WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

SNOW LAKES #1 TRAIL BRIDGE OVER ICICLE CREEK
BRIDGE WIDENING RETROFIT
061707-1553-0.1000

DRAWING INDEX

DESIGNED BY:

SEAN STORY, PE, KPFF

RECOMMENDED BY:

Forest Bridge Engineer

JASON PETERSON Digitally signed by JASON PETERSON Date: 2020.08.06 17:39:05 -07'00'

Forest Engineer

MARK SODARO Date: 2020.08.07 09:07:10 -07'00' For Kathy Van Hecke, RBE

Regional Bridge Engineer

APPROVED BY:

CHRISTY DARDEN Digitally signed by CHRISTY DARDEN Date: 2020.08.07 14:20:13 -07'00'

Director of Engineering

JEFFREY RIVERA Digitally signed by JEFFREY RIVERA Date: 2020.08.06 17:43:01 -07'00'

District Ranger

SCOTT E. KUEBLER, STATE OF WASHINGTON, 38536, STRUCTURAL ENGINEER, PROFESSIONAL ENGINEER, 8-5-20

kpff
2407 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 396-0150 Fax (253) 396-0162

PROJECT NO.	
17–0882	
SHEET	OF
1	12

100% DESIGN SUBMITTAL

BRIDGE DESIGN LOADS

BRIDGE DESIGN LOADS

1. PERMANENT LOADS:

– DC	CONCRETE WEIGHT	= 155 PCF
	STRUCTURAL STEEL WEIGHT	= 490 PCF
	TIMBER WEIGHT	= 50 PCF

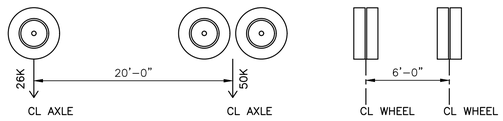
2. TRANSIENT LOADS:

– LL	DESIGN TRUCK AXLE LOAD (SEE SCHEDULE OF DESIGN VEHICLES)	
– S	SNOW LOAD	= 120 PSF

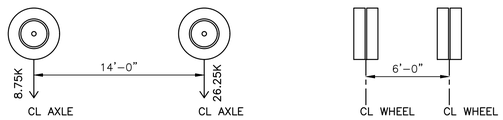
SNOW LOADS AND LIVE LOADS ARE NOT TO BE CONSIDERED TO ACT CONCURRENTLY

3. DESIGN VEHICLES:

– DESIGN VEHICLE 1, 10–CY CONCRETE/DUMP TRUCK



– DESIGN VEHICLE 2, 35,000–LB BOOM TRUCK



4. LOAD COMBINATIONS : AASHTO LRFD

– SERVICE I	: 1.0 DC + 1.0 LL	– STRENGTH II : 1.25 DC + 1.75 LL
– SERVICE II	: 1.0 DC + 0.8 LL	– STRENGTH III : 1.25 DC + 1.75 S
– SERVICE III	: 1.0 DC + 1.0 S	– FATIGUE I : 0.5 DC + 1.5 LL
– STRENGTH I	: 0.9 DC + 1.75 LL	

5. BRIDGE RAILING LOADS:

A. LOADING IN ACCORDANCE WITH RAILING TEST LEVEL TL–1 PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 13.
   – VEHICLE LOAD = 13.5 KIPS
   – APPLICATION HEIGHT = 18 IN
   – APPLICATION LENGTH = 4 FT

B. RAILING DOES NOT MEET VEHICLE LOADING OR CRASH TESTING STANDARDS PER THE STRUCTURE OWNER AS THE PRIMARY USE OF THE STRUCTURE IS A FOOT TRAFFIC TRAIL BRIDGE.

CONCRETE FABRICATION

MATERIAL	QUANTITY	REMARKS
CONCRETE~ 4000 PSI 28 DAY COMPRESSIVE STRENGTH WITH 6% AIR ENTRAINMENT [EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS] SUBMIT CONCRETE MIX DESIGN FOR WRITTEN APPROVAL PRIOR TO ANY POUR NOTIFY ENGINEER AT LEAST 48 HOURS BEFORE PLACING CONCRETE FORMS TO REMAIN IN PLACE A MINIMUM OF 7 DAYS AFTER POUR UNLESS APPROVED BY THE ENGINEER FINISH OF CONCRETE AS SPECIFIED CYLINDER TESTS REQUIRED TO BE TAKEN BY CONTRACTOR	AS REQUIRED	
CONCRETE REINFORCING STEEL 1. DEFORMED BAR ASTM A615 GRADE 60 2. WELDED BARS ASTM A706 GRADE 60		
PROVIDE 3/4" x 3/4" CHAMFER AT ALL EXPOSED EDGES AND CORNERS OF CONCRETE		

BRIDGE GENERAL STRUCTURAL DESIGN NOTES

BRIDGE DESIGN SPECIFICATIONS

THE BRIDGE DESIGN IS IN ACCORDANCE WITH THE FOLLOWING DESIGN SPECIFICATIONS :

1. AASHTO LRFD BRIDGE DESIGN SPECIFICATION, 7TH EDITION (2014). WITH INTERIM REVISIONS
2. WSDOT STANDARD SPECIFICATION LATEST EDITION
3. WSDOT BRIDGE DESIGN MANUAL
4. AASHTO PEDESTRIAN BRIDGE GUIDELINES

METALS SCHEDULE

MATERIAL	QUANTITY	REMARKS
PLATES & BARS	AS REQURIRED	ASTM A36
ANGLES	AS REQURIRED	ASTM A36
W–SHAPES	AS REQURIRED	ASTM A992
ALL STEEL ITEMS SHALL BE HOT–DIP GALVANIZED		
ALL WELDING SHALL BE PERFORMED BY WELDERS QUALIFIED FOR THE WELD AND POSITION SHOWN IN ACCORDANCE WITH AWS AND HAVING CURRENT CERTIFICATION FROM WABO.		
ALL WELDS SHALL BE PERFORMED WITH PROCEDURES PREQUALIFIED OR QUALIFIED IN ACCORDANCE WITH AWS D1.1 OR D1.4.		
THE WELDS SHOWN ARE FOR THE FINAL CONNECTIONS. FIELD WELD SYMBOLS ARE SHOWN WHERE FIELD WELDS ARE REQUIRED BY THE STRUCTURAL DESIGN. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING IF A WELD SHOULD BE SHOP–WELDED OR FIELD–WELDED IN ORDER TO FACILITATE THE STRUCTURAL STEEL ERECTION.		
WELDING ELECTRODES SHALL BE 70 KSI STRENGTH AND SHALL BE "LOW–HYDROGEN" ELECTRODES.		

CONNECTIONS

TYPE	REMARKS
MACHINE BOLTS	ASTM A307
HIGH STRENGTH BOLTS	ASTM A325/F3125
NUTS	ASTM A 563
WASHERS	ASTM F436
ANCHOR BOLTS	ASTM F 1554, GR36
DECK ATTACHMENT "C" CLIPS	ASTM A48 CLASS 30
TIMBER BOLTS (DOME HEAD)	ASTM A307

BEARING PADS

TYPE	REMARKS
ELASTOMERIC	AASHTO M251
NEOPRENE	60 DUROMETER NEOPRENE

WOOD SCHEDULE

MATERIAL	QUANTITY	REMARKS
GLULAM DECK PANELS	AS REQUIRED	AITC 117 DESIGN TABLE B2, COMBINATION NUMBER 2, GRADE L2 DF
SOLID SAWN MEMBERS	AS REQUIRED	COAST REGION DOUGLAS FIR OR WESTERN LARCH, NUMBER 1 GRADE
GLULAM DECK PANELS SHALL BE FABRICATED IN ACCORDANCE WITH ANSI A190.1		
GLULAM DECK PANELS SHALL BE TREATED WITH KLEAR GARD 25 WITH TRU CORE PRESERVATIVE SYSTEM BY PERMAPOST PRODUCTS CO. OR APPROVED EQUAL		
SOLID SAWN MEMBERS SHALL MEET WWPA CURRENT STANDARDS AND GRADING RULES		
RAIL SUPPORT BEAMS, RAIL POSTS, SCUPPERS, RUB RAILS, AND TOP AND SIDE RAILS SHALL BE S4S		
RUNNING PLANKS SHALL BE ROUGH SAWN		

SURVEY DATA:

1. SURVEY DATA IS BASED ON INFORMATION PROVIDED BY WDFW TITLED "ICICLE CREEK BRIDGE AREA TOPO". CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH ANY FABRICATION OR INSTALLATION.

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY ALL LEVELS, DIMENSIONS, AND EXISTING CONDITIONS IN THE FIELD BEFORE PROCEEDING. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR FIELD CHANGES PRIOR TO INSTALLATION OR FABRICATION. IN CASE OF DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THE PLANS, THE CONTRACTOR SHALL OBTAIN DIRECTION FROM THE ENGINEER BEFORE PROCEEDING. DIMENSIONS AND CALLOUTS NOTED AS PLUS OR MINUS (+/–) OR (REF) INDICATE UNVERIFIED DIMENSIONS AND ARE APPROXIMATE. NOTIFY THE ENGINEER IMMEDIATELY OF CONFLICTS OR EXCESSIVE VARIATIONS FROM AS INDICATED. NOTED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS – DO NOT SCALE THE PLANS.
2. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AND/OR SHORING OF ANY STRUCTURAL COMPONENTS UNTIL ALL FINAL CONNECTIONS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS.
3. CONTRACTOR INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THE REQUIREMENT. ALL DEVIATIONS AND/OR MODIFICATIONS TO THESE DRAWINGS SHALL BE APPROVED BY THE ENGINEER OF RECORD IN WRITING PRIOR TO CHANGE OR MODIFICATION.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SAFETY PRECAUTIONS AND THE METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES REQUIRED TO DO THE WORK.
5. SHOP DRAWINGS AND MATERIAL DATA SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER PRIOR TO ANY FABRICATION OR CONSTRUCTION AND ARE TO BE CHECKED AND APPROVED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTAL TO THE ENGINEER. ITEMS INCLUDE CONCRETE MIX DESIGN, CONCRETE REINFORCEMENT, GIRDERS DIAPHRAGMS, GUARDRAIL, DECKING AND MISC STEEL INCLUDING HARDWARE AND ANCHORAGE.
6. CONSTRUCTION AND INSPECTION SHALL CONFORM TO WSDOT STANDARD SPECIFICATION, LATEST EDITION.

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WASHINGTON STATE DEPARTMENT OF FISH AND WILDLIFE

SCOTT E. KUEHNE — STATE OF WASHINGTON — 38536 — PROFESSIONAL ENGINEER — 8-5-20

SYM	DATE	REVISION DESCRIPTION	BY

APPROVED AND RELEASED FOR CONSTRUCTION

CHIEF ENGINEER ..... DATE:

PROGRAM ..... DATE:

0 —— 1"
BAR MEASURES ONE INCH ON ORIGINAL DRAWINGS

DESIGNED BY SMS
CHECKED BY SEK
DRAWN BY TRL
DATE 2020–08–05

SNOW LAKES TRAILHEAD

SNOW LAKES #1 BRIDGE OVER ICICLE CREEK WIDENING RETROFIT

GENERAL NOTES

PROJECT NO. 17–08882

SHEET 02 OF 12

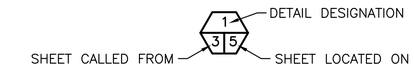
100% DESIGN SUBMITTAL

STATE MAP
NOT TO SCALE

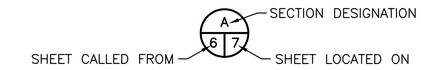
ABBREVIATIONS

ALUM	–	ALUMINUM
∠	–	ANGLE
APPROX	–	APPROXIMATELY
AWS	–	AUXILIARY WATER SUPPLY
B/	–	BOTTOM OF
BM	–	BEAM, BENCH MARK
BOT	–	BOTTOM
℄, CL	–	CENTERLINE
CA	–	CONCRETE ASBESTOS
CDF	–	CONTROL DENSITY FILL
CFS	–	CUBIC FEET PER SECOND
CG	–	CENTER OF GRAVITY
CIP	–	CAST IN PLACE
CIR	–	CIRCULAR
CJ	–	CONSTRUCTION JOINT
CJP	–	COMPLETE JOINT PENETRATION
CLR	–	CLEARANCE
COL	–	COLUMN
CONC	–	CONCRETE
CONT	–	CONTINIOUS
DIA, ø	–	DIAMETER
E	–	EASTING
EA	–	EACH
EF	–	EACH FACE
EG	–	EXISTING GRADE
EL, ELEV	–	ELEVATION
EQ	–	EQUAL
ES	–	EACH SIDE
EW	–	EACH WAY
EX, EXIST	–	EXISTING
FB	–	FLAT BAR
FD	–	FOUNDATION DRAIN
FND	–	FOUNDATION
FF	–	FINISH FLOOR
FG	–	FINISHED GRADE
FRP	–	FIBER REINFORCED PLASTIC
FTG	–	FOOTING
FW	–	FISHWAY
GALV	–	GALVANIZED STEEL
GA	–	GAUGE
GPM	–	GALLONS PER MINUTE
HDPE	–	HIGH DENSITY POLYETHYLENE PIPE
STA	–	STATION
HORIZ	–	HORIZONTAL
HSS	–	HOLLOW STRUCTURAL STEEL
ID	–	INSIDE DIAMETER
IE	–	INVERT ELEVATION
JT	–	JOINT
LFW	–	LOWER FISHWAY
LG	–	LONG
LLV	–	LONG LEG VERTICAL
LSL	–	LONG SLOTTED HOLE
MAX	–	MAXIMUM
MIN	–	MINIMUM
MFG	–	MANUFACTURER'S
MISC	–	MISCELLANEOUS
MH	–	MANHOLE
MOD	–	MODEL
N	–	NORTHING
NO	–	NUMBER
NTS	–	NOT TO SCALE
OC	–	ON CENTER
OD	–	OUTSIDE DIAMETER
OHWM	–	ORDINARY HIGH WATER MARK
OPP	–	OPPOSITE
PL	–	PLATE
℄	–	PROPERTY LINE
PREFAB	–	PRE–FABRICATED
PVC	–	POLYVINYL CHLORIDE
Q	–	FLOW
REF	–	REFERENCE INFORMATION TO BE VERIFIED BY CONTRACTOR
REINF	–	REINFORCING
REQ'D	–	REQUIRED
R/W	–	RETAINING WALL
SD	–	STORM DRAIN
SEC	–	SECTION
SF	–	SQUARE FEET
SHT	–	SHEET
SIM	–	SIMILAR
SPA	–	SPACING
SPECS	–	PROJECT SPECIFICATIONS
SS	–	STAINLESS STEEL
STD	–	STANDARD
SYM	–	SYMMETRICAL
T&B	–	TOP & BOTTOM
TR	–	THREADED ROD
TS	–	TOP OF SLAB
T/	–	TOP OF
TOW/TW	–	TOP OF WALL
TYP	–	TYPICAL
UFW	–	UPPER FISHWAY
UNO	–	UNLESS NOTED OTHERWISE
VERT	–	VERTICAL
W/	–	WITH
WDFW	–	WASHINGTON STATE DEPARTMENT OF FISH AND WILDLIFE
WHS	–	WELDED HEADED STUD
WSEL	–	WATER SURFACE ELEVATION
WSDOT	–	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
WTS	–	WELDED THREADED STUD
WF	–	WIDE FLANGE

SHEET SYMBOLS

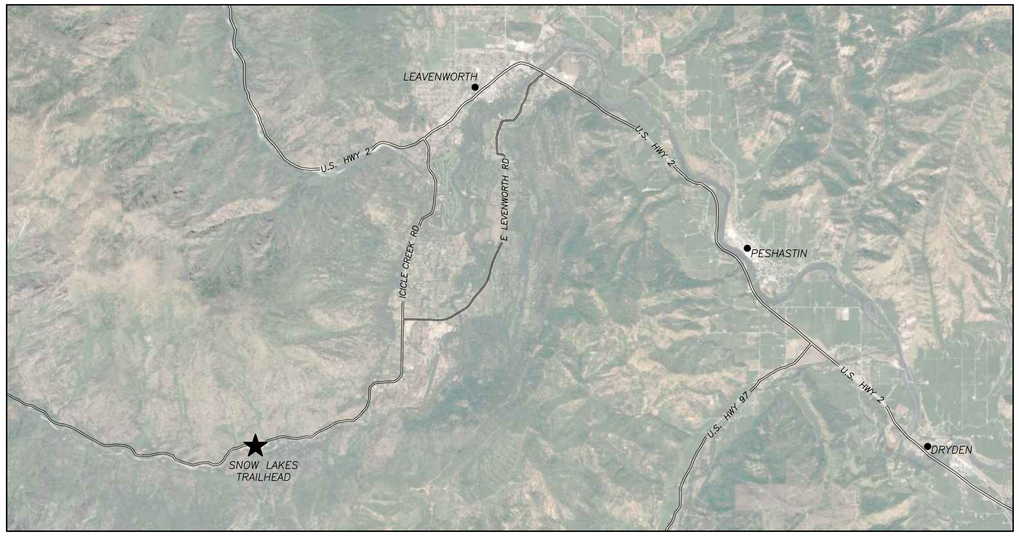


DETAIL



SECTION

NOTE REFERENCE
REFERENCE DESIGNATION TO NOTE APPEARING ON SAME SHEET OR A PART OR MATERIAL IN A SCHEDULE



VICINITY MAP
NOT TO SCALE

N

SITE MAP
NOT TO SCALE

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WASHINGTON STATE
DEPARTMENT OF FISH AND WILDLIFE

SCOTT E. KUEBLER — STATE OF WASHINGTON — 38536 — PROFESSIONAL ENGINEER

SYM	DATE	REVISION DESCRIPTION	BY

APPROVED AND RELEASED FOR CONSTRUCTION
CHIEF ENGINEER ..... DATE: .....
PROGRAM ..... DATE: .....

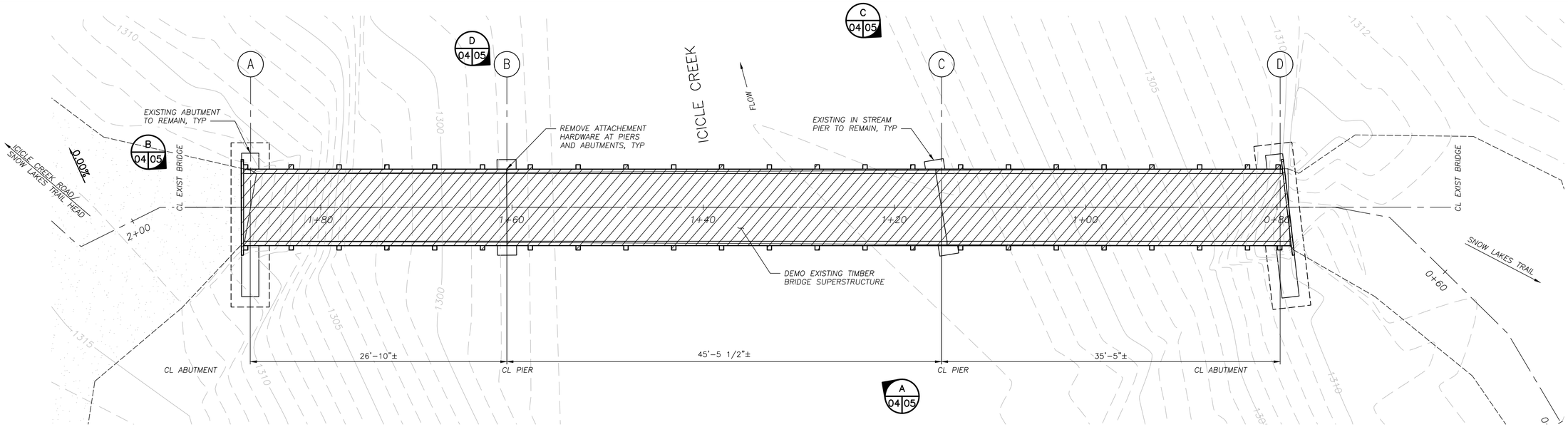
0 —— 1"
BAR MEASURES ONE INCH ON ORIGINAL DRAWINGS

DESIGNED BY SMS
CHECKED BY SEK
DRAWN BY TRL
DATE 2020-08-05

SNOW LAKES TRAILHEAD
SNOW LAKES #1 BRIDGE OVER ICICLE CREEK WIDENING RETROFIT
VICINITY MAP & ABBREVIATIONS

PROJECT NO. 17-08882
SHEET 03 OF 12

100% DESIGN SUBMITTAL

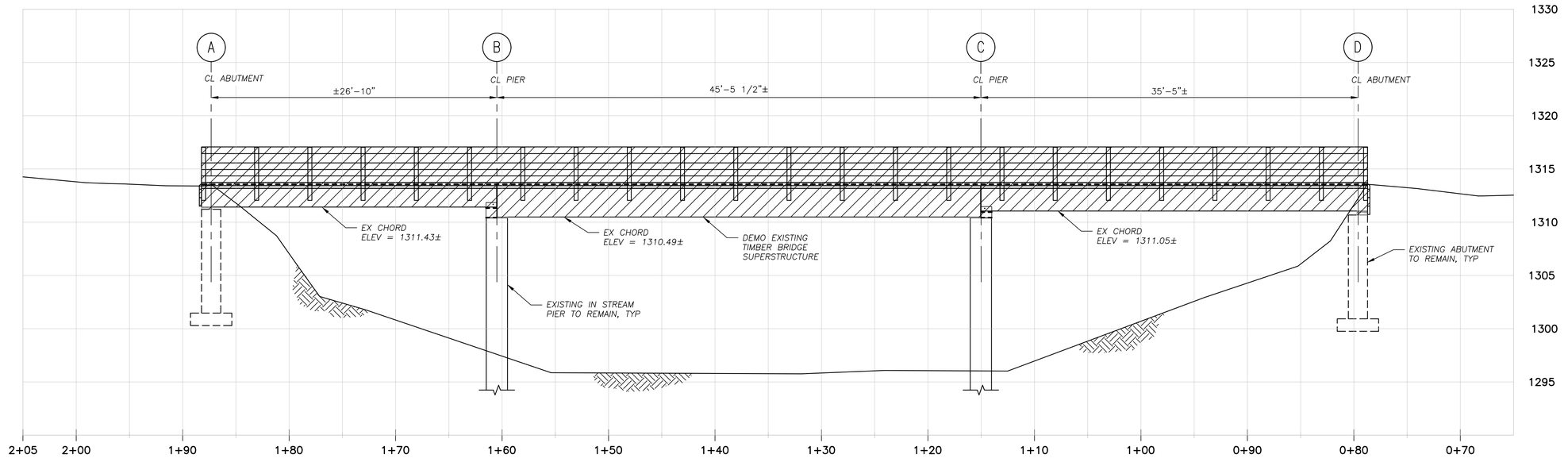


LEGEND:

DEMO

EXISTING SITE PLAN – SUPERSTRUCTURE DEMOLITION

SCALE: 3/16" = 1'-0"



EXISTING ELEVATION – LOOKING DOWNSTREAM SUPERSTRUCTURE DEMOLITION

SCALE: 3/16" = 1'-0"

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WASHINGTON STATE DEPARTMENT OF FISH AND WILDLIFE

SCOTT E. KIRKLIN – STATE OF WASHINGTON – 38536 – STRUCTURAL ENGINEER – PROFESSIONAL ENGINEER

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SNOW LAKES TRAILHEAD

SNOW LAKES #1 BRIDGE OVER ICICLE CREEK WIDENING RETROFIT

DEMOLITION PLAN & ELEVATION

PROJECT NO. 17-08882

SHEET 04 OF 12

100% DESIGN SUBMITTAL

SUPERSTRUCTURE DEMOLITION PHOTO #1
EXIST BRIDGE
SCALE: NTS
A 04|05

SUPERSTRUCTURE DEMOLITION PHOTO #2
EXIST BRIDGE HIGHWAY SIDE END SPAN
SCALE: NTS
B 04|05

SUPERSTRUCTURE DEMOLITION PHOTO #3
EXIST BRIDGE FOREST SIDE END SPAN
SCALE: NTS
C 04|05

SUPER STRUCTURE DEMOLITION PHOTO #4
EXIST BRIDGE CENTER SPAN
SCALE: NTS
D 04|05

LEGEND:

DEMO

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WASHINGTON STATE
DEPARTMENT OF FISH AND WILDLIFE

SCOTT E. KORMAN — STATE OF WASHINGTON — 38506 — STRUCTURAL ENGINEER — PROFESSIONAL ENGINEER — 8-5-20

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SNOW LAKES TRAILHEAD

SNOW LAKES #1 BRIDGE OVER ICICLE CREEK WIDENING RETROFIT
SUPERSTRUCTURE DEMOLITION PHOTOS

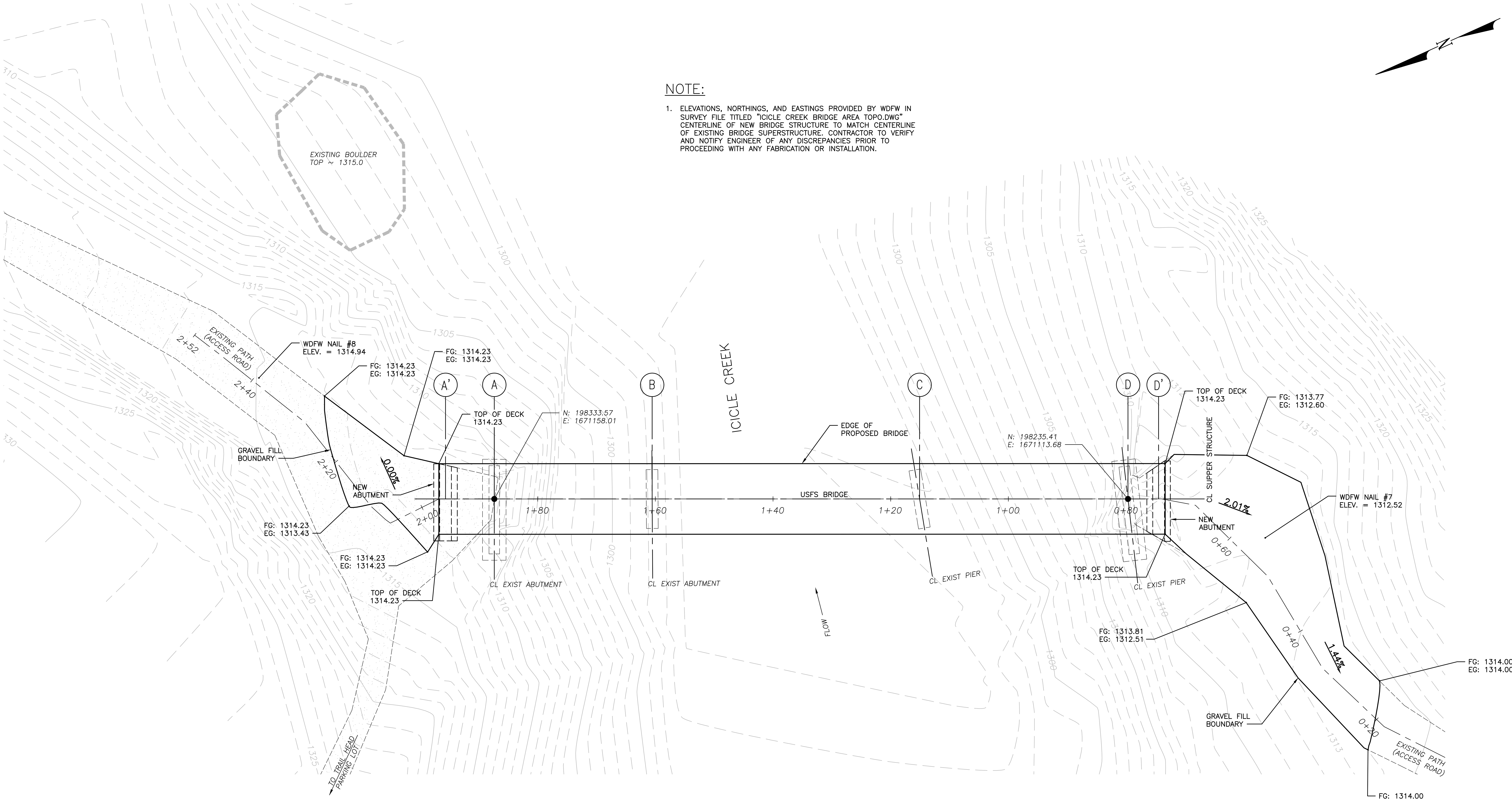
PROJECT NO. 17-08882

SHEET 05 OF 12

100% DESIGN SUBMITTAL

NOTE:

1. ELEVATIONS, NORTHINGS, AND EASTINGS PROVIDED BY WDFW IN SURVEY FILE TITLED "ICICLE CREEK BRIDGE AREA TOPO.DWG" CENTERLINE OF NEW BRIDGE STRUCTURE TO MATCH CENTERLINE OF EXISTING BRIDGE SUPERSTRUCTURE. CONTRACTOR TO VERIFY AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH ANY FABRICATION OR INSTALLATION.



ICICLE CREEK BRIDGE SITE PLAN

SCALE: 1/8" = 1'-0"

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WASHINGTON STATE
DEPARTMENT OF FISH AND WILDLIFE

SCOTT E. KUEHLER — STATE OF WASHINGTON — 38536 — PROFESSIONAL ENGINEER — 8-5-20

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SNOW LAKES TRAILHEAD

SNOW LAKES #1 BRIDGE OVER ICICLE CREEK WIDENING RETROFIT

BRIDGE SITE PLAN

PROJECT NO. 17-08882

SHEET 06 OF 12

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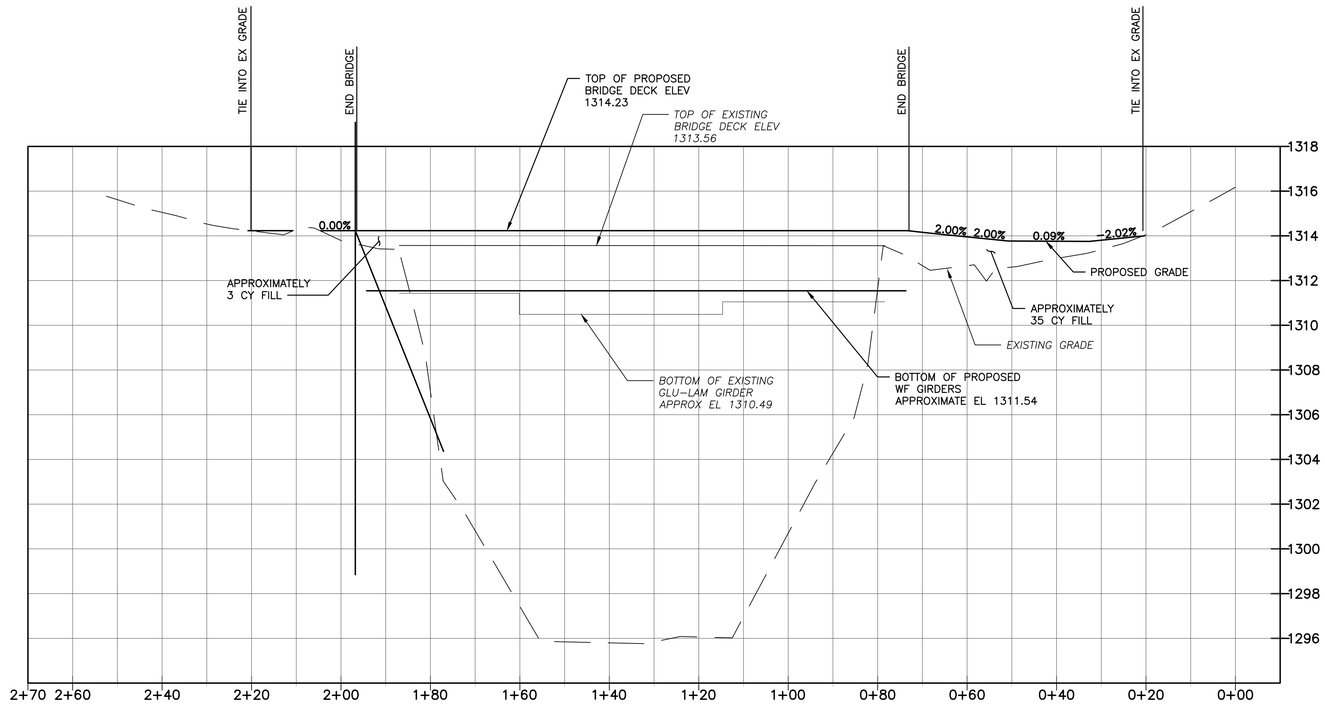

ICICLE CREEK BRIDGE PROFILE – LOOKING DOWNSTREAM

SCALE: 1/16" = 1'-0"

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WASHINGTON STATE
DEPARTMENT OF FISH AND WILDLIFE

SCOTT E. KUEST — STATE OF WASHINGTON — 38536 — REGISTERED PROFESSIONAL ENGINEER

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SNOW LAKES TRAILHEAD

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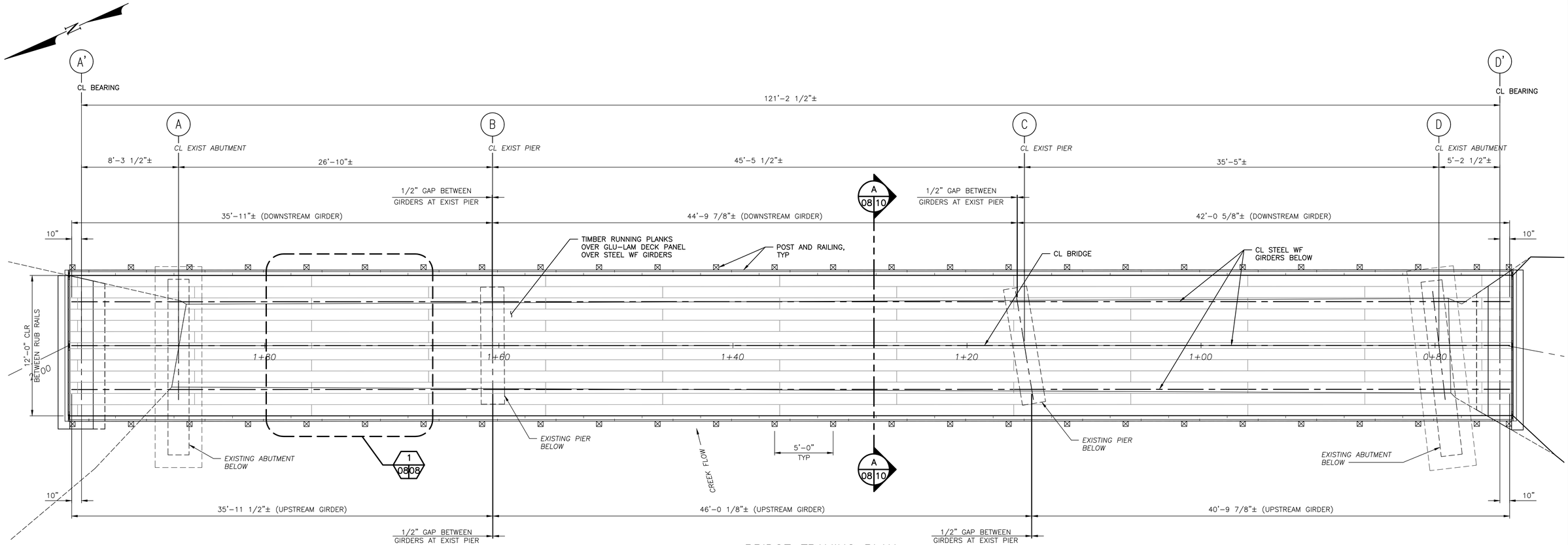
ICICLE CREEK BRIDGE PROFILE

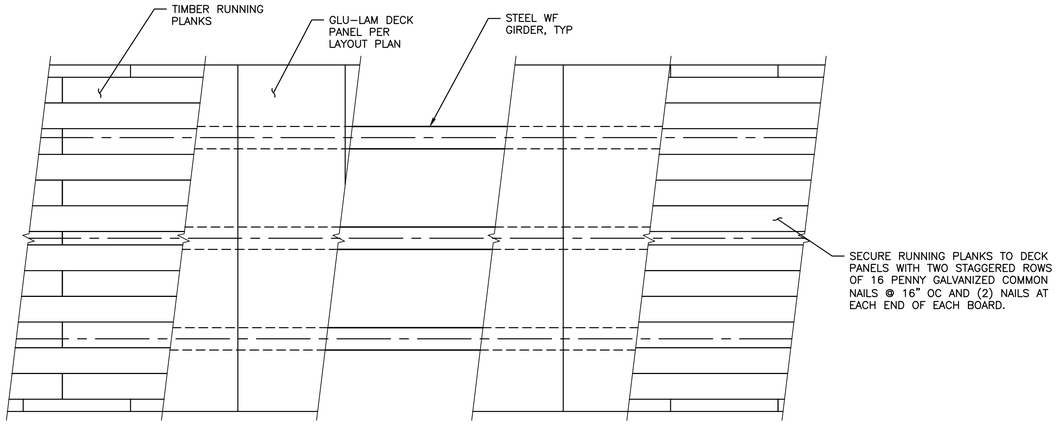
PROJECT NO. 17-08882

SHEET 07 OF 12

100% DESIGN SUBMITTAL

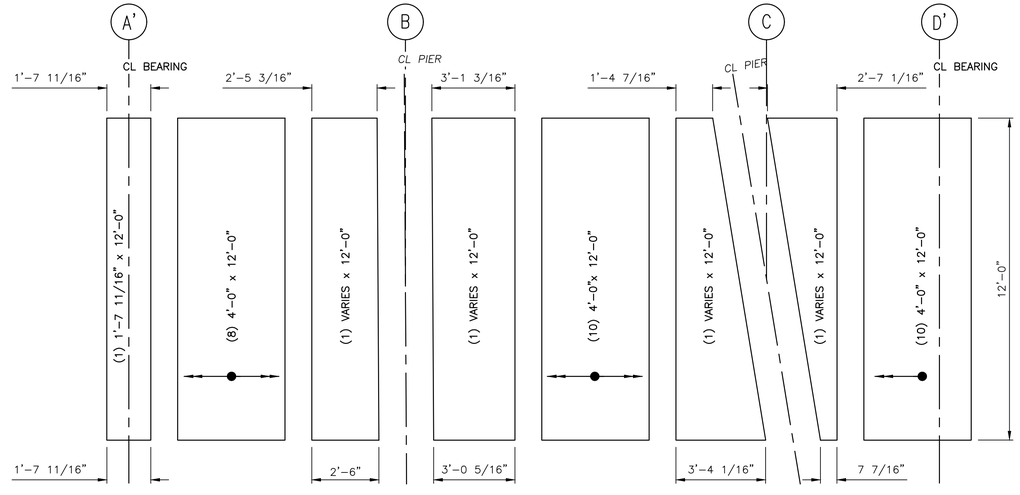


BRIDGE FRAMING PLAN
SCALE: 1/4" = 1'-0"



DETAIL 1 0808
SCALE: 3/8" = 1'-0"

SCUPPERS, RUB RAIL AND GUARD RAIL NOT SHOWN FOR CLARITY



GLU-LAM DECK PANEL LAYOUT PLAN
SCALE: 3/8" = 1'-0"

FIELD VERIFY ALL DIMENSIONS PRIOR TO PANEL INSTILLATION (6 3/4" THICK COMBINATION NUMBER 2, GRADE L2 DF)

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WASHINGTON STATE
DEPARTMENT OF FISH AND WILDLIFE

SCOTT E. KNIGHT — STATE OF WASHINGTON — 38536 — REGISTERED PROFESSIONAL ENGINEER — 6-4-20

SYM	DATE	REVISION DESCRIPTION	BY

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CHIEF ENGINEER ..... DATE: .....

PROGRAM ..... DATE: .....

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DATE 2020-08-05

SNOW LAKES TRAILHEAD

SNOW LAKES #1 BRIDGE OVER ICICLE CREEK WIDENING RETROFIT
BRIDGE FRAMING PLAN

PROJECT NO. 17-08882

SHEET 08 OF 12

100% DESIGN SUBMITTAL

ELEVATION – LOOKING DOWNSTREAM

SCALE: 1/4" = 1'-0"

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WASHINGTON STATE
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SNOW LAKES TRAILHEAD
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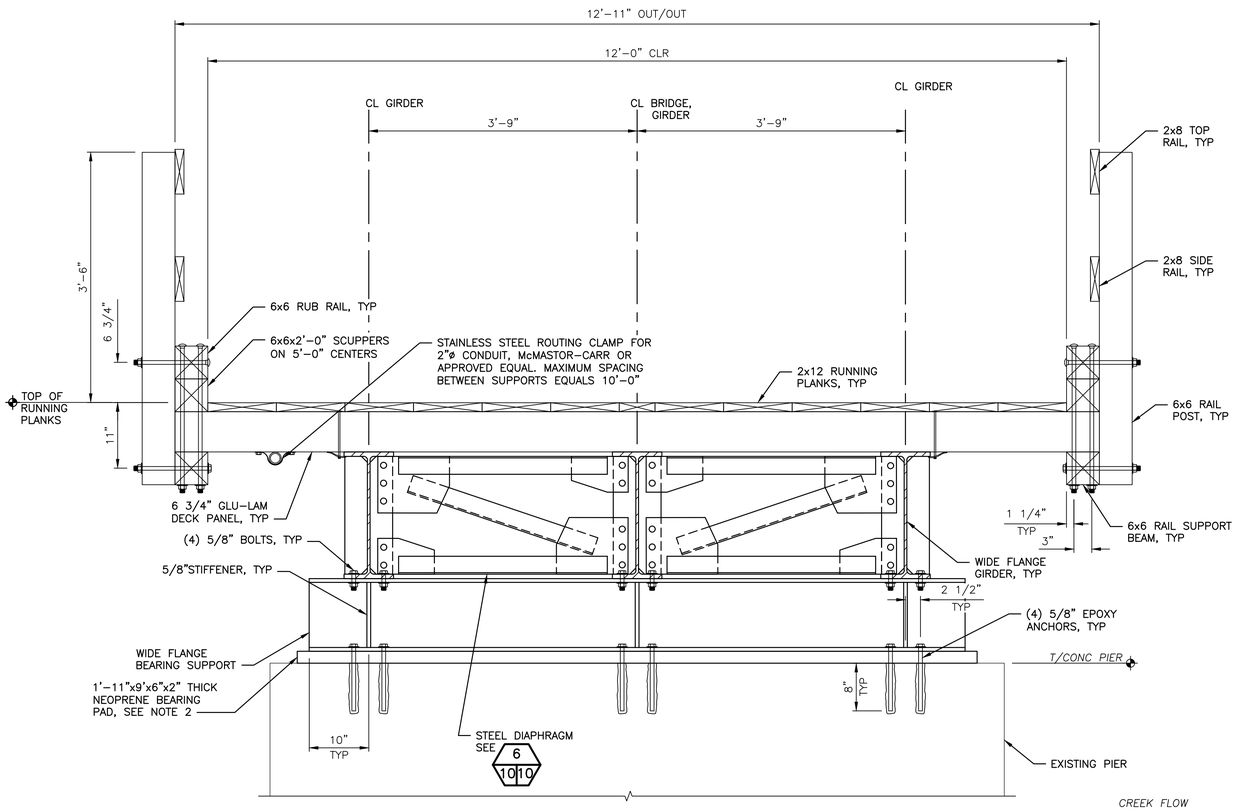
BRIDGE ELEVATION

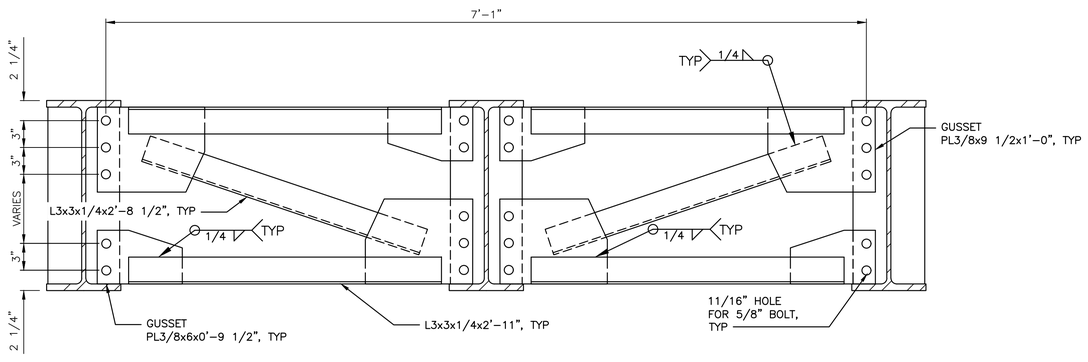
PROJECT NO. 17-08882

SHEET 09 OF 12

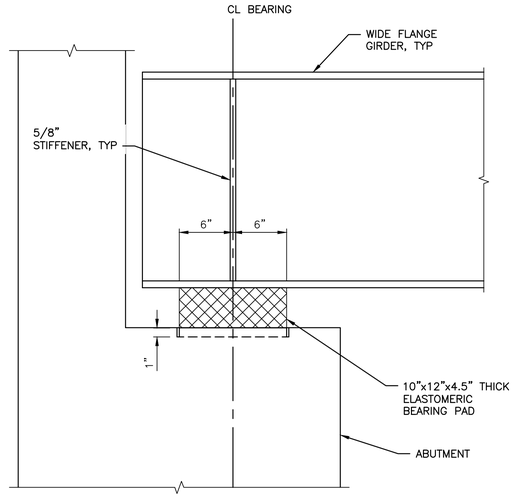
100% DESIGN SUBMITTAL



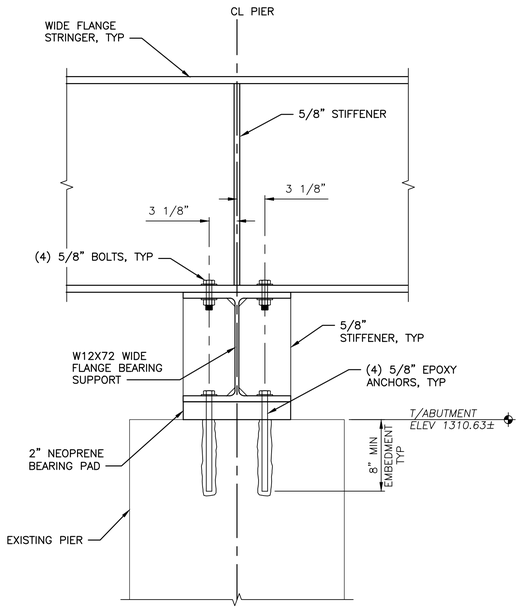
BRIDGE SECTION
SCALE: 1" = 1'-0"
A 08, 09|10



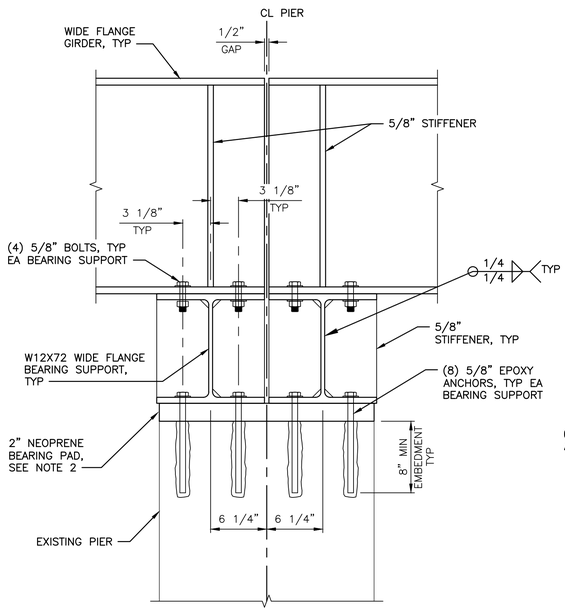
DIAPHRAGM DETAIL
SCALE: 1 1/2" = 1'-0"
6 10|10



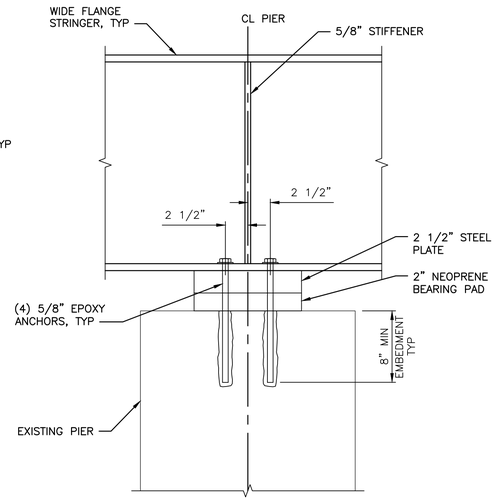
DETAIL AT ABUTMENT A'
SCALE: 1 1/2" = 1'-0"
ABUTMENT AT D' OPPOSITE HAND
2 09|10



DETAIL AT EXISTING ABUTMENT D
SCALE: 1 1/2" = 1'-0"
3 09|10



DETAIL AT EXISTING PIERS B & C
SCALE: 1 1/2" = 1'-0"
4 09|10



DETAIL AT EXISTING ABUTMENT A
SCALE: 1 1/2" = 1'-0"
5 09|10

NOTE:

1. POST INSTALLED ANCHOR EPOXY SHALL BE HILTI HIT-RE 500 V3 OR APPROVED EQUAL
2. WIDTH OF BEARING PAD TO MATCH WIDTH OF EXISTING PIERS. VERIFY IN FIELD.

100% DESIGN SUBMITTAL

kpff
2407 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 396-0150 Fax (253) 396-0162

WASHINGTON STATE
DEPARTMENT OF FISH AND WILDLIFE

SCOTT E. KIBBLE — STATE OF WASHINGTON — 38536 — PROFESSIONAL ENGINEER

SYM	DATE	REVISION DESCRIPTION	BY

APPROVED AND RELEASED FOR CONSTRUCTION

CHIEF ENGINEER ..... DATE: .....

PROGRAM ..... DATE: .....

0 ——— 1"
BAR MEASURES ONE INCH ON ORIGINAL DRAWINGS

DESIGNED BY SMS
CHECKED BY SEK
DRAWN BY TRL
DATE 2020-08-05

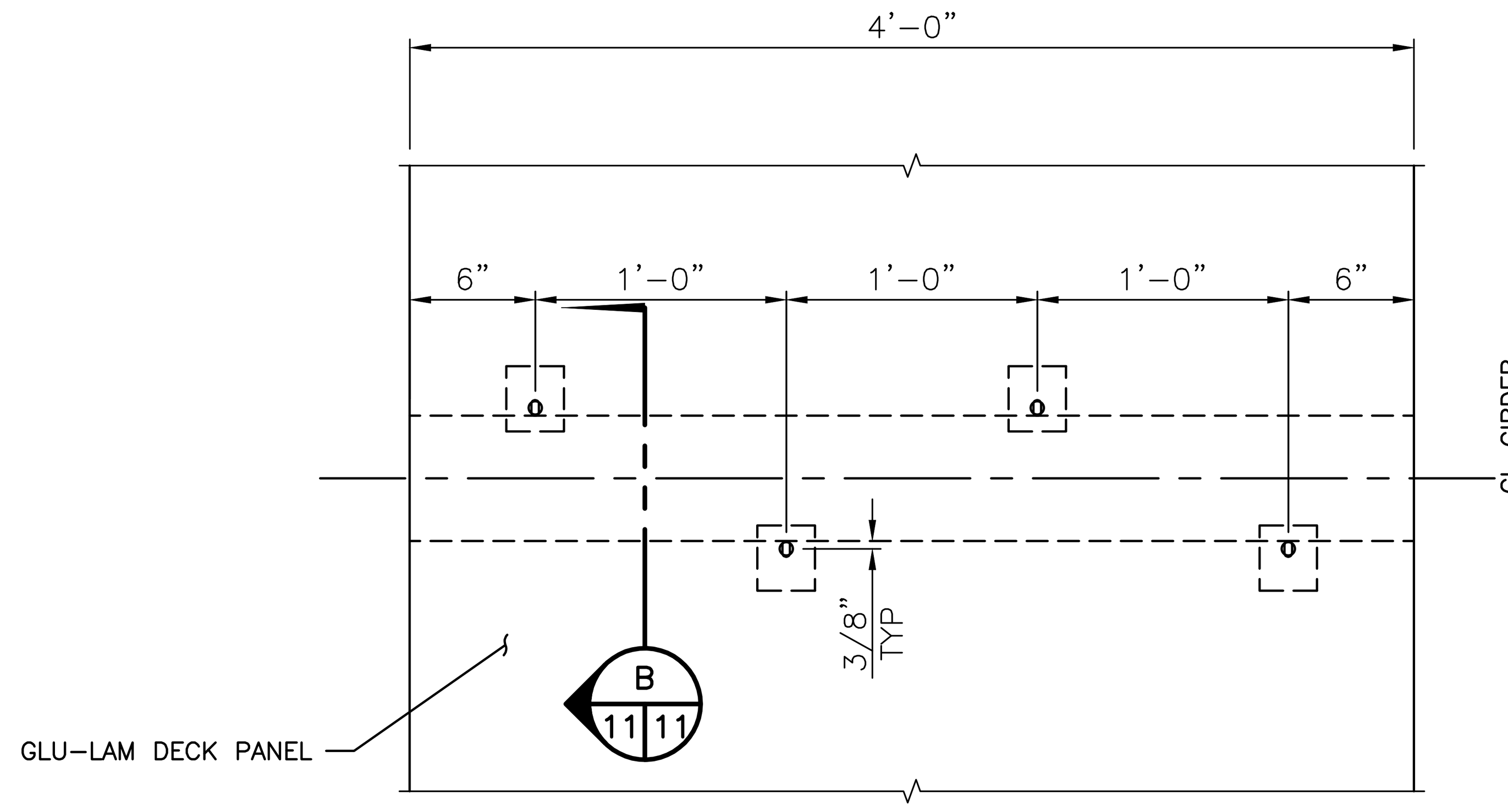
SNOW LAKES TRAILHEAD

SNOW LAKES #1 BRIDGE OVER ICICLE CREEK WIDENING RETROFIT

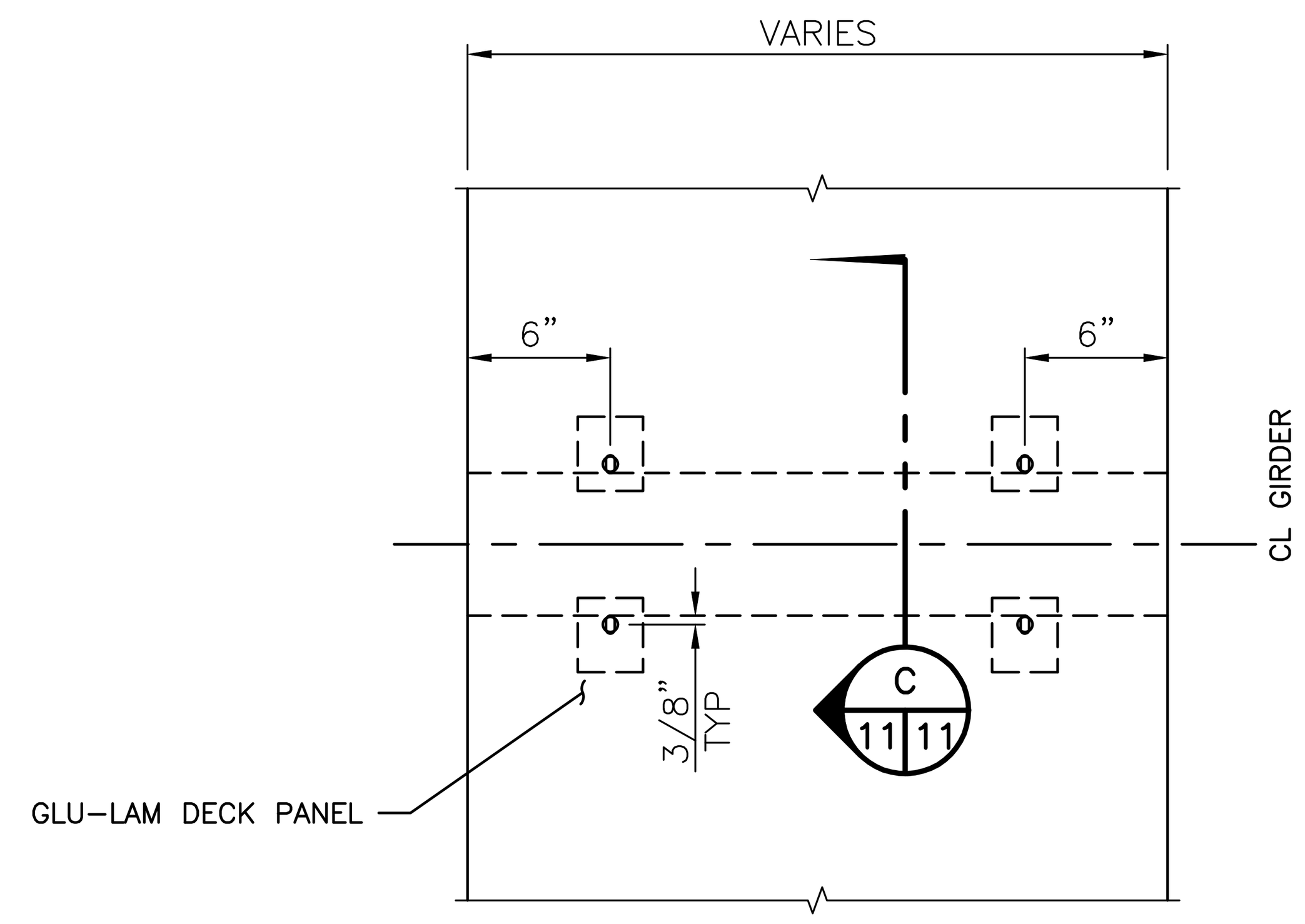
TYPICAL SECTION

PROJECT NO. 17-08882

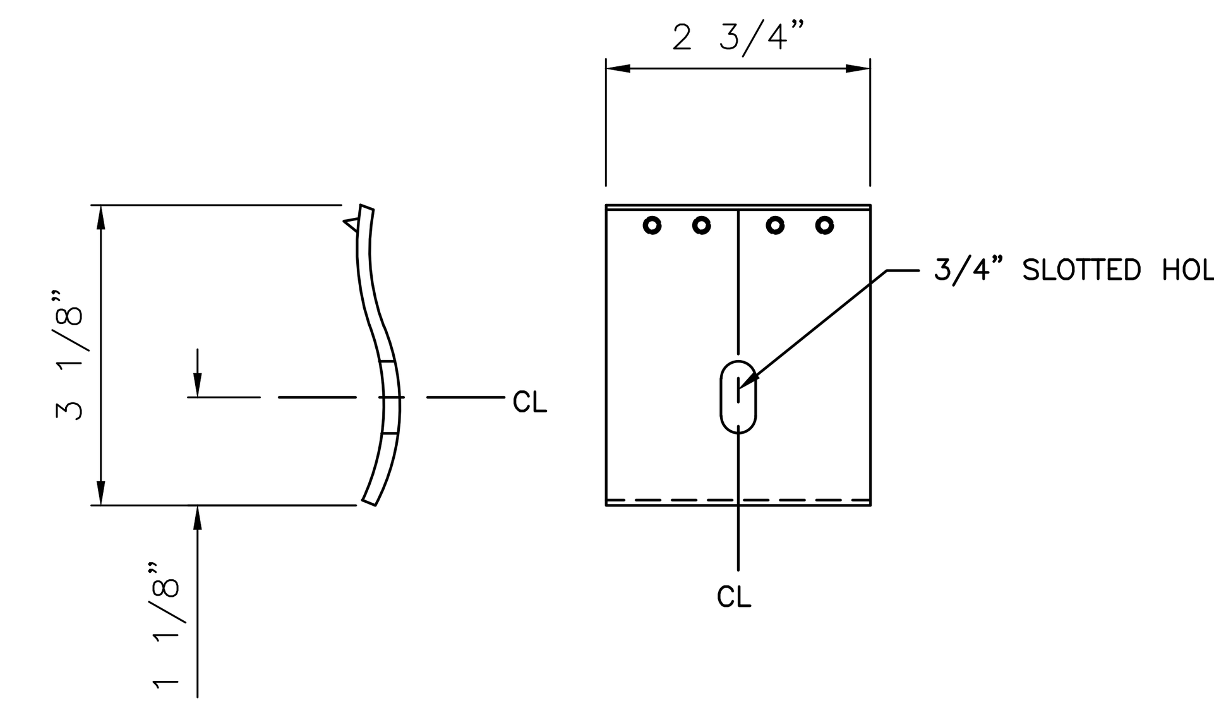
SHEET 10 OF 12



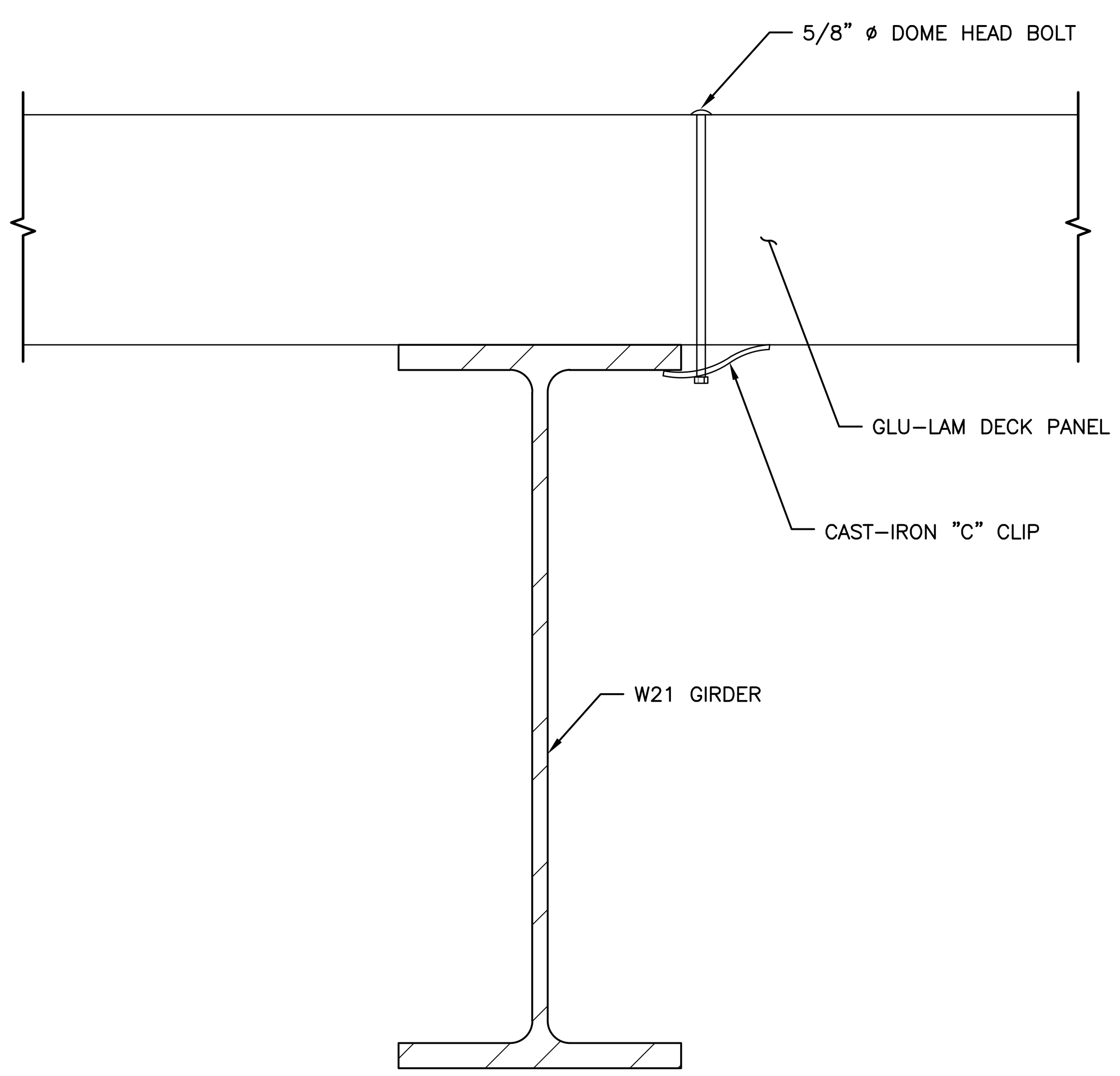
ATTACHMENT SPACING AT TYPICAL PANEL
SCALE: 1 1/2" = 1'-0"



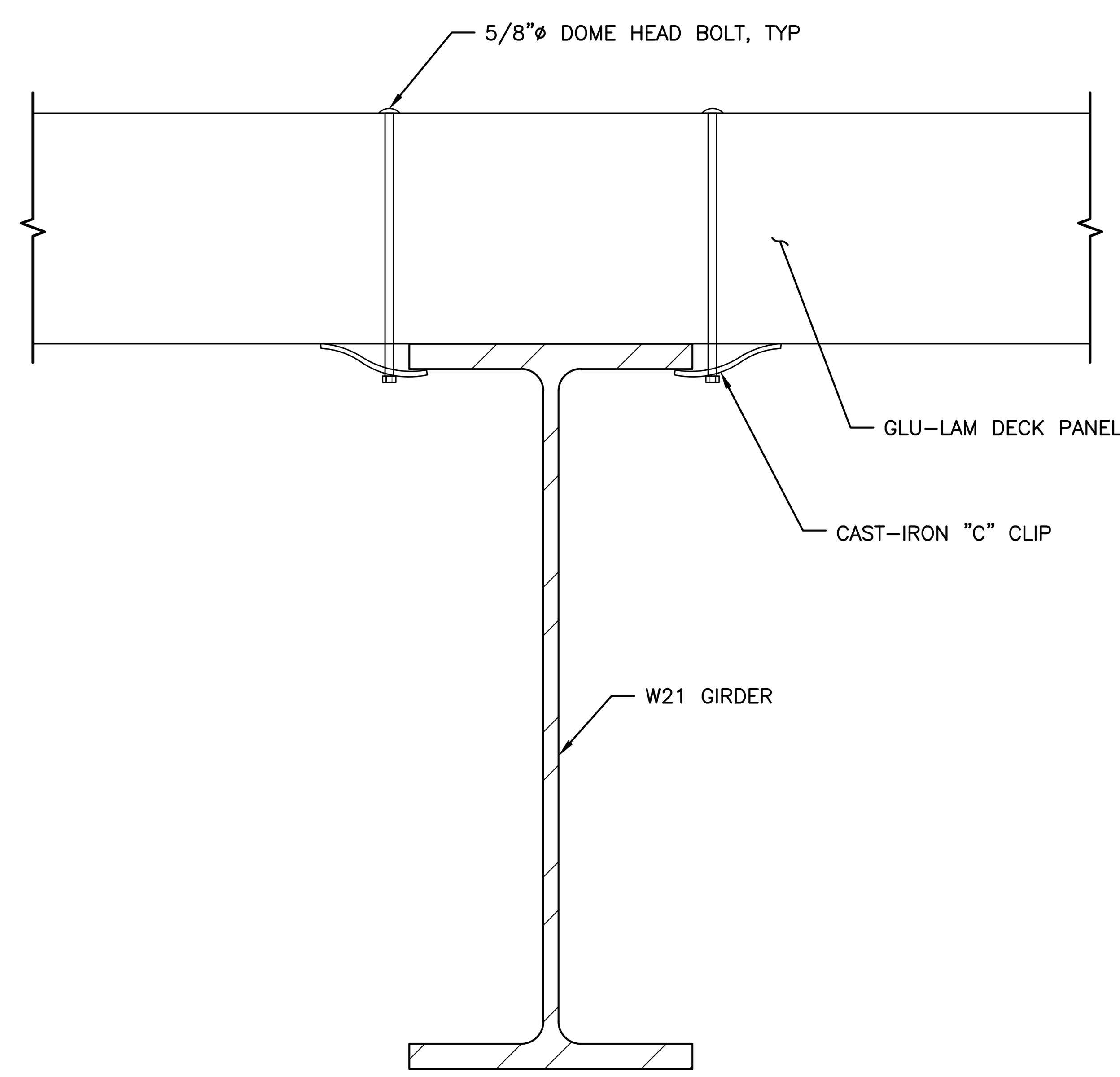
ATTACHMENT SPACING AT UN-TYPICAL PANEL
SCALE: 1 1/2" = 1'-0"



CAST IRON "C" CLIP
SCALE: 6" = 1'-0"



TYPICAL GLU-LAM PANEL ATTACHMENT SECTION (B 11|11)
SCALE: 3" = 1'-0"



UN-TYPICAL GLU-LAM PANEL ATTACHMENT SECTION (C 11|11)
SCALE: 3" = 1'-0"

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2407 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 396-0150 Fax (253) 396-0162

WASHINGTON STATE DEPARTMENT OF FISH AND WILDLIFE

SCOTT E. KUEHLER · STATE OF WASHINGTON · 38536 · PROFESSIONAL ENGINEER · 8-5-20

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PROGRAM .... DATE:

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SNOW LAKES TRAILHEAD

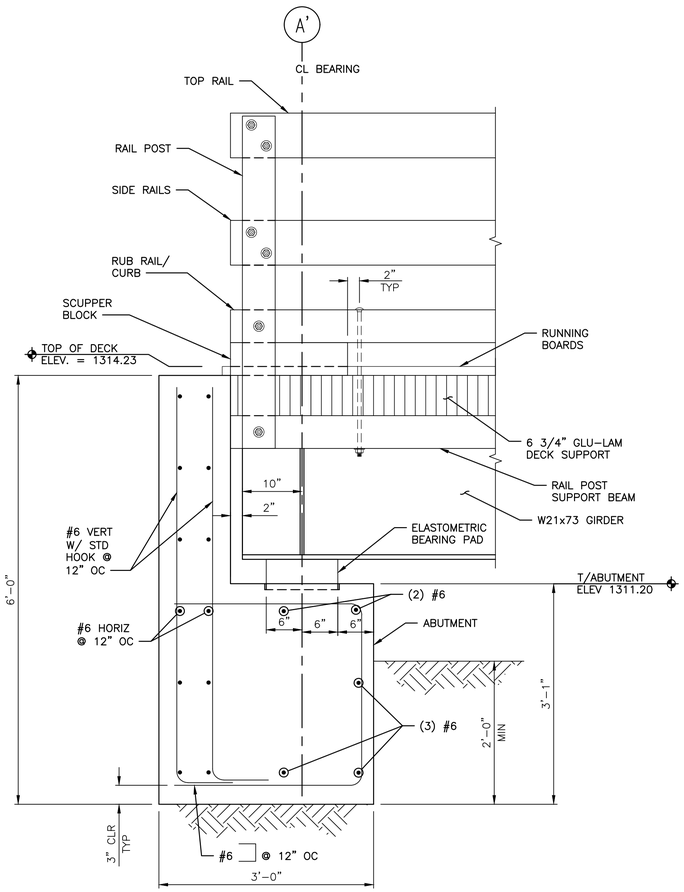
SNOW LAKES #1 BRIDGE OVER ICICLE CREEK WIDENING RETROFIT

DECK ATTACHMENT DETAILS

PROJECT NO. 17-08882

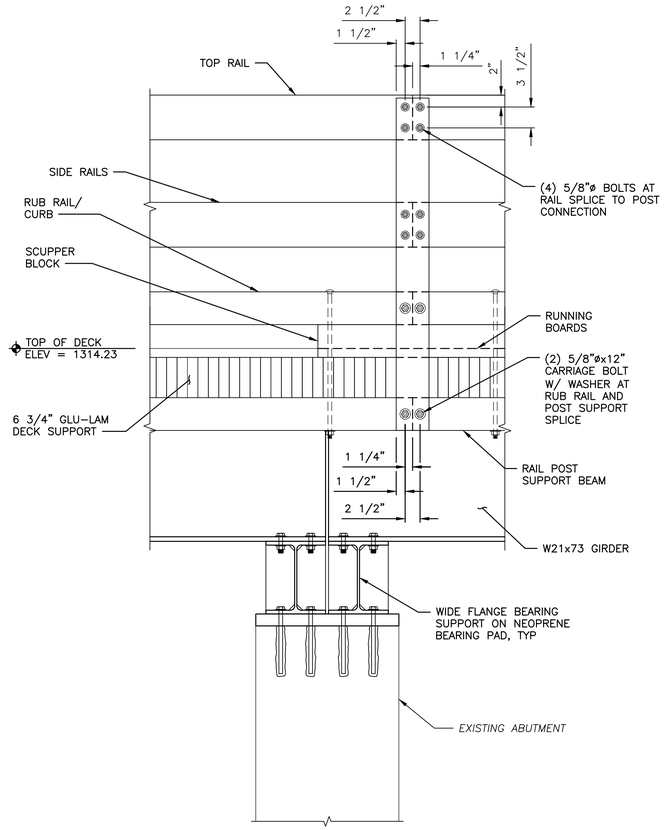
SHEET 11 OF 12

100% DESIGN SUBMITTAL



NORTH ABUTMENT DETAIL

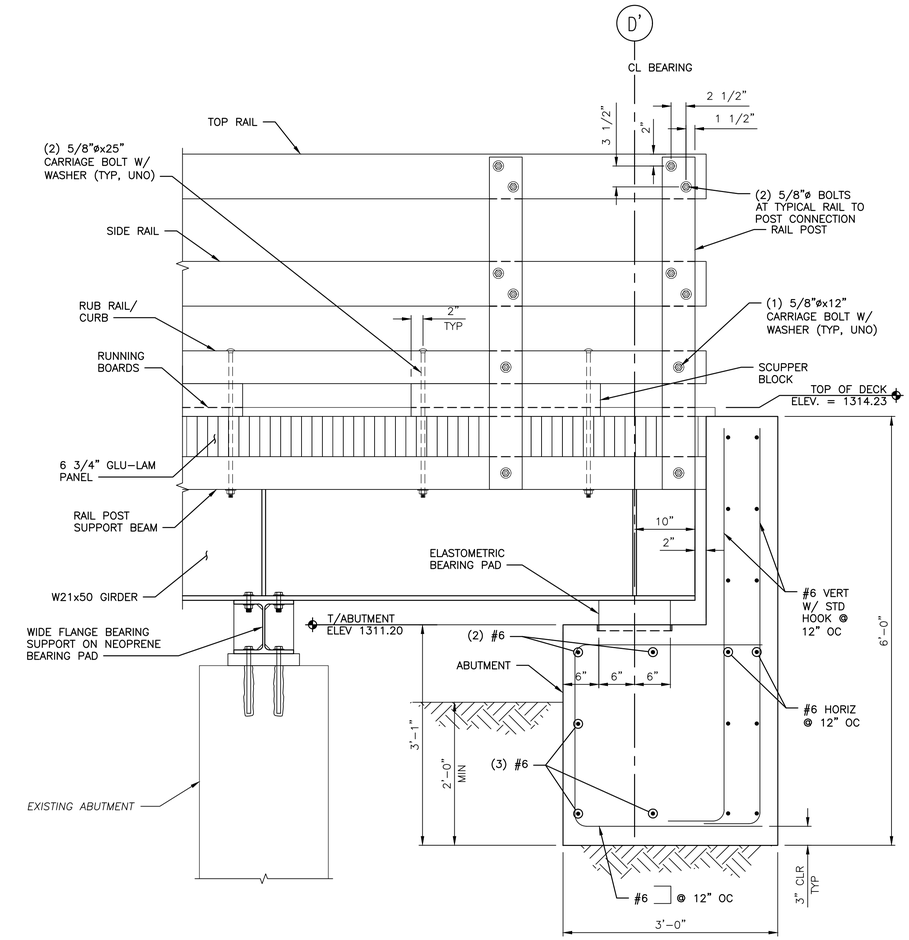
SCALE: 1" = 1'-0"



TYPICAL PIER DETAIL

SCALE: 1" = 1'-0"

NOTE:
SPLICE SIDE AND TOP RAILS, CURB AND POST SUPPORT AT RAIL POST ONLY.



SOUTH ABUTMENT DETAIL

SCALE: 1" = 1'-0"

100% DESIGN SUBMITTAL

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2407 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 396-0150 Fax (253) 396-0162

WASHINGTON STATE
DEPARTMENT OF FISH AND WILDLIFE

SCOTT E. KORRELL
STATE OF WASHINGTON
38506
STRUCTURAL ENGINEER
PROFESSIONAL ENGINEER
8-5-20

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PROGRAM ..... DATE: .....

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ONE INCH ON
ORIGINAL DRAWINGS

DESIGNED BY SMS
CHECKED BY SEK
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DATE 2020-08-05

SNOW LAKES TRAILHEAD

SNOW LAKES #1 BRIDGE OVER ICICLE CREEK WIDENING RETROFIT

FOUNDATION DETAILS

PROJECT NO. 17-08882

SHEET 12 OF 12

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

SNOW CREEK TRIBUTAY TO ICICLE CREEK SCREEN ACCESS ROAD AND BRIDGE REPLACEMENT PROJECT CHELAN COUNTY, WA. WRIA: 45.0488, SITE: 603097

INDEX

SHEET NO.

VICINITY MAP

LAT: 47.543533 N / LONG: −120.708959 W
WRIA: 45.0488, SITE ID: 603097
SECTION 27 & 28, TOWNSHIP 24N, RANGE 17E

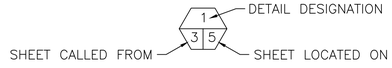
ABBREVIATIONS

APPROX.	APPROXIMATE
BM	BENCH MARK
CONC.	CONCRETE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CP	CONTROL POINT
DIA.	DIAMETER
ELEV.	ELEVATION
EXIST.	EXISTING
FT.	FEET
GA.	GAUGE
HORIZ.	HORIZONTAL
HPA	HYDRAULIC PROJECT APPROVAL
IE.	INVERT ELEVATION
ID.	IDENTIFICATION
LAT.	LATITUDE
LF.	LINEAL FOOT
LONG.	LONGITUDE
MAX.	MAXIMUM
MIN.	MINIMUM
MISC.	MISCELLANEOUS
MP.	MILE POST
NRCS	NATURAL RESOURCES CONSERVATION SERVICE
NTS	NOT TO SCALE
PAV'T	PAVEMENT
REQ'D	REQUIRED
SEC.	SECTION
SHT.	SHEET
SPEC'S.	SPECIFICATIONS
STA.	STATION
TP.	TAX PARCEL NUMBER
TBM	TEMPORARY BENCH MARK
TYP.	TYPICAL
VERT.	VERTICAL
WDFW	WASHINGTON DEPARTMENT OF FISH AND WILDLIFE
WRIA	WATER RESOURCE INVENTORY AREA
WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
W.S.	WATER SURFACE

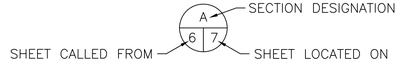
DIRECTIONS TO SITE

FROM LEAVENWORTH, WA. GO WEST ON STATE ROUTE 2 AT THE EDGE OF TOWN TURN LEFT (SOUTHERLY) ON ICICLE ROAD. CONTINUE ON ICICLE ROAD 4.2 MILES TO THE PARKING LOT ON THE LEFT. THE SITE IS DOWN THE HILL AT THE FOOT BRIDGE.
VEHICLE ACCESS IS GAINED TO THE SITE THROUGH 7205 ICICLE ROAD LEAVENWORTH, WA. 98826, THE DEMAREST RESIDENCE (CHELAN COUNTY PARCEL NO. 241727300050.

SHEET SYMBOLS



DETAIL



SECTION

PROJECT CONTROL POINTS

SURVEY CONTROL POINTS TABLE

Description	Easting	Northing	Elevation
1. WDFW REBAR #2	1670577.170'	197616.595'	1434.41'
2. WDFW REBAR #1	1670524.666'	197694.655'	1405.34'

VERTICAL DATUM
NAVD 88

REVIEW AND ACCEPTANCE

The Drawings, Construction and material Specifications, and Operation and Maintenance Plans for this project have been reviewed with me and are accepted for this installation. I also acknowledge that any modifications prior to review by the WDFW before implementation may result in WDFW disapproval of this installation. I hereby acknowledge receipt of a copy(ies) of this plan.

Owner/Operator Date

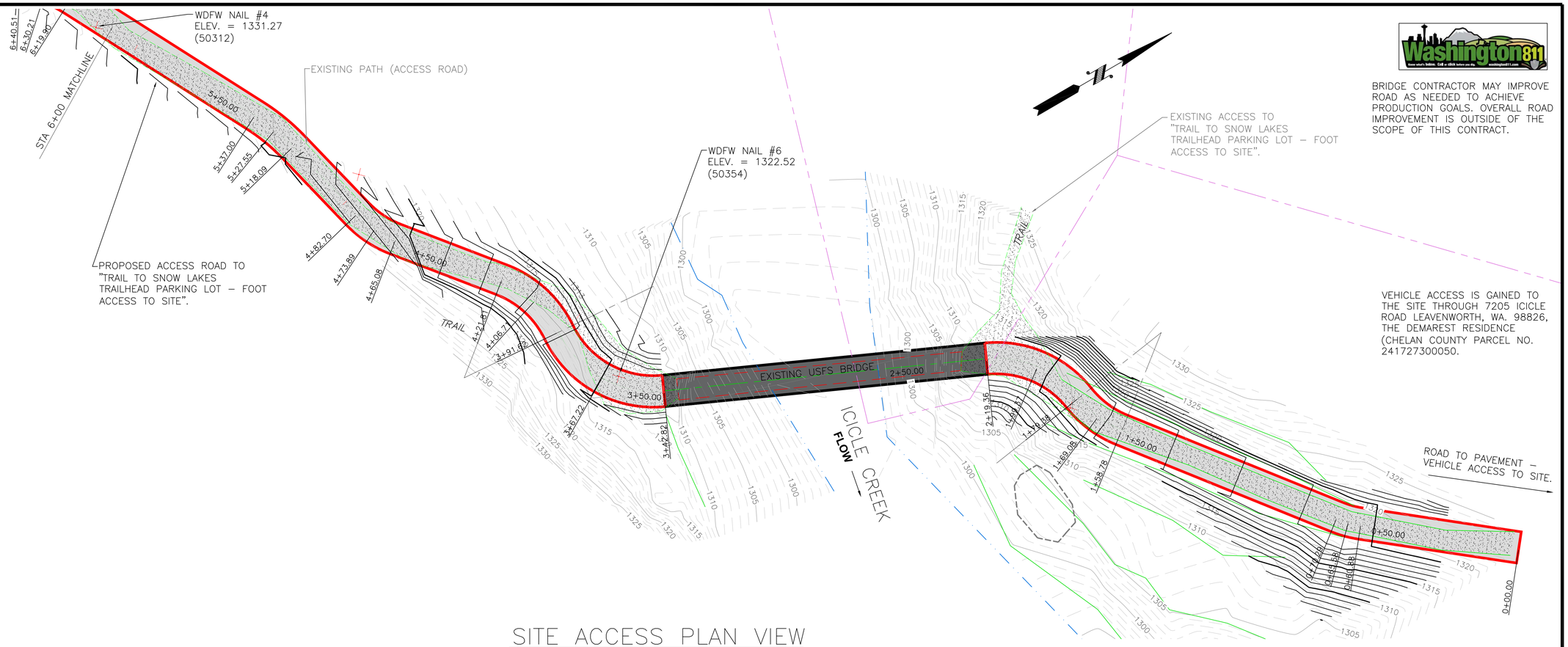
APPROVED FOR CONSTRUCTION

Donald C. Ponder, PE Date
Environmental Engineering Section Manager
Restoration Division, Habitat Program, WDFW

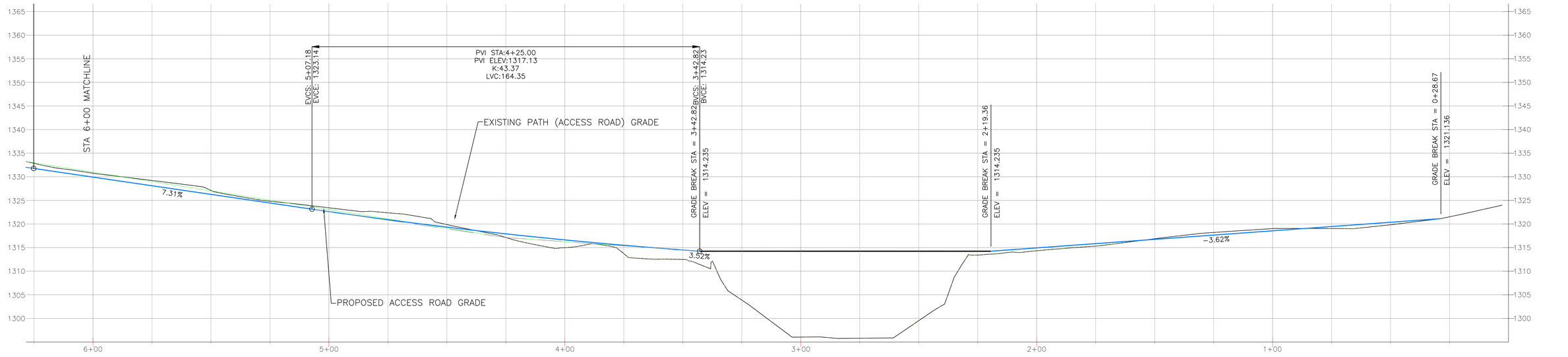
SHAWN M. STANLEY — STATE OF WASHINGTON — 49536 — REGISTERED PROFESSIONAL ENGINEER

PROJECT NO. 603097-18-2

SHEET 1 OF 8



SITE ACCESS PLAN VIEW



SITE ACCESS PROFILE VIEW

WASHINGTON STATE
DEPARTMENT OF FISH AND WILDLIFE

SHAWN M. STANLEY — STATE OF WASHINGTON — 49536 — REGISTERED PROFESSIONAL ENGINEER

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CHIEF ENGINEER ..... DATE:
PROGRAM ..... DATE:

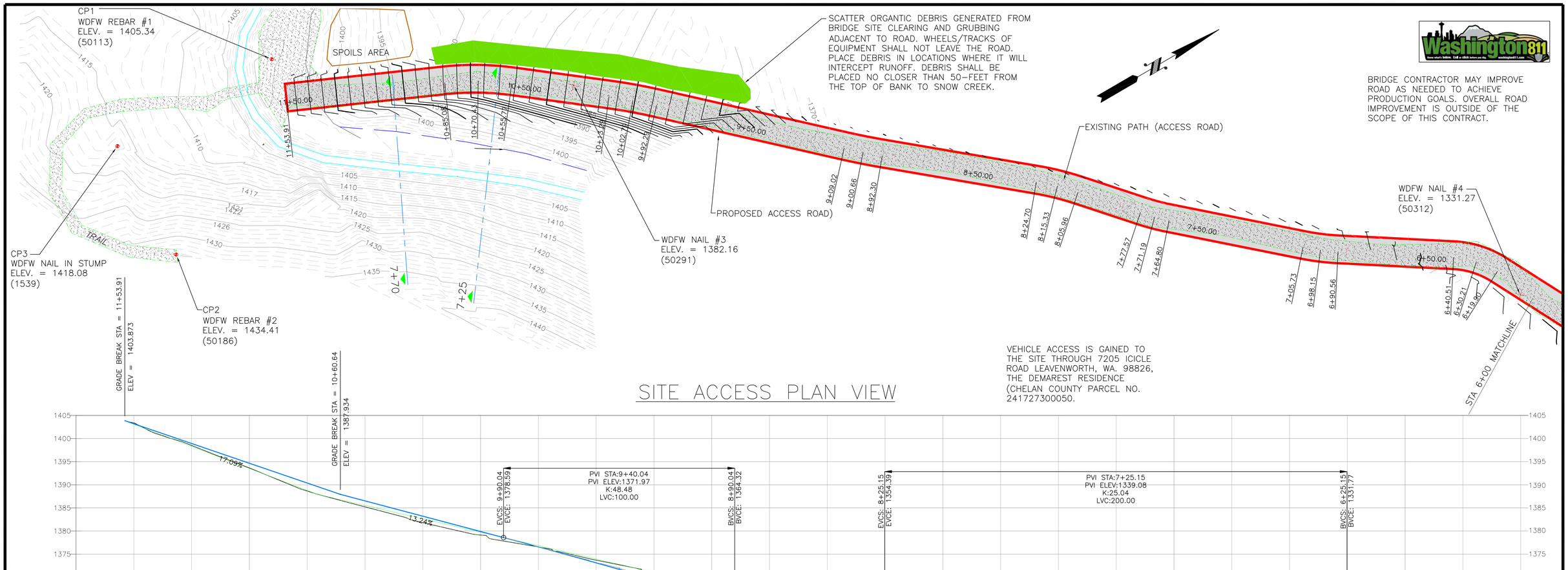
0 —— 1"
BAR MEASURES ONE INCH ON ORIGINAL DRAWINGS

DESIGNED BY S. STANLEY
CHECKED BY D. PONDER
DRAWN BY T. GODAT/K. CORWIN
DATE 8-3-2020

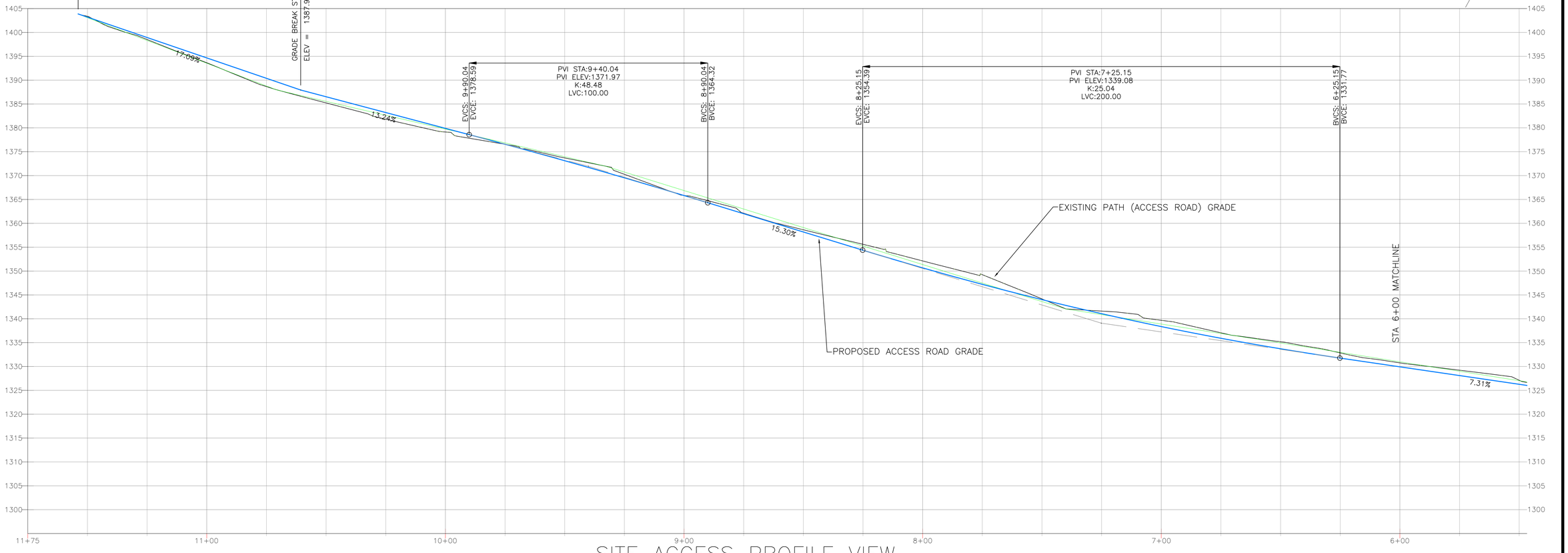
SNOW CREEK
SCREEN ACCESS ROAD AND
BRIDGE REPLACEMENT PROJECT
SITE ACCESS PLAN & PROFILE

PROJECT NO. 603097-18-2

SHEET 2 OF 8



SITE ACCESS PLAN VIEW



SITE ACCESS PROFILE VIEW

WASHINGTON STATE
DEPARTMENT OF FISH AND WILDLIFE

SHAWN M. STANLEY — STATE OF WASHINGTON — 49536 — REGISTERED PROFESSIONAL ENGINEER

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DRAWN BY T. GODAT/K. CORWIN
DATE 8-3-2020

SNOW CREEK
SCREEN ACCESS ROAD AND
BRIDGE REPLACEMENT PROJECT
SITE ACCESS PLAN & PROFILE

PROJECT NO.
603097-18-2

SHEET 3 OF 8

NOTE:
BRIDGE TO REPLACE
EXISTING BRIDGE SEE KPFF
BRIDGE ENGINEERING DESIGN.

EXISTING PATH
STRAW WATTLE
LIGHT LOOSE RIPRAP
EXCAVATION LIMITS
WDFW NAIL #7
ELEV. = 1312.52
(1542)
ICICLE CREEK
FLOW
EXISTING USFS BRIDGE
TRAIL
TO PARKING LOT
PROPERTY LINE
WDFW NAIL #8
ELEV. = 1314.94
(1580)
EXISTING CONTOUR TYP.
PROPOSED
12' WIDE GRAVEL
ACCESS ROAD
EXISTING
BOULDER
TOP ~ 1315.0
EXISTING PATH
(ACCESS ROAD)

ICICLE CREEK BRIDGE CROSSING PLAN VIEW

WASHINGTON STATE
DEPARTMENT OF FISH AND WILDLIFE

SHAWN M. STANLEY
STATE OF WASHINGTON
49536
REGISTERED
PROFESSIONAL ENGINEER

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PROGRAM ..... DATE:

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CHECKED BY D. PONDER
DRAWN BY T. GODAT/K.CORWIN
DATE 8-3-2020

SNOW CREEK
SCREEN ACCESS ROAD AND
BRIDGE REPLACEMENT PROJECT
ICICLE CREEK BRIDGE CROSSING

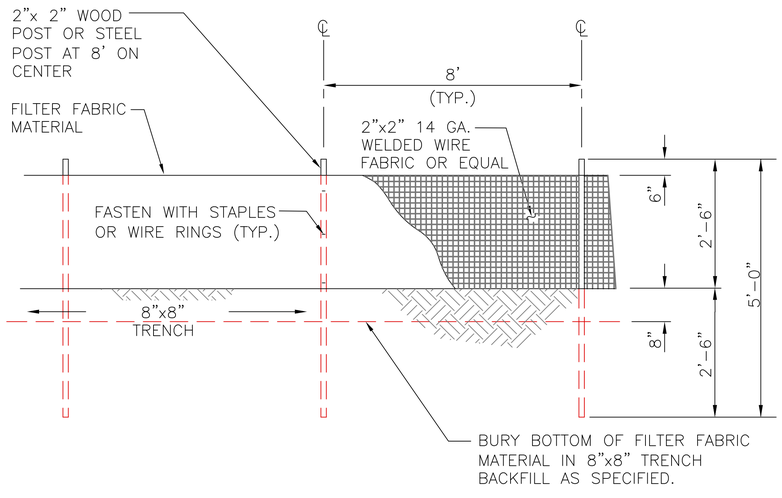
PROJECT NO.
603097-18-2

SHEET 4 OF 8

FILE NAME: S:\HPI\RESTORATION\META\DWGS\MARC\ICICLE CREEK SCREEN\NEW 9\9\2017\DEV. -16-20 SNOW CREEK ROAD.DWG
LAYOUT TAB: 4 ICICLE CR CROSSING
SAVED TIME: 8/4/2020 10:19:39 AM
PLOT TIME: 8/3/2020
USER NAME: GODAT, ANTHONY N (DFW)
XREF FILES: ##################

SILT FENCE NOTES:

1. SITE ISOLATION (SILT FENCE, STRAW BALE BARRIER) IS ONLY REQUIRED IF LIVE WATER IS PRESENT. IF THE CHANNEL IS DRY, NO FENCING IS REQUIRED.
2. FILTER FABRIC SHALL BE PURCHASED CONTINUOUS ROLL CUT TO LENGTH AS NEEDED. IF JOINTS ARE NECESSARY FABRIC SHALL BE SPLICED TOGETHER ONLY AT SUPPORT POSTS WITH A MINIMUM OF (6) INCH OVERLAP. BOTH ENDS SHALL BE SECURED AS REQUIRED.
3. SILT FENCING SHALL BE INSTALLED TO FOLLOW CONTOURS. FENCE POSTS SHALL BE SPACED A MAXIMUM OF EIGHT (8) FEET APART UNLESS OTHERWISE SHOWN HEREIN. ALL POSTS SHALL BE DRIVEN INTO THE GROUND A MINIMUM OF 30 INCHES.
4. A TRENCH SHALL BE EXCAVATED, ROUGHLY EIGHT (8) INCHES WIDE BY EIGHT (8) INCHES DEEP UPSLOPE AND ADJACENT TO THE POST TO ALLOW THE FILTER FABRIC TO BE BURIED.
5. WHEN STANDARD STRENGTH FILTER FABRIC IS UTILIZED, A WIRE SINGLE SPACE MESH SUPPORT FENCE SHALL BE FASTENED TO THE UPSLOPE SIDE OF THE POSTS USING ONE (1) INCH MINIMUM LENGTH WIRE STAPLES TIE WIRE OR APPROVED HOG RINGS. ALL WIRE SUPPORT SHALL EXTEND INTO THE TRENCH A MINIMUM OF FOUR (4) INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE ORIGINAL GRADE.
6. ALL FILTER FABRIC SHALL BE STAPLED OR WIRED TO SUPPORT FENCING AND A MINIMUM OF 20 INCHES OF FABRIC SHALL BE EXTENDED INTO THE TRENCH. FILTER FABRIC SHALL NOT BE STAPLED OR FASTENED TO EXISTING TREES OF STRUCTURES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
7. IF HIGH STRENGTH FILTER FABRIC AND CLOSER SPACING ARE USED, THE WIRE SUPPORT FENCING MAY BE ELIMINATED. HIGH STRENGTH FABRIC SHALL BE STAPLED OR WIRED DIRECTLY TO POSTS AS REQUIRED BY THE ENGINEER.
8. TRENCH SHALL BE BACKFILLED WITH 3/4 INCH MINIMUM DIAMETER WASHED GRAVEL OR OTHER SIMILAR SOURCE AS APPROVED BY THE ENGINEER.
9. SILT FENCING SHALL BE INSTALLED WHERE SHOWN ON THE PLAN, OR AS MARKED IN THE FIELD BY THE ENGINEER, PRIOR TO COMMENCEMENT OF WORK. ALL FENCING SHALL BE INSPECTED DAILY DURING CONSTRUCTION AND AFTER EACH SIGNIFICANT RAINFALL EVENT UNTIL SITE HAS BEEN PERMANENTLY STABILIZED. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
10. REMOVAL OF TRAPPED SEDIMENT SHALL BE PERFORMED WHEN AMOUNTS REACH APPROXIMATELY 1/3 HEIGHT OF THE FENCE ABOVE GROUND.
11. SILT FENCING SHALL REMAIN IN–PLACE UNTIL SITE HAS BEEN REVEGETATED TO ORIGINAL CONDITION OR DIRECTED BY THE ENGINEER.

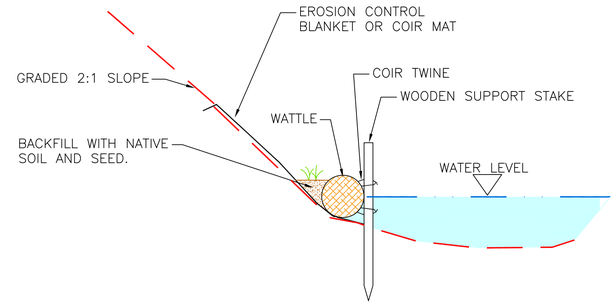


TYPICAL SILT FENCE DETAIL

SCALE: N.T.S.

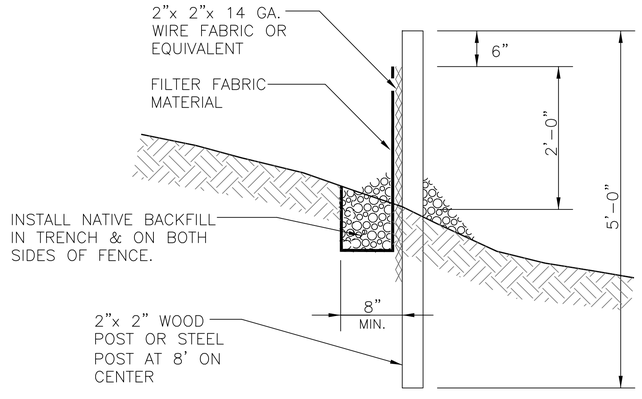
COIR WATTLE INSTALLATION NOTES:

1. DESIGN BANK SLOPE VARIES, SEE PLAN VIEW.
2. INSTALL EROSION CONTROL COIR WATTLES AT THE WATER EDGE AT TOE OF SLOPE TO DEPTH OF $\frac{1}{2}$ HEIGHT OF WATTLE.
3. TIE ENDS OF COIR WATTLES TOGETHER WITH COIR TWINE FOR A CONTINUOUS LINEAR SYSTEM.
4. DRIVE WOODEN STAKES NEXT TO THE COIR WATTLE EXTENDING 8" ABOVE GROUND. TIE COIR WATTLE TO THE STAKES EVERY 3 FEET.
5. TRENCH ENDS OF COIR LOGS INTO THE BANK A MINIMUM OF 3 FEET AND COVER WITH COMPACTED SOIL.
6. BACKFILL ON UPSLOPE SIDE OF COIR WATTLE WITH NATIVE SOIL AND STABILIZE WITH SPECIFIED VEGETATION.
7. SUPPLEMENTAL PLANT PLUGS MAY ALSO BE INSERTED INTO THE COIR WATTLE.



SECTION VIEW

N.T.S.



TYPICAL SILT FENCE SECTION VIEW

SCALE: N.T.S.

Washington811 — Know what's below. Call or click before you dig. washington811.com

WASHINGTON STATE

DEPARTMENT OF FISH AND WILDLIFE

SHAWN M. STANLEY — STATE OF WASHINGTON — 49536 — REGISTERED PROFESSIONAL ENGINEER

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DATE 8–3–2020

SNOW CREEK

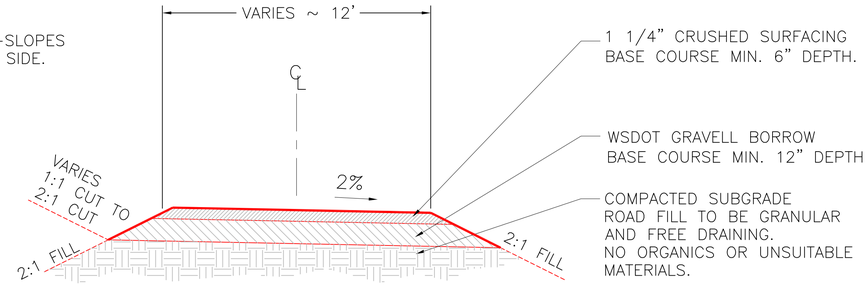
SCREEN ACCESS ROAD AND BRIDGE REPLACEMENT PROJECT

EROSION SILTATION CONTROL NOTES & DETAILS

PROJECT NO. 603097–18–2

SHEET 5 OF 8

NOTE:
ROAD CROSS-SLOPES
TO DOWNHILL SIDE.



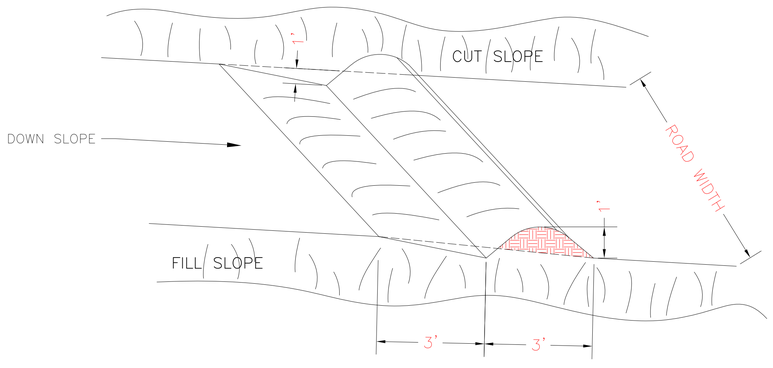
TYPICAL GRAVEL ROAD SECTION

DRIVABLE WATERBARS:

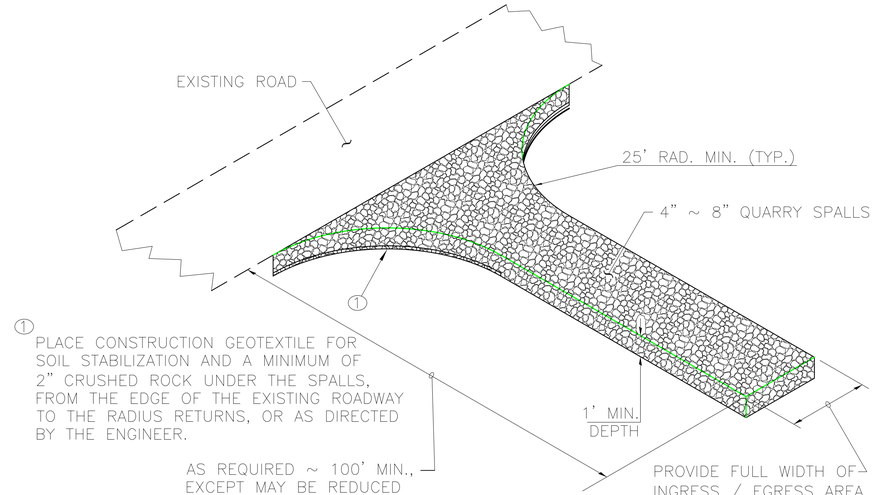
LIKE ROLLING DIPS, WATERBARS ARE ESPECIALLY EFFECTIVE WHEN USED TOGETHER WITH OUTSLOPING AS A GOOD ALTERNATIVE TO DITCHES AND CROSS DRAINS. IN ADDITION, LIKE ROLLING DIPS, PROPER USE OF WATERBARS WILL HELP MINIMIZE THE CONCENTRATION OF RUNOFF THAT MAY CAUSE SURFACE EROSION. UNLIKE ROLLING DIPS, WATERBARS ARE ARE HIGHLY SUSCEPTIBLE TO FAILURE WHEN VEHICLES DRIVE OVER THEM AND THEREFORE NEED MORE MONITORING FOR MAINTENANCE NEEDS.

1. DRIVABLE WATERBARS.

   A). WATERBARS WORK BEST ON ROADS WITH GRADES BETWEEN 2-8%.
   B). DRIVEABLE WATERBARS ARE NOT SUITABLE FOR HEAVY VEHICLE HAUL. REMOVE WATERBARS IN HEAVY HAULING PERIODS AND RE-INSTALL AFTER HAULING IS COMPLETE.
   C). USE DITCH-OUTS IF THERE IS A RISK OF PONDING.
   D). DRIVABLE WATERBARS SHOULD INTERCEPT THE DITCH AND BE KEYED INTO THE ROAD CUT SLOPE.
   E). SKEW WATERBARS A MINIMUM OF 30 DEGREES.
   F). ALL WATERBARS SHALL HAVE A FREE FLOWING OUTLET.
   G). WATERBARS SHOULD RUN THE ENTIRE WIDTH OF THE ROAD.
   H). CONSTRUCT DRIVABLE WATERBARS IN ACCORDANCE WITH THE DRIVABLE WATERBAR DETAIL.
   I). RECOMMENDED FREQUENCY OF WATERBARS IS A MAXIMUM SPACING OF 400 FEET HORIZONTAL OR EVERY 20 FEET VERTICAL.

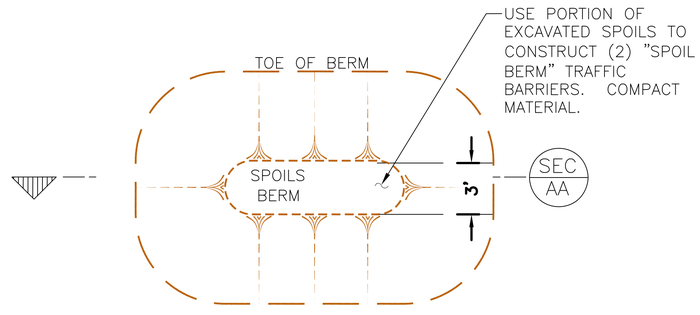


DRIVABLE WATERBAR DETAIL



STABILIZED CONSTUCTION ENTRANCE

SCALE: N.T.S.



TYPICAL SPOIL BERM PLAN VIEW

N.T.S.

NOTE:
SLOPE MATERIAL TO DRAIN,
GRASS SEED AND MULTCH

TYPICAL CROSS SECTION

N.T.S.

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AA

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WASHINGTON STATE
DEPARTMENT OF FISH AND WILDLIFE

SHAWN M. STANLEY
STATE OF WASHINGTON
49536
REGISTERED
PROFESSIONAL ENGINEER

SYM	DATE	REVISION DESCRIPTION	BY
		APPROVED AND RELEASED FOR CONSTRUCTION	

CHIEF ENGINEER ..... DATE: .....
PROGRAM ..... DATE: .....

0 ——— 1"
BAR MEASURES ONE INCH ON ORIGINAL DRAWINGS

DESIGNED BY S. STANLEY
CHECKED BY D. PONDER
DRAWN BY T. GODAT/K.CORWIN
DATE 8-3-2020

SNOW CREEK
SCREEN ACCESS ROAD AND
BRIDGE REPLACEMENT PROJECT
PROJECT NOTES AND DETAILS

PROJECT NO.
603097-18-2

SHEET 6 OF 8

NOTE:
BRIDGE TO REPLACE
EXISTING BRIDGE SEE KPFF
BRIDGE ENGINEERING DESIGN.

EXISTING PATH

RE-VEGETATION AREA

EXCAVATION LIMITS

WDFW NAIL #7
ELEV. = 1312.52
(1542)

RE-VEGETATION AREA

ICICLE CREEK

FLOW

EXISTING USFS BRIDGE

TO PARKING LOT

RE-VEGETATION AREA

TRAIL

PROPERTY LINE

WDFW NAIL #8
ELEV. = 1314.94
(1580)

EXISTING CONTOUR TYP.

EXCAVATION LIMITS

PROPOSED
12' WIDE GRAVEL
ACCESS ROAD

RE-VEGETATION AREA

EXISTING
BOULDER
TOP ~ 1315.0

EXISTING PATH
(ACCESS ROAD)

NOTE:
PLANT RE-VEGETATION IN NATIVE SOIL. REPLACE TREES AND SHRUBS DAMAGED DUE TO CONSTRUCTION AT A 3:1 RATIO.

ICICLE CREEK BRIDGE CROSSING PLAN VIEW

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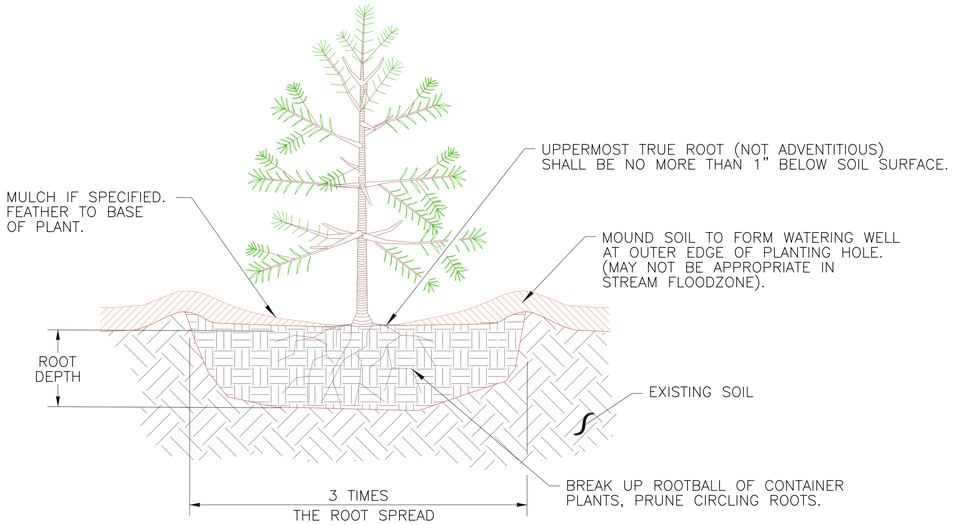
SNOW CREEK
SCREEN ACCESS ROAD AND
BRIDGE REPLACEMENT PROJECT
PLANTING PLAN

PROJECT NO.
603097-18-2

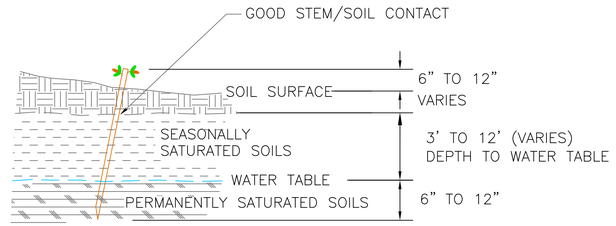
SHEET 7 OF 8

FILE NAME: S:\HPV\ESTIMATION\META\DWGSHARE\ICICLE CREEK SCREEN\NEW 9\9\2017\DEV. - 16-20 SNOW CREEK ROAD.DWG
LAYOUT TAB: 7 PLANTING PLAN
SAVED TIME: 8/4/2020 10:19:39 AM
PLOT TIME: 8/3/2020
USER NAME: GODAT, ANTHONY N (DFW)
XREFS USED: ##################



SHRUB, TREE AND GROUND COVER PLANTING DETAIL

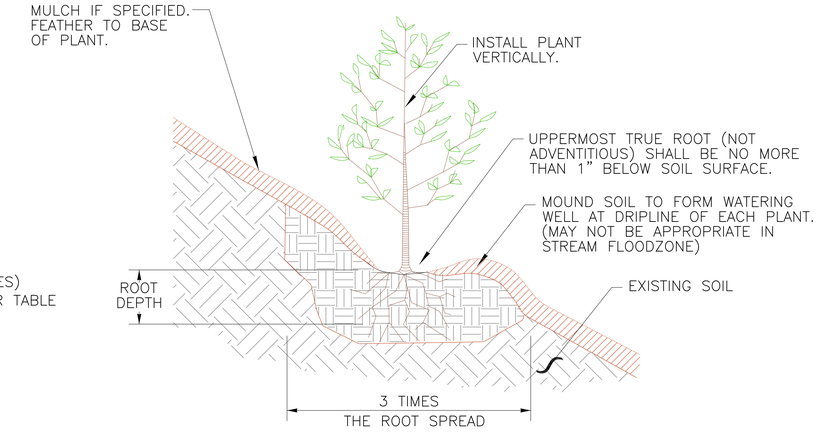
SCALE: N.T.S.



NOTES:
1. SOAK CUTTINGS IN WATER FOR 24 TO 48 HOURS BEFORE PLANTING.

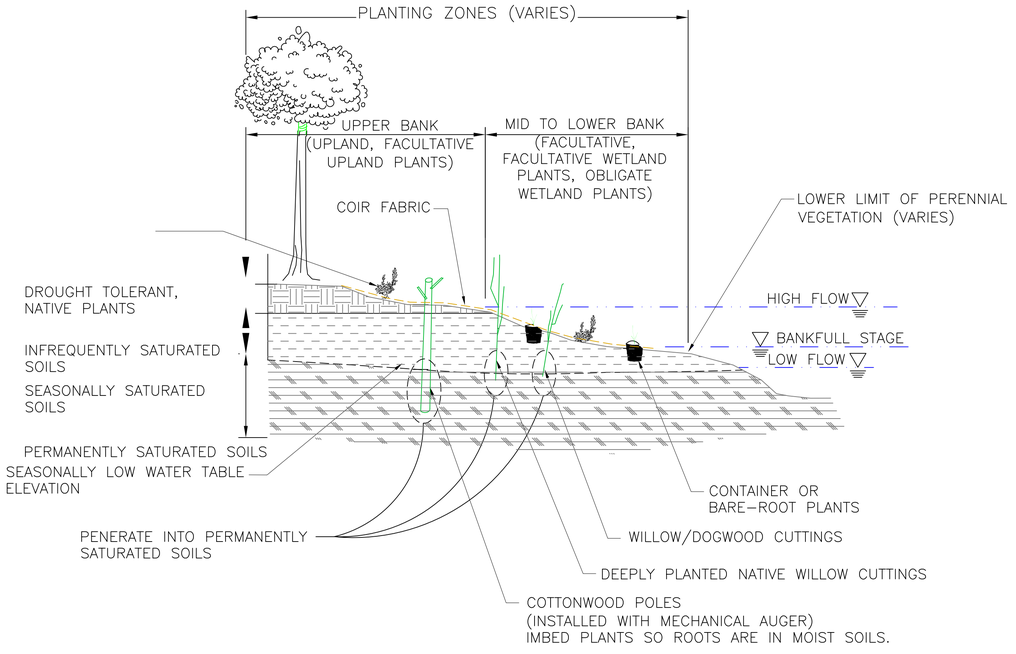
LIVE CUTTINGS PLANTED INTO STREAMBANK

SCALE: N.T.S.



SLOPE PLANTING DETAIL

(INCLUDES ALL PLANTS ON SLOPES)
SCALE: N.T.S.



HYDROLOGY-BASED PLANTING ZONES AND TYPICAL WOODY PLANTING BANK TREATMENT

SCALE: N.T.S.

Erosion Grass Seed Mix

Percent	Tolerance (%)	Species
30	+/-10	Hard fescue (Festuca trachyphylla)
20	+/-10	Sheep fescue (Festuca ovina)
20	+/-10	Crested wheatgrass (Agropyron desertorum)
20	+/-10	Rush intermediate wheatgrass (Thinopyrum intermedium)
10	+/-5	Sherman big bluegrass (Poa secunda 'Sherman')

Seed at a rate of 10-12 lbs/acre. Seeding shall take place immediately following construction.

Zone A: The removal of any larger riparian plants shall be replaced at one to one with native erosion control riparian plants including, but not limited to:

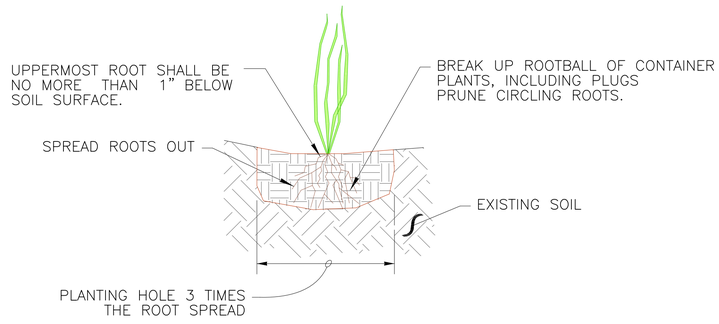
Size	Species	Density
3-5 ft stem, min. dia ½" at cut end	black cottonwood (Populus trichocarpa)	1-2 ft O.C.
3-5 ft stem, min. dia ½" at cut end	Redosier dogwood (Cornus stolonifera)	1-2 ft O.C.
3-5 ft stem, min. dia ½" at cut end	Pacific willow (Salix lasiandra)	1-2 ft O.C.
3-5 ft stem, min. dia ½" at cut end	coyote willow (Salix exigua)	1-2 ft O.C.
#1	water birch (Betula occidentalis)	5-20 ft O.C.
#1	Mountain alder (Alnus incana)	5-20 ft O.C.

Zone B: The removal of any larger riparian plants shall be replaced at two to one with native erosion control riparian plants including, but not limited to:

Size	Species	Density
#1	Woods rose (Rosa woodsii)	1-2 ft O.C.
#1	Nootka rose (Rosa nutkana)	1-2 ft O.C.
#1	Vine maple (Acer circinatum)	3-5 ft O.C.
#1	Western red cedar (Thuja plicata)	5-20 ft O.C.

Zone C: The removal of any larger riparian plants shall be replaced at three to one with native erosion control riparian plants including, but not limited to:

Size	Species	Density
#1	sitka alder (Alnus viridis)	3-5 ft O.C.
#1	Oregon grape Berberis aquifolium	3-5 ft O.C.
#1	ponderosa pine (Pinus ponderosa)	5-20 ft O.C.
#1	bigleaf maple (Acer macrophyllum)	5-20 ft O.C.
#1	Douglas-fir (Pseudotsuga menziesii)	5-20 ft O.C.



EMERGENT PLANTING DETAIL

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