAIL**



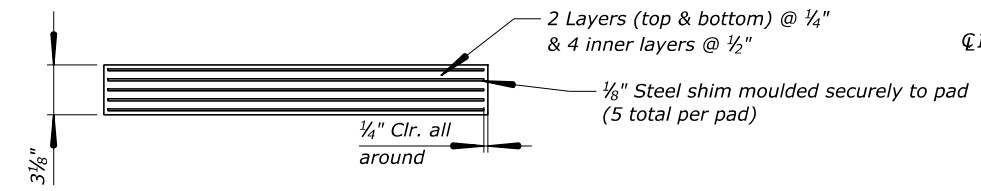
**BEARING PLATE ELEVATION**  
(10 Req'd)



**BEARING PAD PLAN**



**INSERTS FOR UTILITY HANGERS**



**BEARING PAD ELEVATION**  
(10 Req'd)

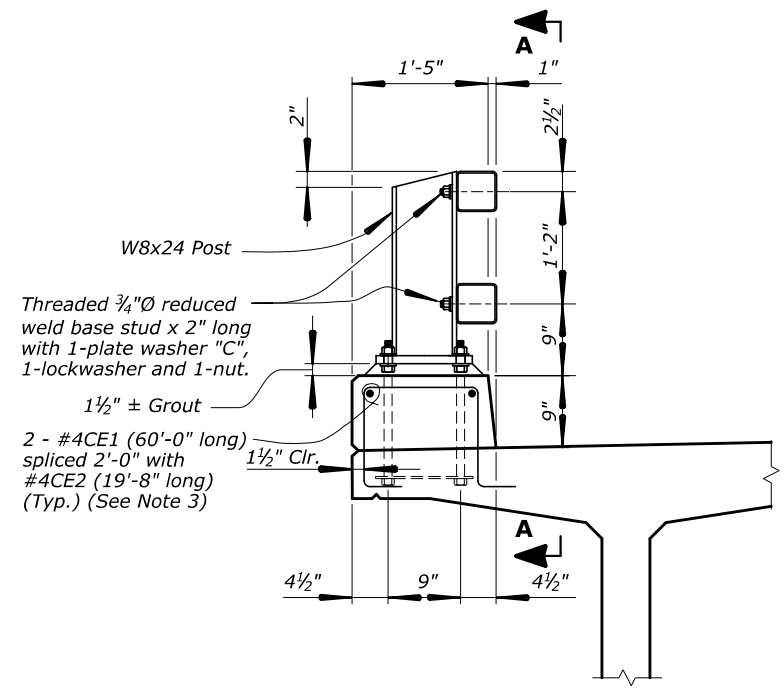
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
OLYMPIC NATIONAL PARK  
  
CANYON CREEK BRIDGE  
  
GIRDER DETAILS

14-Oct-2020 09:23 AM \\ff15f1reserve\fd\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\Bridg\Microstation\Bridg\Design\Files\Canyon Creek\KO\_PROJ\EC\A\FILE: GIRDER DET.DGN

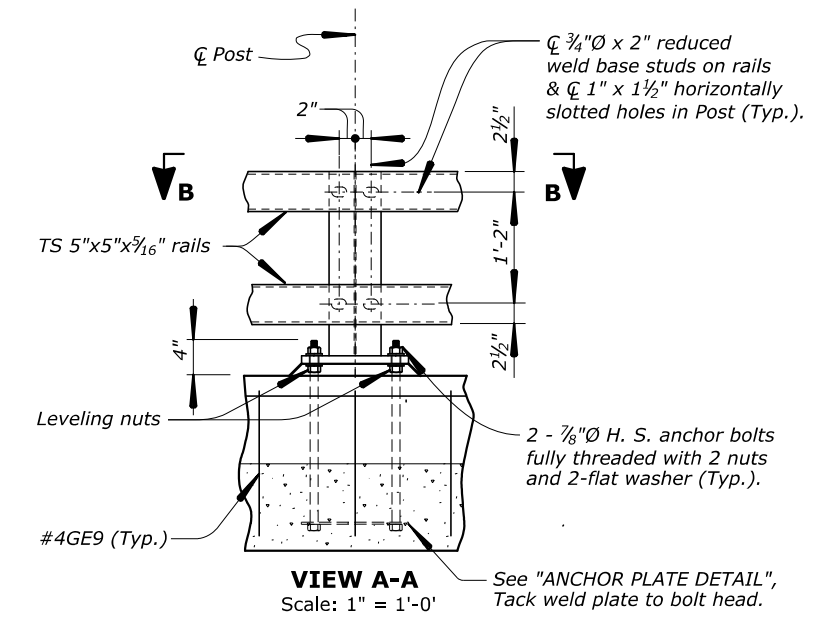
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	No Scale	George Choubah	13 of 18	October 2020	RG3106-M

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.33

14-Oct-2020 09:23 AM \\F:\157\reserve\1\hd7\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\BRIDGE\Microstation\Bridge Design Files\Canyon Creek\PROJECS\dwg\A\_91420(1)\_Bridge\_Railing.DGN



**TYPICAL SECTION**  
Scale: 1" = 1'-0"



**VIEW A-A**  
Scale: 1" = 1'-0'

**BRIDGE RAILING NOTES:**

**GENERAL:** The Alaska Multi-State Rail meets the TL-2 performance criteria.

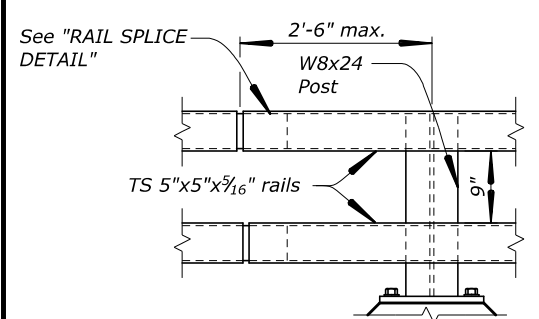
**MATERIALS:** Steel Posts, base plates, plate washers, and splice sleeves shall conform to ASTM A36. Structural tubing for rails shall conform to ASTM A500 or A501, Grade B. All components of the bridge rail shall be hot-dip galvanized after fabrication in accordance with AASHTO M 111 or M 232.

**FABRICATION:** Structural steel shall be shop fabricated. Submit shop drawings to the CO for approval prior to fabrication. Welding shall conform to the ANSI/AASHTO/AWS, and shall be by a certified welder. Welding for welded stud bolts shall conform to ANSI/AASHTO/AWS. All steel shall be fabricated before being galvanized.

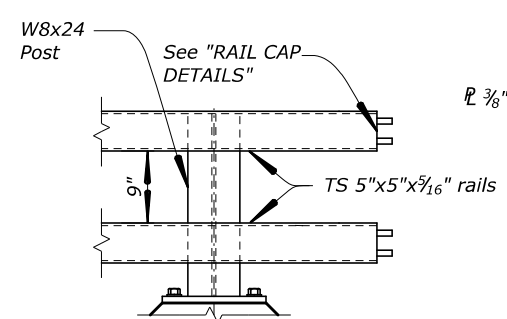
**RAIL SPLICE ASSEMBLIES:** Rail splice assemblies must be provided as shown on the plans. With rails continuous over two or more posts.

**GROUT:** Use grout that has a minimum 24 hours f'c of 3,000 psi.

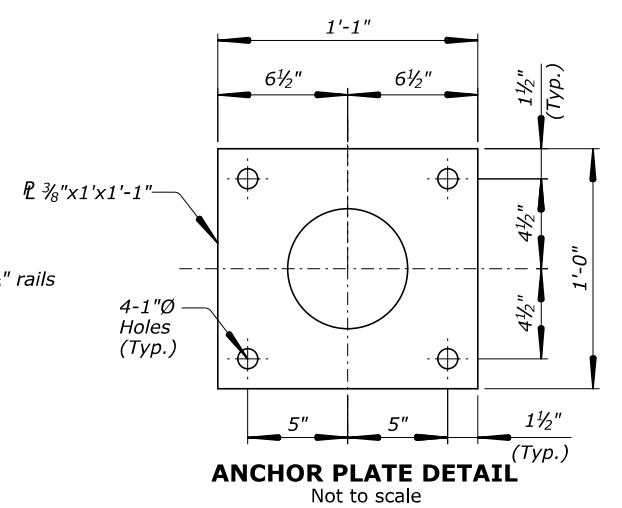
**ERECTION:** No field cutting or welding is permitted unless approved by the CO. All rail Posts shall be set vertically and the railing erected parallel to the girder profile. Contractor shall furnish steel shim plates as required to align railing. The completed installation shall not reflect any unevenness in the structure.



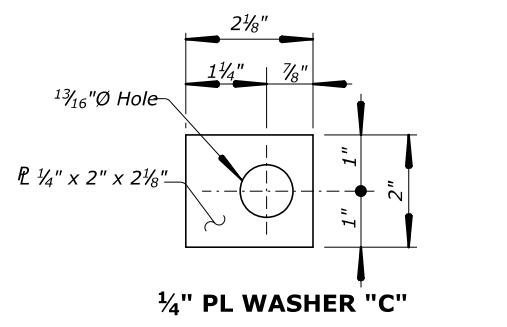
**RAIL SPLICE**  
Scale: 1" = 1'-0'



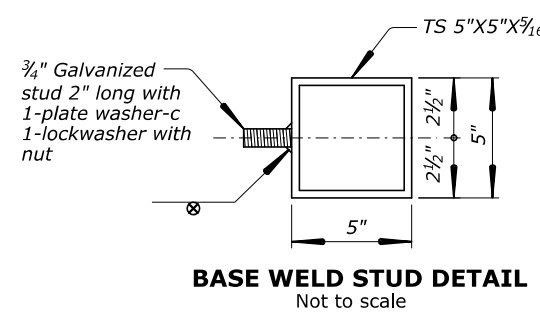
**END SECTION**  
Scale: 1" = 1'-0'



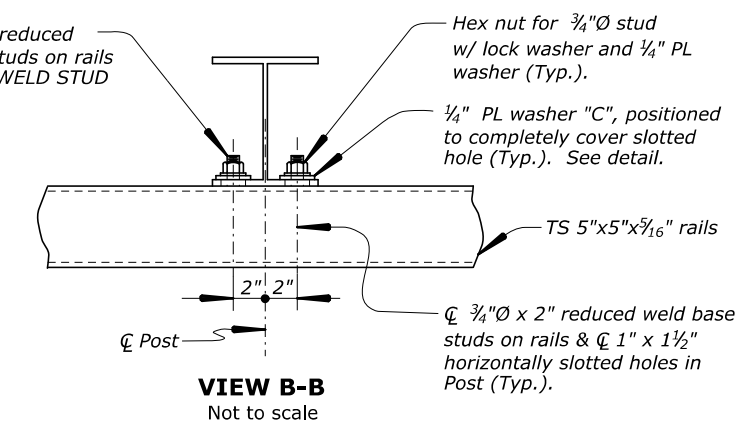
**ANCHOR PLATE DETAIL**  
Not to scale



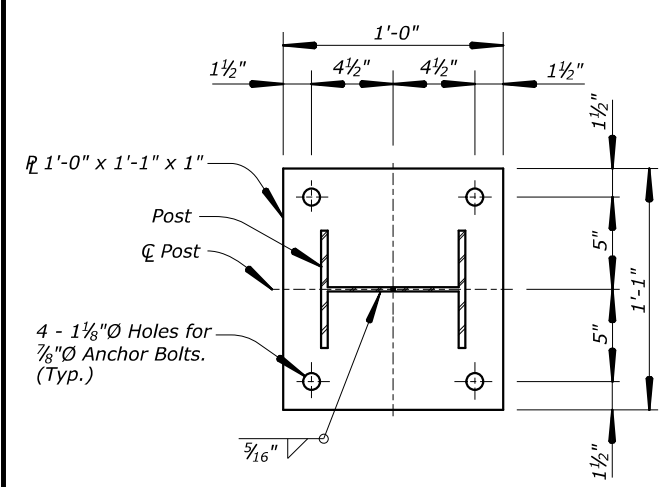
**1/4" PL WASHER "C"**  
Not to scale



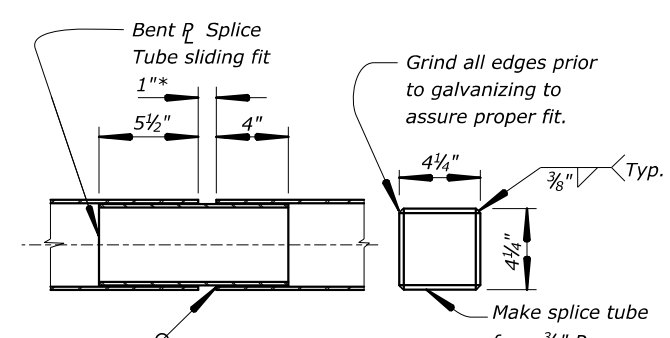
**BASE WELD STUD DETAIL**  
Not to scale



**VIEW B-B**  
Not to scale

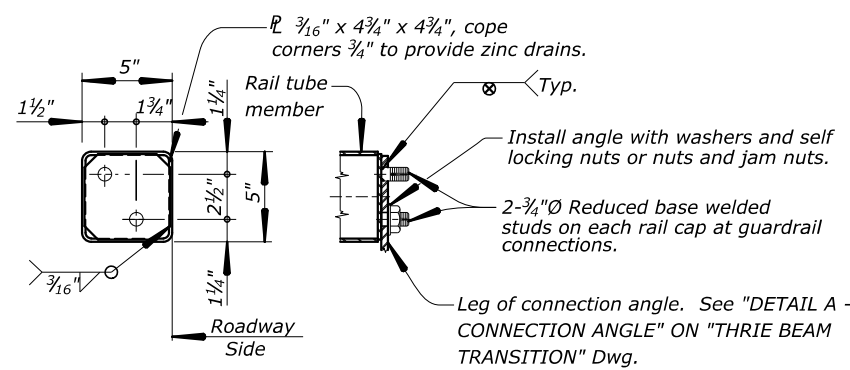


**BASE PLATE DETAILS**  
Not to scale



**RAIL SPLICE DETAILS**  
Not to scale

\* 1" Gap unless noted otherwise on detail plans.



**RAIL CAP DETAILS**  
Not to scale

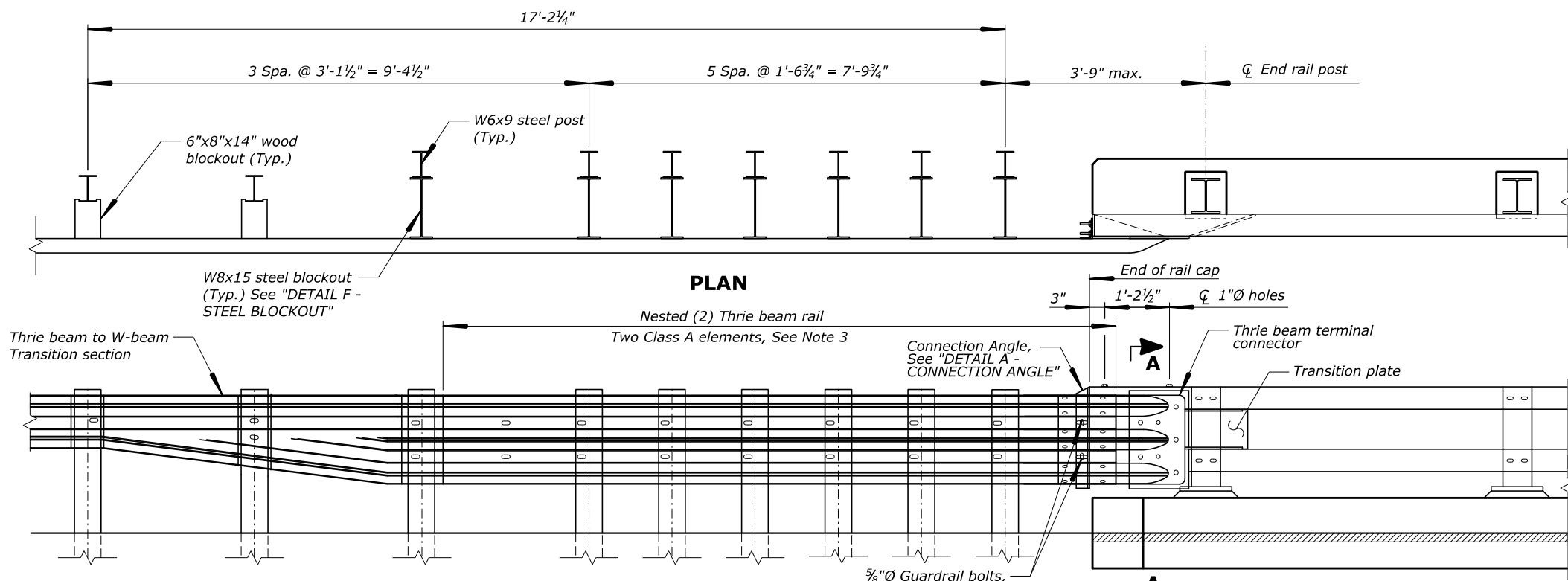
- Notes:
1. Set top of Post 2'-8 1/2" above finish grade.
  2. See "GIRDER SECTIONS" and "EXTERIOR GIRDER TOP FLANGE" sheets for curb reinforcement.
  3. Alternate longitudinal curb reinforcement to avoid adjacent splices similar to longitudinal deck reinforcement. Place curb reinforcement continuously from approach slab curb into bridge curb.

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
 BRIDGE RAILING

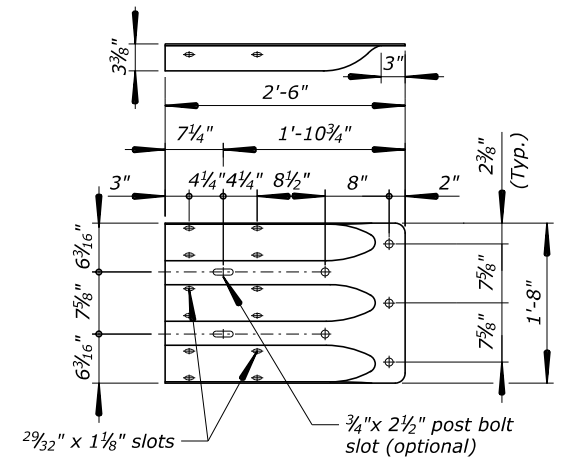
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	AR	HC	As Shown	George Choubah	14 of 18	October 2020	RG3106-N

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.34

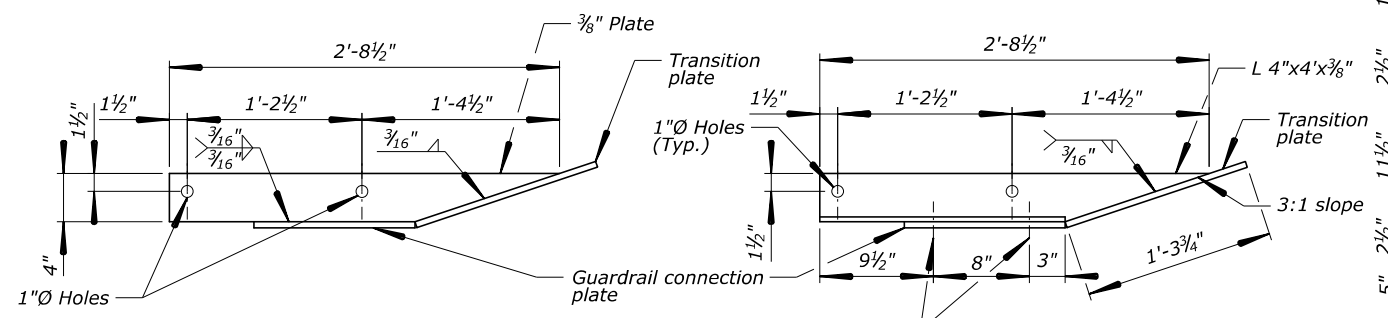
I:\H\157\reserve\1\h\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\BRIDGE\Microstation\Bridg Design Files\Canyoa Creek\CD\PRG\BSEC\THRIE\THRIE\_Beam\_Rail.DGN  
 14-Oct-2020 09:23 AM



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

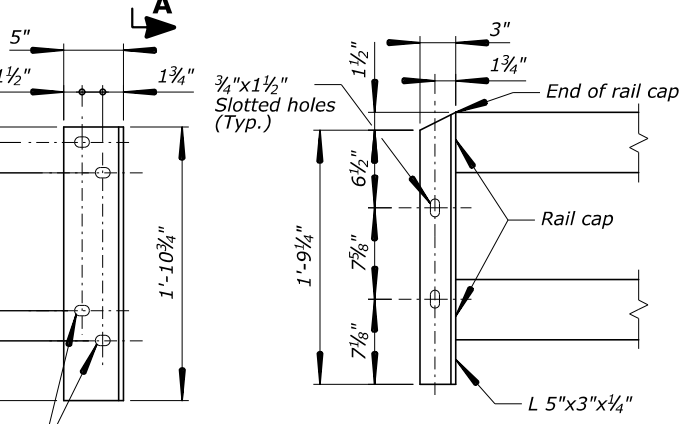


**THRIE BEAM TERMINAL CONNECTOR**

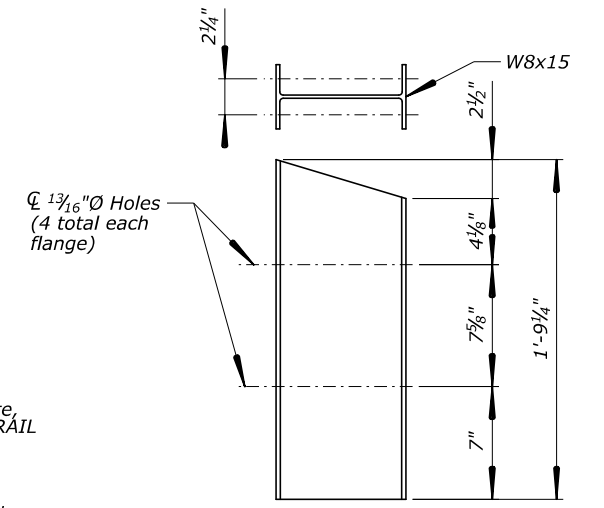


**VIEW D-D**

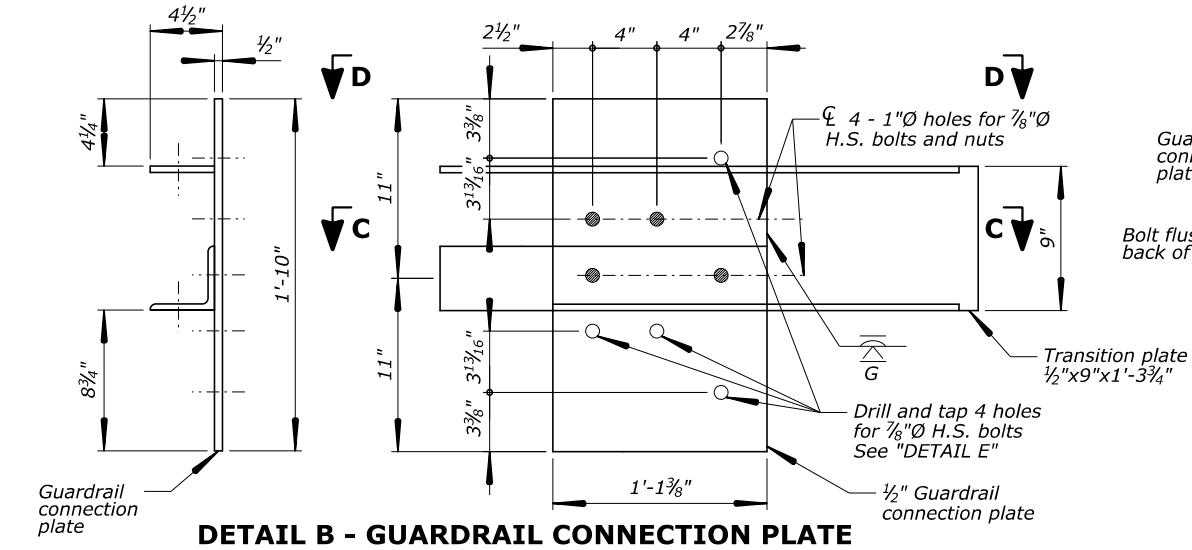
**SECTION C-C**



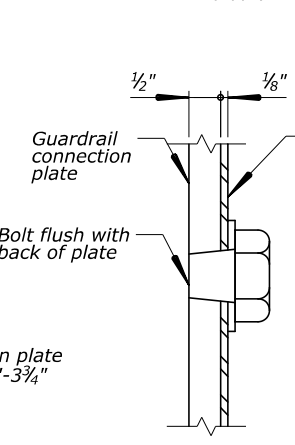
**DETAIL A - CONNECTION ANGLE**



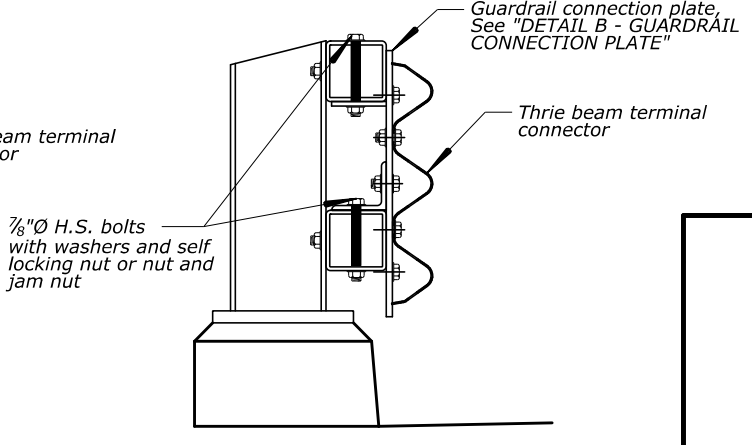
**DETAIL F - STEEL BLOCKOUT**



**DETAIL B - GUARDRAIL CONNECTION PLATE**



**DETAIL E**



**SECTION A-A**

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
**THRIE BEAM TRANSITION**

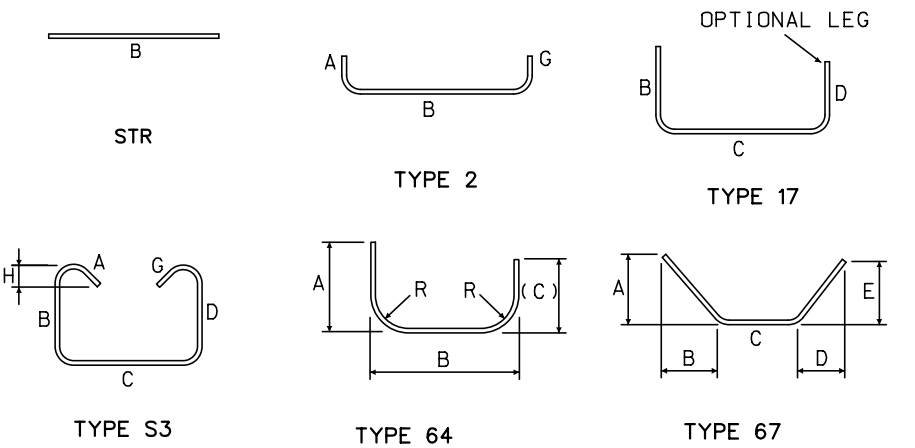
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	AR	HC	No scale	George Choubah	15 of 18	October 2020	RG3106-O



14-Oct-2020 09:23 AM \\ff115f1reserve\ff115f1\hwa\dot\gov\data\PROJECTS\_ACCESS\WAWA\_JEFF\_914201\NBridge\Microstation\Bridg Design Files\Canyon Creek\O\_PROJECTS.dgn ACTUAL FILE: REBAR E.DGN

REINFORCING STEEL SCHEDULE					DIMENSION TABLE															
Abutment																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5A1	5	17	0'-3 3/4"	Vert.																
*7A2	7	STR		Horiz.top & bot.																
*5A3	5	STR		Horiz.ef.																
*7A4	7	17	0'-5 5/16"	Vert.																
*5A5	5	S3	0'-2 9/16"	Vert.																
*5A6	5	2	0'-3 3/4"	Vert.																
*5A7	5	STR		Vert.																
*5A8	5	67	0'-3 3/4"	Horiz.																
*5A9	5	17	0'-3 3/4"	Vert.																
*5A10	5	17	0'-3 3/4"	Vert.																
SUBTOTAL					LBS															
Wingwalls																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5W1	5	STR		Horiz.ef.																
*5W2	5	STR		Horiz.ef.																
*5W3	5	STR		Vert.ef.																
*5W4	5	STR		Vert.ef.																
SUBTOTAL					LBS															
Diaphragm																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*6D1	6	STR		Horiz.ef.																
*5D2	5	64		Vert.																
*5D3	5	STR		Dowels																
SUBTOTAL					LBS															

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.35



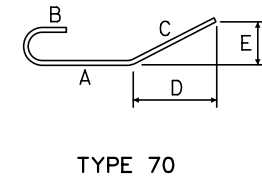
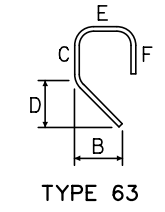
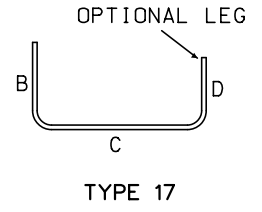
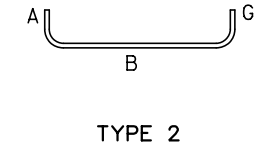
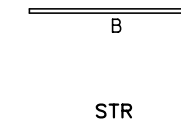
U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
**REINFORCING STEEL BAR LIST**

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BK	HC	No Scale	George Choubah	16 of 18	October 2020	RG3106-P

14-Oct-2020 09:23 AM \\f115f1reserve\fhdf\hwa\data\projects\ACCESS\WAWA\_JEFF\_914201\Bridge\Microstation\Brdge Design Files\Canyon Creek\KO\_APPROX\HSH\FILE: REBAR EPOXY EXT.DGN

REINFORCING STEEL SCHEDULE					DIMENSION TABLE															
Endwall Epoxy																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*5EE1	5	17	0'-3 3/4"	Vert.																
*5EE2	5	2	0'-3 3/4"	Horiz.																
*5EE3	5	STR		Horiz.																
*5EE4	5	STR		Horiz.																
*5EE5	5	STR		Horiz.																
*5EE6	5	STR		Horiz.																
*5EE7	5	63	0'-3 3/4"	Vert.																
*5EE8	5	63	0'-3 3/4"	Vert.																
*5EE9	5	70	0'-3 3/4"	Vert.																
SUBTOTAL							LBS													
Curb Epoxy																				
BAR MK	SIZE	TYPE	PIN SZ	LOCATION	QTY	LENGTH	WEIGHT	A	B	C	D	E	F	G	H	J	K	O	R	V or N
*4CE1	4	STR		Longitudinal																
*4CE2	4	STR		Longitudinal																
SUBTOTAL							LBS													

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.36

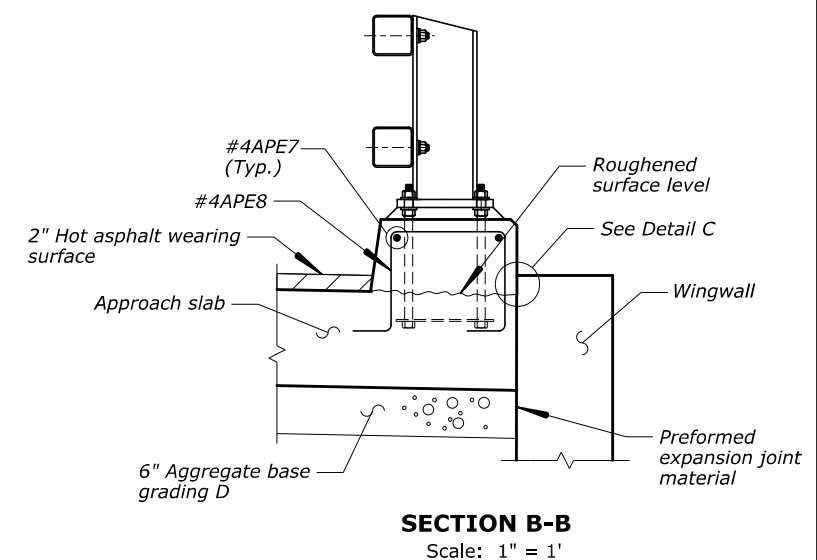
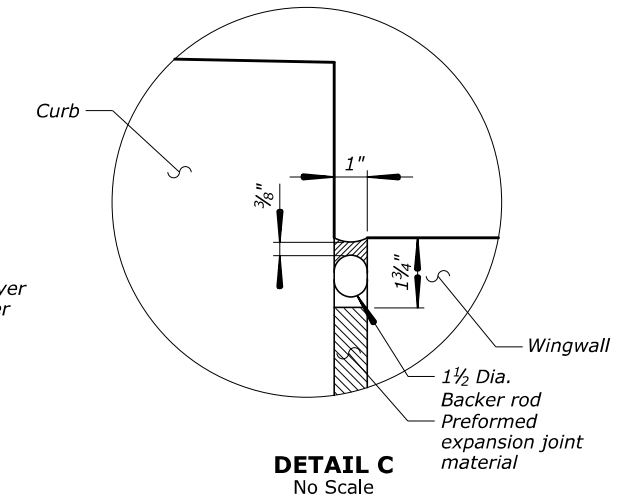
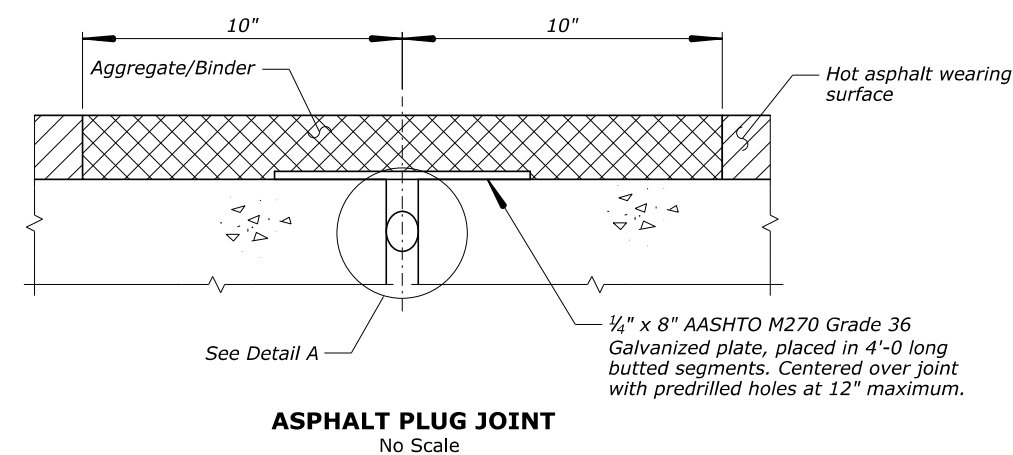
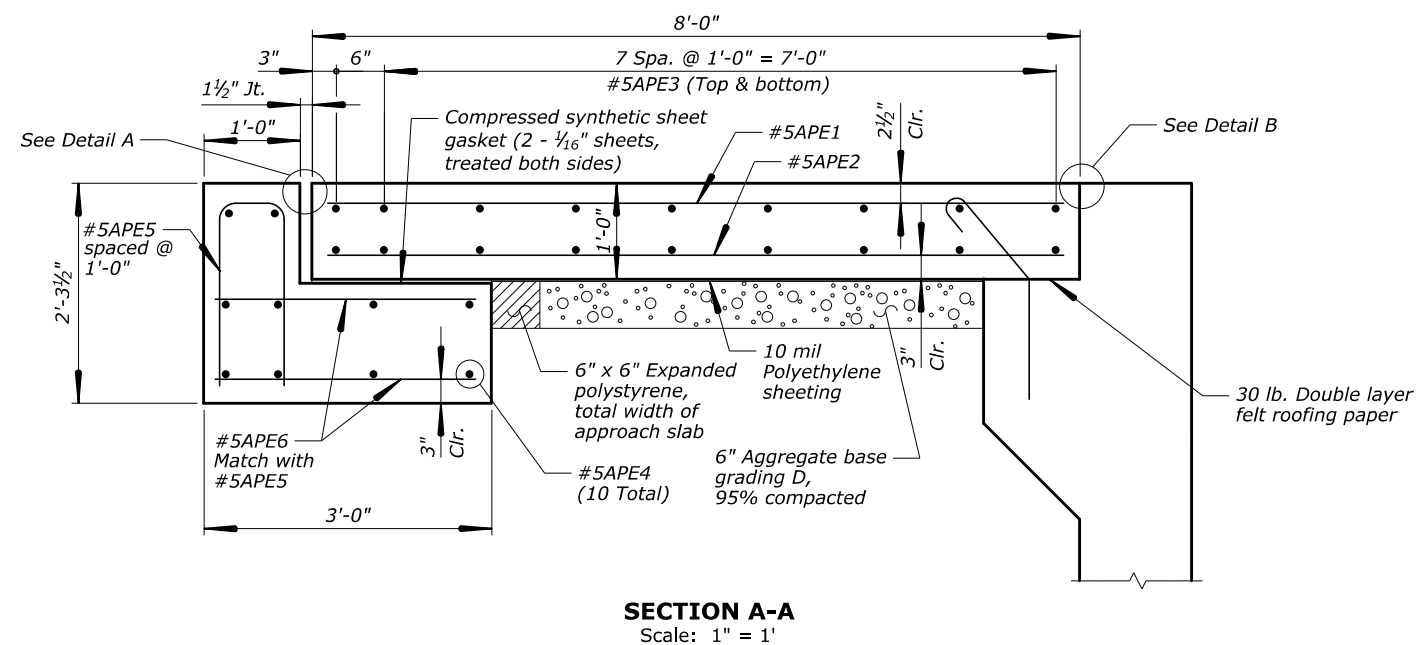
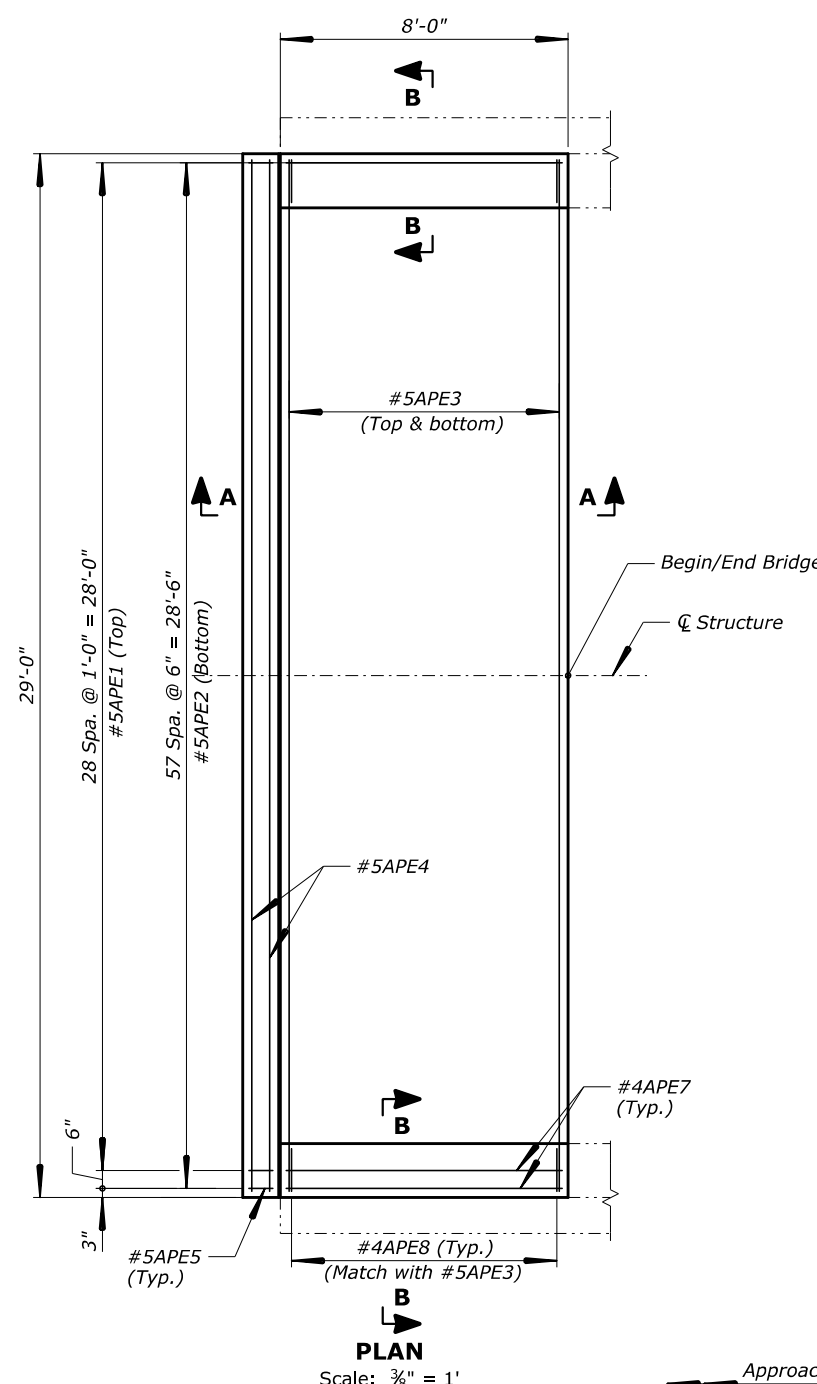


U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
 EPOXY COATED  
 REINFORCING STEEL BAR LIST

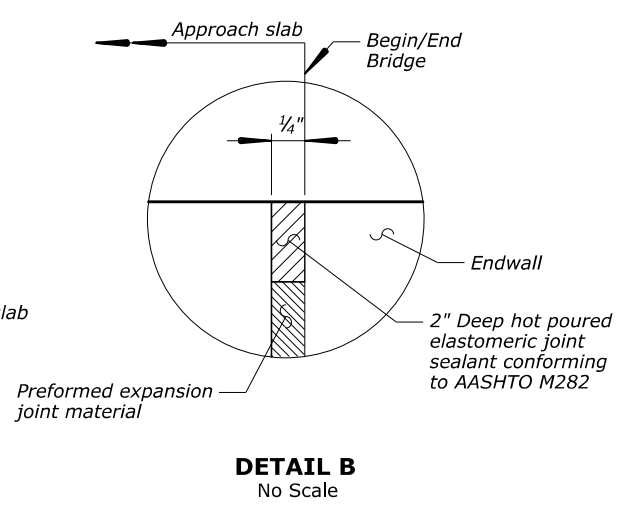
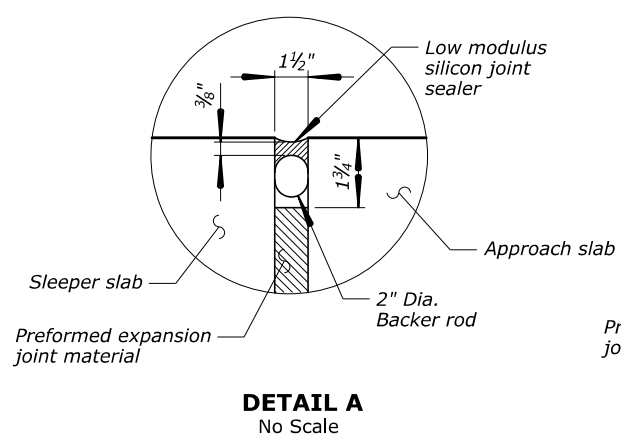
NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BK	HC	No Scale	George Choubah	17 of 18	October 2020	RG3106-Q

STATE	PROJECT	SHEET NO.
WA	WA JEFF 91420(1)	G.37

I:\H\157\reserve\1\ndf\hwa\dot\gov\data\PROJECTS\ACCESS\WAWA\_JEFF\_91420\1\Bridge\Microstation\Design Files\Canyon Creek\KO\_OP\91420\JEFF\_91420\1\BRIDGE\SLAB.DGN  
 14-Oct-2020 09:23 AM



- Notes:
- See "GIRDER SECTIONS," "EXTERIOR GIRDER TOP FLANGE," and "BRIDGE RAILING" sheets for curb reinforcement details.
  - See "ABUTMENT LAYOUT" sheet for dowel reinforcement details.
  - All costs associated with furnishing and installing reinforcing steel, compressed synthetic sheet gasket, expanded polystyrene, polyethylene sheeting, double layer felt roofing paper and sleeper slab, is considered incidental to the approach slab.



ESTIMATED QUANTITIES FOR ONE APPROACH SLAB				
Slab Length	Slab Width	Concrete (Cu. Yd.)	Reinf. * Steel (Lbs.)	Joint Width
8'-0"	29'-0"	14.5	2010	1 1/2"

\* Does not include dowels

U.S. DEPARTMENT OF TRANSPORTATION  
 FEDERAL HIGHWAY ADMINISTRATION  
 WESTERN FEDERAL LANDS HIGHWAY DIVISION  
  
 OLYMPIC NATIONAL PARK  
  
 CANYON CREEK BRIDGE  
  
 APPROACH SLAB

NO.	DATE	BY	REVISIONS	NO.	DATE	BY	REVISIONS	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	PROJECT TEAM LEADER	BRIDGE DRAWING	DATE	DRAWING NO.
								AR	BSK	HC	As Shown	George Choubah	18 of 18	October 2020	RG3106-R

SCHEDULE A, B, C, D POLE PLANTING QUANTITIES		
ITEM 62632-0000 PLANTINGS (POLE PLANTINGS)	FOR INFORMATION ONLY	
	COTTONWOOD	WILLOW
(LMSM)	(EACH)	(EACH)
9+00 to 15+09	25	175
30+74 to 53+44	105	735
79+40 to 83+52	15	105
<b>ALL</b>	<b>145</b>	<b>1,015</b>

SCHEDULE A, B, C, D MITIGATION, BANK STABILIZATION QUANTITIES								
See detail Sheets H.3-8								
LOCATION	ITEM 25101-0600 PLACED RIPRAP, METHOD A, CLASS 6  (CUYD)	ITEM 64703-8000 MITIGATION, BANK STABILIZATION (WOOD BUFFER w/ DOLOSSE)  (EACH)	FOR INFORMATION ONLY - NOT MEASURED FOR PAYMENT <sup>[1]</sup>				ITEM 64704-1700 MITIGATION, BANK STABILIZATION (COARSE WOODY DEBRIS)  (CUYD)	ITEM 65001-1000 CONSTRUCT AND MAINTAIN DIVERSION (FLOW DIVERSION)  (LMSM)
			CONSERVED STREAM BANK MATERIAL  (CUYD)	<del>LOG DEFLECTOR DEFLECTOR</del> <del>LOG-DOLOS BUNDLE</del> <sup>[2]</sup>  (EACH)	DEFLECTOR ROOTWAD  (EACH)	<del>CHAIN, 5/8" 1/2" HDG GRADE 30 43 CARBON STEEL</del>  (LNFT)		
9+00 to 15+09	300	5	1,000	185	70	6,600	2,000	-
30+74 to 53+44	1,260	21	4,200	777	294	27,720	8,400	-
79+40 to 83+52	180	3	600	111	42	3,960	1,200	-
<b>TOTAL</b>	<b>1,740</b>	<b>29</b>	<b>5,800</b>	<b>1,073</b>	<b>406</b>	<b>38,280</b>	<b>11,600</b>	<b>ALL</b>

**FOOTNOTE:**

<sup>[1]</sup> Subsidiary to the 64703-8000 MITIGATION, BANK STABILIZATION (WOOD BUFFER W/ DOLOSSE) pay item.

<sup>[2]</sup> Quantities include 4 additional log deflector-dolos bundles for each unit. Provide additional deflector-log bundles with dolos as needed. Quantity shown assumes 4 additional deflector-log bundles with dolos per MITIGATION, BANK STABILIZATION (WOOD BUFFER W/ DOLOSSE) unit.

**TABULATION OF  
QUANTITIES**

<sup>1</sup> Revised by Amendment A001

03/2020 | Checked by: C. Conrad  
 Designed by: C. Conrad  
 22 October 2020 1:28 PM  
 c:\pw-work\0290746\we-a2013020ea.dgn [U\_Sur\_ft2D]

**SCHEDULE A, B, C, D  
MP 4.0 AOP CULVERT QUANTITIES**

*See detail Sheets H.9-13*

ITEM 20701-0300 SEPARATION- STABILIZATION GEOTEXTILE, CLASS 1, TYPE C	ITEM 20810-0000 SHORING AND BRACING	ITEM 25101-0300 PLACED RIPRAP, METHOD A, CLASS 3	ITEM 60220-0000 PRECAST REINFORCED CONCRETE BOX CULVERT (20-Ft SPAN X 18-FT RISE)	ITEM 64704-1000 MITIGATION, STREAMBED MATERIAL
(SQYD)	(LPSM)	(CUYD)	(LNFT)	(CUYD)
100	ALL	100	40	630

**PROPOSED CHANNEL BOTTOM QUANTITIES**

*See detail Sheets H.14-15*

LOCATION	ITEM 20701-0300 SEPARATION- STABILIZATION GEOTEXTILE, CLASS 1, TYPE C	ITEM 25101-0400 PLACED RIPRAP, METHOD A, CLASS 4	ITEM 64704-1000 MITIGATION, STREAMBED MATERIAL
	(SQYD)	(CUYD)	(CUYD)
77+47.29	1,199	1,377	658
<b>TOTAL SCHEDULE C</b>	<b>1,199</b>	<b>1,377</b>	<b>658</b>
108+95.16	649	749	205
<b>TOTAL SCHEDULE D</b>	<b>1,848</b>	<b>2,126</b>	<b>863</b>

**TABULATION OF  
QUANTITIES**

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	H.3

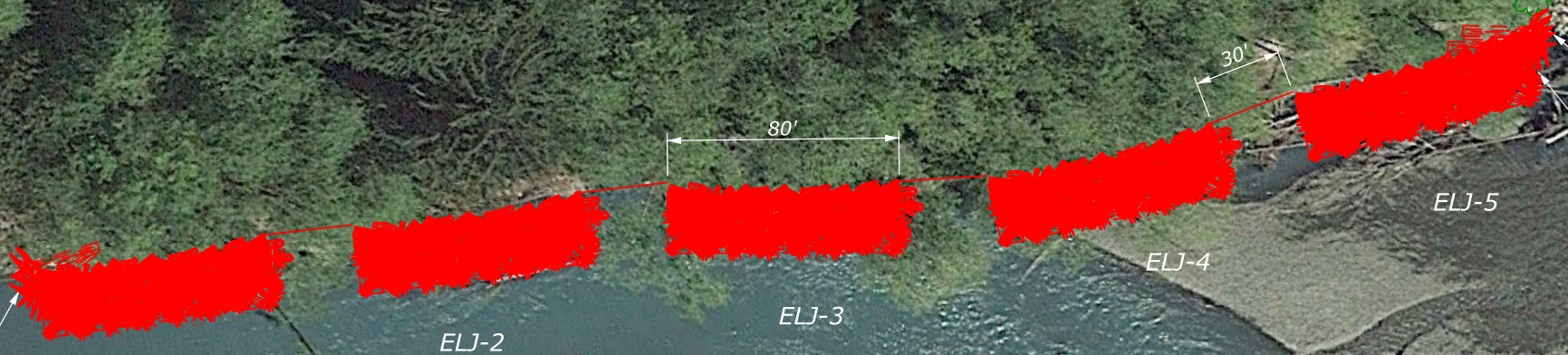
CP 14101  
 N 318084.6340  
 E 814516.2410  
 EL 263.7150  
 5/8" IRw/FHWA alum cap

CP 14102  
 N 318075.5500  
 E 815044.1020  
 EL 258.5120  
 5/8" IRw/FHWA alum cap

10  
 NAZ 040 47.64FT  
 8" HEMLOCK NAZ 315 52.83FT

Add 3 deflector rootwads at ELJ end  
 Start ELJ at existing riprap

Add 3 deflector rootwads at ELJ end



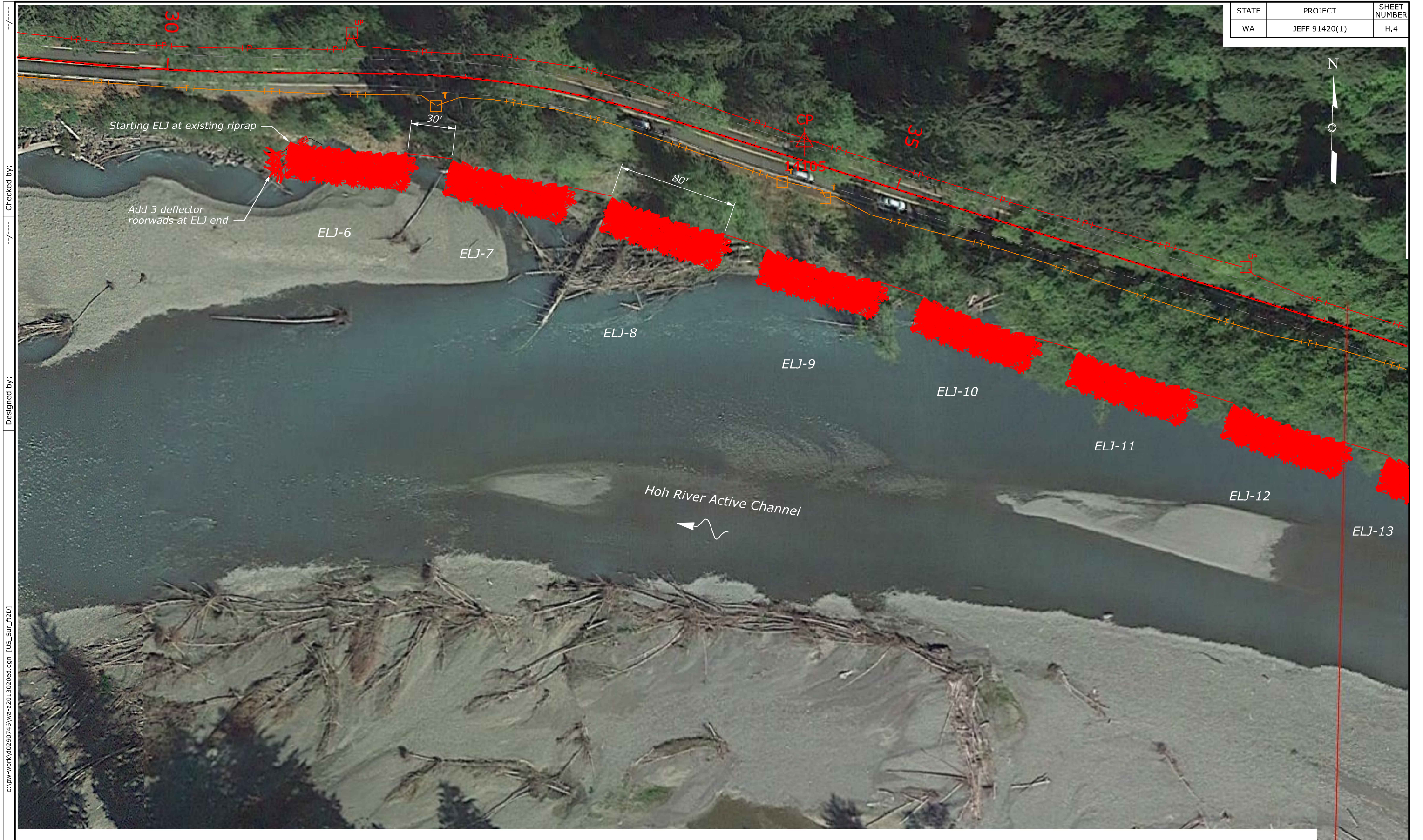
Hoh River Active Channel



**MITIGATION  
 BANK STABILIZATION  
 PLAN**

22 October 2020 1:41 PM  
 c:\pw-work\09290746\wa-a2013020ec.dgn [US\_Sur\_ft2D]  
 Designed by:  
 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	H.4



Checked by:

Designed by:

c:\pw-work\09290746\wa-a2013020red.dgn [US\_Sur\_ft2D]

22 October 2020 1:43 PM

**MITIGATION  
BANK STABILIZATION  
PLAN**

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	H.5



**MITIGATION  
BANK STABILIZATION  
PLAN**



STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	H.6



22 October 2020 1:49 PM  
 c:\pw-work\0290746\wa-a2013020ref.dgn [US\_Sur\_ft2D]  
 Designed by:  
 Checked by:



**MITIGATION  
 BANK STABILIZATION  
 PLAN**

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	H.7

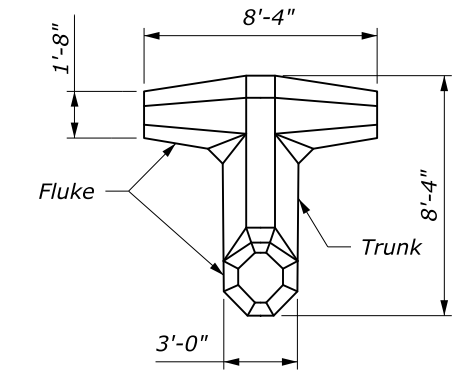
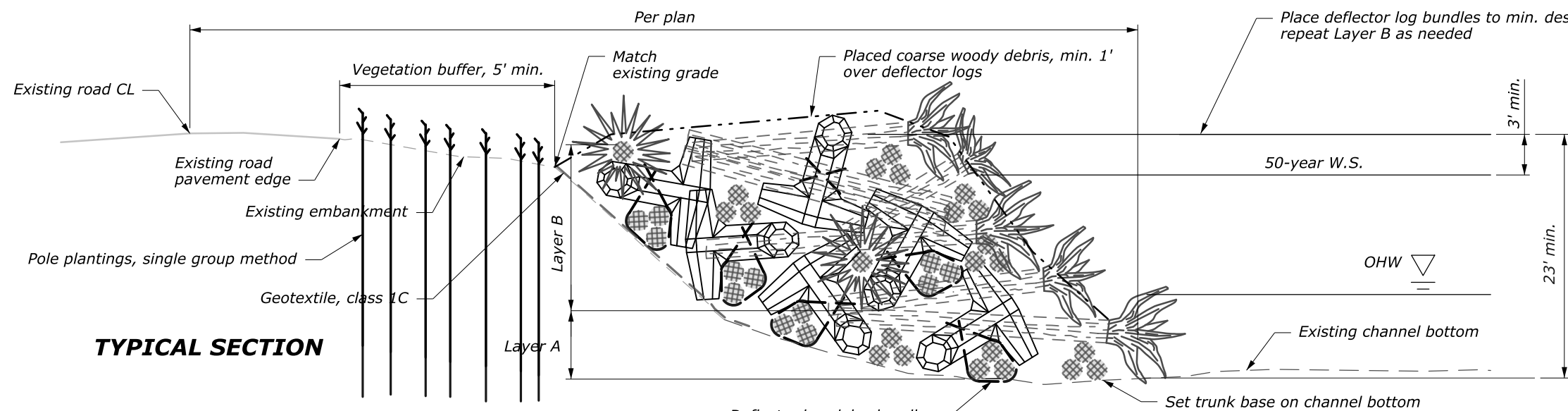


22 October 2020 1:51 PM  
 c:\pw-work\0290746\wa-a2013020eg.dgn [US\_Sur\_ft2D]  
 Designed by:  
 Checked by:

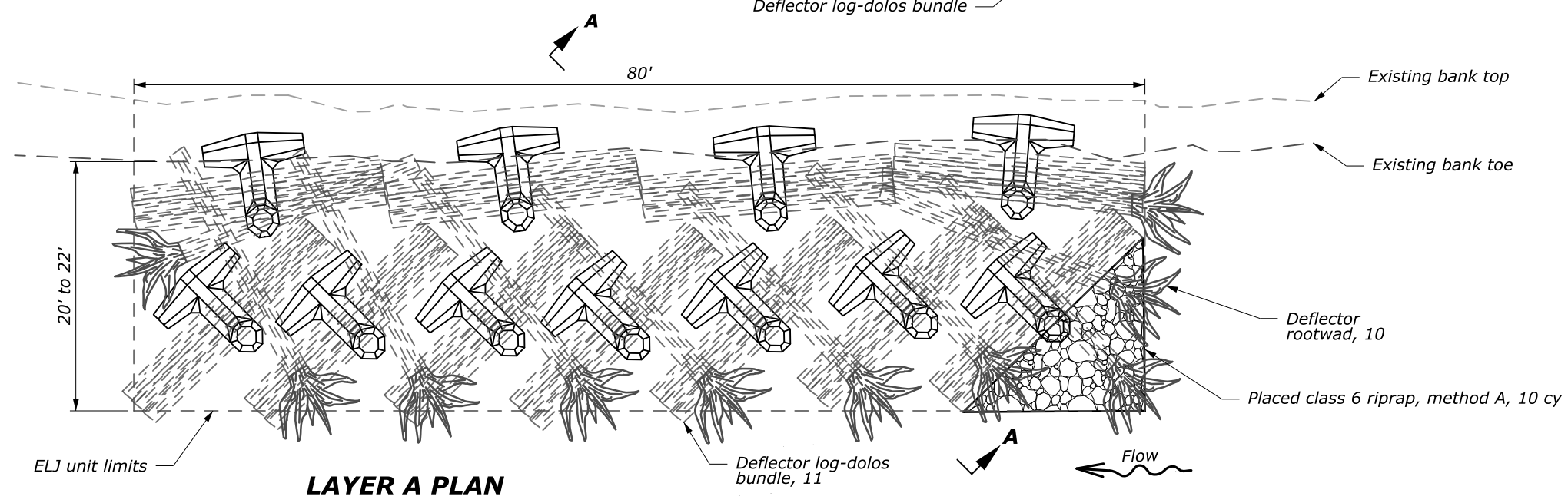


**MITIGATION  
BANK STABILIZATION  
PLAN**

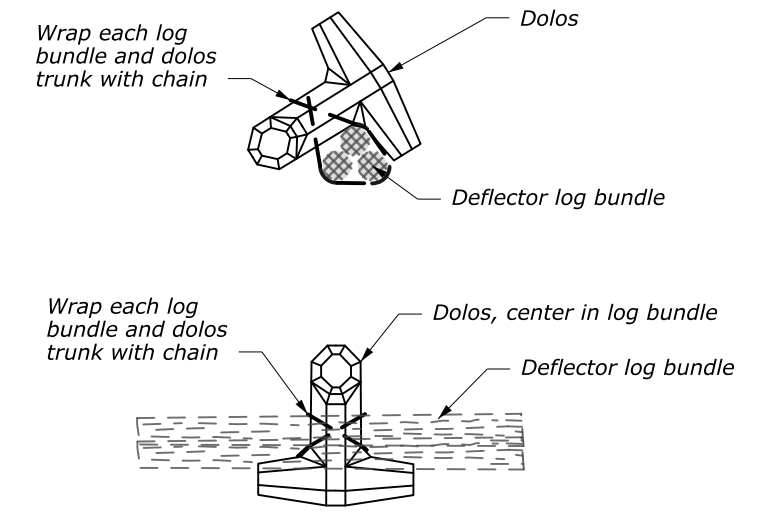
STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	H.8



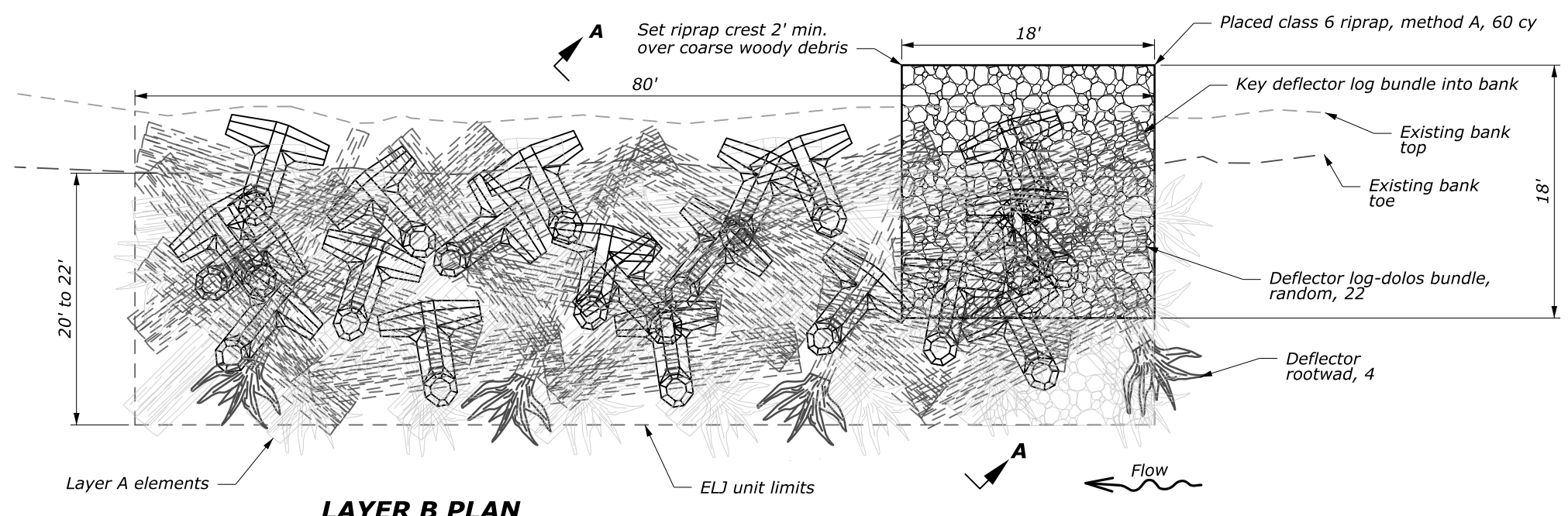
**DOLOS DETAIL**



**LAYER A PLAN**



**TYPICAL DEFLECTOR LOG-DOLOS BUNDLE DETAIL**



**LAYER B PLAN**

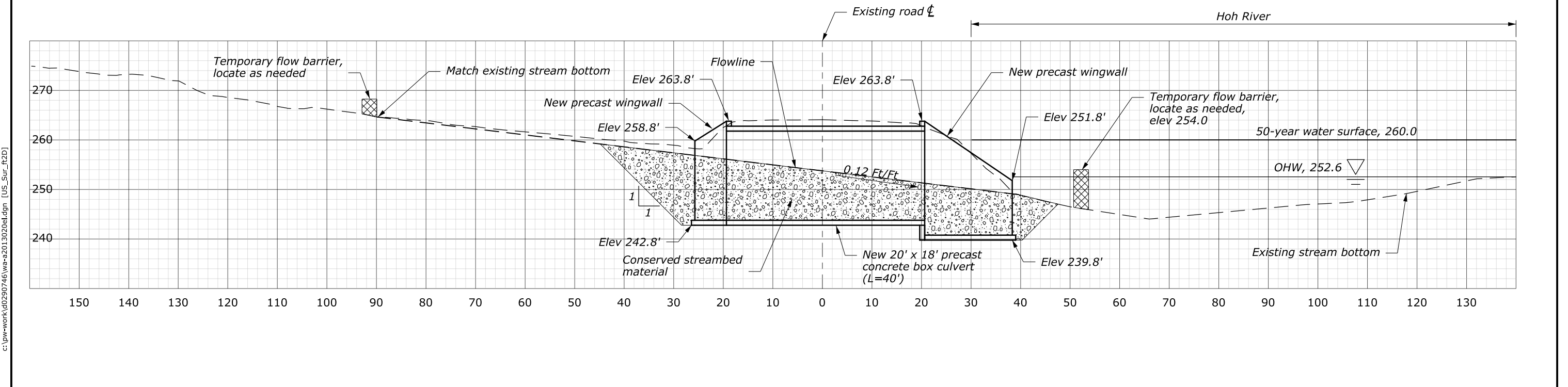
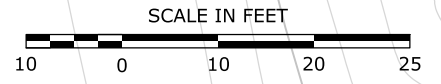
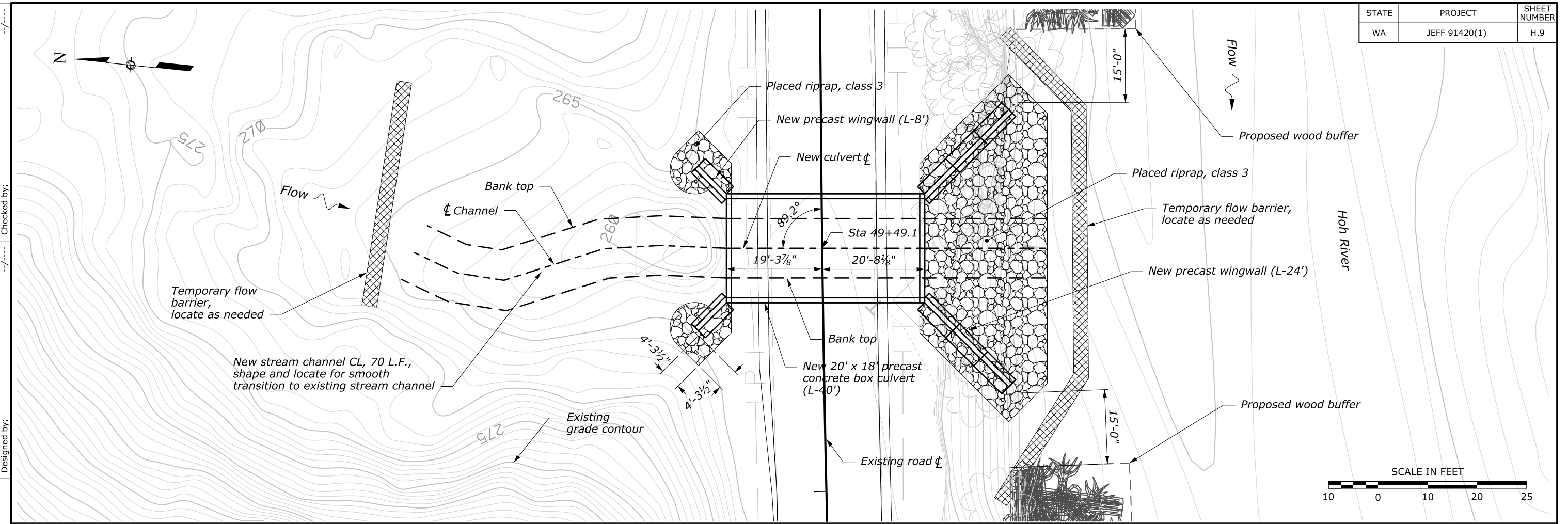
- NOTE:**
1. Deflector log; 20 to 22 feet trunk, 18 to 37-inch diameter without attached rootwad.
  2. Deflector rootwad; 20 to 22 feet trunk, 18 to 37-inch diameter with attached rootwad.
  3. Deflector log-dolos bundle; 110 to 150 ft<sup>3</sup> total log volume, 16,000 lbs dolos weight.
  4. Coarse woody debris; even mixture of branches, limbs, trunks, vegetation, 1-inch to 8-inch diameter, tightly pack into void space between fill logs and deflector logs.
  5. Layer B; 22 randomly placed deflector log-dolos bundles and 4 deflector rootwads.
  6. Set wood buffer bottom within 1 foot of nearest water surface elevation, excavate and conserve streambed material as needed.
  7. Key deflector log bundle into bank for preventing river flow between bank and wood buffer.

**BANK STABILIZATION  
WOOD BUFFER w/ DOLOSSE  
DETAILS**

NO SCALE

Checked by: /-----  
Designed by: /-----  
c:\pw-work\0290746\wa-a2013020ei.dgn [US\_5ur\_f2D]  
22 October 2020 2:03 PM

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	H.9

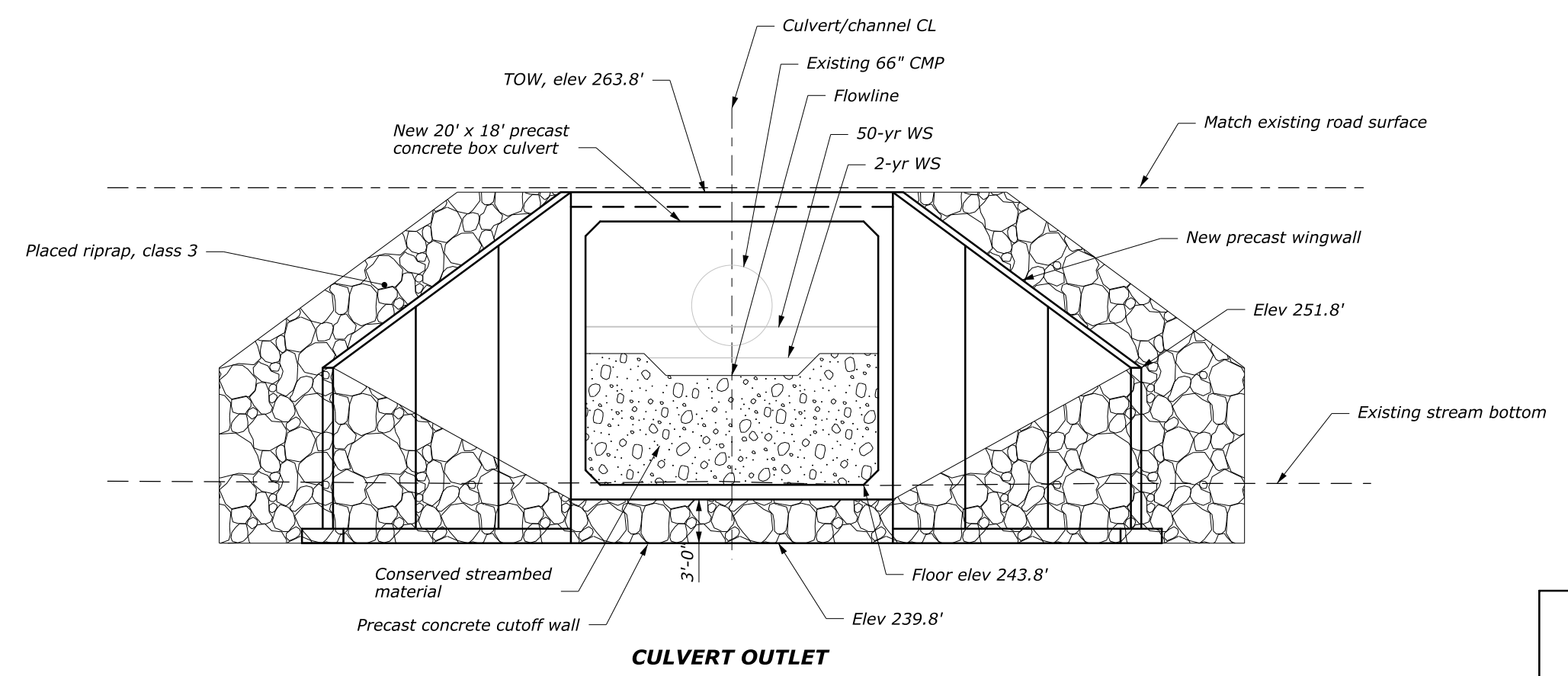
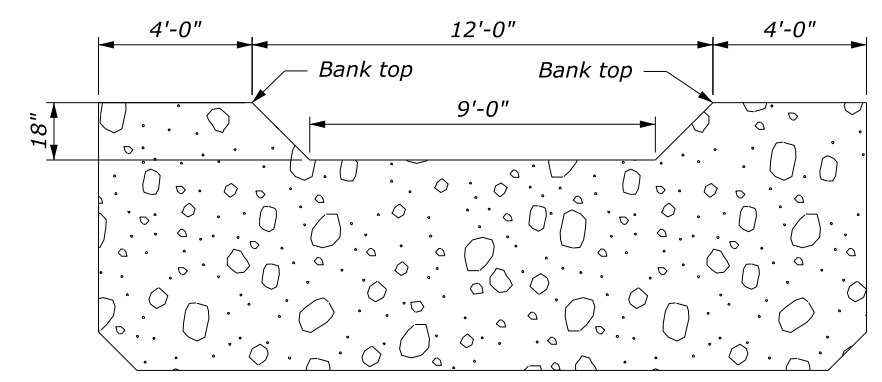
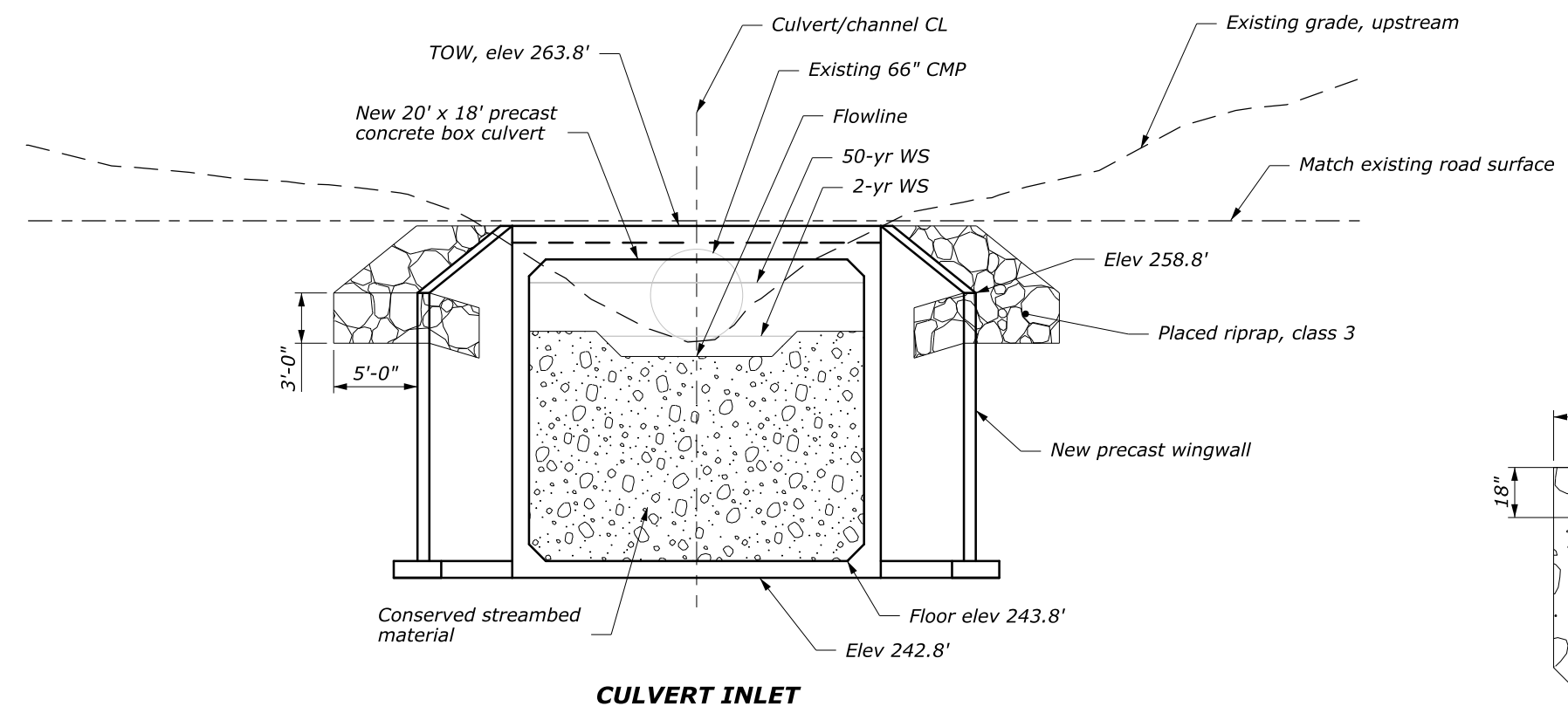


HYDRAULIC INFORMATION	PIPE	INLET	OUTLET
Q <sub>2</sub> : 71 cfs	TYPE: Precast Concrete	INV N/E/EL: 243.8	INV N/E/EL: 243.8
OHW: 1.1 feet	SPAN: 20'-0"	BURIAL DEPTH: 12.0 feet	BURIAL DEPTH: 7.4 feet
Q <sub>50</sub> : 150 cfs	RISE: 18'-0"	LOWER BEVEL HEIGHT: 16.0 feet	LOWER BEVEL HEIGHT: 11.0 feet
HW <sub>50</sub> : 4.2 feet	LENGTH: 40 feet	BEVEL: 2.0(h):1(v)	BEVEL: 2.0(h):1(v)
FISH SPECIES:	WALL THICKNESS: 10 in	HEADWALL: Precast Conc./Riprap	HEADWALL: Precast Conc./Riprap
INSTREAM WORK WINDOW:	PIPE SLOPE: 0.0 ft/ft		
ACTIVE CHANNEL WIDTH: 12 feet	FLOWLINE SLOPE: 0.12 ft/ft		
	INFILL TYPE: SBM		
	TYPE: Conserved		

## MP 4.0 AOP CULVERT PLAN & PROFILE

22 July 2020 9:55 AM  
 c:\pw-work\0290746\wa-a2013020el.dgn [US\_5ur\_f2D]  
 Designed by:  
 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	H.10

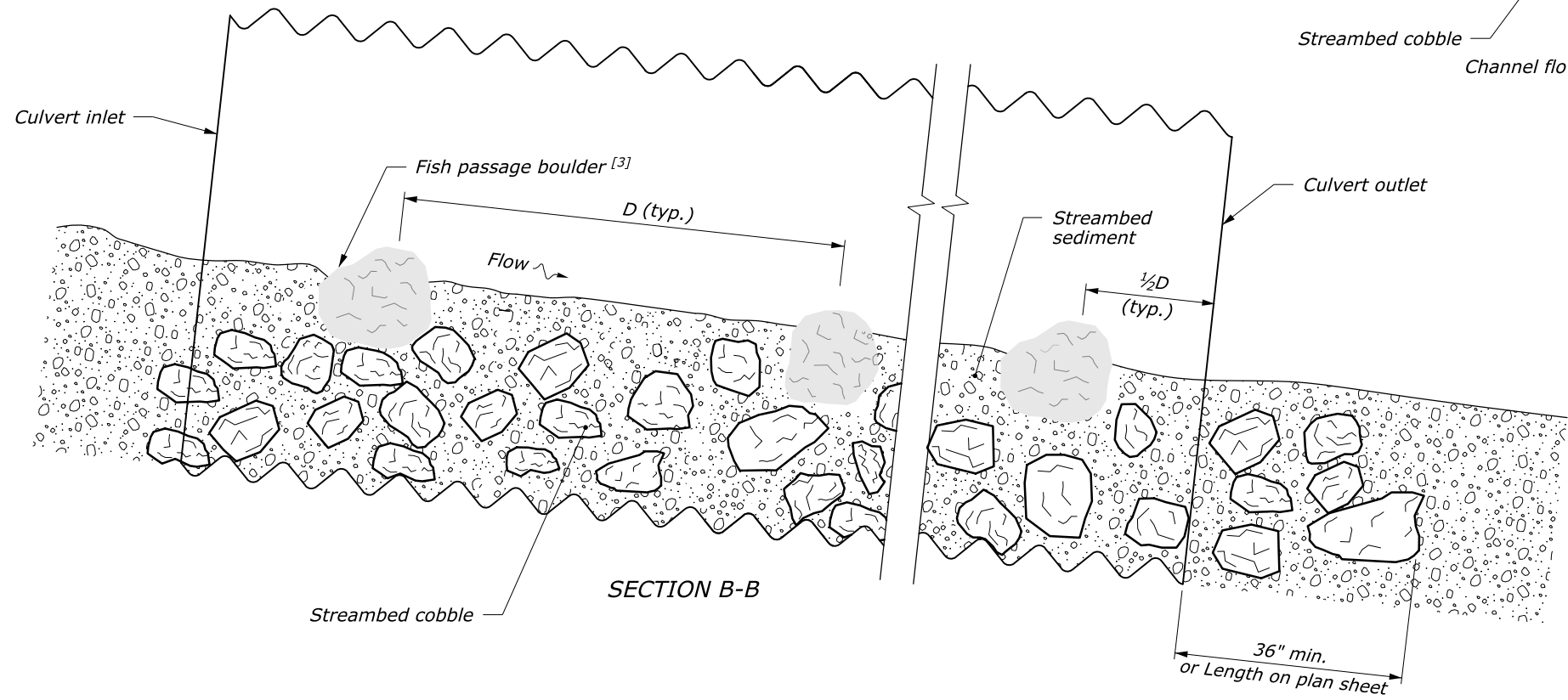
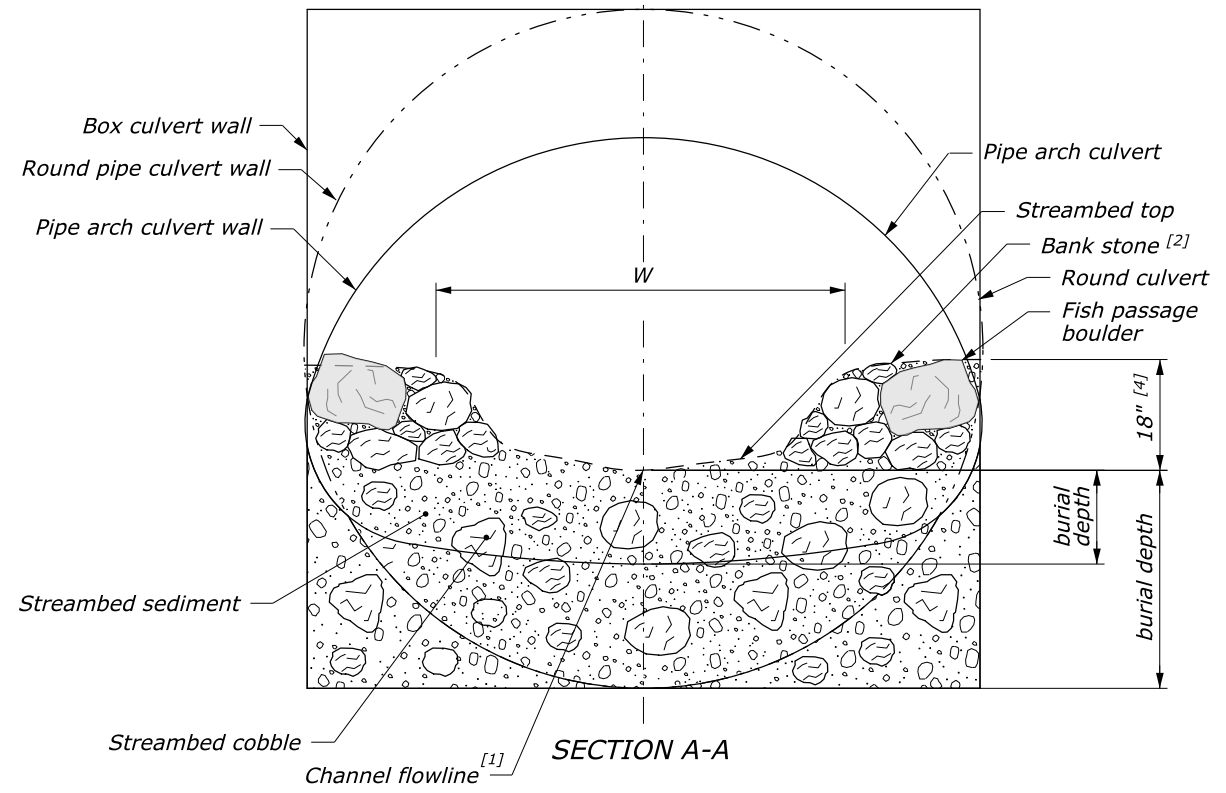
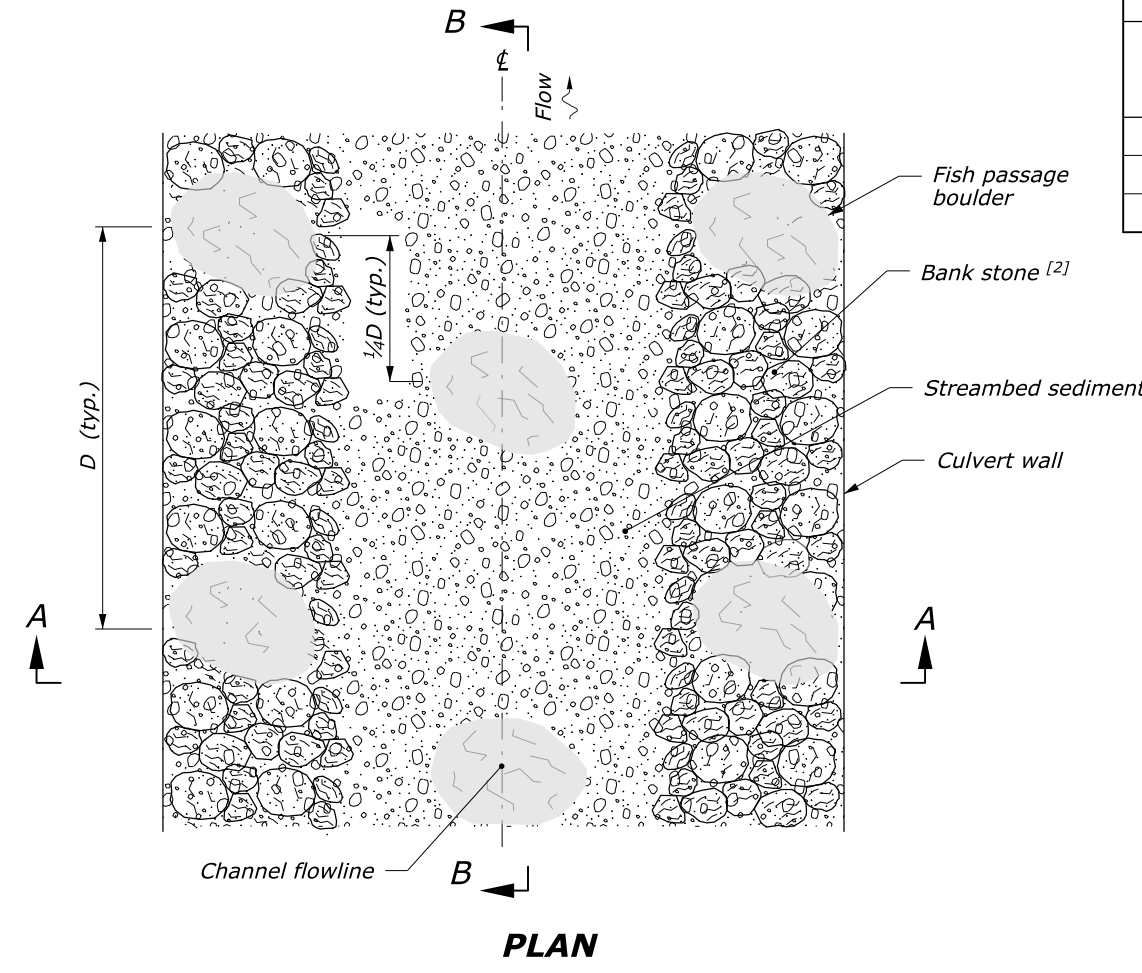


**MP 4.0 AOP CULVERT ELEVATIONS**

Not to scale.

22 July 2020 9:55 AM  
 c:\pw-work\0290746\wa-a2013020el.dgn [US\_5ur\_r2D]  
 Designed by:  
 Checked by:

INFILL INFORMATIONAL QUANTITIES <sup>[5]</sup>								
LOCATION	D (ft)	W (ft)	STREAMBED COBBLE GRADATION (in)	STREAMBED COBBLE (cuyd)	STREAMBED SEDIMENT (cuyd)	FISH PASSAGE BOULDER DIAMETER (in +/- 4)	HABITAT STONE (each)	BANK STONE (cuyd)
MP 4.0 AOP Culvert	16	12	Class E	80	170	30	9	14



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

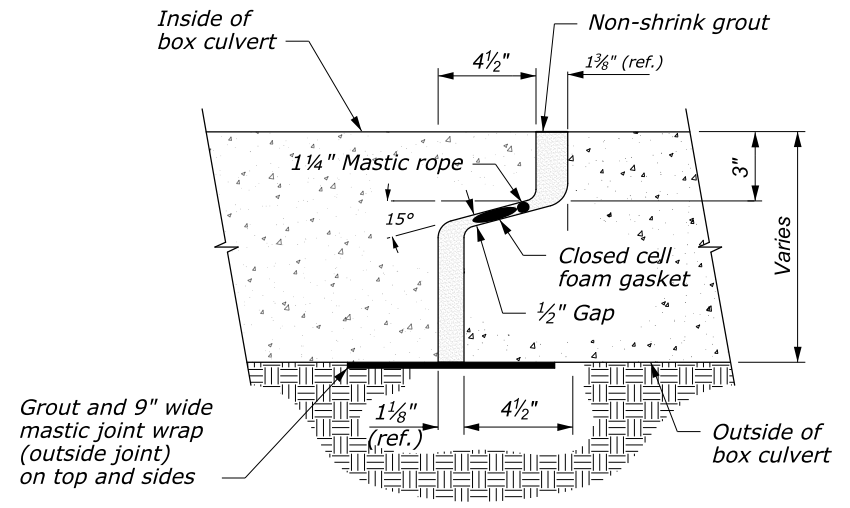
- FOOTNOTE:**
- Slope streambed aggregate towards flowline to ensure parabolic shape.
  - Construct well defined banks with bank stone and streambed sediment.
  - Embed fish passage boulders within active channel  $\frac{3}{4}$  smallest dimension.
  - 18-inches or as specified on plan sheet.
  - Quantities included in Item 64704-1000 Mitigation, Streambed Material.

**SIMULATED STREAM  
CULVERT INTERIOR  
TREATMENT**

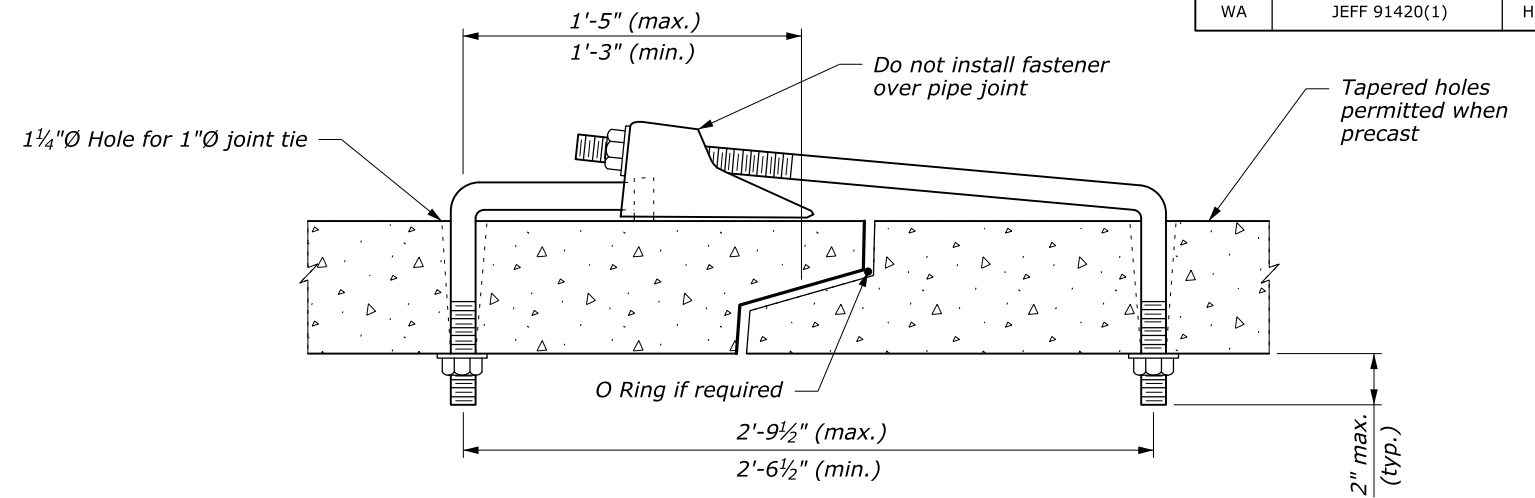
NO SCALE

2 March 2020 10:07 AM  
 c:\pw-work\0290746\wa-a2013020em.dgn [US\_Sur\_ft2D]  
 Designed by: \_\_\_\_\_  
 Checked by: \_\_\_\_\_

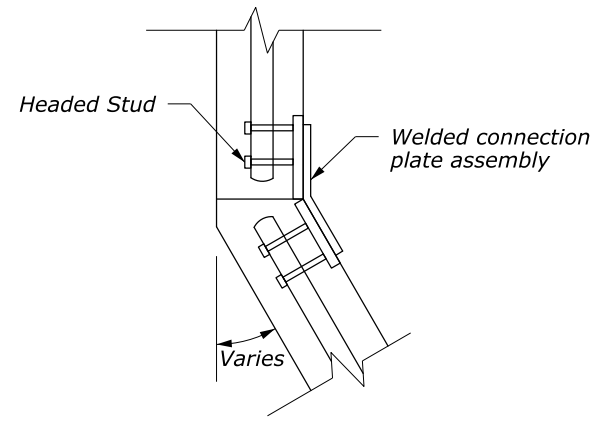
STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	H.12



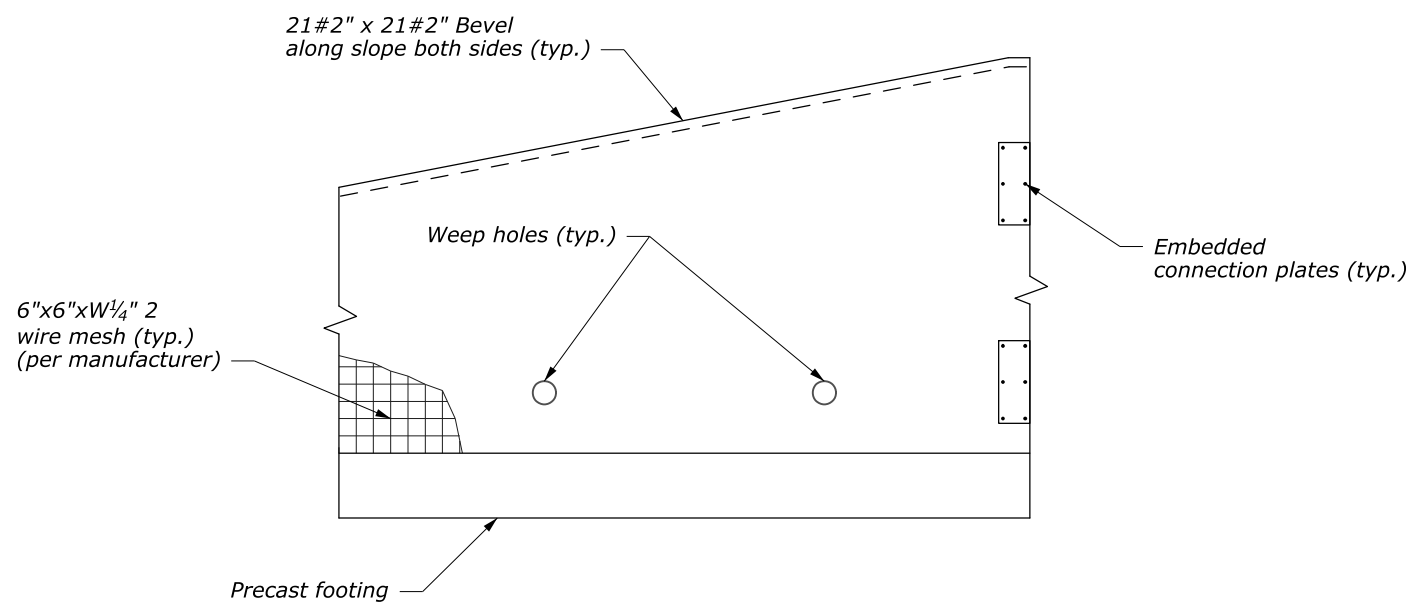
**WATERTIGHT BOX JOINT SECTION**



**SUPPLEMENTAL CONCRETE PIPE TIE**



**CONNECTION PLATE DETAIL**



**WINGWALL DETAIL**

**GENERAL NOTES:**

**CONSTRUCTION:**  
 Detail is for general information only.  
 Federal Highway Administration Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-14 (U.S. Customary).  
 Provide precast concrete culverts conforming to the dimensions, lines, and grades shown in the plans and provide shop drawings for review by the CO. See section 104.  
 Install tie rods or connector plates per manufacturer between precast sections.

**DESIGN:**  
 Design precast culverts in accordance with Section 602.  
 Design stem walls, headwalls, wingwalls, and footings in accordance with AASHTO LRFD Bridge Design Specifications, latest edition.

**DEAD LOAD:**  
 Concrete: 150 lb per cubic foot.  
 Soil: 125 lb per cubic foot.

**LIVE LOAD:**  
 HL-93.

**CONCRETE:**  
 Furnish structural concrete, class A(AE) with minimum 28-day design compressive strength  $f'c=5000$  psi.  
 Chamfer all exposed edges 3/4-inch.

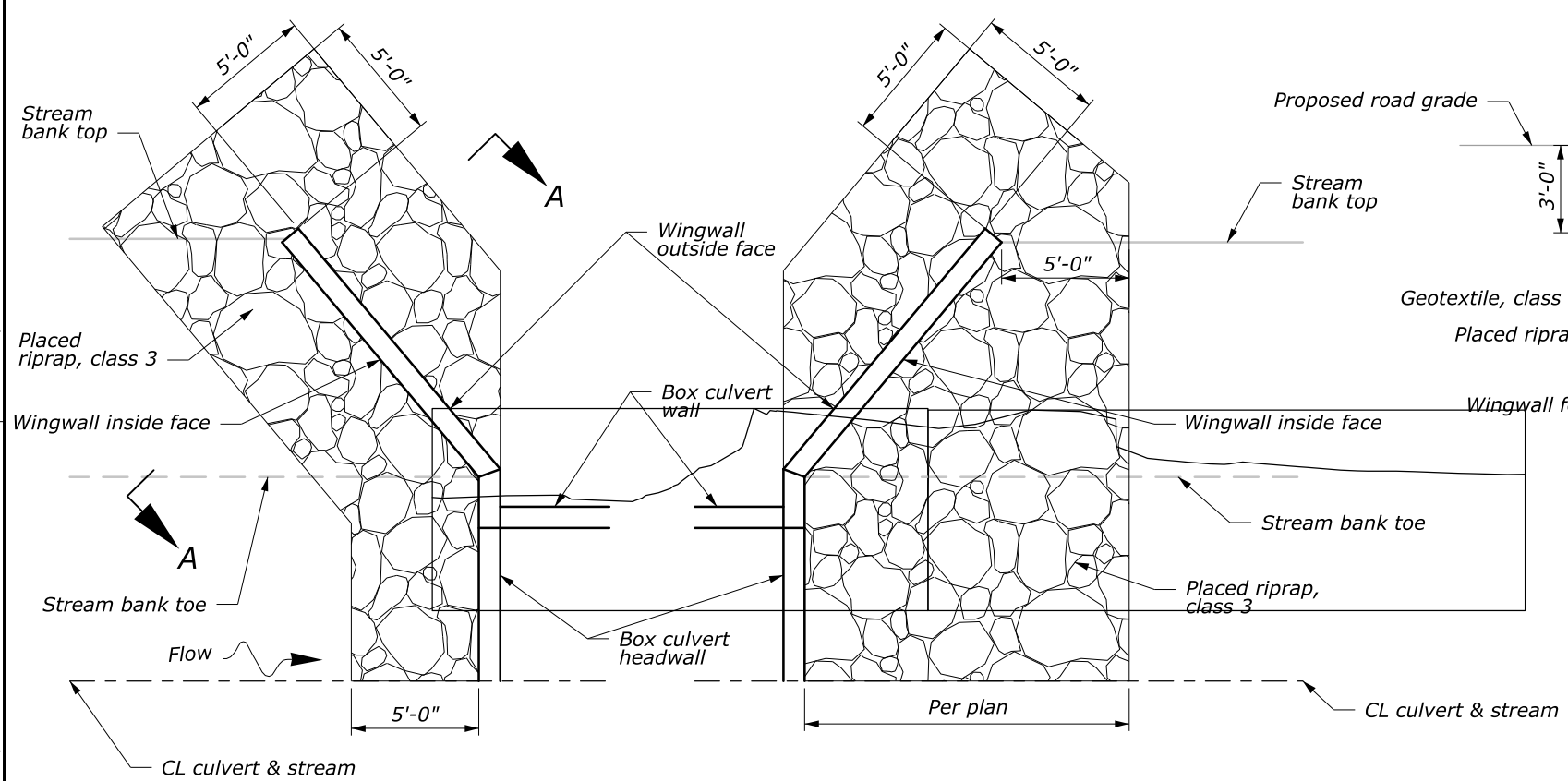
**REINFORCING STEEL:**  
 Furnish reinforcing steel bars conforming to AASHTO M31, deformed (ASTM, A615) grade 60, or welded wire reinforcing conforming to ASTM A1064.  
 Provide 2-inch minimum concrete cover to the face of any bar.

**SOIL:**  
 Unit weight: 125 lbs/cu. ft.  
 Bearing capacity: 2 ton/sq. ft.

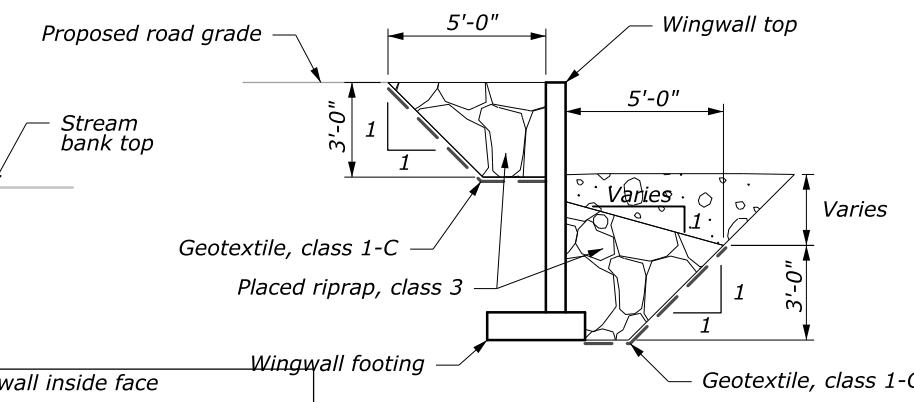
**PRECAST BOX CULVERT  
 TYPICAL STRUCTURAL  
 DETAILS**

Checked by: \_\_\_\_\_  
 Designed by: \_\_\_\_\_  
 c:\pw-work\0290746\wa-a2013020en.dgn [US\_Sur\_ft2D]  
 2 March 2020 10:07 AM

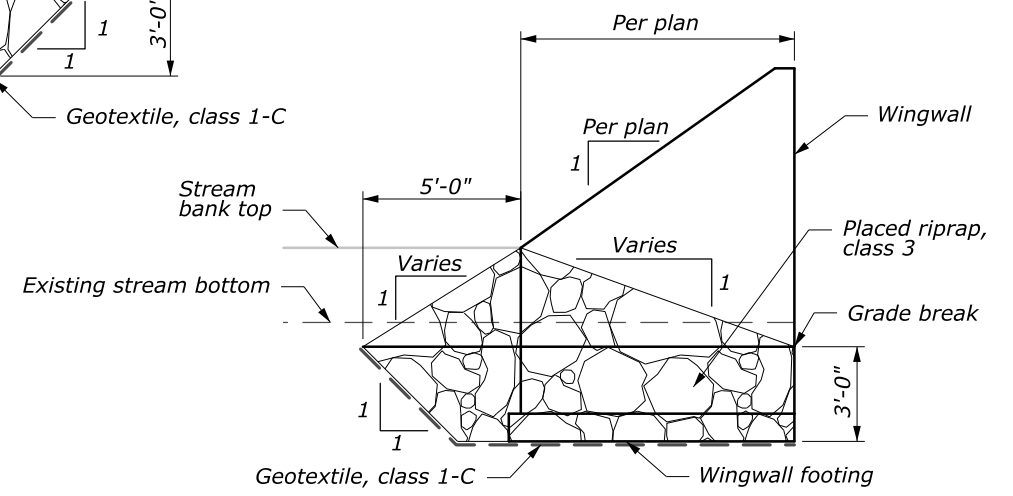
Checked by: \_\_\_\_\_  
 Designed by: \_\_\_\_\_  
 c:\myfiles\pw\_production\10107577\Work\_dd.cel [B.Base.US]  
 12 May 2015 9:42 AM



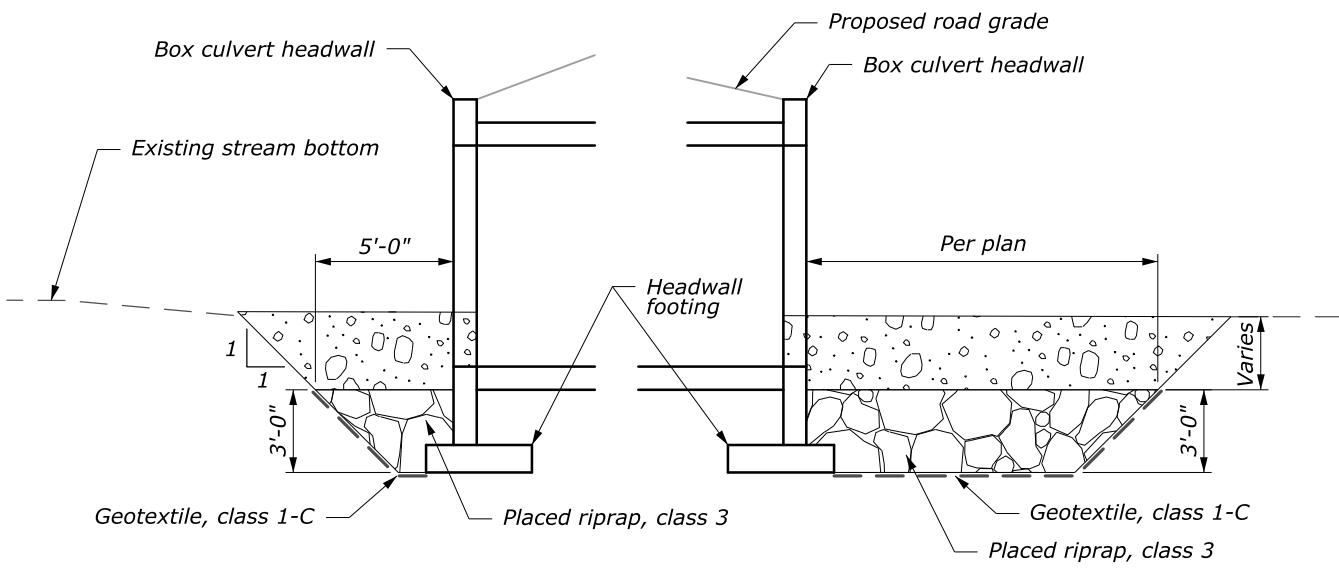
**TYPICAL CULVERT PLAN**



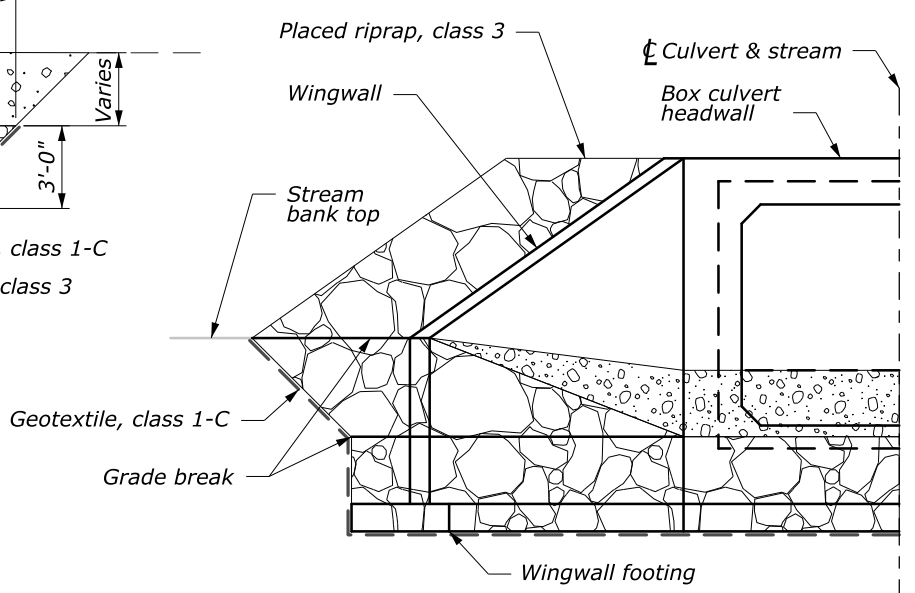
**SECTION A-A**



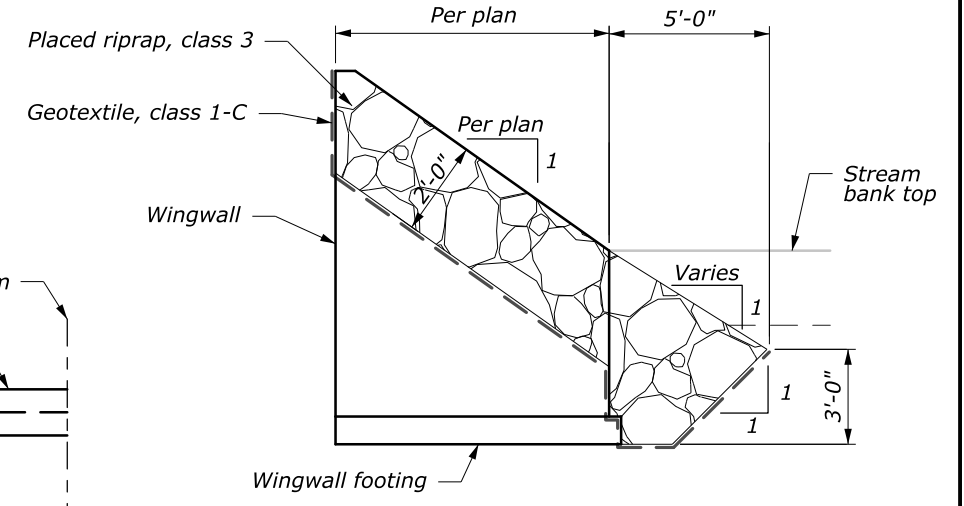
**TYPICAL INSIDE WINGWALL FACE ELEVATION**



**TYPICAL CULVERT & STREAM CHANNEL PROFILE**



**CULVERT INLET/OUTLET ELEVATION**



**TYPICAL OUTSIDE WINGWALL FACE ELEVATION**

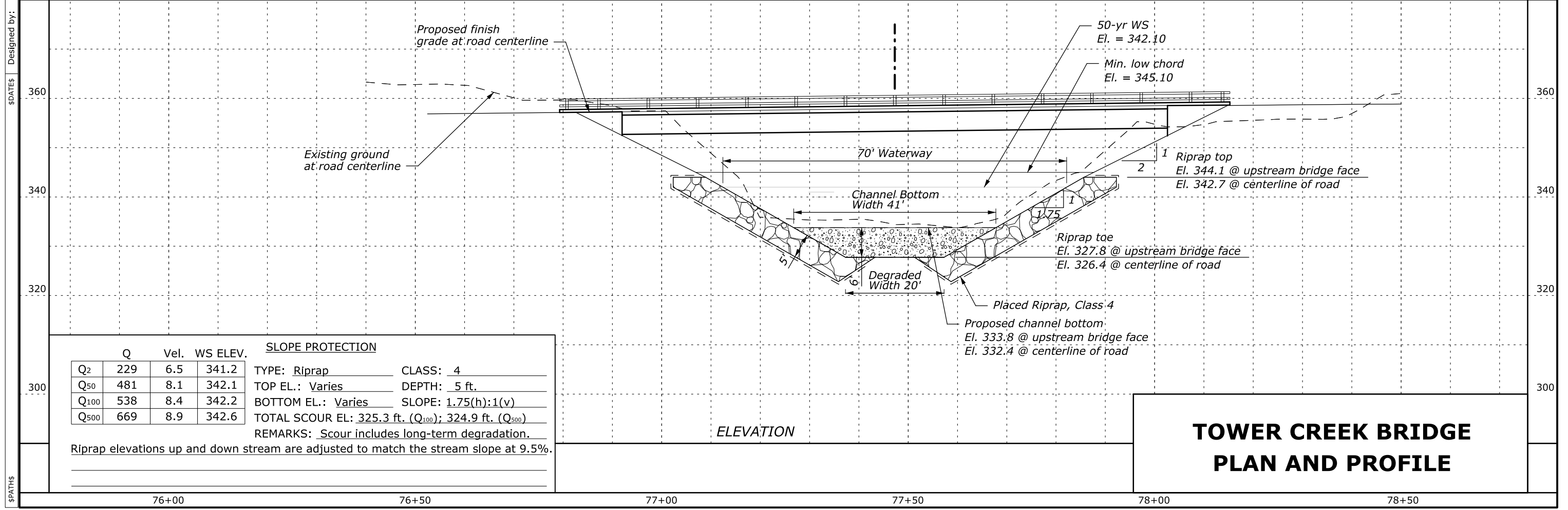
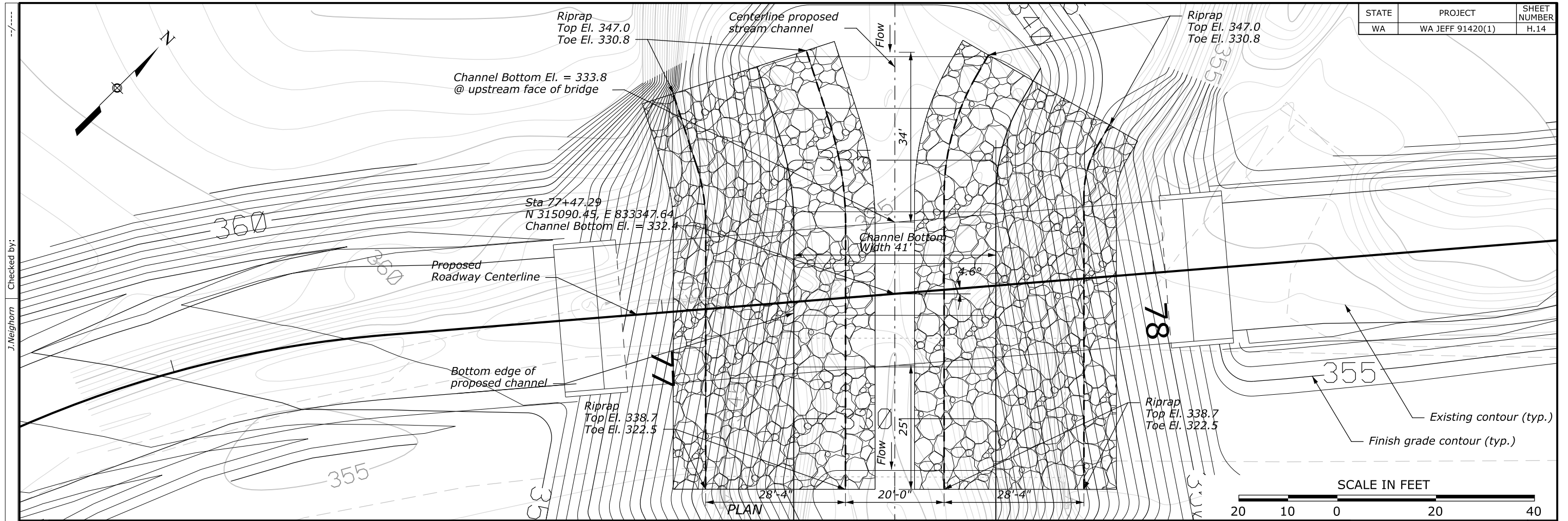
**NOTE:**  
 1. Place conserved streambed material over riprap as needed for transition to existing bank top and toe.

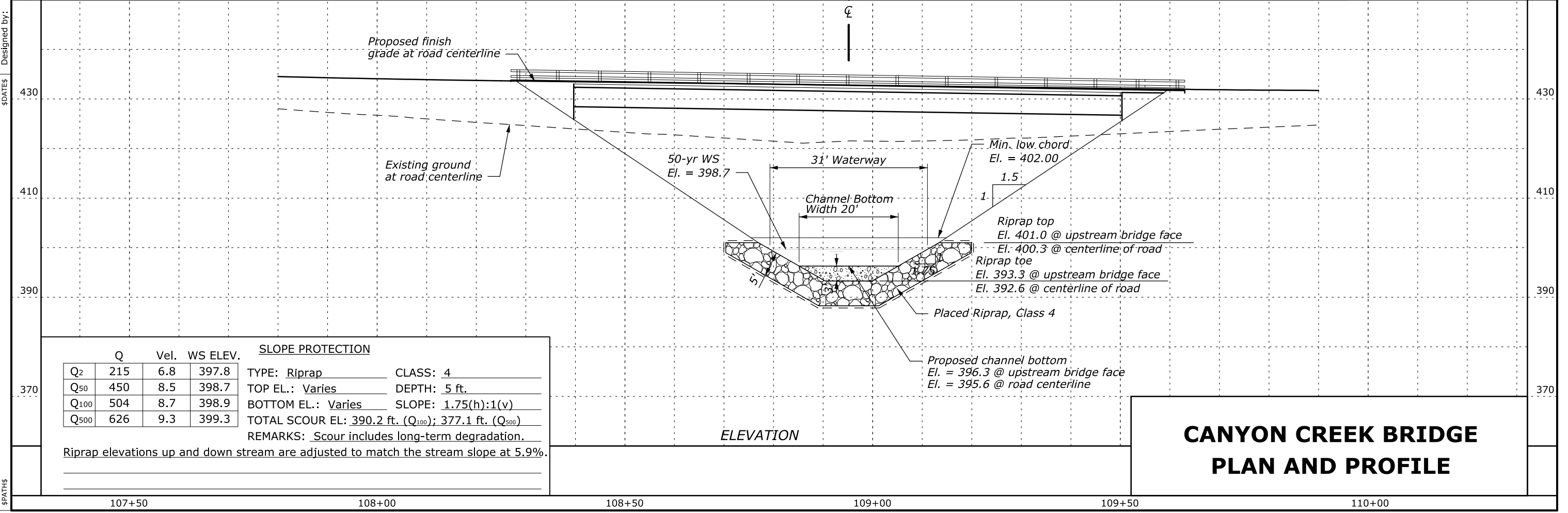
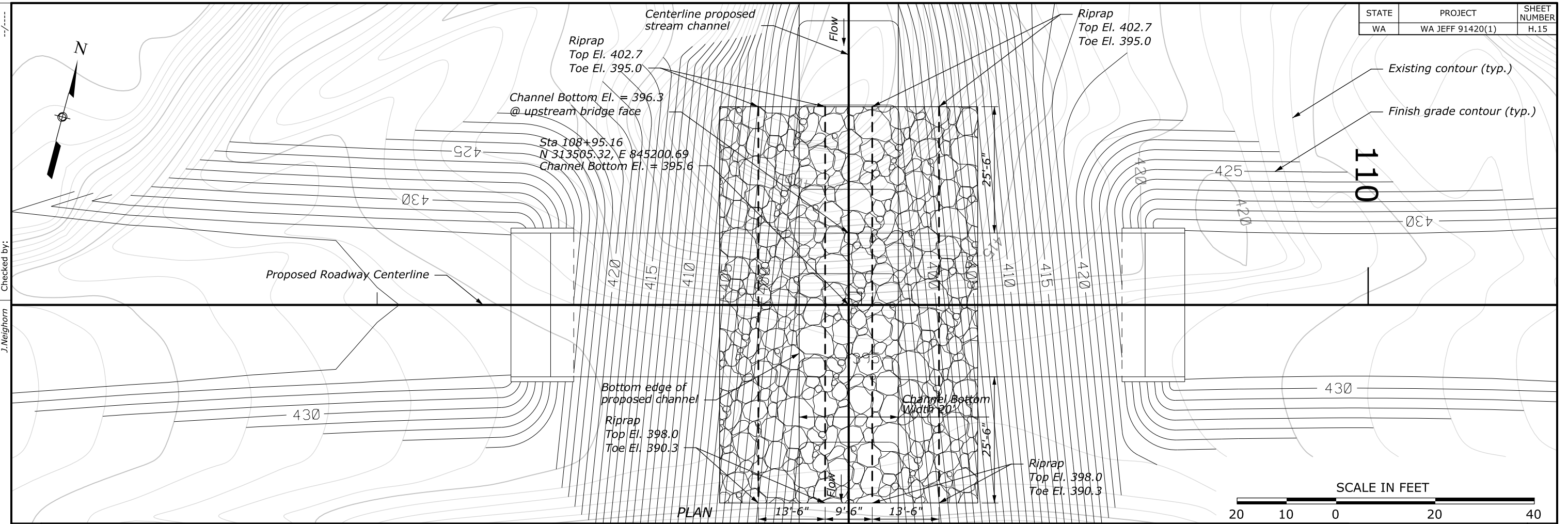
<b>RIPRAP QUANTITIES</b>			
ITEM NO.	DESCRIPTION	UNIT	QUANTITY
20701-0200	Separation- stabilization geotextile, class 1, type C	SQYD	100
25101-0400	Placed riprap, method A, class 3	CY	100

**BOX CULVERT RIPRAP  
DETAILS**

NO SCALE







Q	Vel.	WS ELEV.	SLOPE PROTECTION	
Q <sub>2</sub>	215	6.8	397.8	TYPE: Riprap CLASS: 4
Q <sub>50</sub>	450	8.5	398.7	TOP EL.: Varies DEPTH: 5 ft.
Q <sub>100</sub>	504	8.7	398.9	BOTTOM EL.: Varies SLOPE: 1.75(h):1(v)
Q <sub>500</sub>	626	9.3	399.3	TOTAL SCOUR EL: 390.2 ft. (Q <sub>100</sub> ); 377.1 ft. (Q <sub>500</sub> )

REMARKS: Scour includes long-term degradation.

Riprap elevations up and down stream are adjusted to match the stream slope at 5.9%.

## CANYON CREEK BRIDGE PLAN AND PROFILE

Checked by: J. Neighorn  
Designed by: \$DATE\$  
\$PATH\$

107+50      108+00      108+50      109+00      109+50      110+00

28 December 2020 5:00 PM C:\Users\Chingy.Choy\Desktop\PS&E Review Engineer\Reviews\WA JEFF 91420(1)\Upper Hoh River Road Phase 2\Drawings\Sheet\01/2019 Checked by: C. Conrad

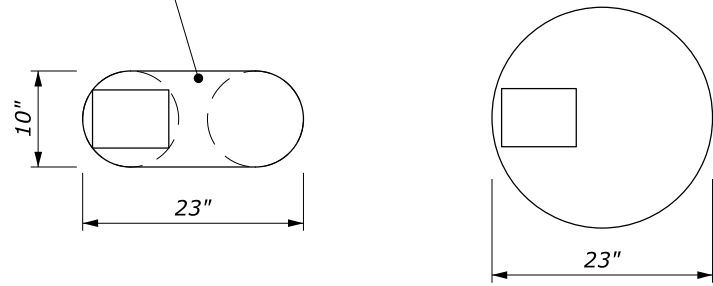
<b>ROADSIDE BARRIER QUANTITIES</b>				
LOCATION	SIDE	ITEM 61701-4650 GUARDRAIL SYSTEM MGS, TYPE 2, CLASS B STEEL POSTS (LNFT)	ITEM 61702-1500 TERMINAL SECTION, TYPE MGS TANGENT (EACH)	<del>ITEM 61707-0000</del> STRUCTURE <sup>1/</sup> TRANSITION RAILING (INFORMATION ONLY) (LNFT)
76+35.95 to 76+60.44	LT	-	1	-
76+60.44 to 76+81.38		-	-	21
75+81.92 to 76+08.47	RT	-	1	-
76+08.47 to 76+60.44		50	-	-
76+60.44 to 76+81.38		-	-	21
78+12.62 to 78+33.56	LT	-	-	21
78+33.56 to 78+83.56		50	-	-
78+83.56 to 79+08.51		-	1	-
78+12.62 to 78+33.56	RT	-	-	21
78+33.56 to 78+58.51		-	1	-
<b>TOTAL SCHEDULE C</b>		<b>100</b>	<b>4</b>	<b>84</b>
107+83.49 to 108+08.44	LT	-	1	-
108+08.44 to 108+29.38		-	-	21
107+33.49 to 107+58.44	RT	-	1	-
107+58.44 to 108+08.44		50	-	-
108+08.44 to 108+29.38		-	-	21
109+60.63 to 109+81.56	LT	-	-	21
109+81.56 to 110+31.56		50	-	-
110+31.56 to 110+56.51		-	1	-
109+60.63 to 109+81.56	RT	-	-	21
109+81.56 to 110+06.51		-	1	-
<b>TOTAL SCHEDULE D</b>		<b>200</b>	<b>8</b>	<b>168</b>

<sup>1/</sup> Quantities shown are included in the 55601-1100 quantities shown in Plan Section G. See G-Sheets for Thrie Beam Transition details.

Revised by Amendment A003

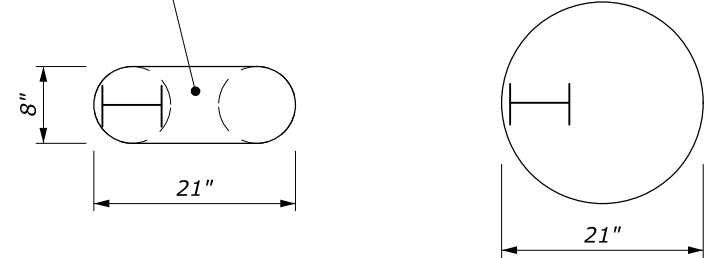
**ROADSIDE BARRIER  
TABULATION OF  
QUANTITIES**

Excavate area between drilled holes

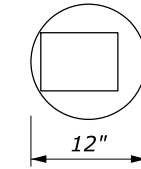


Wood Post

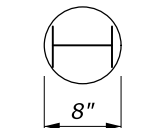
Excavate area between drilled holes



Steel Post  
**PLAN**



Wood Post

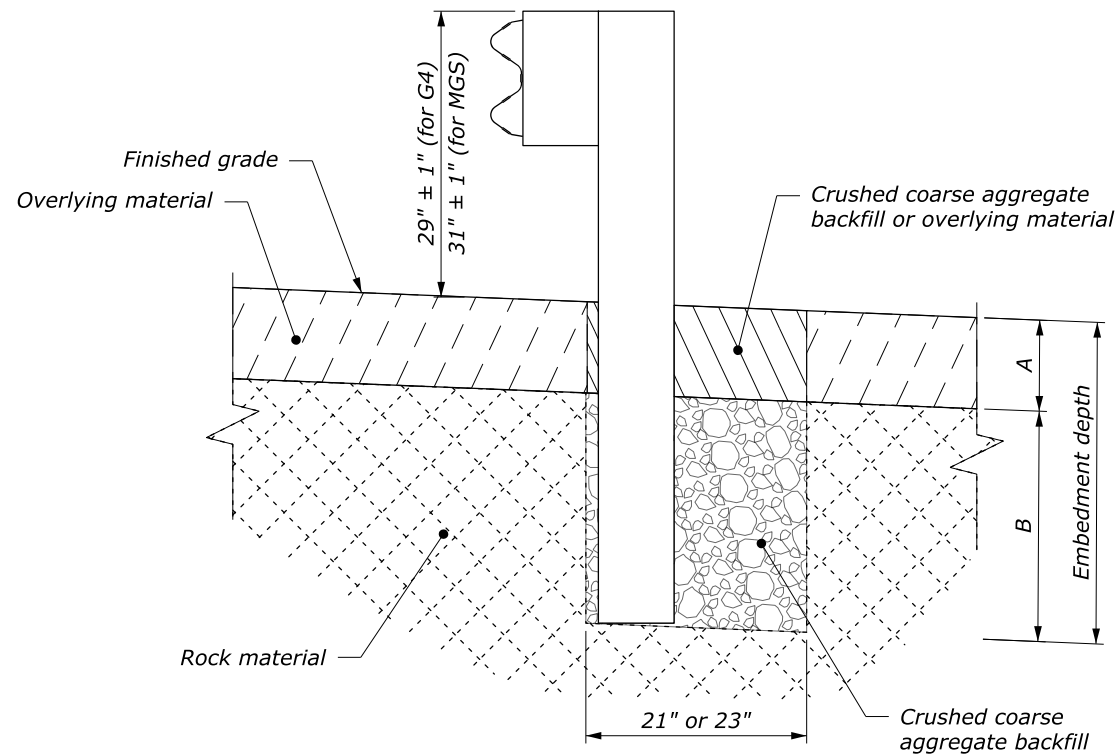


Steel Post  
**PLAN**

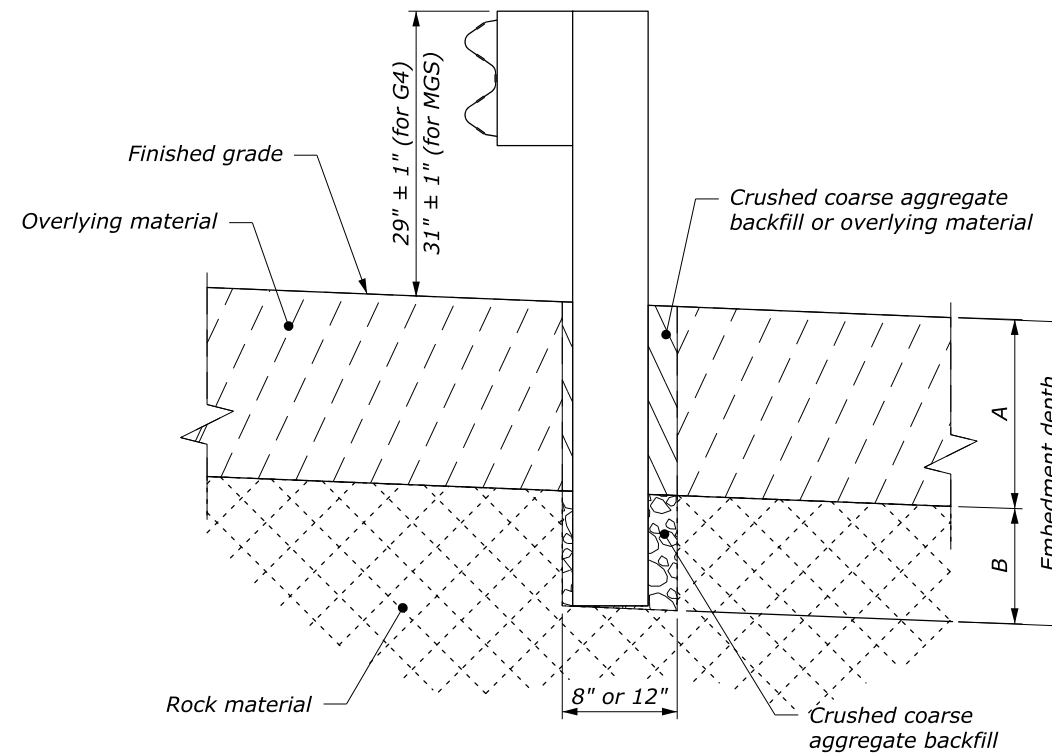
**NOTE:**

1. Use this standard when posts cannot be embedded to the minimum depth shown on Standards 617-10, 617-11, 617-31, or 617-32.
2. Unless otherwise specified, use either the circular or the oblong hole configuration for Case 1 conditions.
3. Use crushed coarse aggregate backfill that conforms to "granular backfill for underdrain pipe with geotextile" in Section 703.
4. Place crushed coarse aggregate according to the post requirements in Section 617.
5. Treat field cut galvanized steel post surfaces that expose the base metal with two coats of zinc-oxide paint.

POST EMBEDMENT DIMENSIONS			
HOLE TYPE	EMBEDMENT DEPTH	OVERLYING MATERIAL (A)	DRILLING DEPTH (B)
Case 1	24" to 42"	0 to 18"	24"
Case 2	30" to 42"	> 18" to 30"	12"
	42"	> 30"	42" - A



**CASE 1 - ELEVATION**  
Overlying material depth (A) is 18" or less



**CASE 2 - ELEVATION**  
Overlying material depth (A) is greater than 18"

NO SCALE

**G4 AND MGS  
W-BEAM GUARDRAIL  
INSTALLATION IN ROCK**

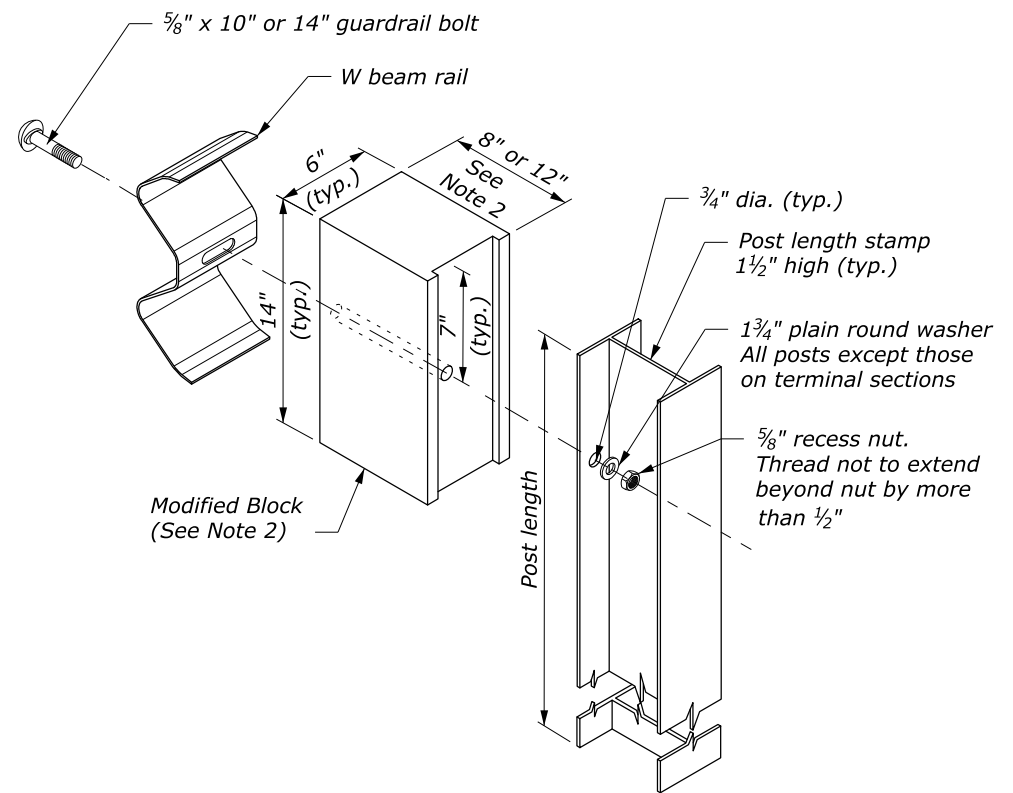
Checked by:

---/----

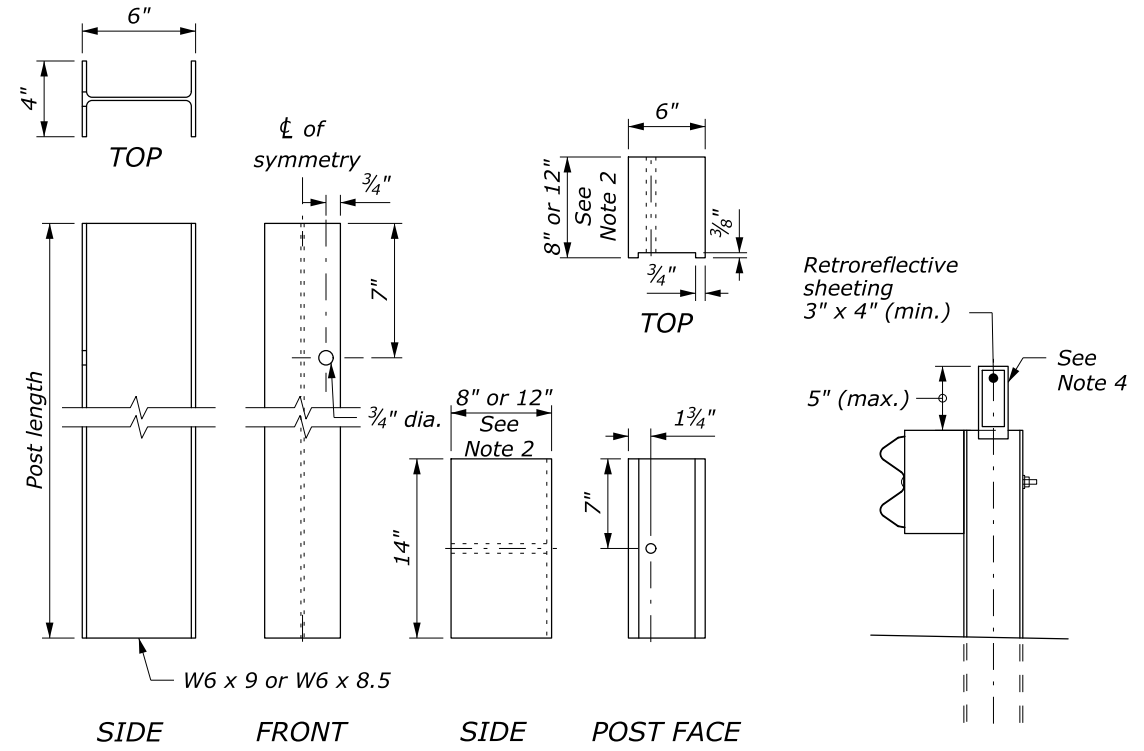
Designed by:

c:\pw-work\0290749\wa-a2013020rd.dgn [USC]

6 July 2020 2:28 PM



**POST AND BLOCK DETAIL**



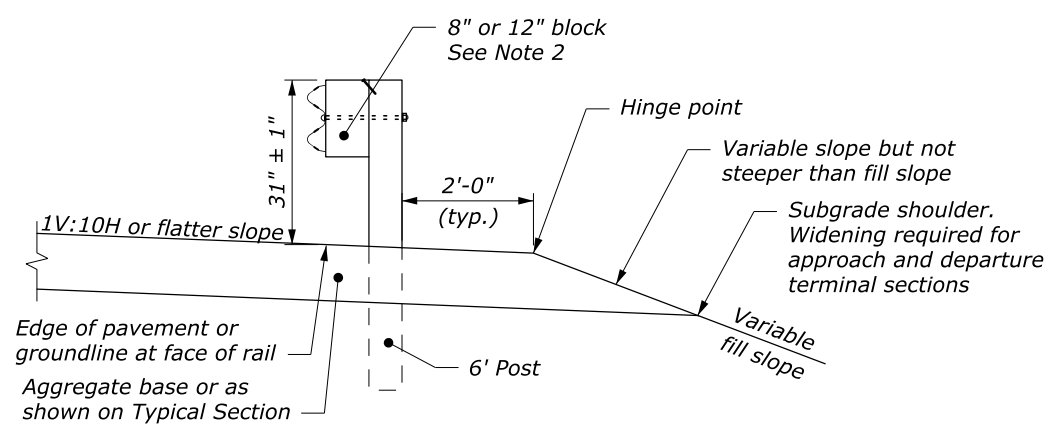
**STRUCTURAL SHAPE POST**

**BLOCK**

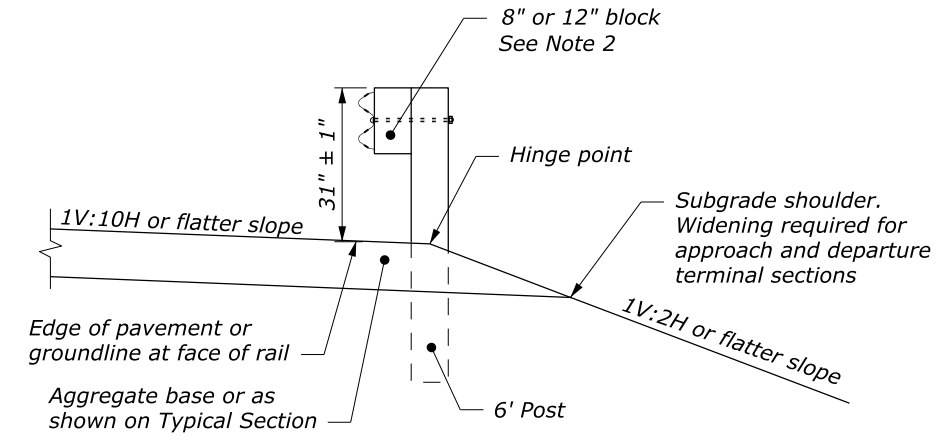
**FLEXIBLE GUIDE POST GUARDRAIL MOUNT**

**NOTE:**

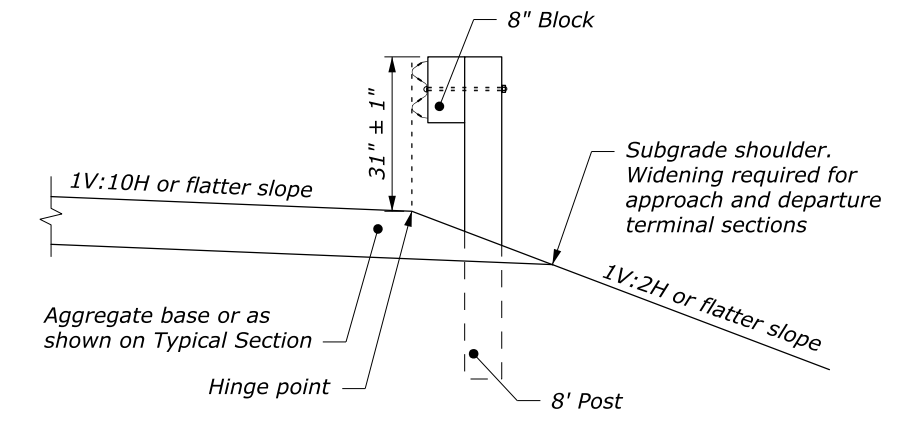
1. When encountering impenetrable material, one post may be omitted in locations where the typical guardrail cross section includes 2-feet (min.) between the back of the guardrail post and the hinge point. For all other locations, see Section 617 and Sheet I.2 or I.5.
2. Size of block shown elsewhere on the plans. Modified block may be wood, plastic, or composite material. Use consistent material throughout the length of guardrail run.
3. 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.
4. Install a flexible hinged delineator every fourth post. Fasten delineator to the web of the steel post using either an adhesive or mechanical means according to the manufacturer's recommendations.



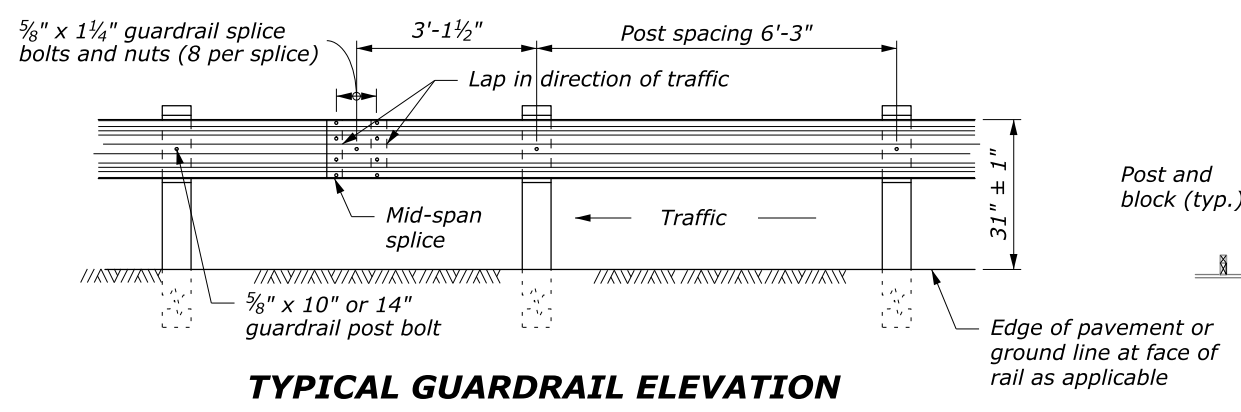
**TYPICAL GUARDRAIL CROSS SECTION 6' POST, 8" OR 12" BLOCK**



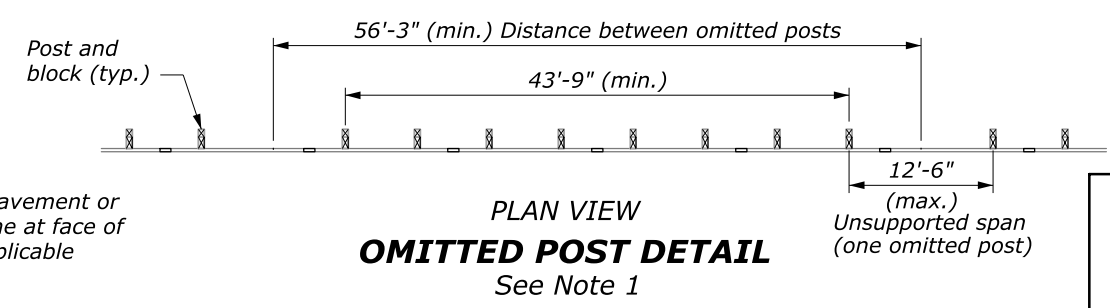
**TYPICAL GUARDRAIL CROSS SECTION 6' POST CENTERED ON HINGE, 8" OR 12" BLOCK**



**TYPICAL GUARDRAIL CROSS SECTION 8' POST ON SLOPE, 8" BLOCK**



**TYPICAL GUARDRAIL ELEVATION**



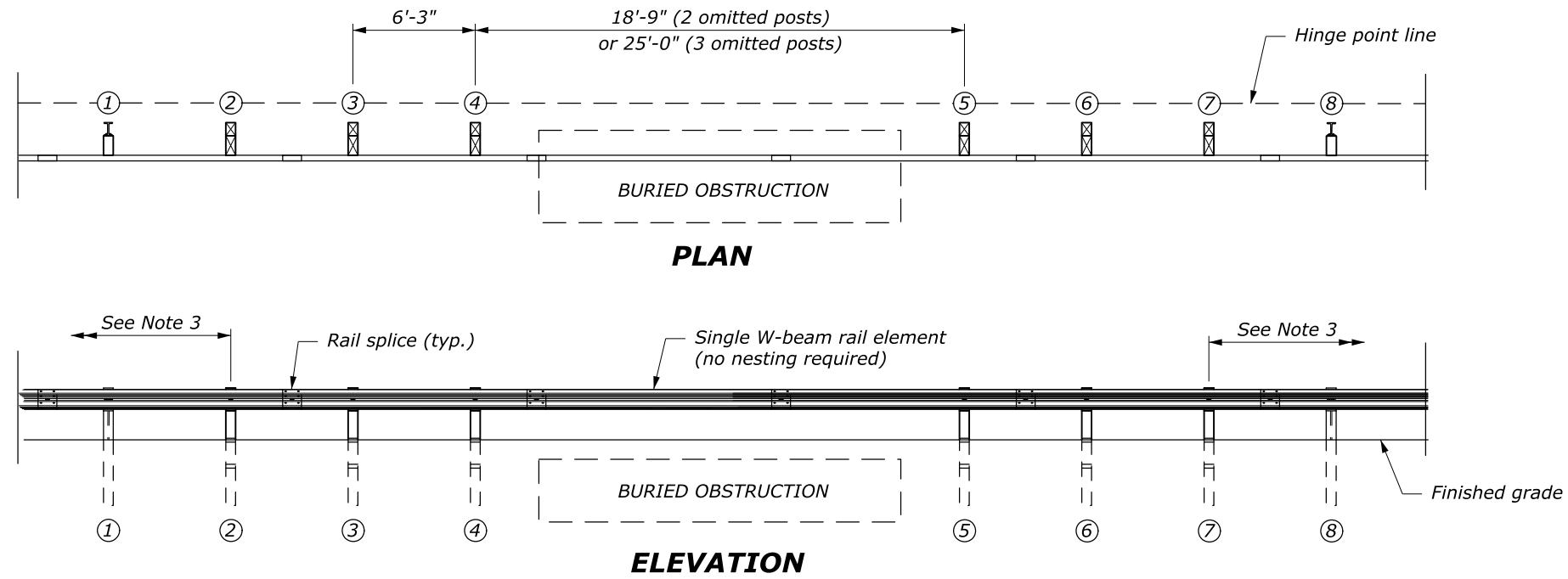
**PLAN VIEW OMITTED POST DETAIL**  
See Note 1

NO SCALE

**MGS W-BEAM GUARDRAIL STEEL POSTS**

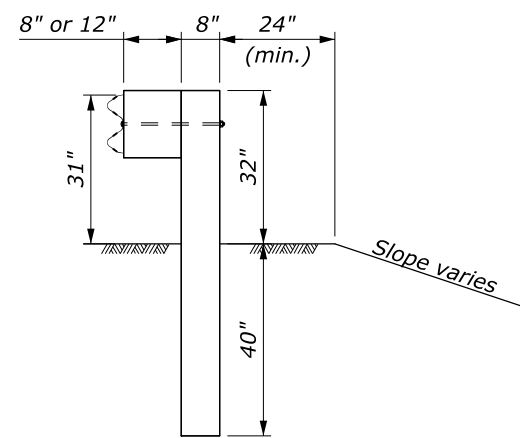
10 June 2020 11:07 AM  
 c:\pw-work\0290749\wa-a2013020re.dgn [USC]  
 Designed by:  
 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	I.4

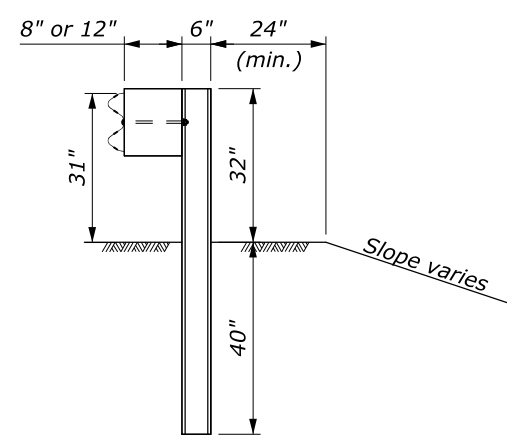


**NOTE:**

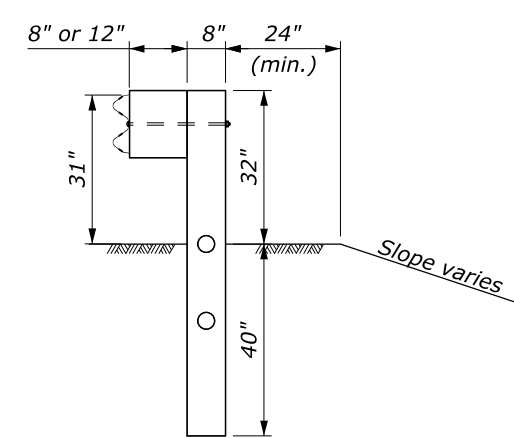
- Posts ① and ⑧ may be wood or steel.
- Use wood posts for CRT posts.
- The minimum length of guardrail, including the end terminals, upstream and downstream of posts ② and ⑦ is 62.5-feet.
- In locations where the culvert headwall extends above the finished grade to act as a vertical roadway curb, the maximum height of the culvert headwall above the finished grade is 2-inches.
- See Standards 617-31 or 617-32 for other assembly details.



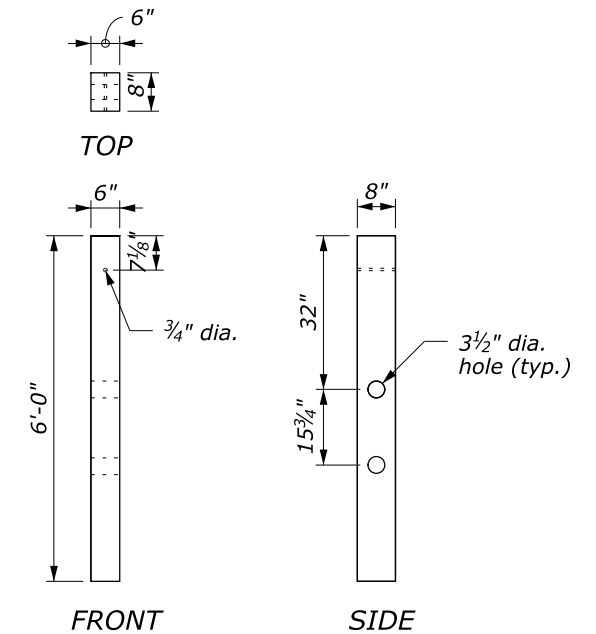
**WOOD POST DETAIL**  
POST ① AND ⑧  
See Note 1



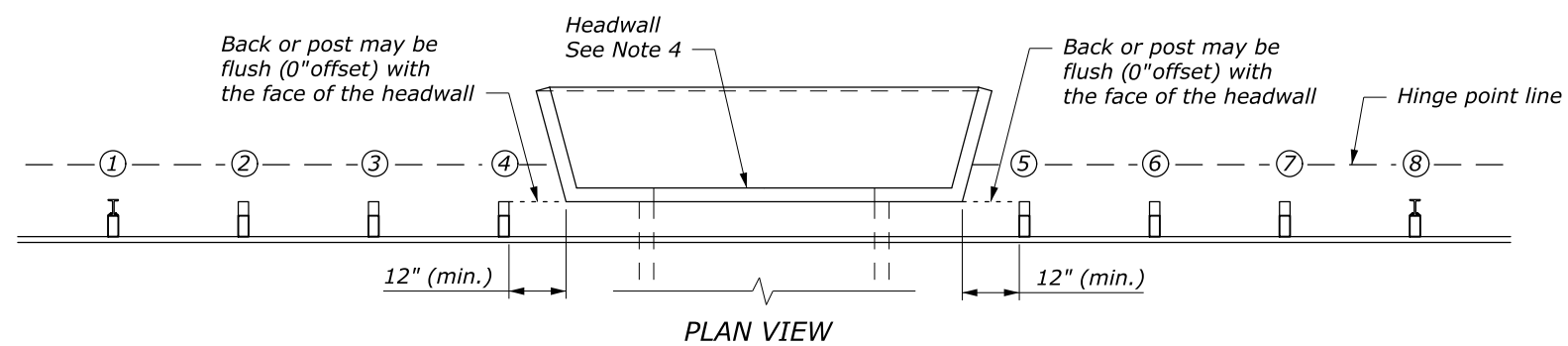
**STEEL POST DETAIL**  
POST ① AND ⑧  
See Note 1



**CRT POST DETAIL**  
POST ② AND ⑦  
See Note 2



**CRT WOOD POST**

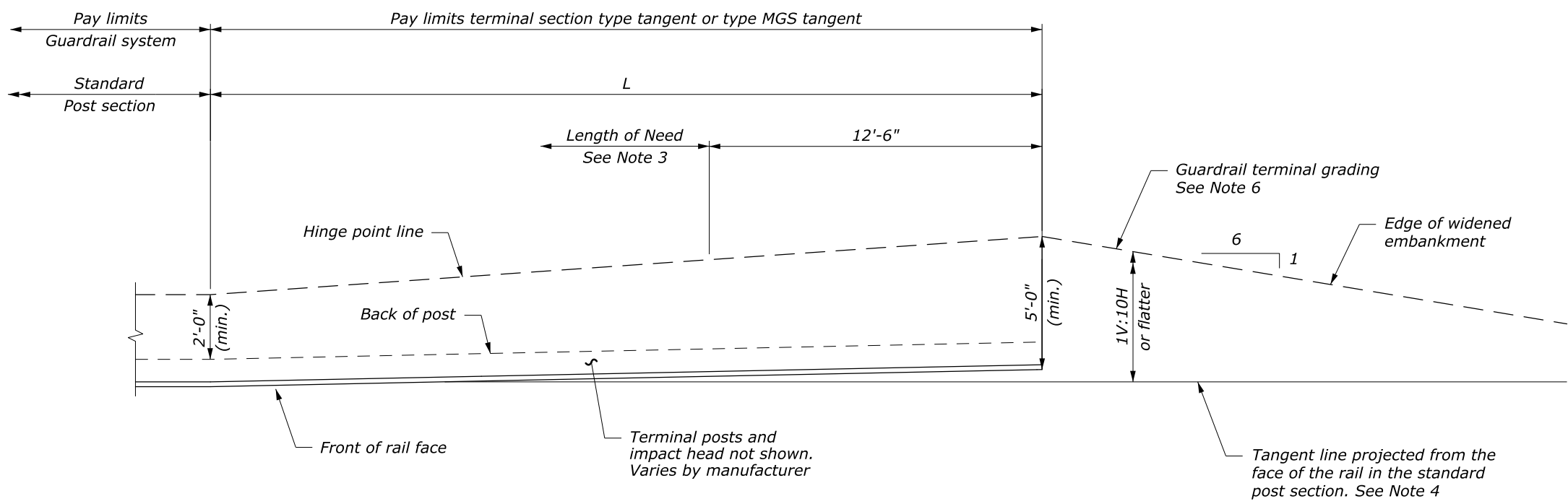


**SPAN WITH HEADWALL DETAIL**

NO SCALE

**MGS W-BEAM GUARDRAIL  
LONG-SPAN SYSTEM**

Checked by: /-----  
Designed by: /-----  
c:\pw-work\0290749\wa-a2013020rf.dgn [USC]  
17 July 2019 7:57 AM

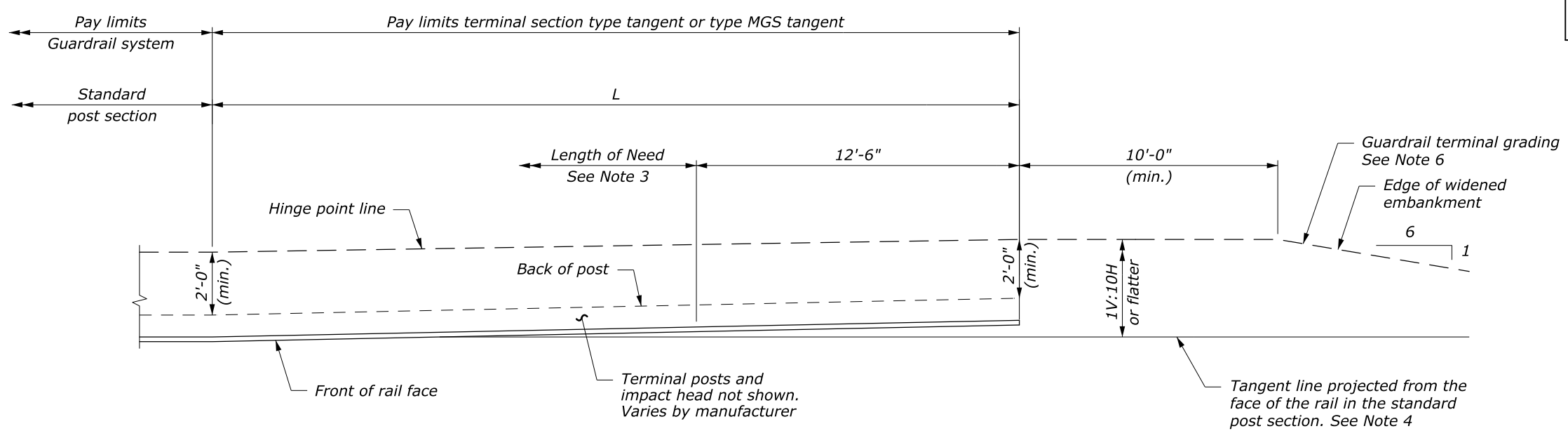


PLAN  
**PREFERRED GRADING**

**NOTE:**

1. Install tangent terminal according to the manufacturer's recommendations. See manufacturer's drawings for other details.
2. Construct the terminal grading layout as shown in the staking notes or model. If no staking notes or model are provided, use the preferred grading layout as much as practical within site constraints. If necessary because of site limitations, use the alternative grading layout.
3. For design purposes, the length of need is assumed to begin at post 3. Verify the length of need with the manufacturer for a specific product. Adjust grading as necessary to install the tangent terminal according to the manufacturer's recommendations.
4. Install terminal at a 1:25 taper or flatter, to position the end farther away from the edge of the shoulder, or use a taper according to manufacturer's recommendations.
5. Install a reflectorized object marker on the impact head.
6. Construct a 1V:4H slope outside of the guardrail terminal grading extents where practical.

TEST LEVEL	L (FT)
2 (≤ 45 mph)	25
3 (> 45 mph)	37.5 or 50 (for G4)
	50 (for MGS)



PLAN  
**ALTERNATIVE GRADING**

NO SCALE

**MGS W-BEAM GUARDRAIL  
TYPE TANGENT TERMINAL**

4 May 2020 10:21 AM  
 c:\pw-work\0290749\wa-a2013020rg.dgn [US\_Sur\_R2D]  
 Designed by:  
 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	J.1

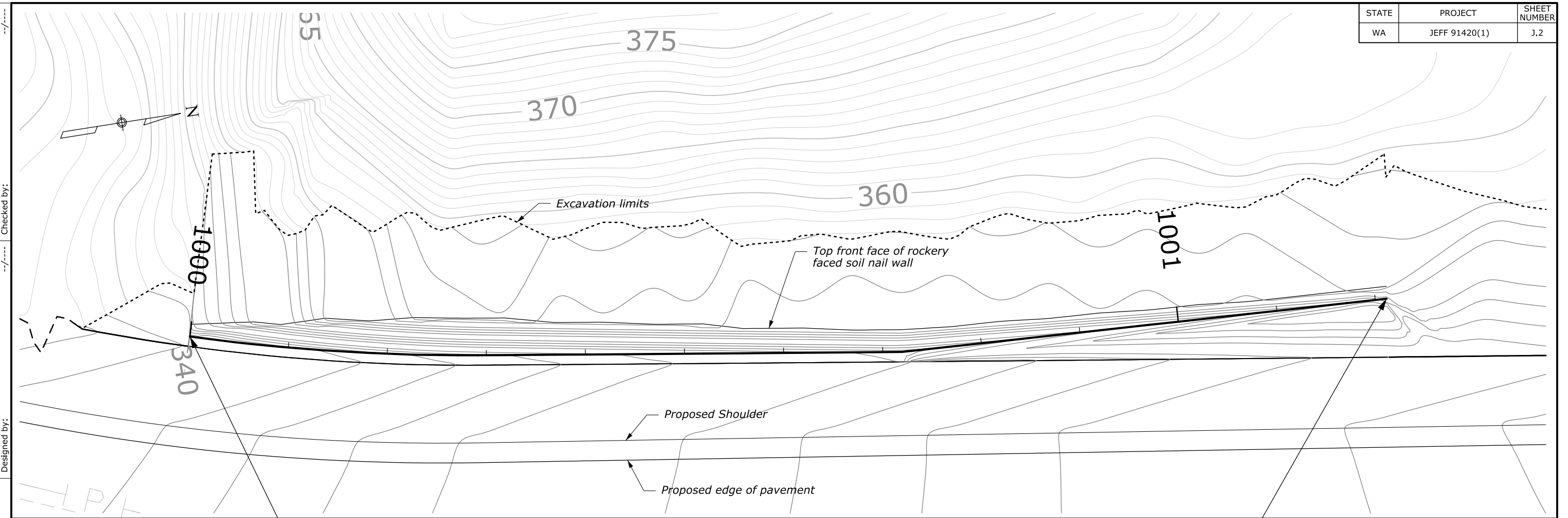
<b>SOIL NAIL RETAINING WALL</b> <i>See sheet J.2-7 for details</i>				
LOCATION	ITEM 25210-0000 ROCKERY  (SQFT)	ITEM 25701-0500 CONTRACTOR FURNISHED SOIL NAIL RETAINING WALL DESIGN  (LPSM)	ITEM 25902-0000 SOIL NAIL RETAINING WALL  (SQFT)	SCHEDULE
73+70 to 74+94	1,465	ALL	1,465	SCHEDULE C, D

**TABULATION OF  
SOIL NAIL RETAINING  
WALL QUANTITIES**

8 September 2020 4:42 PM c:\pw-work\031439\wa-a2013020\_sa.dgn [US\_Sur\_ft2D] C. Conrad 10/2016 Checked by: --/--

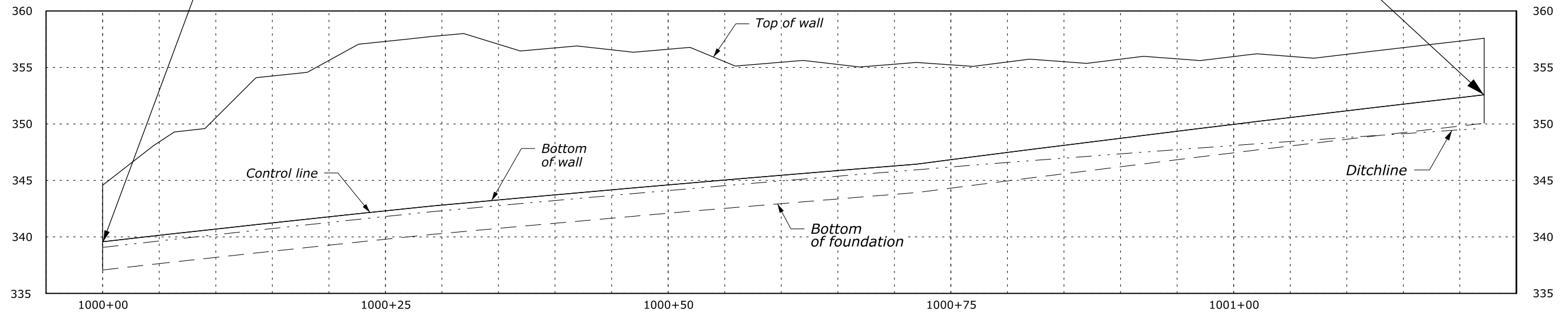


STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	J.2



**BEGIN SOIL NAIL RETAINING WALL**  
 73+70, 22.21 LT. (MAIN)  
 1000+00 (Control Line = PSNW\_FRONT)

**END SOIL NAIL RETAINING WALL**  
 74+94, 25.995 LT(MAIN)  
 1001+21.14 (PSNW\_FRONT)



**SOIL NAIL RETAINING WALL  
 PLAN AND PROFILE  
 73+70 to 74+94**

6 July 2020 2:34 PM  
 c:\pw-work\031439\wa-a2013020\_sc.dgn [US\_Sur\_f20]  
 Designed by:  
 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	J.3

**SPECIFICATIONS**

**Design:**

Soil Nail Wall vendor shall perform all internal and external design (excluding seismic design).

The design drawings and calculations shall be signed and sealed by a professional Geotechnical Engineer licensed by the State of Washington.

Design for soil nail walls shall conform to the requirements for FHWA GEC 007, Soil Nail Walls Reference Manual 2015.

Provide a minimum service life of 75 years for all components.

Refer to Geotechnical Report 04-17, Final Foundation and Geotechnical Recommendations Report, Upper Hoh River Road, PH 2, for additional project information.

**Soil Properties**

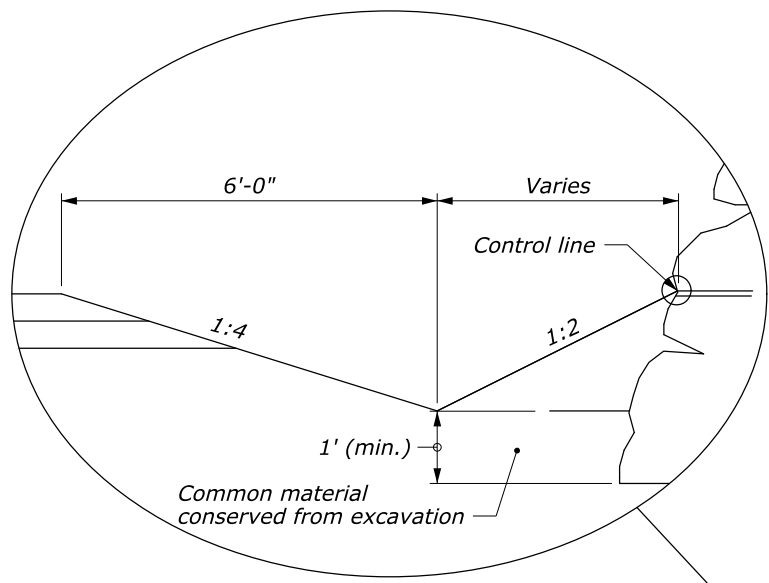
Material Description	Moist Unit Weight (pcf)	Angle of Internal Friction (Degrees)	Cohesion Intercept (psf)
Foundation & Retained Soils	120	31	122

**SOIL NAIL RETAINING WALL QUANTITIES FOR INFORMATION ONLY**

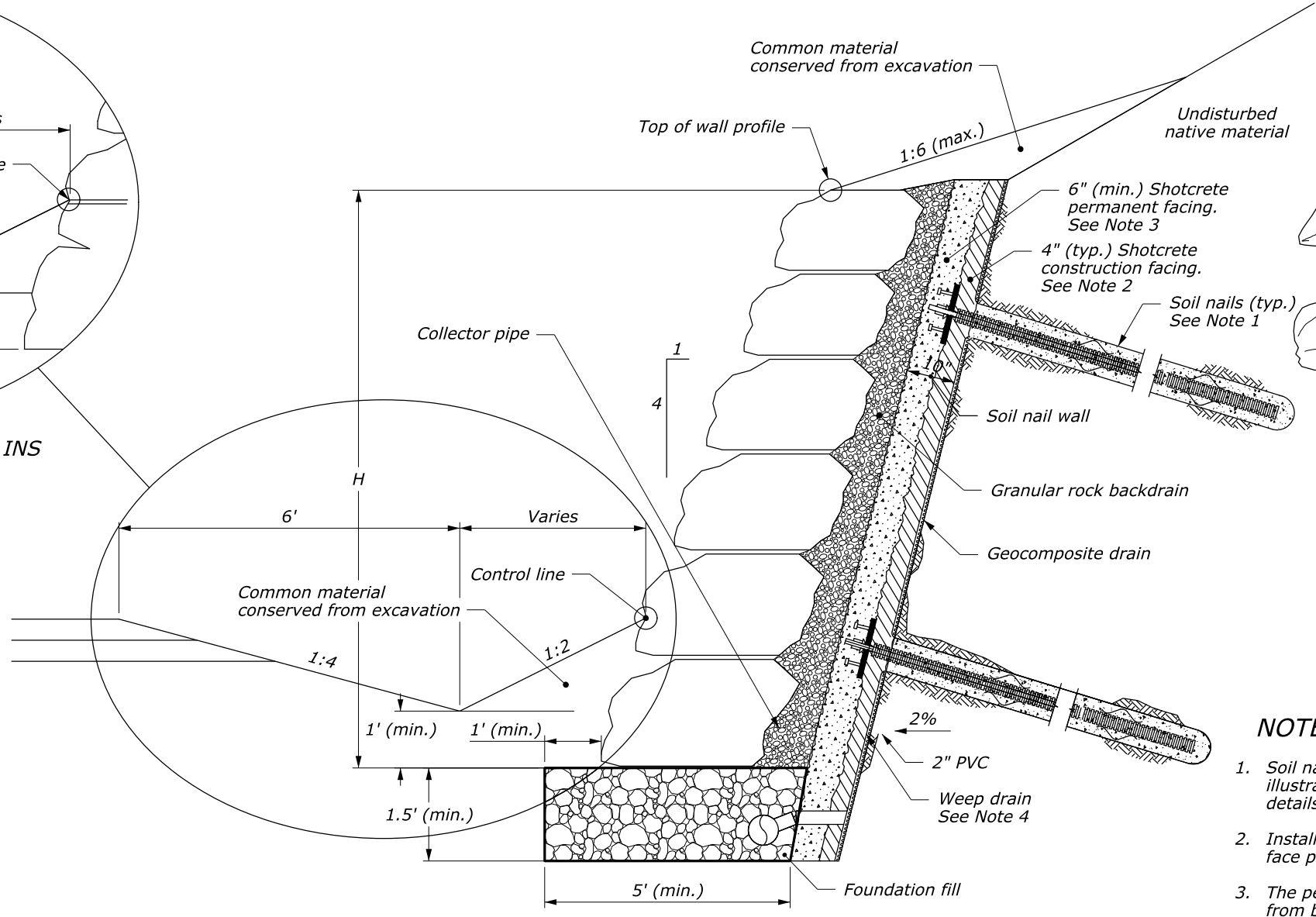
FACE AREA	STRUCTURAL EXCAVATION	FOUNDATION FILL	ROCK	GRANULAR ROCK BACKDRAIN	CONSERVED EXCAVATION	SOIL NAILS	SHOTCRETE (CONSTRUCTION FACING)	SHOTCRETE (PERMANENT FACING)	GEOCOMPOSITE DRAIN
(SQFT)	(CUYD)	(CUYD)	(CUYD)	(CUYD)	(CUYD)	(LNFT)	(CUYD)	(CUYD)	(SQYD)
1,465	277	49	225	25	35	2,886	17	25	172

**SOIL NAIL RETAINING WALL TYPICAL SPECIFICATIONS AND INFORMATIONAL QUANTITIES**

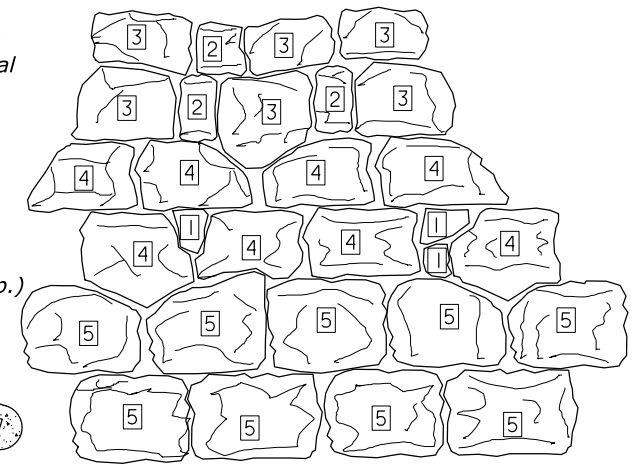
21 July 2020 10:40 AM c:\pw-work\031439\wa-a2013020\_se.dgn [US\_Sur\_f2D] C. Conrad 05/2018 Checked by:



**TYPICAL SECTION FOR WALL TIE INS**  
(See plans and cross sections for additional information)



**TYPICAL SECTION**

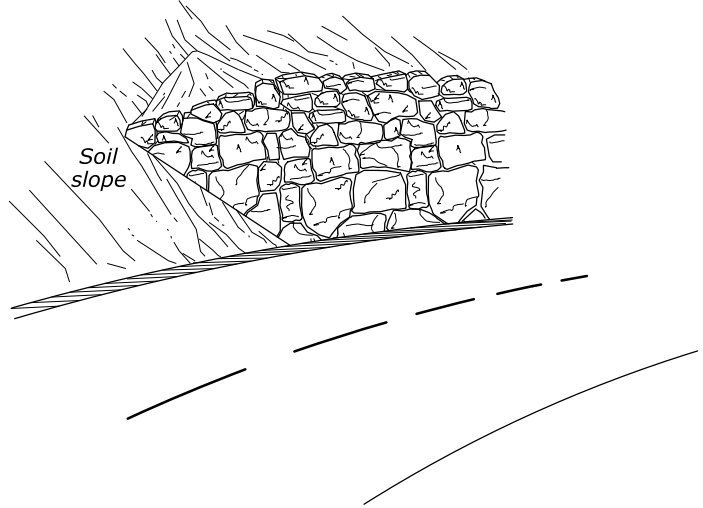


**CONSTRUCTION DETAIL**

Stone Class	Stone Class Weight (lb)	Average Longest dimension (in.)
1	40 - 175	9 - 15
2	175 - 600	15 - 24
3	600 - 1775	24 - 32
4	1775 - 3400	32 - 41
5	3400 - 5400	41 - 49

**NOTE:**

1. Soil nail wall layout, plan, details, facing and general notes are illustrative. The contractor is responsible for providing final design details to the CO for approval.
2. Install soil nails in lifts from the top down. Construct shotcrete face prior to installing the next row of nails as per Section 259.05.
3. The permanent shotcrete facing can be applied in one lift or in lifts from bottom up.
4. Weep drain to be connected to the geocomposite per the manufacturers recommendations.
5. Place larger stones (size 4 and 5) with longest axis perpendicular to wall.
6. Provide collector pipe connection details and weep drain spacing to the CO for approval.
7. Bear each larger stone (size 4 and 5) firmly on at least two stones beneath it. Use smaller stones as needed to maintain spacing and eliminate gaps over 0.5 ft. Cutting or dressing of stones will not be required.
8. See geotechnical report for additional site information.
9. Cover the end of the drain outlet pipe with screen according Subsection 605.03. Hold the screen securely in place with standard coupling bands or by other approved means.
10. Construct rockery facing in accordance with Section 252 using class 1 through 5 stones.



**CUT SLOPE TAPER DETAIL**

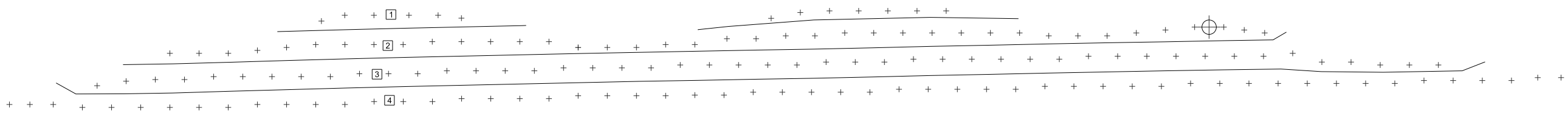
<b>DESIGN SCHEDULE</b>			
WALL #	ML STATION	MAX. HEIGHT (H)	MIN. BASE WIDTH (B)
2			
3			
5			

NO SCALE

**SOIL NAIL RETAINING WALL TYPICAL SECTION DETAILS**

21 July 2020 10:57 AM  
 Designed by:  
 Checked by:  
 c:\pw-work\031439\wa-a2013020\_sf.dgn [US\_Sur.ft2D]

10 June 2020 11:18 AM  
 c:\pw-work\031439\wa-a2013020\_sg.dgn [US\_Sur\_ft2D]  
 Designed by:  
 Checked by:



**SOIL NAIL WALL LAYOUT**

<b>SOIL NAIL SCHEDULE</b>						
ROW	L	BAR	GRADE	PLATE	$\alpha$	A <sub>D</sub>
1						
2						
3						
4						

**NOTE:**  
1. Minimum Static FOS = 1.50

**NOTE:**

- The details and tables on this sheet are purposely incomplete and vague and are meant to be illustrative. The final nailing pattern, schedule and other details will be furnished by the contractor to the CO for approval.
- Minimum soil nail length - \_\_\_\_
- Minimum drill hole diameter - \_\_\_\_
- Minimum tendon size - \_\_ grade \_\_ rebar.
- Minimum wall embedment below finished grade - \_\_\_\_
- Soil nail must not cross the project property line.
- Corrosion protection of nail tendons - Epoxy coating in accordance with FHWA guidelines.
- Geocomposite drainage board, minimum 2-foot strips centered between the nails connected to weep holes at the base of the wall.
- Minimum connection plate size is \_\_\_\_ with \_\_\_\_ diameter headed studs.
- Minimum facing thickness is \_\_ inches construction face with an additional \_\_ inches of permanent facing.
- Horizontal spacing - \_\_\_\_ maximum and \_\_\_\_ minimum
- Vertical spacing - \_\_\_\_ maximum and \_\_\_\_ minimum
- Vertical distance from the top of the wall to the first row of soil nails - \_\_\_\_ maximum and \_\_\_\_ minimum
- Distance from end of the soil nail wall to the nearest soil nail - \_\_\_\_ maximum and \_\_\_\_ minimum
- Vertical distance from the bottom of the wall to the bottom row of nails - \_\_\_\_ maximum and \_\_\_\_ minimum

**LEGEND:**

1 - SOIL NAIL / TIEBACK ROW  
 + - NAIL DECLINED AT  $\alpha$   
 ROW - SOIL NAIL / TIEBACK ROW NUMBER  
 L - DRILLED NAIL LENGTH (FEET)  
 BAR - NAIL BAR SIZE  
 GRADE - NAIL BAR STEEL GRADE (F<sub>y</sub>)  
 $\alpha$  - NAIL DECLINATION (DEGREES) UNLESS SHOWN OTHERWISE ON PLANS  
 (15°) - DECLINATION ANGLE OF SPECIFIC NAIL  
 - ALLOWABLE DESIGN NAIL PULLOUT RESISTANCE (K/FT)

- WALL STATIONING AND ELEVATION AT TOP OF WALL  
 - ELEVATION OF GROUND SURFACE AT CONTROL LINE

Verification soil nail location

<b>SOIL NAIL SCHEDULE</b>						
ROW	L	BAR	GRADE	PLATE	$\alpha$	A <sub>D</sub>
1						
2						
3						
4						

**NOTE:**  
1. Minimum Static FOS = 1.50  
2. Vertical Spacing (FT) = (max.)

NO SCALE

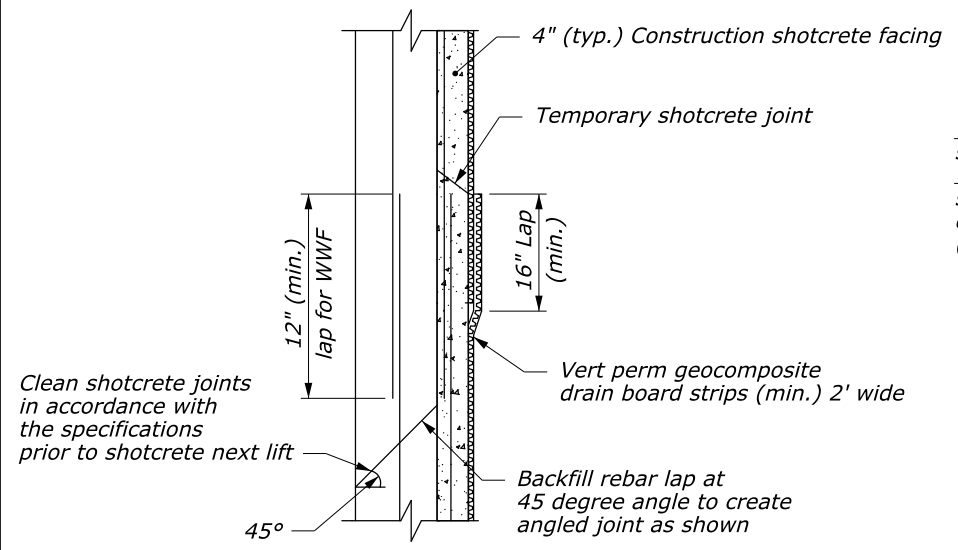
**SOIL NAIL RETAINING WALL LAYOUT TYPICAL**

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	J.6

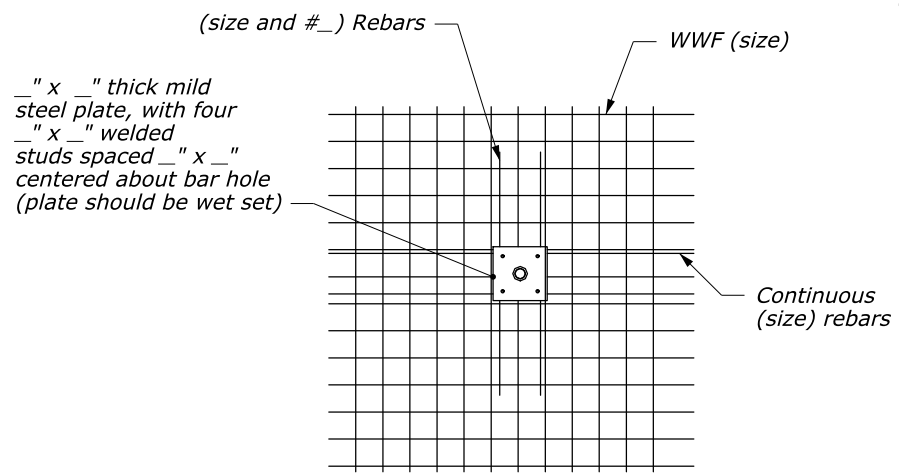
Checked by: \_\_\_\_\_  
Designed by: \_\_\_\_\_

c:\pw-work\0314391\wa-a2013020\_sh.dgn [US\_Sur\_ft2D]

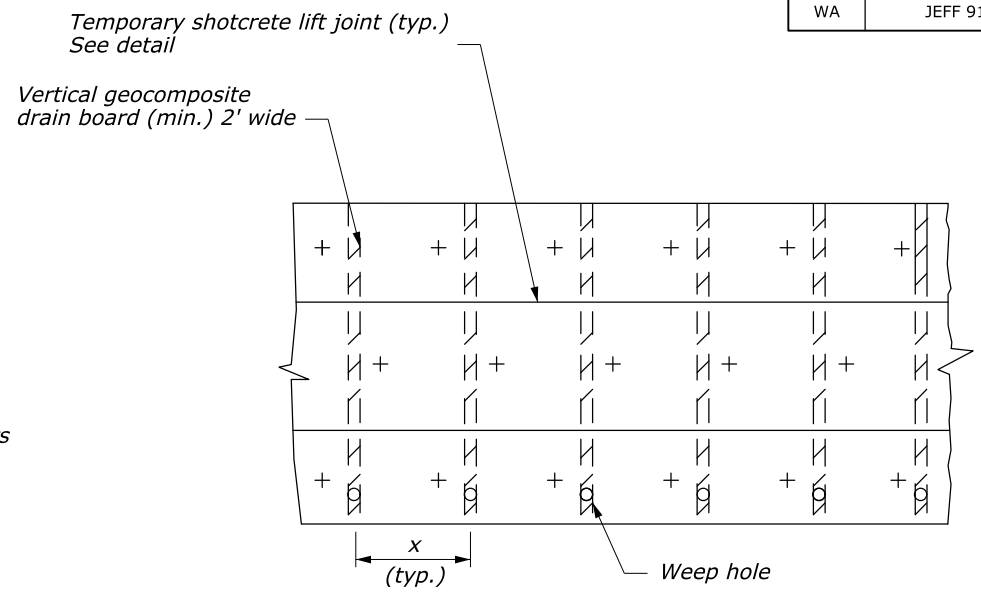
10 June 2020 11:19 AM



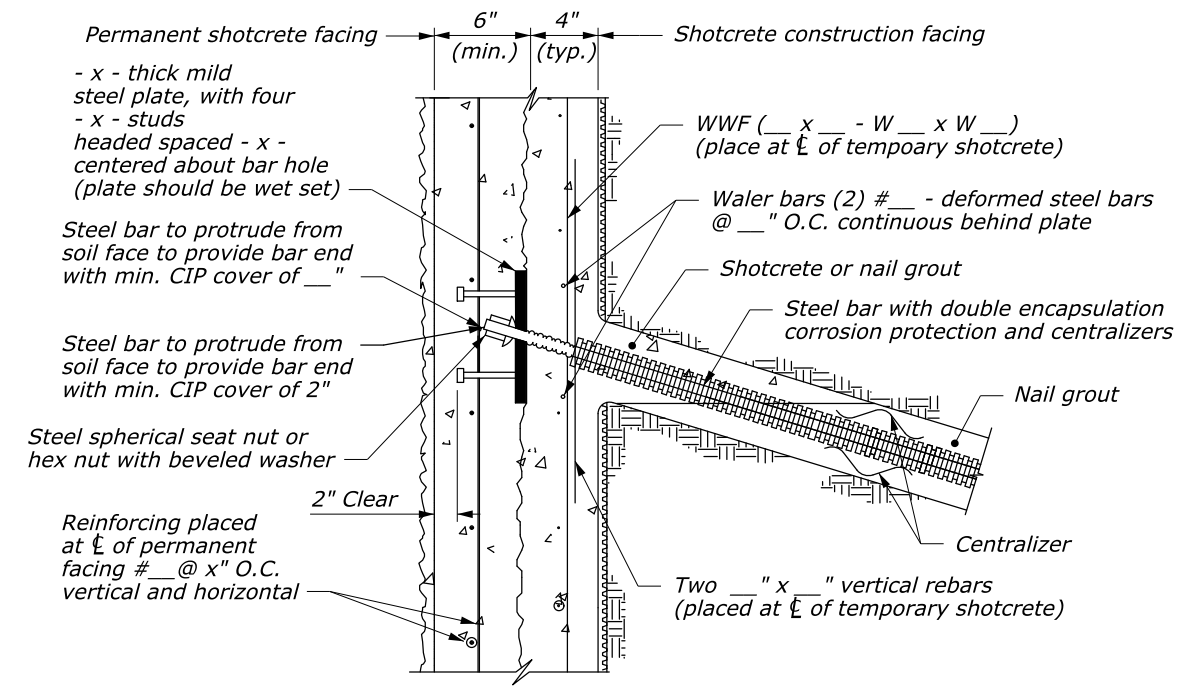
**SHOTCRETE WALL JOINT DETAIL**



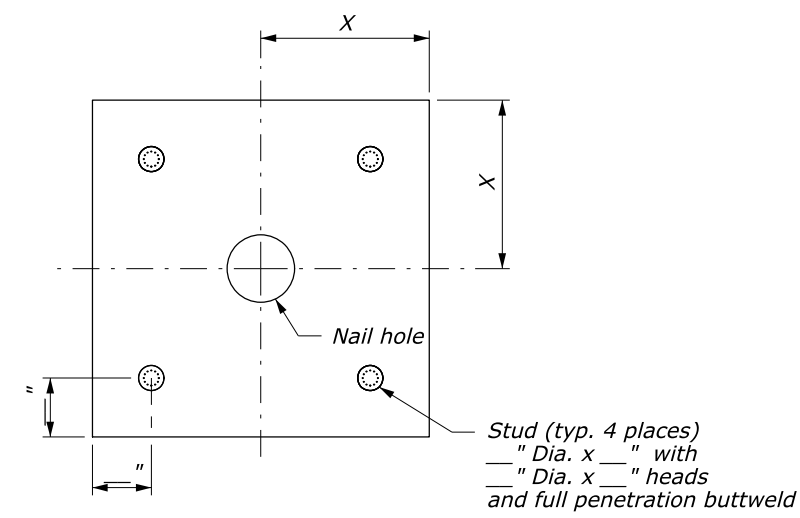
**CONSTRUCTION SHOTCRETE FACING REINFORCEMENT DETAIL**



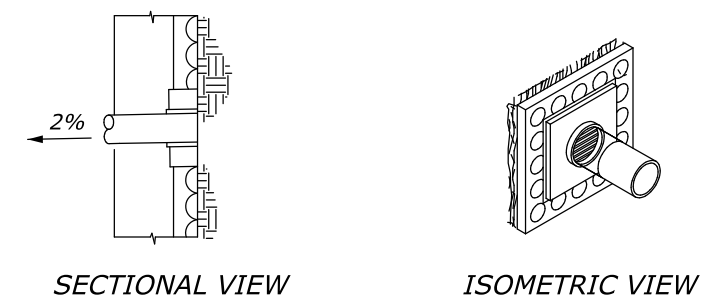
**GEOCOMPOSITE DRAINAGE STRIP DETAIL**



**TYPICAL SOIL NAIL FACING JOINT**



**CONNECTOR PLATE WITH STUD DETAIL**



**DRAIN GRATE DETAILS**

NOTE: Drain grate installation shall not disrupt geotextil design

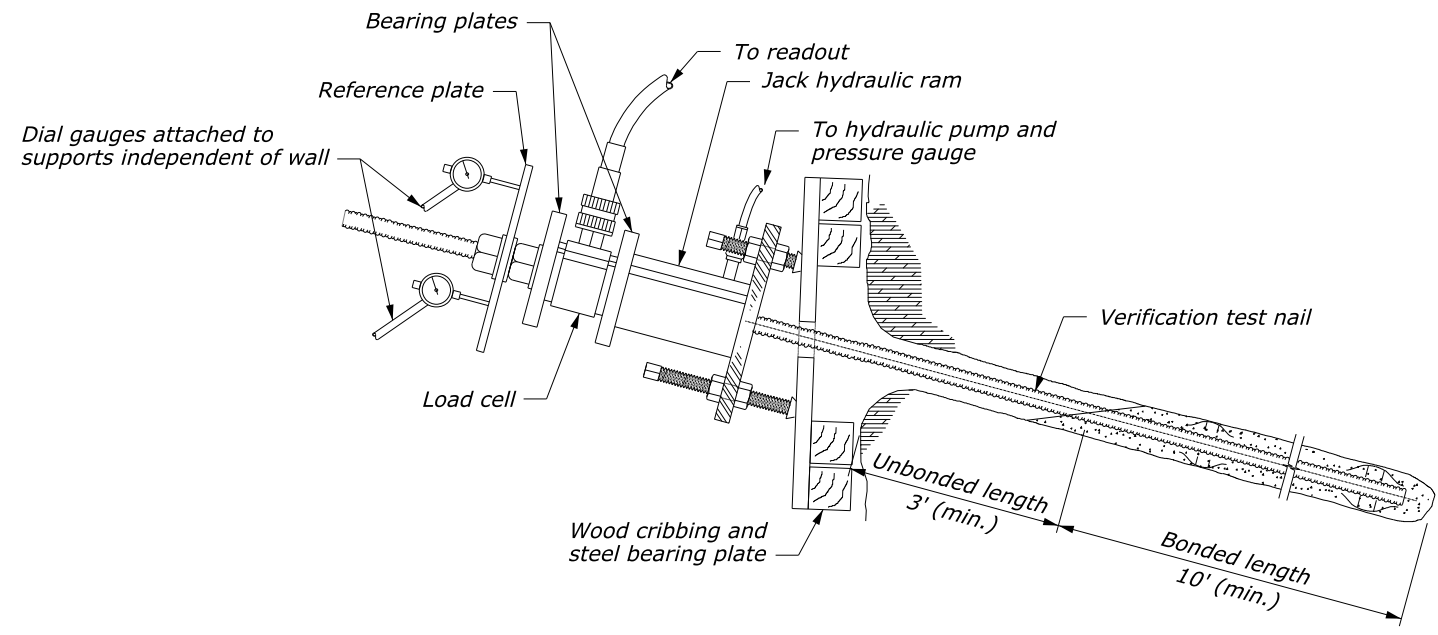
**NOTE:**

The details on this sheet are purposely incomplete and vague and are meant to be representative. The contractor is responsible for furnishing final design details for approval by the CO.

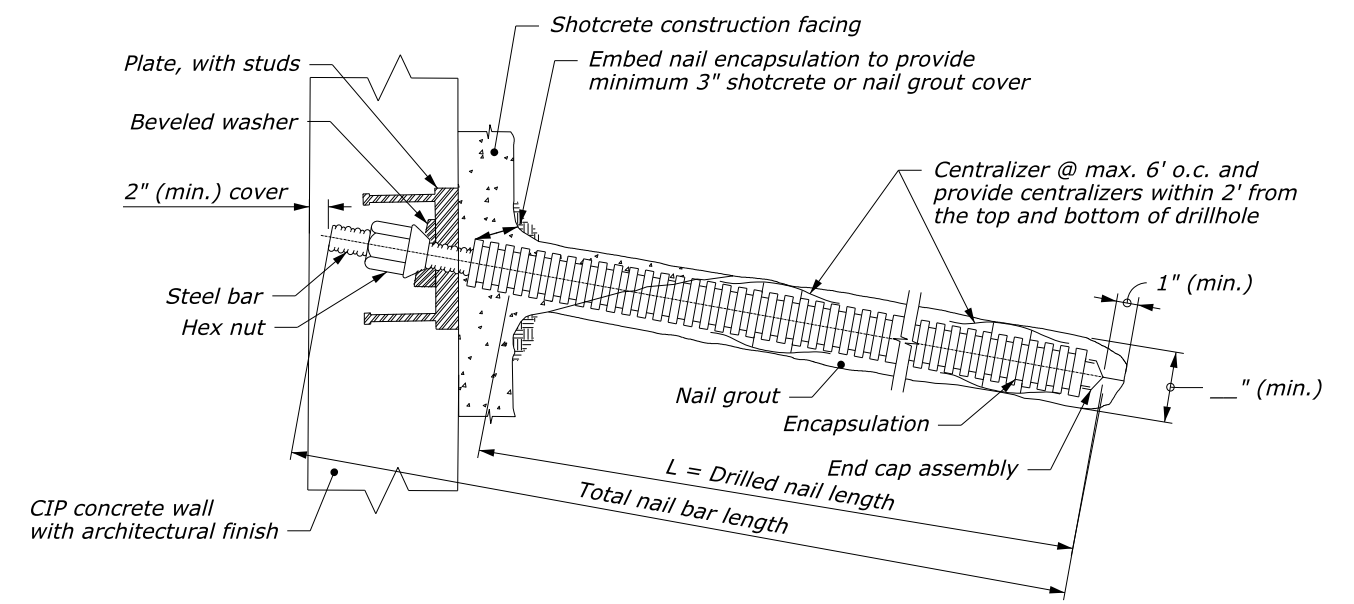
**SOIL NAIL RETAINING WALL TYPICAL DETAILS**

NO SCALE

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	J.7



**VERIFICATION TEST SOIL NAIL DETAIL**



**ENCAPSULATED PRODUCTION SOIL NAIL DETAIL**

**NOTE:**

1. The details on this sheet are purposely incomplete and vague and are meant to be representative.. The contractor is responsible for furnishing final design details to the CO for approval.
2. Bare bars may be used for sacrificial test nails.
3. Proof test detail is same except performed on a production nail.

**SOIL NAIL RETAINING WALL  
TYPICAL DETAILS**

NO SCALE

10 June 2020 11:19 AM  
 c:\pw-work\031439\wa-a2013020\_sl.dgn [US\_Sur\_ft2D]  
 Designed by:  
 Checked by:

### TEMPORARY TRAFFIC CONTROL QUANTITIES

ITEM NUMBER	DESCRIPTION	UNIT	SCHEDULE A	SCHEDULE B		SCHEDULE C		SCHEDULE D	
			TOTAL	(MITIGATION)	TOTAL	(TOWER CREEK)	TOTAL	(CANYON CREEK)	TOTAL
63502-0600	TEMPORARY TRAFFIC CONTROL, BARRICADE TYPE 3	EACH	4	-	4	4	8	4	12
63502-1000	TEMPORARY TRAFFIC CONTROL, CONE, TYPE 36-INCH	EACH	45	-	45	28	73	34	107
63502-1300	TEMPORARY TRAFFIC CONTROL, DRUM	EACH	26	-	26	26	52	25	77
63502-1500	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE A	EACH	4	-	4	4	8	4	12
63502-1600	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE B	EACH	4	-	4	4	8	4	12
63502-1700	TEMPORARY TRAFFIC CONTROL, WARNING LIGHT TYPE C	EACH	26	-	26	33	59	32	91
63502-2000	TEMPORARY TRAFFIC CONTROL, PORTABLE CHANGEABLE MESSAGE SIGN <sup>[1]</sup>	EACH	2	-	2	-	2	-	2
63502-2100	TEMPORARY TRAFFIC CONTROL, CRASH CUSHION	EACH	2	-	2	2	4	2	6
63502-3100	TEMPORARY TRAFFIC CONTROL, TRAFFIC SIGNAL SYSTEM	EACH	2	-	2	2	4	2	6
63503-0400	TEMPORARY TRAFFIC CONTROL, CONCRETE BARRIER	LNFT	990	-	990	680	1,670	780	2,450
63504-1000	TEMPORARY TRAFFIC CONTROL, CONSTRUCTION SIGN	SQFT	318	-	318	247	565	247	812
63504-2000	TEMPORARY TRAFFIC CONTROL, PAVEMENT MARKINGS, SYMBOLS AND LETTERS (STOP LINE)	SQFT	48	-	48	48	96	48	144
63506-0500	TEMPORARY TRAFFIC CONTROL, FLAGGER	HOUR	2,580	100	2,680	1,080	3,760	980	4,740
63506-0600	TEMPORARY TRAFFIC CONTROL, PILOT CAR	HOUR	1,820	-	1,820	540	2,360	490	2,850
63507-0700	TEMPORARY TRAFFIC CONTROL, TRAFFIC CONTROL SUPERVISOR	DAY	224	-	224	79	303	73	376

**NOTE:**

- Reuse Temporary Traffic Control items from Construction Season 1 on Construction Season 2 and 3 as needed.

**FOOTNOTE:**

<sup>[1]</sup> Place at direction of CO.

## TABULATION OF TEMPORARY TRAFFIC CONTROL QUANTITIES

9 September 2020 1:25 PM c:\pw-work\062920747\wa-a2013020\_na.dgn [K.1 Tabulation of TTC Quantities] C. Conrad 01/2019 Checked by:

**TEMPORARY TRAFFIC CONTROL,  
CONSTRUCTION SIGN**

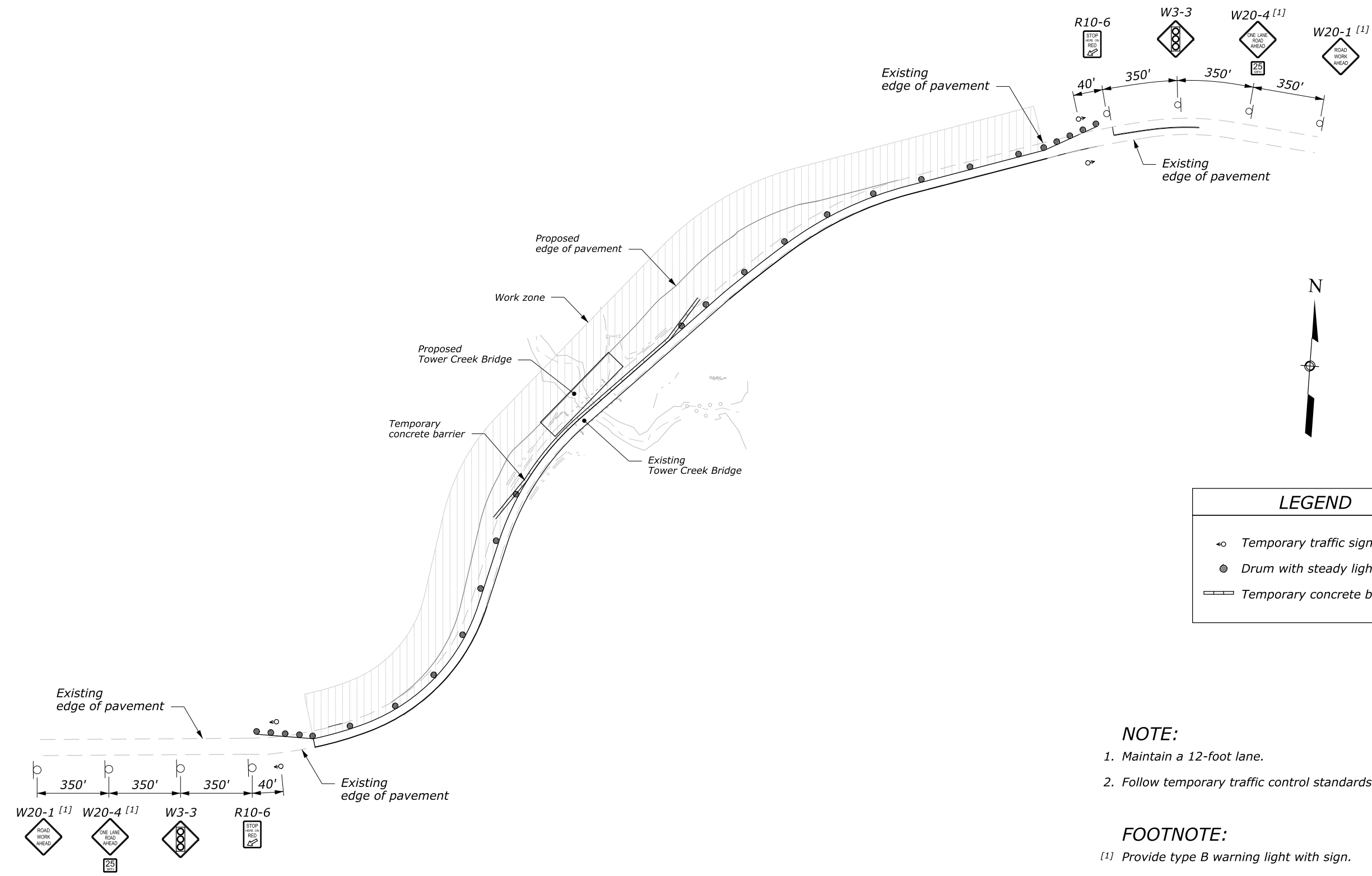
MUTCD NUMBER	LEGEND	SIZE (IN x IN)	SCHEDULE A, B		SCHEDULE C			SCHEDULE D		
			NO.	TOTAL EACH (SQFT)	NO.	(SQFT)	TOTAL EACH (SQFT)	NO.	(SQFT)	TOTAL EACH (SQFT)
G20-1	ROAD WORK NEXT 7 MILES	36 x 18	2	9.00	-	-	9.00	-	-	9.00
G20-2	END ROAD WORK	36 x 18	2	9.00	-	-	9.00	-	-	9.00
R10-6	STOP HERE ON RED	24 x 36	2	12.00	2	12.00	24.00	2	12.00	36.00
W1-4L	Reverse Curve	48 x 24	2	16.00	2	16.00	32.00	2	16.00	48.00
W1-4R	Reverse Curve	48 x 24	2	16.00	2	16.00	32.00	2	16.00	48.00
W1-6L	One Direction Large Arrow	36 x 18	1	4.50	1	4.50	9.00	1	4.50	13.50
W1-6R	One Direction Large Arrow	36 x 18	1	4.50	1	4.50	9.00	1	4.50	13.50
W3-3	Signal Ahead	36 x 36	2	18.00	2	18.00	36.00	2	18.00	54.00
W3-4	BE PREPARED TO STOP	36 x 36	2	18.00	2	18.00	36.00	2	18.00	54.00
W13-1P	25 MPH	24 x 24	2	8.00	-	-	8.00	-	-	8.00
W13-1P	25 MPH	24 x 24	2	8.00	2	8.00	16.00	2	8.00	24.00
W13-1P	25 MPH	36 x 36	2	18.00	2	18.00	36.00	2	18.00	54.00
W16-2p	350 FEET	24 x 18	2	6.00	2	6.00	12.00	2	6.00	18.00
W20-1	ROAD WORK 700 FT	36 x 36	2	18.00	-	-	18.00	-	-	18.00
W20-1	ROAD WORK 350 FT	36 x 36	2	18.00	-	-	18.00	-	-	18.00
W20-1	ROAD WORK AHEAD	36 x 36	1	9.00	-	-	9.00	-	-	9.00
W20-1	ROAD WORK 700 FT	36 x 36	2	18.00	2	18.00	36.00	2	18.00	54.00
W20-1	ROAD WORK 350 FT	36 x 36	2	18.00	2	18.00	36.00	2	18.00	54.00
W20-1	ROAD WORK AHEAD	36 x 36	2	18.00	2	18.00	36.00	2	18.00	54.00
W20-1	ROAD WORK AHEAD	36 x 36	2	18.00	2	18.00	36.00	2	18.00	54.00
W20-4	ONE LANE ROAD AHEAD	36 x 36	2	18.00	2	18.00	36.00	2	18.00	54.00
W20-7	Flagger symbol	36 x 36	2	18.00	2	18.00	36.00	2	18.00	54.00
W24-1L	Double Reverse Curve (1 Lane) L	36 x 36	2	18.00	2	18.00	36.00	2	18.00	54.00
W24-1R	Double Reverse Curve (1 Lane) R	36 x 36	2	18.00	2	18.00	36.00	2	18.00	54.00
ROUNDED SUBTOTAL						247			247	
<b>TOTAL</b>				<b>318</b>			<b>565</b>			<b>812</b>

**TABULATION OF  
TEMPORARY TRAFFIC CONTROL  
QUANTITIES**



STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	K.3

9 September 2020 1:31 PM  
 c:\pw-work\0290747\wa-a2013020\_nj.dgn [K.4 - TTC Construction Ph1]  
 Designed by: C. Conrad  
 03/2020  
 Checked by:



LEGEND	
	Temporary traffic signal
	Drum with steady light
	Temporary concrete barrier

- NOTE:**
- Maintain a 12-foot lane.
  - Follow temporary traffic control standards on Sheets K.7-16.

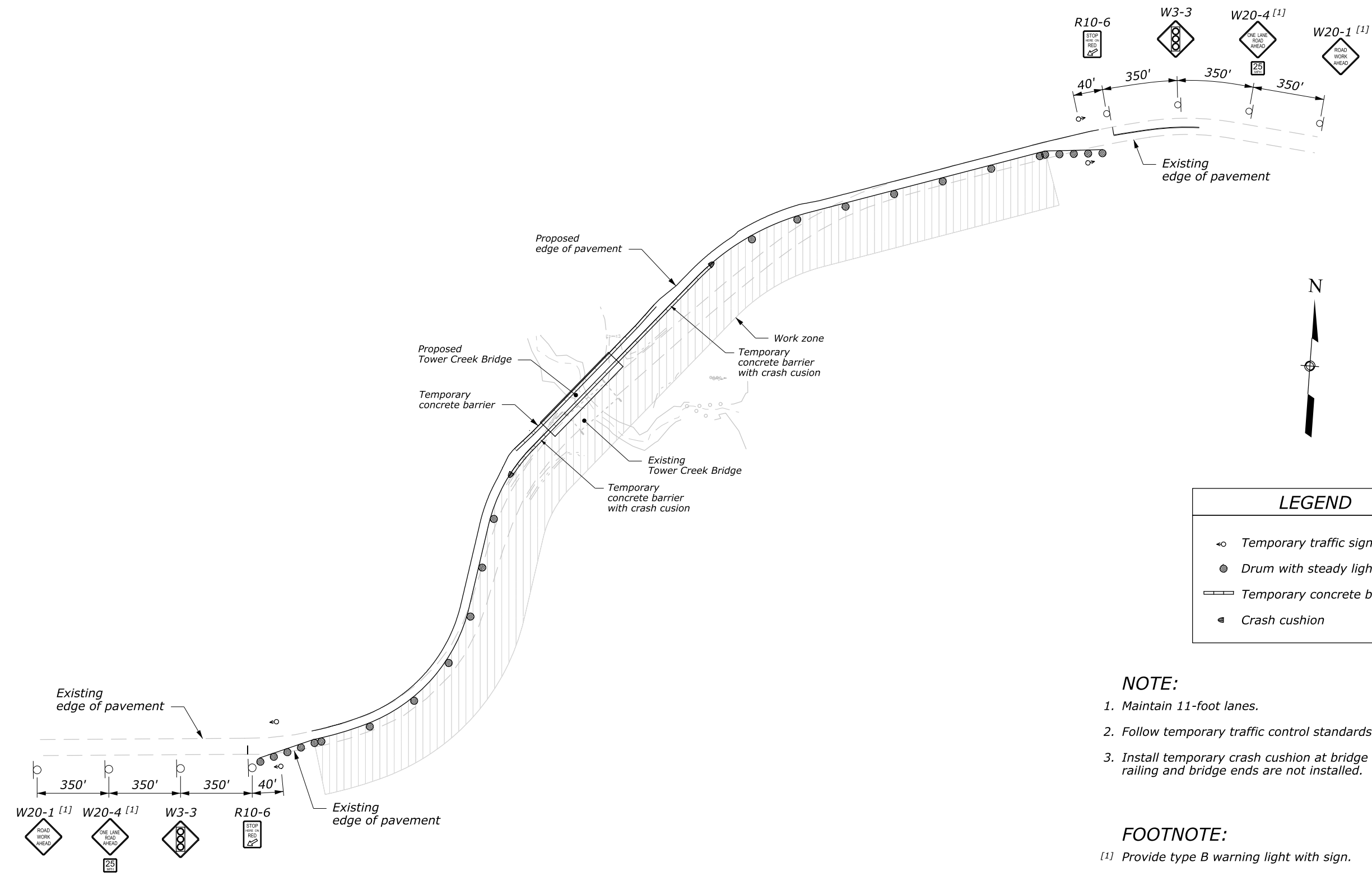
**FOOTNOTE:**  
 [1] Provide type B warning light with sign.

**TTC CONSTRUCTION PHASE 1  
 TOWER CREEK BRIDGE**

No Scale

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	K.4

9 September 2020 1:31 PM  
 c:\pw-work\0290747\wa-a2013020\_n.dgn [K.5 - TTC Construction Ph2]  
 Designed by: C. Conrad  
 03/2020  
 Checked by:



LEGEND	
	Temporary traffic signal
	Drum with steady light
	Temporary concrete barrier
	Crash cushion

- NOTE:**
- Maintain 11-foot lanes.
  - Follow temporary traffic control standards on Sheets K.7-16.
  - Install temporary crash cushion at bridge ends if structure transition railing and bridge ends are not installed.

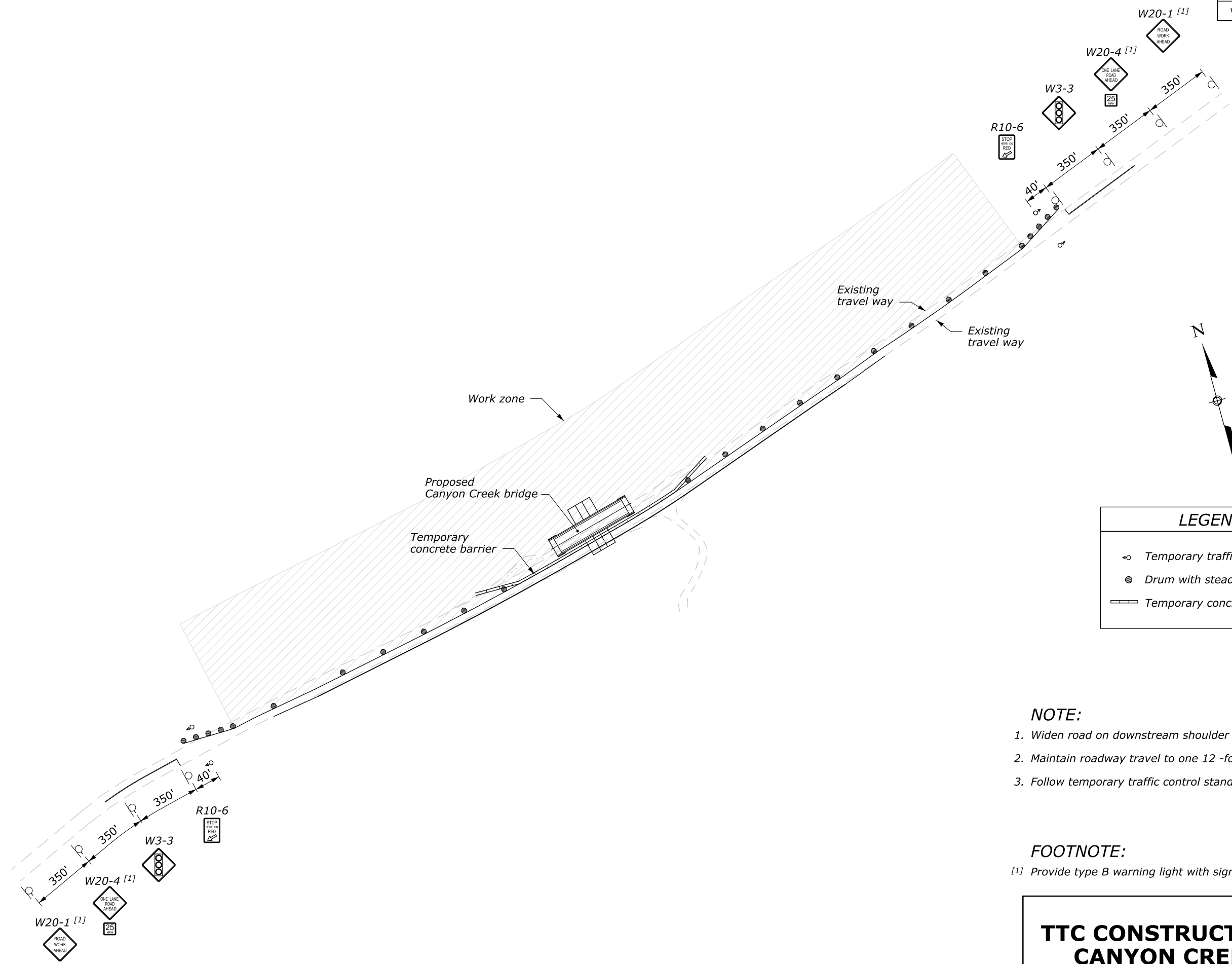
**FOOTNOTE:**  
 [1] Provide type B warning light with sign.

**TTC CONSTRUCTION PHASE 2  
TOWER CREEK BRIDGE**

No Scale

9 September 2020 1:33 PM c:\pw-work\02920747\wa-a2013020nk.dgn [K.6 TTC Const Ph1 Canyon Creek Br] Designed by: C. Conrad Checked by: 03/2020

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	K.5



LEGEND	
	Temporary traffic signal
	Drum with steady light
	Temporary concrete barrier

- NOTE:**
1. Widen road on downstream shoulder 3-4 FT.
  2. Maintain roadway travel to one 12 -foot lane.
  3. Follow temporary traffic control standards on Sheets K.8-15.

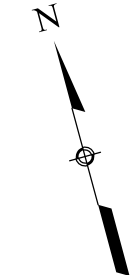
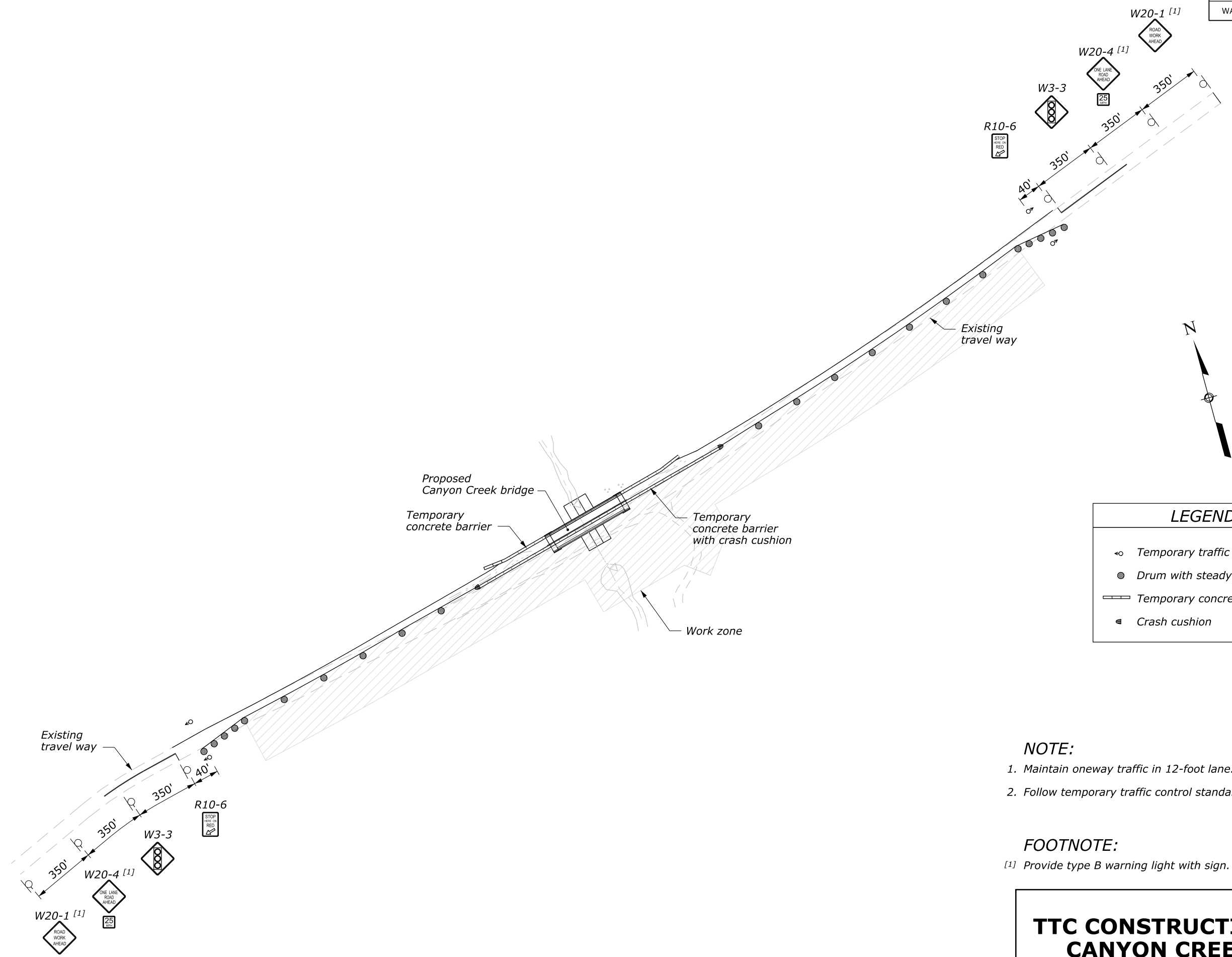
**FOOTNOTE:**  
 [1] Provide type B warning light with sign.

**TTC CONSTRUCTION PHASE 1  
 CANYON CREEK BRIDGE**

No Scale

9 September 2020 1:33 PM c:\pw-work\02920747\wa-a2013020nk.dgn [K:7 TTC Const Ph2 Canyon Creek Br] C. Conrad 03/2020 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	K.6



LEGEND	
	Temporary traffic signal
	Drum with steady light
	Temporary concrete barrier
	Crash cushion

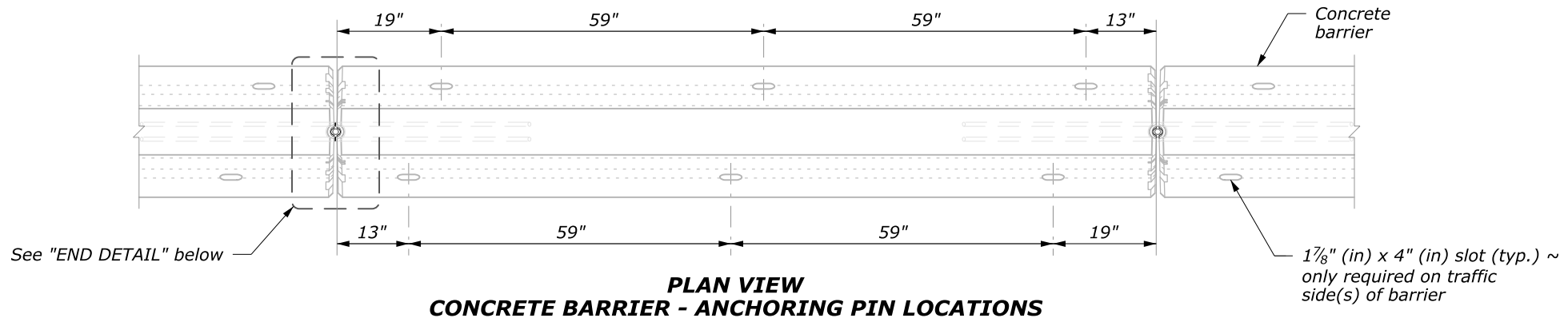
- NOTE:**
- Maintain oneway traffic in 12-foot lane.
  - Follow temporary traffic control standards on Sheets K.8-15.

**FOOTNOTE:**  
 [1] Provide type B warning light with sign.

TTC CONSTRUCTION PHASE 2  
 CANYON CREEK BRIDGE

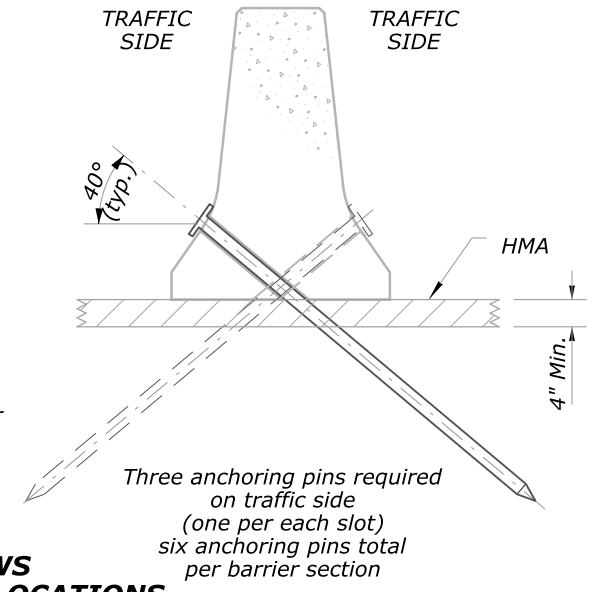
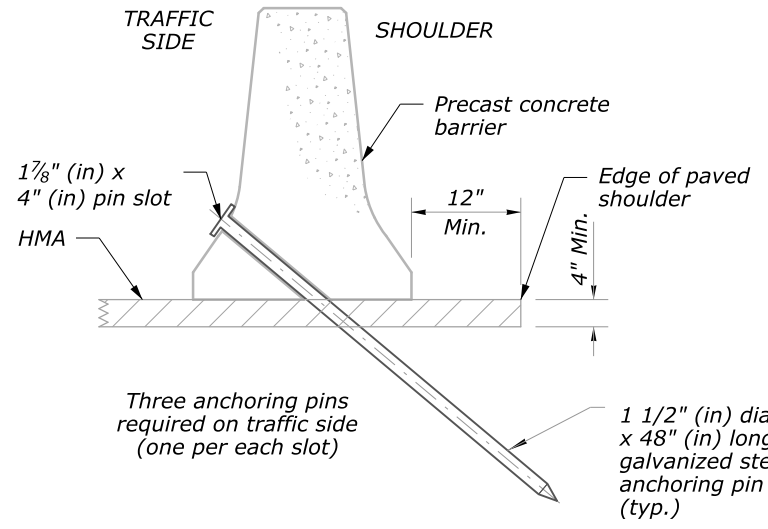
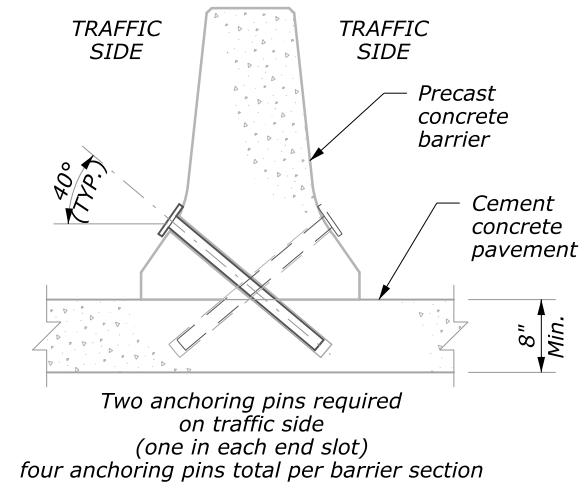
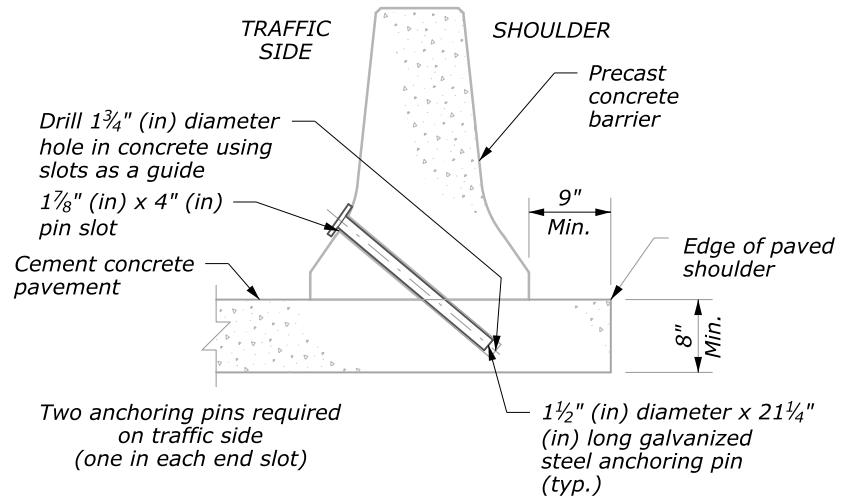
No Scale

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	K.7



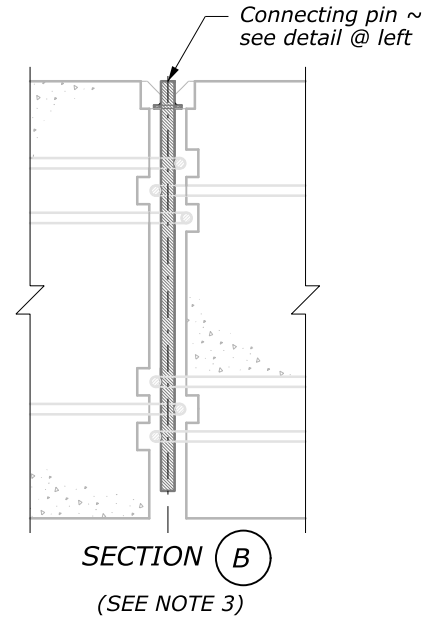
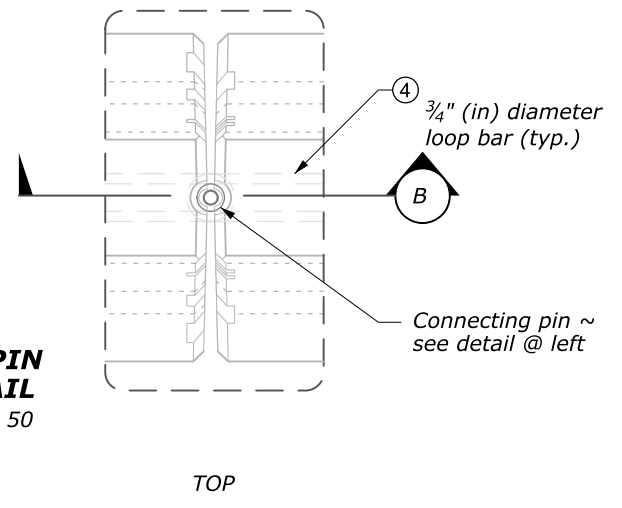
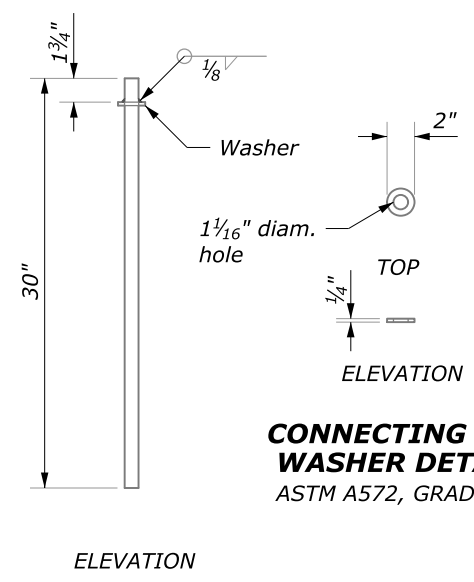
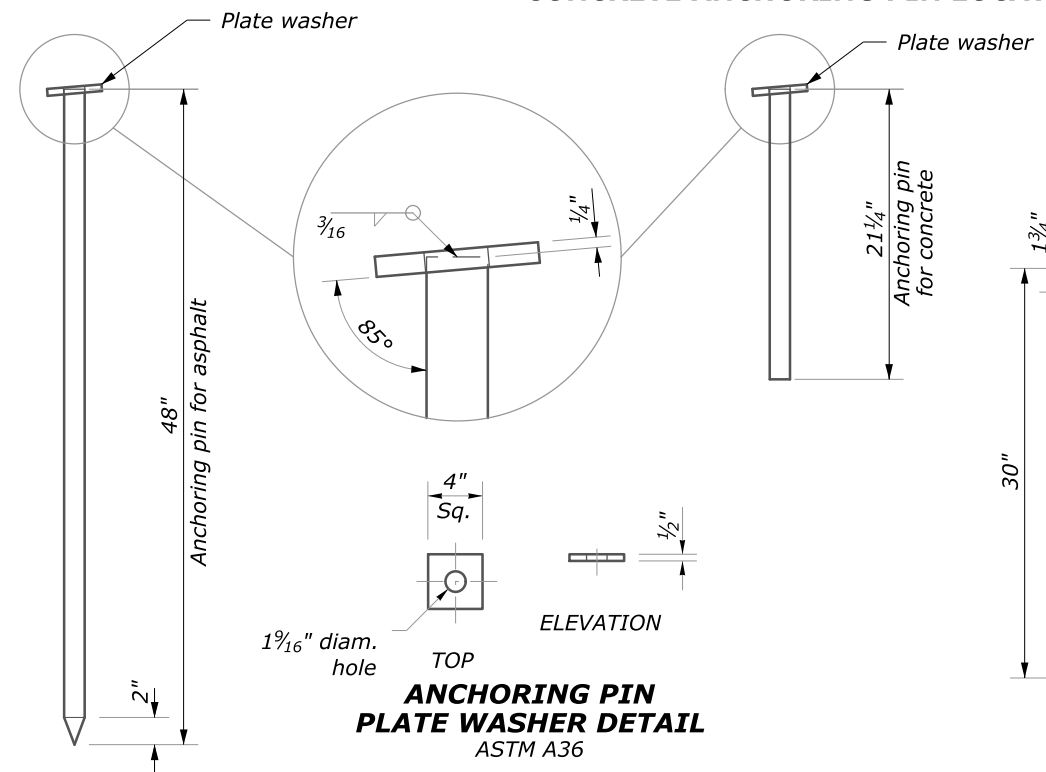
**NOTES: (Anchoring and joining barrier)**

1. The intended use of this plan is for the anchoring of Precast Concrete Barrier on hot mix asphalt (HMA) or cement concrete pavement in permanent or temporary installations.
2. After removing the anchoring pins, clean the pin holes and fill them with sealant according to Standard Specification Section 712.01.
3. Remove slack between barrier segments after inserting the connecting pin.



**SECTION VIEWS  
CONCRETE ANCHORING PIN LOCATIONS**

**SECTION VIEWS  
HMA ANCHORING PIN LOCATIONS**



**CONCRETE BARRIER  
(PRECAST)**

**ANCHORING PIN ASSEMBLY DETAIL**

1 1/2" diameter (ASTM A36), cold roll hot dip galvanize after fabrication (ASTM A123 or AASHTO M 111)

**CONNECTING PIN ASSEMBLY DETAIL**

1" diameter per ASTM A449 hot dip galvanize after fabrication (ASTM A123 or AASHTO M 111)

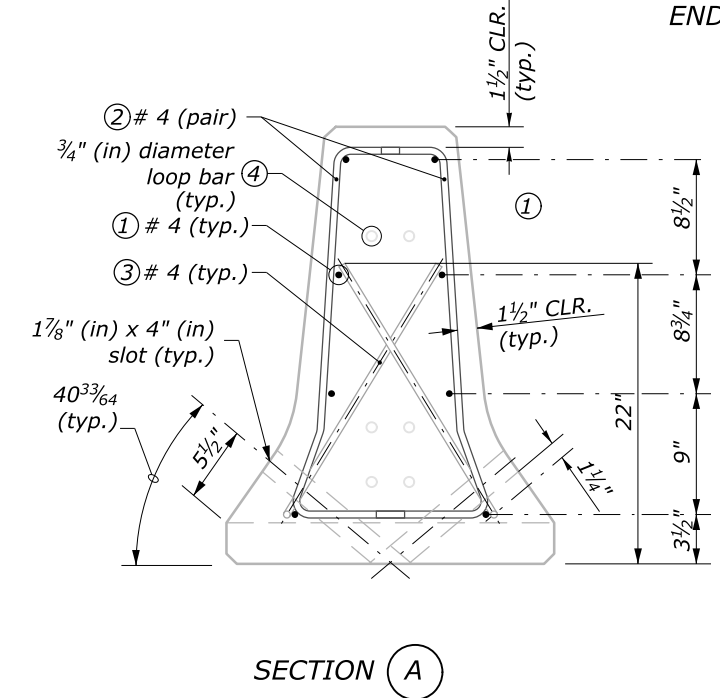
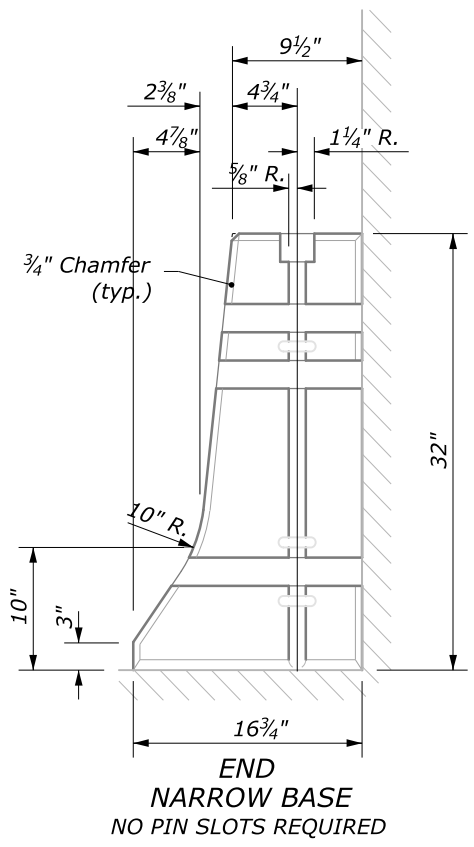
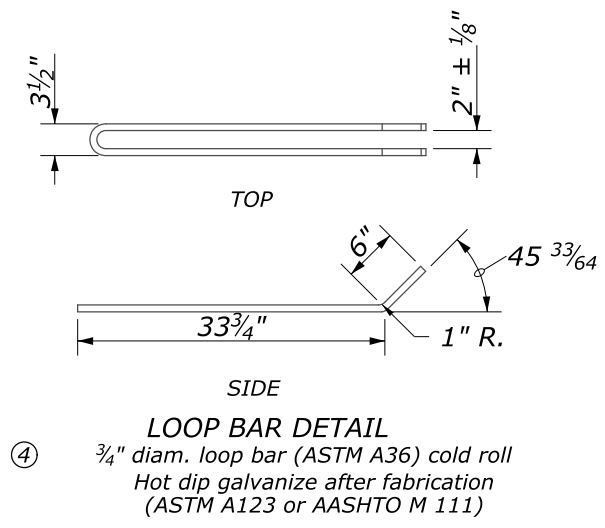
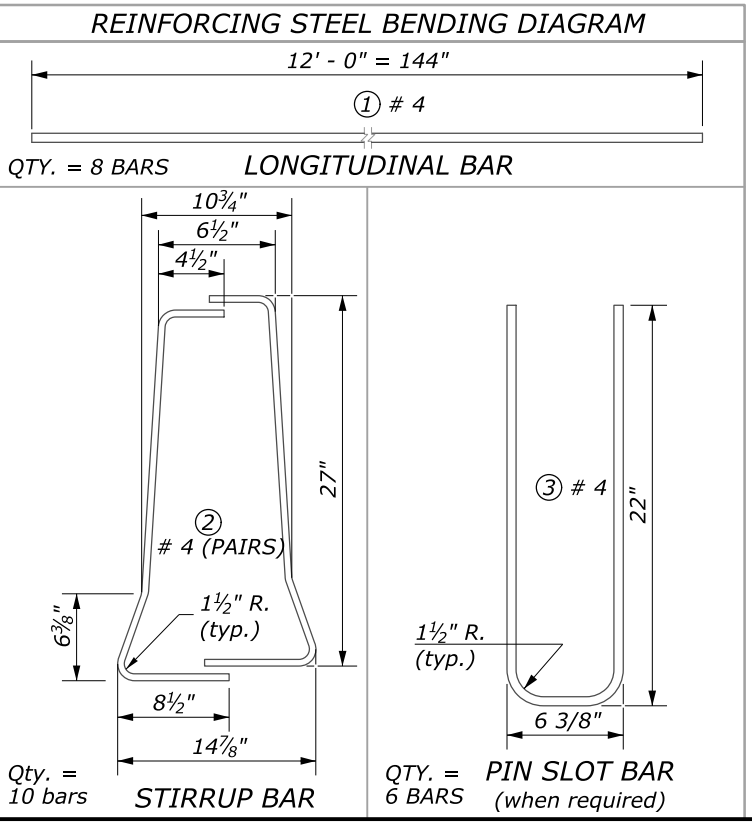
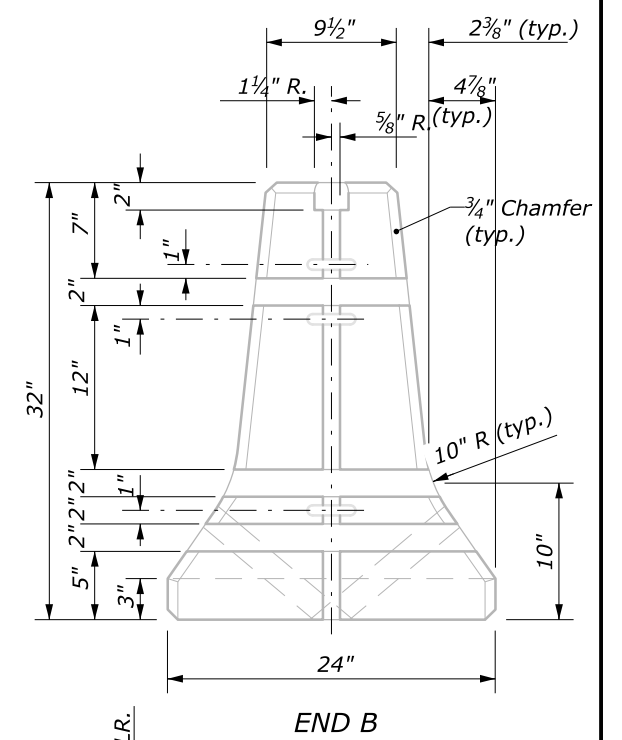
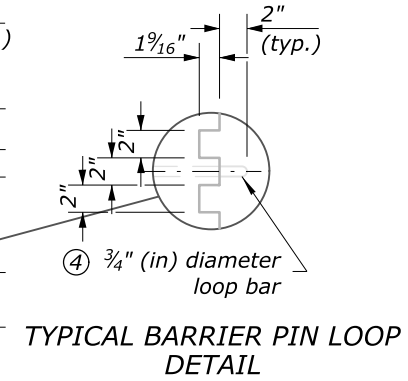
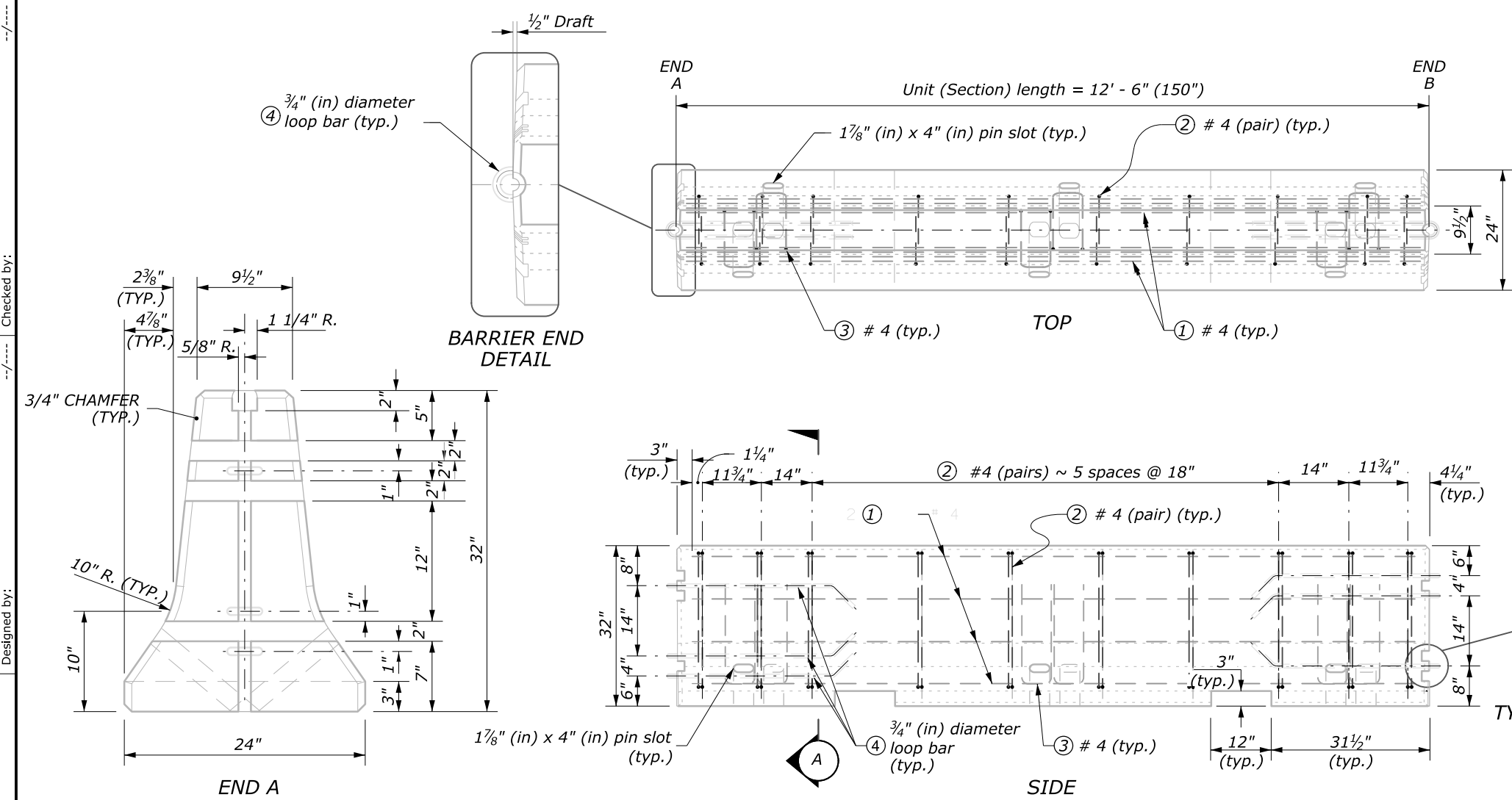
**END DETAIL  
JOINING TWO BARRIER SEGMENTS**

9 September 2020 1:36 PM  
 c:\pw-work\0290747\wa-a2013020\_n1.dgn [US\_Sur\_ft2D]  
 Designed by:  
 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	K.8

**NOTES:**

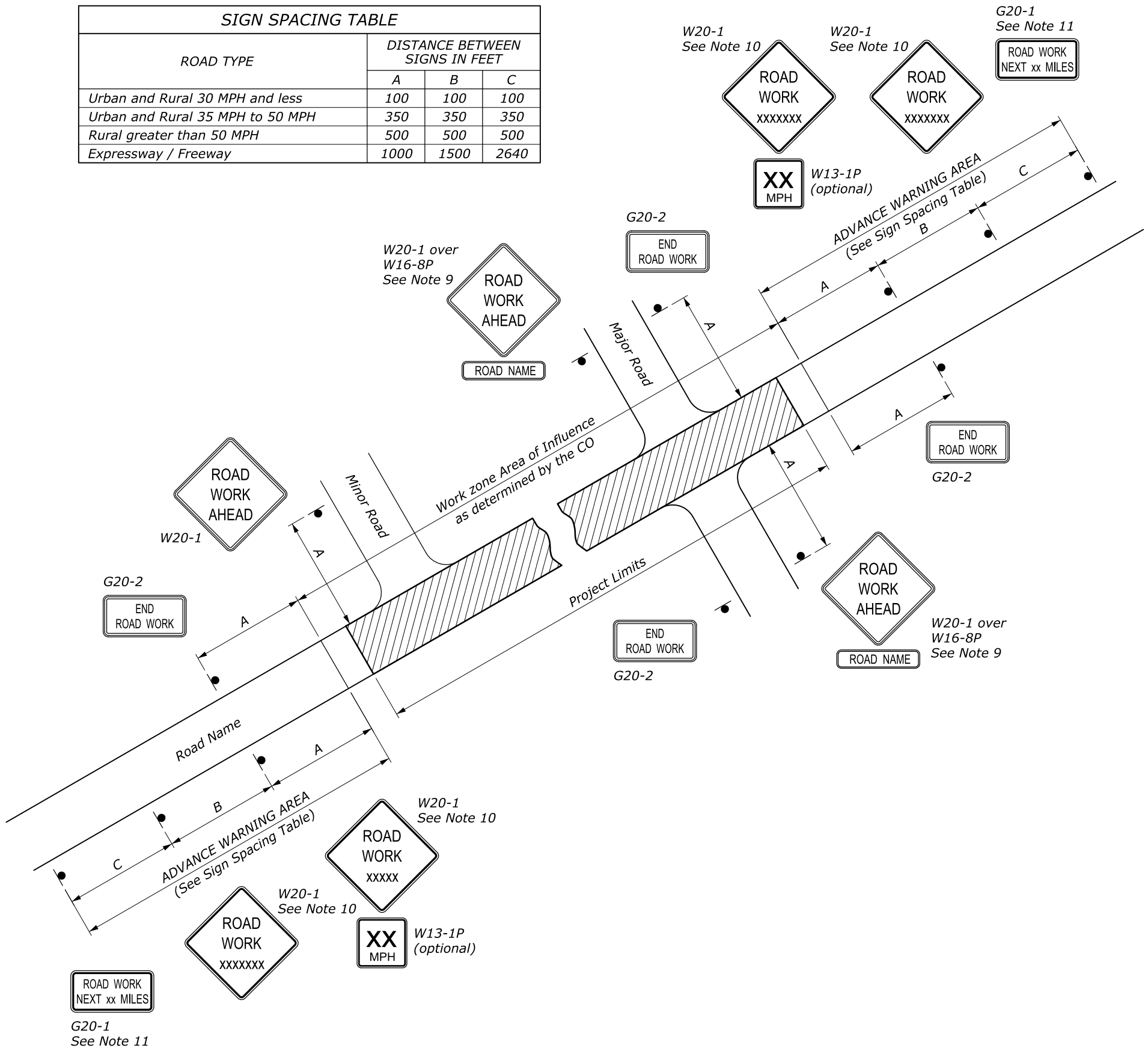
- Concrete for barrier shall be Class 5000.
- The reinforcing steel details for the NARROW BASE barrier are the same as those shown for the 24" (in) wide barrier except that the bars along the vertical face run vertically with a 1/2" (in) clearance.



**CONCRETE BARRIER  
(PRECAST)**

9 September 2020 1:36 PM  
 c:\pw-work\0290747\wa-a2013020\_n1.dgn [US\_Sur\_ft2D]  
 Designed by:  
 Checked by:

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

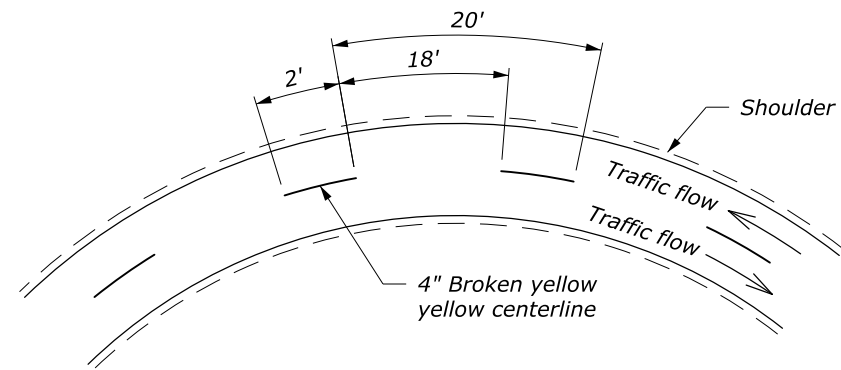


- NOTE:**
- Erect all project advance warning signs before starting construction work.
  - Not all details shown on the temporary traffic control sheets may be applicable to this project. The Contractor may add or delete information and details in this traffic control plan as necessary to accommodate actual operations.
  - 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.
  - Additional or different message signs may be required to fit the actual construction conditions.
  - Install advisory speed plates under the W20 series warning signs as needed to indicate a maximum recommended speed through the construction area.
  - Ensure all sign supports exposed to impact by traffic meet the requirements of NCHRP-350 or MASH for crashworthiness.
  - Maintain two-way traffic during all non-work hours except as approved by the CO.
  - Do not store traffic control devices along the roadway when not in use. Cover post-mounted signs when not applicable.
  - 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).
  - 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.
  - 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.
  - If signing on a roadway under a jurisdiction other than the client agency, verify that an encroachment permit has been obtained.
  - State standards may be used as an alternative if approved by the CO.
  - Refer to the Section 635 of the Special Contract Requirements for allowable retroreflective sheeting types.

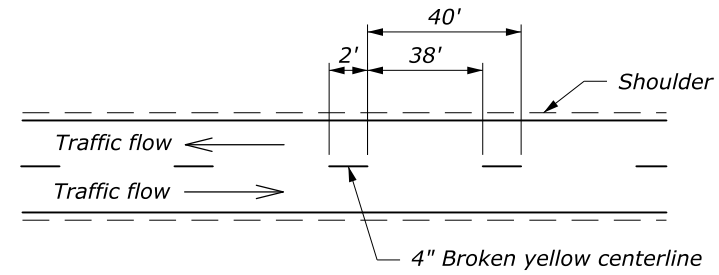
9 September 2020 1:37 PM c:\pw-work\0290747\wa-a2013020\_nb.dgn [USC]

NO SCALE

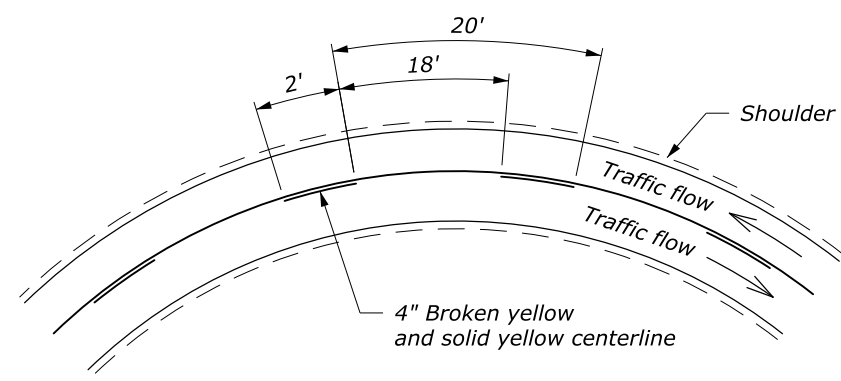
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
<b>TEMPORARY TRAFFIC CONTROL ADVANCE SIGNING</b>	
STANDARD APPROVED FOR USE 6/2005	STANDARD
REVISED: DRAFT: 6/2014	635-1



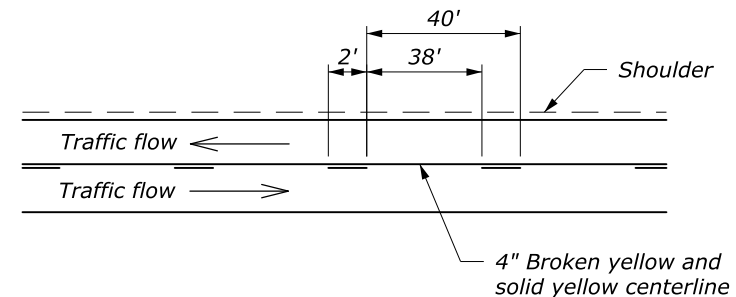
**DETAIL A1**  
*Passing zone both directions*  
*Two-way traffic*



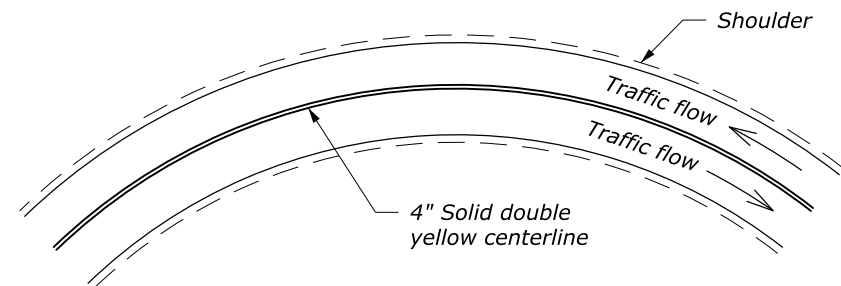
**DETAIL B1**  
*Passing zone both directions*  
*Two-way traffic*



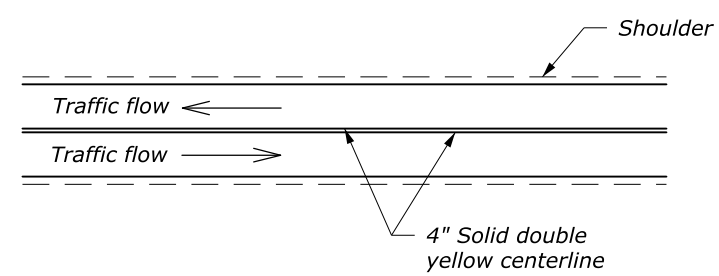
**DETAIL A2**  
*No passing zone one direction*  
*Two-way traffic*



**DETAIL B2**  
*No Passing zone one direction*  
*Two-way traffic*



**DETAIL A3**  
*No passing zone both directions*  
*Two-way traffic*



**DETAIL B3**  
*No Passing zone both directions*  
*Two-way traffic*

**DETAIL A**  
*Curves < 500' Radius*

**DETAIL B**  
*Tangents or Curves ≥ 500' Radius*

**NOTE:**

- To substitute raised pavement markers for lines, use the following patterns:  
 2' broken line: two pavement markers spaced 2' apart allowed by the gap shown based on curvature.  
 Single solid line: pavement markers spaced on 10' centers.  
 Double solid line: two pavement markers, side by side, spaced on 10' centers.
- On two- or three-lane roads, signs may be used instead of temporary pavement markings as shown on Standard 635-3.

c:\pw-work\0290747\wa-a2013020.nc.dgn [USC]  
 9 September 2020 1:39 PM

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
<b>TEMPORARY PAVEMENT MARKINGS</b>	
STANDARD APPROVED FOR USE 6/2005	STANDARD
REVISED: DRAFT: 9/2016	635-2



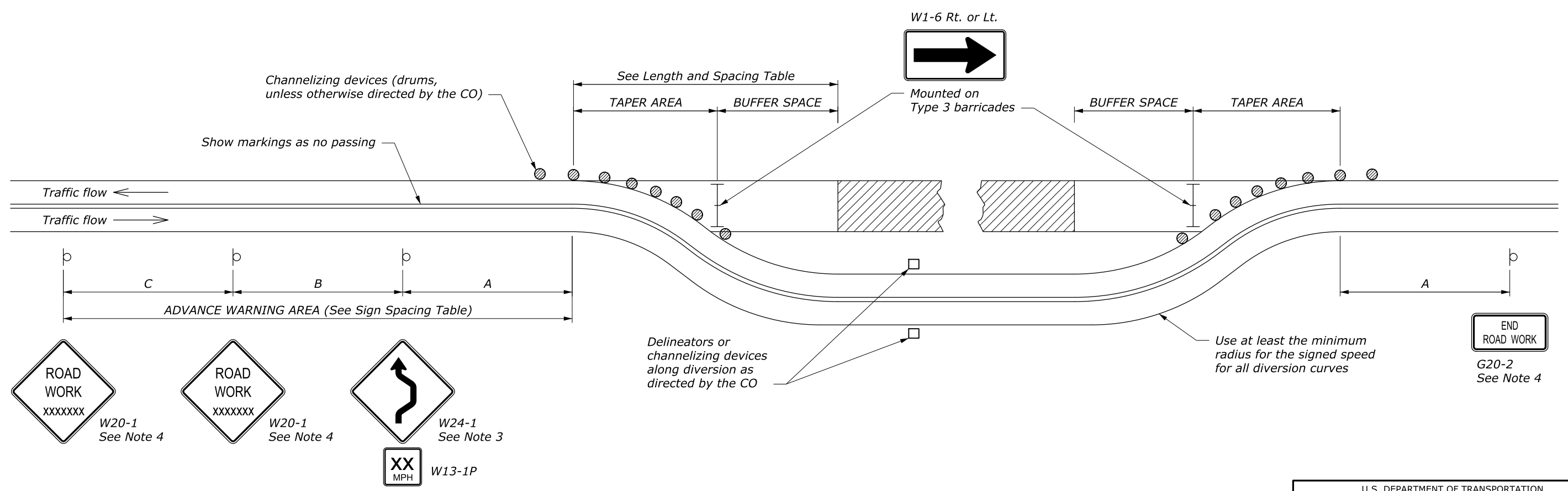
LENGTH AND SPACING TABLE				
APPROACH SPEED*	BUFFER SPACE LENGTH	CHANNELIZING DEVICE		
		TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	SPACING IN FEET		
20	115	20	40	40
25	155	20-25	50	50
30	200	20-30	60	60
35	250	20-35	70	70
40	305	20-40	80	80
45	360	20-45	90	90
50	425	20-50	100	100
55	495	20-55	110	110
60	570	20-60	120	120
65	645	20-65	130	130
70	730	20-70	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. If the area approaching diversion is not already signed and marked as a no passing zone, add signing and/or marking as appropriate. Remove conflicting pavement markings.
3. If the tangent distance along the temporary diversion is more than 600', use an appropriate "Reverse Curve" sign (W1-4) instead of the "Double Reverse Curve" sign (W24-1). Install a second, appropriate "Reverse Curve" sign (W1-4) in advance of the second reverse curve back to the original alignment. Use "Reverse Turn" signs (W1-3) instead when the diversion has sharp curves with recommended speeds of 30 mph or less.
4. If the diversion is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
5. Place channelizing devices outside temporary roadway.
6. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



9 September 2020 1:40 PM c:\pw-work\0290747\wa-a2013020.nd.dgn [USC]

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
<b>TEMPORARY TRAFFIC CONTROL FOR DIVERSION</b>	
STANDARD APPROVED FOR USE 6/2005	STANDARD
REVISED: DRAFT: 6/2015	635-4

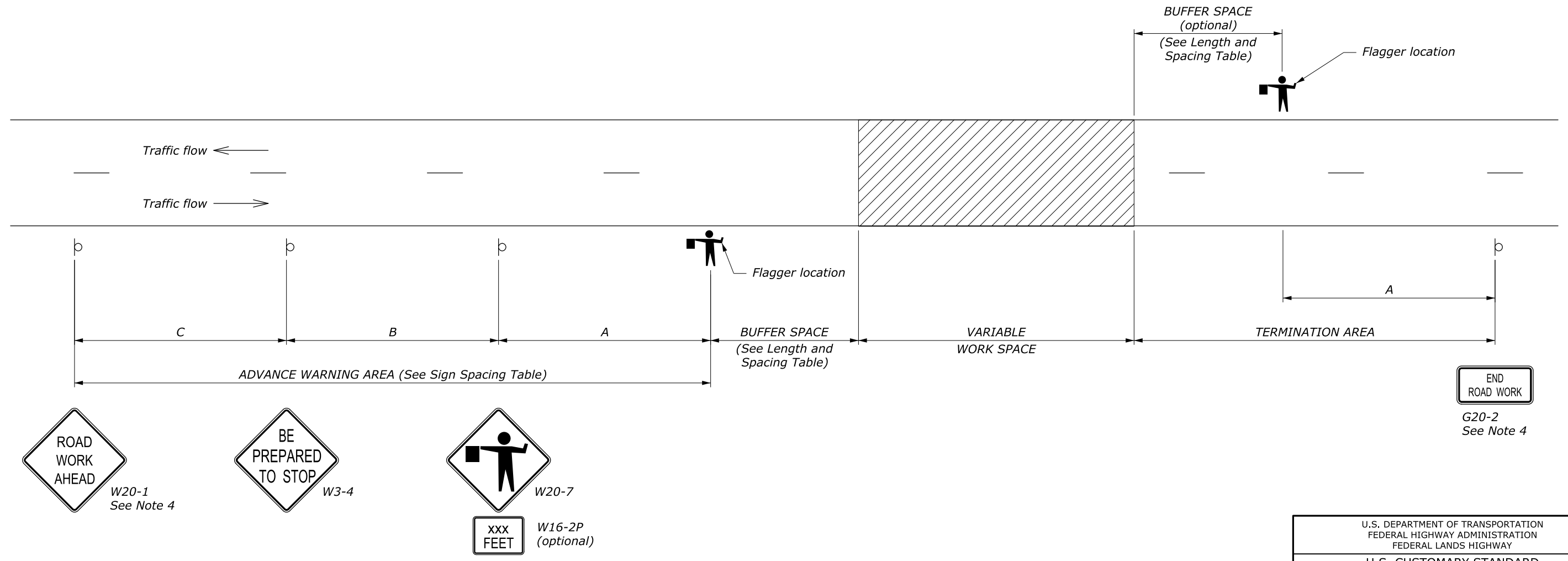
APPROACH SPEED*	BUFFER SPACE LENGTH
MPH	FEET
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730

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

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.



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

REVISSED: 8/2013

STANDARD 635-5

NO SCALE

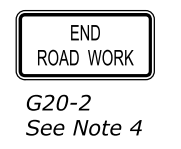
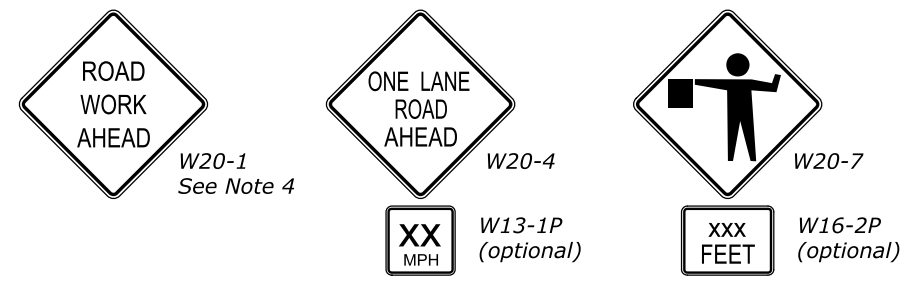
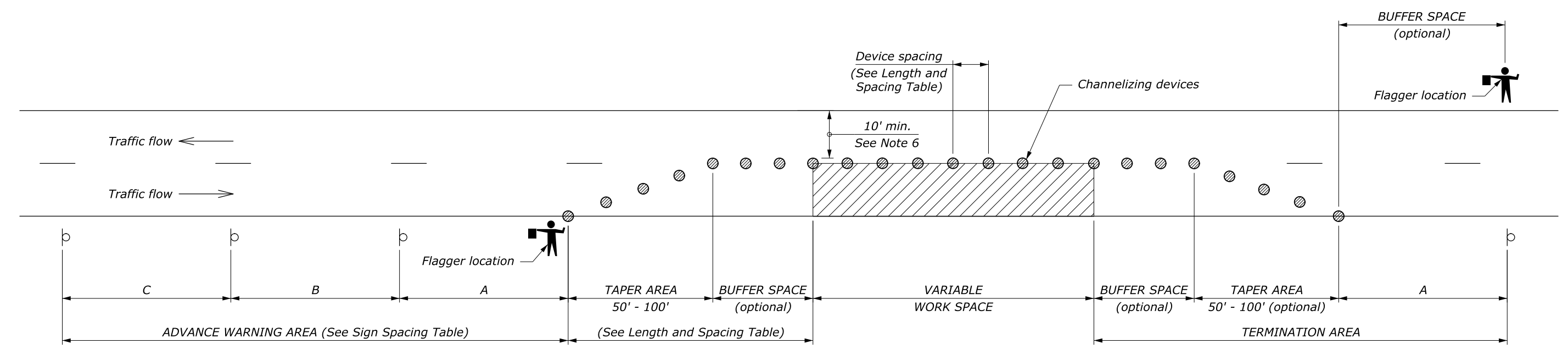
LENGTH AND SPACING TABLE				
APPROACH SPEED*	BUFFER SPACE LENGTH	CHANNELIZING DEVICE		
		TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	SPACING IN FEET		
20	115	20	40	40
25	155	20	50	50
30	200	20	60	60
35	250	20	70	70
40	305	20	80	80
45	360	20	90	90
50	425	20	100	100
55	495	20	110	110
60	570	20	120	120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



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

REVISOR: 8/2013

STANDARD 635-6

NO SCALE

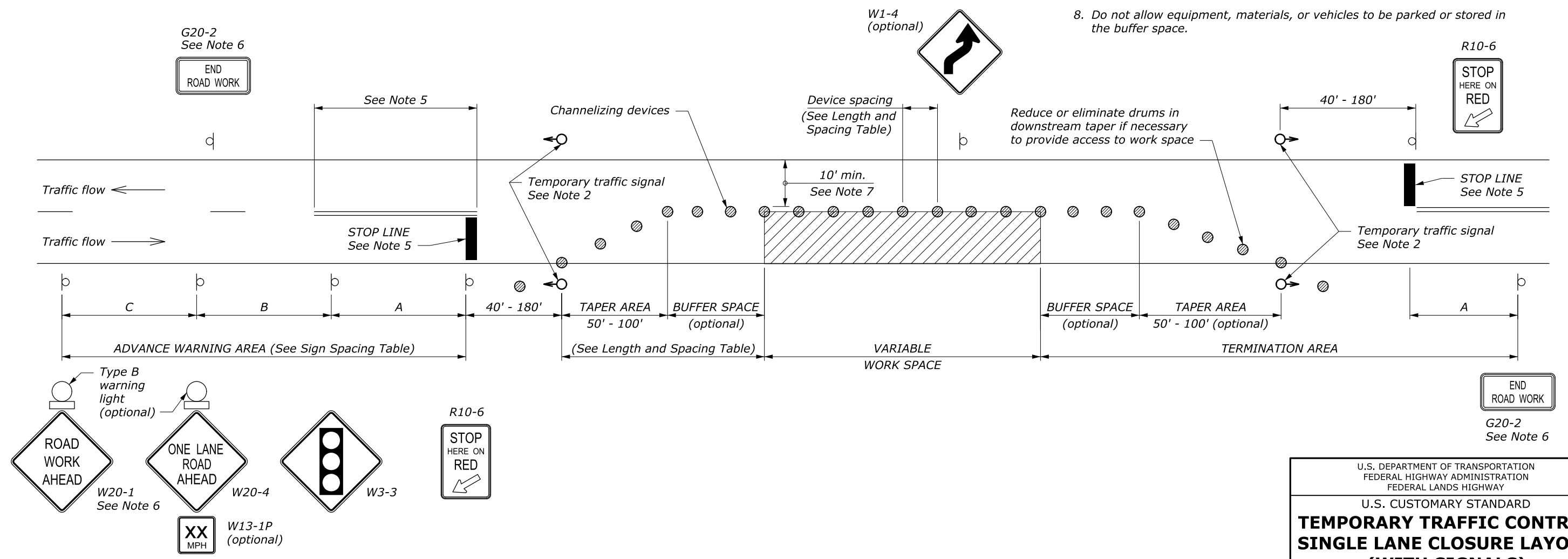
LENGTH AND SPACING TABLE				
APPROACH SPEED*	BUFFER SPACE LENGTH	CHANNELIZING DEVICE		
		TAPER AREA	BUFFER SPACE	WORK SPACE
MPH	FEET	SPACING IN FEET		
20	115	20	40	40
25	155	20	50	50
30	200	20	60	60
35	250	20	70	70
40	305	20	80	80
45	360	20	90	90
50	425	20	100	100
55	495	20	110	110
60	570	20	120	120
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. A single signal installation is acceptable, on the right-hand side of the road, if it has two signal faces that are at least 8 feet apart and meets the other requirements of Part 4 of the MUTCD.
3. Install and operate temporary traffic control signals in accordance with the provisions of the MUTCD, Part 4. Signal timing shall be established by a qualified engineer. When the signal is changed to the flashing mode either manually or automatically, ensure red signal indications are flashed to both approaches.
4. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO. If signals are moved, revised signal timing must be determined by a qualified engineer.
5. For paved roadway surfaces, install stop lines complying with MUTCD Section 3B.16. Remove existing conflicting pavement markings and raised markers between the work space and the stop line. Add no-passing lines in advance of the stop line that comply with MUTCD Section 3B.02. Removeable pavement markings may be used for stop lines and no-passing pavement markings.
6. If closure is completely within the project limits, eliminate the "ROAD WORK AHEAD" (W20-1) and "END ROAD WORK" (G20-2) signs.
7. For project specific minimum width, refer to Special Contract Requirements, Section 156.
8. Do not allow equipment, materials, or vehicles to be parked or stored in the buffer space.



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

U.S. CUSTOMARY STANDARD

**TEMPORARY TRAFFIC CONTROL  
 SINGLE LANE CLOSURE LAYOUT  
 (WITH SIGNALS)**

STANDARD APPROVED FOR USE 6/2005

REVISOR: 9/2016

STANDARD 635-9

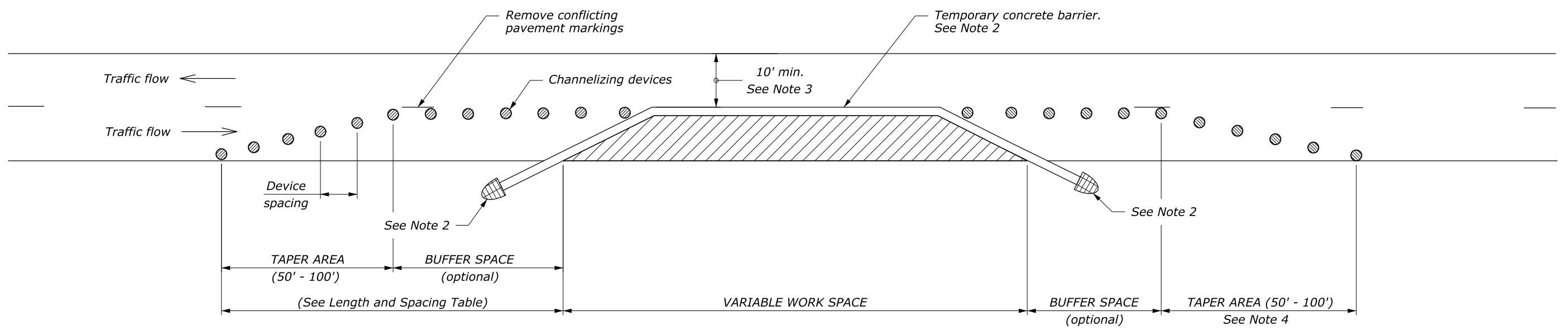
NO SCALE

LENGTH AND SPACING TABLE						
APPROACH SPEED*	BUFFER SPACE LENGTH	CHANNELIZING DEVICE			CONCRETE BARRIER FLARE RATE	WORK ZONE CLEAR ZONE WIDTH
		TAPER AREA	BUFFER SPACE	WORK SPACE		
MPH	FEET	SPACING IN FEET				FEET
20	115	20	40	40	1:8	10
25	155	20	50	50	1:8	10
30	200	20	60	60	1:8	10
35	250	20	70	70	1:9	10
40	305	20	80	80	1:10	15
45	360	20	90	90	1:12	20
50	425	20	100	100	1:14	20
55	495	20	110	110	1:16	20
60	570	20	120	120	1:16	30
65	645	20	130	130	1:16	30
70	730	20	140	140	1:16	30

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

**NOTE:**

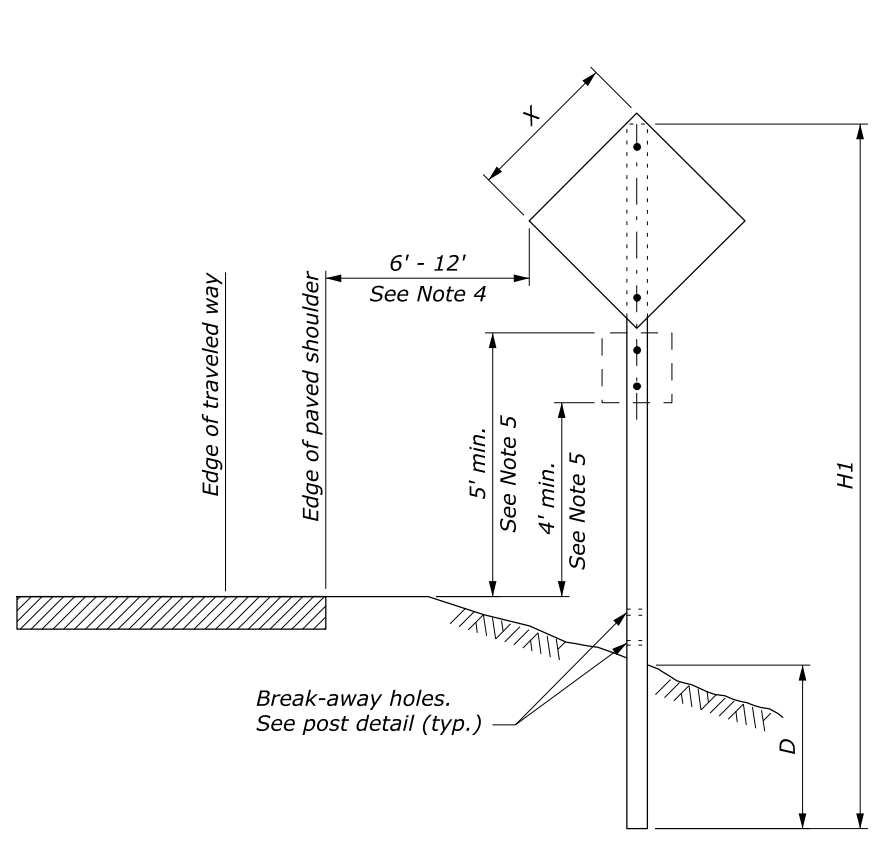
1. Install signs and other devices for single lane closure according to Standard 635-6, 7, 8, or 9. Final location and spacing of signs and devices may be changed to fit field conditions as approved by the CO.
2. Place barrier according to the AASHTO Roadside Design Guide. Terminate barrier ends outside the work zone clear zone or protect the barrier ends 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.



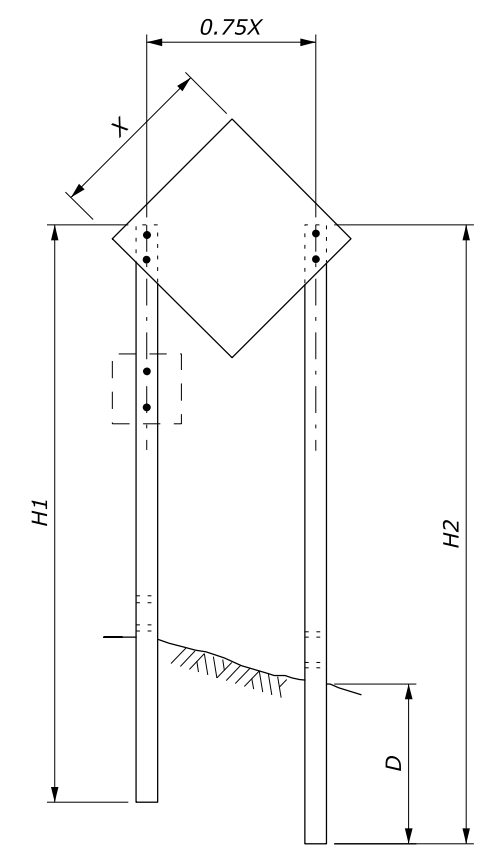
c:\pw-work\0290747\wa-a2013020\_nh.dgn [USC] 9 September 2020 1:43 PM

NO SCALE

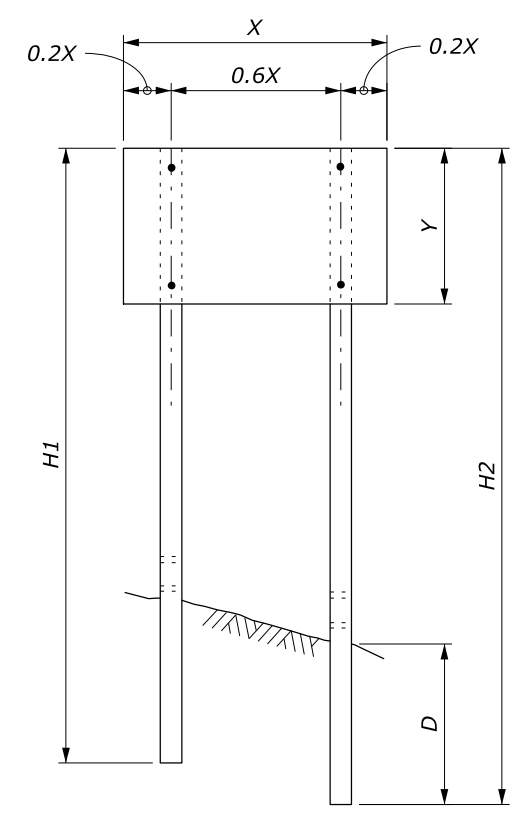
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION FEDERAL LANDS HIGHWAY	
U.S. CUSTOMARY STANDARD	
<b>TEMPORARY TRAFFIC CONTROL SINGLE LANE CLOSURE LAYOUT (WITH TEMPORARY BARRIER)</b>	
STANDARD APPROVED FOR USE 6/2005	STANDARD
REVISED: DRAFT: 6/2015	635-13



**SINGLE POST SIGN**



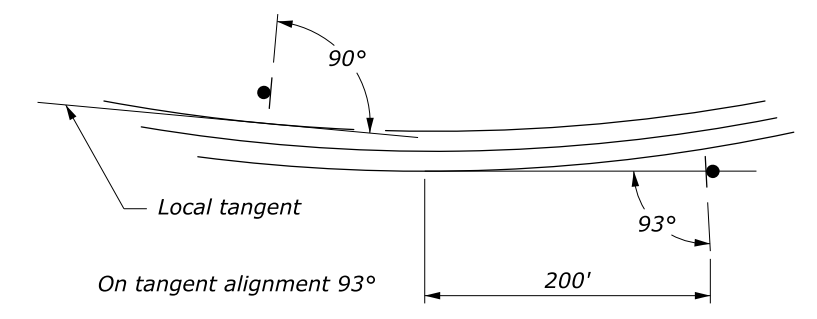
**TWO POST SIGN**



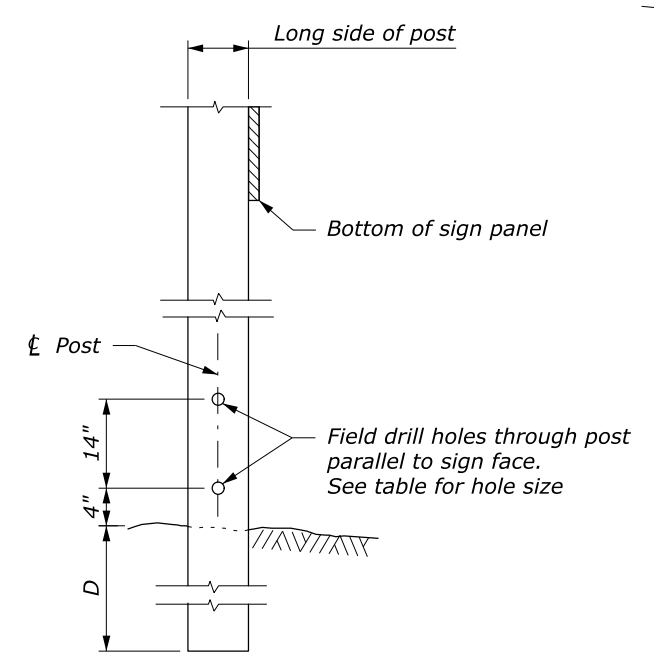
**NOTE:**

1. Attach sign panels with a minimum of 2 - 1/4" 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 areas where lateral distance is limited, a minimum lateral offset of 2' may be used. In areas with curbs, a minimum lateral distance of 1' behind the face of the curb may be used.
5. In pedestrian locations, or in areas with obstructed views, 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.

<b>WOOD POST SELECTION TABLE</b>					
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
		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



**SIGN INSTALLATION ANGLE**



**POST DETAIL**

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

REVISOR: 9/2014

STANDARD 635-14

NO SCALE

**ITEM 63302-0000  
SIGN SYSTEM**

LOCATION	MUTCD NUMBER	LEGEND	SIZE			NUMBER OF SIGNS	QUANTITY
			(IN x IN)				(SQFT)
73+71 RT	W11-10	TRUCK	30	x	30	1	6.25
76+46 LT	W1-3L	REVERSE TURN	30	x	30	1	6
76+76 LT	OM3L	TYPE 3 OBJECT MARKER	12	x	36	1	3
76+76 RT	OM3R	TYPE 3 OBJECT MARKER	12	x	36	1	3
78+18 LT	OM3R	TYPE 3 OBJECT MARKER	12	x	36	1	3
78+18 RT	OM3L	TYPE 3 OBJECT MARKER	12	x	36	1	3
81+68 RT	W8-23	NO SHOULDER	36	x	36	1	9
83+79 LT	OM3R	TYPE 3 OBJECT MARKER	12	x	36	1	3
<b>ROUNDED TOTAL SCHEDULE C</b>							<b>37</b>
104+67 LT	R2-1	SPEED LIMIT 35	18	x	24	1	3
104+67 RT	R2-1	SPEED LIMIT 35	18	x	24	1	3
108+22 LT	OM3L	TYPE 3 OBJECT MARKER	12	x	36	1	3
108+22 RT	OM3R	TYPE 3 OBJECT MARKER	12	x	36	1	3
109+68 LT	OM3R	TYPE 3 OBJECT MARKER	12	x	36	1	3
109+68 RT	OM3L	TYPE 3 OBJECT MARKER	12	x	36	1	3
<b>ROUNDED TOTAL SCHEDULE D</b>							<b>55</b>

**ITEM 63401-0300  
PAVEMENT MARKINGS, TYPE B,  
SOLID (YELLOW)<sup>[1]</sup>**

LOCATION	QUANTITY (LNFT)	REMARKS
48+30 to 50+75	<b>980</b>	<b>TOTAL SCHEDULE A, B</b>
71+00 to 85+00	5,600	
	<b>6,580</b>	<b>TOTAL SCHEDULE C</b>
103+00 to 117+02	5,610	
	<b>12,190</b>	<b>TOTAL SCHEDULE D</b>

**ITEM 63401-0300  
PAVEMENT MARKINGS, TYPE B,  
SOLID (WHITE)<sup>[1]</sup>**

LOCATION	QUANTITY (LNFT)	SCHEDULE
48+30 to 50+75	980	SCHEDULE A, B, C, D

**ITEM 63309-0900  
DELINEATOR, TYPE FLEXIBLE  
(BROWN)**

LOCATION	QUANTITY (LNFT)
48+30 to 50+75 LT	3
48+30 to 50+75 RT	3
<b>TOTAL SCHEDULE A, B</b>	<b>6</b>
71+37 to 76+28 RT	11
74+92 to 76+43 LT	5
78+64 to 81+59 LT	6
78+64 to 80+69 RT	3
<b>TOTAL SCHEDULE C</b>	<b>31</b>
107+02 to 108+02 LT	3
107+02 to 108+02 RT	3
109+88 to 110+88 LT	3
109+88 to 110+88 RT	3
<b>TOTAL SCHEDULE D</b>	<b>43</b>

**ITEM 63406-0400  
RAISED PAVEMENT MARKER, PLOWABLE,  
BI-DIRECTIONAL REFLECTIVE (YELLOW)**

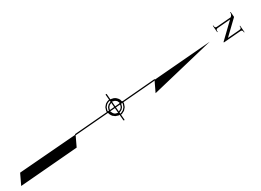
LOCATION	QUANTITY (EACH)	SCHEDULE
48+30 to 50+75	3	SCHEDULE A, B, C, D

**FOOTNOTE:**  
[1] Includes quantity for double application.

**TABULATION OF  
PERMANENT TRAFFIC CONTROL  
QUANTITIES**

8 September 2020 4:49 PM c:\pw-work\02920748\wa-a2013020pa.dgn [US\_Sur\_ft2D] C:\Conrad 01/2019 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	L.2



48+30 to 50+75 RT  
Delineator, type flexible  
(brown) See detail Sheet L.8

Double solid yellow  
Solid white (6")

48+30 to 50+75  
Raised pavement markers, bi-directional  
reflective yellow. See detail Sheets L.5-6

50

**RESUME PROJECT**  
SCHEDULE A  
48+30  
N= 317,597.046  
E= 818129.598

Solid white (6")

48+30 to 50+75  
Raised pavement markers, bi-directional  
reflective yellow. See detail Sheets L.5-6

**SUSPEND PROJECT**  
SCHEDULE A  
50+75  
N= 317,426.689  
E= 818,305.660

48+30 to 50+75 RT  
Delineator, type flexible (brown)  
See detail Sheet L.8

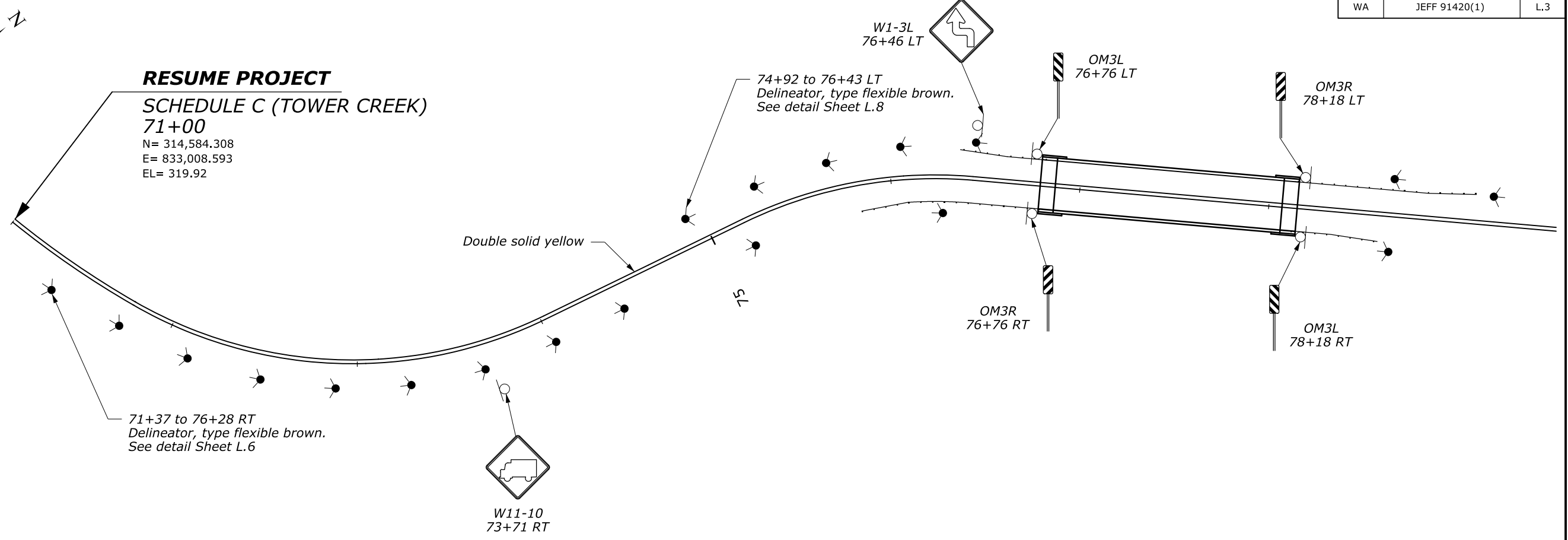
**PERMANENT  
TRAFFIC CONTROL PLAN  
SCHEDULE A (MP 4 AOP)  
47+90 TO 51+03**

22 October 2020 2:36 PM  
 c:\pw-work\06290748\wa-a2013020pb.dgn [US\_Sur\_ft2D]  
 Designed by: C. Conrad  
 01/2017 Checked by:

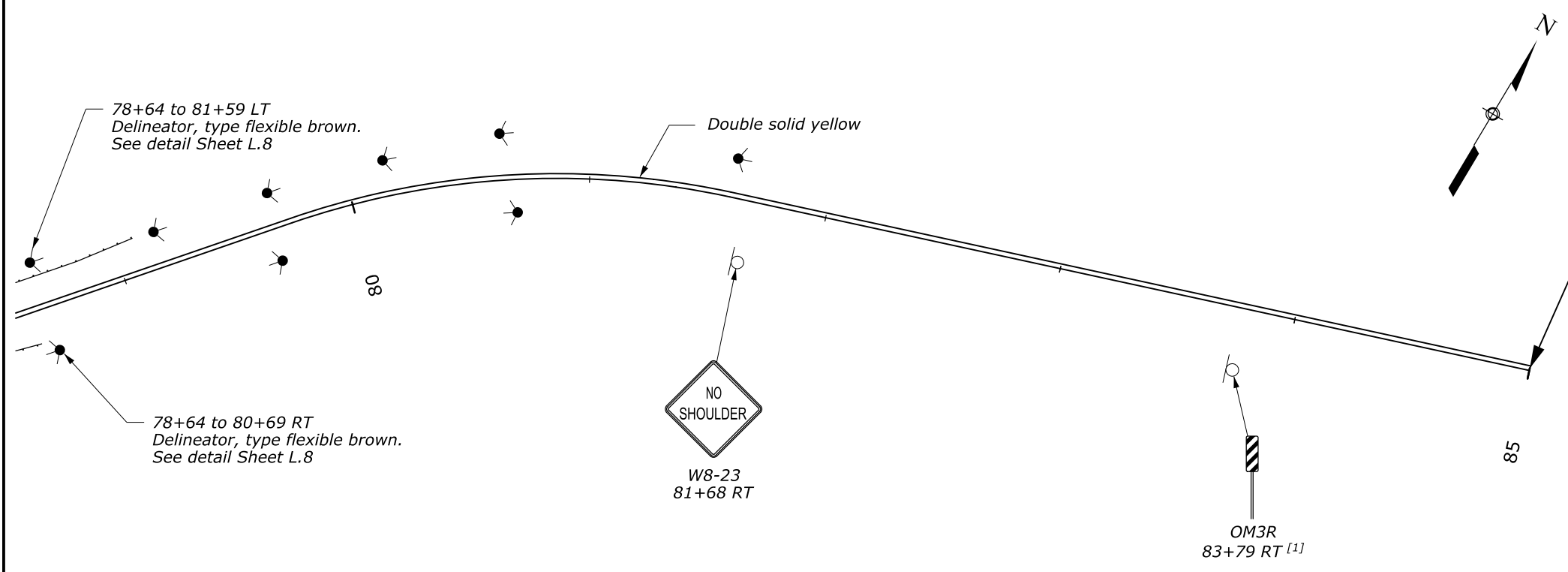


STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	L.3

**RESUME PROJECT**  
**SCHEDULE C (TOWER CREEK)**  
**71+00**  
 N= 314,584.308  
 E= 833,008.593  
 EL= 319.92



**SUSPEND PROJECT**  
**SCHEDULE C (TOWER CREEK)**  
**85+00**  
 N= 315,476.235  
 E= 833,967.476  
 EL= 332.03



**FOOTNOTE:**  
 [1] Verify location in field.

**PERMANENT  
 TRAFFIC CONTROL PLAN  
 SCHEDULE C (TOWER CREEK)  
 71+00 TO 85+00**

01/2017 Checked by: C. Conrad  
 Designed by: C. Conrad  
 c:\pw-work\0290748\wa-a2013020pc.dgn [US\_Sur\_r2D]  
 22 October 2020 2:37 PM

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	L.4

**RESUME PROJECT**  
**SCHEDULE D (CANYON CREEK)**  
**103+00**  
 N= 313,355.855  
 E= 844,624.648  
 EL= 466.96



SPEED LIMIT  
**35**  
 R2-1  
 104+67 LT

SPEED LIMIT  
**35**  
 R2-1  
 104+67 RT

107+02 to 108+02 LT Delineator,  
 type flexible (Brown). See detail sheet L.8

Double solid yellow

107+02 to 108+02 RT Delineator,  
 type flexible (Brown). See detail sheet L.8

109+88 to 110+88 LT Delineator,  
 type flexible (Brown). See detail sheet L.8

OM3L  
 76+76 LT

OM3R  
 76+76 LT

OM3R  
 76+76 RT

OM3L  
 76+76 RT

109+88 to 110+88 RT Delineator,  
 type flexible (Brown). See detail sheet L.8

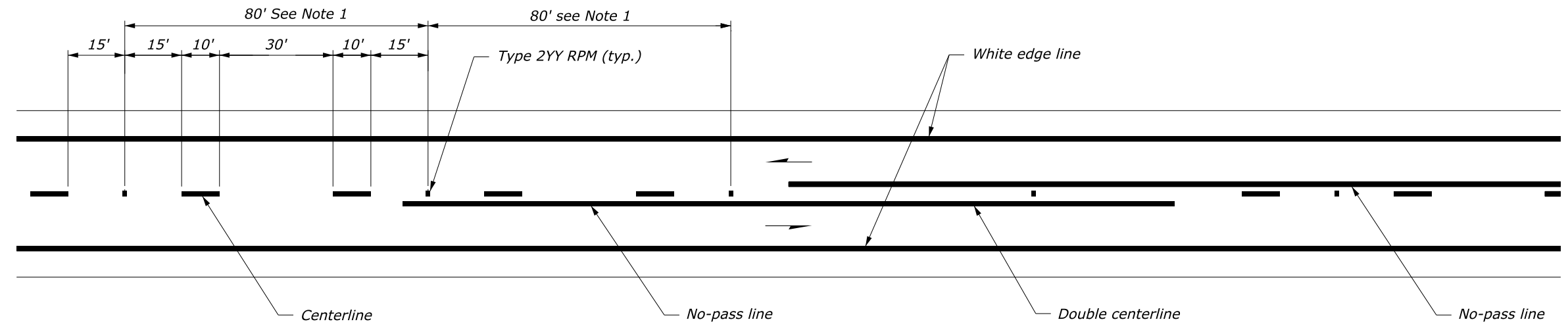
01/2017 Checked by: C. Conrad  
 Designed by:

c:\pw-work\0290748\wa-a2013020pd.dgn [US\_Sur\_ft2D]  
 22 October 2020 2:33 PM

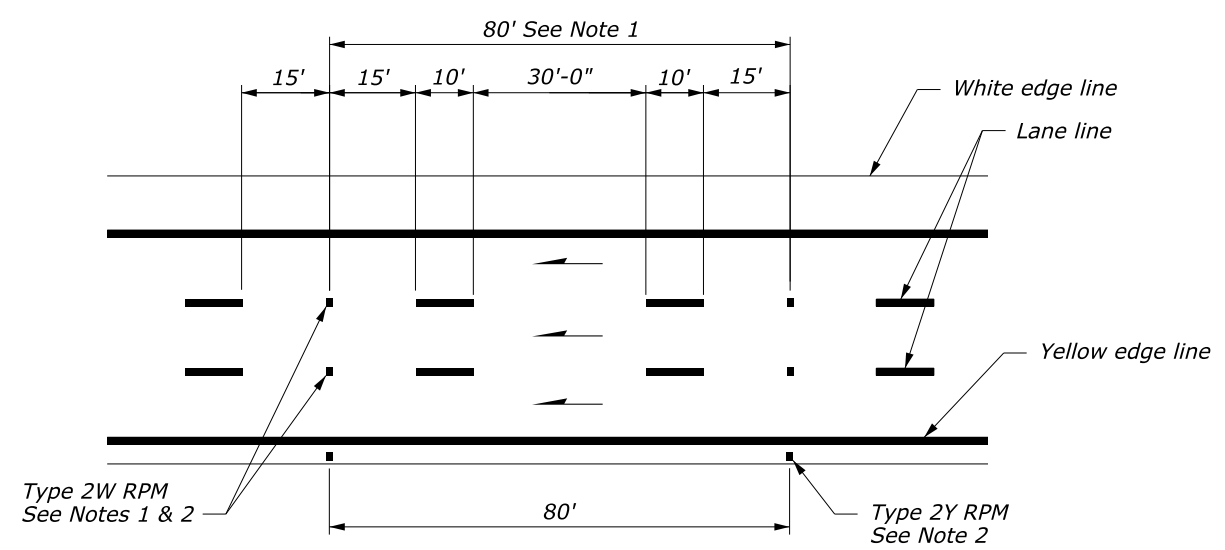
**END PROJECT**  
**SCHEDULE D (CANYON CREEK)**  
**117+02**  
 N= 313,751.062  
 E= 845,968.915  
 EL= 430.27



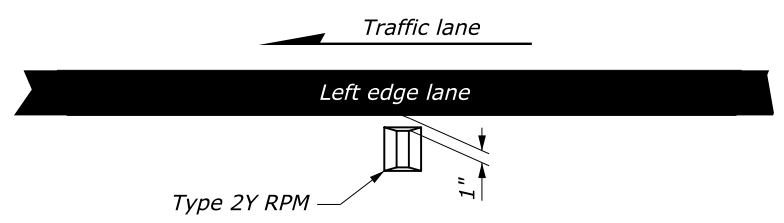
**PERMANENT  
 TRAFFIC CONTROL PLAN  
 SCHEDULE D (CANYON CREEK)  
 103+00 TO 117+02**



**TWO-LANE TWO-WAY TRAFFIC**

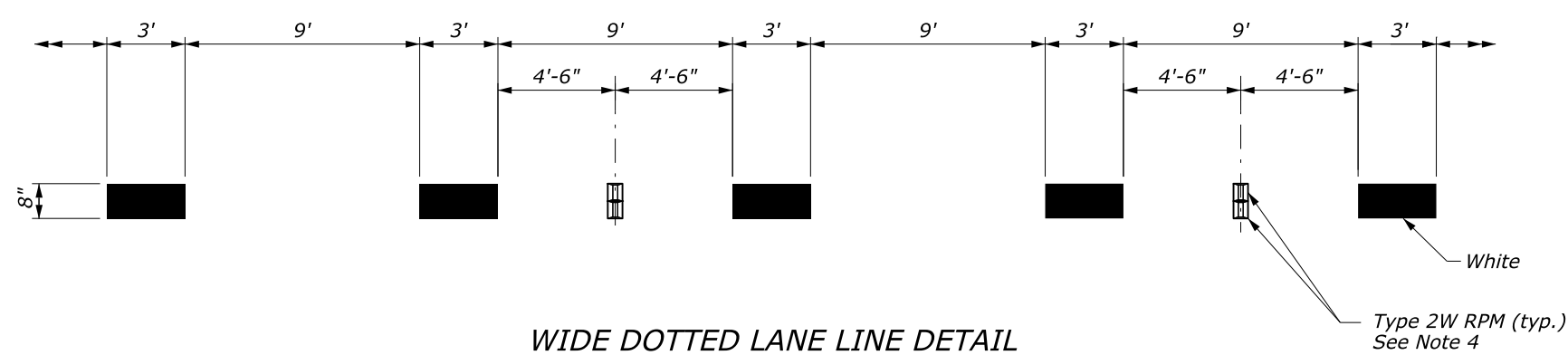


**MULTILANE ONE-WAY TRAFFIC**



**LEFT EDGE OF LANE PLACEMENT DETAIL**  
(See Note 2)

TYPE 2 RPM RAISED FACE COLORS	
TYPE 2YY	YELLOW AND YELLOW
TYPE 2W	WHITE ~ ONE SIDE ONLY
TYPE 2Y	YELLOW ~ ONE SIDE ONLY



**WIDE DOTTED LANE LINE DETAIL**  
(See Note 5)

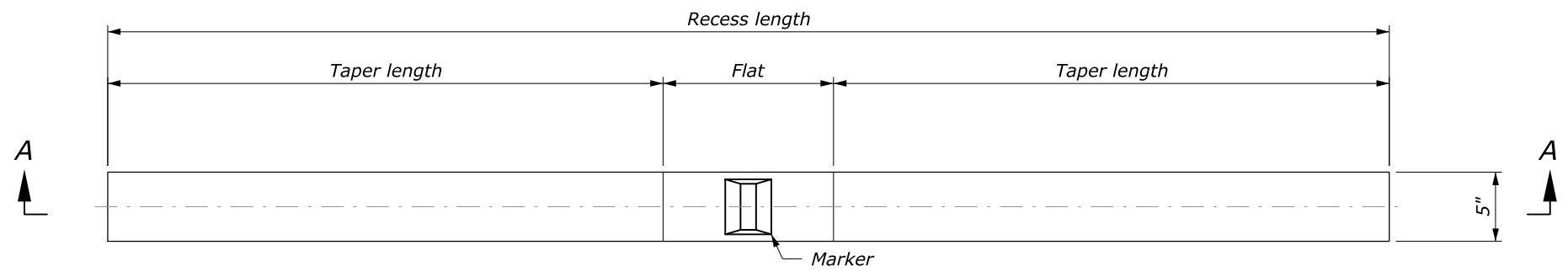
**NOTE:**

1. Raised Pavement Markers Types 2YY and 2W shall be spaced at 80-foot intervals on tangents and on horizontal curves with a radius of 1500-feet or more, and at 40-foot intervals on horizontal curves having radii of less than 1500-feet. Center the RPMs in the gaps between the pavement marking lines.
2. Type 2Y RPMs, when specified, shall be placed outside the left edge line at 80-foot intervals. See "LEFT EDGE OF LANE PLACEMENT DETAIL."
3. Recessed pavement markers, when specified, shall be installed at the locations shown for Type 2W RPMs on multilane one-way roadways, and Type 2YY RPMs on two-lane two-way roadways.
4. The Type 2W RPMs placed on multilane one-way roadways and all RPMs set in recesses shall have an abrasion-resistant coating.
5. Do not recess side-to-side RPMs on Wide Dotted Lane Lines.

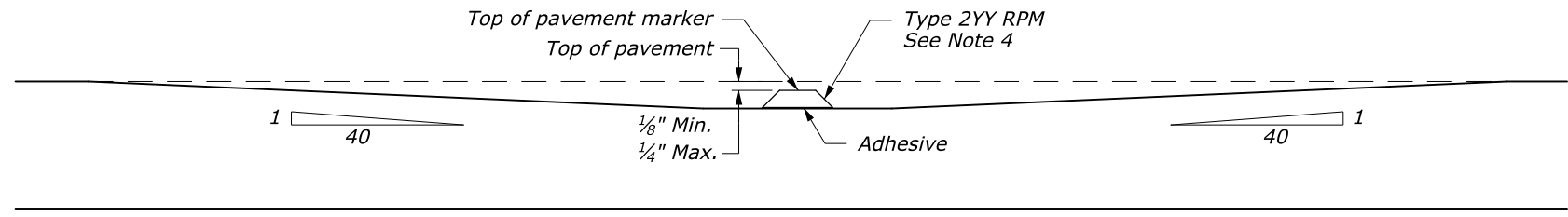
10 June 2020 12:52 PM  
 c:\pw-work\062920\48\wa-a2013020ph.dgn [US\_Sur\_ft2D]  
 Designed by:  
 Checked by:

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	L.6

NPS PMIS No. 184701  
NPS Drwg. No. 149/128320



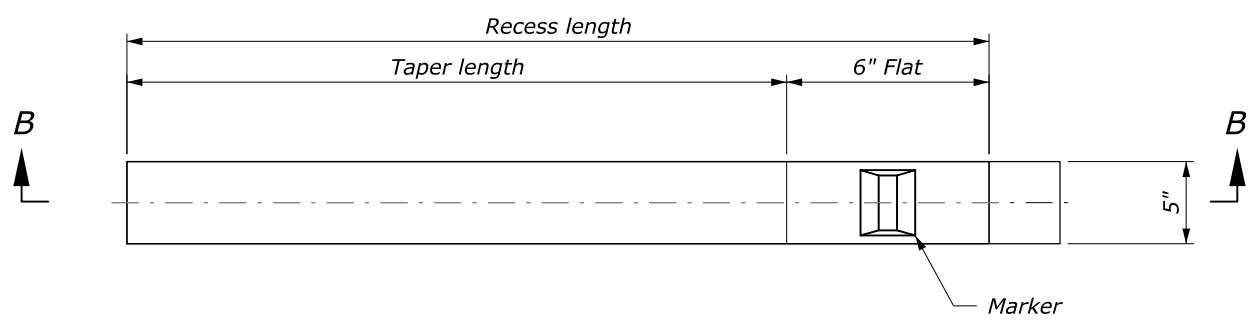
PLAN VIEW



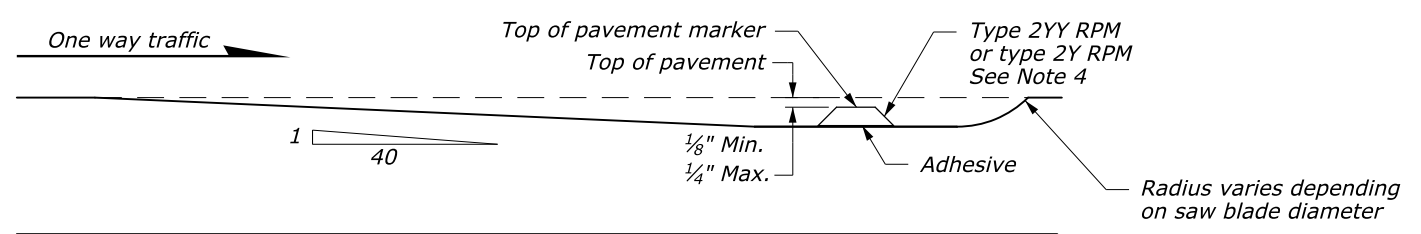
SECTION A-A

**TWO-WAY ROADWAY RECESSED PAVEMENT MARKER DETAILS**

For use where specified in contract



PLAN VIEW



SECTION B-B

**ONE-WAY ROADWAY RECESSED PAVEMENT MARKER DETAILS**

For use where specified in contract

**NOTE:**

1. Raised Pavement Markers Types 2YY and 2W shall be spaced at 80-foot intervals on tangents and on horizontal curves with a radius of 1500-feet or more, and at 40-foot intervals on horizontal curves having radii of less than 1500-feet. Center the RPMs in the gaps between the pavement marking lines.
2. Type 2Y RPMs, when specified, shall be placed outside the left edge line at 80-foot intervals. See "LEFT EDGE OF LANE PLACEMENT DETAIL."
3. Recessed pavement markers, when specified, shall be installed at the locations shown for Type 2W RPMs on multilane one-way roadways, and Type 2YY RPMs on two-lane two-way roadways.
4. The Type 2W RPMs placed on multilane one-way roadways and all RPMs set in recesses shall have an abrasion-resistant coating.
5. Do not recess side-to-side RPMs on Wide Dotted Lane Lines.

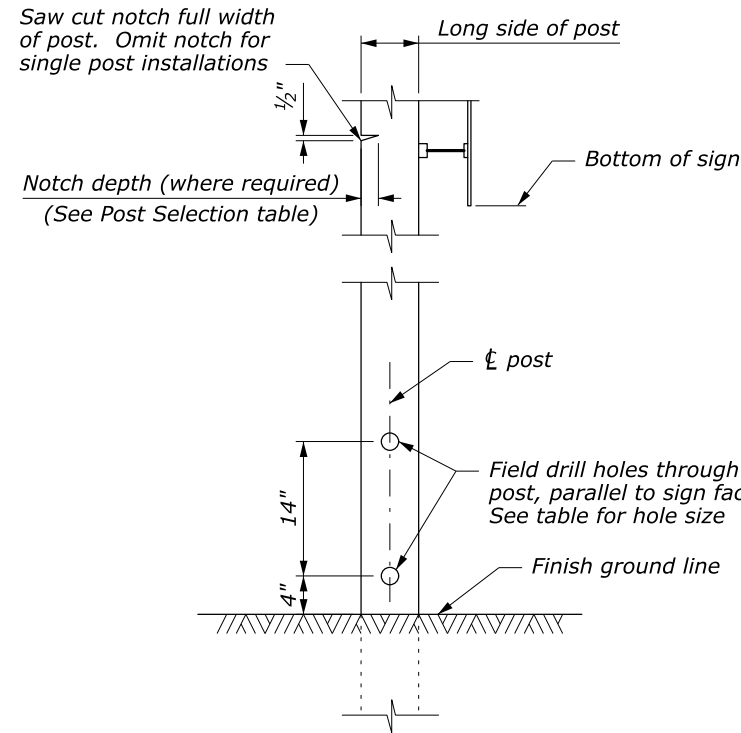
**LINEAR PAVEMENT MARKING  
PAVEMENT MARKERS**

Checked by:

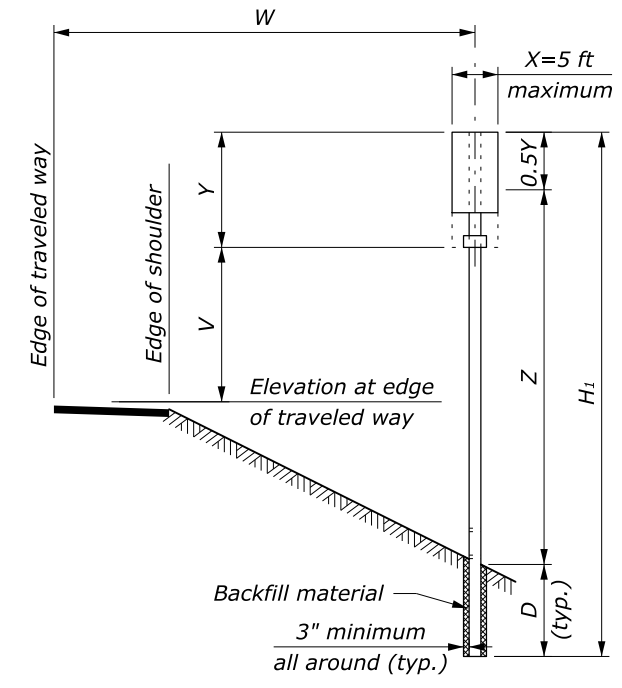
Designed by:

c:\pw-work\06290748\wa-a2013020.plt.dgn [US\_Sur\_r2D]

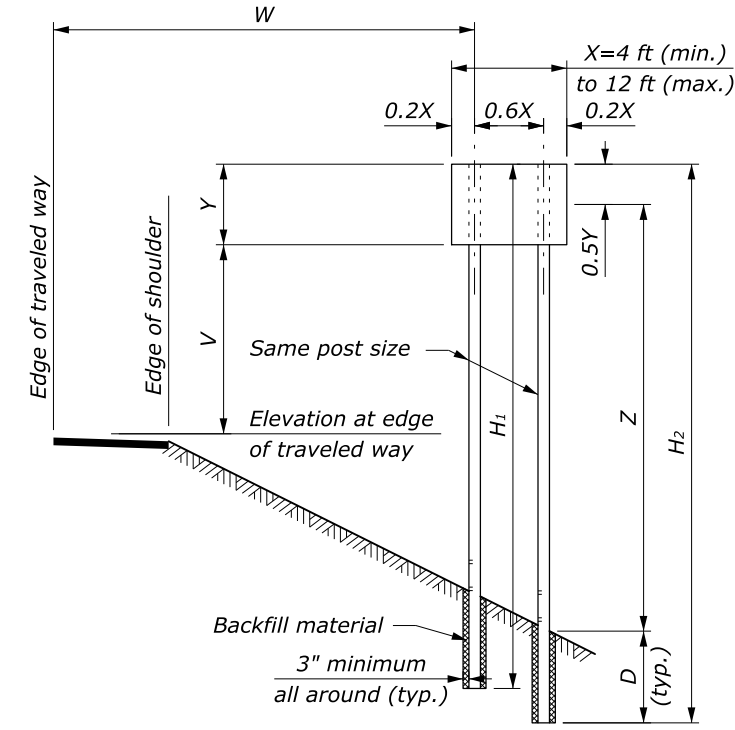
10 June 2020 12:56 PM



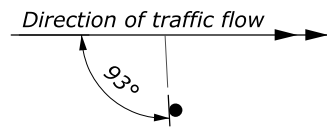
**POST DETAIL**



**SINGLE POST SIGNS**



**TWO POST SIGNS**



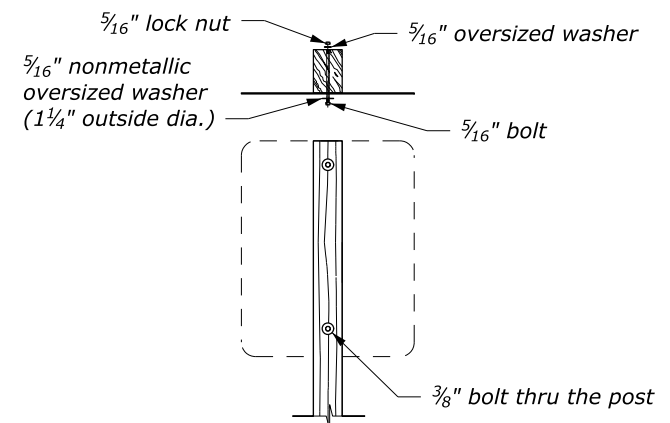
**SIGN INSTALLATION ANGLE**  
For all retroreflectorized signs where  $W > 25'$

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

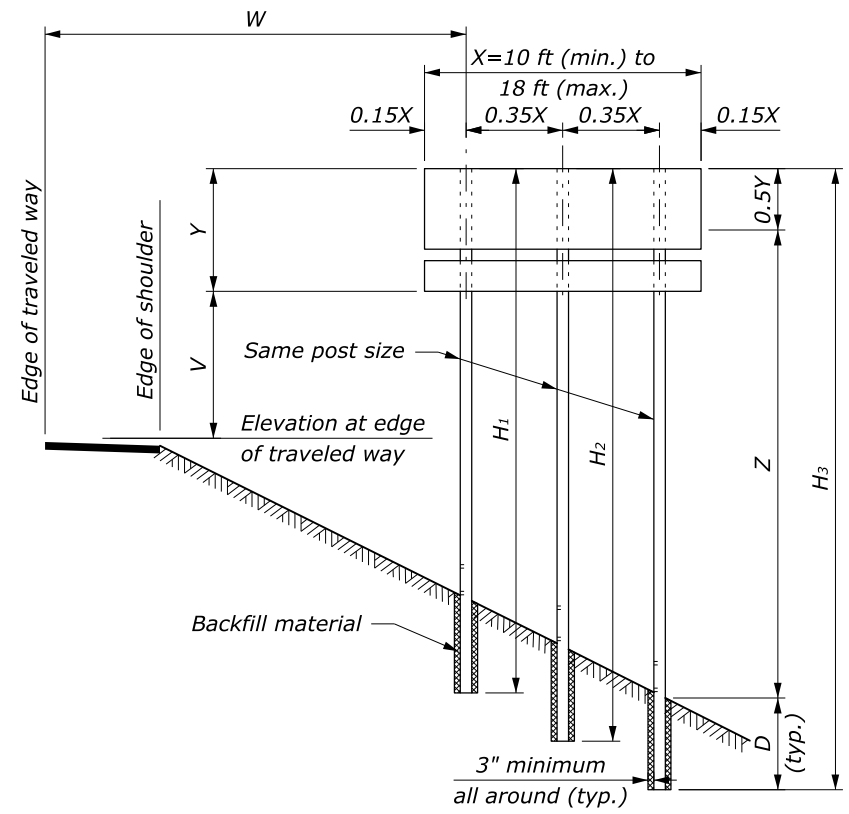
V may be reduced by 1 foot in rural districts for a secondary sign mounted below another sign.

**NOTE:**

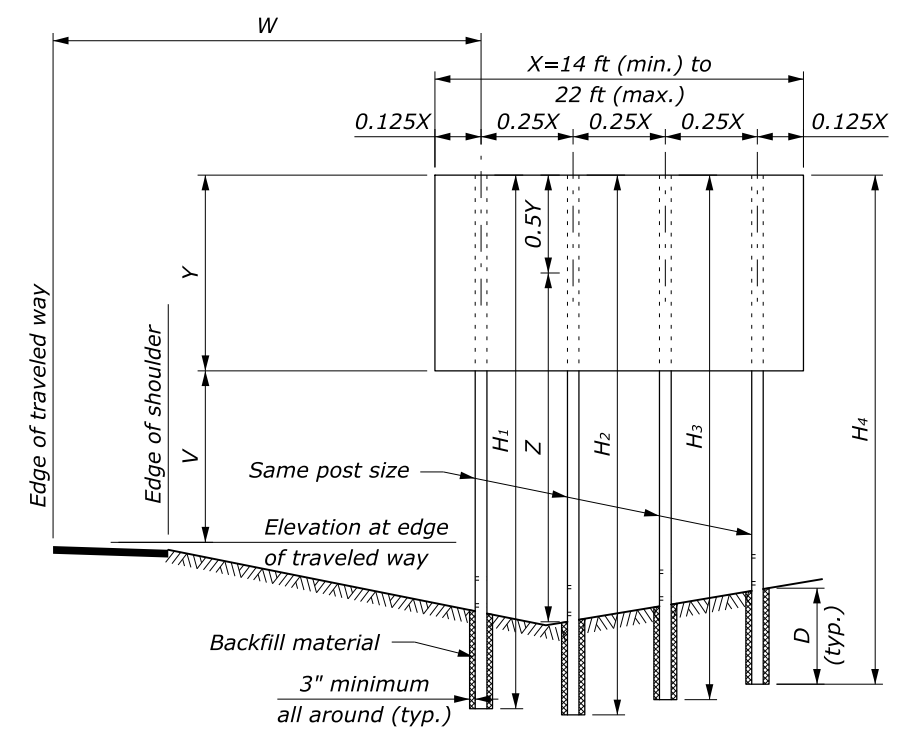
- Traffic barrier protection is required for all posts larger than 6" x 8" when located within the clear zone or if the post is vulnerable to being struck when placed outside the clear zone.
- H<sub>1</sub> thru H<sub>4</sub> indicate overall post length. Select post lengths to fit field conditions.
- D is the minimum post embedment depth for average soil conditions. See Wood Post Selection Table below.
- Z is the height from ground line to mid-height of sign at the longest post.
- 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**



**THREE POST SIGNS**



**FOUR POST SIGNS**

POST SIZE (inch)	NUMBER OF POSTS				D	Notch depth and hole diameter
	1	2	3	4		
	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"	1 3/4"
6 x 6	235	475	710	950	4'-0"	1 3/4"
6 x 8	300	850	1280	1700	4'-0"	2 1/2"
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"	-

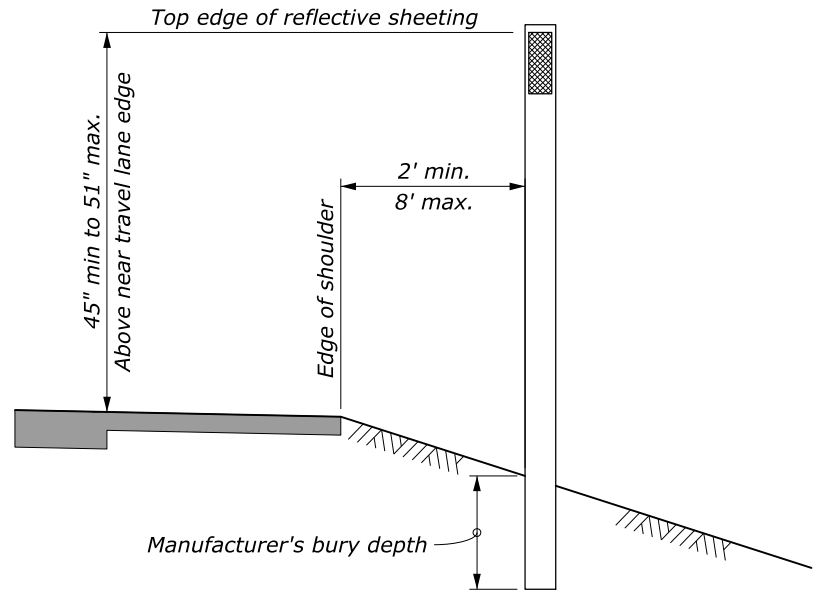
Values shown are the maximum permitted. If the product of XYZ exceeds the limit for the largest post, use steel post installation.

NO SCALE

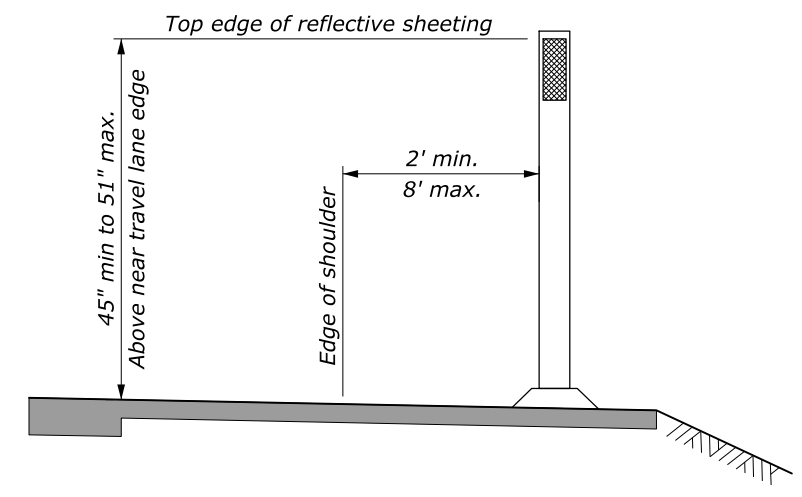
U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
WESTERN FEDERAL LANDS HIGHWAY DIVISION

U.S. CUSTOMARY DETAIL  
**PERMANENT SIGN  
INSTALLATION  
WOOD POSTS**

DETAIL APPROVED FOR USE 10/2009	DETAIL
REVISED:	W633-7



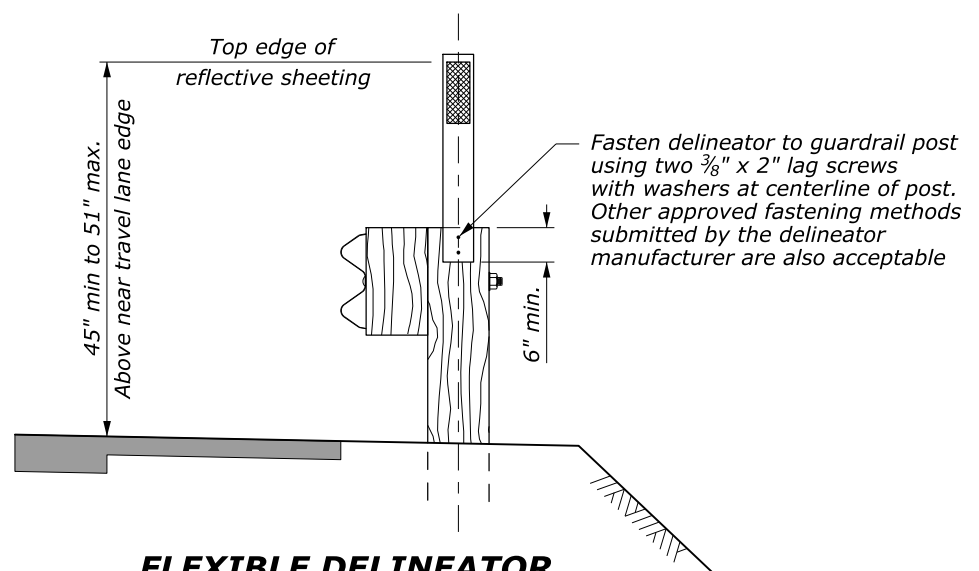
**FLEXIBLE DELINEATOR**  
GROUND MOUNTED



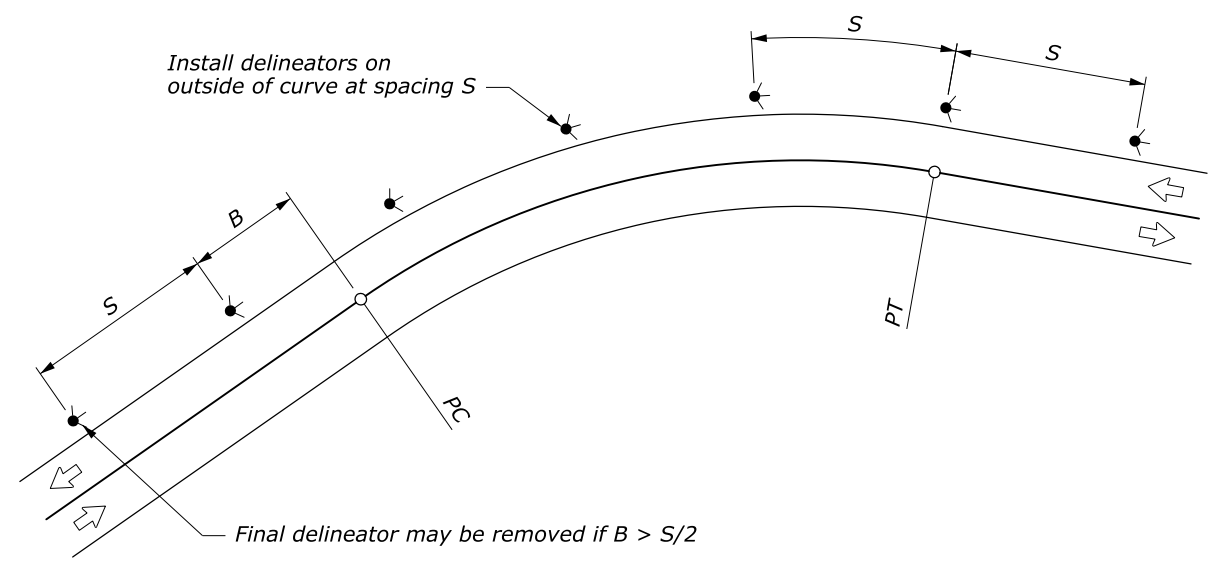
**FLEXIBLE DELINEATOR**  
SURFACE MOUNTED

**NOTE:**

1. When a delineator falls within a cross road or approach, the delineator may be moved in either direction a distance not to exceed one quarter of the normal spacing. Eliminate the delineator if this allowance is exceeded.
2. Place delineators 2 feet from the edge of design shoulder unless otherwise specified.
3. Install delineators behind the rail at guardrail locations. Either drive the delineator in line with the guardrail posts or mount a shorter delineator onto the guardrail post as shown on this sheet.
4. When the contract does not provide for the construction of the ultimate pavement, allow for the thickness of base and pavement to be placed later when establishing the elevation of the traffic delineators.
5. Use the current edition of the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) as a guide for delineation layout.



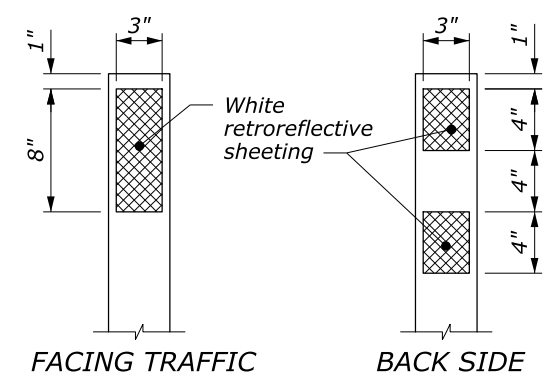
**FLEXIBLE DELINEATOR**  
GUARDRAIL MOUNTED OPTION  
(Use only with wood guardrail posts)



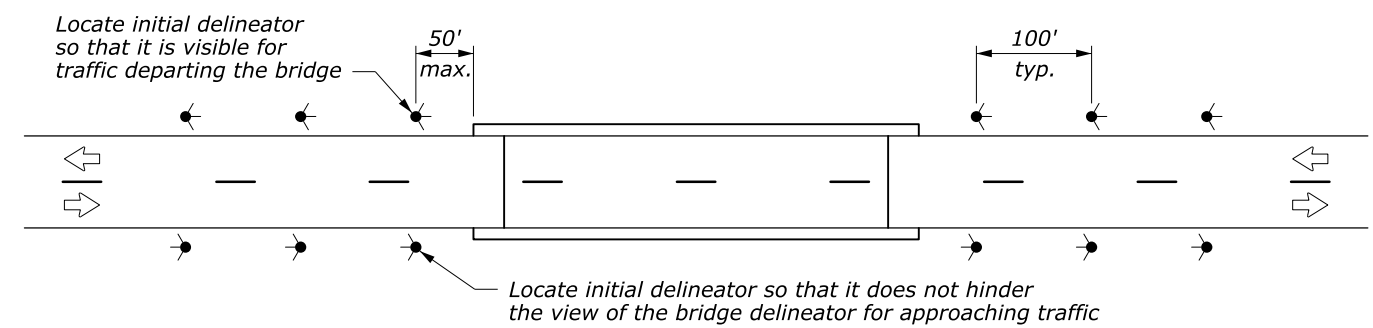
**PLACEMENT ON HORIZONTAL CURVES**

CURVE RADIUS (FEET)	SPACING (S) (FEET)
50	20
115	25
180	35
250	40
300	50
400	55
500	65
600	70
700	75
800	80
900	85
1,000	90

Spacing for a specific curve may be interpolated from the table, or calculated using the formula:  
 $Spacing = 3 \sqrt{R-50}$   
 The minimum spacing should be 20 feet.  
 Curve spacing should not exceed 300 feet.



**REFLECTIVE SHEETING DETAIL**

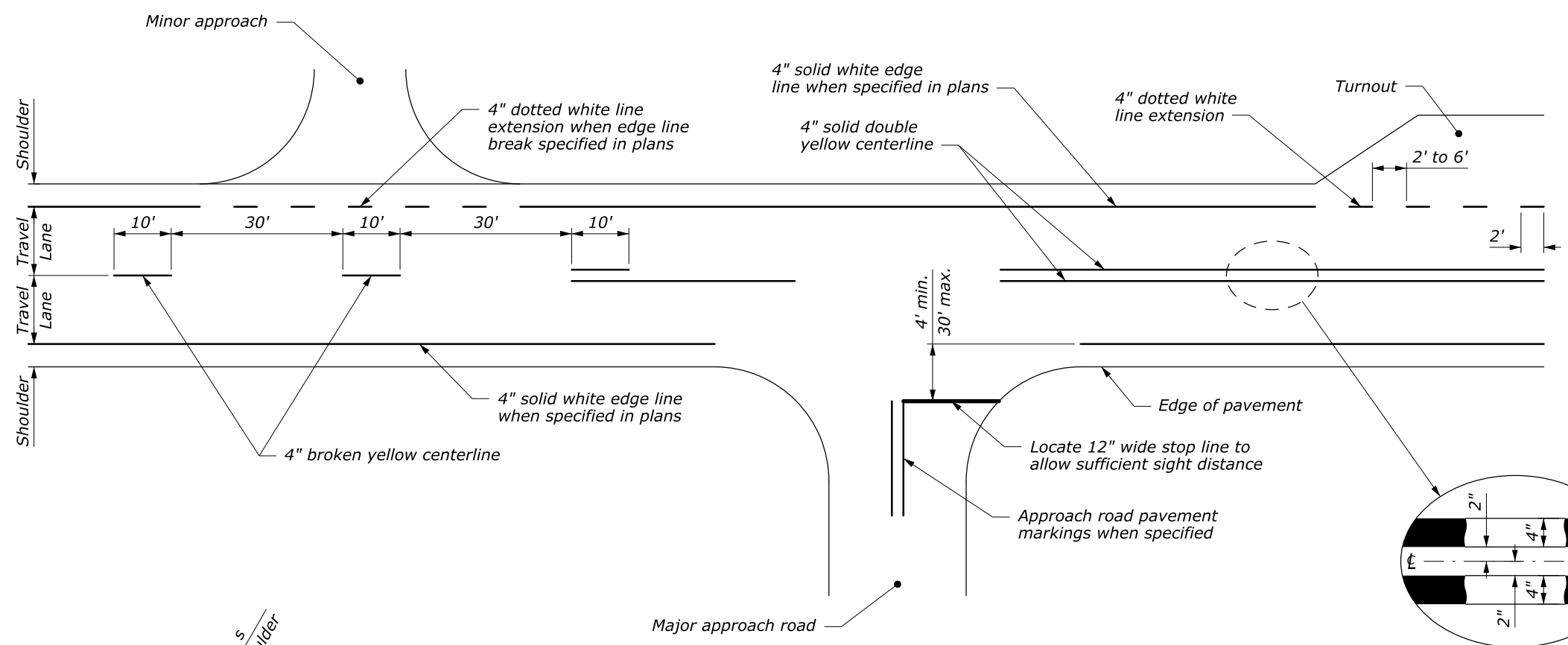


**PLACEMENT AT BRIDGE APPROACHES**

NO SCALE

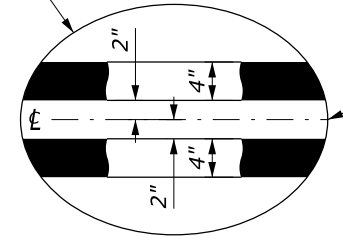
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>WASHINGTON DELINEATORS</b>	
DETAIL APPROVED FOR USE 1/2008	DETAIL
REVISED:	W633-80

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	L.9



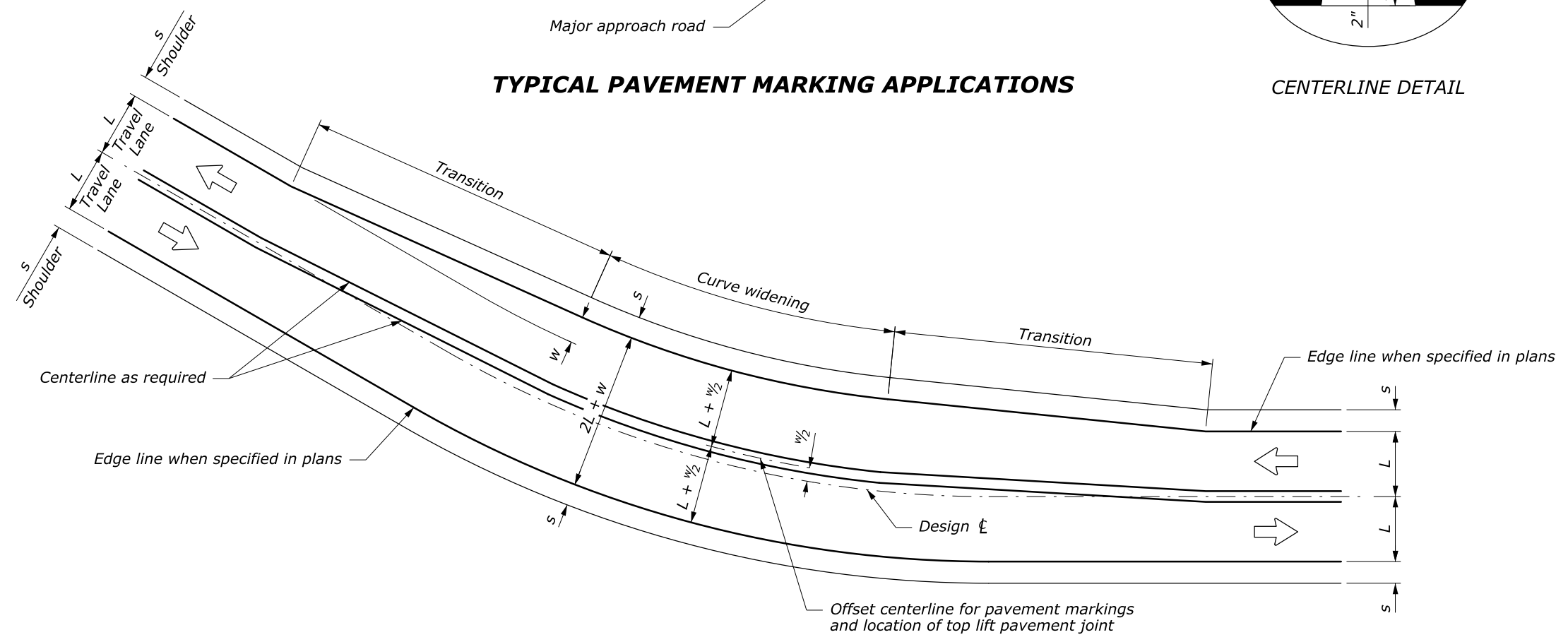
**NOTE:**

1. Place edge line pavement markings at asphalt/concrete curb interface when curb is present.
2. Paint centerline pavement markings on curves with curve widening "w" to achieve equal lane widths within the roadway. Maintain a constant shoulder width "s" throughout the curve widening area. See staking details for curve widening transition locations.
3. Typical pavement marking widths are shown. Use wider pavement markings when specified on the plans or when required by the maintaining agency.



**TYPICAL PAVEMENT MARKING APPLICATIONS**

CENTERLINE DETAIL



**CENTERLINE MODIFICATION FOR CURVES WITH WIDENING APPLIED ON INSIDE**

See Note 2 for treatment of curves when widening "w" is split equally on both sides of centerline

NO SCALE

U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION WESTERN FEDERAL LANDS HIGHWAY DIVISION	
U.S. CUSTOMARY DETAIL	
<b>LINEAR PAVEMENT MARKINGS</b>	
DETAIL APPROVED FOR USE 10/2007 REVISED: 10/2012	DETAIL W634-2

10 June 2020 1:00 PM c:\pw-work\0290748\wa-a2013020pg.dgn [USC]

**SCHEDULE B, C, D  
PLANTINGS (CHANNEL HABITAT PRESERVATION -  
POLE PLANTING) QUANTITIES**  
*See Sheets M.3-8 for locations and details*

ITEM 62632-0000 PLANTINGS (CHANNEL HABITAT PRESERVATION - POLE PLANTINGS)	FOR INFORMATION ONLY	
	COTTONWOOD	WILLOW
(LMSM)	(EACH)	(EACH)
ALL	240	3,600

**SCHEDULE SCHEDULE B, C, D  
MITIGATION, BANK STABILIZATION  
(CHANNEL HABITAT PRESERVATION)**  
*See Sheets M.3-8 for locations and details*

ITEM 64703-8000 MITIGATION, BANK STABILIZATION (CHANNEL HABITAT PRESERVATION - CHANNEL PLUG)	FOR INFORMATION ONLY - NOT MEASURED FOR PAYMENT <sup>[1]</sup>				ITEM 64704-1700 MITIGATION, BANK STABILIZATION (CHANNEL HABITAT PRESERVATION - COARSE WOODY DEBRIS)	ITEM 65001-1000 CONSTRUCT AND MAINTAIN DIVERSION (CHANNEL HABITAT PRESERVATION - FLOW DIVERSION)
	CONSERVED STREAM BANK MATERIAL	DEFLECTOR- LOG BUNDLES	DEFLECTOR ROOTWAD	CHAIN, 1/2" HDG GRADE 30		
(EACH)	(CUYD)	(EACH)	(EACH)	(LNFT)	(CUYD)	(LMSM)
<b>24</b>	480	96	120	1,920	<b>1,680</b>	<b>ALL</b>

**TABULATION OF  
(MITIGATION)  
CHANNEL HABITAT  
PRESERVATION QUANTITIES**

9 September 2020 2:34 PM c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.1] Designed by: Checked by:



ITEM 62632-0000 PLANTINGS (WETLAND CREATION PLANTING MIX)	<b>SCHEDULE B, C, D MITIGATION, WETLAND MITIGATION</b> See Sheets M.9-13					
	FOR INFORMATION ONLY					
		OREGON ASH	WESTERN RED CEDAR	SITKA SPRUCE	SALMON BERRY	RED OSIER DOGWOOD
(LPSM)	(EACH)	(EACH)	(EACH)	(EACH)	(EACH)	(EACH)
ALL	12	13	14	164	82	81

ITEM 62632-0000 PLANTINGS (WETLAND BUFFER ENHANCEMENT PLANTING MIX)	<b>SCHEDULE B, C, D MITIGATION, WETLAND MITIGATION</b> See Sheets M.9-13					
	FOR INFORMATION ONLY					
		BIG LEAF MAPLE	DOUGLAS FIR	WESTERN HEMLOCK	THIMBLE BERRY	RED FLOWING CURRENT
(LPSM)	(EACH)	(EACH)	(EACH)	(EACH)	(EACH)	(EACH)
ALL	19	29	63	63	63	63

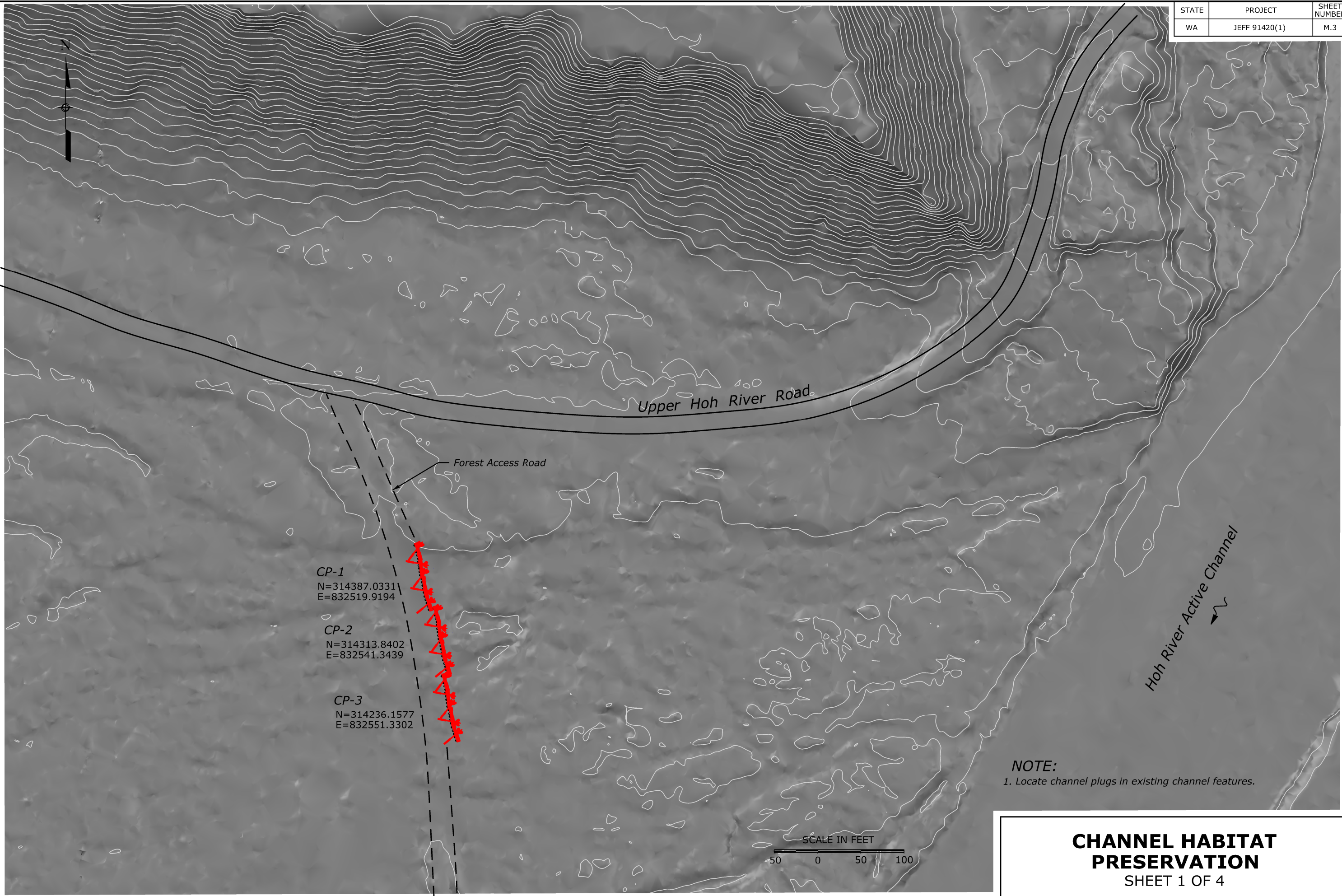
SCHEDULE B, C, D ITEM 64701-1000 MITIGATION, WETLANDS MITIGATION See Sheets M.9-13		(LPSM)
		ALL
INFORMATIONAL QUANTITIES		
CLEARING AND GRUBBING	(ACRE)	0.22
EXCAVATION	(CUYD)	1,317
CONSTRUCTION FENCE	(LNFT)	367
FIBER ROLLS (WATTLES)	(LNFT)	50
FABRIC	(SQYD)	330
COMPOST	(SQYD)	118
HABITAT LOG	(EACH)	3
BANK LOG	(EACH)	3
STANDING SNAG	(EACH)	3
HYDRO SEED	(ACRE)	0.22

**TABULATION OF  
(MITIGATION)  
WETLAND MITIGATION  
QUANTITIES**

9 September 2020 2:34 PM c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.2]

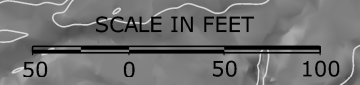
STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	M.3

9 September 2020 2:33 PM c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.3] Designed by: Checked by:



**CP-1**  
 N=314387.0331  
 E=832519.9194  
  
**CP-2**  
 N=314313.8402  
 E=832541.3439  
  
**CP-3**  
 N=314236.1577  
 E=832551.3302

**NOTE:**  
 1. Locate channel plugs in existing channel features.



**CHANNEL HABITAT  
 PRESERVATION**  
 SHEET 1 OF 4

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	M.4

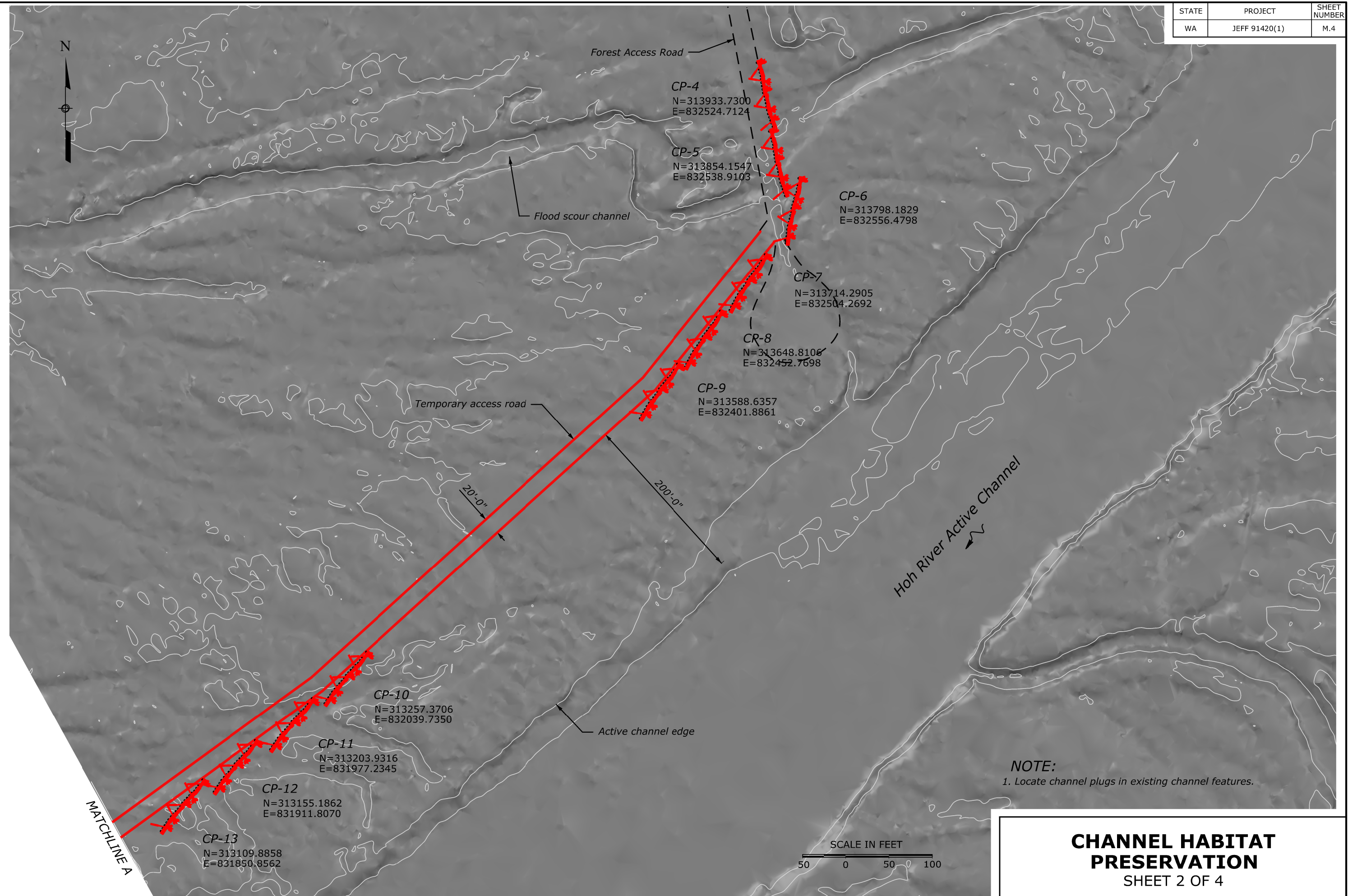


Checked by:

Designed by:

c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.4]

7 July 2020 12:23 PM



CP-4  
N=313933.7300  
E=832524.7124

CP-5  
N=313854.1547  
E=832538.9103

CP-6  
N=313798.1829  
E=832556.4798

CP-7  
N=313714.2905  
E=832504.2692

CR-8  
N=313648.8106  
E=832452.7698

CP-9  
N=313588.6357  
E=832401.8861

CP-10  
N=313257.3706  
E=832039.7350

CP-11  
N=313203.9316  
E=831977.2345

CP-12  
N=313155.1862  
E=831911.8070

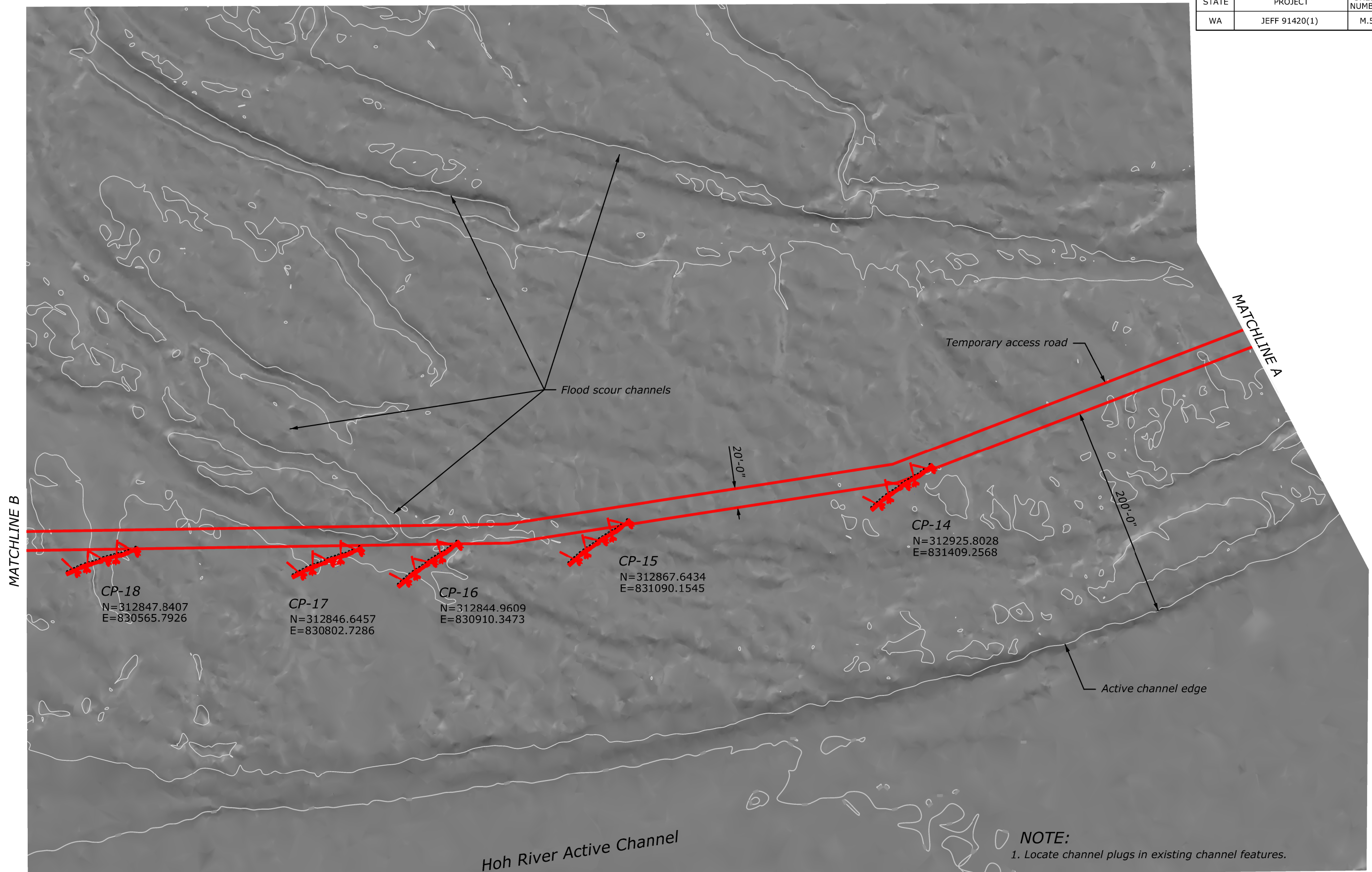
CP-13  
N=313109.8858  
E=831850.8562

**NOTE:**  
1. Locate channel plugs in existing channel features.



**CHANNEL HABITAT PRESERVATION**  
SHEET 2 OF 4

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	M.5



MATCHLINE B

MATCHLINE A

CP-18  
N=312847.8407  
E=830565.7926

CP-17  
N=312846.6457  
E=830802.7286

CP-16  
N=312844.9609  
E=830910.3473

CP-15  
N=312867.6434  
E=831090.1545

CP-14  
N=312925.8028  
E=831409.2568

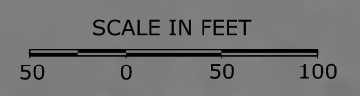
Flood scour channels

Temporary access road

Active channel edge

Hoh River Active Channel

NOTE:  
1. Locate channel plugs in existing channel features.



**CHANNEL HABITAT PRESERVATION**  
SHEET 3 OF 4

Checked by:

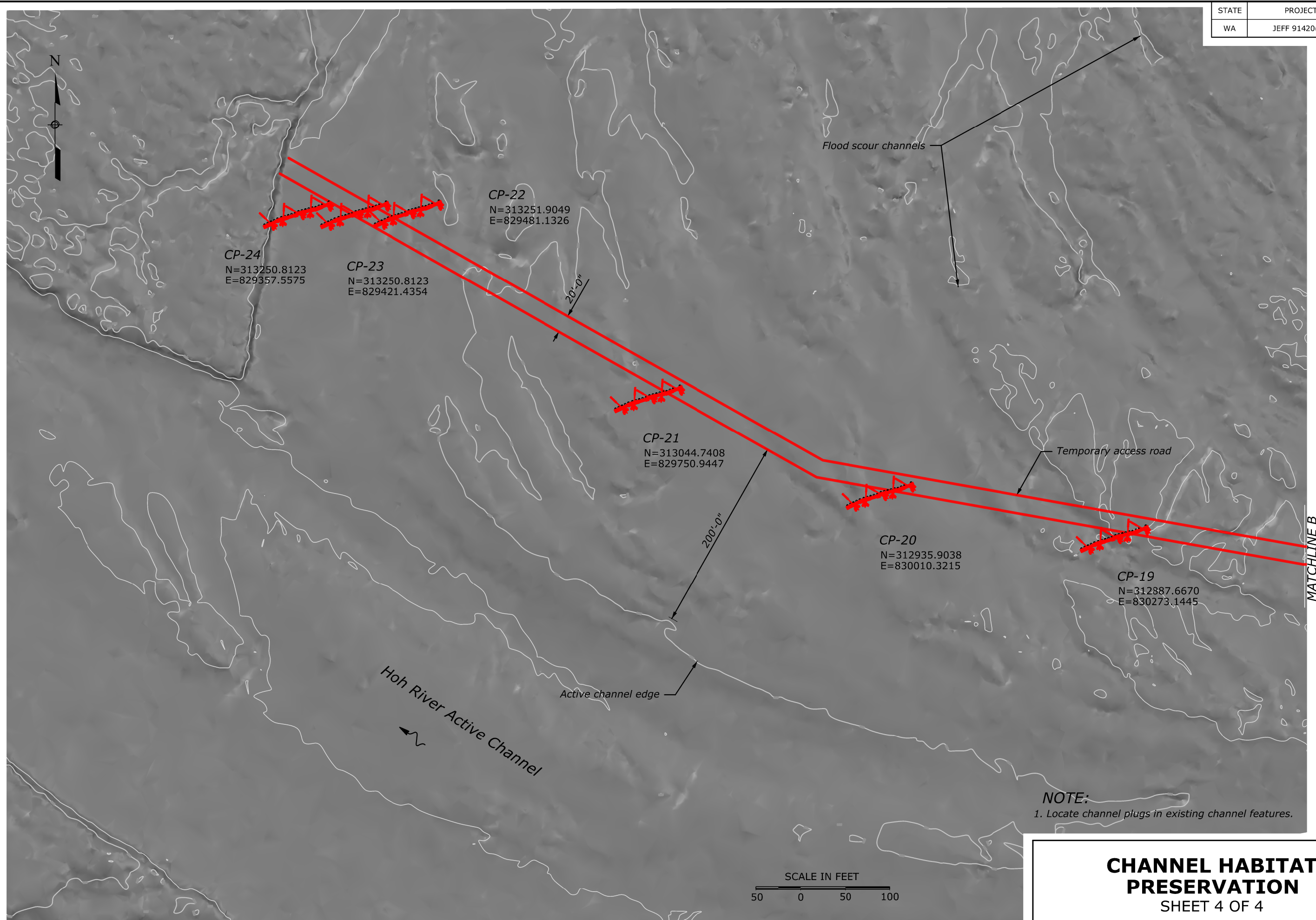
Designed by:

c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.5]

7 July 2020 12:24 PM

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	M.6

7 July 2020 12:26 PM  
 c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.6]  
 Designed by:  
 Checked by:

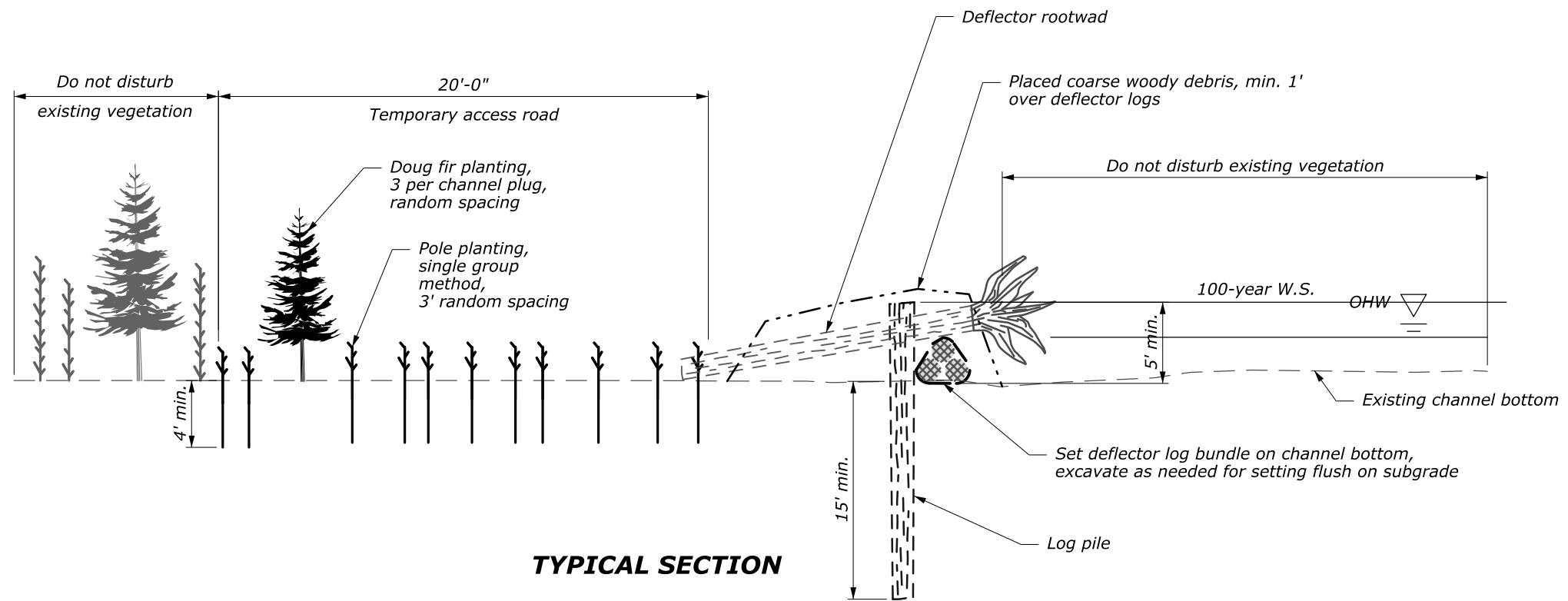


**NOTE:**  
 1. Locate channel plugs in existing channel features.

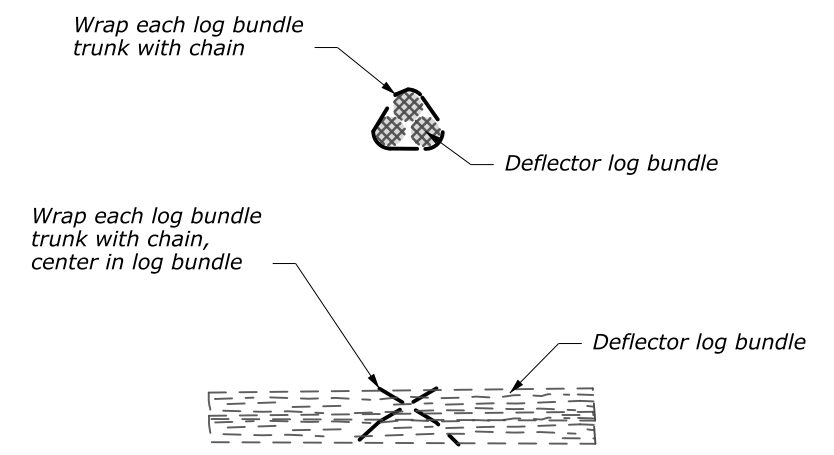


**CHANNEL HABITAT  
 PRESERVATION**  
 SHEET 4 OF 4

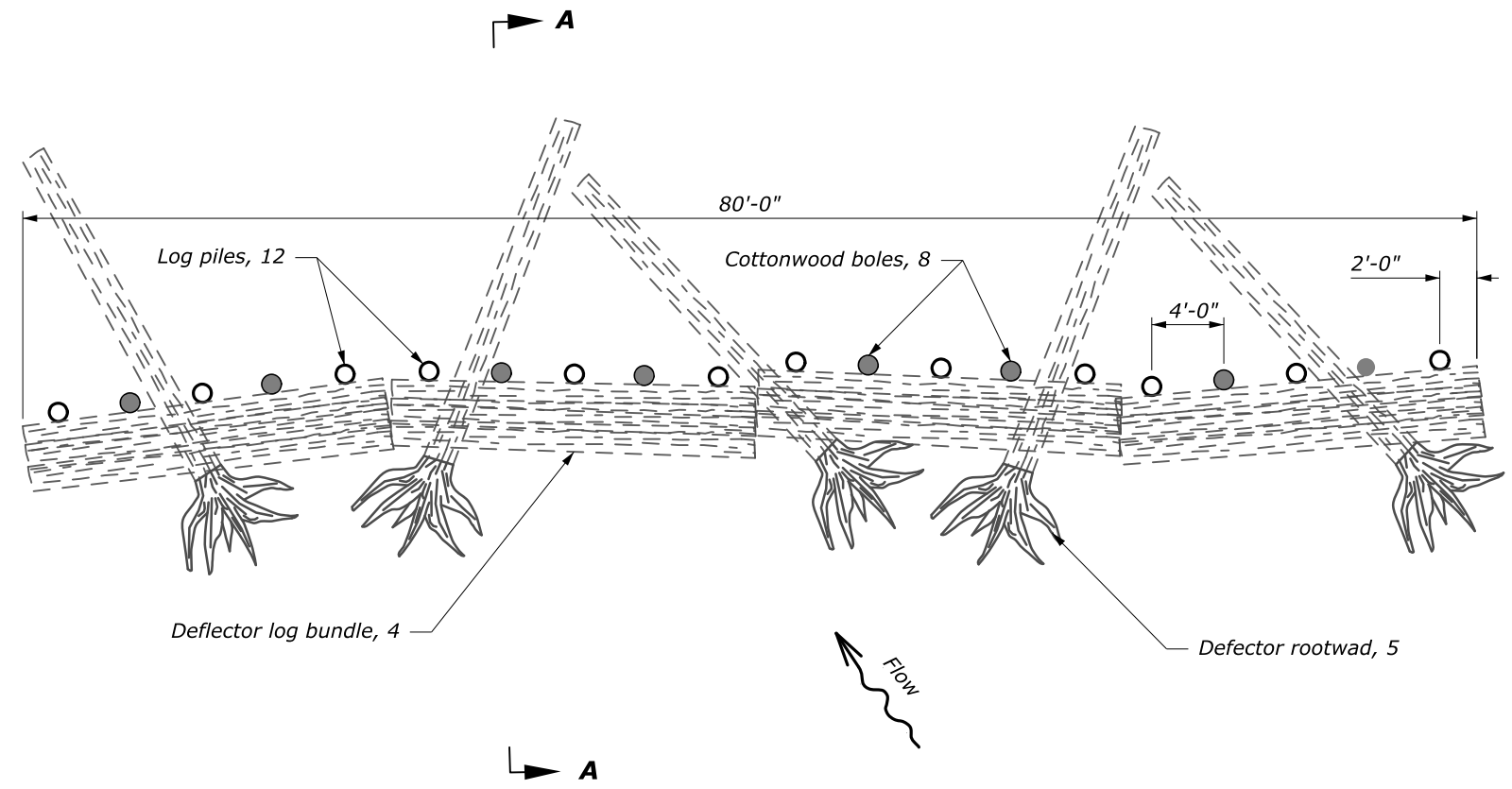
STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	M.7



**TYPICAL SECTION**



**TYPICAL DEFLECTOR LOG BUNDLE DETAIL**



**PLAN**

**NOTE:**

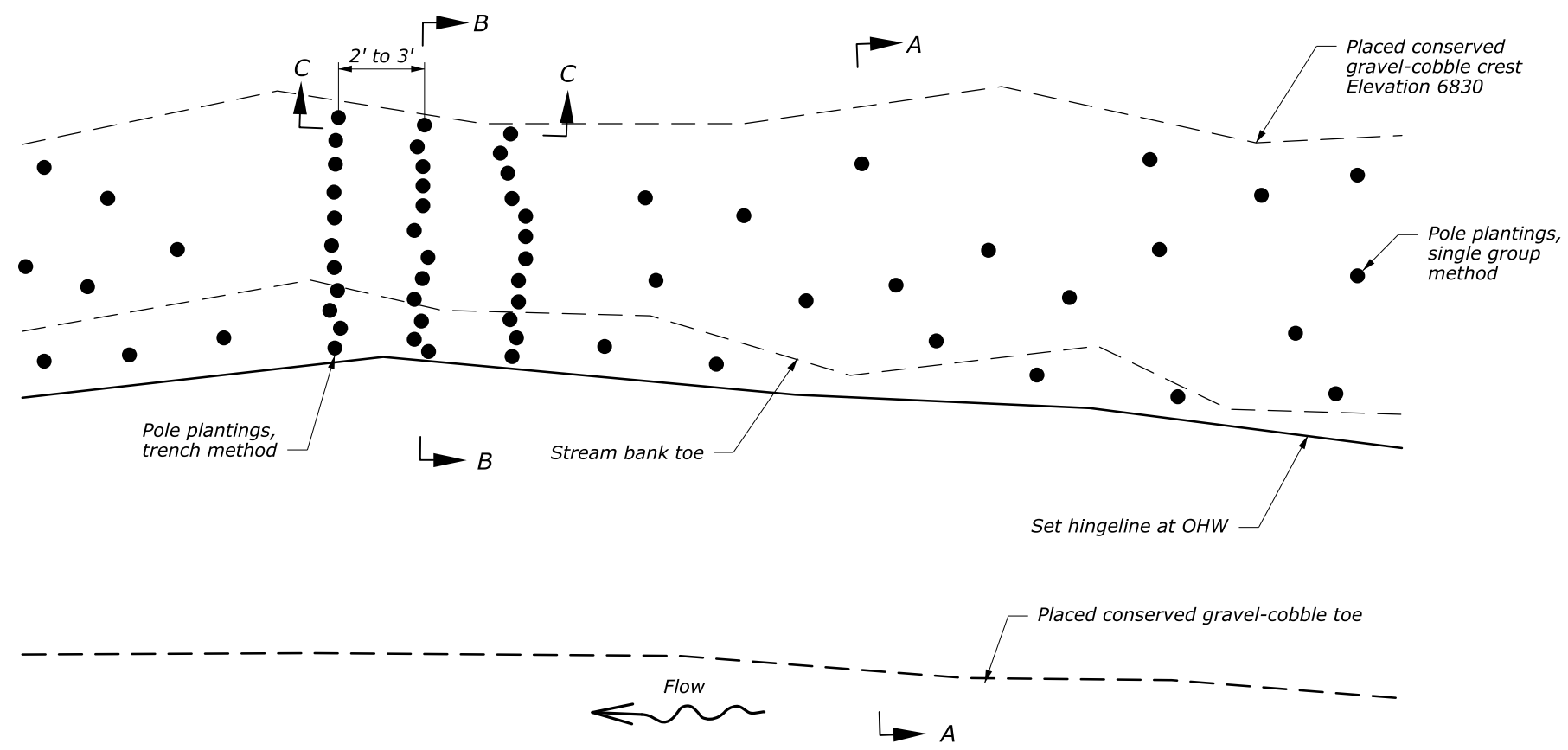
1. Deflector log; 20 to 22-foot trunk, 18 to 37-inch diameter without attached rootwad.
2. Deflector rootwad; 20-foot min. trunk, 18 to 37-inch diameter with attached rootwad.
3. Log pile; 20-foot min. trunk, 12 to 18-inch diameter without attached rootwad.
4. Cottonwood bole; 10-foot min. trunk, 12 to 18-inch diameter.
5. Space log pile and cottonwood boles 4' o.c.
6. Deflector log bundle; 110 to 150 ft<sup>3</sup> total log volume.
7. Coarse woody debris; even mixture of branches, limbs, trunks, vegetation, 1-inch to 8-inch diameter, tightly pack into void space between fill logs and deflector logs.

**CHANNEL PLUG DETAILS**

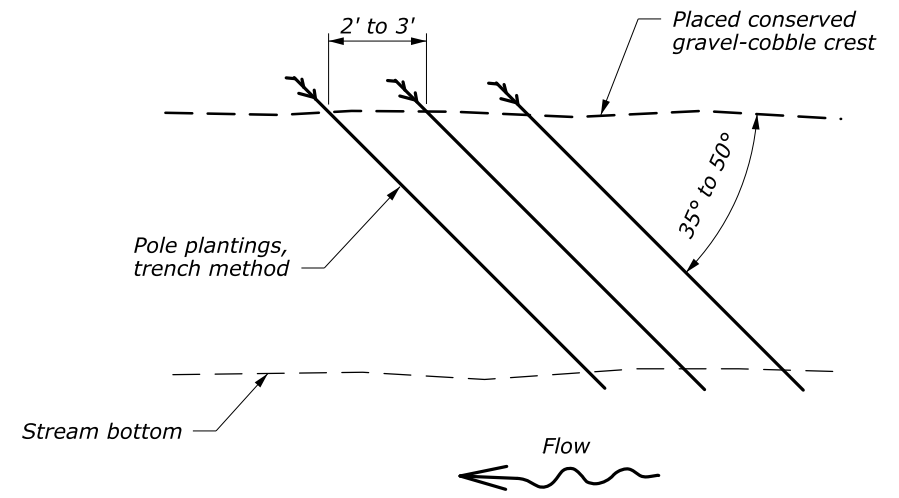
NO SCALE

8 June 2020 3:04 PM  
 c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.7]  
 Designed by:  
 Checked by:

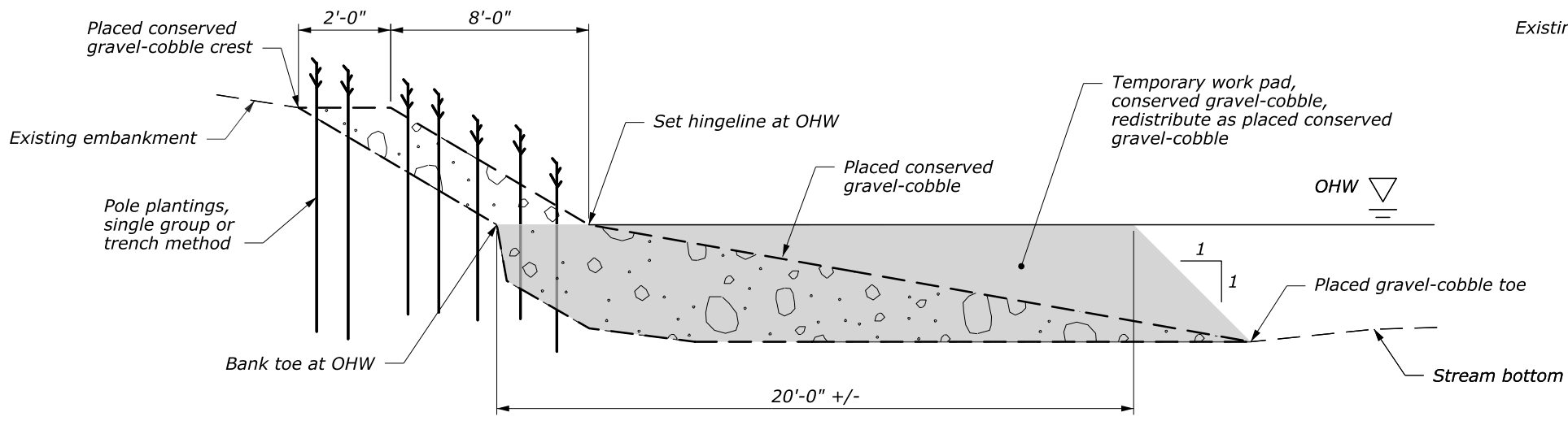
STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	M.8



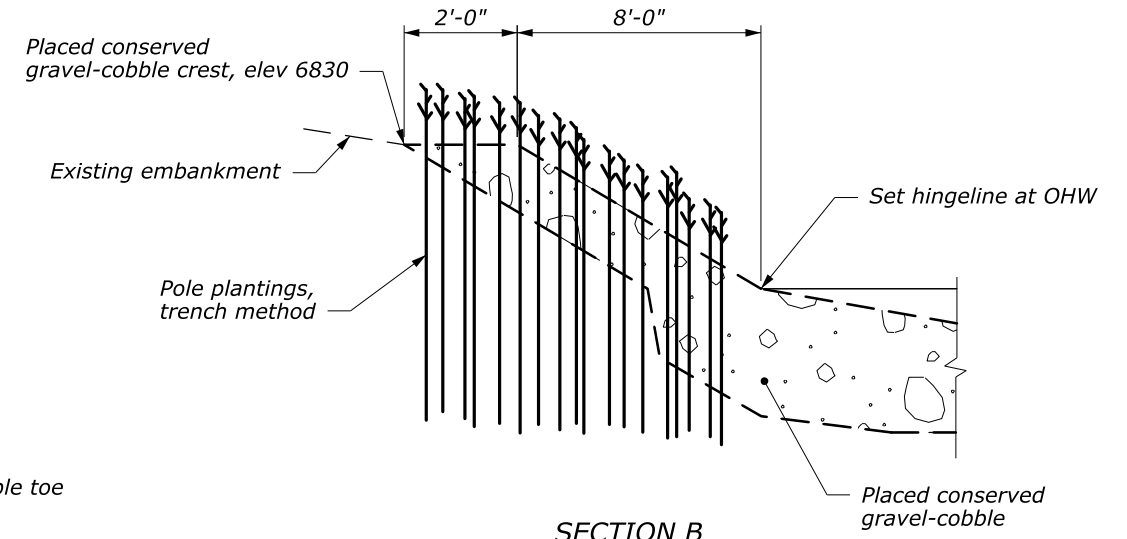
**PLAN**



**SECTION C**



**SECTION A**



**SECTION B**

**NOTE:**

1. Do not disturb existing trees when placing conserved streambed material.
2. Do not excavate existing stream bank or bottom when placing conserved streambed material.

**GRAVEL-COBBLE BANK STABILIZATION TYPICAL SECTIONS**

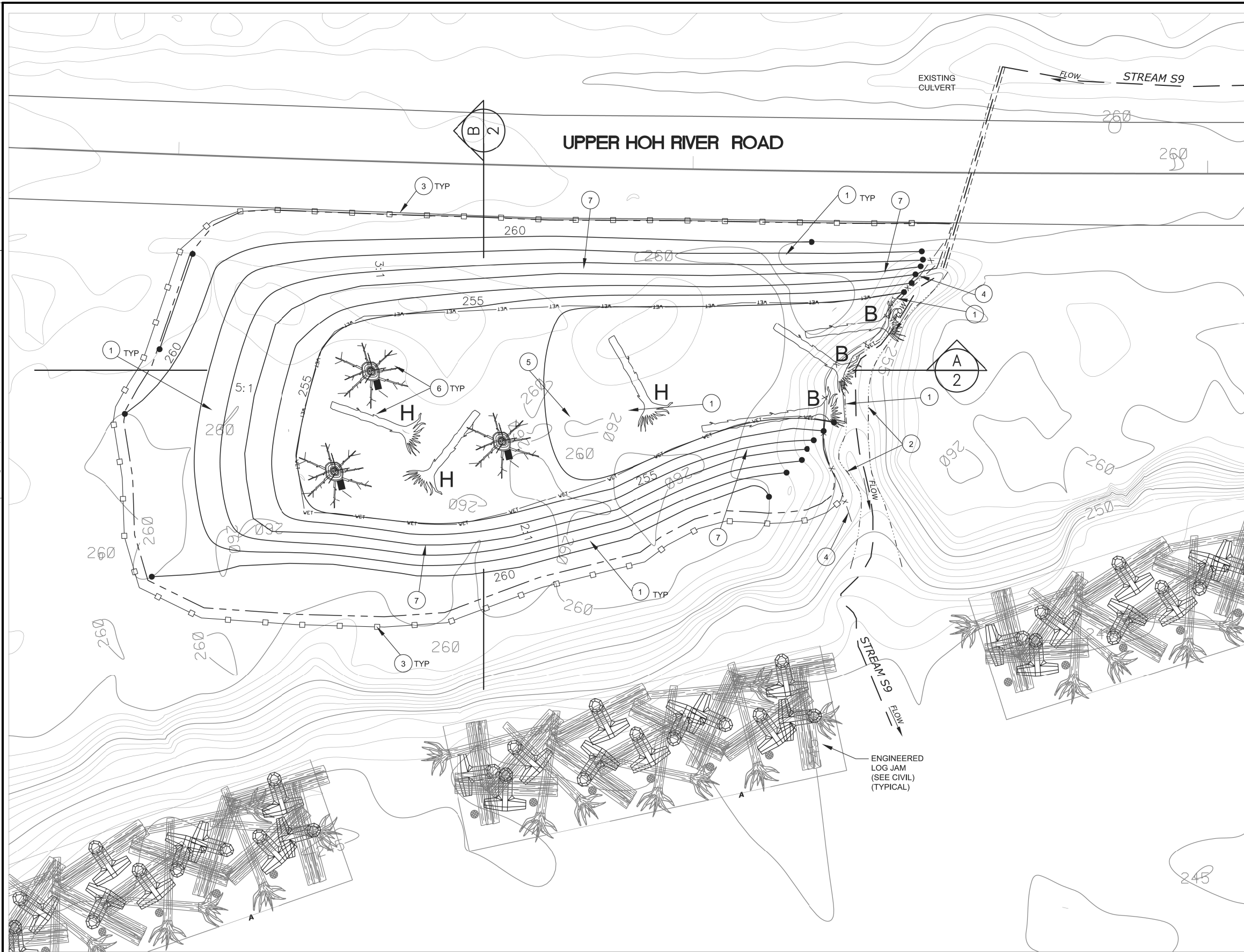
NO SCALE

Checked by: \_\_\_\_\_  
 Designed by: \_\_\_\_\_  
 c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.8]  
 2 June 2020 2:51 PM

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	M.9



**UPPER HOH RIVER ROAD**



**CONSTRUCTION NOTES**

- 1 MEET AND MATCH 1' STREAM BANK FULL DEPTH FOR WETLAND CREATION AREA. ELEVATION VARIES.
- 2 SURVEY AND STAKE MITIGATION AREA AND OHWM.
- 3 INSTALL HIGH VISIBILITY FENCE TO IDENTIFY LIMITS OF CLEARING AND GRUBBING FOR MITIGATION.
- 4 INSTALL STRAW WATTLE.
- 5 INCORPORATE 4" OF COMPOST INTO 6" OF EXISTING SOIL TO FINISHE GRADE ELEVATIONS.
- 6 INSTALL LARGE WOODY HABITAT FEATURES. SEE DETAILS SHEETS M.12-13.
- 7 INSTALL EROSION CONTROL FABRIC.

**GENERAL NOTES**

1. ENGINEER SHALL APPROVE, AND IF NECESSARY, FIELD-ADJUST FINAL GRADING FOR CONFORMANCE WITH MITIGATION PLAN OBJECTIVES.
2. MITIGATION SECTIONS SHEET M.10 AND MITIGATION DETAILS SHEETS M.12-13.
3. TREES LOCATED NEAR THE CLEARING AND GRUBBING LIMITS SHALL BE PROTECTED WITH HIGH VISIBILITY FENCE.

**LEGEND:**

- WET --- WETLAND BOUNDARY
- WET --- WETLAND BUFFER BOUNDARY
- 360 --- EXISTING CONTOUR (MAJOR)
- 361 --- EXISTING CONTOUR (MINOR)
- FLOW --- EXISTING STREAM CHANNEL
- --- APPROX. ORDINARY HIGH WATER MARK (O.H.W.M.)
- 361 --- PROPOSED CONTOUR
- --- HIGH VISIBILITY/LIMIT OF WORK
- X --- X --- STRAW WATTLE
- H HABITAT LOG (3)
- B BANK LOG (3)
- --- STANDING SNAG WITH NEST BOX

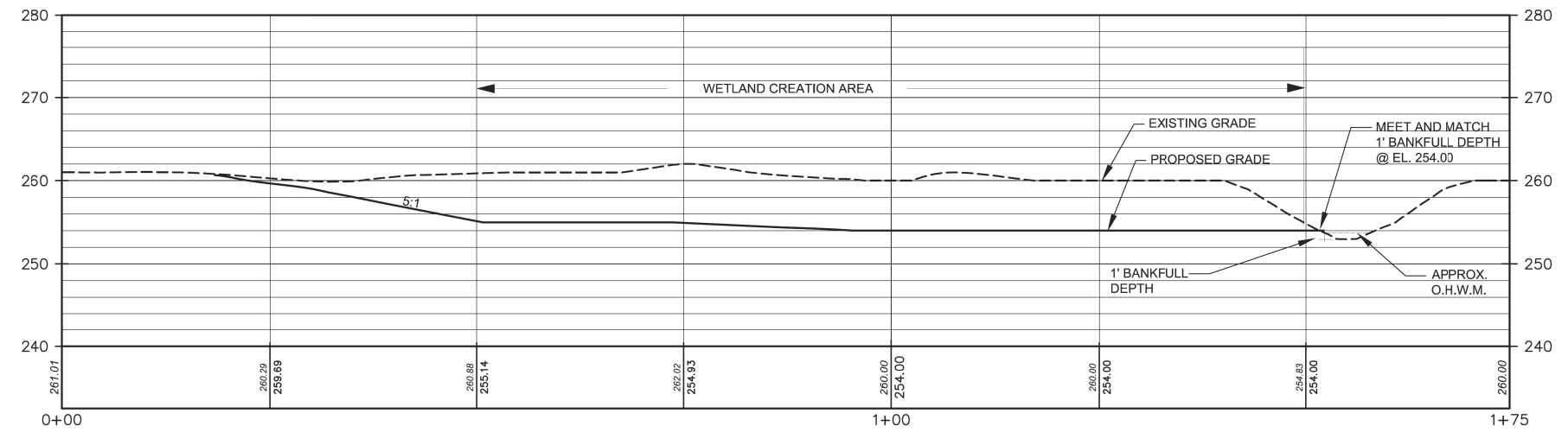
Checked by: \_\_\_\_\_  
 Designed by: \_\_\_\_\_  
 c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.9]  
 22 October 2020 2:57 PM

KNOW WHAT'S BELOW  
CALL BEFORE YOU DIG  
**811**  
callbeforeyoudig.org

**MITIGATION GRADING PLAN**

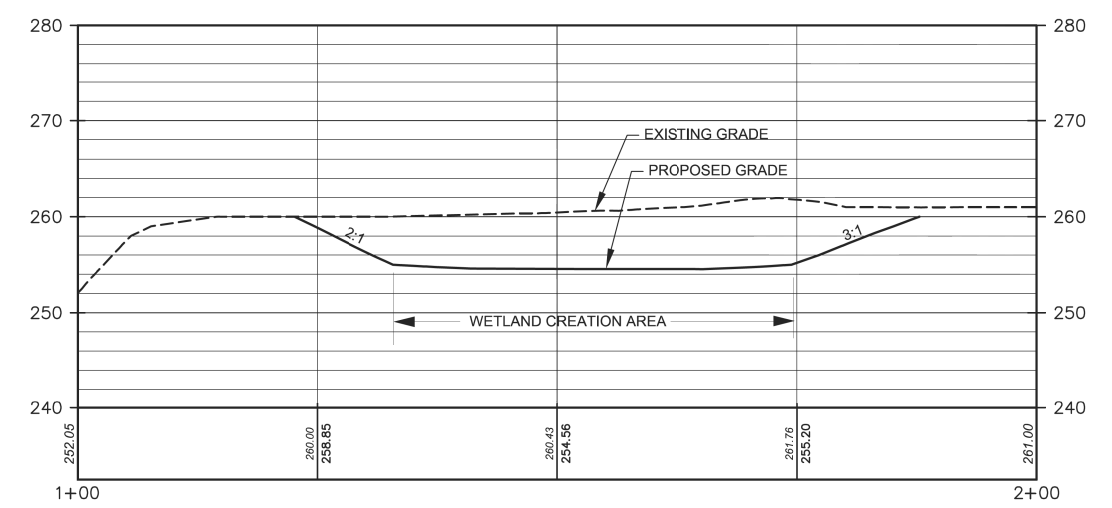


STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	M.10



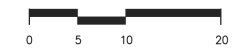
**SECTION A**

SCALE: HORIZ. 1" = 20'-0"  
VERT. 1" = 20'-0"



**SECTION B**

SCALE: HORIZ. 1" = 20'-0"  
VERT. 1" = 20'-0"

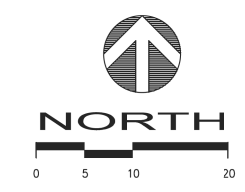


**MITIGATION GRADING SECTIONS**

2 June 2020 4:15 PM  
 Designed by:  
 Checked by:  
 c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.10]

KNOW WHAT'S BELOW  
CALL BEFORE YOU DIG  
**811**  
callbeforeyoudig.org

STATE	PROJECT	SHEET NUMBER
WA	JEFF 91420(1)	M.11



UPPER HOH RIVER ROAD

EXISTING  
CULVERT



**CONSTRUCTION NOTES**

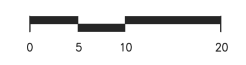
- ① HYDROSEED WETLAND CREATION AREA WITH WETLAND SEED MIX. SEE DETAIL SHEET M.10.
- ② HYDROSEED WETLAND BUFFER AREA WITH UPLAND SEED MIX. SEE DETAIL SHEET M.10.
- ③ INSTALL 3" BARK MULCH RINGS AROUND ALL TREE AND SHRUB CONTAINER STOCK.

**GENERAL NOTES**

- 1. SEE SHEET M.12 FOR PLANT SCHEDULE, PLANTING DETAILS, SEE SHEET M.13 FOR MITIGATION FEATURE DETAILS.
- 2. ALL WORK SHALL OCCUR WITHIN LIMIT OF WORK BOUNDARY.

**LEGEND:**

- WETLAND CREATION PLANTING MIX  
- WETLAND HYDROSEED MIX
- WETLAND BUFFER ENHANCEMENT MIX  
- UPLAND HYDROSEED MIX



Checked by:

Designed by:

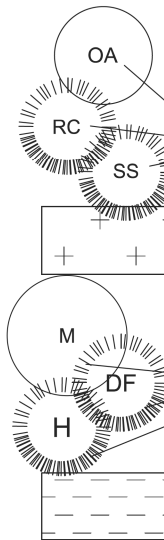
c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.11]

2 June 2020 4:15 PM

KNOW WHAT'S BELOW  
CALL BEFORE YOU DIG  
**811**  
callbeforeyoudig.org

**MITIGATION PLANTING PLAN**

### PLANT SCHEDULE



BOTANICAL NAME	COMMON NAME	CONDITION	SIZE (HT)	QNTY	SPACING	REMARKS
<b>WETLAND CREATION PLANTING MIX</b>						
FRAXINUS LATIFOLIA	OREGON ASH	5 GAL.	48" HT, MIN.	12	AS SHOWN	WELL BRANCHED
THUJA PLICATA	WESTERN RED CEDAR	5 GAL.	48" HT, MIN.	13	AS SHOWN	WELL BRANCHED, SINGLE TRUNK
PICEA SITCHENSIS	SITKA SPRUCE	5 GAL.	48" HT, MIN.	14	AS SHOWN	WELL BRANCHED, SINGLE TRUNK
RUBUS SPECTABILIS	SALMONBERRY	1 GAL.	12" HT, MIN.	184	4' O.C.	WELL BRANCHED, PLANT IN CLUSTERS OF 3-5 OF SAME SPECIES
CORNUS SERICEA	RED-OSIER DOGWOOD	1 GAL.	12" HT, MIN.	82	4' O.C.	WELL BRANCHED, PLANT IN CLUSTERS OF 3-5 OF SAME SPECIES
LNICERA INVOLUCRATA	BLACK TWINBERRY	1 GAL.	12" HT, MIN.	81	4' O.C.	WELL BRANCHED, PLANT IN CLUSTERS OF 3-5 OF SAME SPECIES
<b>WETLAND BUFFER ENHANCEMENT PLANTING MIX</b>						
ACER MACROPHYLLUM	BIGLEAF MAPLE	5 GAL.	36"-48" HT, MIN.	19	AS SHOWN	WELL BRANCHED
PSEUDOTSUGA MENZIESII	DOUGLAS FIR	5 GAL.	36"-48" HT, MIN.	29	AS SHOWN	WELL BRANCHED, SINGLE TRUNK
TSUGA HETEROPHYLLA	WESTERN HEMLOCK	5 GAL.	36"-48" HT, MIN.	18	AS SHOWN	WELL BRANCHED, SINGLE TRUNK
RUBUS PARVIFLORUS	THIMBLEBERRY	1 GAL.	12"-18" HT, MIN.	63	4' O.C.	WELL BRANCHED, PLANT IN CLUSTERS OF 3-5 OF SAME SPECIES
RIBES SANGUINUM	RED FLOWERING CURRENT	1 GAL.	12"-18" HT, MIN.	63	4' O.C.	WELL BRANCHED, PLANT IN CLUSTERS OF 3-5 OF SAME SPECIES
VACCINIUM OVATUM	EVERGREEN HUCKLEBERRY	1 GAL.	12"-18" HT, MIN.	63	4' O.C.	WELL BRANCHED, PLANT IN CLUSTERS OF 3-5 OF SAME SPECIES

### UPLAND HYDROSEED MIX

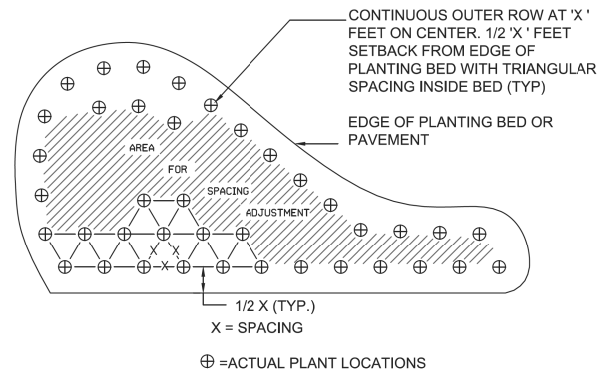
KIND/VARIETY	% BY WEIGHT	MIN. % GERM
BARCLAY PERENNIAL RYEGRASS	70%	90%
RED CREEPING FESCUE	20%	90%
HARD FESCUE	10%	90%

APPLICATION RATE: \_\_\_\_\_ 120 LBS/ACRE  
 CANFOR WOOD CELLULOSE ECO-FIBER MULCH: \_\_\_\_\_ 1,800 LBS/ACRE  
 NUTRICULTURE SEED STARTER FERTILIZER (16-45-7): \_\_\_\_\_ 60 LBS/ACRE  
 CANFOR ECO-TAC GUAR TACKIFIER: \_\_\_\_\_ 80 LBS/ACRE  
 STAY MOIST MOISTURE RETENTION AGENT \_\_\_\_\_ 60 LBS/ACRE

### WETLAND HYDROSEED MIX

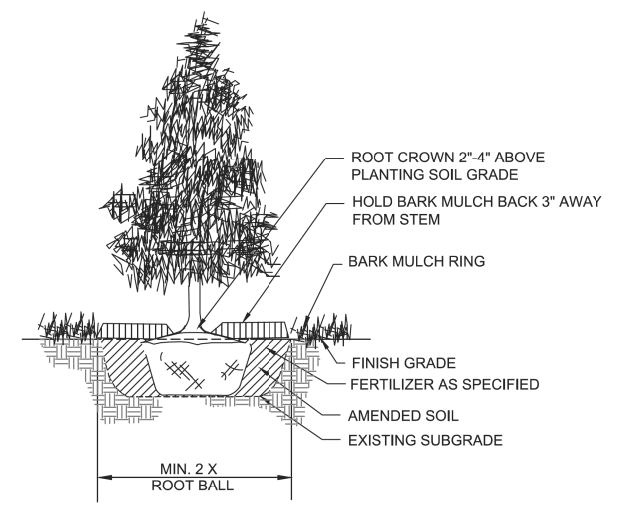
KIND/VARIETY	% BY WEIGHT	MIN. % GERM
RICE CUTGRASS	45%	90%
WESTERN MANA GRASS	40%	90%
CANADA REED	10%	90%
SPIKE BENTGRASS	3%	90%
WOOL-GRASS	2%	90%

APPLICATION RATE: \_\_\_\_\_ 120 LBS/ACRE  
 WOOD CELLULOSE FIBER MULCH: \_\_\_\_\_ 2,000 LBS/ACRE  
 GUAR TACKIFIER: \_\_\_\_\_ 40 LBS/ACRE



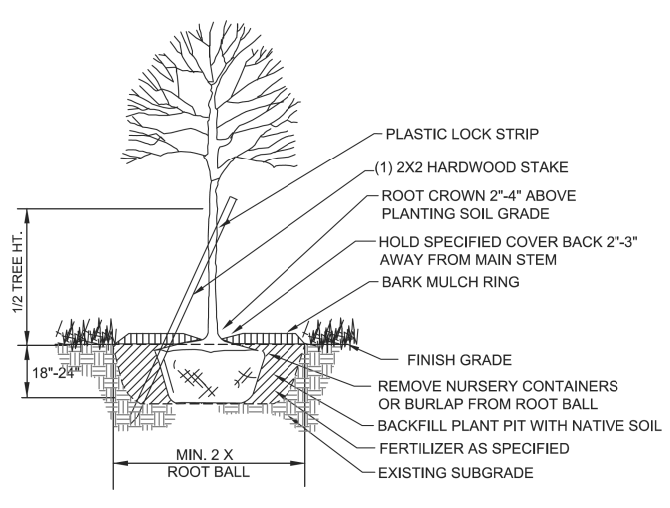
**PLANT SPACING**

NOT TO SCALE



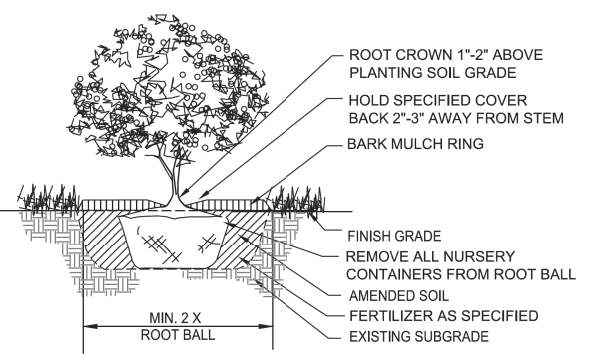
**CONIFER TREE PLANTING**

NOT TO SCALE



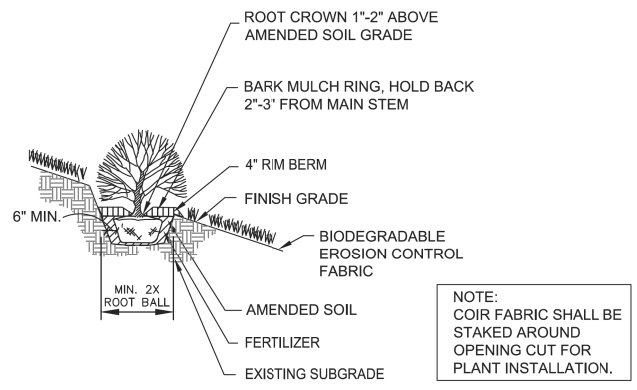
**DECIDUOUS TREE PLANTING**

NOT TO SCALE



**SHRUB PLANTING**

NOT TO SCALE



**ON-SLOPE PLANTING**

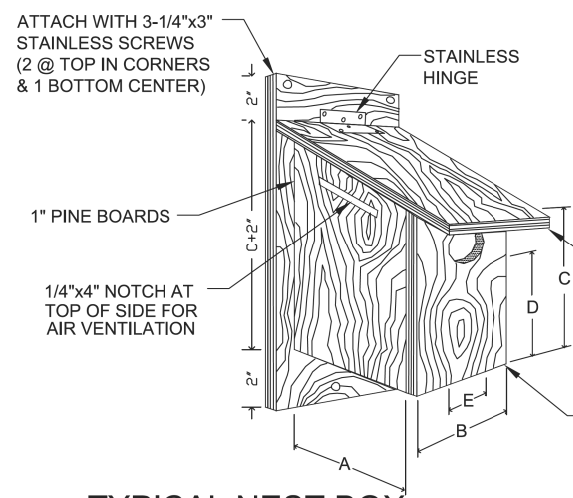
NOT TO SCALE

CALL  
2 BUSINESS DAYS  
BEFORE YOU DIG  
FOR UTILITY LOCATE  
811

KNOW WHAT'S BELOW  
CALL BEFORE YOU DIG  
811  
callbeforeyoudig.org

## MITIGATION PLANT SCHEDULE DETAILS

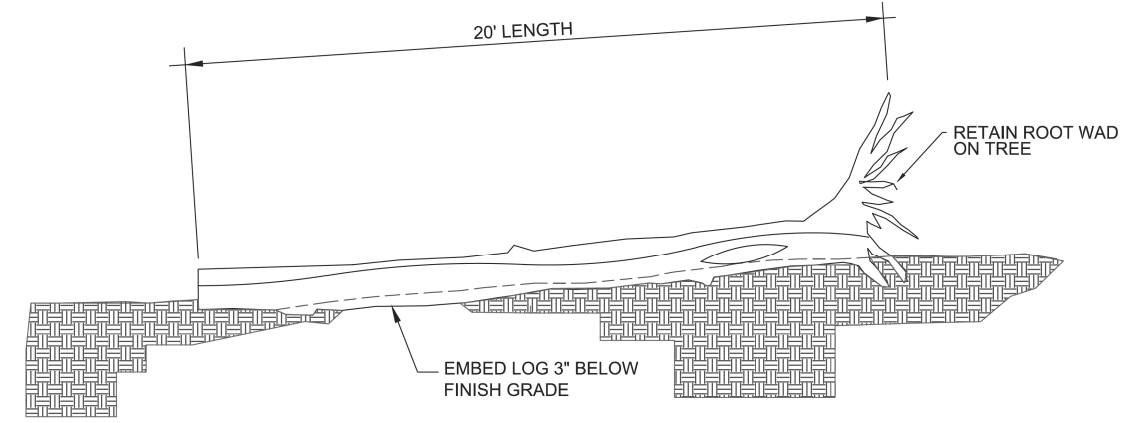
Checked by: \_\_\_\_\_  
 Designed by: \_\_\_\_\_  
 c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.12]  
 2 June 2020 4:06 PM



NEST BOX SPECIFICATIONS

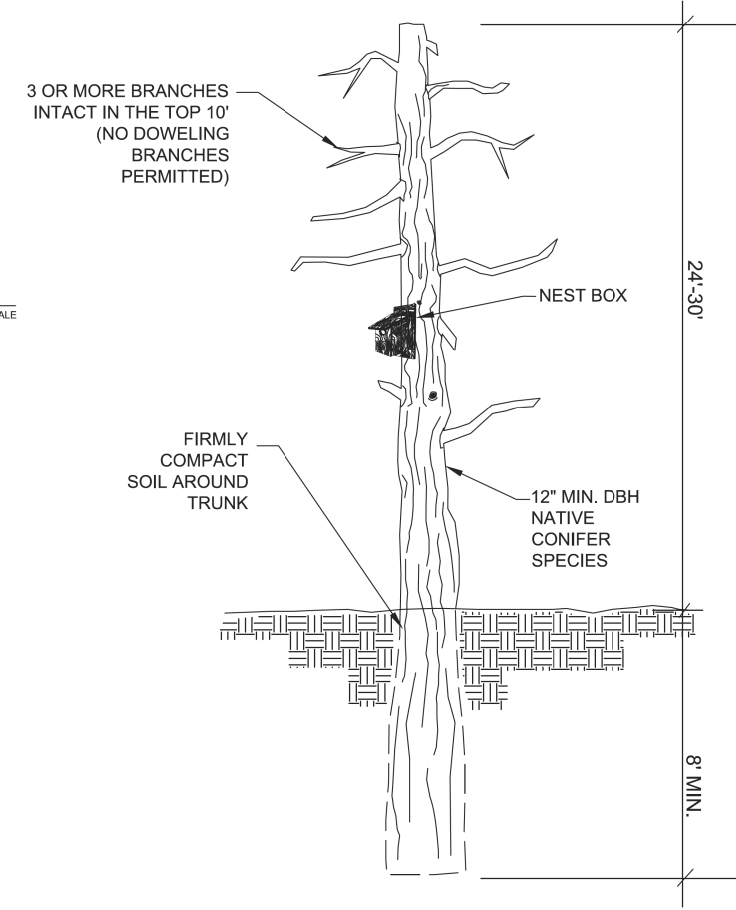
TARGET SPECIES	AxB (inches)	C (inches)	D	E (dia. inches)	Height Above Ground (feet)	QTY.
CHICKADEE NUTHATCH, DOWNY WOODPECKER	4 x 4	8-10	6-8	1.25	18	1
TREE AND VIOLET-GREEN SWALLOW	5 x 5	6	1-5	1.25	15	1
WOOD DUCK	8 x 12	12	9.5	OV 3 H X 4 W	12	1

TYPICAL NEST BOX

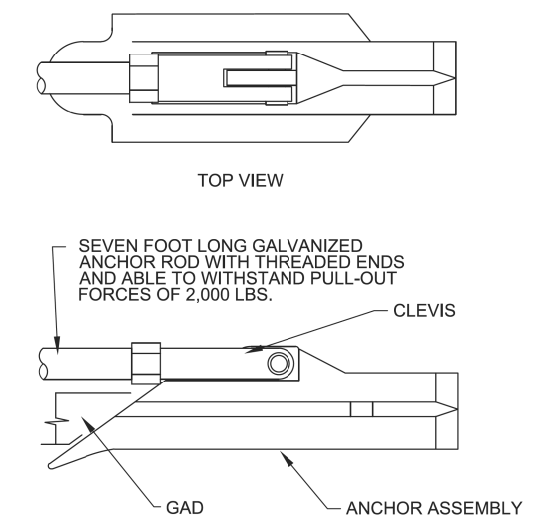
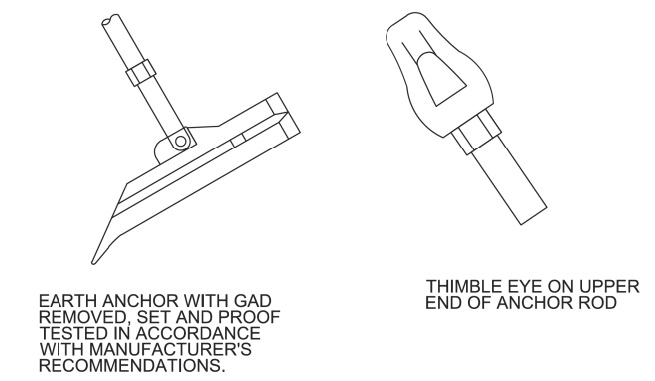


HABITAT LOG

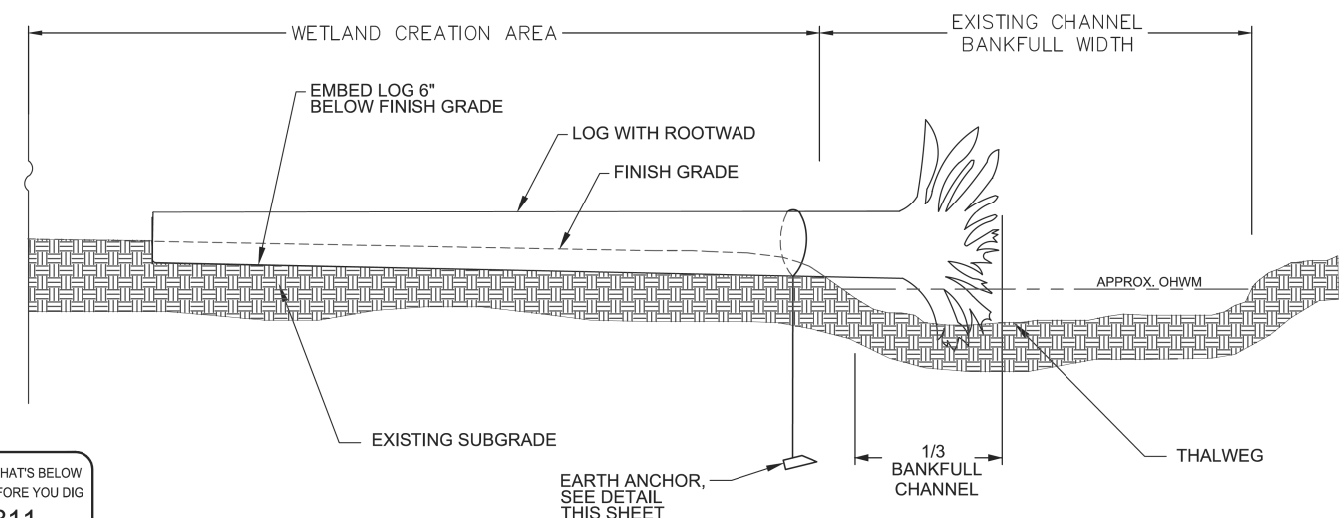
- NOTES:
1. FINAL WOOD PLACEMENT SUBJECT TO FIELD VERIFICATION BY ENGINEER.
  2. BANK LOGS SHALL BE 12'-14' LONG AND 12"-18" DBH, NATIVE CONIFER SPECIES



STANDING SNAG



EARTH ANCHOR



BANK LOG (ANCHORED)

KNOW WHAT'S BELOW  
CALL BEFORE YOU DIG  
811  
callbeforeyoudig.org

MITIGATION DETAILS

Checked by: \_\_\_\_\_  
 Designed by: \_\_\_\_\_  
 c:\pw-work\0373762\wa-a2013020ua.dgn [Sheet M.13]  
 22 October 2020 3:23 PM