

**FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION**

Please fill in the highlighted areas  
all sections (IA, IB, IC, etc.) must be addressed or the application will be considered invalid

**I. APPLICANT INFORMATION**

- A. Applicant Name: Matt Jaeger
- B. Mailing Address: 730 ½ N. Montana
- C. City: Dillon State: MT Zip: 59725  
Telephone: 406-683-9310 E-mail: mattjaeger@mt.gov
- D. Contact Person: Matt Jaeger  
Address if different from Applicant: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
Telephone: \_\_\_\_\_ E-mail: \_\_\_\_\_
- E. Landowner and/or Lessee Name (if other than Applicant): U.S. Forest Service; attn Jim Brammer  
Mailing Address: 420 Barrett Street  
City: Dillon State: MT Zip: 59725  
Telephone: 406-683-3916 E-mail: jbrammer@fs.fed.us

**II. PROJECT INFORMATION\***

- A. Project Name: Selway Meadows Westslope cutthroat trout restoration  
River, stream, or lake: Selway Creek  
Location: Township: 8 S Range: 15 W Section: 34  
Latitude: 45.095100 Longitude: -113.418034 *within project (decimal degrees)*  
County: Beaverhead
- B. Purpose of Project: \_\_\_\_\_

This project will install a fish barrier that will directly result in re-establishment of a genetically unaltered Westslope cutthroat trout (WCT) population of over 25,000 individuals in 48 miles of stream. The funding requested through this proposal would be spent exclusively on construction of the fish passage barrier; design, cost estimation, and engineering oversight has already been funded. Once the barrier is completed, the upstream non-native trout population would be removed using piscicide and a WCT population will be re-established from genetically diverse and unaltered aboriginal donor populations throughout the Beaverhead and Red Rock sub-basins. Re-establishment of WCT will also benefit conservation of Western Pearlshell Mussel and result in an intact native aquatic assemblage in a publicly accessible drainage that will be featured as an educational example showcasing desired management by the U.S. Forest Service.

The requested funding amount (\$80,000) is needed to leverage a \$80,000 Bring Back the Natives grant, which requires non-federal match and represents about 20% of the total project cost.

C. Brief Project Description:

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Large-scale Westslope cutthroat trout (WCT) restoration projects are needed to significantly improve regional population status and benefit other native aquatic fauna. In the upper Missouri River Basin genetically unaltered WCT persist in less than 3% of their historic range. Long-term viability is further constrained because most populations are confined to short reaches of headwater streams; on average extant populations are isolated in less than 4 stream miles and lack a migratory life history. Resultantly, reestablishment of meta-populations founded with genetically unaltered aboriginal sources is among our highest interagency conservation priorities. Western pearlshell mussel is an S2 species in Montana that has notably declined statewide, including in Selway Meadows. Because WCT is the preferred intermediate host in pearlshells reproductive cycle, cutthroat reestablishment is key to expanding and securing its viability in this watershed.

Strong commitment to habitat protection and stewardship make Selway Meadows an ideal WCT restoration opportunity. In 2007 the Forest Service acquired 1200 acres of private valley bottomlands in SW Montana called Selway Meadows because of its substantial aquatic and wildlife values. The purchase consolidated FS ownership and provided public access to a highly attractive stream and meadow system. Since acquisition, the Forest Service has worked to improve and protect habitat quality throughout the drainage. Riparian grazing standards consistent with the Revised Forest Plan were implemented and three grazing enclosures were constructed. Instream flow evaluations resulted in implementation of an irrigation plan that will improve watershed resiliency to climate change and replacement of inefficient and broken irrigation infrastructure with diversions that included fish ladders. Two tributaries were reconnected to the mainstem of Selway Creek and extensive geomorphic and water quality work has occurred to evaluate the potential for active and passive restoration throughout the watershed. A lasting investment to improve and maintain aquatic habitat values through management and stewardship has been made.

Restoration of WCT to Selway Meadows will restore an intact, native aquatic assemblage. Native WCT have been replaced by non-native brook, brown, and rainbow trout, which now dominate the fishery in the Selway Creek watershed. Native western pearlshell mussels still occur in low numbers and are restricted to a relatively short segment of Selway Creek. Pearlshells are capable of living over 100 years and the population structure is skewed toward very old individuals, suggesting successful reproduction has been nominal to non-existent for decades with WCT absence being the primary factor limiting recruitment. Installation of a fish passage barrier will allow permanent removal of upstream non-natives with piscicide and restoration of genetically unaltered WCT. The 48 miles of productive fish-bearing streams upstream of the proposed barrier would result in a restored population of over 25,000 WCT, which would be among the strongest in the upper Missouri River basin.

Installation of a fish barrier to restore unaltered WCT to the Selway Meadows watershed meets FFIP, Interagency conservation, and State of Montana goals. Installation of the proposed fish barrier will directly result in restoration of a previously native WCT population. Moreover, WCT repopulation will result in continued institutional emphasis on watershed stewardship and motivate additional habitat restoration in Selway Creek. This project is supported by a formal Forest Service Collaborative comprised of diverse user groups and will be implemented by a State and Federal partnership that has already resulted in cost-sharing benefits that make this financially challenging project feasible. Finally, the Forest Service intends to use this project as an educational showcase of their Forest Plan, ensuring the value of maintaining native trout on the landscape is emphasized in this fully publicly accessible watershed. This project will result in establishment of a WCT meta-population founded with genetically unaltered aboriginal sources, thereby satisfying goals described in the interagency Status and Conservation Needs for Westslope Cutthroat Trout in Southwest Montana, Montana's Comprehensive Fish and Wildlife Strategy, the Montana Statewide Fishery Management Plan, and specific Montana statute.



Yes. There are few easily accessible opportunities to fish for wild Westslope Cutthroat Trout east of the Continental Divide. This project will take place in a fully publicly accessible watershed occurring on Forest Service lands. The heart of the project area is a large meadow complex that is particularly well-suited to angling and will result in a unique opportunity to fish for native, wild trout in Southwest Montana.

- E. The project agreement includes a 20-year maintenance commitment. Please discuss your ability to meet this commitment.

The U.S. Forest Service and FWP anticipate maintaining this barrier to protect the native fish population it will secure in perpetuity.

- F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?:

The previously native WCT population was extirpated as a result of invasion by non-native Brook, Brown, and Rainbow trout. This project will provide a barrier to prevent further invasion and allow removal of non-natives and restoration of WCT.

- G. What public benefits will be realized from this project?:

This project will directly result in creation of a genetically diverse Westslope Cutthroat Trout population of about 25,000 fish distributed over 48 miles of stream and one lake. Once restored this will be among the largest WCT populations east of the Continental Divide and will satisfy goals described in the interagency Status and Conservation Needs for Westslope Cutthroat Trout in Southwest Montana, Montana's Comprehensive Fish and Wildlife Strategy, the Montana Statewide Fishery Management Plan, and specific Montana statute. This project will take place in a fully publicly accessible watershed occurring on Forest Service lands. The heart of the project area is a large meadow complex that is particularly well-suited to angling and will result in a unique opportunity to fish for native, wild trout in Southwest Montana.

- H. Will the project interfere with water or property rights of adjacent landowners? (explain):

No. The project occurs on Forest Service ground and has no effect on water use or availability.

- I. Will the project result in the development of commercial recreational use on the site?: (explain):

None is anticipated.

- J. Is this project associated with the reclamation of past mining activity?:

No.

**Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.**

#### IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: Matthew Jaeger

Date: 30 November 2018

Sponsor (if applicable):



**\*Highlighted boxes will automatically expand.**

**Mail To:** Montana Fish, Wildlife & Parks  
Fisheries Division  
PO Box 200701  
Helena, MT 59620-0701

**E-mail To:** Michelle McGree  
[mmcgree@mt.gov](mailto:mmcgree@mt.gov)  
(electronic submissions MUST be signed)

Incomplete or late applications will be rejected and returned to applicant.  
Applications may be rejected if this form is modified.

**\*\*\*Applications must be signed and *received* by the Future Fisheries Program Officer in Helena before December 1 and June 1 of each year to be considered for the subsequent funding period.\*\*\***

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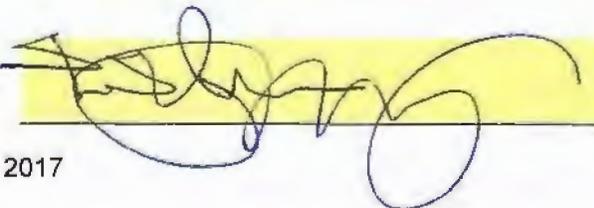
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Applicant Signature:



Date: 30 November 2018

**BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS**

Both tables must be completed or the application will be returned

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTIO N*	COST/UNIT	TOTAL COST	CONTRIBUTIONS			
					FUTURE FISHERIES REQUEST	IN-KIND SERVICES**	IN-KIND CASH	TOTAL
<b>Personnel***</b>								
Survey	1		\$4,000.00	\$ 4,000.00	-		4,000.00	\$ 4,000.00
Design	1		\$2,500.00	\$ 2,500.00	-		2,500.00	\$ 2,500.00
Engineering	1		\$20,000.00	\$ 20,000.00	-		20,000.00	\$ 20,000.00
Permitting				\$ -				\$ -
Oversight	1		\$23,000.00	\$ 23,000.00	-		23,000.00	\$ 23,000.00
				\$ -				\$ -
			Sub-Total	\$ 49,500.00	\$ -	\$ -	\$ 49,500.00	\$ 49,500.00
<b>Travel</b>								
Mileage				\$ -				\$ -
Per diem				\$ -				\$ -
			Sub-Total	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Construction Materials****</b>								
Clearing and grubbing	1		\$4,583.00	\$ 4,583.00	-		4,583.00	\$ 4,583.00
Water management	1		\$33,423.00	\$ 33,423.00	-		33,423.00	\$ 33,423.00
Structure construction	1		\$275,017.00	\$ 275,017.00	80,000.00		195,017.00	\$ 275,017.00
Grading, reveg.	1		\$7,051.00	\$ 7,051.00	-		7,051.00	\$ 7,051.00
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
			Sub-Total	\$ 320,074.00	\$ 80,000.00	\$ -	\$ 240,074.00	\$ 320,074.00
<b>Equipment and Labor</b>								
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
			Sub-Total	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Mobilization</b>								
Mob. / demob.	1		\$40,271.00	\$ 40,271.00			40,271.00	\$ 40,271.00
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -

**BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS**

			Sub-Total	\$ 40,271.00	\$ -	\$ -	\$ 40,271.00	\$ 40,271.00
<b>TOTALS</b>				\$ 409,845.00	\$ 80,000.00	\$ -	\$ 329,845.00	\$ 409,845.00

**OTHER REQUIREMENTS:**

All of the columns in the budget table and the matching contribution table MUST be completed appropriately or the application will be invalid. Please see the example budget sheet for additional clarification.

\*Units = feet, hours, inches, etc. Do not use lump sum unless there is no other way to describe the costs.

\*\*Can include in-kind materials. Justification for in-kind labor (e.g. hourly rates used for calculations). Describe here or in text.

Reminder: Government salaries cannot be used as in-kind match

\*\*\*The Review Panel suggests that design and oversight costs associated with a proposed project not exceed 15% of the total project budget. If design and oversight costs are in excess of 15%, applications must include a minimum of two competitive bids for the cost of undertaking the project.

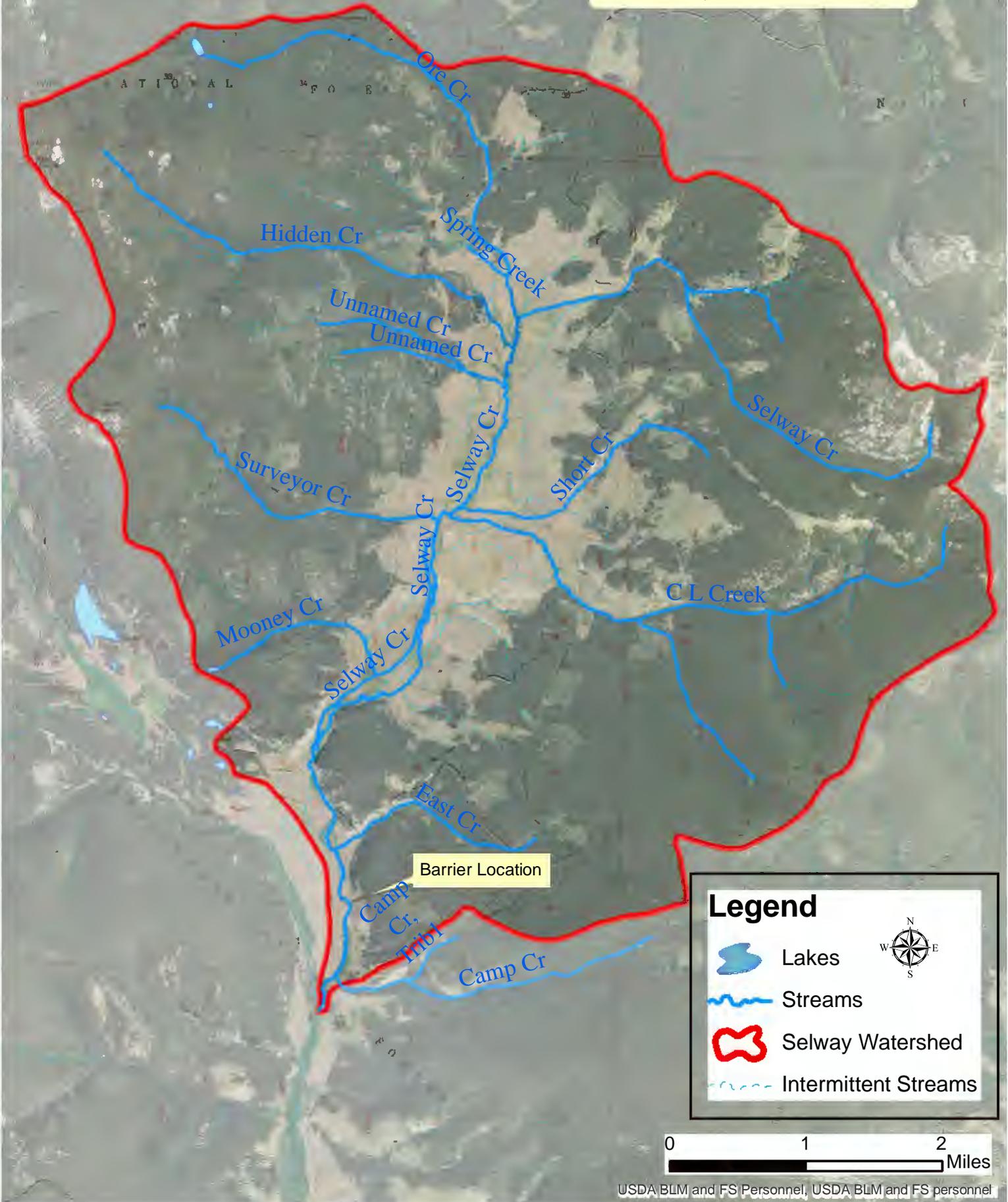
\*\*\*\*The Review Panel recommends a maximum fencing cost of \$1.50 per foot. Additional costs may be the responsibility of the applicant and/or partners.

**MATCHING CONTRIBUTIONS (do not include requested funds)**

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL	Secured? (Y/N)
U.S. Forest Service	\$ -	\$ 195,020.00	\$ 195,020.00	Y
Bring Back the Natives	\$ -	\$ 80,000.00	\$ 80,000.00	Y
WNTI	\$ -	\$ 20,000.00	\$ 20,000.00	N
Montana TU	\$ -	\$ 9,825.00	\$ 9,825.00	N
U.S. Forest Service RAC	\$ -	\$ 10,000.00	\$ 10,000.00	N
NorthWest Energy	\$ -	\$ 15,000.00	\$ 15,000.00	N
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
<b>TOTALS</b>	\$ -	\$ 329,845.00	\$ 329,845.00	



# Selway Watershed



**PRELIMINARY**  
NOT FOR CONSTRUCTION



PROJECT LOCATION

**MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS**

◆

**SELWAY CREEK FISH BARRIER**  
**BEAVERHEAD COUNTY, MT**

◆

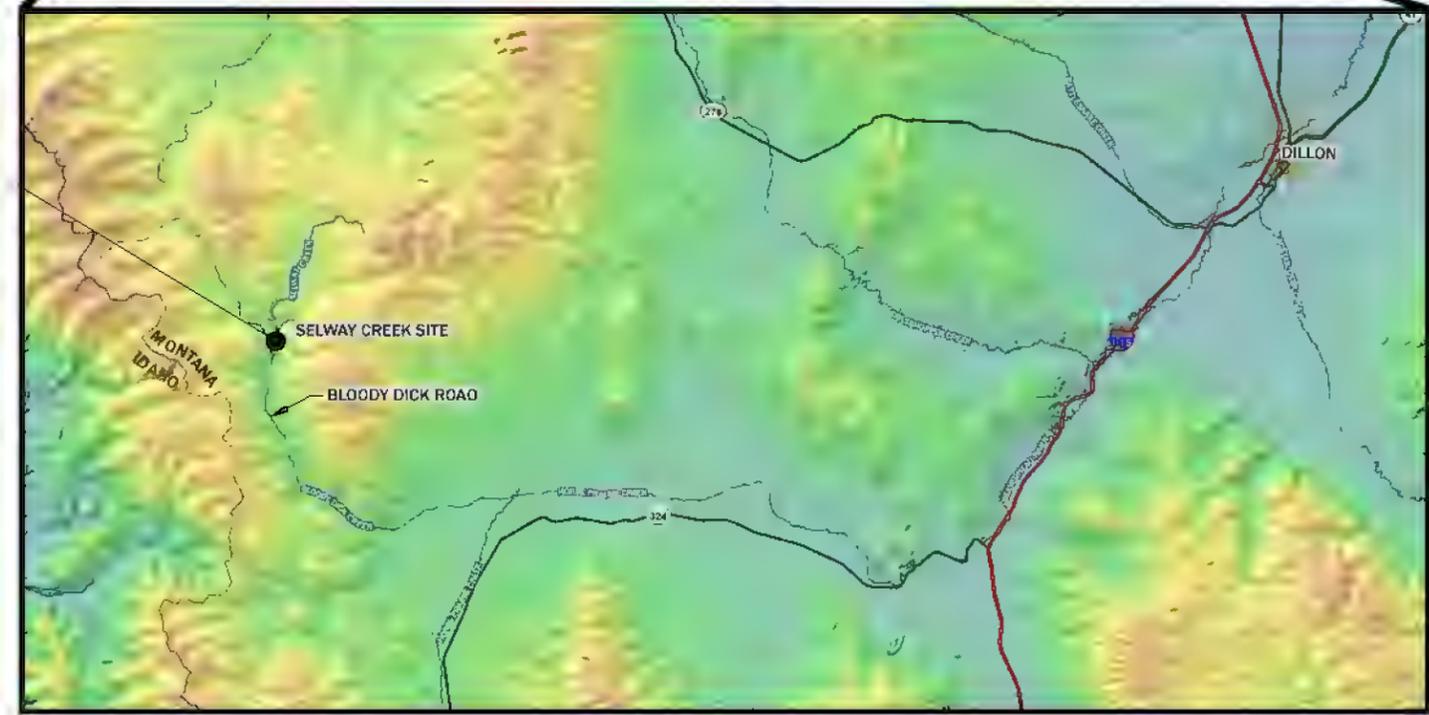
PREPARED BY

**PIONEER TECHNICAL SERVICES, INC.**  
**DATE: 04/09/18**

**SHEET INDEX**

SHEET NO.	DESCRIPTION
1	COVER SHEET AND INDEX
2	LEGEND AND ABBREVIATIONS
3	FISH BARRIER SITE PLAN
4	FISH BARRIER EXCAVATION PLAN
5	FISH BARRIER STRUCTURE PLAN
6	FISH BARRIER CROSS SECTION AND PROFILE
7	FISH BARRIER BACKFILL PLAN
8	STRUCTURAL DETAILS
9	STRUCTURAL DETAILS
10	FISH BARRIER BACKFILL TYPICAL SECTIONS AND DETAILS
11	FISH BARRIER BACKFILL TYPICAL SECTIONS AND DETAILS

FISH BARRIER LOCATION



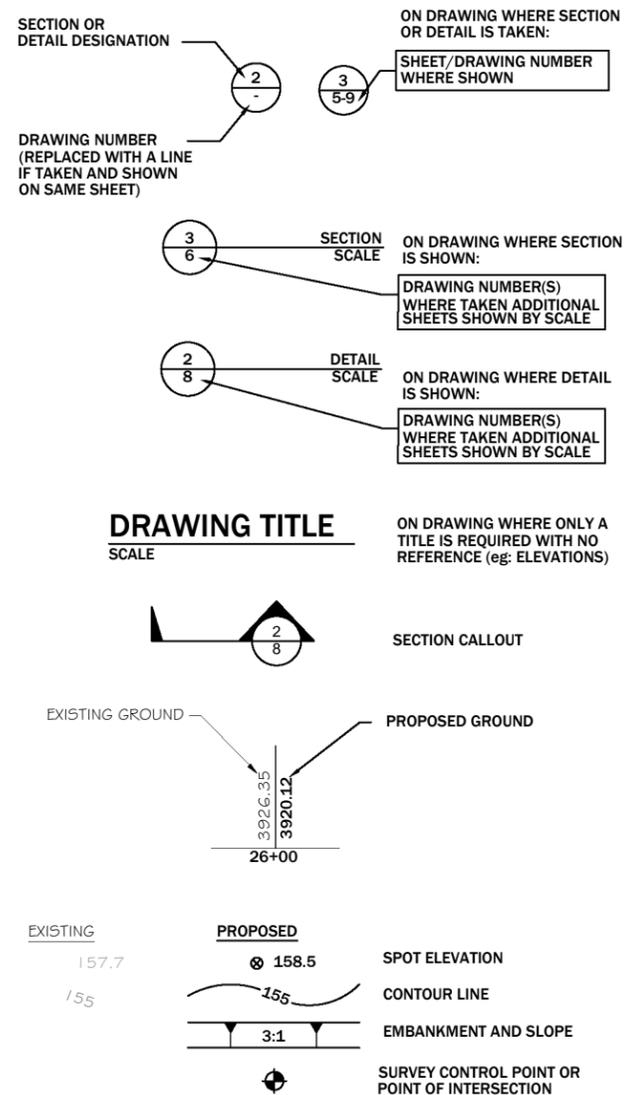
**SITE VICINITY MAP**  
SOURCE: USGS

ABBREVIATIONS

AB	ANCHOR BOLT, ABOVE	FLG	FLANGE	PRES	PRESSURE
ABDN	ABANDON	FL	FLOOR	PRI	PRIMARY
AC	ASPHALTIC CONCRETE	FLEX	FLEXIBLE	PROP	PROPERTY
AD	AREA DRAIN	FNSH	FINISH	PSF	POUNDS PER SQUARE FOOT
ADDL	ADDITIONAL	FOB	FLAT ON BOTTOM	PSI	POUNDS PER SQUARE INCH
ADJ	ADJACENT	FP	FIELD PANEL	PSIG	POUNDS PER SQUARE INCH, GAUGE
AGGR	AGGREGATE	FPL	FROST PROTECTION LAYER	PT	POINT OF TANGENCY
AHR	ANCHOR	FPM	FEET PER MINUTE	PT	PRESSURE TREATED
AJ	ADJUSTABLE	FT	FOOT OR FEET	PVI	POINT OF VERTICAL INTERSECTION
APPROX	APPROXIMATE	FWD	FORWARD	PVMT	PAVEMENT
APVD	APPROVED	G, GND	GROUND	PVT	POINT OF VERTICAL TANGENCY
AUTO	AUTOMATIC	GA	GAUGE	R OR RAD	RADIUS
AUX	AUXILIARY	GAL	GALLON	RC	REINFORCED CONCRETE
AVG	AVERAGE	GALV	GALVANIZED	RDCR	REDUCER
@	AT	GC	GROOVED COUPLING	REF	REFER OR REFERENCE
BETW	BETWEEN	GCL	GEOSYNTHETIC CLAY LINER	REINF	REINFORCED, REINFORCING, REINFORCE
BF	BLIND FLANGE, BOTTOM FACE	GVL	GRAVEL	REQD	REQUIRED
BG	BELOW GRADE	HDPE	HIGH DENSITY POLYETHYLENE	RH	RIGHT HAND
BLDG	BUILDING	HH	HANDHOLE	RHR	RIGHT HAND REVERSE
BLK	BLOCK	HORIZ	HORIZONTAL	RPE	REINFORCED POLYETHYLENE
BM	BEAM, BENCHMARK	HP	HORSEPOWER	RST	REINFORCING STEEL
BOT	BOTTOM	HPT	HIGH POINT	RT	RIGHT
BRG	BEARING	HWL	HIGH WATER LEVEL	RTN	RETURN
BRKR	BREAKER	IE	INVERT ELEVATION	R/W	RIGHT OF WAY
BVC	BEGINNING OF VERTICAL CURVE	I.F.	INSIDE FACE	S	SWITCH
C	CONDUIT, CASEMENT	IN	INCH(ES)	SB	SEDIMENT BASIN
C TO C	CENTER TO CENTER	INVT	INVERT	SCHED	SCHEDULE
CAB	CABINET	IP	INLET PROTECTION	SEC	SECONDARY
CB	CATCH BASIN, CIRCUIT BREAKER	IRRIG	IRRIGATION	SED	SEDIMENTATION
CC	CONTROL CABLE	JB	JUNCTION BOX	SH	SHEET
CCL	COMPACTED CLAY LAYER	JCT	JUNCTION	SIM	SIMILAR
CCP	CENTRAL CONTROL PANEL	JT	JOINT	SPEC, SPECS	SPECIFICATIONS
CCS	CENTRAL CONTROL SYSTEM	L	ANGLE, LENGTH	SQ	SQUARE
CDN	COMPOSITE DRAINAGE NET	LB(S)	POUND(S)	SQ FT	SQUARE FOOT, FEET
CIP	CAST IN PLACE	LDS	LEAK DETECTION SYSTEM	SQ IN	SQUARE INCH
CIP	CULVERT INLET PROTECTION	LF	LINEAR FEET	ST	STRAIGHT
CJ	CONSTRUCTION JOINT	LG	LONG	STA	STATION
CL	CENTERLINE	LONG	LONGITUDINAL	STD	STANDARD
CLSF	CONTROLLED LOW STRENGTH FILL	LP	LIGHT POLE	STL	STEEL
CLR	CLEAR, CLEARANCE	LPT	LOW POINT	STRUCT	STRUCTURE
CMP	CORRUGATED METAL PIPE	LR	LONG RADIUS	T&B	TOP AND BOTTOM
CO	CLEANOUT, CARBON MONOXIDE	LT	LEFT	TAN	TANGENT
CONC	CONCRETE	LTG, LTS	LIGHTS OR LIGHTING	TBC	TEMPORARY BYPASS CHANNEL
CONN	CONNECTION	MATL	MATERIAL	TECH	TECHNICAL
CONSTR	CONSTRUCTION	MAX	MAXIMUM	TEL	TELEPHONE
CONT	CONTINUED, CONTINUATION	MECH	MECHANICAL	TEMP	TEMPORARY, TEMPERATURE
COORD	COORDINATE	MFD	MANUFACTURED	THK	THICKNESS
CP	CONTROL POINT	MFR	MANUFACTURER	THRU	THROUGH
CRS	COLD ROLLED STEEL	MH	MANHOLE, MOUNTING HEIGHT	TOC	TOP OF CONCRETE
CRS	CONSTRUCTION ROAD STABILIZATION	MIN	MINIMUM	TOS	TOP OF SLAB
CTR	CENTER	MISC	MISCELLANEOUS	TOW	TOP OF WALL
CTRD	CENTERED	MS	MANUFACTURER'S STANDARD	TP	TURNING POINT
CU	CUBIC	MT	MOUNT	TRANSV	TRANSVERSE
CU FT	CUBIC FOOT	MTD	MOUNTED	TX	TRANSFORMER
CU IN	CUBIC INCH	MTG	MOUNTING	TYP	TYPICAL
CY, CU YD	CUBIC YARD	MU	MULCHING	UON	UNLESS OTHERWISE NOTED
DET	DETAIL	MWS	MAXIMUM WATER SURFACE	VC	VERTICAL CURVE
DIA	DIAMETER	N	NORTH	VERT	VERTICAL
DIAG	DIAGONAL	NA	NOT APPLICABLE	VPC	POINT OF VERTICAL CURVATURE
DIR	DIRECTION	NEUT	NEUTRAL	VPI	POINT OF VERTICAL INTERSECTION
DISCH	DISCHARGE	NG	NATURAL GAS	VPT	POINT OF VERTICAL TANGENT
DWG	DRAWING	NGVD	NATIONAL GEODETIC VERTICAL DATUM	W	WEST
Δ	DELTA	NIC	NOT IN CONTRACT	W/	WITH
E	EAST, EMPTY	N.O.	NORMALLY OPEN		
EA	EACH	NO., #	NUMBER		
EF	EACH FACE	NOM	NOMINAL		
EL	ELEVATION	N-S	NORTH - SOUTH		
ELB	ELBOW	NTS	NOT TO SCALE		
ELC	ELECTRICAL LOAD CENTER	OC	ON CENTER		
ELEC	ELECTRIC, ELECTRICAL	OD	OUTSIDE DIAMETER		
ENGR	ENGINEER	OF	OVERFLOW		
EQL SP	EQUALLY SPACED	O.F.	OUTSIDE FACE		
EQPT	EQUIPMENT	OPNG	OPENING		
ESC	EROSION AND SEDIMENT CONTROL	OPP	OPPOSITE		
EVC	END OF VERTICAL CURVE	OZ	OUNCE		
EW	EACH WAY	PC	POINT OF CURVE		
EXP	EXPANSION, EXPOSED	PCF	POUNDS PER CUBIC FOOT		
EXP AB	EXPANSION ANCHOR BOLT	PI	POINT OF INTERSECTION		
EXP JT	EXPANSION JOINT	PJF	PREMOULDED JOINT FILLER		
EXST, EXIST	EXISTING	PL	PROPERTY LINE		
EXT	EXTERIOR	PLYWD	PLYWOOD		
FC	FLEXIBLE CONDUIT/ CONNECTOR	PMP	PUMP		
FCA	FLANGED COUPLING ADAPTER	PNL	PANEL		
FDN	FOUNDATION	POE	POINT OF ENDING		
FG	FINISH GRADE	PP	POWER POLE		
FHY	FIRE HYDRANT	PR	PAIR		
FIG	FIGURE	PRC	POINT OF REVERSE CURVE		
FL	FLOW LINE	PRCST	PRECAST		



LEGEND



- NOTES:
- CONTACT ENGINEER FOR ABBREVIATIONS USED BUT NOT SHOWN ON THIS DRAWING.

GENERAL SITE

- SOURCE OF TOPOGRAPHY SHOWN ON THE CIVIL PLANS ARE FROM LIMITED SURVEY DATA. EXISTING CONDITIONS MAY VARY FROM THOSE SHOWN ON THESE PLANS. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND ADJUST WORK PLAN ACCORDINGLY PRIOR TO BEGINNING CONSTRUCTION.
- EXISTING TOPOGRAPHY, STRUCTURES, AND SITE FEATURES ARE SHOWN SCREENED AND/OR LIGHT-LINED. NEW FINISH GRADE, STRUCTURES, AND SITE FEATURES ARE SHOWN HEAVY-LINED.
- HORIZONTAL DATUM: NAD 83, MONTANA STATE PLANE COORDINATE SYSTEM, INTERNATIONAL FEET.
- VERTICAL DATUM: N.A.V.D. 88, U.S. SURVEY FEET.
- MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE.
- STAGING AREA SHALL BE FOR CONTRACTOR'S EMPLOYEE PARKING, CONTRACTOR'S TRAILERS AND ON-SITE STORAGE OF MATERIALS.
- PROVIDE TEMPORARY FENCING AS NECESSARY TO MAINTAIN SECURITY AT ALL TIMES.
- ELEVATIONS GIVEN ARE TO FINISH GRADE UNLESS OTHERWISE NOTED.
- SLOPE UNIFORMLY BETWEEN CONTOURS AND SPOT ELEVATIONS SHOWN.
- EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE MAINTAINED AND INSPECTED AS STATED IN THE APPROVED EROSION AND SEDIMENTATION PLAN APPROVED IN THE STORMWATER DISCHARGE PERMIT.
- ALL CONTRACTORS AND SUBCONTRACTORS SHALL COMPLY WITH THE FIELD SAFETY INSTRUCTIONS APPROVED (FSI) FOR THIS SITE AT ALL TIMES.
- EXISTING SITE DRAINAGE FLOW PATTERNS/DIRECTIONS SHALL BE MAINTAINED UNLESS OTHERWISE INDICATED ON THE PLANS.
- CONSTRUCTION ACTIVITY BY OTHERS MAY IMPACT THE WORK CONTEMPLATED WITHIN THIS PACKAGE. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IF A CONFLICT ARISES RELATING TO THE PROGRESS OF THE WORK. FINAL COORDINATION/RESOLUTION OF SUCH CONFLICTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS INVOLVED.
- EXISTING FEATURES AND UTILITIES ARE SHOWN ON THE PLANS BASED UPON INFORMATION AVAILABLE AT THE TIME THE PLANS WERE PREPARED. SHOULD UNIDENTIFIED UTILITY OR SERVICE ELEMENTS BE ENCOUNTERED, NOTIFY THE ENGINEER AND THE APPROPRIATE UTILITY OWNER IMMEDIATELY.
- ACCESS TO THE GENERAL SITE, AND TO SPECIFIC WORK AREAS SHALL BE LIMITED TO THE LOCATIONS SHOWN ON THE PLANS.
- WATER FOR CONSTRUCTION ACTIVITIES SHALL BE OBTAINED BY THE CONTRACTOR AT THEIR SOLE EXPENSE. ANY AND ALL PERMITS REQUIRED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

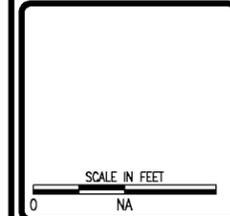
GENERAL NOTE:

- THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.

REVISION:	DATE:	BY:	DESC:

DRAWN BY:	JJJ
DESIGNED BY:	JJJ
CHECKED BY:	GEA
APPROVED BY:	GEA
PROJECT NO.:	
DATE:	04/09/18

DISPLAYED AS:	
COORD SYS/ZONE:	NA
DATUM:	NA
UNITS:	NA
SOURCE:	PIONEER



MT FWP  
SELWAY CREEK  
FISH BARRIER

SELWAY CREEK  
FISH BARRIER  
LEGEND AND  
ABBREVIATIONS



**PRELIMINARY**  
NOT FOR CONSTRUCTION

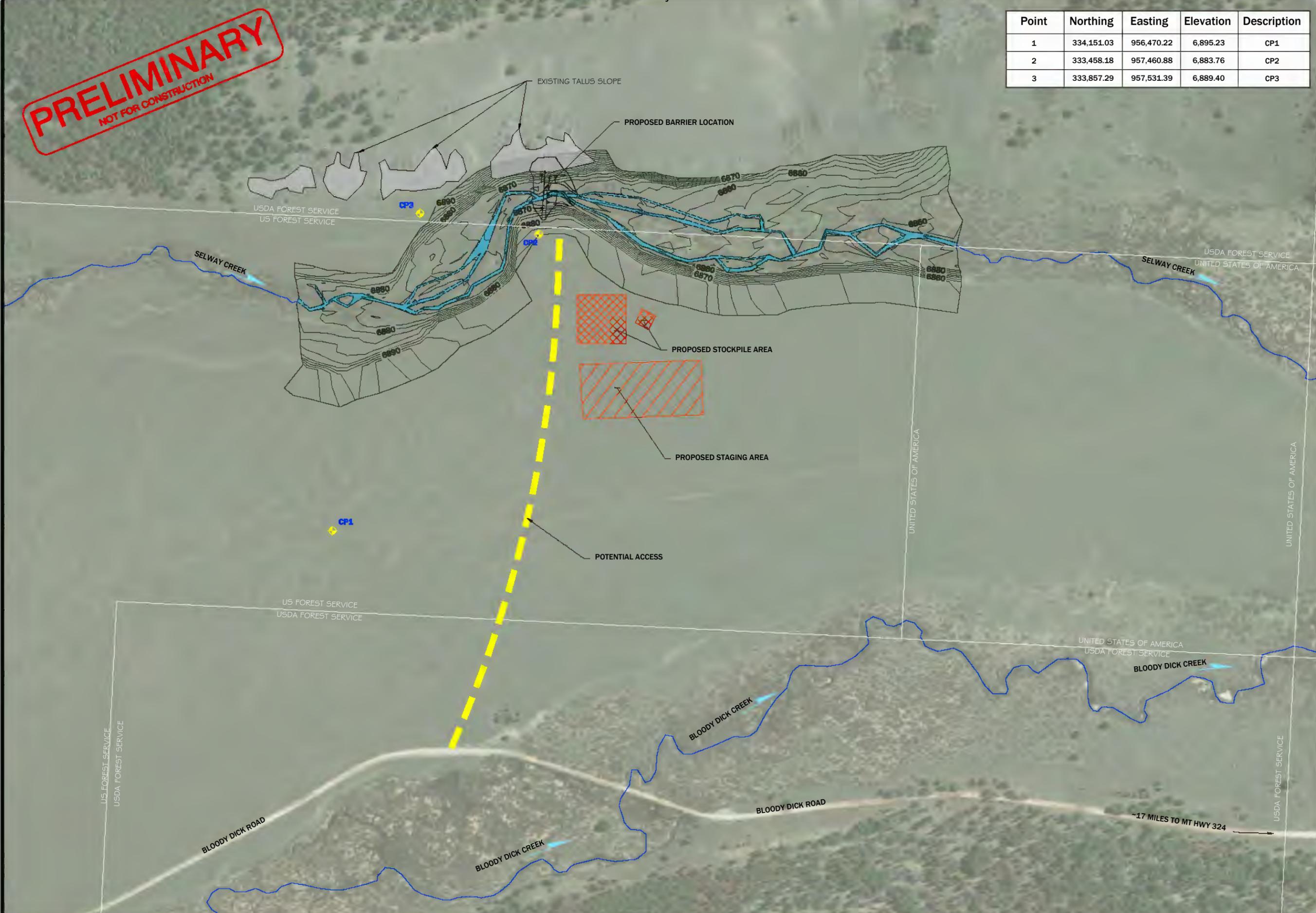
Point	Northing	Easting	Elevation	Description
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2	333,458.18	957,460.88	6,883.76	CP2
3	333,857.29	957,531.39	6,889.40	CP3

REVISION:	DATE:	BY:	DESC:

DRAWN BY: JJJ  
 DESIGNED BY: JJJ  
 CHECKED BY: GEA  
 APPROVED BY: GEA  
 PROJECT NO:  
 DATE: 04/09/18

DISPLAYED AS:  
 COORD SYS / ZONE: MONT. STATE PLANE  
 DATUM: NAD83, NAVD88  
 UNITS: INT. FEET  
 SOURCE: PIONEER/BING

SCALE IN FEET  
0 150 300



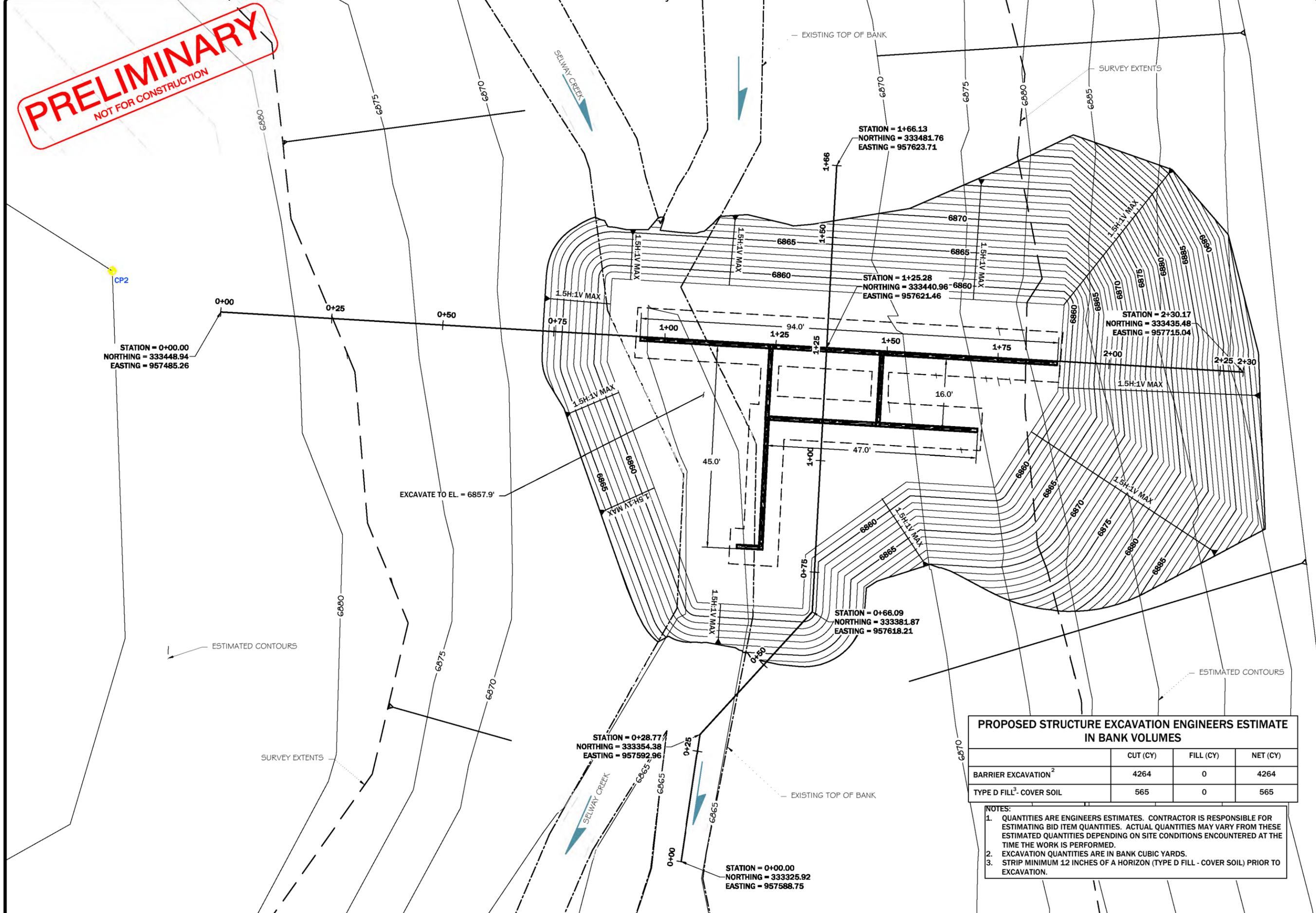
MT FWP  
 SELWAY CREEK  
 FISH BARRIER

SELWAY CREEK  
 FISH BARRIER  
 SITE LOCATION

**PIONEER**  
 TECHNICAL SERVICES, INC.  
 106 PRONGHORN TRAIL SUITE A  
 BOZEMAN, MONTANA 59718  
 (406) 388-8579

SHEET  
3

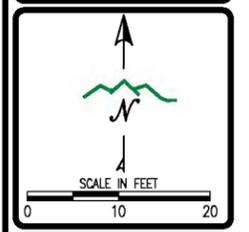
**PRELIMINARY**  
NOT FOR CONSTRUCTION



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DATE: 04/09/18

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DATUM: NAD83, NAVD88  
UNITS: INT. FEET  
SOURCE: PIONEER



MT FWP  
SELWAY CREEK  
FISH BARRIER

SELWAY CREEK  
FISH BARRIER  
EXCAVATION PLAN

**PROPOSED STRUCTURE EXCAVATION ENGINEERS ESTIMATE  
IN BANK VOLUMES**

	CUT (CY)	FILL (CY)	NET (CY)
BARRIER EXCAVATION <sup>2</sup>	4264	0	4264
TYPE D FILL <sup>3</sup> - COVER SOIL	565	0	565

- NOTES:
1. QUANTITIES ARE ENGINEERS ESTIMATES. CONTRACTOR IS RESPONSIBLE FOR ESTIMATING BID ITEM QUANTITIES. ACTUAL QUANTITIES MAY VARY FROM THESE ESTIMATED QUANTITIES DEPENDING ON SITE CONDITIONS ENCOUNTERED AT THE TIME THE WORK IS PERFORMED.
  2. EXCAVATION QUANTITIES ARE IN BANK CUBIC YARDS.
  3. STRIP MINIMUM 12 INCHES OF A HORIZON (TYPE D FILL - COVER SOIL) PRIOR TO EXCAVATION.

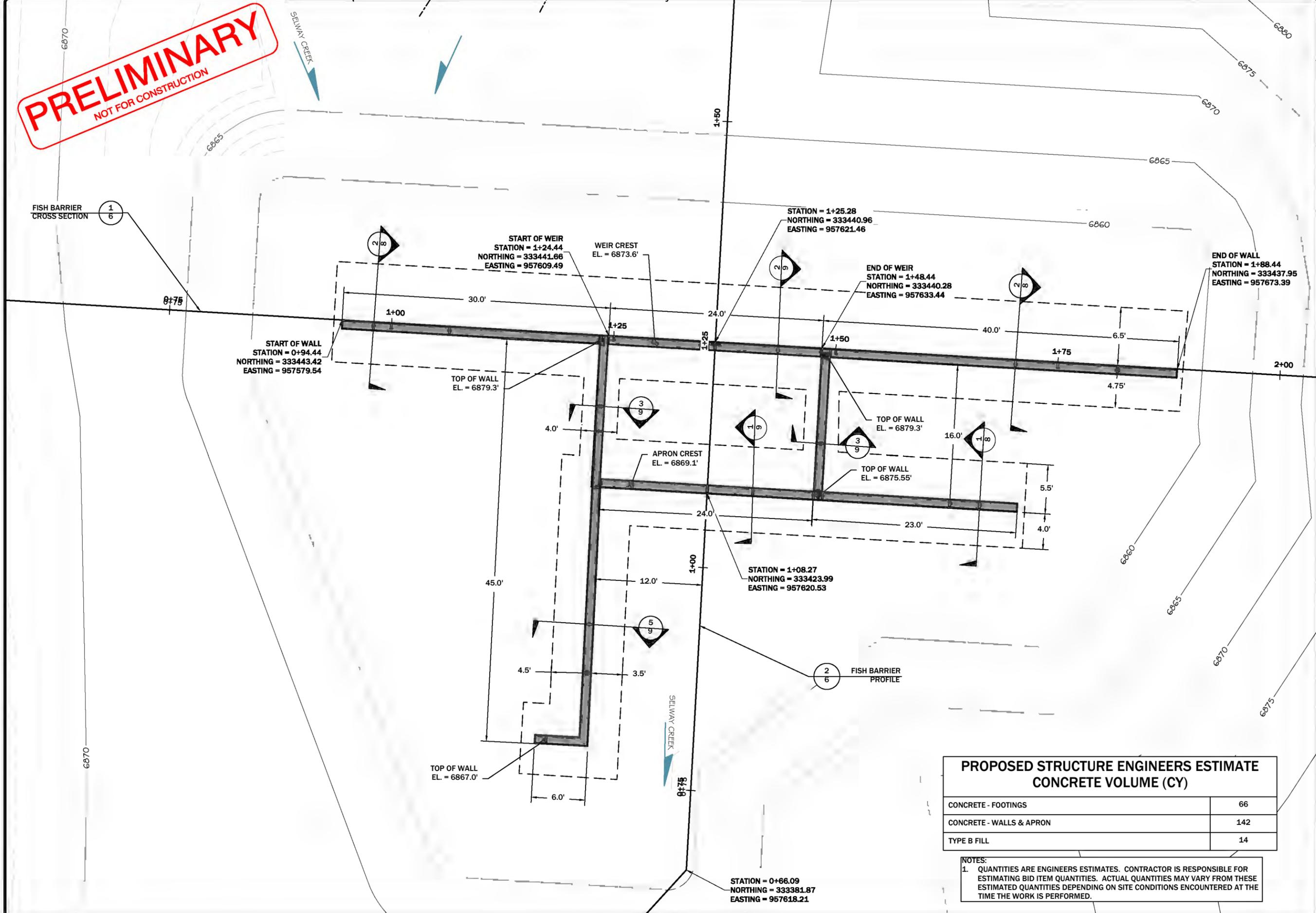
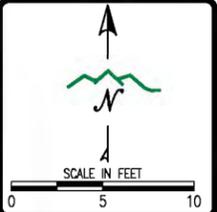


**PRELIMINARY**  
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 DATE: 04/09/18

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 DATUM: NAD83, NAVD88  
 UNITS: INT. FEET  
 SOURCE: PIONEER



MT FWP  
 SELWAY CREEK  
 FISH BARRIER

SELWAY CREEK  
 FISH BARRIER  
 STRUCTURE PLAN

**PROPOSED STRUCTURE ENGINEERS ESTIMATE  
 CONCRETE VOLUME (CY)**

CONCRETE - FOOTINGS	66
CONCRETE - WALLS & APRON	142
TYPE B FILL	14

NOTES:  
 1. QUANTITIES ARE ENGINEERS ESTIMATES. CONTRACTOR IS RESPONSIBLE FOR ESTIMATING BID ITEM QUANTITIES. ACTUAL QUANTITIES MAY VARY FROM THESE ESTIMATED QUANTITIES DEPENDING ON SITE CONDITIONS ENCOUNTERED AT THE TIME THE WORK IS PERFORMED.



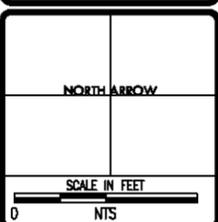




REVISION	010-2019
DATE	BY

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CHECKED BY:	
APPROVED BY:	
PROJECT NO.:	
DATE:	02/21/2018

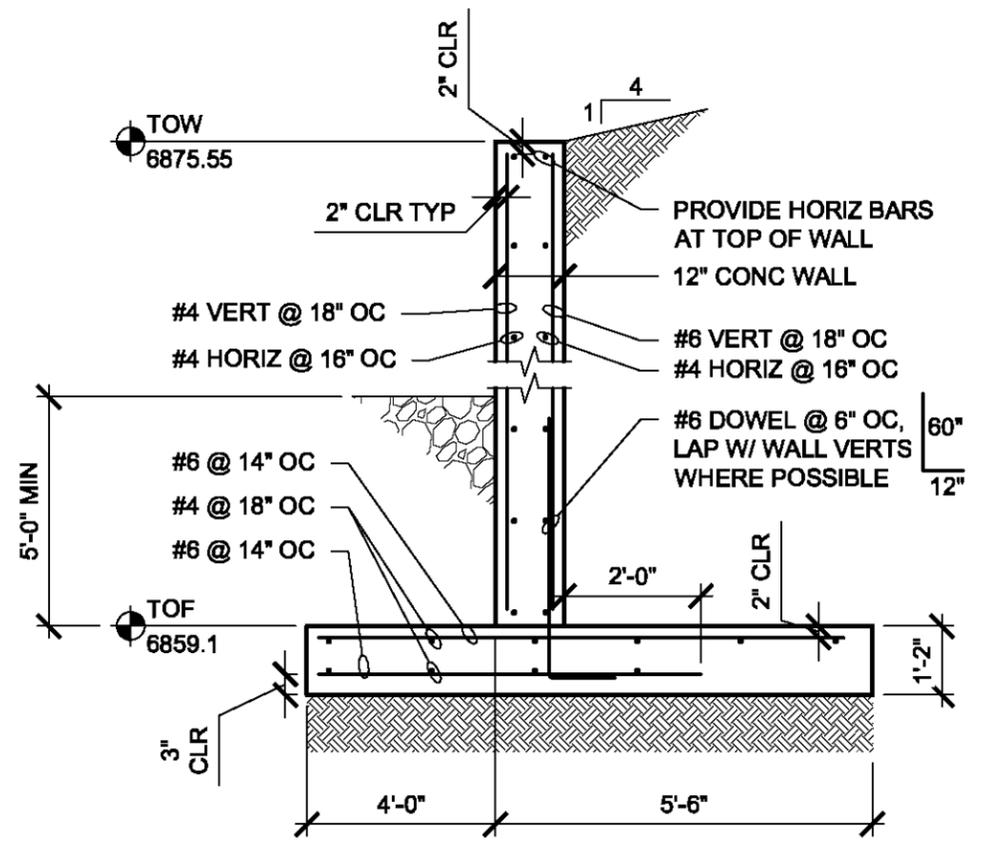
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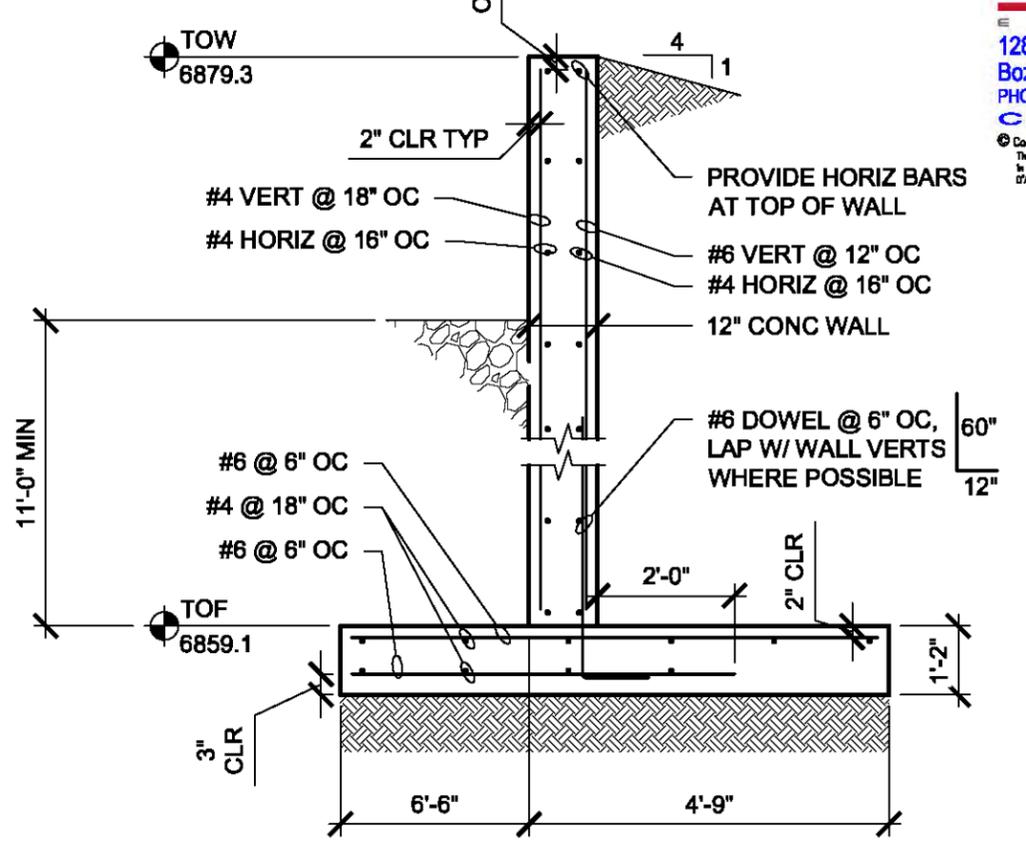
MT FWP  
SELWAY CREEK  
FISH BARRIER

STRUCTURAL DETAILS

**PIONEER**  
TECHNICAL SERVICES, INC.  
108 PRONGHORN TRAIL SUITE A  
BOZEMAN, MONTANA 59718  
(406) 388-8579



**1** CONCRETE WALL @ DOWNSTREAM  
SCALE: NTS

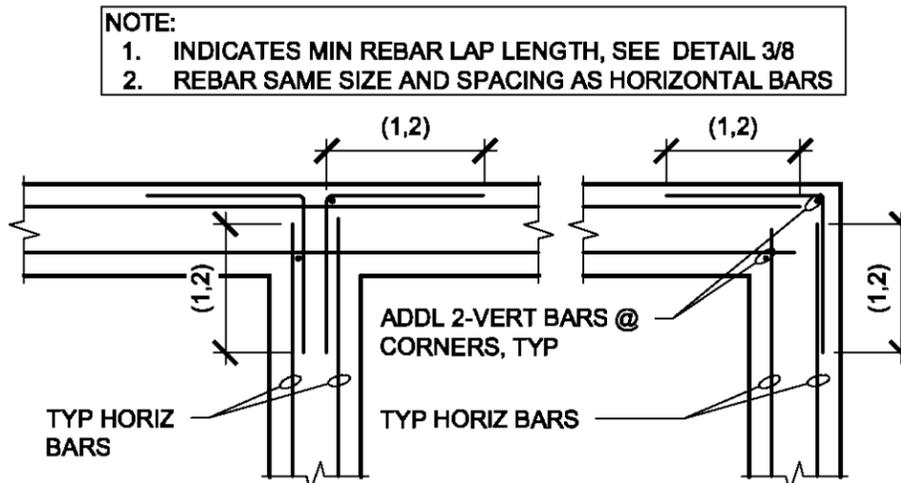


**2** CONCRETE WALL @ UPSTREAM  
SCALE: NTS

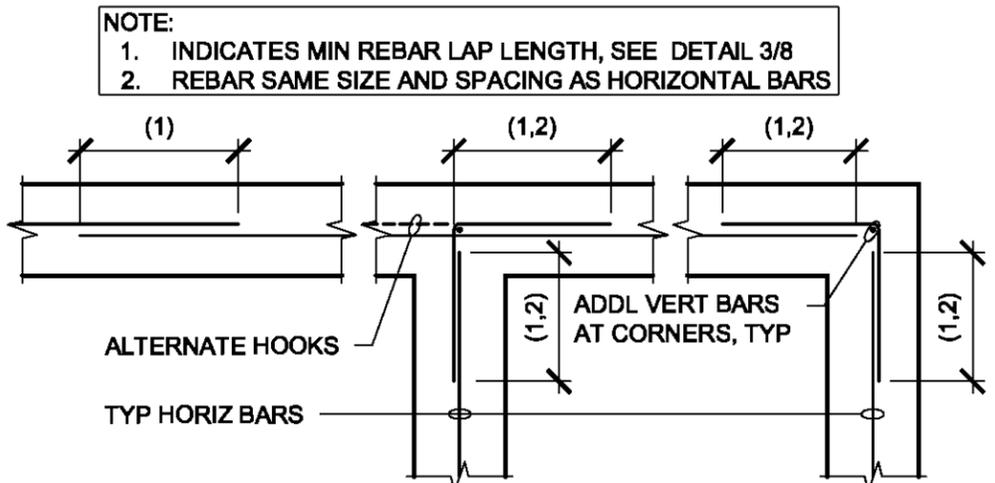
REBAR LAP LEGEND	
BAR DIAMETER	LAP (INCHES)
#3	18"
#4	24"
#5	30"
#6	36"

**ADDITIONAL REMARKS:**  
1. 4500 PSI CONCRETE CLASS 'B' LAP

**3** REBAR LAP LEGEND  
SCALE: NTS



**4** WALL REINFORCEMENT - DBL MAT  
SCALE: NTS



**5** WALL REINFORCEMENT - SGL MAT  
SCALE: NTS

**EDCI+bce**  
ENGINEERS

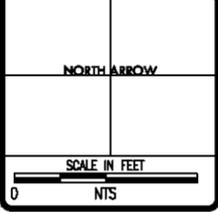
1289 Stoneridge Drive  
Bozeman, Montana 59718  
PHONE: (406) 556-8600 www.dci-engineers.com  
CIVIL / STRUCTURAL

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REVISION	010-2019
DATE	BY

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CHECKED BY:	
APPROVED BY:	
PROJECT NO.:	
DATE:	02/21/2018

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COORD SYS/ZONE, NA	
DATUM:	NA
UNITS:	NA
SOURCE:	

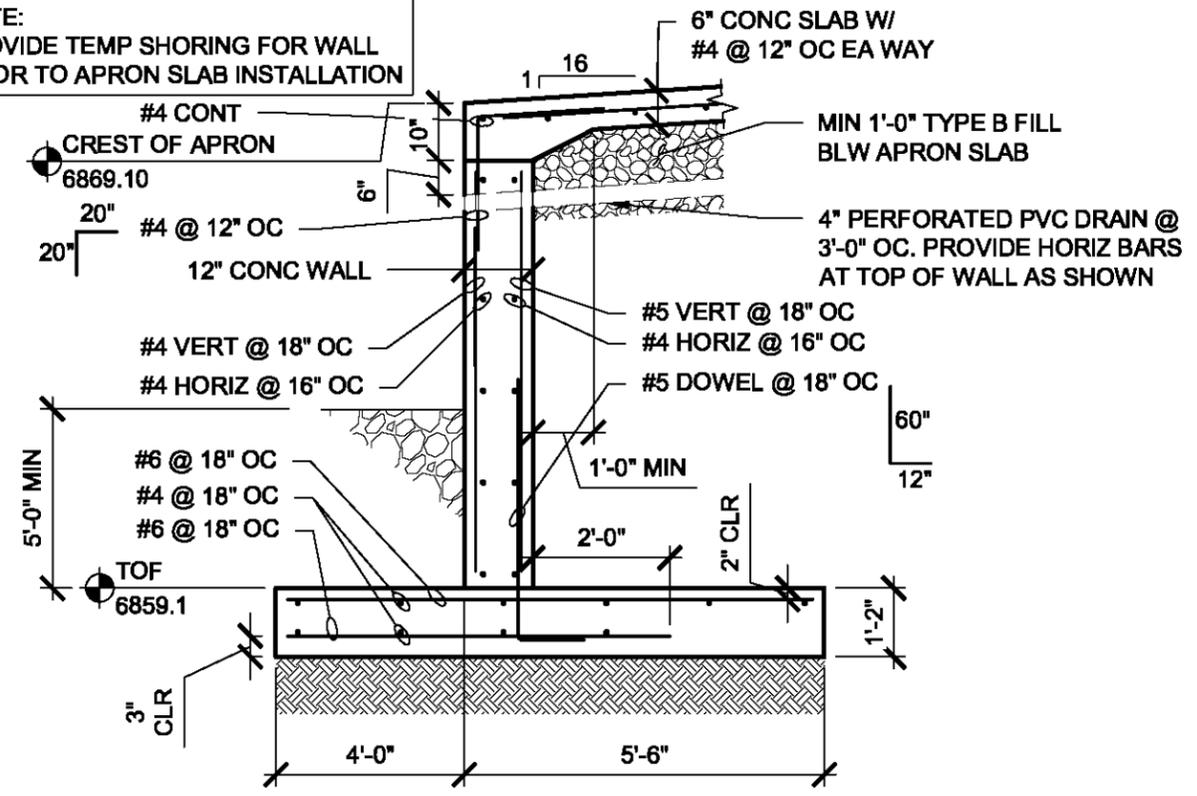


MT FWP  
SELWAY CREEK  
FISH BARRIER

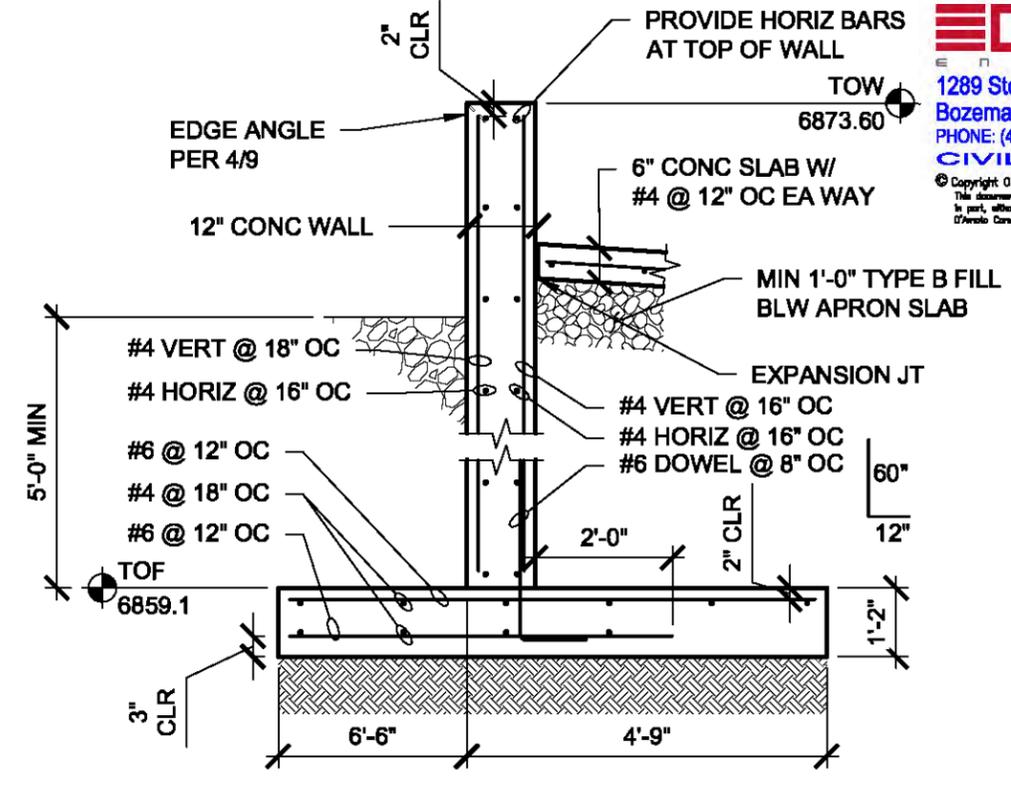
STRUCTURAL DETAILS

**PIONEER**  
TECHNICAL SERVICES, INC.  
108 PRONGHORN TRAIL SUITE A  
BOZEMAN, MONTANA 59718  
(406) 385-8579

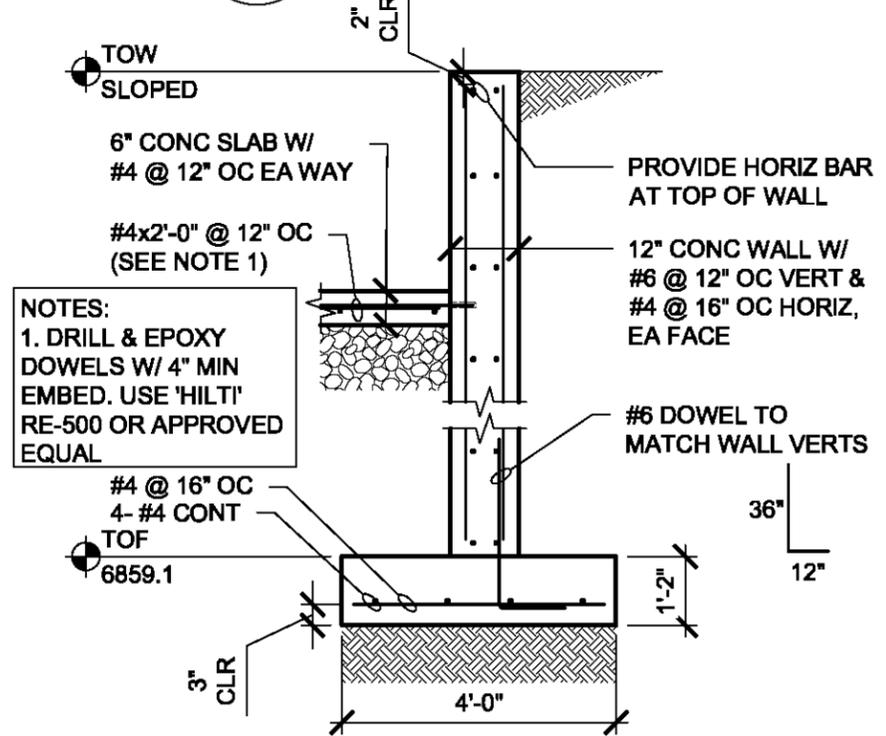
NOTE:  
PROVIDE TEMP SHORING FOR WALL  
PRIOR TO APRON SLAB INSTALLATION



**1** DOWNSTREAM WEIR WALL  
SCALE: NTS

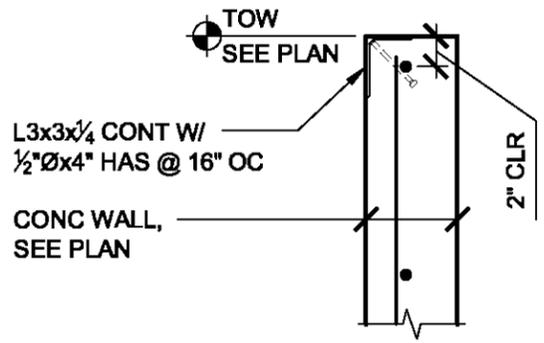


**2** UPSTREAM WEIR WALL  
SCALE: NTS

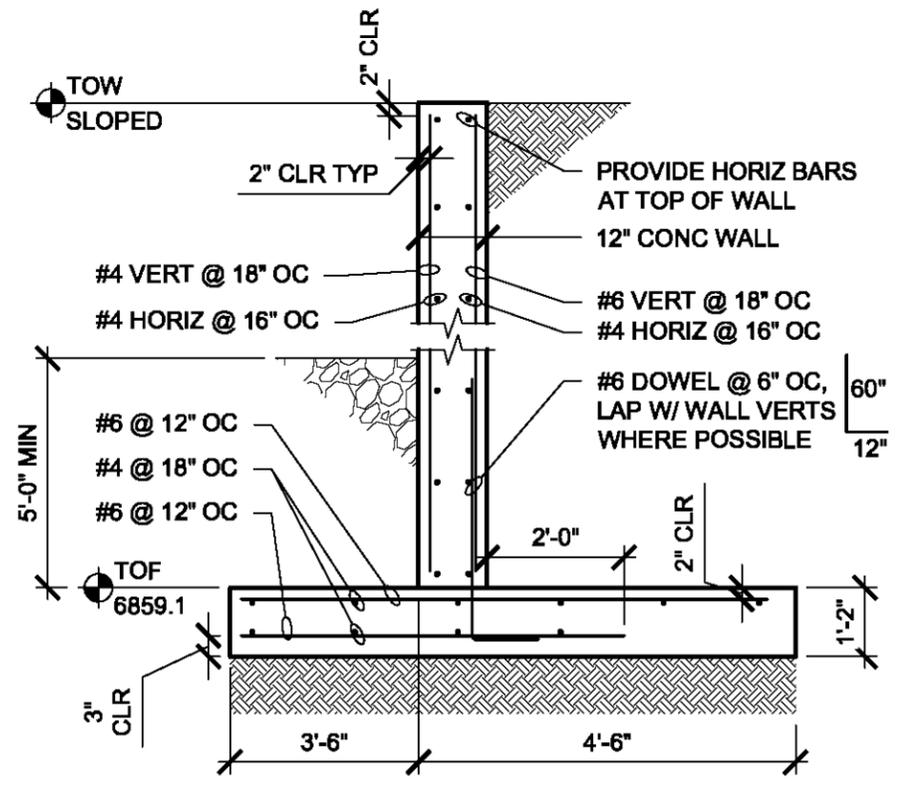


**3** APRON SIDE WALL  
SCALE: NTS

NOTES:  
1. STEEL ANGLE MATERIAL SHALL CONFORM TO  
ASTM A36, Fy = 36 ksi  
2. HEADED ANCHOR STUD MATERIAL SHALL  
CONFORM TO ASTM A108, GRADE 1015, Fu = 65 ksi

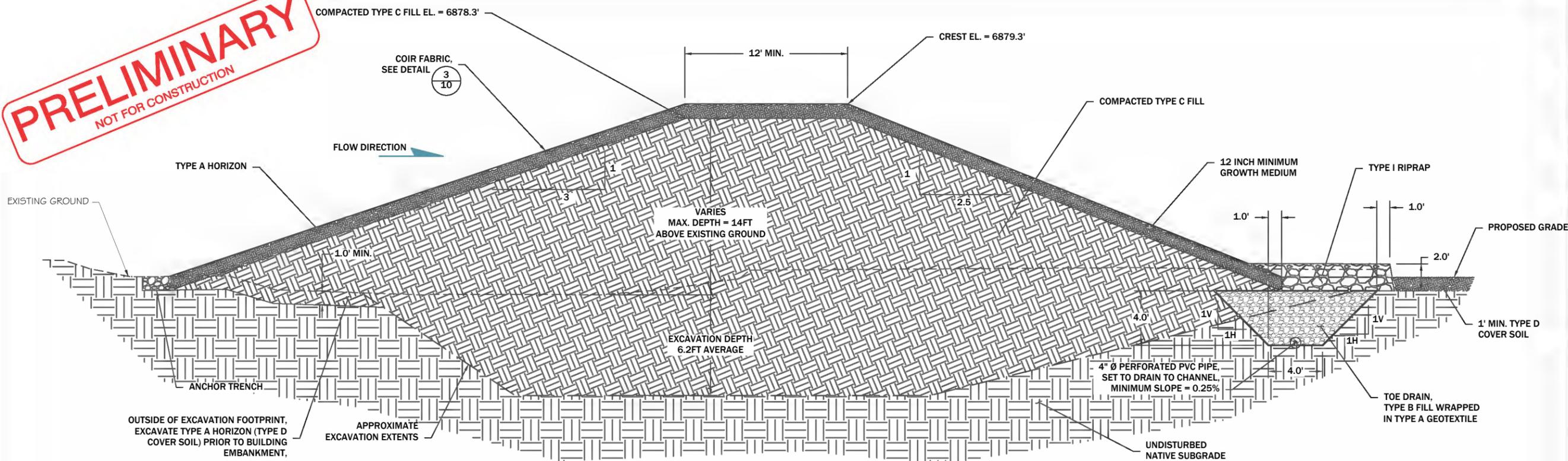


**4** GUARD ANGLE @ TOW  
SCALE: NTS

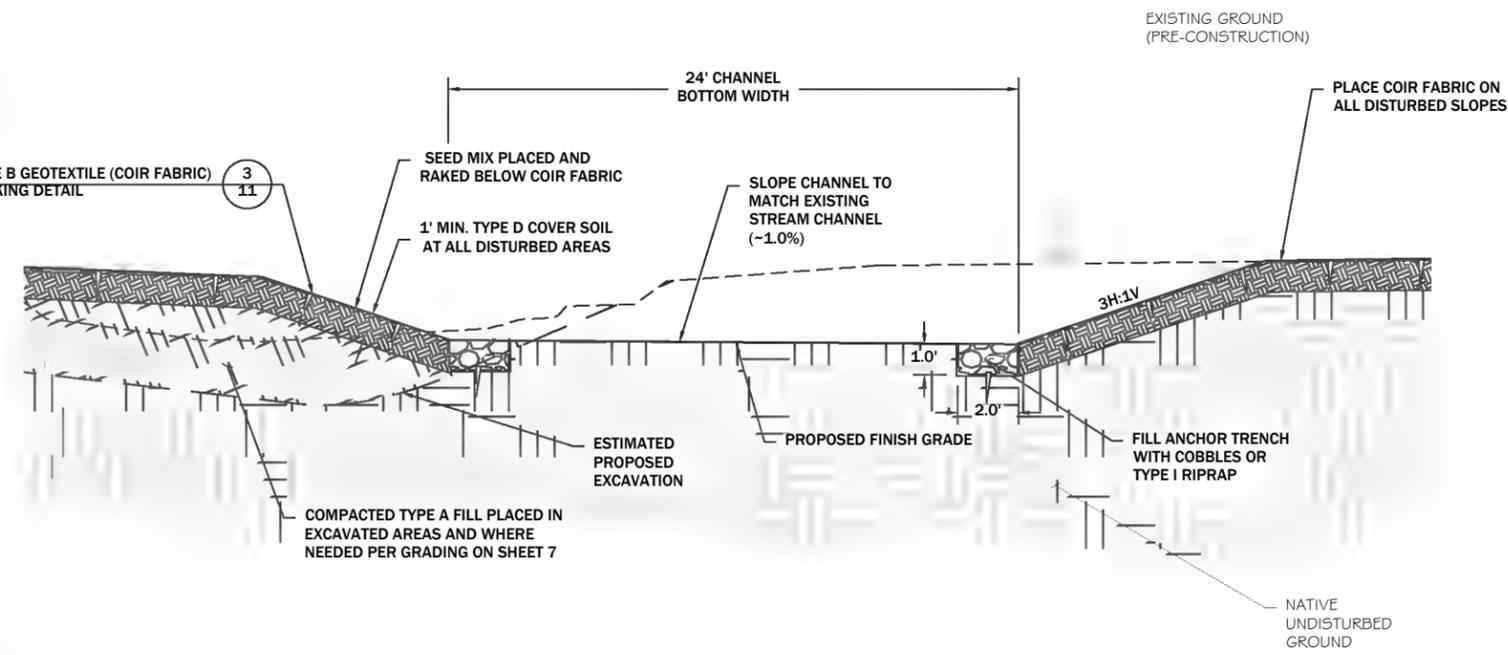


**5** WEST SIDE WALL  
SCALE: NTS

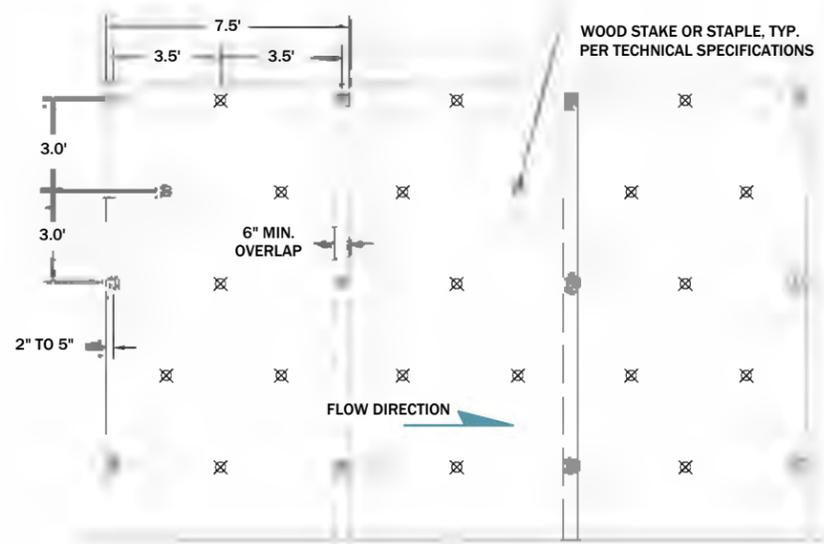
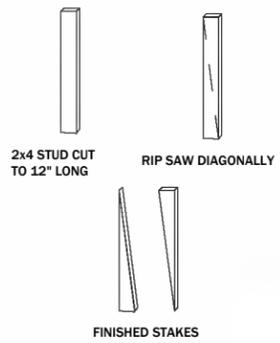
**PRELIMINARY**  
NOT FOR CONSTRUCTION



**1** EMBANKMENT  
**7** TYPICAL SECTION  
SCALE: 1" = 6'



**2** COIR FABRIC AT CHANNEL  
**7** TYPICAL SECTION  
SCALE: 1" = 6'

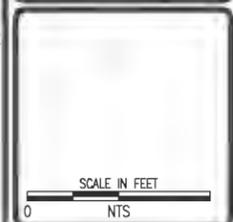


**3** TYPE B GEOTEXTILE (COIR FABRIC)  
**10** STAKING DETAIL  
SCALE: 1" = 6'

REVISION	DATE	BY	DESC

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COORD SYS / ZONE: NA  
DATUM: NA  
UNITS: FEET  
SOURCE: PIONEER

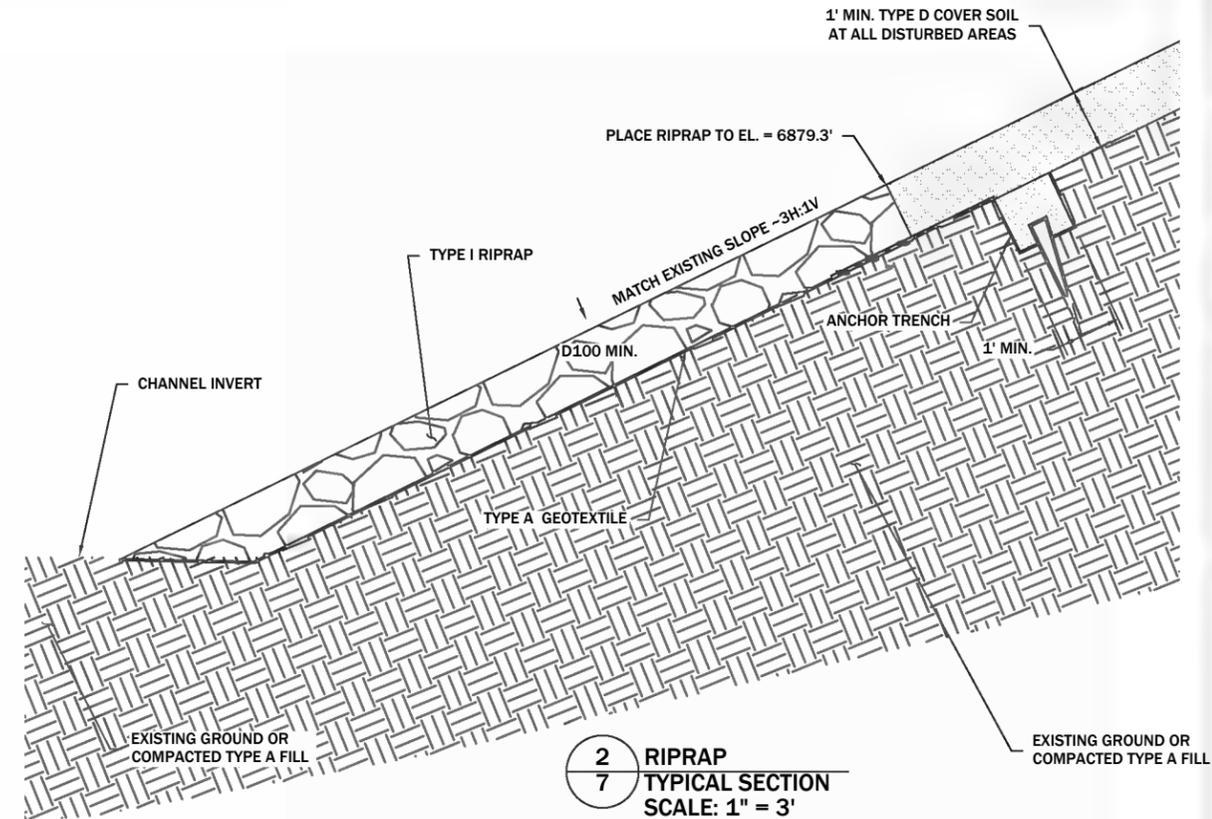
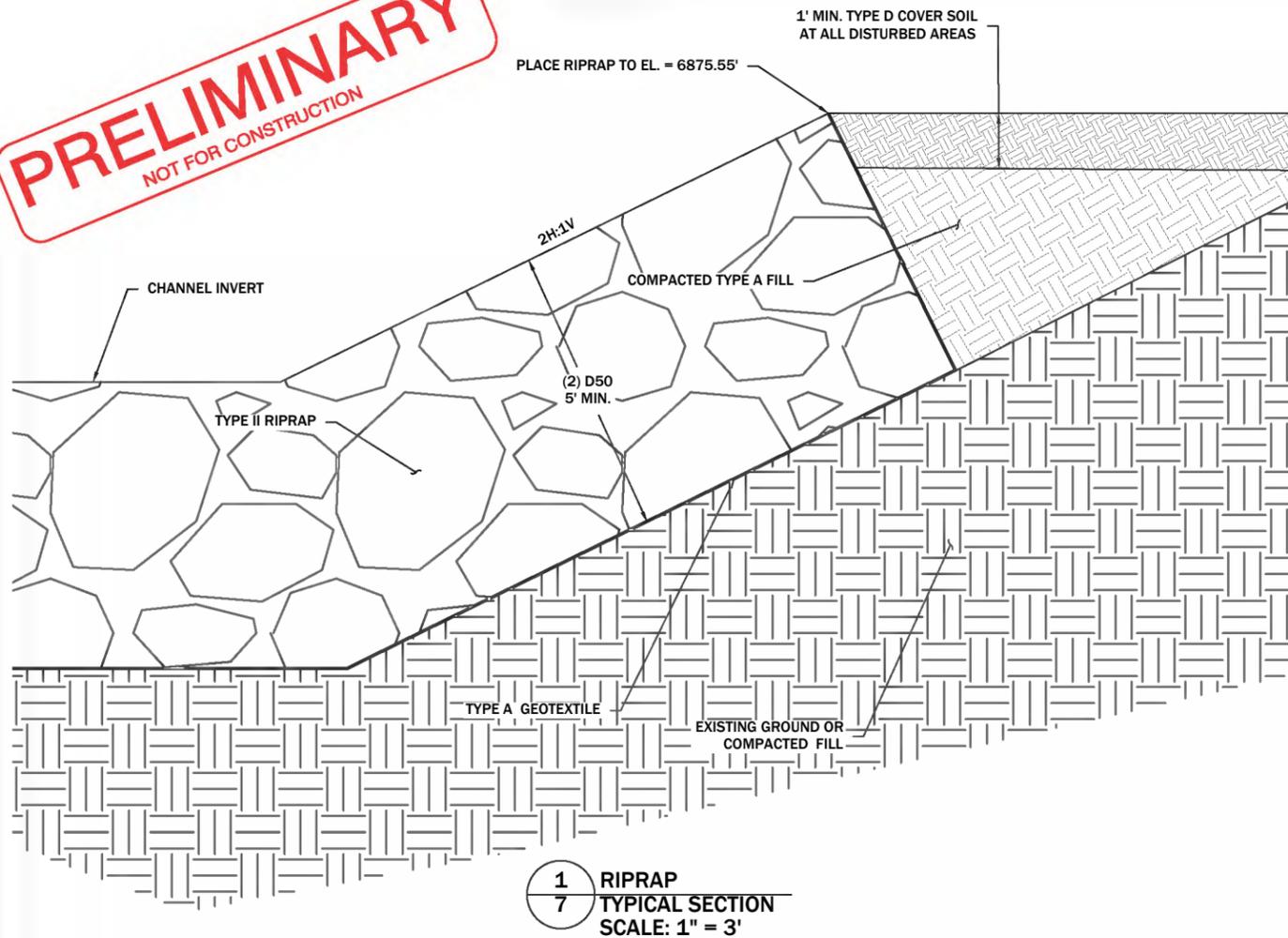


MT FWP  
SELWAY CREEK  
FISH BARRIER

SELWAY CREEK  
FISH BARRIER  
BACKFILL TYPICAL  
SECTIONS & DETAILS

**PIONEER**  
TECHNICAL SERVICES, INC.  
106 PRONGHORN TRAIL SUITE A  
BOZEMAN, MONTANA 59718  
(406) 388-6579

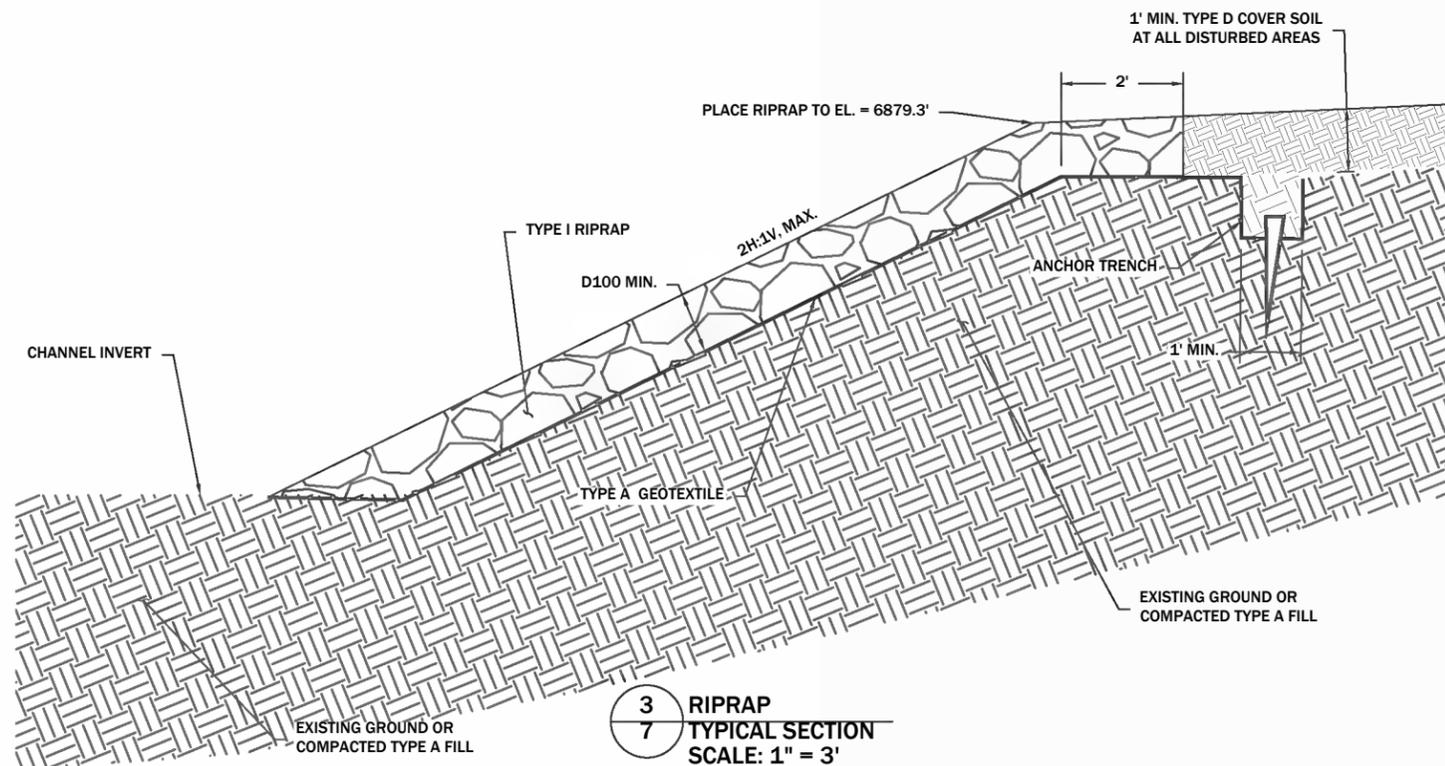
**PRELIMINARY**  
NOT FOR CONSTRUCTION



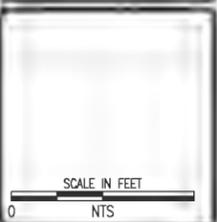
SITE MATERIAL QUANTITY SUMMARY			
	CUT (CY) <sup>2</sup>	FILL (CY) <sup>3</sup>	NET (CY)
TYPE A FILL <sup>4</sup>	4264	4108	155
TYPE C FILL <sup>4</sup>	0	1414	-1414
TYPE B FILL	0	76	-76
TYPE D FILL <sup>5</sup> COVER SOIL	565	427	139
TYPE I RIPRAP	0	80	-80
TYPE II RIPRAP	0	214	-214
CONCRETE	0	208	-208

NOTES:

1. QUANTITIES ARE ENGINEER ESTIMATES. CONTRACTOR IS RESPONSIBLE FOR ESTIMATING BID ITEM QUANTITIES. ACTUAL QUANTITIES MAY VARY FROM THESE ESTIMATED QUANTITIES DEPENDING ON SITE CONDITIONS ENCOUNTERED AT THE TIME THE WORK IS PERFORMED.
2. VOLUMES ARE IN BANK CUBIC YARDS.
3. VOLUMES ARE IN COMPACTED CUBIC YARDS.
4. EXCAVATED MATERIAL MAY BE USED AS TYPE A OR TYPE C FILL IF MATERIAL MEETS THE CRITERIA PER THE TECHNICAL SPECIFICATIONS OR AS APPROVED BY ENGINEER.
5. PLACE MINIMUM 12 INCHES OF A HORIZON (TYPE D FILL - COVER SOIL) ON ANY DISTURBED AREAS THAT WILL NOT BE INUNDATED. EXCESS TYPE D FILL - COVER SOIL MAY BE SPREAD UPSTREAM OF THE BARRIER.



REVISION:	DATE:	BY:	DESC:
DRAWN BY:	JJJ		
DESIGNED BY:	JJJ		
CHECKED BY:	GEA		
APPROVED BY:	GEA		
PROJECT NO.:			
DATE:	04/09/18		
DISPLAYED AS:			
COORD SYS/ZONE:	NA		
DATUM:	NA		
UNITS:	FEET		
SOURCE:	PIONEER		



MT FWP  
SELWAY CREEK  
FISH BARRIER

SELWAY CREEK  
FISH BARRIER  
BACKFILL TYPICAL  
SECTIONS & DETAILS





**File Code:** 2630  
**Route To:**

**Date:** November 30, 2018

**Subject:** Native Westslope Cutthroat Trout (WCT) Restoration in Selway Meadows

**To:** To Whom It May Concern,

The Dillon District of the Beaverhead-Deerlodge National Forest (BDNF) is writing this letter in support of Native Westslope Cutthroat Trout (WCT) Restoration in Selway Meadows.

We believe it's critically important to promote projects that integrate working landscapes with species conservation and recreation. Selway Meadows WCT restoration is a great opportunity to demonstrate benefits of this philosophy.

Selway's accessibility and beauty attract a diverse array of public land users. This, along with BDNF's partnerships will grow positive interest, educational opportunities and encourage positive dialogue around WCT restoration within working landscapes. We are constantly working to broaden support and understanding of the benefits of linking native fish restoration efforts with other Forest objectives. Beyond WCT restoration we expect this project will conserve a declining and largely senescent population of western pearlshell mussel.

Your help in accomplishing native species recovery and conservation in Selway Meadows will go a long way toward demonstrating how integrated opportunities can benefit public land users and broaden acceptance of the diverse work that's needed. We encourage your support for this project and the benefits it can provide in showcasing part of our vision for the BDNF.

Thank you.

A handwritten signature in blue ink, appearing to read 'Scot Shuler'.

SCOT SHULER  
District Ranger

