

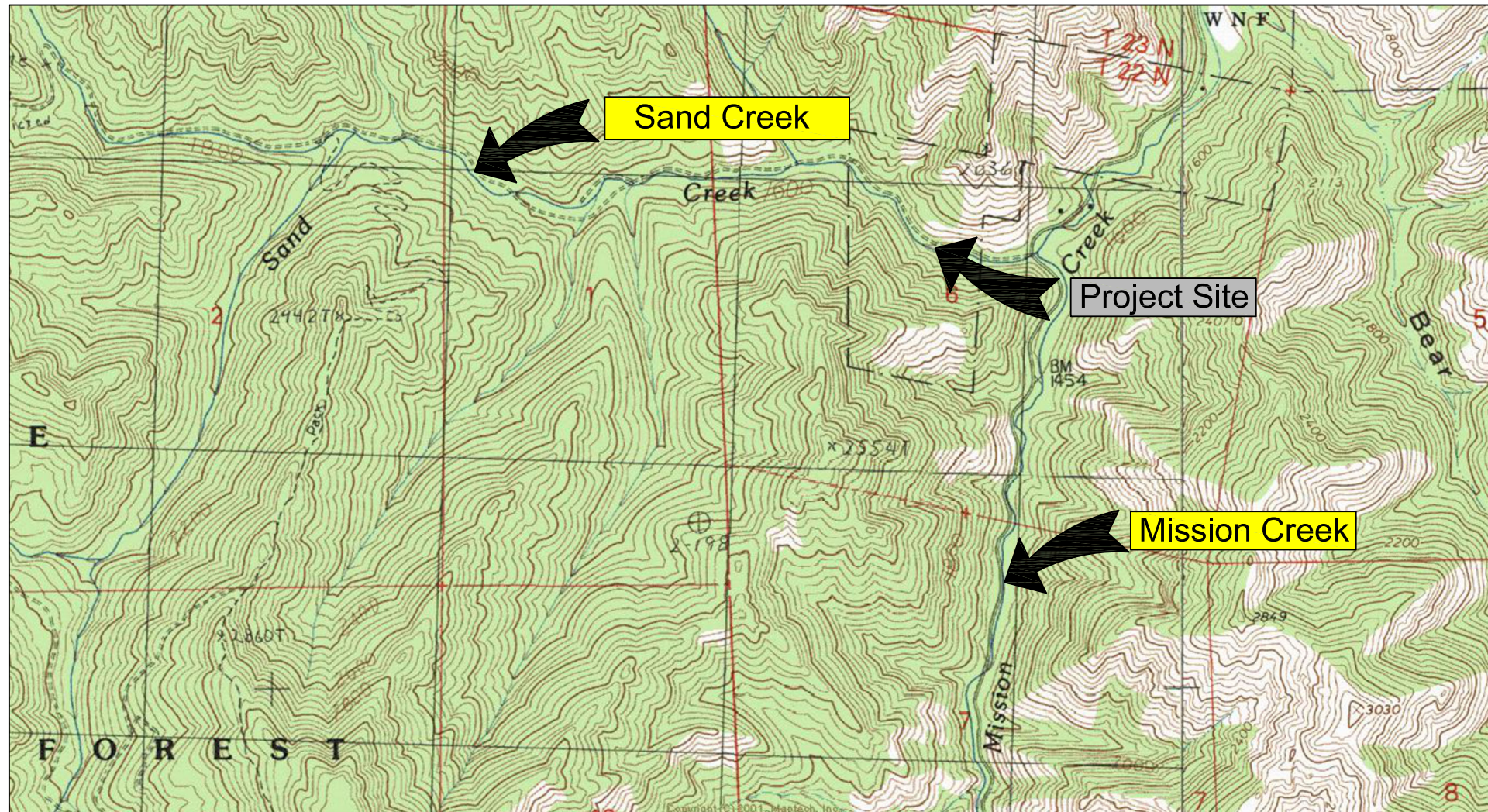
# Construction Documents

# Sand Creek Culvert Replacement

Chelan County - Sand Creek Road  
Project BRDG 23-006

## 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



## 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



4/3/26

REV	DATE	BY	APPD	DESCRIPTION

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

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DESIGN BY:  
Waterfall Engineering

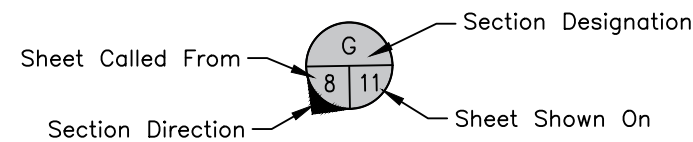
DRAWN BY:

DATE:  
4/3/26

Cover Sheet

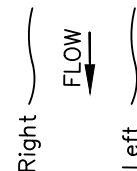
1 13  
SHEET OF

## SHEET SYMBOLS



SECTION CALLOUT

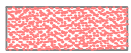
References to Right and Left as viewed downstream



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

- - - - - APE

*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	MNOC
100	157169.97	1719829.99	1449.99	MNOC
110	157061.98	1720352.06	1432.95	MNOC
120	157108.73	1720103.98	1441.39	MNHT
130	157054.52	1720352.72	1435.62	MNOC
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

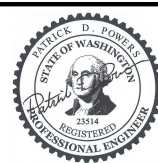
Road Centerline			
STA	N	E	Elev
2+00	157144.56	1719921.77	1447.0
2+80	157136.82	1720001.38	1444.6
3+40	157128.68	1720060.69	1442.4
4+00	157111.72	1720118.24	1444.7
4+40	157102.36	1720157.07	1439.4
4+72	157098.21	1720188.80	1438.1
5+20	157091.96	1720236.47	1436.0
6+13	157065.61	1720324.86	1434.0

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



# Sand Creek Fish Passage

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 Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



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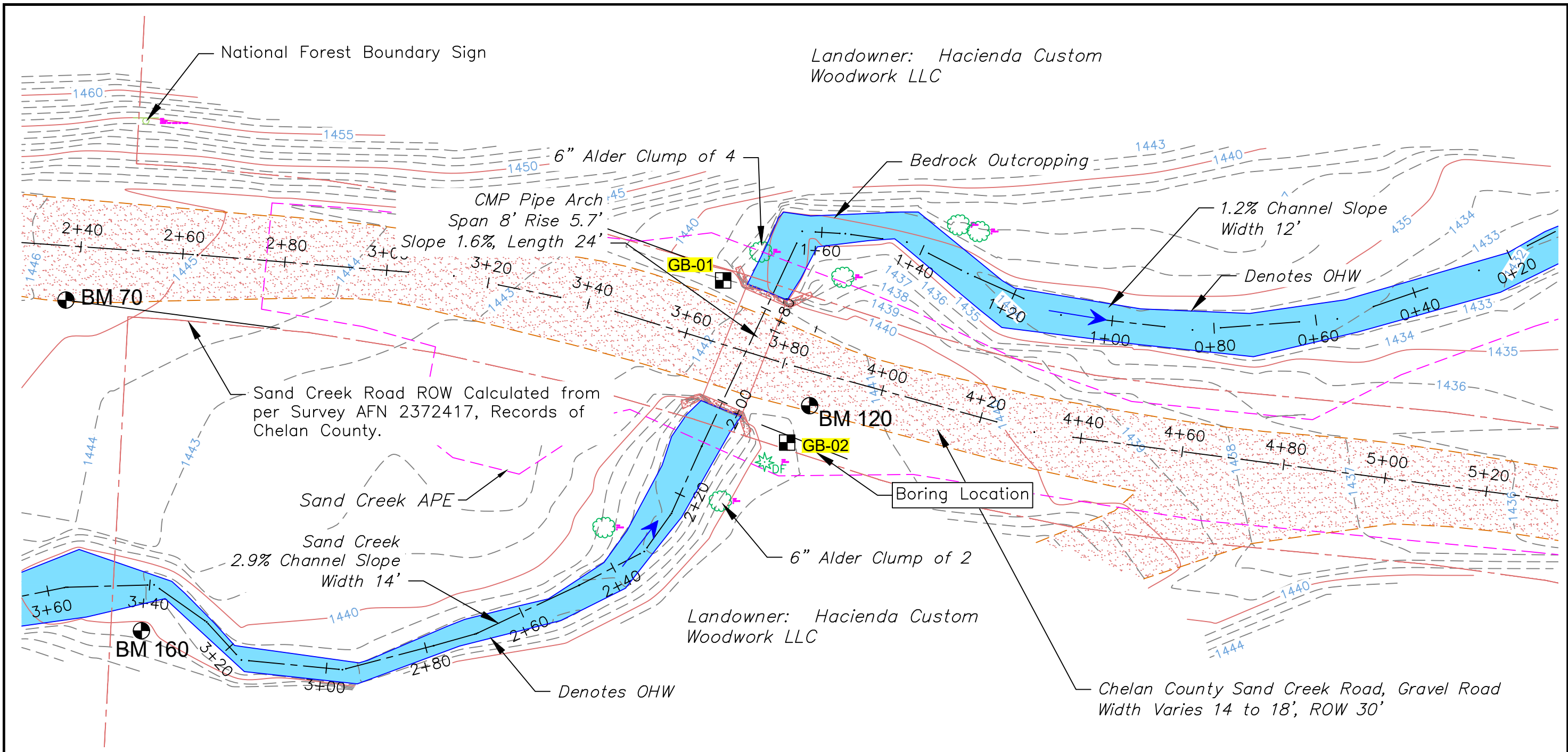
DESIGN BY:  
Waterfall Engineering

DRAWN BY:

DATE:  
4/3/26


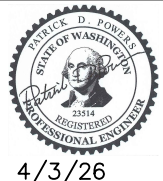
Legend

**2** **13**  
SHEET OF



 **Site Plan**  
SCALE: 1" = 20'

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

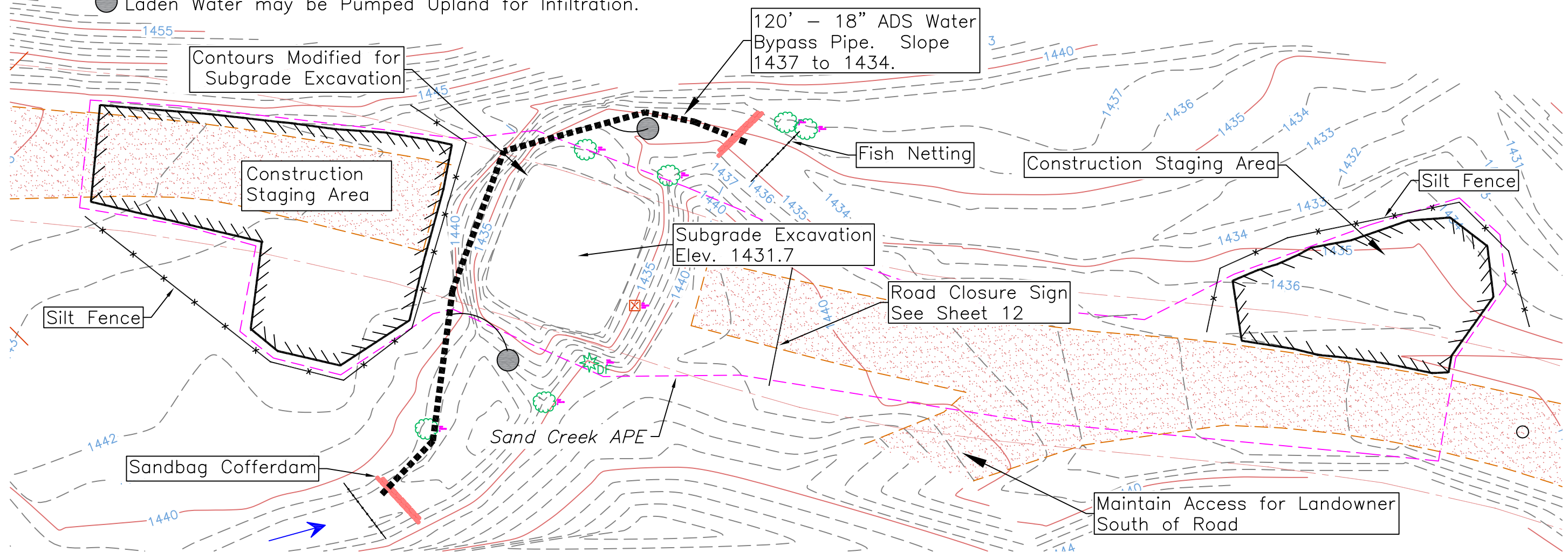
	<h1>Sand Creek Fish Passage</h1>			<table border="1"> <thead> <tr> <th>REV</th> <th>DATE</th> <th>BY</th> <th>APPD</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </tbody> </table>	REV	DATE	BY	APPD	DESCRIPTION																DESIGN BY: Waterfall Engineering	<h2>Site Plan - Existing</h2>	<b>3</b> <b>13</b> SHEET OF
	REV	DATE		BY	APPD	DESCRIPTION																					
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	DRAWN BY:  DATE: 4/3/26																										

4/3/26

BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1" IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

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



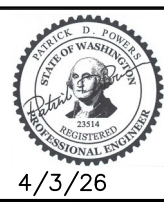
**Construction Plan**  
SCALE: 1" = 20'

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



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DESIGN BY:  
Waterfall Engineering

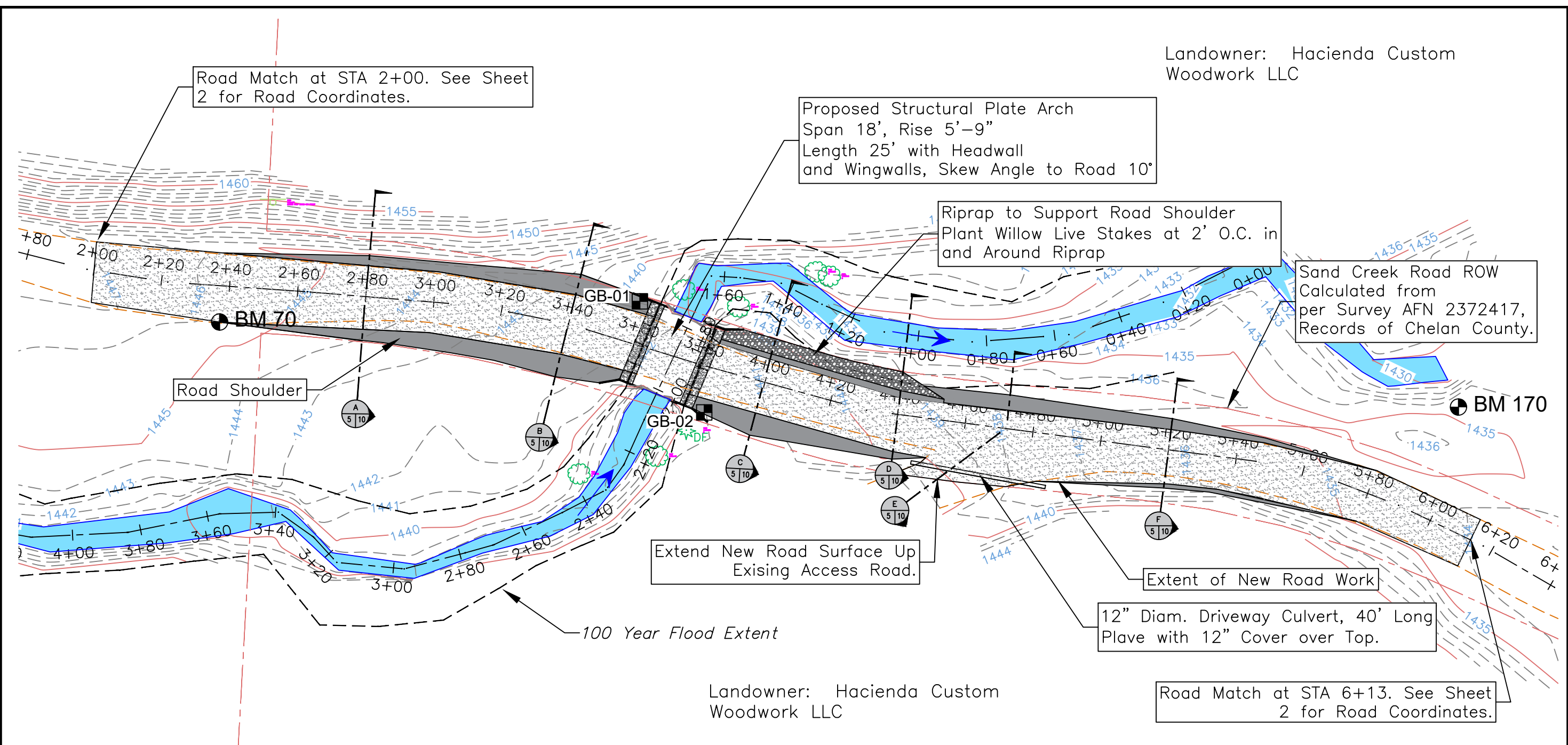
DRAWN BY:

DATE:  
4/3/26

## Construction Plan

**4** **13**  
SHEET OF

Landowner: Hacienda Custom  
Woodwork LLC



Landowner: Hacienda Custom  
Woodwork LLC

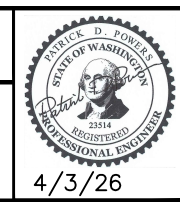
**Proposed Site Plan**  
SCALE: 1" = 30'

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  
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4/3/26

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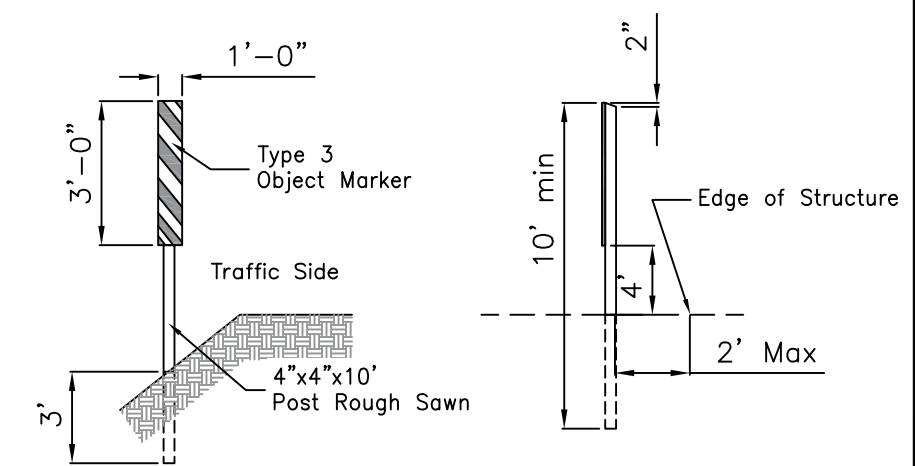
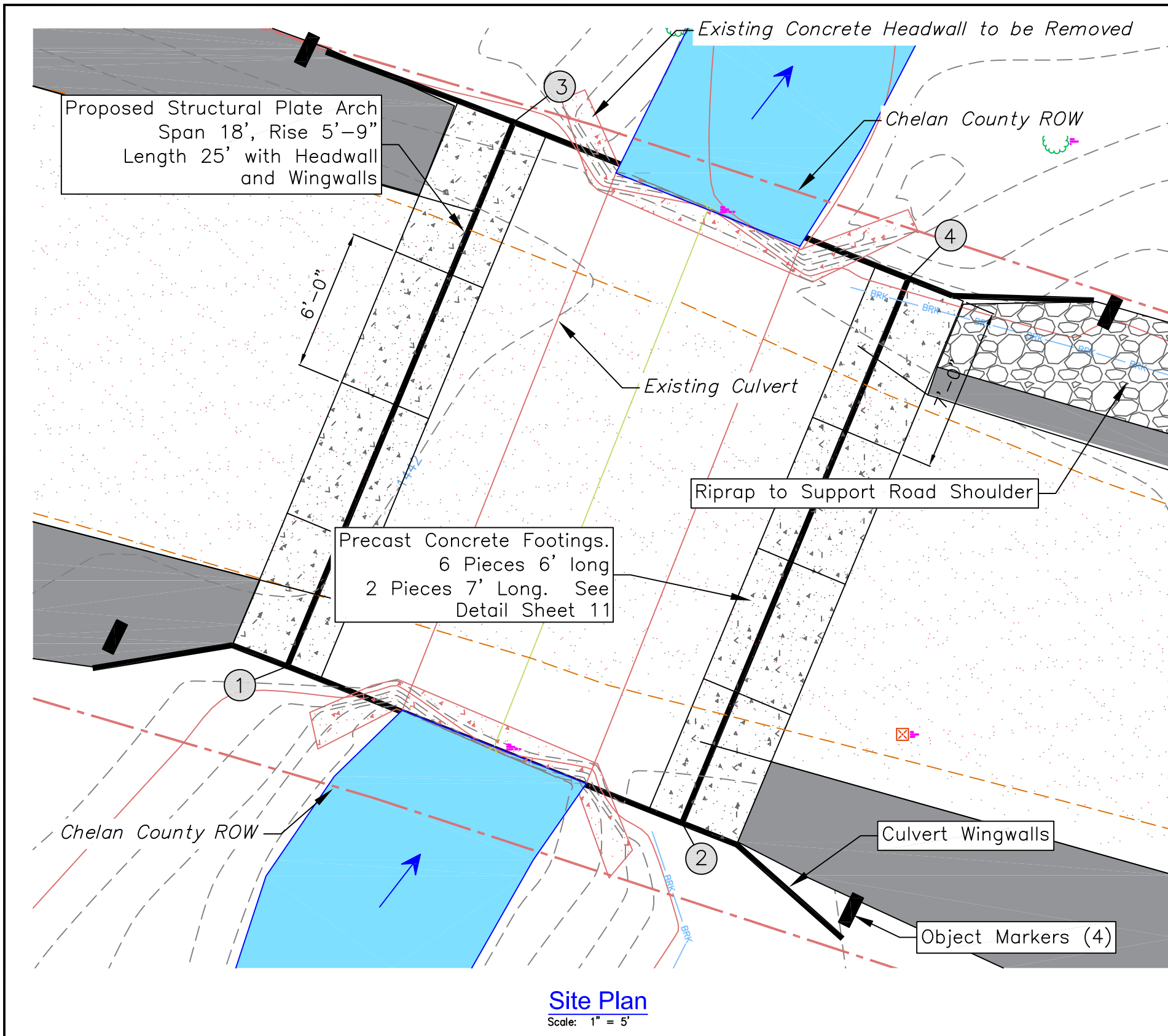
DESIGN BY:  
Waterfall Engineering

DRAWN BY:

DATE:  
4/3/26

Site Plan - Proposed

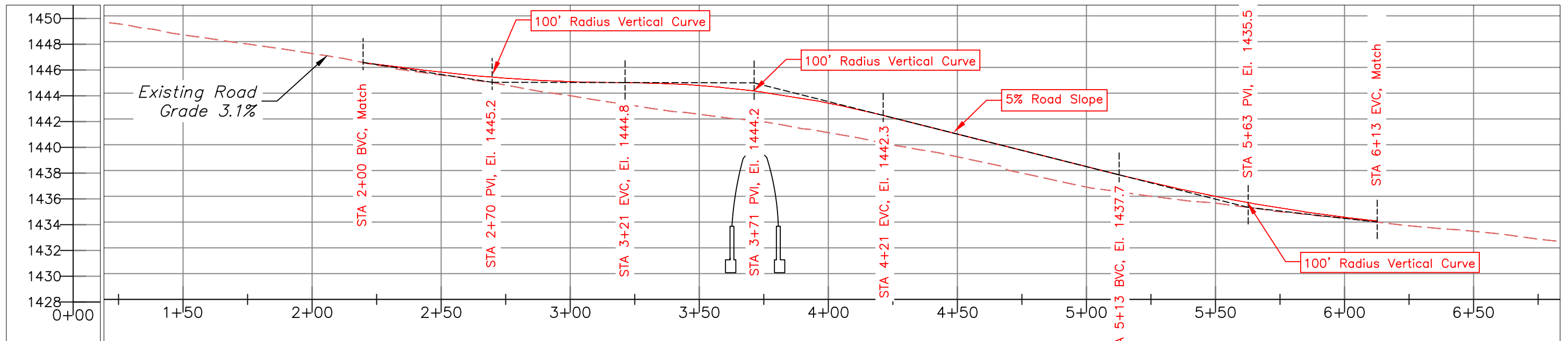
**5 13**  
SHEET OF



### Type 3 Object Marker Detail

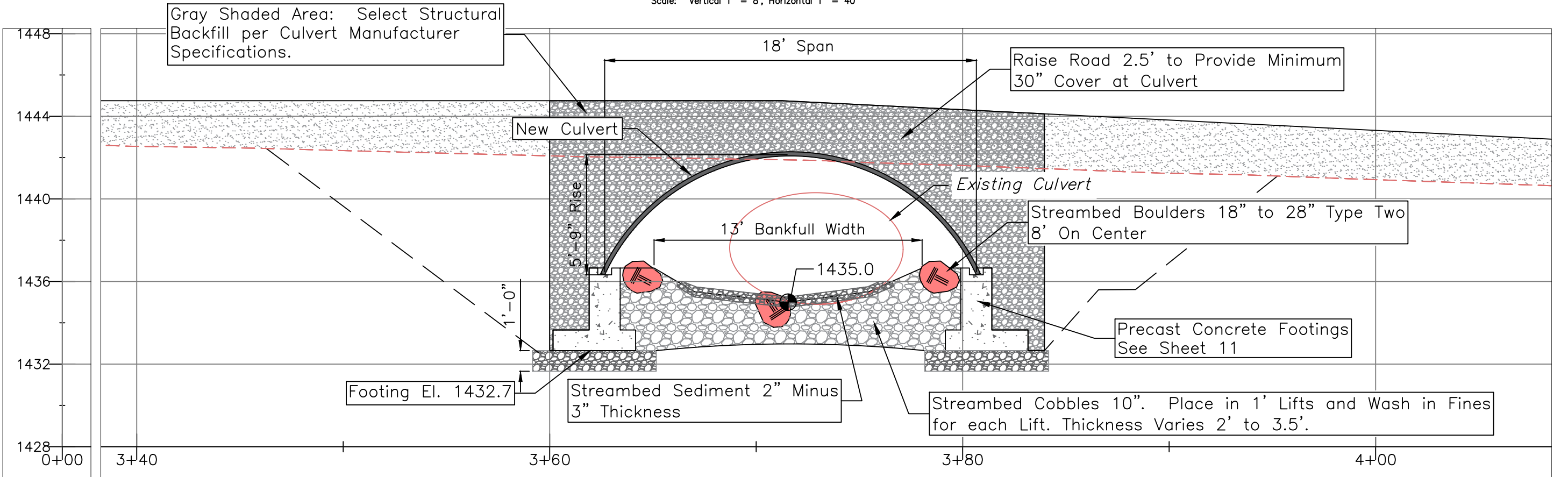
NTS  
 Type 3 Object Markers Shall be 12" x 36" and Colored Yellow and Black. Material Shall Meet MUTCD OM-3L Specifications. Fasten to Post 2 (2) 1/4" Diam. Machine Bolts w/washers. Field Drill Bolt Holes. Install Posts such that the Inside Edge of the Reflectorized Panel is in line with the Inside Edge of the Rail. Stripes Shall Slope in Towards Roadway.

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



**Road - Vertical Profile - Skew**

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



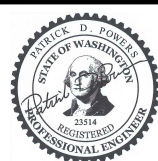
**Road Section**

Scale: 1" = 20'



# Sand Creek Fish Passage

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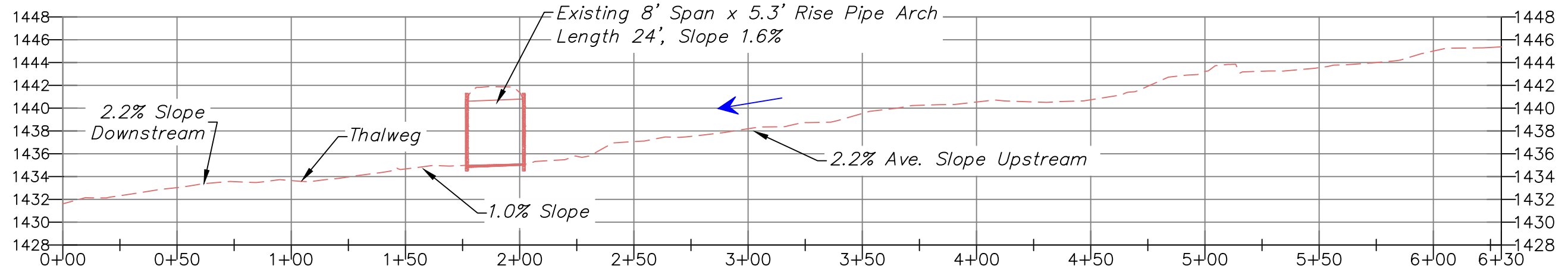
DESIGN BY:  
Waterfall Engineering

DRAWN BY:

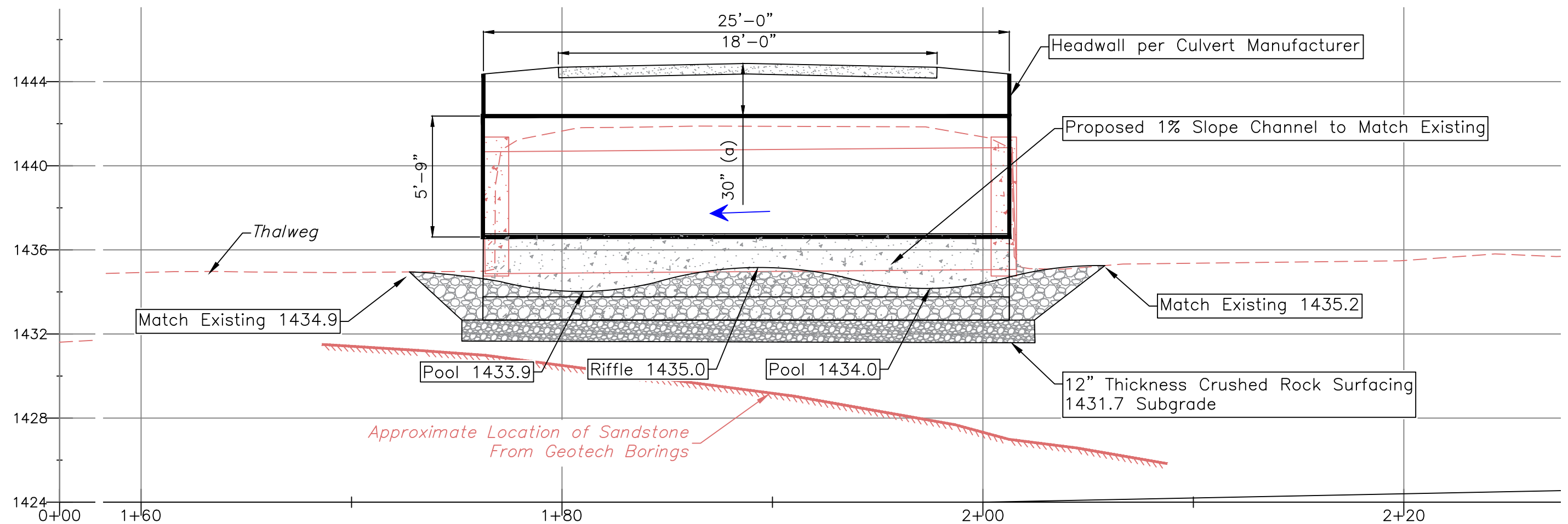
DATE:  
4/3/26

## Road Profile

**7** **13**  
SHEET OF



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



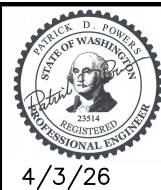
a: Minimum Dimension per NSCPA Corrugated Steel Pipe Manual. Actual may Vary.

**Stream Profile**  
Scale: 1" = 10'



# Sand Creek Fish Passage

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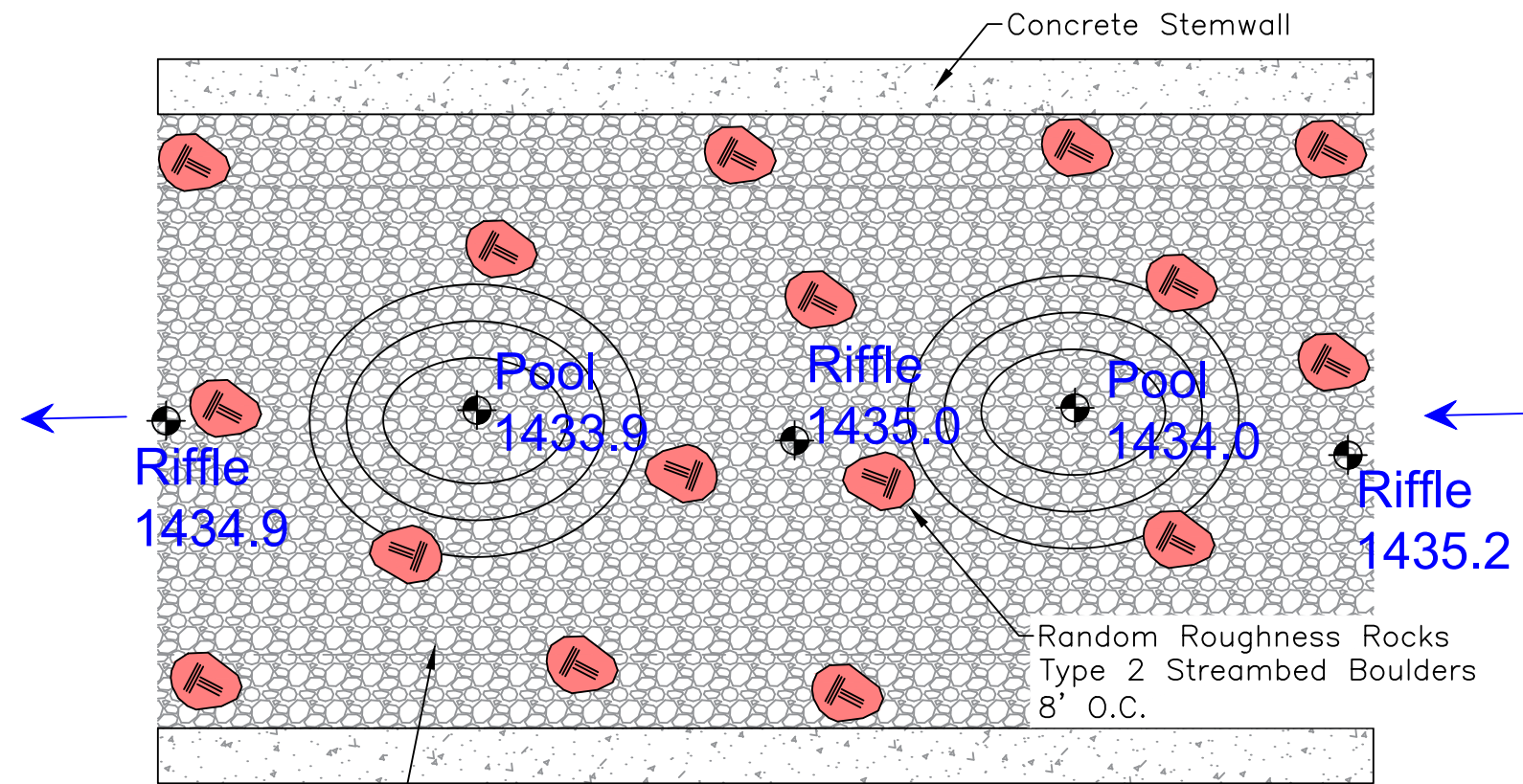
DESIGN BY:  
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DRAWN BY:

DATE:  
4/3/26

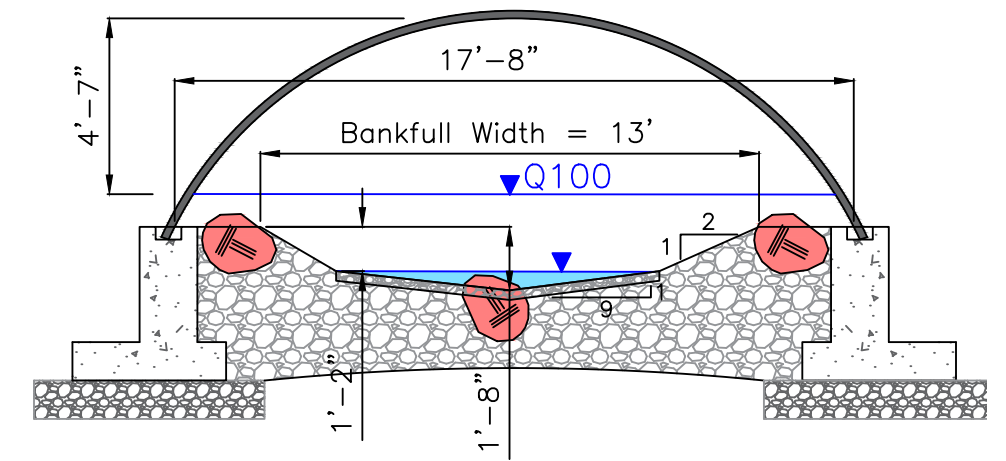
## Stream Profile

**8** **13**  
SHEET OF



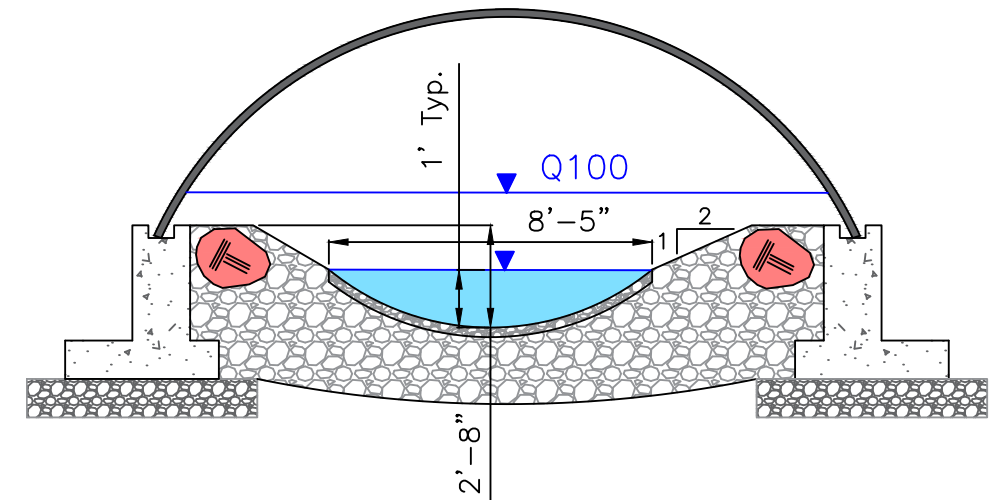
**Typical Plan View**

Scale: 1" = 5'



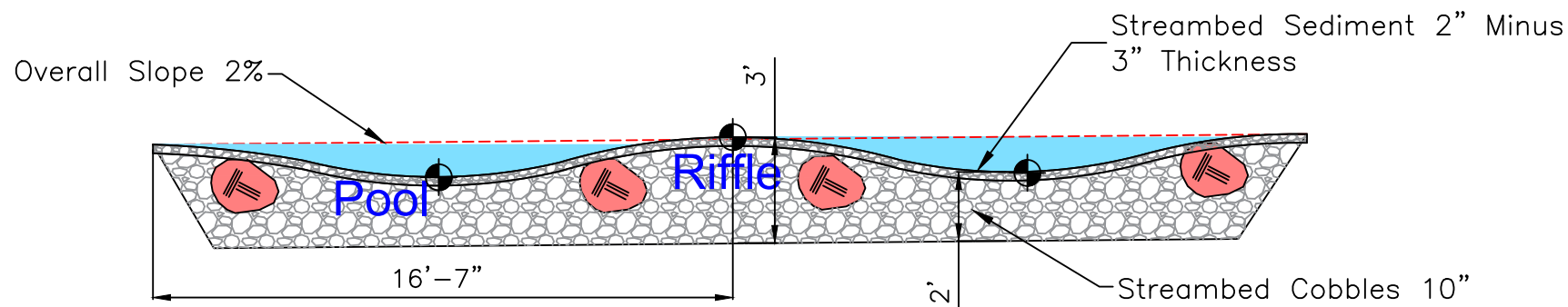
**Typical Riffle Section**

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"

Place Streambed Cobbles and Boulders in 1' Lifts and Wash in Fines to 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

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



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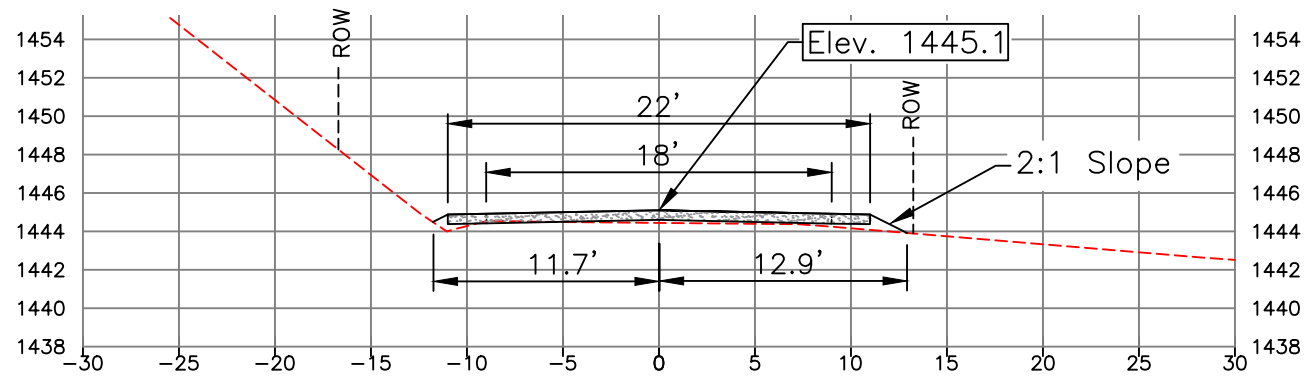
DESIGN BY:  
Waterfall Engineering

DRAWN BY:

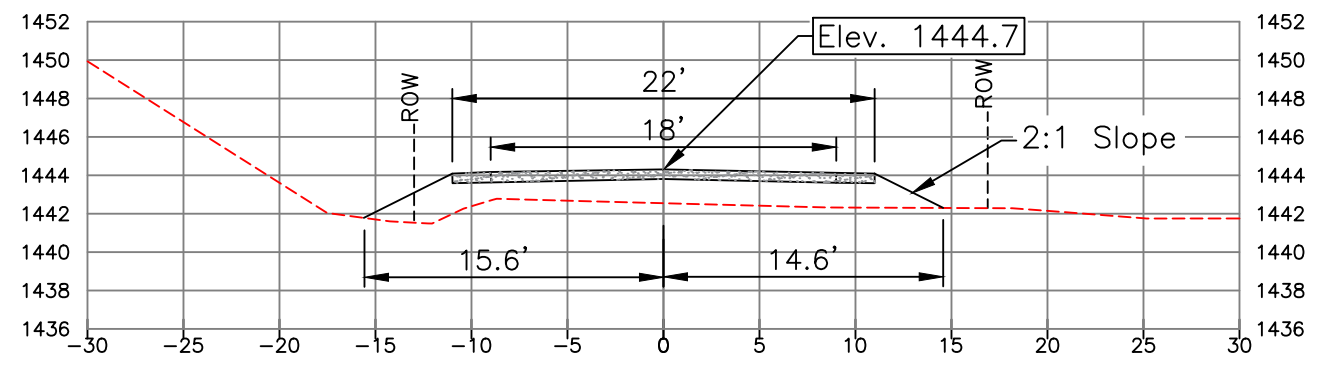
DATE:  
4/3/26

Stream Plan

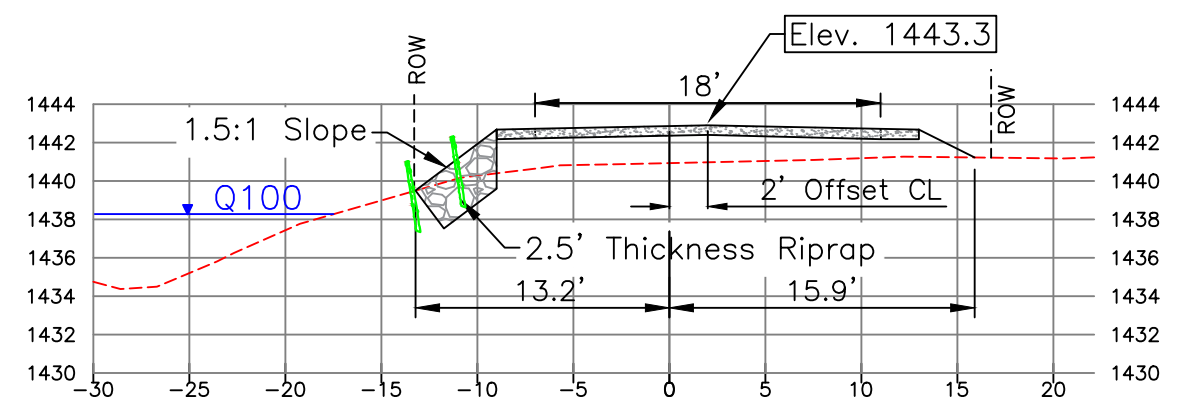
9 OF 13 SHEET



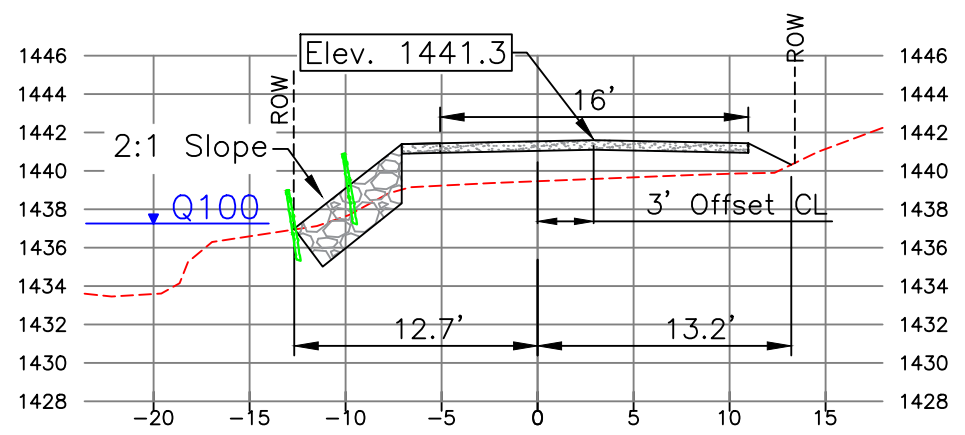
**A**  
5 | 10  
**STA 2+80**  
Scale: 1" = 10'



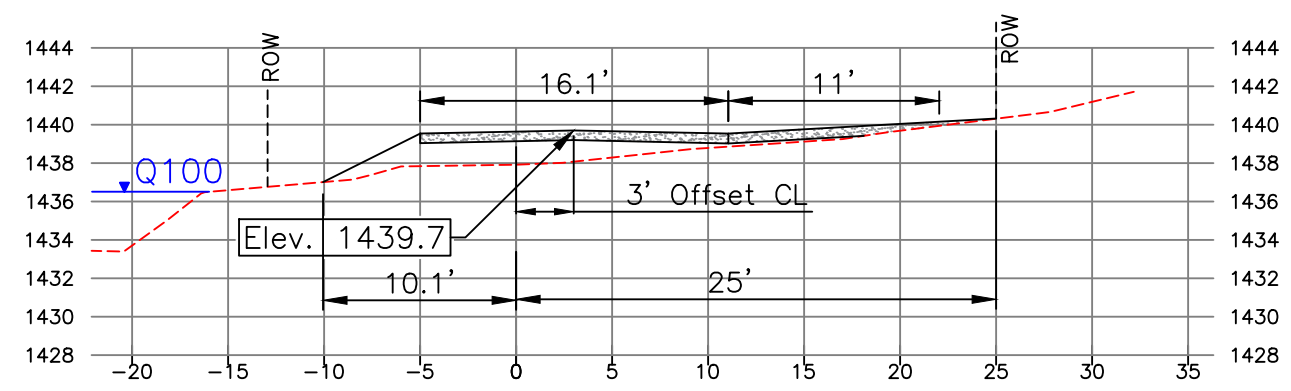
**B**  
5 | 10  
**STA 3+40**  
Scale: 1" = 10'



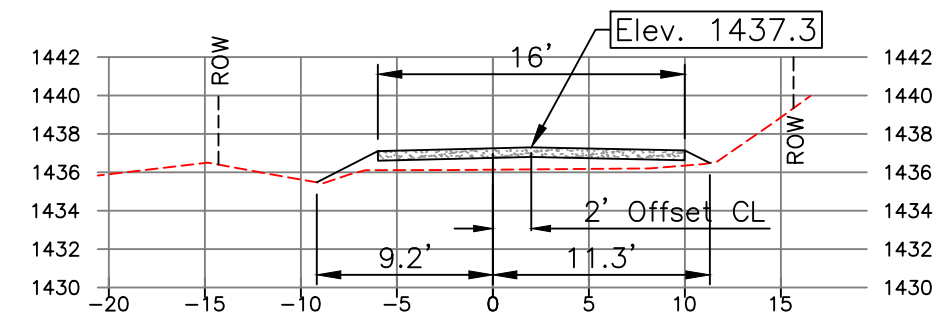
**C**  
5 | 10  
**STA 4+00**  
Scale: 1" = 10'



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



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

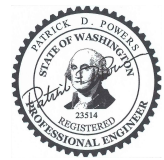


**F**  
5 | 10  
**STA 5+20**  
Scale: 1" = 10'



# Sand Creek Fish Passage

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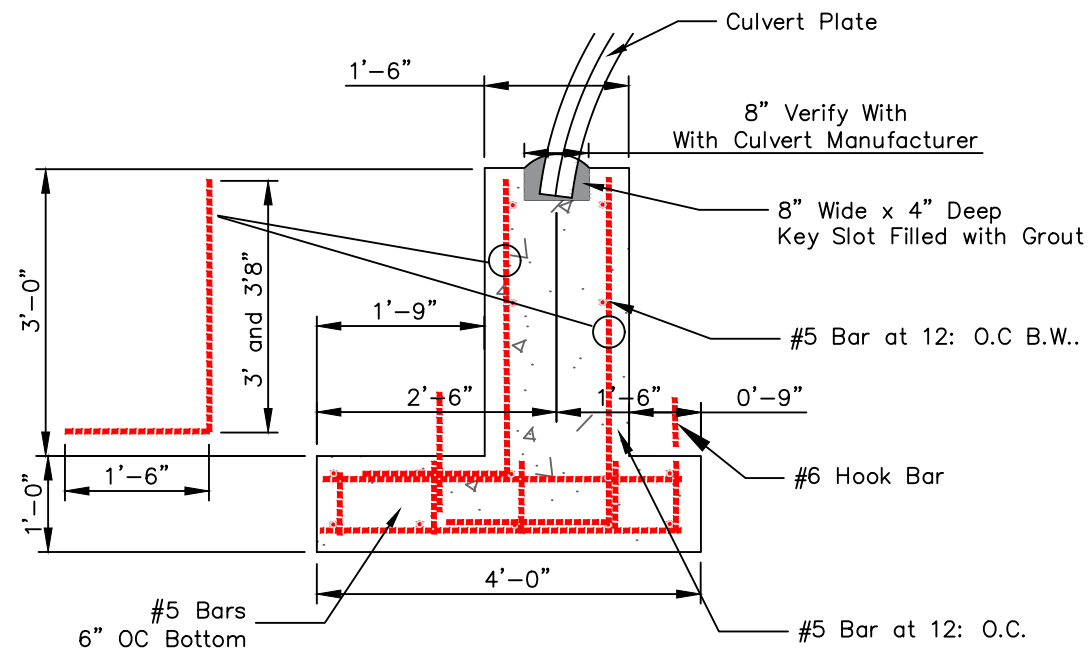
DESIGN BY:  
Waterfall Engineering

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DATE:  
4/3/26

Road Sections

**10** **13**  
SHEET OF

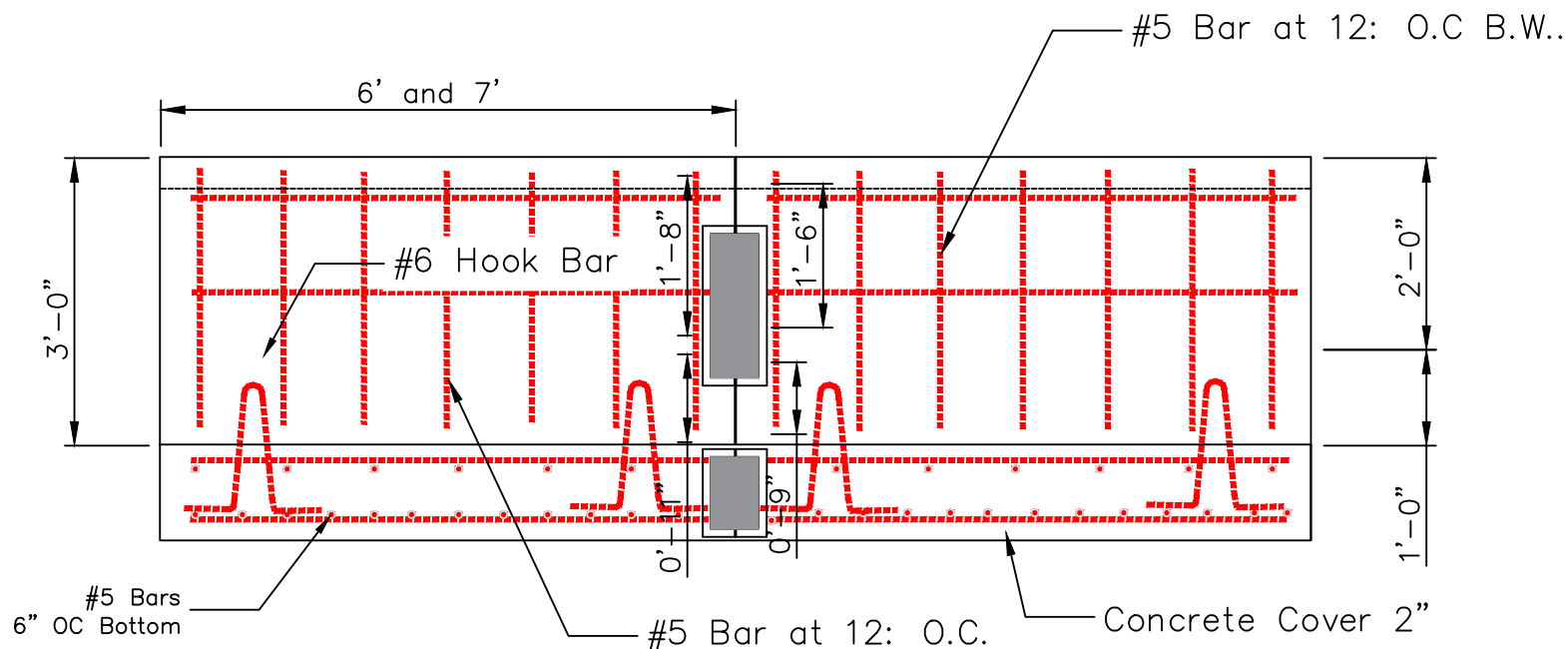


**Concrete Footing Detail (8 Required - 6 @ 6' Long, 2 @ 7' Long)**

Scale: 1" = 2'

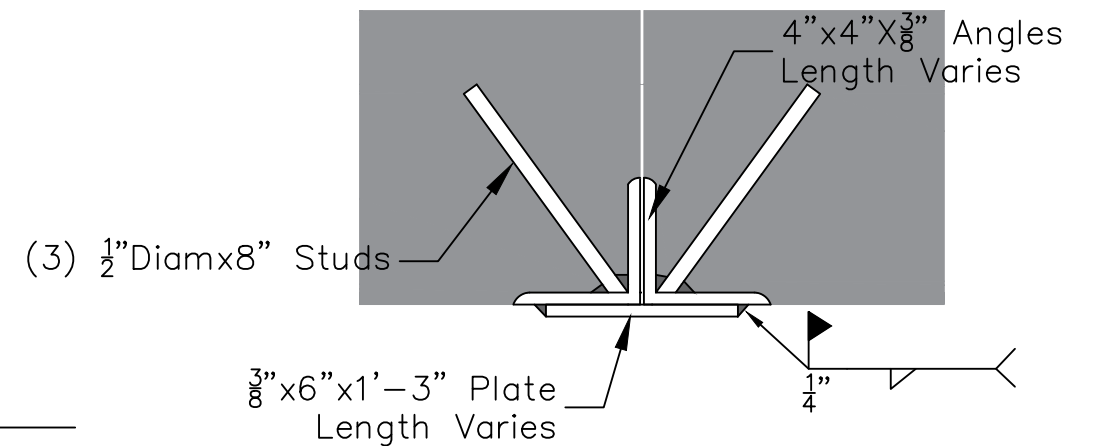
**Notes:**

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.



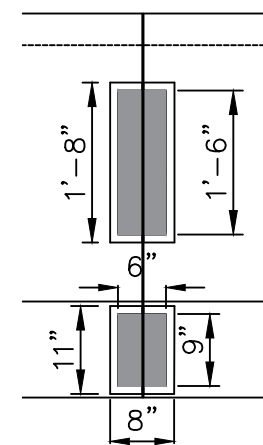
**Footing Connection Detail (6 Required)**

Scale: 1" = 2'



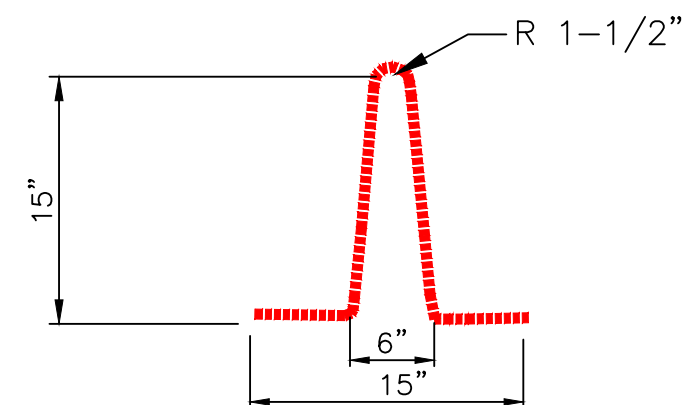
**Footing Connection Detail (6 Required)**

Scale: 1" = 0.5'



**Weld Plate Dimensions**

Scale: 1" = 2'



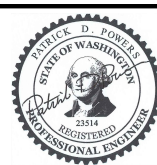
**#6 Hook Bar (4 Per Segment, 32 Total) for Lifting**

Scale: 1" = 1'



**Sand Creek Fish Passage**

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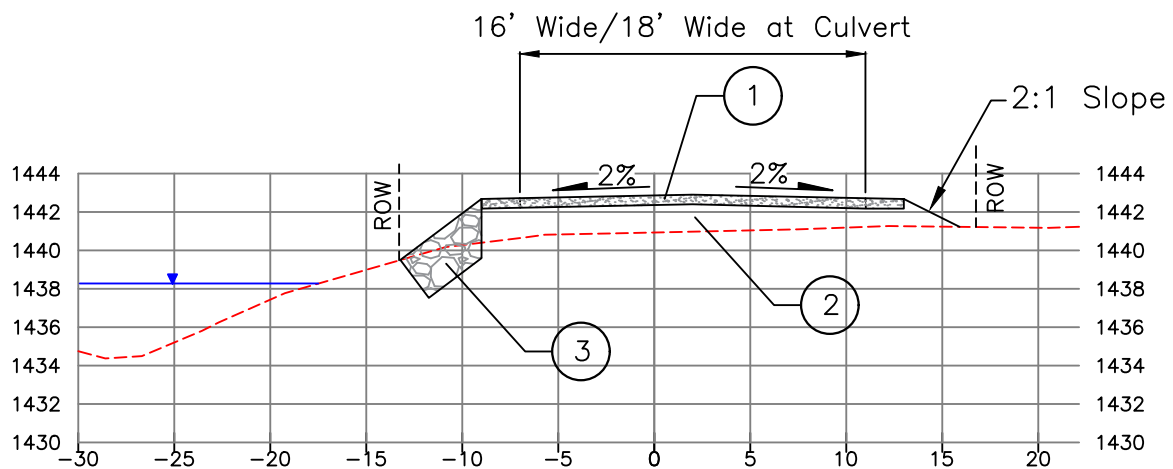
DESIGN BY: Waterfall Engineering  
 DRAWN BY:  
 DATE: 4/3/26

**Footings**

**11** **13**  
 SHEET OF

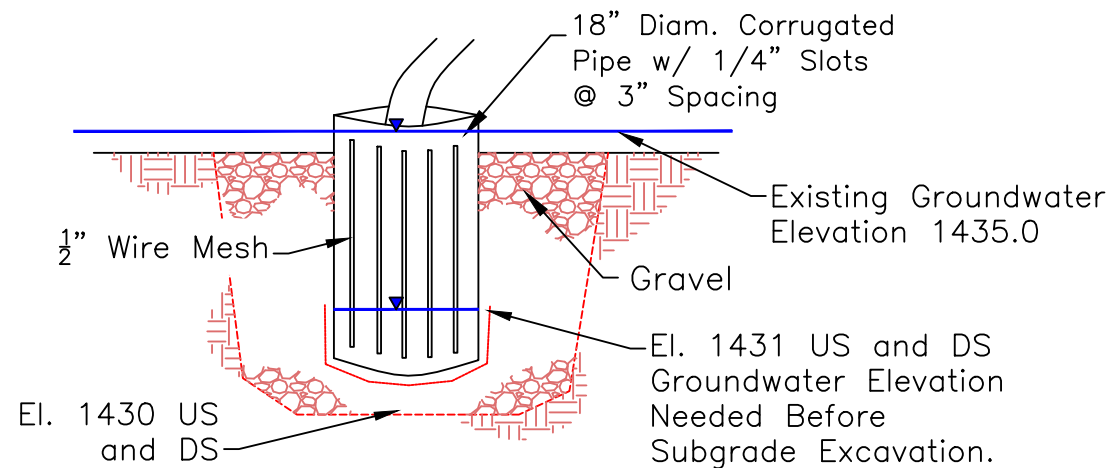
Minimum Required Compacted Depth

- 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



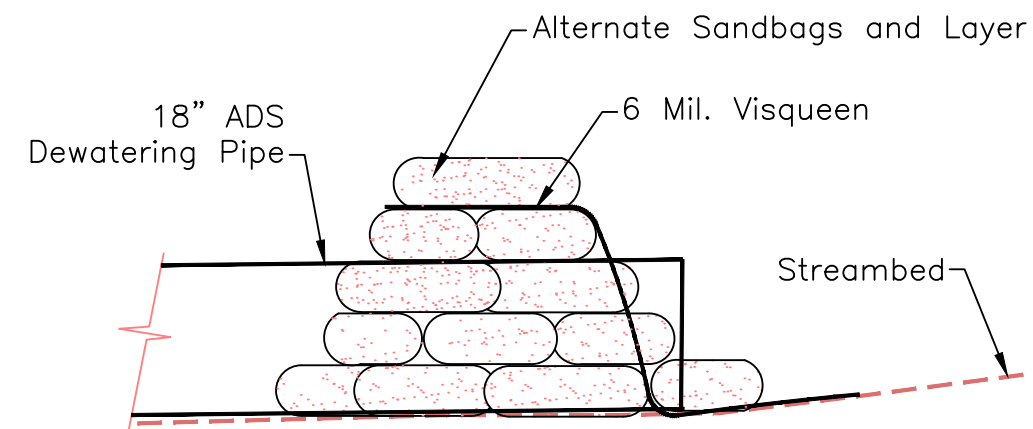
**Typical Road Section - STA + 4+00 View East**

Scale 1" = 5'



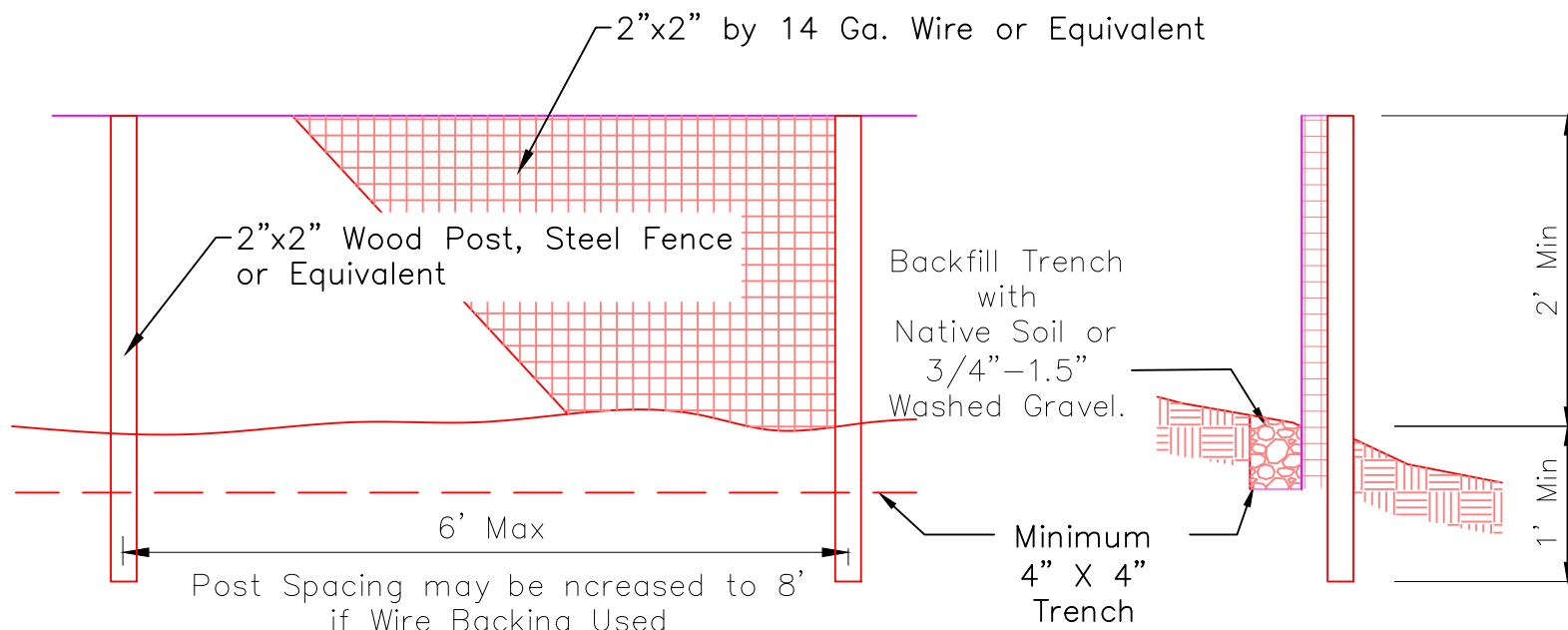
**Sump Pump Detail**

NOT TO SCALE



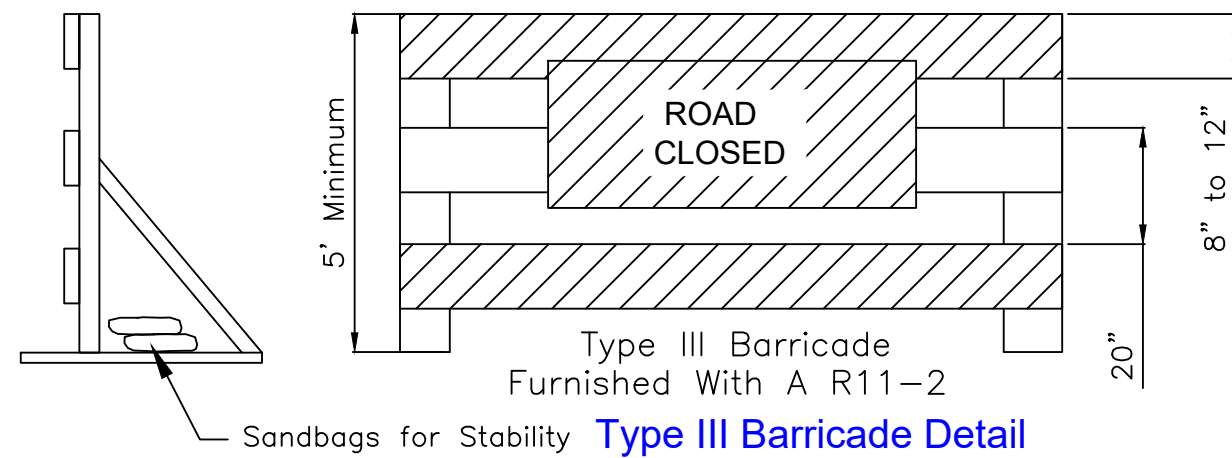
**Sandbag Cofferdam**

NOT TO SCALE



**Filter Fabric Fence**

Scale: NTS



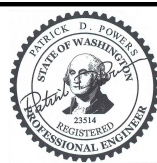
**Type III Barricade Detail**

NTS



# Sand Creek Fish Passage

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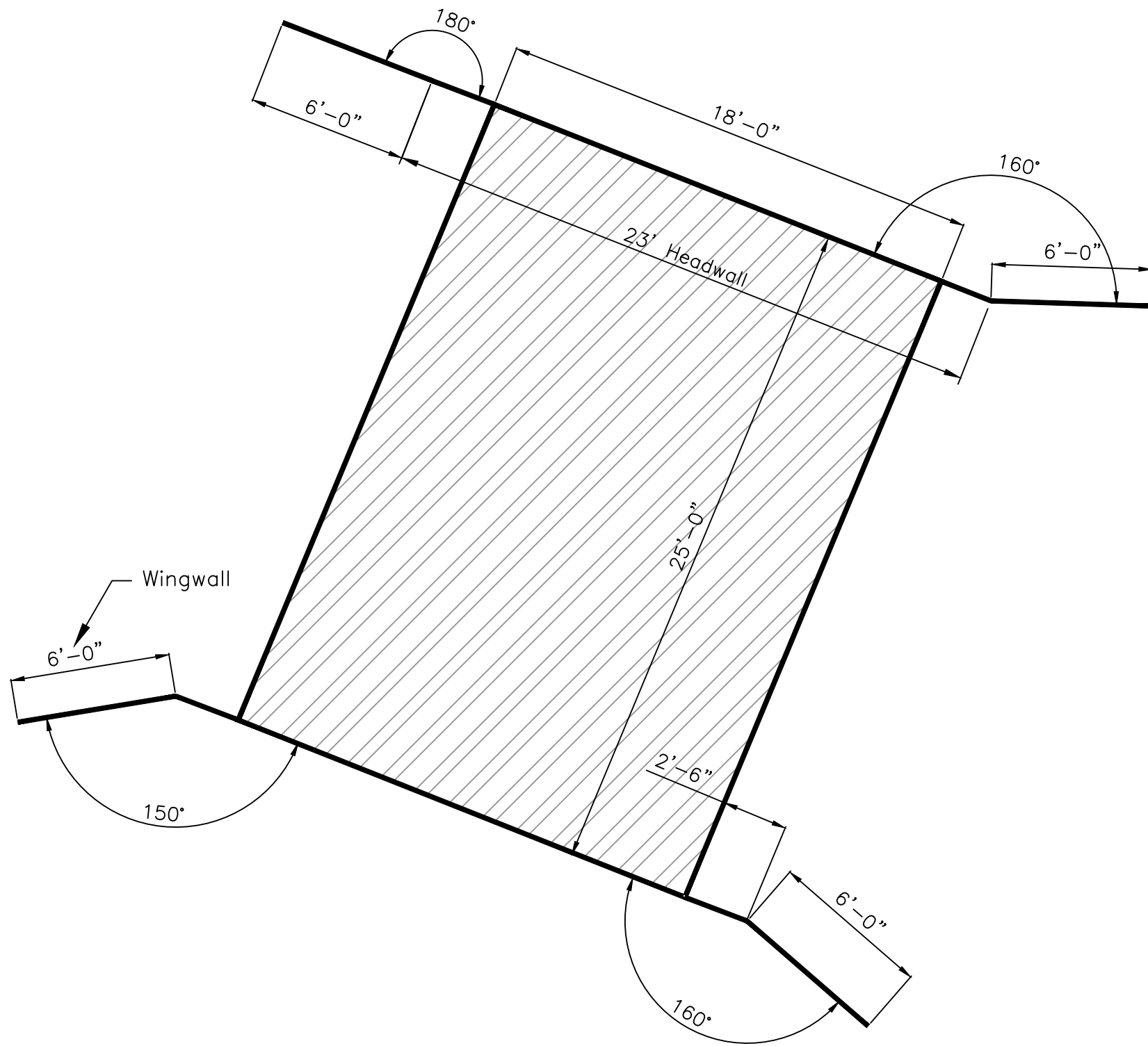
DESIGN BY:  
Waterfall Engineering

DRAWN BY:

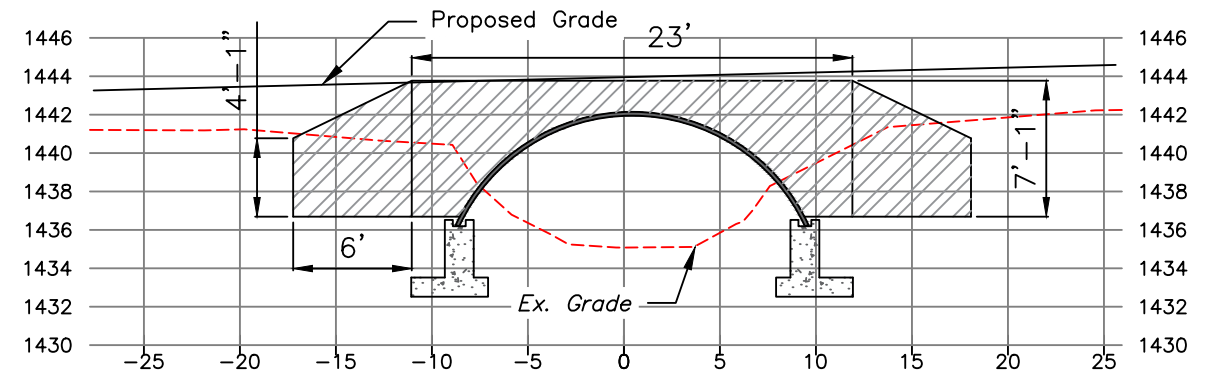
DATE:  
4/3/26

Details

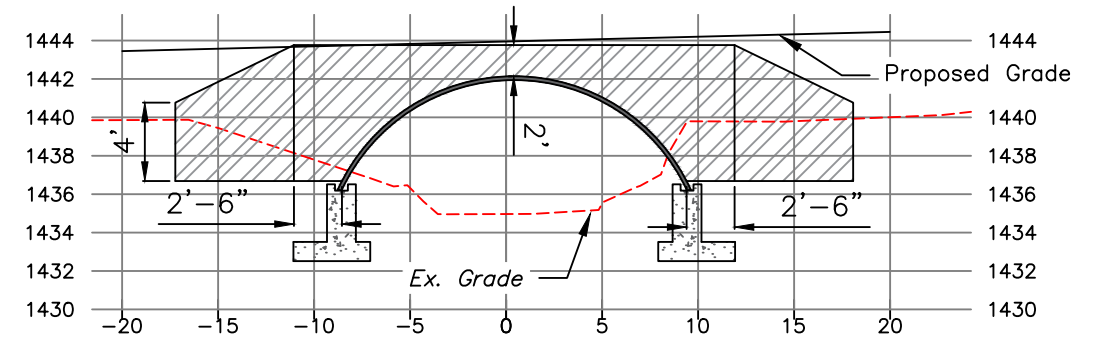
12 13  
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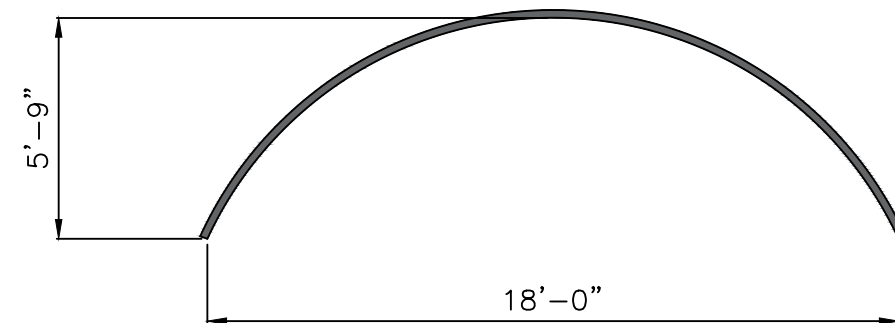
**Culvert Layout**  
Scale: 1" = 5'



**Headwall/Wing Wall Layout - Upstream**  
Scale: 1" = 10'



**Headwall/Wing Wall Layout - Downstream**  
Scale: 1" = 10'



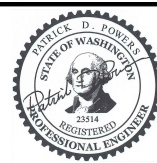
**Culvert**  
Scale: 1" = 5'

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 Twshp Range: Section 29, T25N, R18E  
Lat and Long: 47° 25' 49.01"N, 120° 30' 41.27"W



4/3/26

REV	DATE	BY	APPD	DESCRIPTION

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

DESIGN BY:  
Waterfall Engineering

DRAWN BY:

DATE:  
4/3/26

## Culvert Details

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