

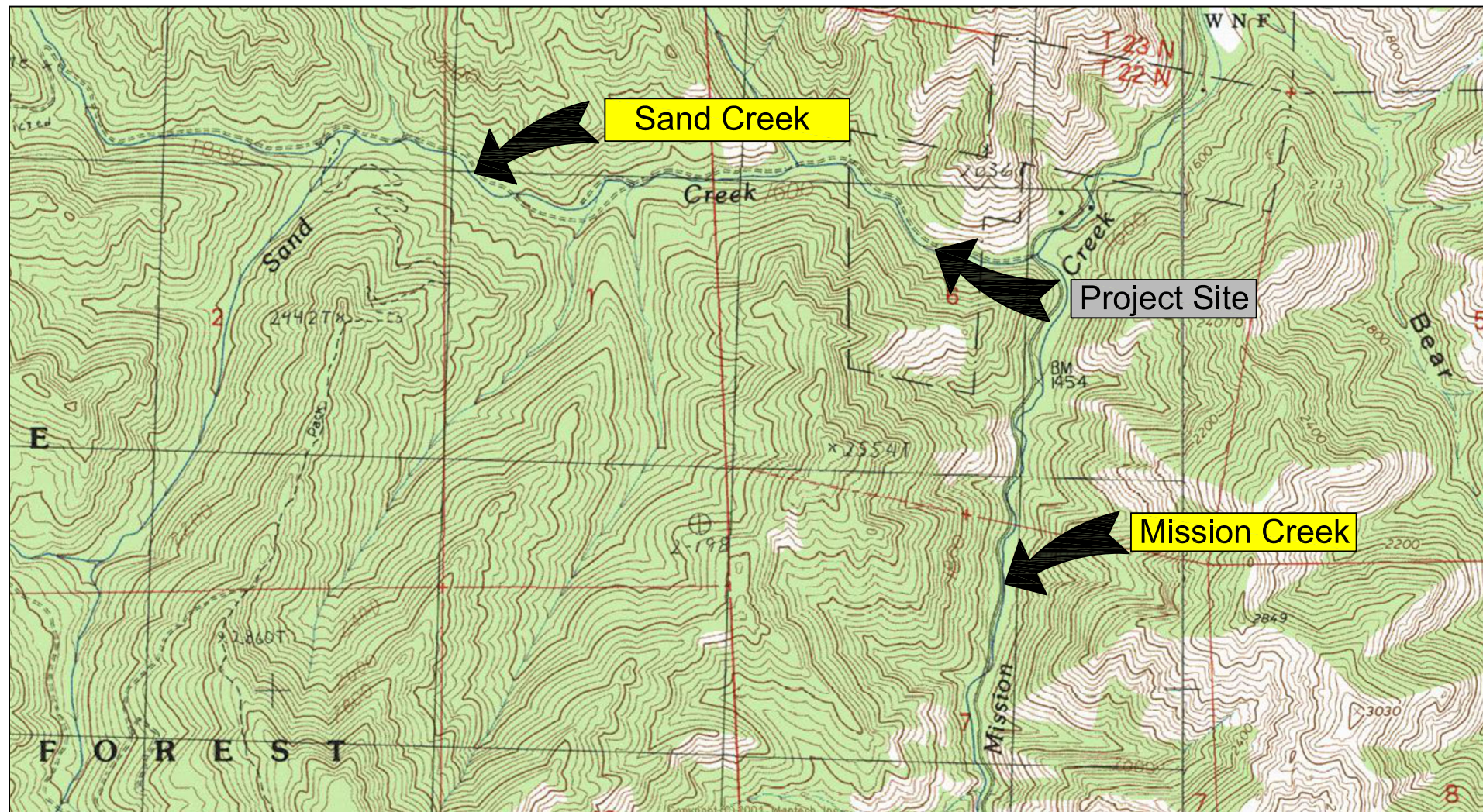
Construction Documents

Sand Creek Culvert Replacement

Chelan County - Sand Creek Road
Project # 23-1908

DRAWING INDEX:

1. Cover Sheet
2. Legend and Notes
3. Site Plan – Existing
4. Construction Plan
5. Site Plan – Proposed
6. Site Plan Enlarged
7. Road Profile
8. Stream Profile
9. Stream Plan
10. Sections
11. Precast Footing and Stemwall
12. Details
13. Culvert Details



View Road to West



View U/S End Culvert

VICINITY MAP
NOT TO SCALE



Sand Creek Fish Passage

Landowner: Chelan County Public Works
Sec Twship Range: Section 29, T25N, R18E
Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



11/21/25

REV	DATE	BY	APPD	DESCRIPTION

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DESIGN BY:
Waterfall Engineering

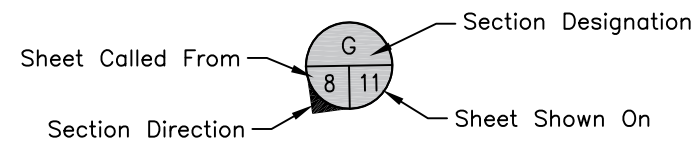
DRAWN BY:

DATE:
11/21/25

Cover Sheet

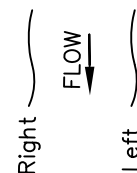
1 13
SHEET OF

SHEET SYMBOLS



SECTION CALLOUT

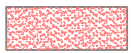
References to Right and Left as viewed downstream



Sandbag Cofferdam



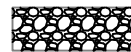
Existing Concrete



Existing Gravel Road



Crushed Rock Fill



Rock or Gravel Fill



Undisturbed Grade



Road Shoulder Fill



Existing Trees > 12" Diam.



Trees to be Removed

LEGEND



BM1

Project Bench Mark



GB-01

Geotech Boring Locations



Design Elevation

----- Centerline

—2550— 5' Contour Elevation

- - - - - 1' Contour Elevation

----- Denotes 100 Year Flood Extent

\\\\\\\\\\\\\\\\ Denotes Excavation Extent/Clearing Limits

- x - x - x - Fish Screen, Silt Fence

- - - - - Denotes Parcel/Property Line

- - - - - Existing Grade

Text Denotes Existing

Text Denotes Proposed

Text Denotes Proposed

Survey Completed by Mountain to Coast, LLC based on Washington State Plane Coordinate System and NAVD 88 Vertical Datum. Sand Creek Road ROW Calculated per Survey AFN 2372417, Records of Chelan County.

PT	N	E	Elev.	Desc.
70	157129.38	1719958.50	1445.58	MNCC
100	157169.97	1719829.99	1449.99	MNCC
110	157061.98	1720352.06	1432.95	MNCC
120	157108.73	1720103.98	1441.39	MNHT
130	157054.52	1720352.72	1435.62	MNCC
140	157094.12	1719827.14	1443.42	MNHT
150	157064.02	1719862.93	1443.59	MNHT
160	157064.72	1719973.27	1440.41	MNHT
170	157104.51	1720321.32	1434.50	MNHT

Road Centerline			
STA	N	E	Elev
2+00	157144.56	1719921.77	1447.0
2+80	157136.82	1720001.38	1444.6
3+40	157128.68	1720060.69	1442.4
4+00	157111.72	1720118.24	1444.7
4+40	157102.36	1720157.07	1439.4
4+72	157098.21	1720188.80	1438.1
5+20	157091.96	1720236.47	1436.0
6+13	157065.61	1720324.86	1434.0

Road Design Standards Based on Chelan County Code 15.30 Development Standards, except where Deviations have been Requested.



Sand Creek Fish Passage

Landowner: Chelan County Public Works
 Sec Twnshp Range: Section 29, T25N, R18E
 Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



11/21/25

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DESIGN BY:
Waterfall Engineering

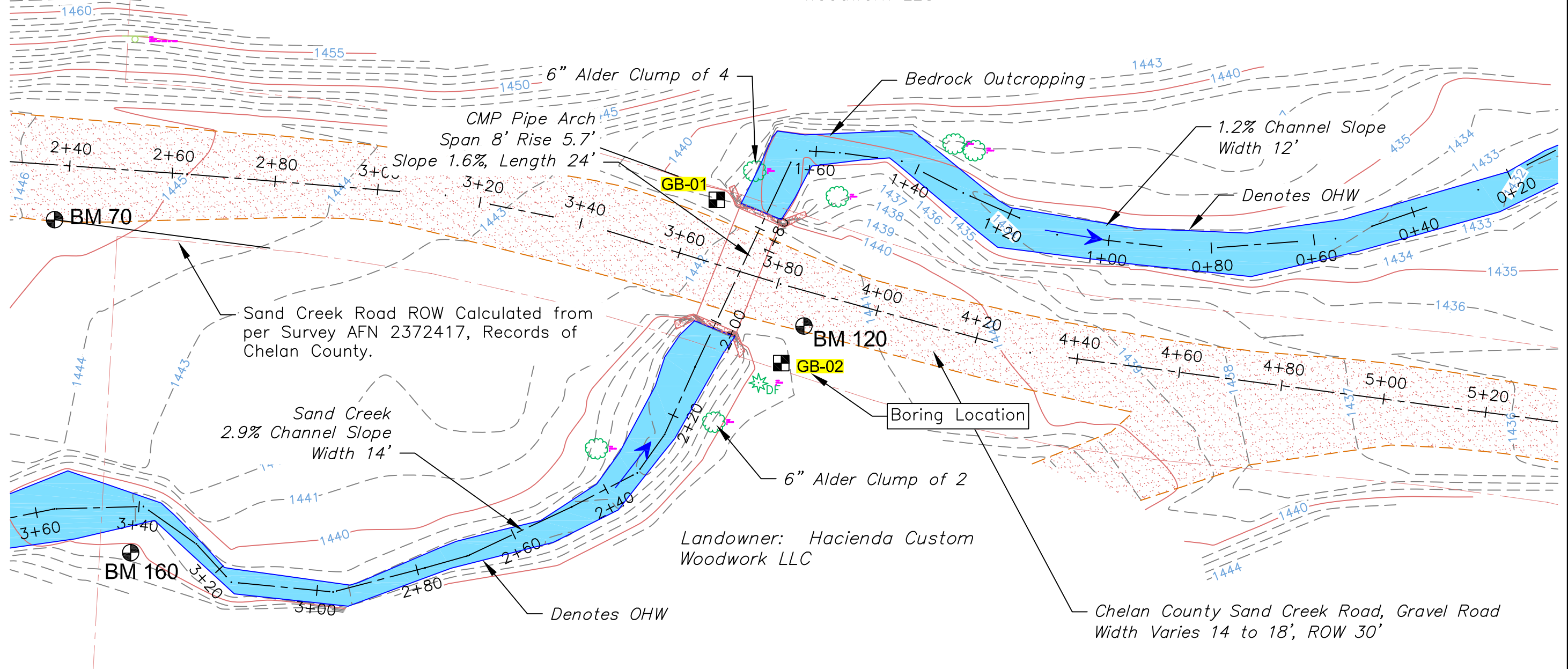
DRAWN BY:

DATE:
11/21/25

Legend

2 **13**
SHEET OF

Landowner: Hacienda Custom
Woodwork LLC



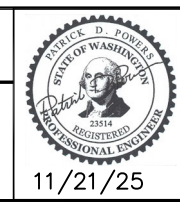
Site Plan
SCALE: 1" = 20'

Geotechnical Report by Geosyntec
November 11, 2025
Sand Creek Culvert Replacement
Project: NWG0072



Sand Creek Fish Passage

Landowner: Chelan County Public Works
Sec Twship Range: Section 29, T25N, R18E
Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



11/21/25

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SCALE VERIFICATION: BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

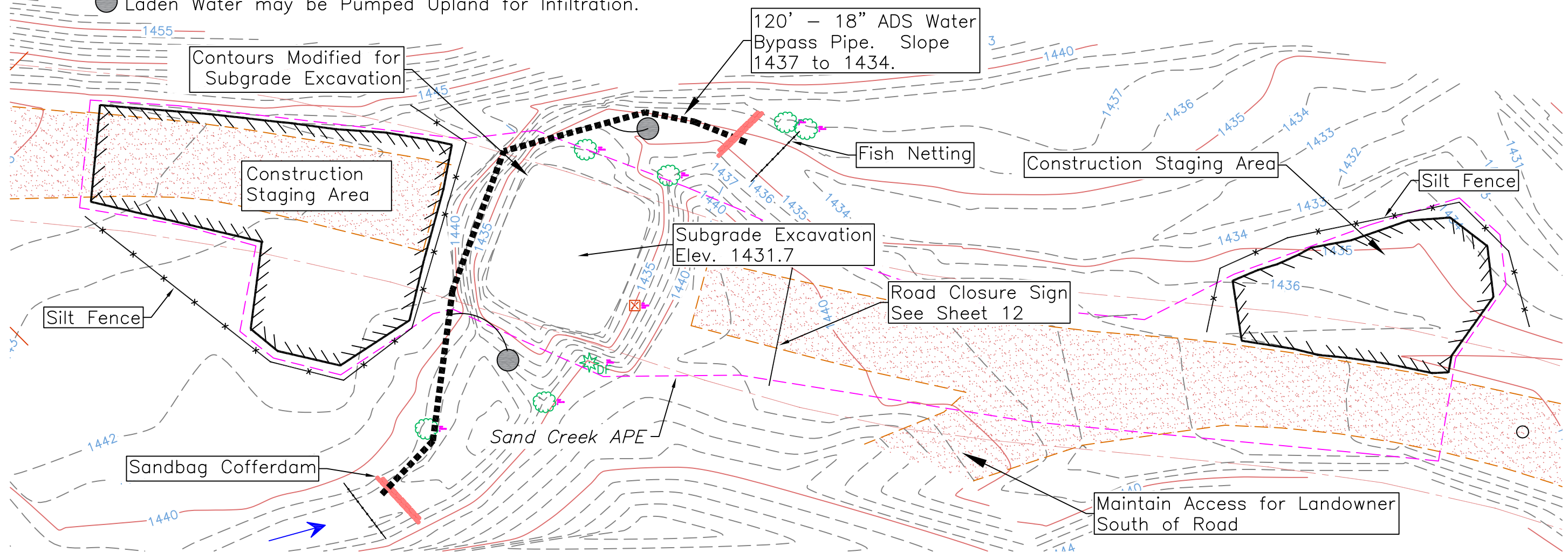
DESIGN BY: Waterfall Engineering
DRAWN BY:
DATE: 11/21/25

Site Plan - Existing

3 **13**
SHEET OF

Denotes Sump Pump (See Detail Sheet 12). Provide Two Lines For Pumping. Clean Water May be sent to Bypass Pipe and Sediment Laden Water may be Pumped Upland for Infiltration.

Landowner: Hacienda Custom Woodwork LLC



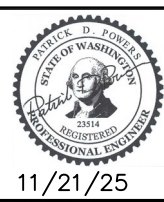
Construction Plan
SCALE: 1" = 20'

Note: Additional Road Closed Ahead Sign 800' East at Sand Creek Road and Mission Creek Road



Sand Creek Fish Passage

Landowner: Chelan County Public Works
 Sec Twnshp Range: Section 29, T25N, R18E
 Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



11/21/25

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DESIGN BY:
Waterfall Engineering

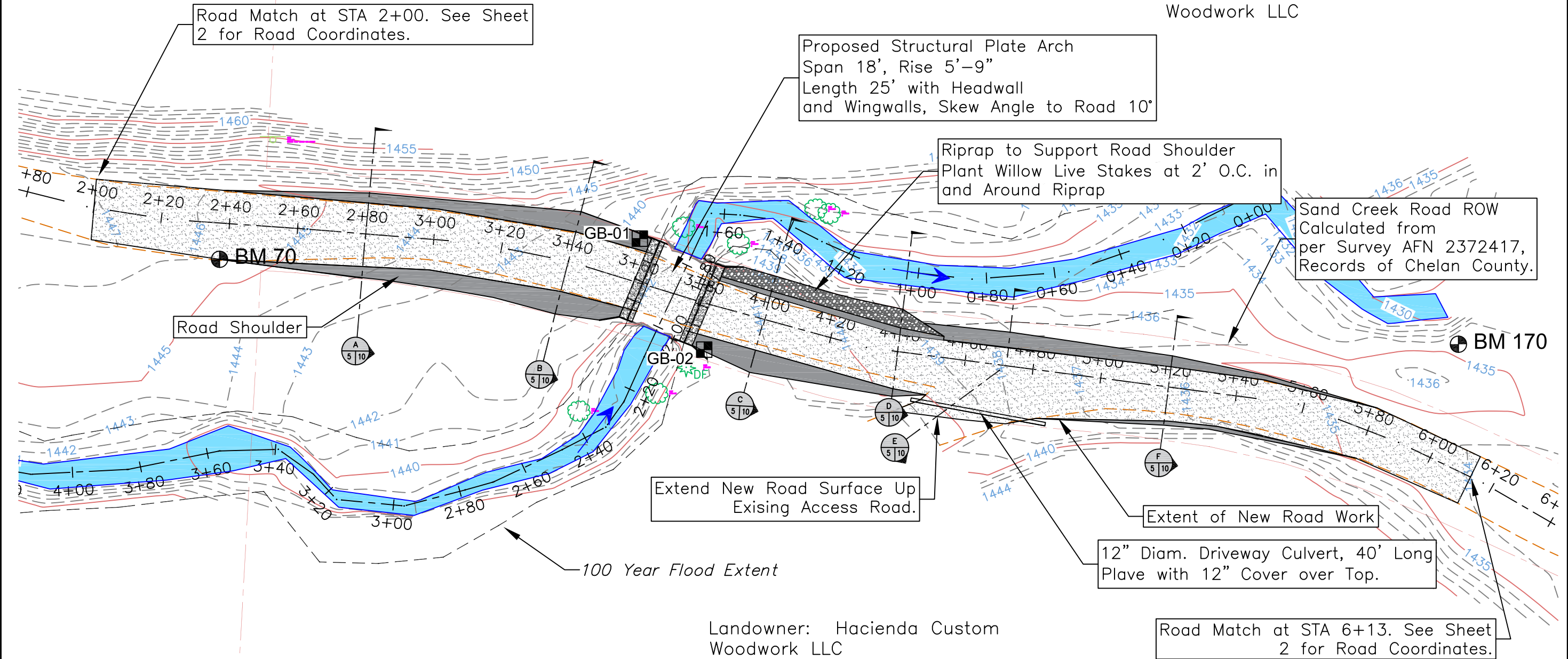
DRAWN BY:

DATE:
3/9/26

Construction Plan

4 **13**
SHEET OF

Landowner: Hacienda Custom
Woodwork LLC



Road Match at STA 2+00. See Sheet 2 for Road Coordinates.

Proposed Structural Plate Arch
Span 18', Rise 5'-9"
Length 25' with Headwall
and Wingwalls, Skew Angle to Road 10°

Riprap to Support Road Shoulder
Plant Willow Live Stakes at 2' O.C. in
and Around Riprap

Sand Creek Road ROW
Calculated from
per Survey AFN 2372417,
Records of Chelan County.

Road Shoulder

Extend New Road Surface Up
Existing Access Road.

Extent of New Road Work

12" Diam. Driveway Culvert, 40' Long
Plave with 12" Cover over Top.

100 Year Flood Extent

Road Match at STA 6+13. See Sheet 2 for Road Coordinates.

Landowner: Hacienda Custom
Woodwork LLC

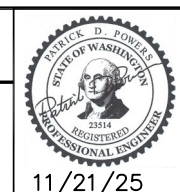
Proposed Site Plan
SCALE: 1" = 30'

Note: Existing Road is Gravel. Surveyed Width Varies 13 to 18 feet. Proposed Design Width Varies 16 to 18' with 2' Shoulders Except at Ends Where the Road Matches Existing. From STA 4+00 to 5+20 Road is Offset From Centerline 2 to 3 feet (See Sheet 10)



Sand Creek Fish Passage

Landowner: Chelan County Public Works
Sec Twnshp Range: Section 29, T25N, R18E
Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



11/21/25

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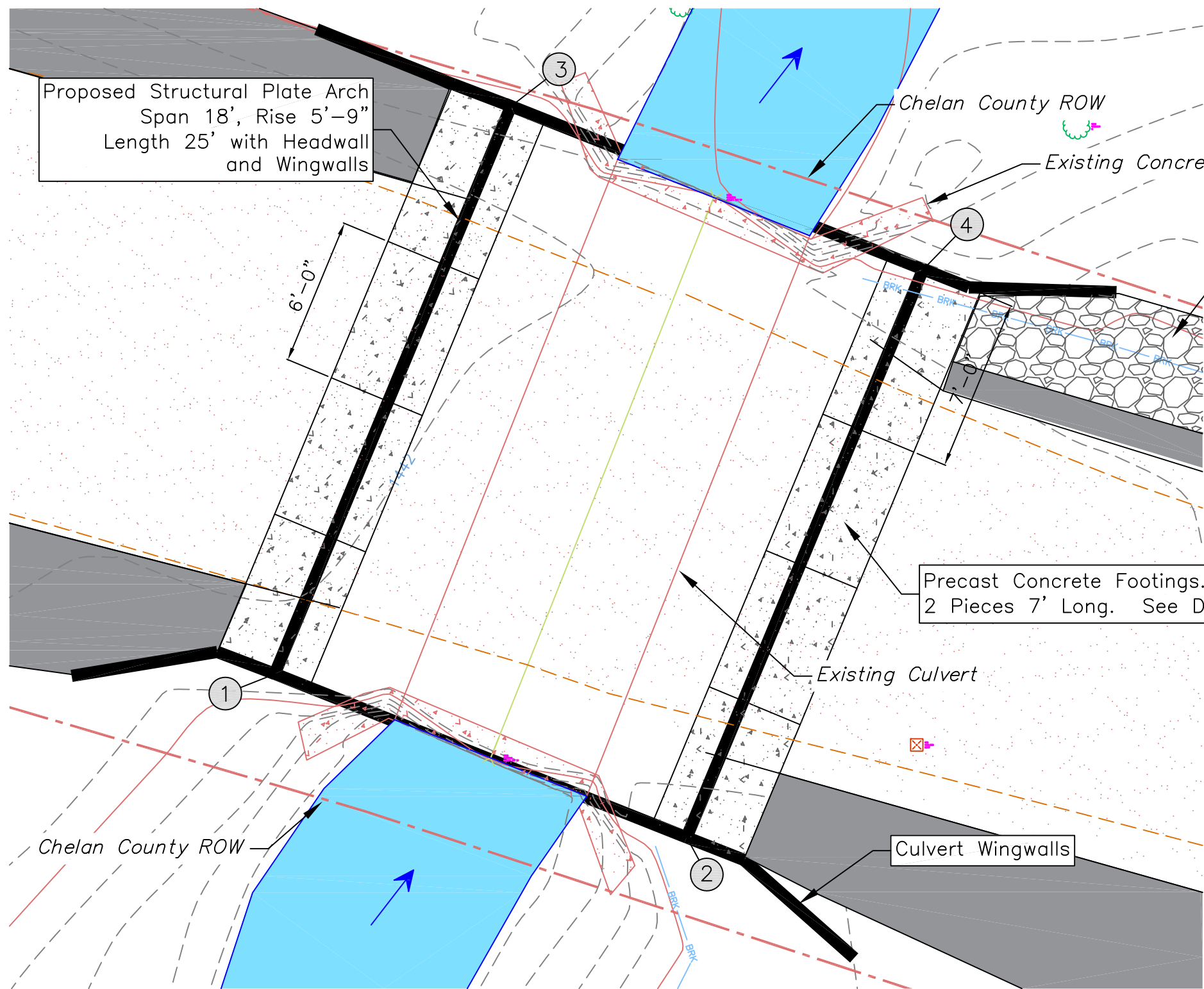
DESIGN BY:
Waterfall Engineering

DRAWN BY:

DATE:
11/21/25

Site Plan - Proposed

5 **13**
SHEET OF



Proposed Structural Plate Arch
Span 18', Rise 5'-9"
Length 25' with Headwall
and Wingwalls

Chelan County ROW

Existing Concrete Headwall to be Removed

Riprap to Support Road Shoulder

Precast Concrete Footings. 6 Pieces 6' long
2 Pieces 7' Long. See Detail Sheet 11

Existing Culvert

Culvert Wingwalls

Culvert Coordinates – For Layout		
Number	Northing	Easting
①	157111.62	1720077.91
②	157104.98	1720094.62
③	157134.68	1720087.50
④	157128.06	1720104.23

Site Plan
Scale: 1" = 5'



Sand Creek Fish Passage

Landowner: Chelan County Public Works
Sec Twshp Range: Section 29, T25N, R18E
Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



11/21/25

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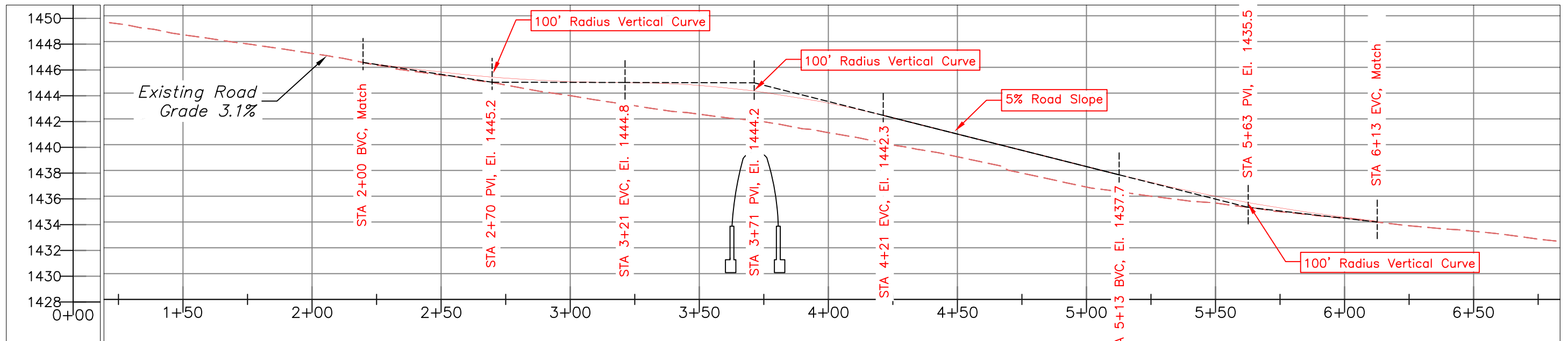
DESIGN BY:
Waterfall Engineering

DRAWN BY:

DATE:
11/21/25

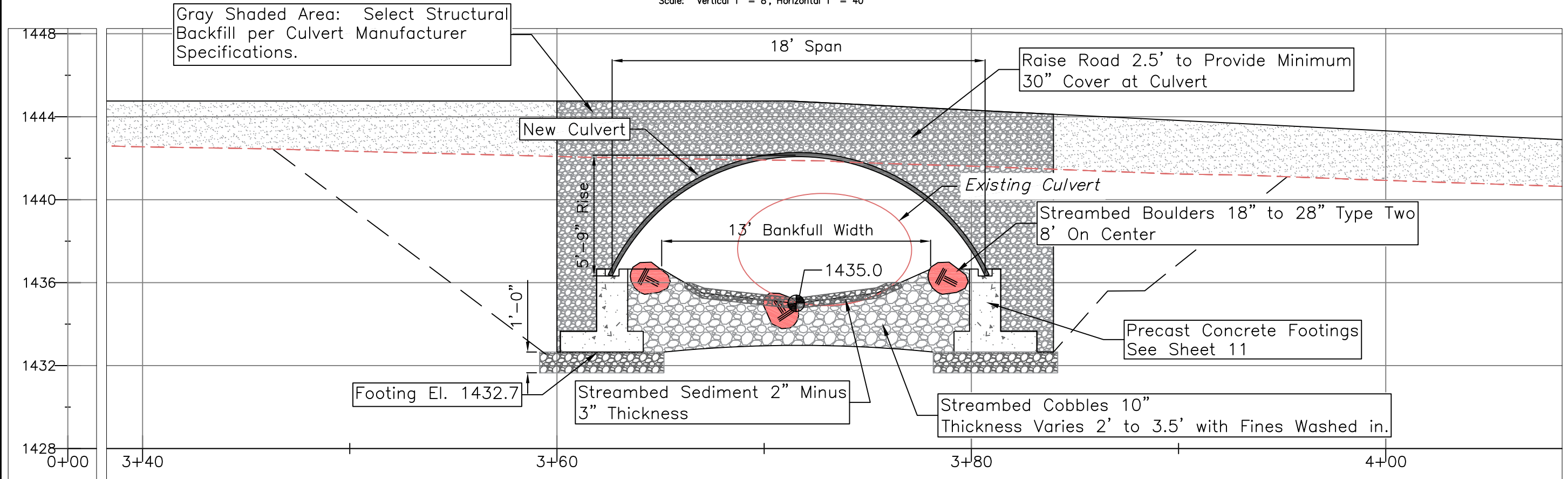
Enlarged Site Plan

6 **13**
SHEET OF



Road - Vertical Profile - Skew

Scale: Vertical 1" = 8', Horizontal 1" = 40'



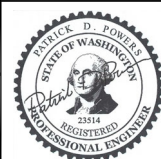
Road Section

Scale: 1" = 20'



Sand Creek Fish Passage

Landowner: Chelan County Public Works
 Sec Twship Range: Section 29, T25N, R18E
 Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



11/21/25

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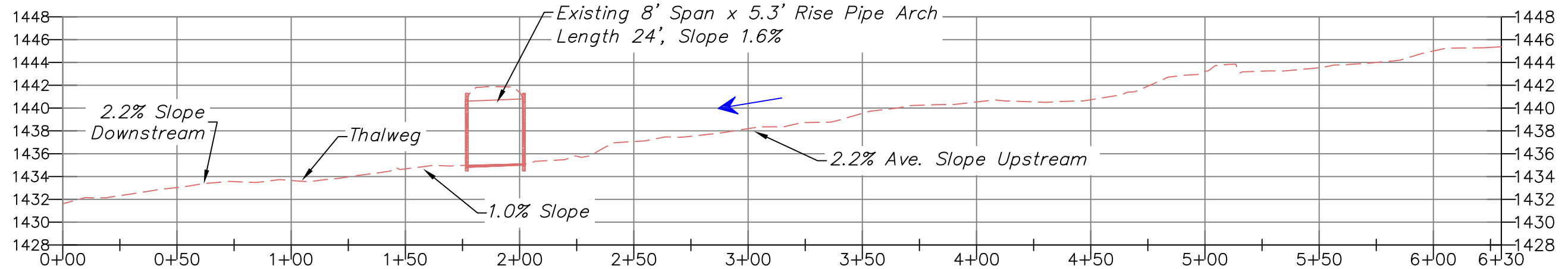
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IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

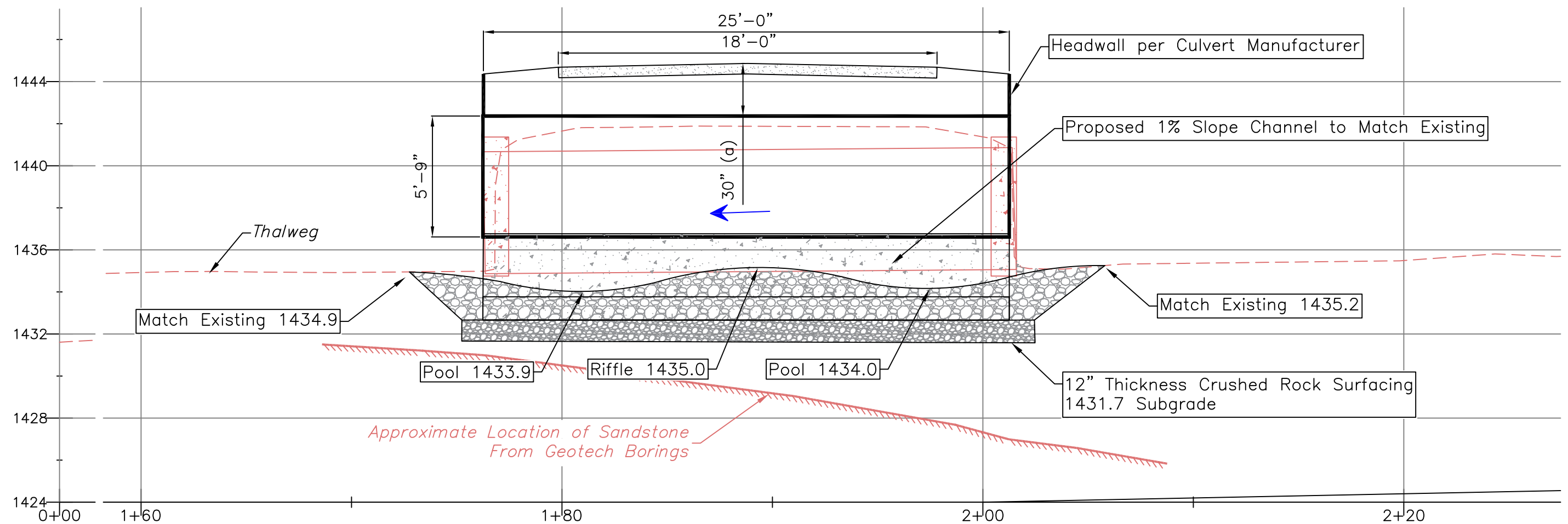
DESIGN BY: Waterfall Engineering
 DRAWN BY:
 DATE: 11/21/25

Road Profile

7 **13**
 SHEET OF



Long Stream Profile
Scale: Vertical 1" = 10', Horizontal 1" = 50'



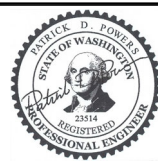
a: Minimum Dimension per NSCPA Corrugated Steel Pipe Manual. Actual may Vary.

Stream Profile
Scale: 1" = 10'



Sand Creek Fish Passage

Landowner: Chelan County Public Works
Sec Twnshp Range: Section 29, T25N, R18E
Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



11/21/25

REV	DATE	BY	APPD	DESCRIPTION

SCALE VERIFICATION
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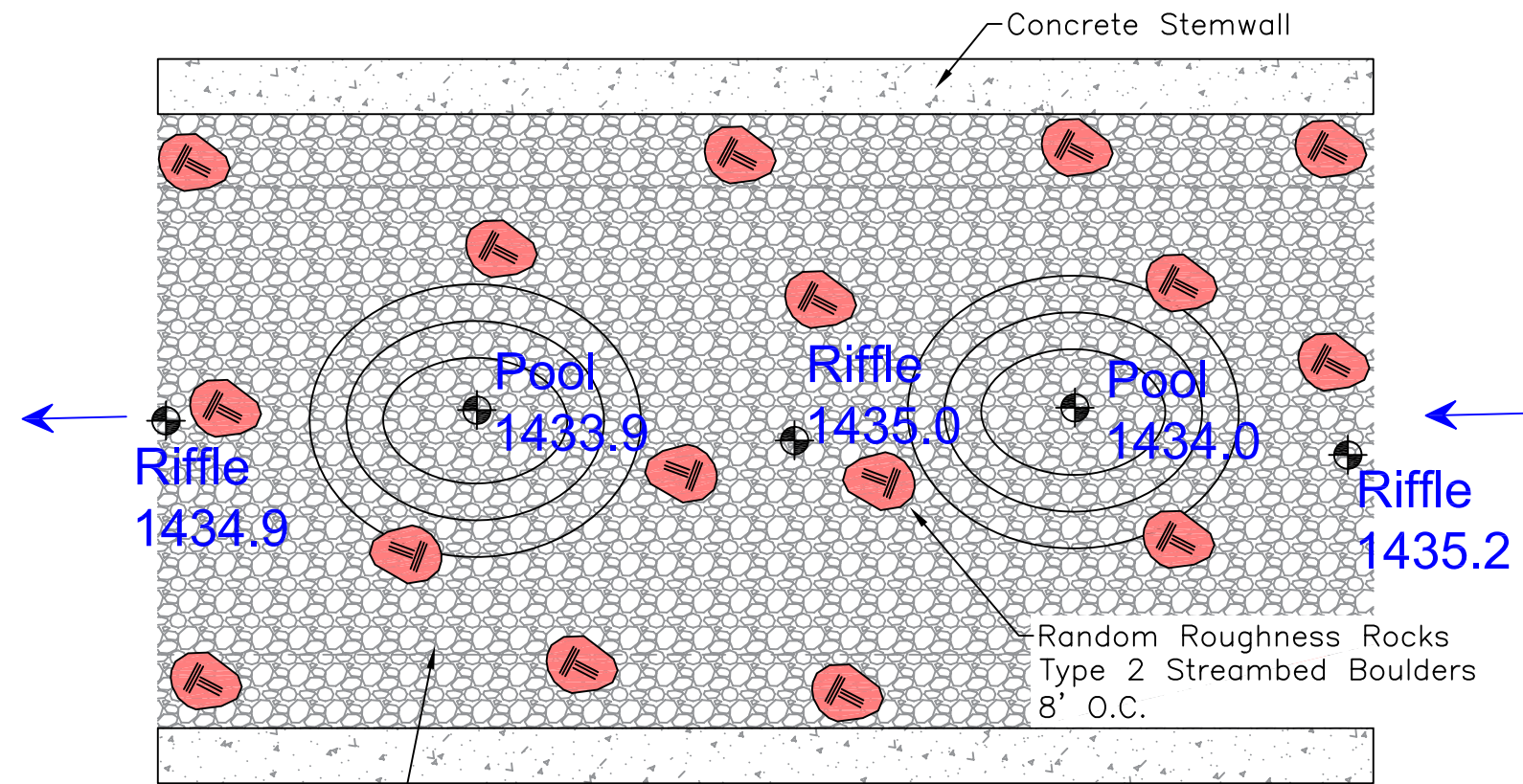
DESIGN BY:
Waterfall Engineering

DRAWN BY:

DATE:
11/21/25

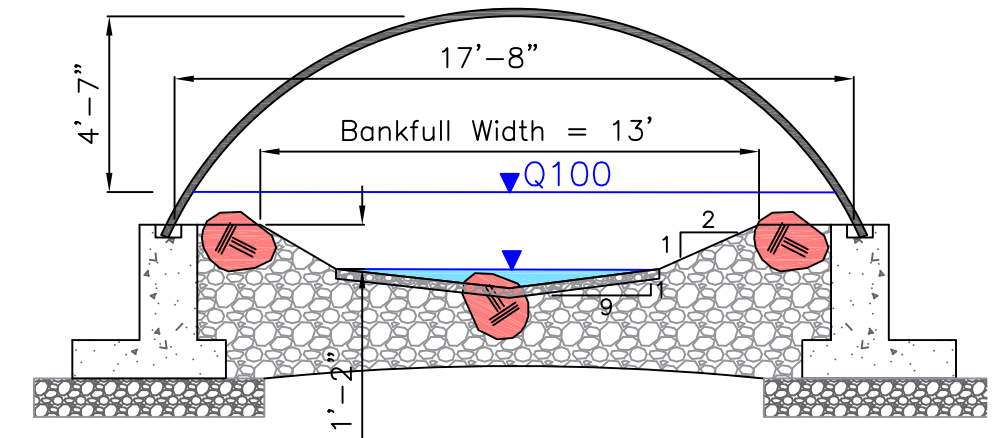
Stream Profile

8 **13**
SHEET OF



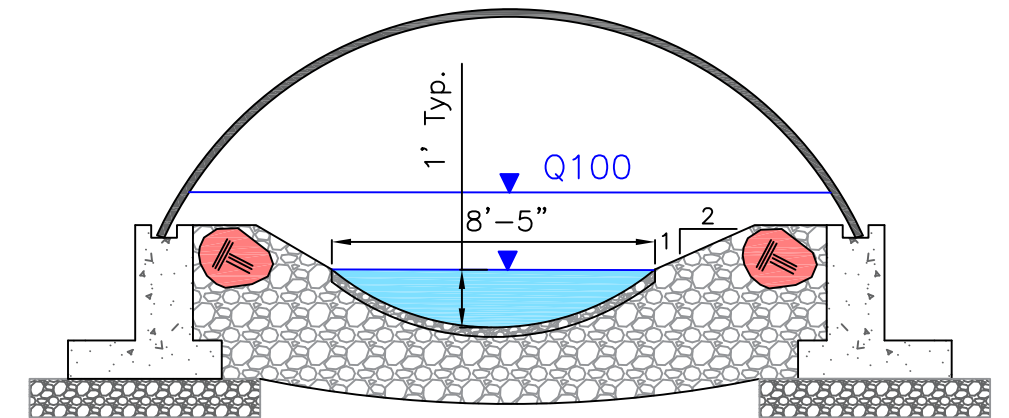
Typical Plan View

Scale: 1" = 5'



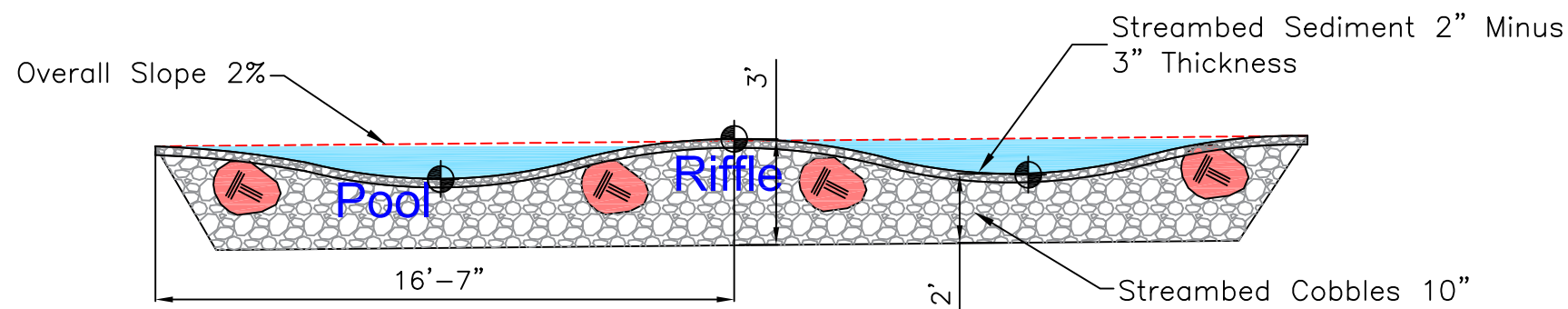
Typical Riffle Section

Scale: 1" = 5'



Typical Pool Section

Scale: 1" = 5'



Typical Profile View

Scale: 1" = 5'

10" Streambed Cobbles:

- 100% Passing: 10"
- 84% Passing: 8"
- 50% Passing: 4"

Note: After Streambed Cobbles and Boulders are in place, Wash Fines into bed to seal the porous rock. Set Aside 10 cubic yards from Existing Channel Excavation for this Material. Contractor to Ensure Channel Does Not Go Subsurface for 48 Hours.

⊕ Denotes Design Elevation From Sheet 8



Sand Creek Fish Passage

Landowner: Chelan County Public Works
 Sec Twnshp Range: Section 29, T25N, R18E
 Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



11/21/25

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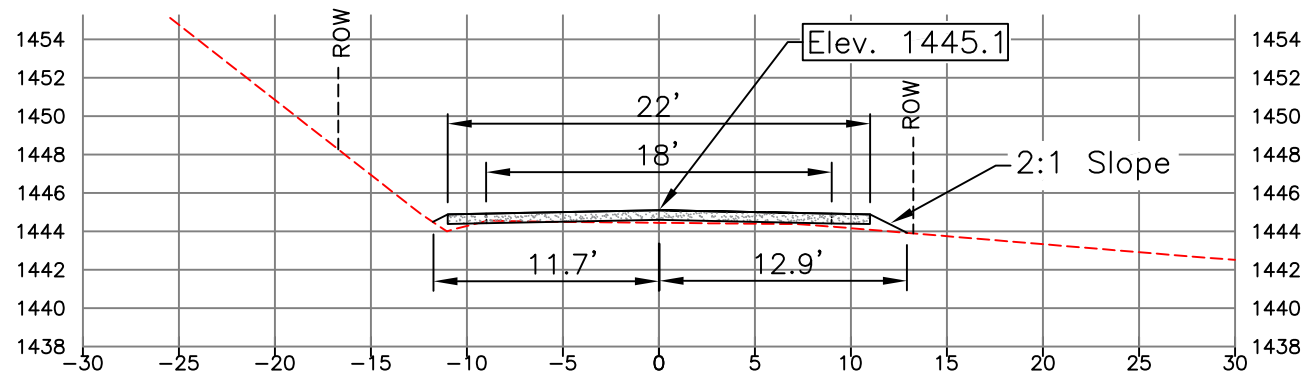
DESIGN BY:
Waterfall Engineering

DRAWN BY:

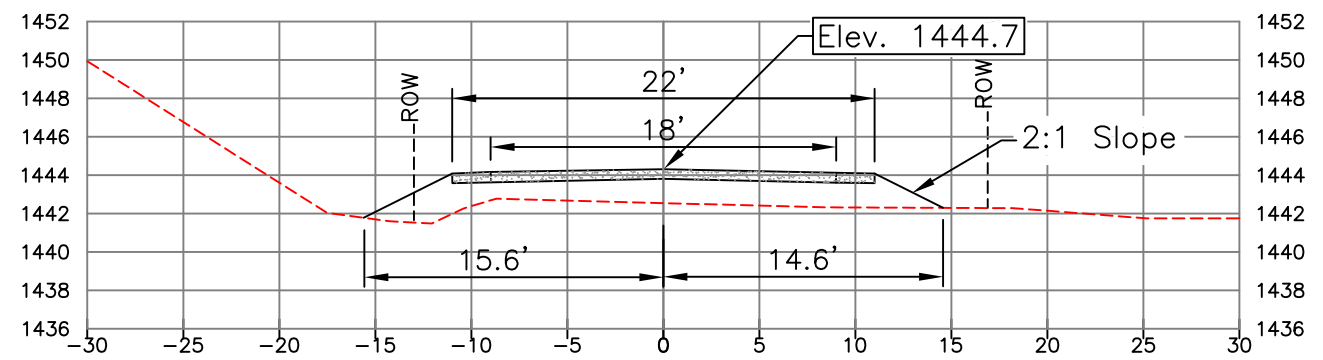
DATE:
11/21/25

Stream Plan

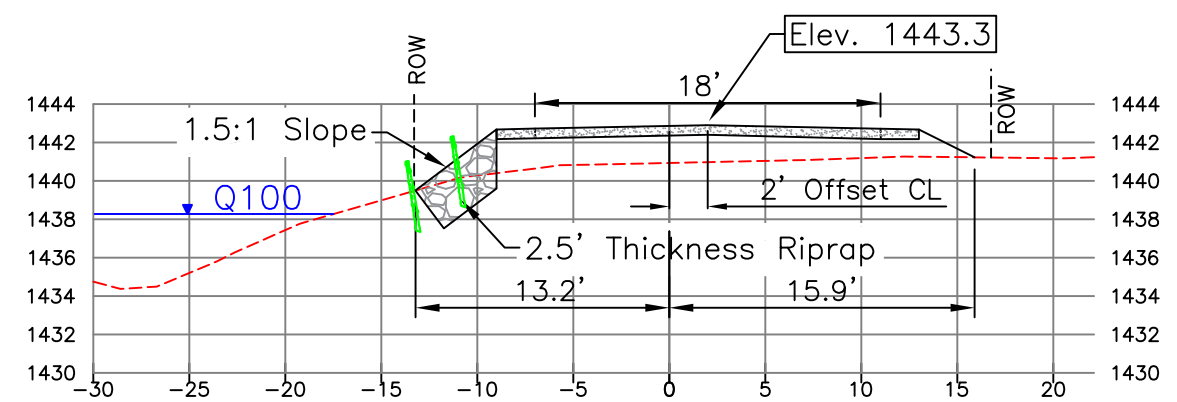
9 13
SHEET OF



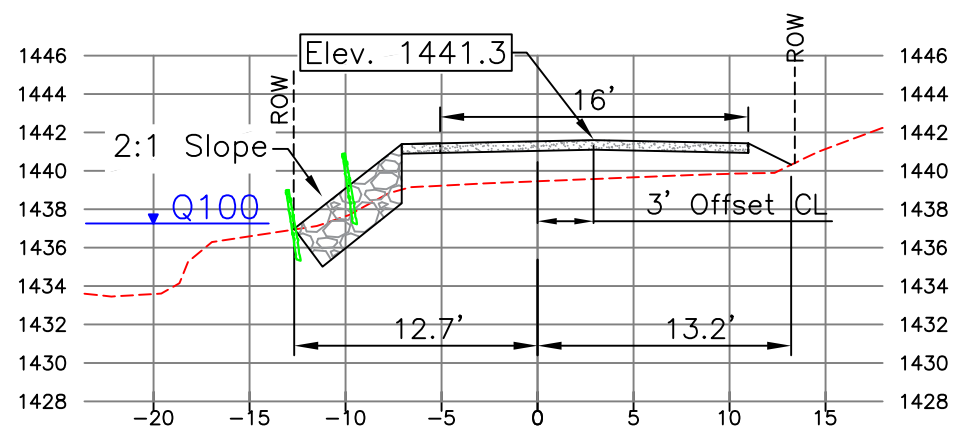
A
5 | 10
STA 2+80
Scale: 1" = 10'



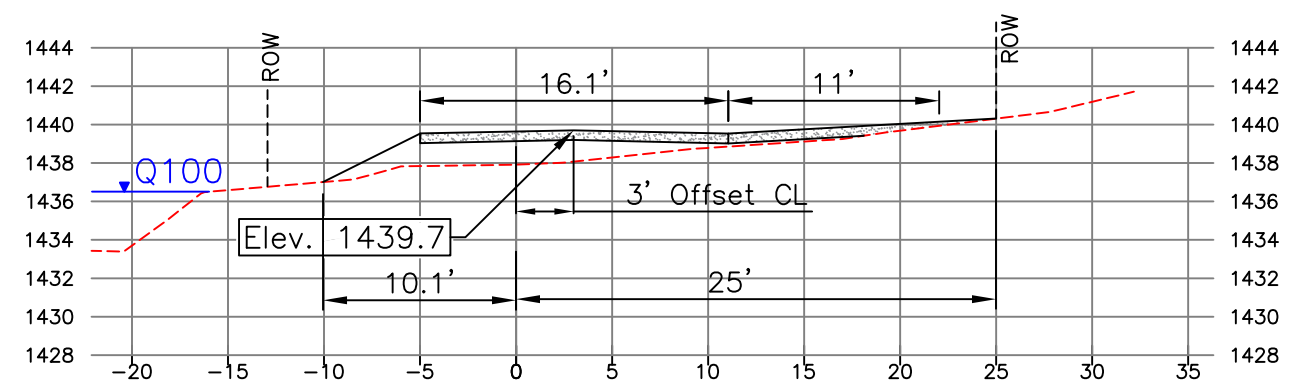
B
5 | 10
STA 3+40
Scale: 1" = 10'



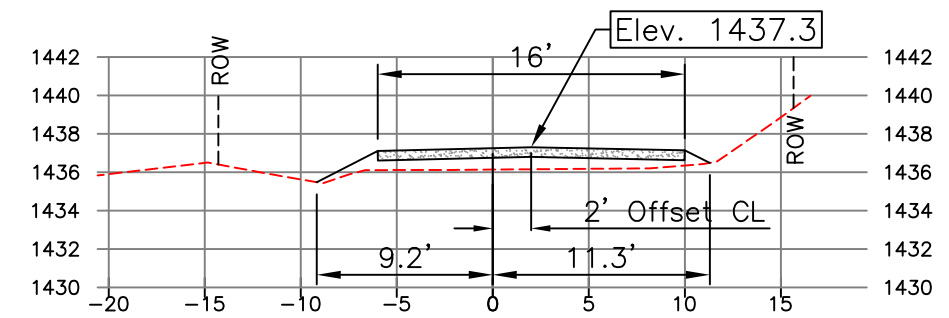
C
5 | 10
STA 4+00
Scale: 1" = 10'



D
5 | 10
STA 4+40
Scale: 1" = 10'



E
5 | 10
STA 4+72
Scale: 1" = 10'

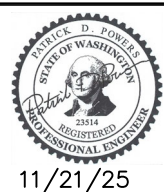


F
5 | 10
STA 5+20
Scale: 1" = 10'



Sand Creek Fish Passage

Landowner: Chelan County Public Works
 Sec Twnshp Range: Section 29, T25N, R18E
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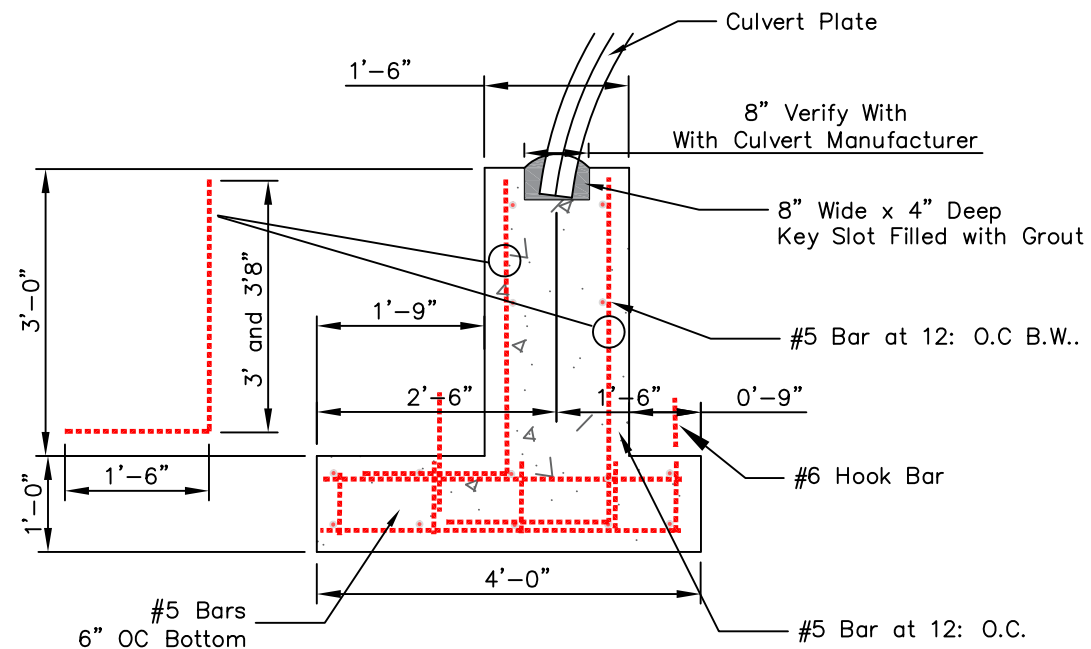
DESIGN BY:
Waterfall Engineering

DRAWN BY:

DATE:
11/21/25

Road Sections

10 **13**
SHEET OF

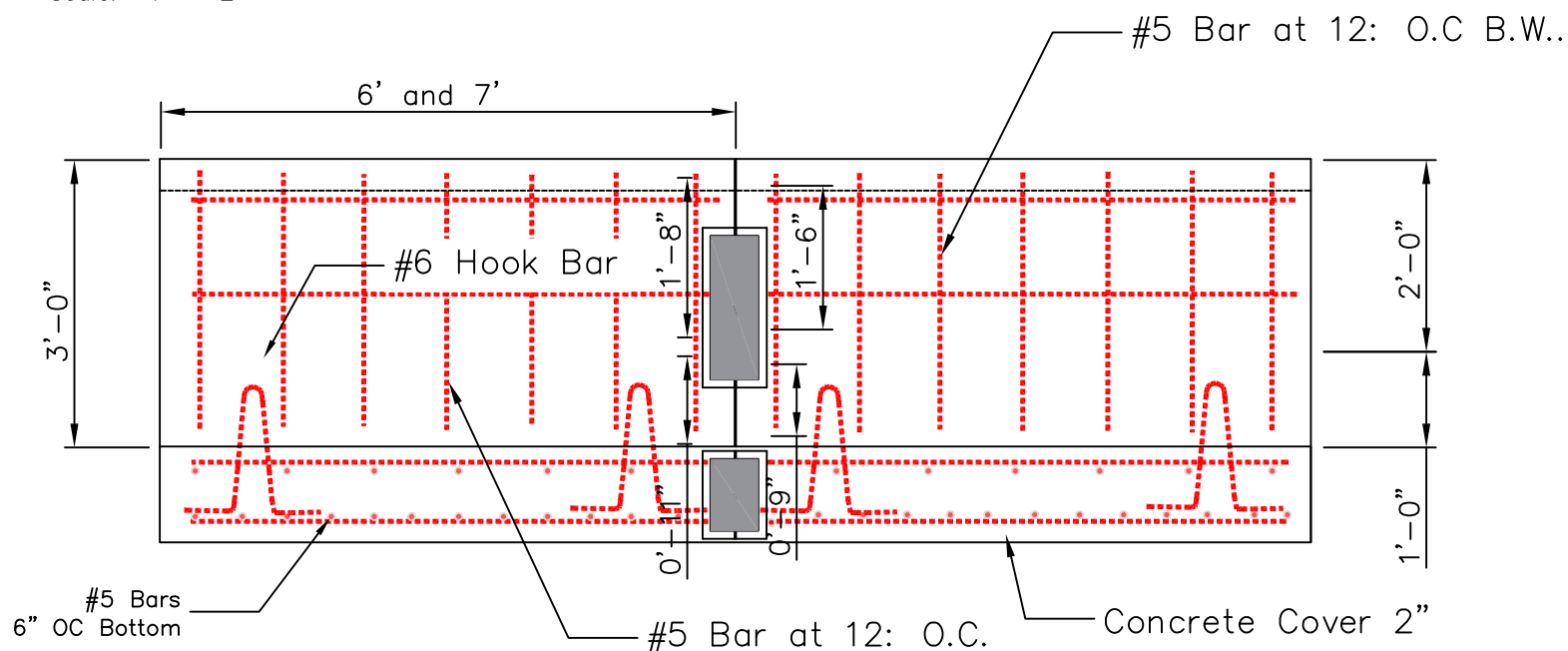


Concrete Footing Detail (8 Required - 6 @ 6' Long, 2 @ 7' Long)

Scale: 1" = 2'

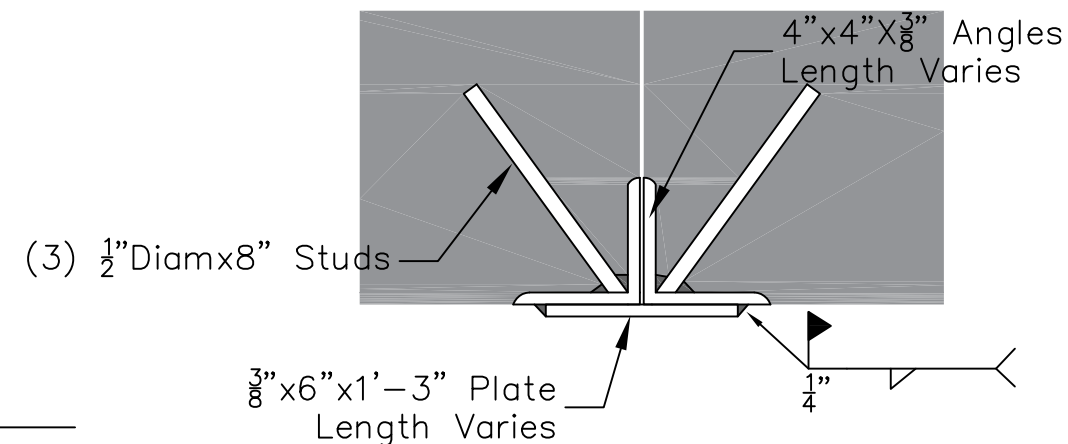
Notes:

1. Make Six Footing Sections 6' Long and Two 7' Long. Field Weld Required.
2. Concrete Mix to be 6-Sack Mix (4000 psi) w/4% to 7% Air Entrainment.
3. Rebar to be Grade 60
4. Dowels to be Grade 60
5. Weight Per Unit = 7700 lbs (6' Length), 8700 lbs (7' Length)
6. All Rebar Splices Shall be Minimum 40 Bar Diameters
7. Grout Shall be 4000 psi Non-Metallic, Non-Shrink Grout or 4000 psi Fiber-Reinforced Concrete w/small Aggregate
8. Lifting Loops as Shown.
9. Allowable soil bearing pressure 3000 psf.
10. Final Geometry and Layout to be Determined from Culvert Vendor Drawings.
11. Precast Footing Shop Drawing Required by Engineer to Review Prior to Pouring.



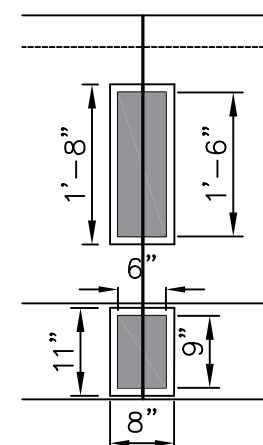
Footing Connection Detail (6 Required)

Scale: 1" = 2'



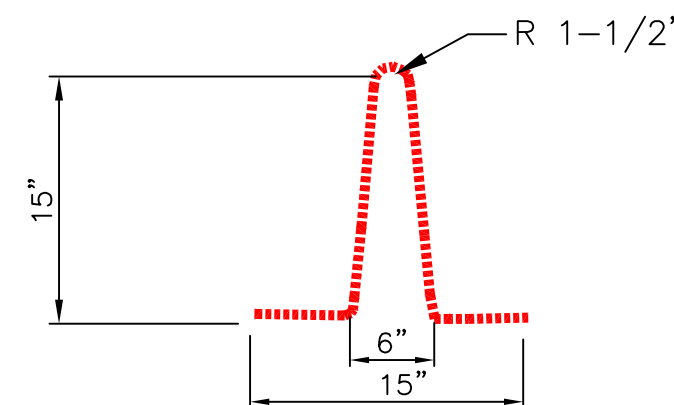
Footing Connection Detail (6 Required)

Scale: 1" = 0.5'



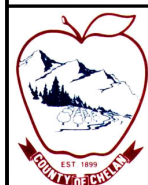
Weld Plate Dimensions

Scale: 1" = 2'



#6 Hook Bar (4 Per Segment, 32 Total) for Lifting

Scale: 1" = 1'



Sand Creek Fish Passage

Landowner: Chelan County Public Works
 Sec Twnshp Range: Section 29, T25N, R18E
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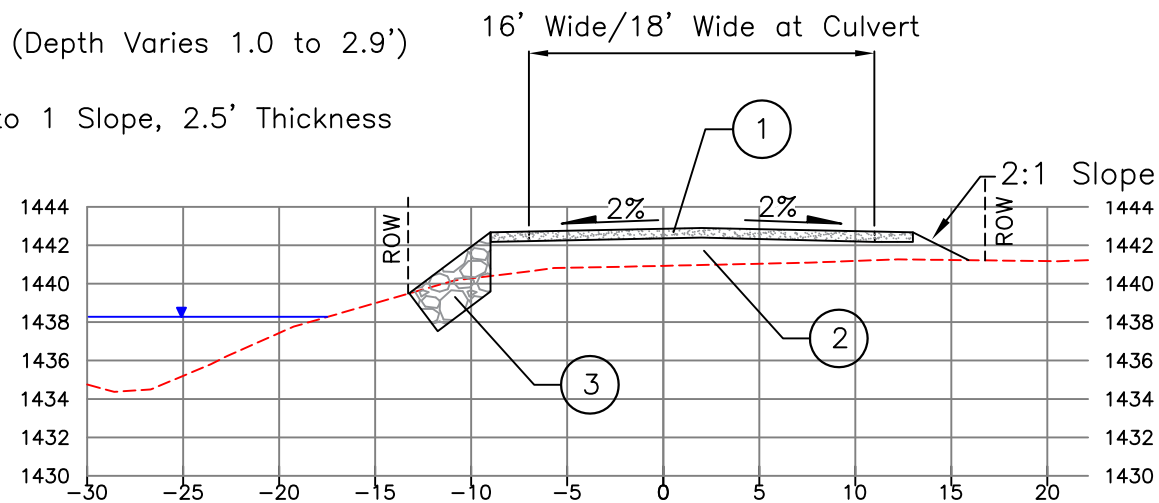
DESIGN BY: Waterfall Engineering
 DRAWN BY:
 DATE: 11/21/25

Footings

11 **13**
 SHEET OF

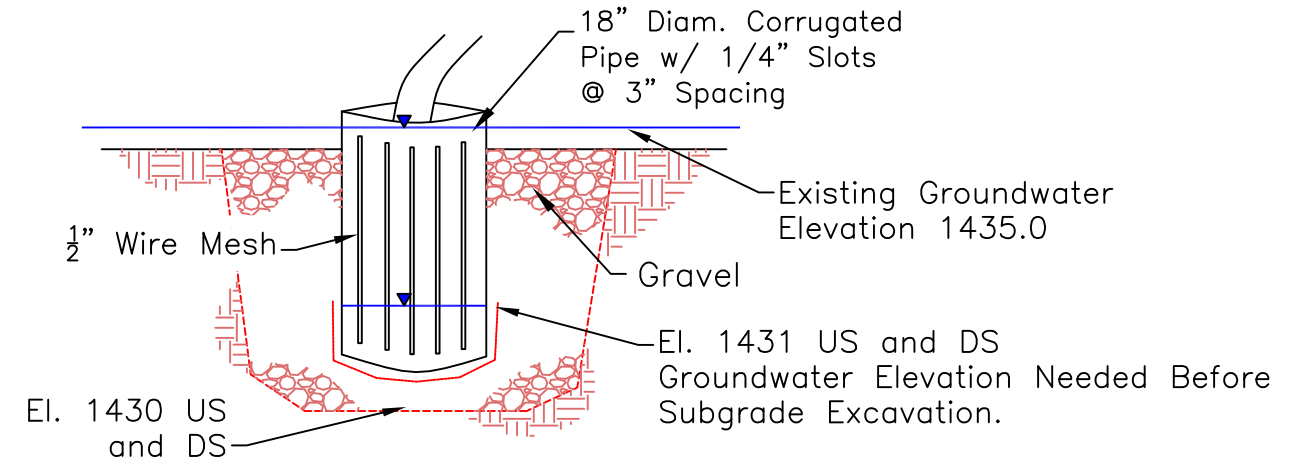
Minimum Required Compacted Depth

- ① 0.5' Crushed Surfacing Top Course
- ② Gravel Base (Depth Varies 1.0 to 2.9')
- ③ Riprap 1.5 to 1 Slope, 2.5' Thickness



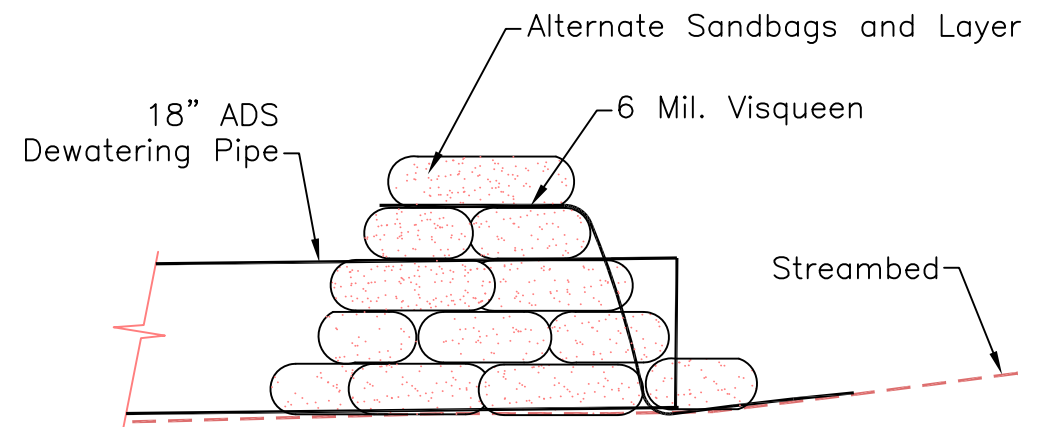
Typical Road Section - STA + 4+00 View East

Scale 1" = 5'



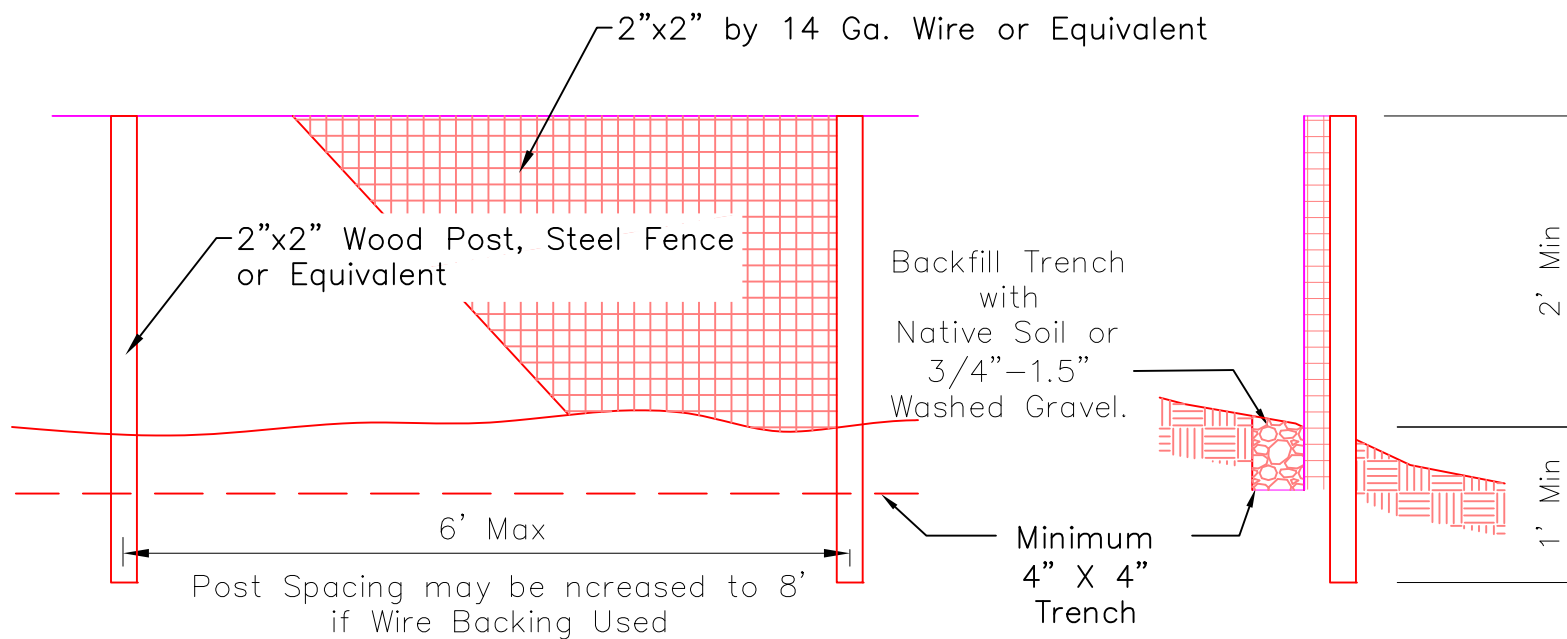
Sump Pump Detail

NOT TO SCALE



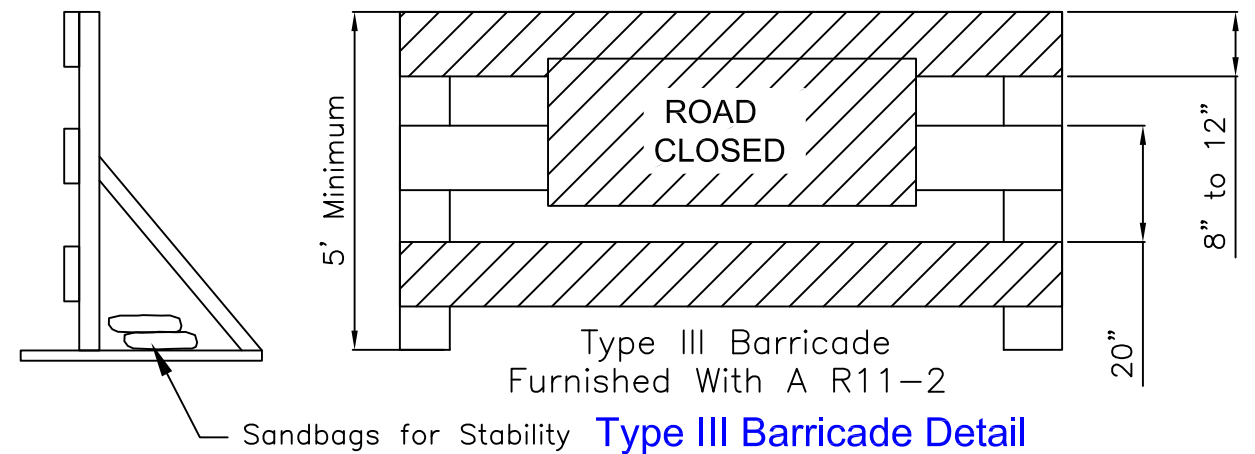
Sandbag Cofferdam

NOT TO SCALE



Filter Fabric Fence

Scale: NTS



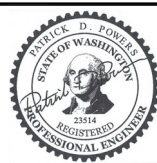
Type III Barricade Detail

NTS



Sand Creek Fish Passage

Landowner: Chelan County Public Works
 Sec Twship Range: Section 29, T25N, R18E
 Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



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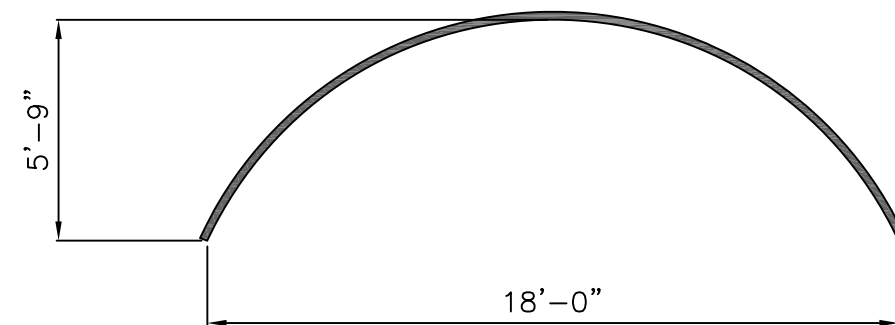
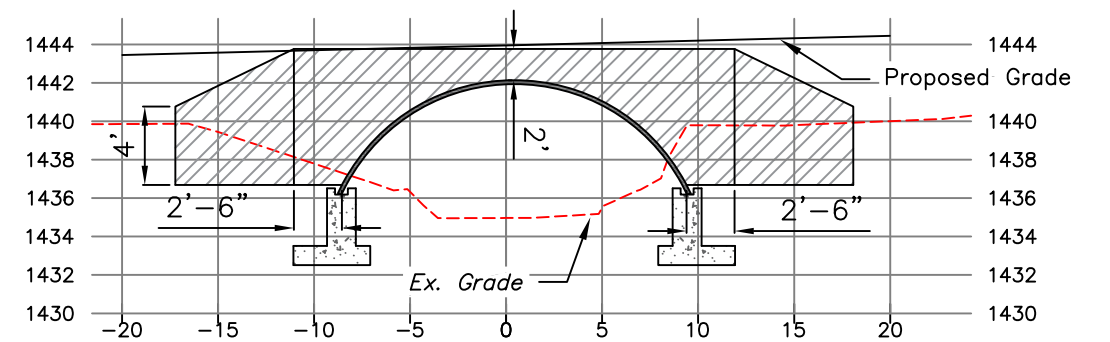
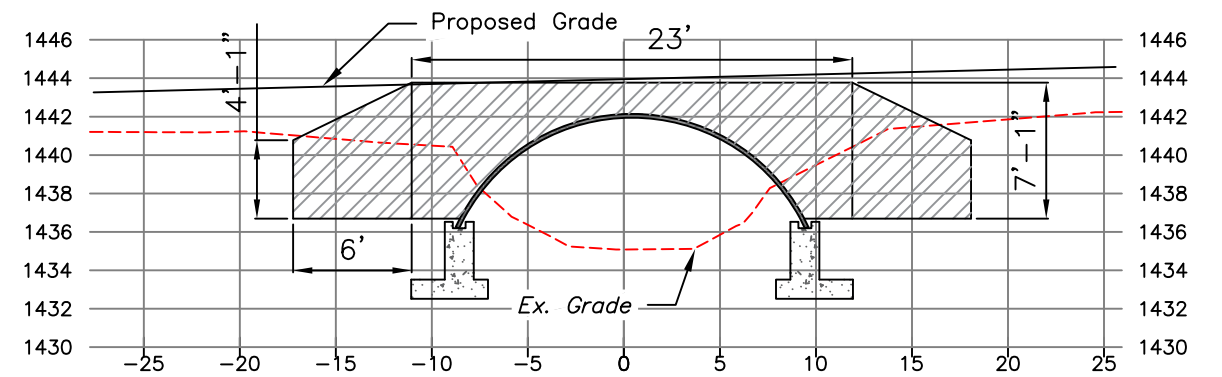
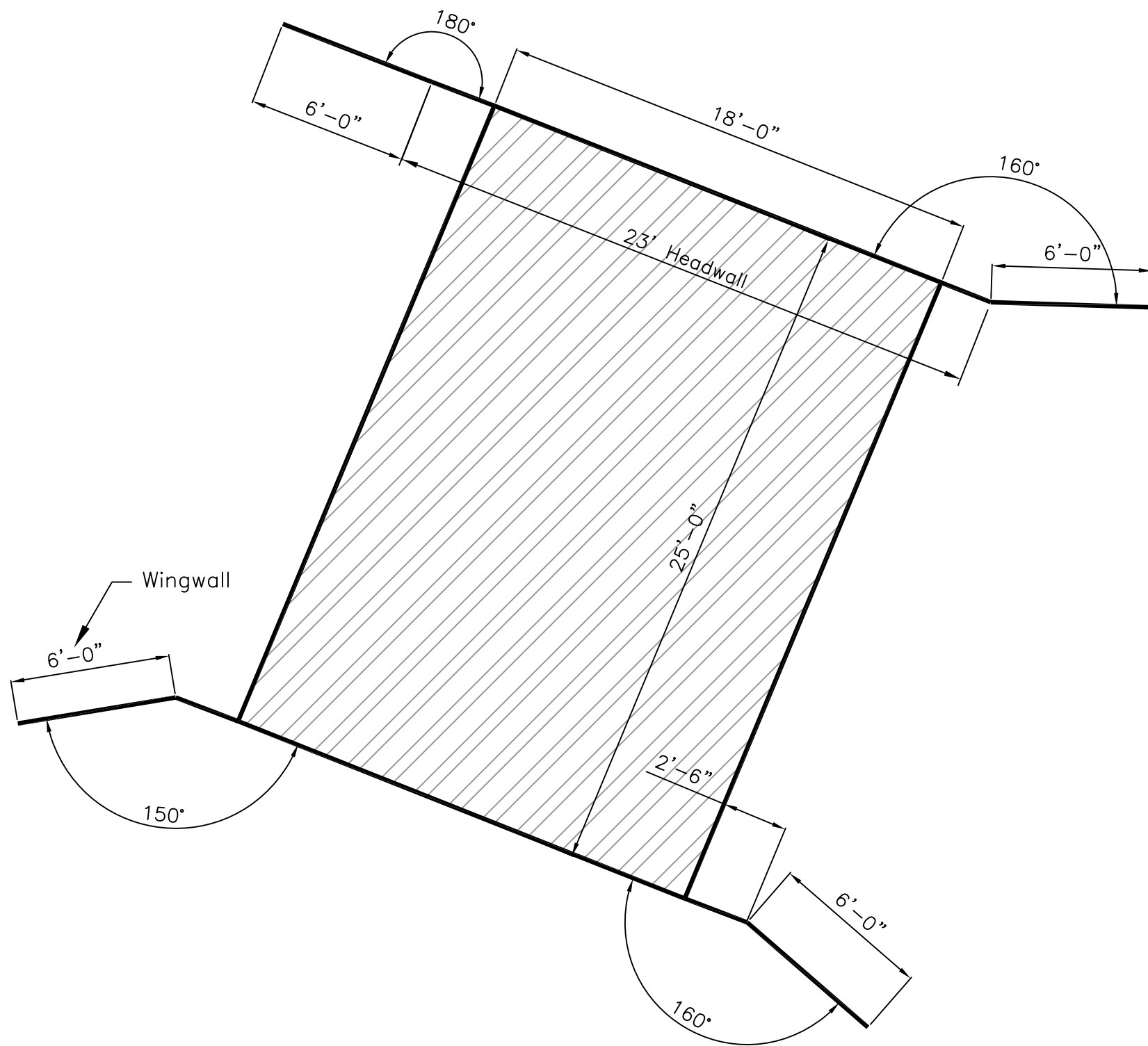
DESIGN BY:
Waterfall Engineering

DRAWN BY:

DATE:
11/21/25

Details

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SHEET OF

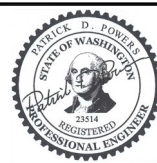


Multiplate Arch Span 18' Rise 5'-9" 10 Gage
Length 25', 6" x 2" Corrugations
Headwalls and Wingwalls as Shown
Design Load Rating HL 93



Sand Creek Fish Passage

Landowner: Chelan County Public Works
Sec Twnshp Range: Section 29, T25N, R18E
Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



11/21/25

REV	DATE	BY	APPD	DESCRIPTION

SCALE VERIFICATION
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"

DESIGN BY:
Waterfall Engineering
DRAWN BY:
DATE:
11/21/25

Culvert Details

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