



All sections must be addressed, or the application will be considered invalid

--

- C. Brief Project Description (attach additional information to end of application). Please include the anticipated construction schedule:

- D. What was the cause of habitat degradation and how will the project correct the cause?

- E. Length of stream or size of lake that will be treated (project extent): _____
 Length/size of impact, if larger than project extent (e.g., stream miles opened): _____
- F. Project Budget Summary:
- | | | |
|------------------------------------------------------------------------------------|----|-------|
| Grant Request (Dollars): | \$ | _____ |
| Matching Dollars: | \$ | _____ |
| Matching In-Kind Services:* | \$ | _____ |
| <i>*salaries of government employees are not considered matching contributions</i> | | |
| Other Contributions (not part of this app) | \$ | _____ |
| Total Project Cost: | \$ | _____ |
- G. Attach itemized (line item) budget – see *budget template*
- H. Attach project location map(s) that include:
- ☐ Extent of the project, including context (relation to major landmark or town)
 - ☐ Indication of public and private property
 - ☐ Riparian buffer locations and widths (if applicable) and grazing locations
- I. Attach project plans:
- ☐ Detailed sketches or plan views with the location and proposed restoration
 - ☐ Pre-project photographs (GPS location strongly recommended)
 - ☐ If water leasing or water salvage is involved, attach a supplemental questionnaire (<https://myfwp.mt.gov/getRepositoryFile?objectID=36110>)
- J. Attach letters or statements of support (e.g., landowner consent, community or public support, and FWP fisheries support). List any other project partners:
-

III. MAINTENANCE AND MONITORING (attach additional information to end of application):

- A. A 20-year maintenance commitment is required*. Please confirm that you will ensure this protection and describe your approach. Attach any relevant maintenance plans. Yes ☐ No ☐
- *If it is a water leasing project, describe the length of the agreement.*

- B. Will grazing be part of or adjacent to the project? If so, describe or attach land management plans, including short term and long term grazing regimes. If the landowner is not the applicant, please describe their involvement in the project. *If you want assistance with grazing plan development, note your need.*

- Will the project be monitored to determine if goals were met? If so, what are the short-term and long-term plans to assess benefits and lessons learned? Were pre-project data collected? Will monitoring information be shared with FWP?

IV. PROJECT BENEFITS (attach additional information to end of application):

- A. What species of fish will benefit from this project?

- B. How will the project protect or enhance wild fish habitat?

- C. What is the expected improvement to fish populations, both short term and long term? How might the project translate to angler success?

- D. Will the project increase public fishing opportunity for wild fish and, if so, how? Is public fishing allowed onsite? If not, describe how the public would access the project benefits.

- E. Aside from angling, what local or large-scale public benefits will be realized from this project?

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

- G. Will the project result in the development of commercial recreational use on the site (including paid access)? Explain:

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

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.

V. 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: Audra Bell Date: _____

Submittal: Applications must be signed and received on or before November 15 and May 15 to be considered for the subsequent funding period. Late or incomplete applications will be rejected.

Mail to: FWP Future Fisheries Fish Habitat Bureau PO Box 200701 Helena, MT 59620-0701	Email: Future Fisheries Coordinator FWPFFIP@mt.gov (electronic submissions must be signed) For files over 10MB, use https://transfer.mt.gov and send to mmcgree@mt.gov
------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

- D. Will the project increase public fishing opportunity for wild fish and, if so, how? Is public fishing allowed onsite? If not, describe how the public would access the project benefits.

Granite Creek bridge allows opportunity for public to access Granite Creek and Alder Gulch. Additionally, the project runs through BLM property in two locations. With the limited access through the bridge and BLM property, many landowners allow for access with permission.

- E. Aside from angling, what local or large-scale public benefits will be realized from this project?

This project is intended to address localized impairments that have raised concerns about public health. RVCD completed soils analysis in the spring of 2022 (Attachment C.) The results are attached with recommendations to over excavate within the channel and place uncontaminated materials in the stream and floodplain. While the project primarily falls on private lands, the landowner has committed to landscape level restoration actions to return the ecosystem to natural state. RVCD hopes to continue education on this project and other similar projects to increase buy in from local landowner. We hope to continue to tackle the impairments that were caused by historic mining.

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

No, this project will have no impact on water & property rights for adjacent landowners.

- G. Will the project result in the development of commercial recreational use on the site (including paid access)? Explain:

No, the project will not result in the development of commercial recreational use.

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

Yes, historically, the Alder Gulch floodplain was turned over by bucket dredge to mine for placer. The mining tailings has drastically impacted the function and connectivity between Alder Gulch and its tributaries. RVCD completed soil analysis to address issues with heavy metals within the project.

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.

V. 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: Gayleen Chaurria Date: 11/15/2023

Submittal: Applications must be signed and received on or before November 15 and May 15 to be considered for the subsequent funding period. Late or incomplete applications will be rejected.

Mail to: FWP Future Fisheries Fish Habitat Bureau PO Box 200701 Helena, MT 59620-0701	Email: Future Fisheries Coordinator FWPFFIP@mt.gov (electronic submissions must be signed) For files over 10MB, use https://transfer.mt.gov and send to mmcgree@mt.gov
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Both tables must be completed or the application will be returned

PROJECT COSTS					CONTRIBUTIONS			
WORK ITEMS (Itemize by Category)	NUMBER OF UNITS	UNIT DESCRIPTION*	COST/UNIT	TOTAL COST	FUTURE FISHERIES REQUEST	MATCH (Cash or Services)**	OTHER (Not part of this application)	TOTAL
Personnel***								
Survey				\$ -				\$ -
Design				\$ -				\$ -
Engineering				\$ -		21,500.00		\$ 21,500.00
Permitting				\$ -				\$ -
Oversight				\$ -				\$ -
Maintenance				\$ -				\$ -
			Sub-Total	\$ -	\$ -	\$ 21,500.00	\$ -	\$ 21,500.00
Travel								
Mileage				\$ -				\$ -
Per diem				\$ -				\$ -
			Sub-Total	\$ -	\$ -	\$ -	\$ -	\$ -
Construction Materials****								
Site Revegetation	1	1	\$36,500.00	\$ 36,500.00	6,500.00	30,000.00		\$ 36,500.00
imported streambed materials	1023	CY	\$115.00	\$ 117,645.00		19,786.40		\$ 19,786.40
topsoil	381	CY	\$86.00	\$ 32,766.00	32,766.00			\$ 32,766.00
facine	1861	LF	\$30.00	\$ 55,830.00	55,830.00			\$ 55,830.00
course wood & willow	1861	LF	\$28.00	\$ 52,108.00	4,904.00			\$ 4,904.00
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
			Sub-Total	\$ 294,849.00	\$ 100,000.00	\$ 49,786.40	\$ -	\$ 149,786.40
Equipment, Labor, and Mobilization								
Mob/demob	1	LS	\$55,000.00	\$ 55,000.00		55,000.00		\$ 55,000.00
survey/staking	1	LS	\$24,500.00	\$ 24,500.00		24,500.00		\$ 24,500.00
soil erosion/ pollution control	1	LS	\$38,500.00	\$ 38,500.00		38,500.00		\$ 38,500.00
dewatering	1	Ls	\$47,161.00	\$ 47,161.00		47,161.00		\$ 47,161.00
channel construction	945	LF	\$205.00	\$ 193,725.00		193,725.00		\$ 193,725.00
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -

				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
				\$ -				\$ -
			Sub-Total	\$ 358,886.00	\$ -	\$ 358,886.00	\$ -	\$ 358,886.00
TOTALS				\$ 653,735.00	\$ 100,000.00	\$ 430,172.40	\$ -	\$ 530,172.40

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). Do not use government salaries as match. Describe here or in text.

***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 may require a justification or minimum of two competitive bids for the cost of undertaking the project. For projects that include a maintenance request, it must not exceed 10% of the total project cost.

****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.

Additional details: The budget is aligned with the second lowest bid. RVCD has not determined whether we will be going out to bid a second time for Schedule B. Additional fundraising efforts will need to occur if RVCD intends to rebid the project. FF funding will primarily be utilized for material acquisition and transport.

APPLICATION MATCHING CONTRIBUTIONS

(do not include requested funds or contributions not associated with the application)

CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
DNRC RDG (Construction oversight and remaining for AG)	\$ -	\$ 158,172.40	\$ 158,172.40	Y
DEQ 319 (AG Implementation)	\$ -	\$ 272,000.00	\$ 272,000.00	Y, Letter received
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
TOTALS	\$ -	\$ 430,172.40	\$ 430,172.40	

OTHER CONTRIBUTIONS

(contributions not associated with the application)

CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
MDT	\$ -	\$ 3,000,000.00	\$ 3,000,000.00	y
DNRC RDG (Granite Creek Implementation)	\$ -	\$ 190,508.90	\$ 190,508.90	y
DNRC RDGP (Planning grant)	\$ -	\$ 40,000.00	\$ 40,000.00	

	\$	-	\$	-	\$	-	
	\$	-	\$	-	\$	-	
	\$	-	\$	-	\$	-	
	\$	-	\$	-	\$	-	
	\$	-	\$	-	\$	-	
	\$	-	\$	-	\$	-	
TOTALS	\$	-	\$	3,230,508.90	\$	3,230,508.90	

Granite Creek Stream Restoration Project and Alder Gulch Stream Restoration (#8506533)

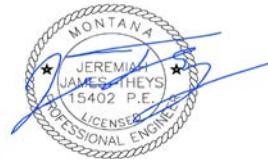
Owner: Ruby Valley Conservation District

Solicitor: Great West Engineering

06/27/2023 10:00 AM MDT

				Engineer Estimate		Olympus Technical Services		Missouri River Contractors		Western Municipal Construction, Inc.		Michels Marine	
Item Code	Item Description	U of M	Quantity	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
Schedule A - Granite Creek Stream Restoration													
101	Mobilization	LS	1	\$27,500.00	\$27,500.00	\$18,800.00	\$18,800.00	\$60,000.00	\$60,000.00	\$183,000.00	\$183,000.00	\$204,767.44	\$204,767.44
102	Construction Survey & Staking	LS	1	\$8,000.00	\$8,000.00	\$11,000.00	\$11,000.00	\$19,900.00	\$19,900.00	\$20,000.00	\$20,000.00	\$59,922.71	\$59,922.71
103	Soil Erosion & Pollution Control	LS	1	\$9,000.00	\$9,000.00	\$7,000.00	\$7,000.00	\$28,500.00	\$28,500.00	\$13,000.00	\$13,000.00	\$6,402.65	\$6,402.65
104	Dewatering	LS	1	\$10,000.00	\$10,000.00	\$11,500.00	\$11,500.00	\$75,000.00	\$75,000.00	\$66,000.00	\$66,000.00	\$141,030.10	\$141,030.10
105	Channel Construction	LF	1145	\$45.00	\$51,525.00	\$49.10	\$56,219.50	\$75.00	\$85,875.00	\$197.00	\$225,565.00	\$83.31	\$95,389.95
106	Overflow Channel Construction	LS	1	\$4,500.00	\$4,500.00	\$3,100.00	\$3,100.00	\$25,650.00	\$25,650.00	\$53,000.00	\$53,000.00	\$66,655.18	\$66,655.18
107	Roadway Erosion Construction	LS	1	\$6,000.00	\$6,000.00	\$17,000.00	\$17,000.00	\$43,800.00	\$43,800.00	\$35,000.00	\$35,000.00	\$188,310.36	\$188,310.36
108	Site Revegetation	LS	1	\$13,000.00	\$13,000.00	\$3,600.00	\$3,600.00	\$38,750.00	\$38,750.00	\$45,000.00	\$45,000.00	\$95,920.00	\$95,920.00
109	Imported Streambed Material	CY	686	\$25.00	\$17,150.00	\$33.00	\$22,638.00	\$115.00	\$78,890.00	\$80.00	\$54,880.00	\$172.41	\$118,273.26
110	Imported Topsoil	CY	596	\$65.00	\$38,740.00	\$45.00	\$26,820.00	\$86.00	\$51,256.00	\$67.00	\$39,932.00	\$116.70	\$69,553.20
111	Fascine	LF	2083	\$15.00	\$31,245.00	\$2.80	\$5,832.40	\$30.00	\$62,490.00	\$27.00	\$56,241.00	\$76.57	\$159,495.31
112	Coarse Wood & Willow Cuttings	LF	2333	\$25.00	\$58,325.00	\$3.00	\$6,999.00	\$28.00	\$65,324.00	\$33.00	\$76,989.00	\$54.22	\$126,495.26
Schedule A - Granite Creek Stream Restoration					\$274,985.00		\$190,508.90		\$635,435.00		\$868,607.00		\$1,332,215.42
Schedule B - Alder Gulch Stream Restoration													
201	Mobilization	LS	1	\$27,200.00	\$27,200.00	\$38,600.00	\$38,600.00	\$55,000.00	\$55,000.00	\$53,000.00	\$53,000.00	\$88,873.55	\$88,873.55
202	Construction Survey & Staking	LS	1	\$6,000.00	\$6,000.00	\$11,000.00	\$11,000.00	\$24,500.00	\$24,500.00	\$13,000.00	\$13,000.00	\$82,459.94	\$82,459.94
203	Soil Erosion & Pollution Control	LS	1	\$7,000.00	\$7,000.00	\$9,500.00	\$9,500.00	\$38,500.00	\$38,500.00	\$7,000.00	\$7,000.00	\$3,612.41	\$3,612.41
204	Dewatering	LS	1	\$8,000.00	\$8,000.00	\$19,900.00	\$19,900.00	\$47,161.00	\$47,161.00	\$33,000.00	\$33,000.00	\$104,258.94	\$104,258.94
205	Channel Construction	LF	945	\$95.00	\$89,775.00	\$252.10	\$238,234.50	\$205.00	\$193,725.00	\$180.00	\$170,100.00	\$1,205.08	\$1,138,800.60
206	Site Revegetation	LS	1	\$9,000.00	\$9,000.00	\$7,800.00	\$7,800.00	\$36,500.00	\$36,500.00	\$30,000.00	\$30,000.00	\$177,747.14	\$177,747.14
207	Imported Streambed Material	CY	1023	\$25.00	\$25,575.00	\$33.00	\$33,759.00	\$115.00	\$117,645.00	\$80.00	\$81,840.00	\$101.37	\$103,701.51
208	Imported Topsoil	CY	381	\$65.00	\$24,765.00	\$45.00	\$17,145.00	\$86.00	\$32,766.00	\$67.00	\$25,527.00	\$116.69	\$44,458.89
209	Fascine	LF	1861	\$15.00	\$27,915.00	\$2.80	\$5,210.80	\$30.00	\$55,830.00	\$27.00	\$50,247.00	\$60.29	\$112,199.69
210	Coarse Wood & Willow Cuttings	LF	1861	\$25.00	\$46,525.00	\$3.00	\$5,583.00	\$28.00	\$52,108.00	\$33.00	\$61,413.00	\$43.74	\$81,400.14
Schedule B - Alder Gulch Stream Restoration					\$271,755.00		\$386,732.30		\$653,735.00		\$525,127.00		\$1,937,512.81
Total Combined Bid:					\$546,740.00		\$577,241.20		\$1,289,170.00		\$1,393,734.00		\$3,269,728.23

I, Jeremiah Theys, PE, hereby certify that this tabulation of bids is a true representation of the bids received on June 27, 2023.

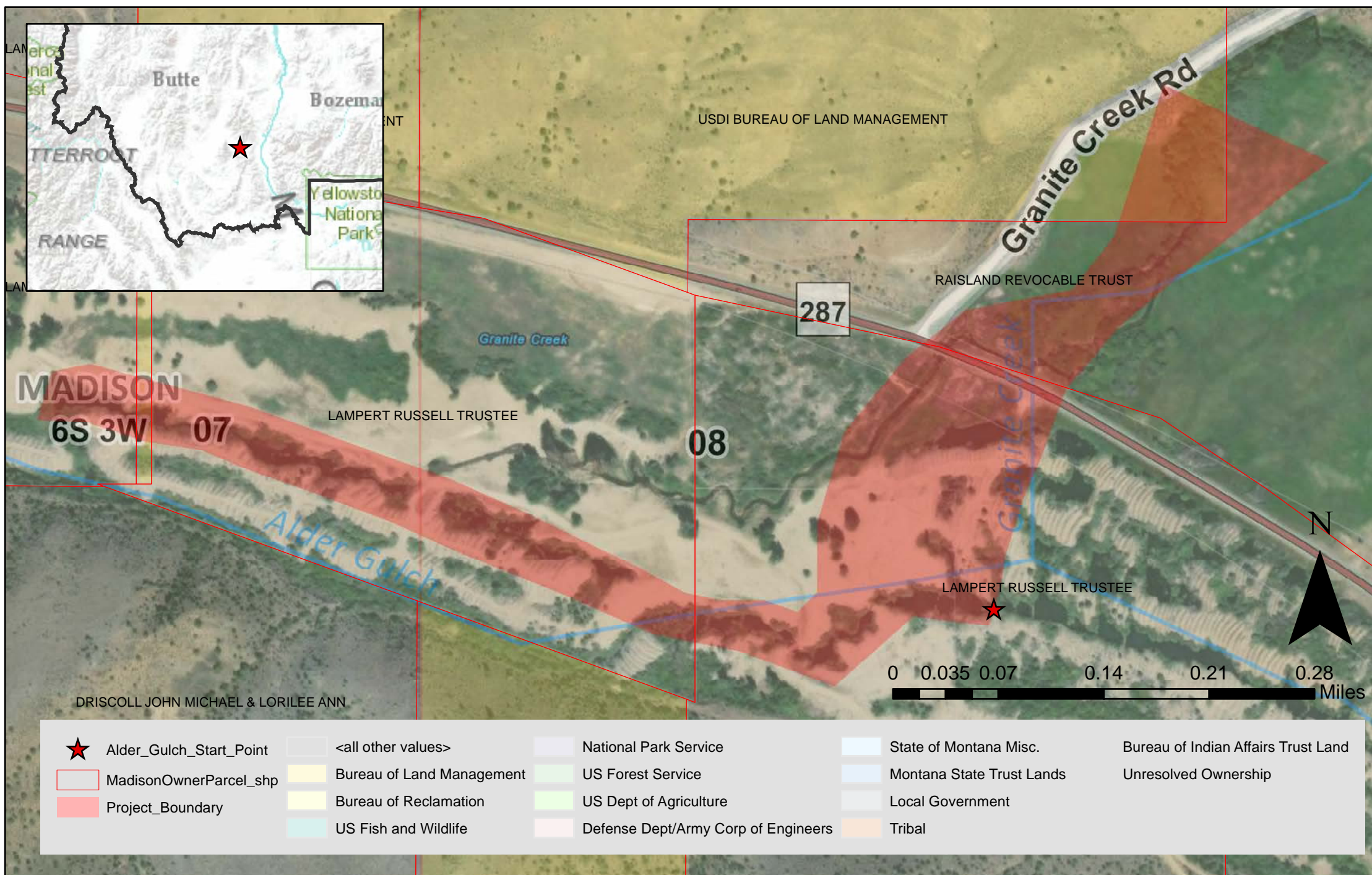


Alder Gulch and Granite Creek Project Map

45.323024, -112.001245

Landowners: Granite Creek Ranch and Raisland Revocable

** Old cadastral layer, Lampert Russell land is now a mix of Raisland and Granite Creek Ranch**



Ruby Valley Conservation District's
Granite Creek Restoration Project

Pictures

Upper Alder Gulch Restoration Project

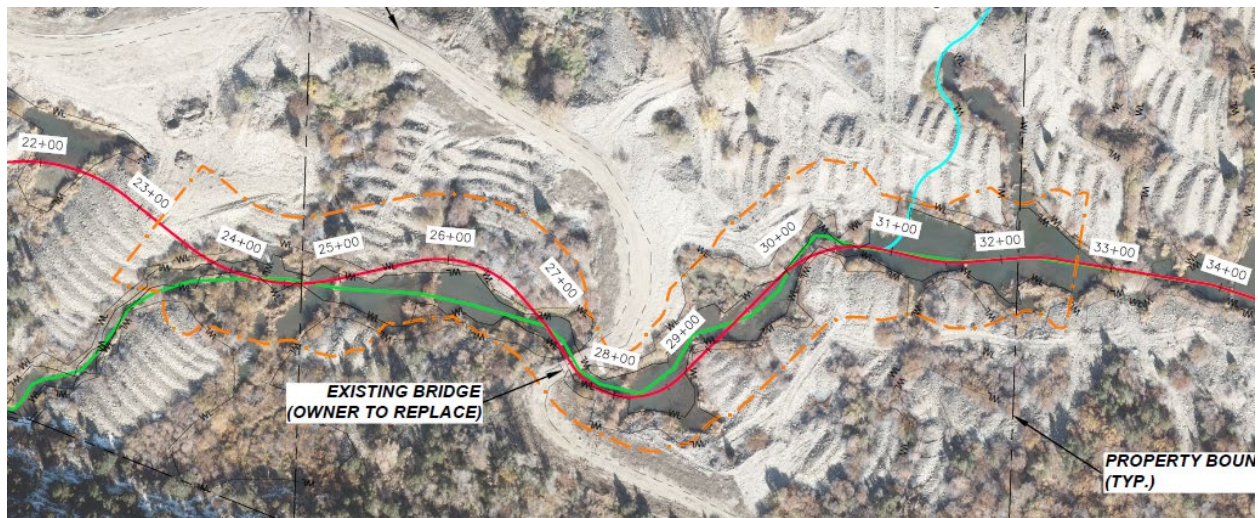
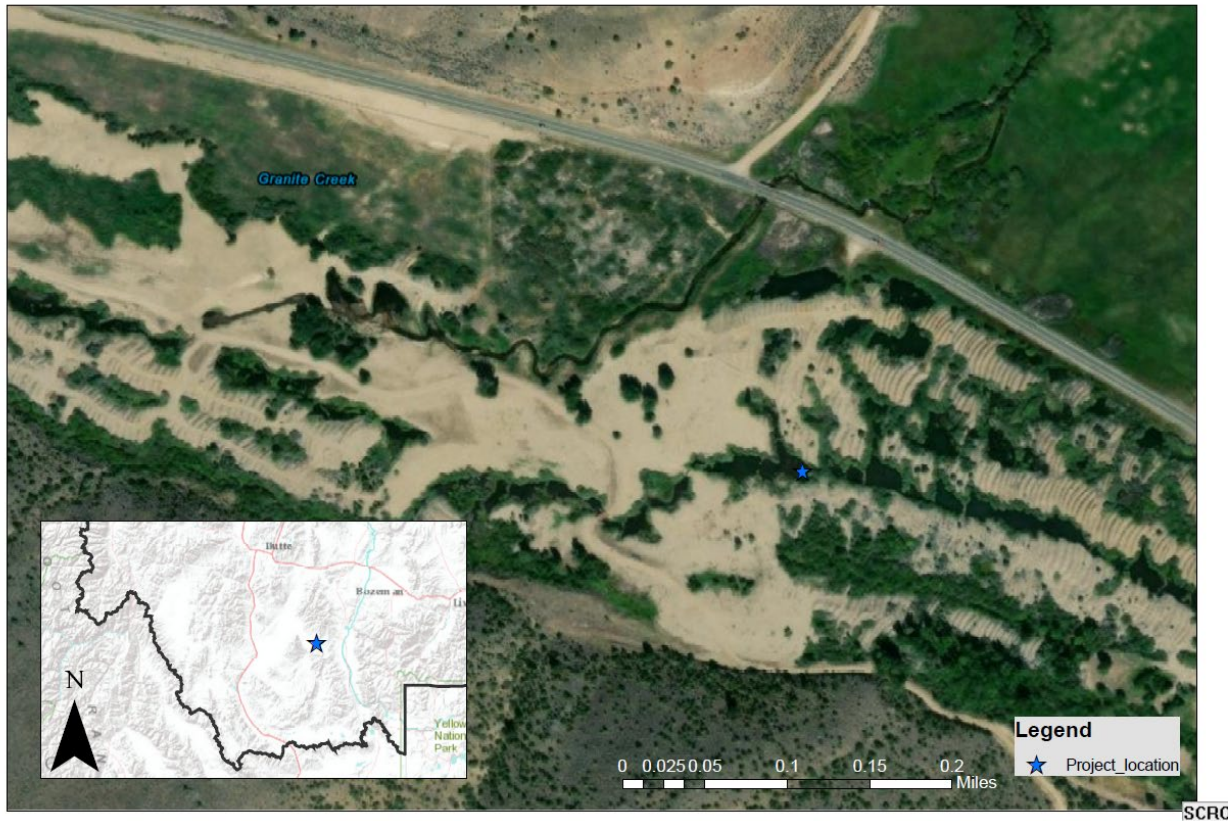


Image 1 & 2 . Aerial View of Alder Gulch Restoration and project bounds.



Image 3 & 4 Historical Images of Alder Gulch



Image 5. Upstream of Confluence; Start of Project Reach.



Image 6. Near the proposed confluence location, Looking Upstream.



Image 7. Looking downstream from proposed confluence location.



Image 8. Current confluence of Granite Creek and Alder Gulch. The culverts were installed for road stabilization for construction equipment.



Image 9. Example of current channel conditions.



Image 10. Approximately ST 23 + 50. Location where new excavated channel will be installed.

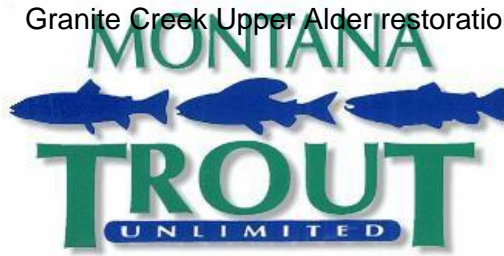


Image 11. Approximately ST 23 +50 looking upstream. Notice surface water filtering through to gravel to return on the other side of the tailings pile.



Image 12. Tailing Piles being worked for the Granite Creek Project.

Project Schedule												
Project Elements	2023				2024				2025			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Project Planning												
Project Permitting												
Schedule A (DNRC Funded)												
Schedule B (DNRC & DEQ, RVCD SEEKING FF FUNDS)												
Fish Barrier (DNRC Funded)												
Private Project (Privately Funded)												



November 14, 2023

Montana Trout Unlimited
PO Box 7186
Missoula, MT. 59807

Future Fisheries Improvement Program
FWP Fisheries Division
P.O. Box 200701
Helena, MT 59620

RE: Support for Ruby Valley Conservation District

Dear Future Fisheries Improvement Program Citizen Review Panel,

Montana Trout Unlimited is pleased to support the Ruby Valley Conservation District's (RVCD) Future Fisheries Improvement Plan proposal to improve habitat and stream function on the long-beleaguered Alder Gulch near Virginia City. Impacts from legacy mining have degraded Alder Gulch, its tributaries, including Granite Creek, and the fishery for over a century and a half.

With more than 5,000 members and friends, including local membership in the Chuck Robbins Chapter of Trout Unlimited, Montana Trout Unlimited (MTU) is the only statewide organization whose primary focus is on fisheries management, impacts, and recovery. MTU's mission is to conserve, protect, and restore Montana's world-class fisheries and their watersheds. This project, brought forward by our longtime partners, the RVCD, fulfills our mission.

The Alder Gulch Restoration Project has several beneficial attributes to improve this headwater tributary and downstream to the Ruby River. The area was heavily placer mined in the gold rush era of the mid-to late-19th century, which resulted in an accumulation of heavy metals and disrupted stream function to the point that the stream is unable to repair itself without significant restoration. Removing these pollutants and importing clean materials is a key component of this restoration. The project aims to restore fluvial processes by improving connectivity between current surface and subsurface flows, restoring the Granite Creek confluence with Alder Gulch, allowing for adequate sediment movement and deposition, and increasing floodplain functions and water storage in fluvial aquifers. These enhancements will improve water quality, fish passage, and riparian and instream habitat.

Please contact me with any questions you may have about our support.

Chris Edgington
Jefferson Watershed Project Manager
Montana Trout Unlimited
chris@montanatu.org



GRANITE CREEK RANCH

P.O. Box 143 Virginia City, MT 59755
1680 NE 135th Street
Miami, FL 33181
Office: (305) 892-8699 • Cell: (305) 753-3919

August 11, 2021

Via U.S. Mail:

Department Natural Resource and Conservation
Conservation and Resource Development Division
P.O. Box 201601
Helena, MT 59620-1601

Re: Letter of Commitment for the RDGP Application

Dear Grant Selection Panel,

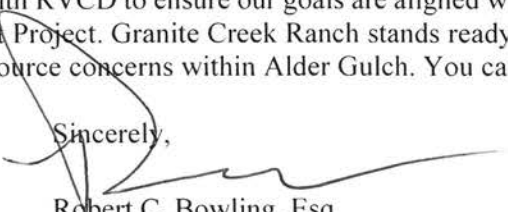
I am writing to express Granite Creek Ranch's (GCR) support for the Ruby Valley Conservation District's RDGP grant application to develop the Granite Creek Realignment Design Project in Madison County.

Since 2017, We have supported Ruby Valley Conservation District's (RVCD) efforts to plan and finance the Granite Creek Reclamation and Realignment Project. In June 2021, the construction and reclamation work were funded through House Bill 14. The final design documents are the final necessity of this long-awaited project. RVCD is requesting additional financial support for completing final plans through the RDGP program. Granite Creek Ranch will provide the funding for all tasks outlined in Task 3 of the proposal submitted by RVCD to the RDGP Grant Program.
Granite Creek Ranch Match Contribution:

- Task 3: Lower Alder Gulch Restoration
 - Task 3.1 Sediment Removal Areas
 - Task 3.2 Wetland Delineation
 - Task 3.3 Site Survey and Geomorphic Assessment
 - Task 3.4 30% Design
 - Task 3.5 Final Design

GCR is excited to support this proposal from RVCD by leveraging \$22,900 for the continuation of this project. We will work collaboratively with RVCD to ensure our goals are aligned with the goals of the Granite Creek Reclamation and Realignment Project. Granite Creek Ranch stands ready and is committed to finding a long-term solution to natural resource concerns within Alder Gulch. You can count on us.

Sincerely,


Robert C. Bowling, Esq.
Managing Partner

GRANITE CREEK RESTORATION AND REALIGNMENT PROJECT

LANDOWNER AGREEMENT

This agreement dated **February 16th, 2022** between the Ruby Valley Conservation District (RVCD) and Central City LLC (Robert Bowling). Central City LLC is entered to authorize repairs on the Granite Creek Reclamation and Realignment Project along Granite Creek and Alder Gulch. This restoration and reclamation project is in Township 06 S, Range 03 W, Section 08. Planning work performed will be as outlined in Attachment A: Scope of Work in the Montana Department of Natural Resource and Conservation (DNRC) Contract No. RITP-22-0178 between the DNRC and RVCD. Future restoration work will be funded through the DNRC Contract No: RIT-22-8901 following the final design plan resulting from Attachment B: Request for Bids Narrative.

This project is intended to reconnect Granite Creek to the Alder Gulch channel to improve the sediment transport through this system. Additionally, RVCD is collaborating with the Montana Department of Transportation to realign Granite Creek with a new bridge along Highway 287 to improve the safety of vehicle traffic through this corridor. The landowner agrees to protect and maintain the investment of this project for a minimum of 10 years. Assisting landowners with infrastructure on their property to manage streambank stabilization, sediment transport and floodplain connectivity contribute to the goals of the Reclamation and Development program. This agreement will expire on **February 16th, 2032**.

Notwithstanding the foregoing, it shall not be the landowner's responsibility to repair or replace project improvements should they be damaged, changed or destroyed by circumstances outside of the landowner's control; such as, but not limited to, natural means and damage by other individuals not under the control and supervision of the landowner. The landowner guarantees ownership of the above-described land and warrants that there are no outstanding rights that will interfere with this cooperative agreement. Further, if the land ownership is transferred, this agreement will remain valid for the period of this agreement.

This agreement may be terminated in writing by either party by providing thirty (30) days advance notice. If terminated by the landowner or the restoration site is degraded due to purposeful activities of the private landowner, the private property owner agrees at the property owner's sole discretion, to either

1. Reimburse Ruby Valley Conservation District for the cost of repair, or,
2. Reimburse Ruby Valley Conservation District for the "remaining value" of the project. The "remaining value" is defined as the original cost of the material and labor paid for by Ruby Valley Conservation District for the project construction only, less the loss of value of grazing to the landowner and any material or labor that the property owner provides. This net value of the project will then be divided by the term (20 years). If, for example, there are ten (10) years remaining, then $\frac{1}{2}$ of the net value will be the "remaining value".

Ruby Valley Conservation District does not assume jurisdiction over private property as a result of this agreement. The private property owner retains all normal property rights including the right to control trespass. The landowner agrees to allow RVCD, its employees, agents and contractors access to the site for purposes contemplated in this Agreement. By entering into this agreement the landowner is not required to provide public access to the restoration project area, above and beyond any existing legal requirements.

By: Gary Gien
RVCD Chairman

Date

3/9/22

By: Robert Bowling
Central City LLC

Date

3/11/22

GRANITE CREEK RESTORATION AND REALIGNMENT PROJECT**LANDOWNER AGREEMENT**

This agreement dated March 2nd, 2022 between the Ruby Valley Conservation District (RVCD) and Raisland Revocable LLC, (Barbra Raisland). Raisland Revocable LLC is entered to authorize repairs on the Granite Creek Reclamation and Realignment Project along Granite Creek and Alder Gulch. This restoration and reclamation project is in Township 06 S, Range 03 W, Section 08. Planning work performed will be as outlined in Attachment A: Scope of Services provided by Great West Engineering and funded through the Montana Department of Natural Resource and Conservation (DNRC) Contract No. RITP-22-0178 between the DNRC and RVCD. Future restoration work will be funded through the DNRC Contract No: RIT-22-8901 following two design plans: one dated on January 10th, 2020 (Attachment B) and a new alignment derived from planning efforts outlined in Attachment A.

This project is intended to reconnect Granite Creek to the Alder Gulch channel to improve the sediment transport through this system. Additionally, RVCD is collaborating with the Montana Department of Transportation to realign Granite Creek with a new bridge along Highway 287 to improve the safety of vehicle traffic through this corridor. The landowner agrees to protect and maintain the investment of this project for a minimum of 20 years. Assisting landowners with infrastructure on their property to manage streambank stabilization, sediment transport and floodplain connectivity contribute to the goals of the Reclamation and Development program. This agreement will expire on **March 2nd, 2042**.

Notwithstanding the foregoing, it shall not be the landowner's responsibility to repair or replace project improvements should they be damaged, changed or destroyed by circumstances outside of the landowner's control; such as, but not limited to, natural means and damage by other individuals not under the control and supervision of the landowner. The landowner guarantees ownership of the above-described land and warrants that there are no outstanding rights that will interfere with this cooperative agreement. Further, if the land ownership is transferred, this agreement will remain valid for the period of this agreement.

This agreement may be terminated in writing by either party by providing thirty (30) days advance notice. If terminated by the landowner or the restoration site is degraded due to purposeful activities of the private landowner, the private property owner agrees at the property owner's sole discretion, to either

1. Reimburse Ruby Valley Conservation District for the cost of repair, or,
2. Reimburse Ruby Valley Conservation District for the "remaining value" of the project. The "remaining value" is defined as the original cost of the material and labor paid for by Ruby Valley Conservation District for the project construction only, less the loss of value of grazing to the landowner and any material or labor that the property owner provides. This net value of the project will then be divided by the term (20 years). If, for example, there are ten (10) years remaining, then $\frac{1}{2}$ of the net value will be the "remaining value".

Ruby Valley Conservation District does not assume jurisdiction over private property as a result of this agreement. The private property owner retains all normal property rights including the right to control trespass. The landowner agrees to allow RVCD, its employees, agents and contractors access to the site for purposes contemplated in this Agreement. By entering into this agreement the landowner is not required to provide public access to the restoration project area, above and beyond any existing legal requirements.

By: _____

Gary Gien

RVCD Chairman

Date

By: _____

Barbra Raisland

Private Landowner

Date

FWP.MT.GOVTHE **OUTSIDE** IS IN US ALL.

Montana Fish, Wildlife & Parks
Region 3 Headquarters
1400 South 19th Street
Bozeman, MT 59718

November 15, 2023

Montana Fish, Wildlife & Parks
Future Fisheries Improvement Program
1420 E. Sixth Ave.
PO Box 200701
Helena, MT 59620-0701

Dear Future Fisheries Improvement (FFIP) panel,

Montana Fish, Wildlife & Parks (FWP) strongly supports the Ruby Valley Conservation District FFIP application to improve the Granite Creek Highway 287 crossing in a manner that improves channel function, prevents metals contamination, and protects upstream native Westslope cutthroat trout.

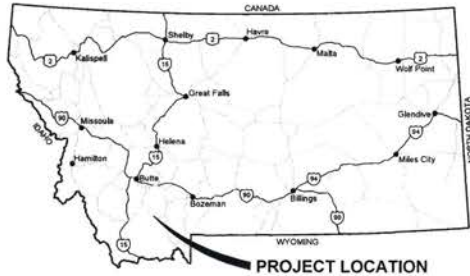
Matt Jaeger has been to the Granite Creek bridge site often the past few years and FWP has issued several Stream Protection Act permits to provide short-term, "band-aid" solutions to alleviate aggradation and stream channel changes that have degraded aquatic habitat, threaten the bridge, and cause road safety issues. These problems are ultimately the result of downstream dredge piles that have severed the historic confluence of Granite and Alder Gulch creeks. As part of a stakeholder group convened to assess and implement long-term solutions, FWP is strongly supportive of the Ruby Valley Conservation District and Watershed Council proposal to improve the safety of Hwy 287 at Granite Creek and its confluence with Alder Creek. Specifically, the proposed approach will maximize aquatic and riparian habitat benefits by improving sediment transport and floodplain connectivity. This approach will provide direct fisheries connectivity between Granite and Alder Gulch creeks in addition to significantly improving spawning, rearing, and adult trout habitat. Because the project occurs at a road crossing there will be direct public access to the fishery that will benefit from proposed project. The larger project also anticipates and ameliorates potential adverse effects of improved connectivity by constructing a fish barrier in the upper reaches of Granite Creek to protect a native Westslope cutthroat trout population that is presently being replaced by brook trout.

FWP is committed to ensuring a successful outcome to this problem and believes the aforementioned proposal is an essential part of achieving one. Please don't hesitate to contact Matt Jaeger (mattjaeger@mt.gov) if you have further questions. Thank you for the opportunity to comment on the Granite Creek FFIP project and your continuing dedication to restoring and conserving Montana resources.

Sincerely,

Warren Hansen
Acting Region 3 Supervisor

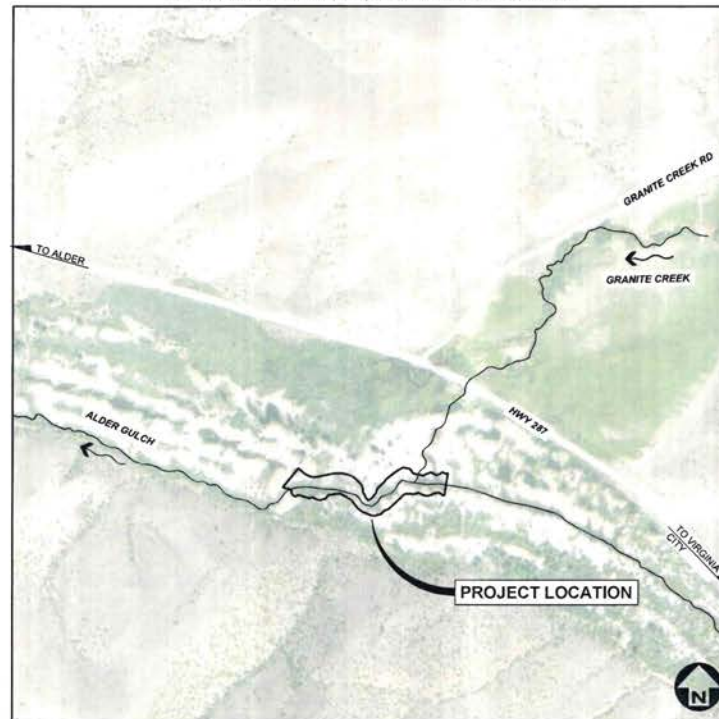
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RUBY VALLEY CONSERVATION DISTRICT UPPER ALDER GULCH RESTORATION

PERMITTING PLANS

SECTION 8, TOWNSHIP 6 SOUTH, AND RANGE 3 WEST
LATITUDE: 45.323106° NORTH, LONGITUDE: 112.001881° WEST



NOT TO SCALE

SHEET INDEX

PROJECT: 1-22124
DATE: 11/7/2022

SHEET 1	COVER
SHEET 2	LEGEND AND GENERAL NOTES
SHEET 3	EXISTING SITE MAP
SHEET 4	ALDER GULCH PLAN & PROFILE
SHEET 5	TYPICAL CHANNEL DETAILS
SHEET 6	ALDER GULCH CROSS SECTIONS

PLANS PREPARED FOR:
RUBY VALLEY CONSERVATION DISTRICT



APPROVED BY:

JEREMIAH THEYS, P.E.
GREAT WEST ENGINEERING



QA/QC BY:

JUSTIN EVERTZ, P.E.
GREAT WEST ENGINEERING



PLANS PREPARED BY:

MEAGAN KEY, EI



2501 BELT VIEW DRIVE
HELENA, MT 59601
(406)449-8627

NO.	REVISION DESCRIPTION	BY	DATE	SET NO.
1				
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				SHEET NO.
				1

ABBREVIATIONS

Δ	ANGLE OF DEFLECTION, DELTA ANGLE	LPG	LIQUID PROPANE GAS
ΔPT	ANGLE POINT	LT	LEFT
AB	ANCHOR BOLT	MAX	MAXIMUM
ASDN	ASBESTOS	MD	MEASURE DOWN
AC	ADDITIONAL	MFD	MANUFACTURED
ADJ	ADJACENT	MFR	MANUFACTURE, MANUFACTURER
ALT	ALTERNATE	MH	MANHOLE
AFIT	ABOVE FINISHED FLOOR	MIMM	MINIMUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MISC	MISCELLANEOUS
APPROX	APPROXIMATE	MJ	MECHANICAL JOINT
ARCH	ARCHITECTURE, ARCHITECTURAL	MOV	MOTOR OPERATED VALVE
ASPH	ASPHALT	MPSS	MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS
AVE	AVENUE	N	NORTH
AVG	AVERAGE	NE	NORTHEAST
BFV	BUTTERFLY VALVE	NG	NATURAL GAS
BUD	BUILDING	NO	NOT IN CONTRACT
BLK	BLOCK	NOM	NOMINAL
BLVD	BOULEVARD	NOT TO SCALE	
BM	REAL BENCHMARK	NTS	NORTHWEST
BOT	BOTTOM	OC	ON CENTER
BRG	BEARING	OF	OUTSIDE DIAMETER
BRKT	BRACKET	OH	OVERFLOW
BVC	BEGIN VERTICAL CURVE	OHP	OVERHEAD
C-C	CENTER TO CENTER	OHT	OVERHEAD TELEPHONE
CHAN	CHANNEL	OPNG	OPENING
CHK	CHECK	PC	POINT OF CURVATURE
CI	CAST IRON	PCD	POINT OF COMPOUND CURVATURE
CIP	CAST-IN-PLACE CONCRETE	PE	PLAIN END, POLYETHYLENE
CIRC	CIRCULAR	PERP	PERPENDICULAR
CJ	CONSTRUCTION JOINT, CONTROL JOINT	P	POINT OF INTERSECTION
C	CENTER LINE	R	RADIUS
CLR	CLEAR, CLEARANCE	RAD	RADIUS
CMP	COMPLICATED METAL PIPE	RC	REINFORCED CONCRETE
CMU	CONCRETE MASONRY UNITS	RCP	REINFORCED CONCRETE PIPE
CO	CLEANOUT	RD	ROAD
COL	COLUMN	ROGR	REDUCER
CONC	CONCRETE	REBAR	REINFORCEMENT BAR
CONSTR	CONSTRUCTION	REF	REFERENCE
CONT	CONTINUE, CONTINUED, CONTINUOUS	REIN	REINFORCE
CONTR	CONTRACTOR	RECO	REQUIRED
COORD	COORDINATE	RR	RAILROAD
CP	CONTROL PANEL, CONTROL POINT	RST	REINFORCING STEEL
CPLG	Coupling	RT	RIGHT
CTR	CENTER	R/W	RIGHT-OF-WAY
CTV	CABLE TELEVISION	S	SOUTH, SANITARY SEWER
CJ	CUBIC, COPPER	SAN	SANITARY
CF	CUBIC FEET	SCH	SCHEDULE
CULV	CULVERT	SD	STORM DRAIN
CT	CUBIC YARD	SDWK	SIDEWALK
DET	DETAIL	SE	SOUTHEAST
DI	DUCTILE IRON, DRAIN INLET	SECT	SECTION
DIA.	DIAMETER	SF	SQUARE FOOT
DIA. 6	DIAGONAL	SH	SHEET
DM	DIMENSION	SHL	SIMILAR
DR	DRIVE	SLP	SLOPE
DWG	DRAWING	SPC	SPECIFICATION
E	EAST	SO	SQUARE
EA	EACH	SSL	STAINLESS STEEL
ELEV	ELEVATION	STA	STATION
ELB	ELBOW	STD	STANDARD
ELEC	ELECTRIC, ELECTRICAL	ST	STREET
ENCL	ENCLOSURE	STL	STEEL
ENGR	ENGINEER	STRUCT	STRUCTURE
EOP	EDGE OF PAVEMENT	SW	SOUTHWEST
EQ	EQUAL, EQUALLY	SYM	SYMMETRICAL
EQ SP	EQUALLY SPACED	TB	THURST BLOCK
EQUIV	EQUIVALENT	TBC	TOP BACK OF CURB
EVC	END VERTICAL CURVE	TBN	TEMPORARY BENCH MARK
EW	EACH WAY	TEL	TELEPHONE
EXC	EXCAVATE	TEMP	TEMPORARY
EXP	EXPANSION	THRU	THROUGH
EXP JT	EXPANSION JOINT	TYP	TYPICAL
EXST	EXISTING	UG	UNDERGROUND
FCV	FLOW CONTROL VALVE	UGP	UNDERGROUND POWER
FD	FLOOR DRAIN	UCT	UNDERGROUND TELEPHONE
FDN	FOUNDATION	UTL	UTILITY
FES	FLARED END SECTION	V	VALVE, VOLT
FET	FLARED END TERMINAL	VB	VALVE BOX
FG	FINISH GRADE	VERT	VERTICAL
FHD	FIRE HYDRANT	VOL	VOLUME
FJ	FLANGE JOINT	W	WEST, WATER
FL	FLOW LINE	WTR	WATER
FLX	FLEXIBLE	WO	WOOD
FM	FOOT, FEET	WTH	WITHOUT
FT	FOOT, FEET	WL	WETLAND
FD	FIBER OPTIC	WM	WIRE MESH, WATER METER
FTG	FOOTING, FITTING	WSP	WATERSTOP, WATER SURFACE, WATER SERVICE
G	NATURAL GAS	WT	WEIGHT
GA	GAGE, GAUGE	WV	WATER VALVE
GAL	GALLON	WNF	WELODED WIRE FABRIC
GALV	GALVANIZED	WNM	WELODED WIRE MESH
GND	GROUND	XFR	TRANSFORMER
GRA	GRAVEL	X-ING	CROSSING
HB	HOSE BIB	XS	CROSS SECTION
HDPE	HIGH DENSITY POLYETHYLENE	YD	YARD
HDR, HORIZ	HORIZONTAL		
Hwy	HIGHWAY		
HYD	HYDRANT		
ID	INSIDE DIAMETER		
IE	INVERT ELEVATION		
IN	INCH		
INV	INVERT		
JB	JUNCTION BOX		
JT	JOINT		
K	RATE OF VERTICAL CURVATURE		
LBS	POUNDS		
LF	LINEAR FEET		
LN	LANE		

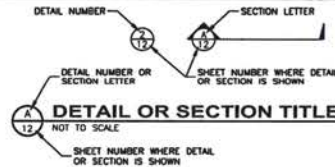
LEGEND

EXISTING	PROPOSED	DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION
		MAJOR CONTOUR			STUMP
		MINOR CONTOUR			SHRUB/BUSH
		OVERHEAD TELEPHONE			TREE-CONFIR
		UNDERGROUND TELEPHONE			TREE-DECIDUOUS
		CABLE TELEVISION			TREE LINE
		FIBER OPTIC			COMMUNICATION MANHOLE
		NATURAL GAS			COMMUNICATION VAULT
		OVERHEAD POWER			TELEPHONE RISER
		UNDERGROUND POWER			CABLE TV RISER
		SANITARY SEWER			NATURAL GAS METER
		SANITARY SEWER SERVICE			NATURAL GAS RISER
		SANITARY SEWER FORCE MAIN			NATURAL GAS VALVE
		STORM DRAIN			LIGHT POLE
		STORM CULVERT			STREET LIGHT POLE
		WATER			POWER RISER
		WATER SERVICE			PAD MOUNTED TRANSFORMER
		CHAINLINK FENCE			POWER VAULT
		BARBED WIRE FENCE			UTILITY POLE
		WOOD FENCE			GUY WIRE
		PAVED ROAD			SANITARY MANHOLE
		GRAVEL ROAD			SANITARY CLEANOUT
		PROPERTY/LOT LINE			SANITARY LAMP POLE
		PROPERTY EASEMENT			STORM MANHOLE
		PROPERTY SETBACK			STORM ROUND INLET
		RIGHT-OF-WAY			STORM SQUARE INLET
		CITY LIMIT/DISTRICT BOUNDARY			STORM CATCH BASIN
		RAILROAD			11.25' ELBOW
		WETLAND			22.50' ELBOW
		DITCH			45' ELBOW
		WATER EDGE			90' ELBOW
		BUILDING			TEE
		BENCHMARK			CAP
		CONTROL POINT			FIRE HYDRANT
		PROPERTY PIN			GATE VALVE
		BORING			REDUCER
		MONITORING WELL			WATER METER
		TEST PIT			WELL
		BOLLARD			CURB STOP
		MAIL BOX			FROST FREE HYDRANT
		SIGN			

GENERAL NOTES:

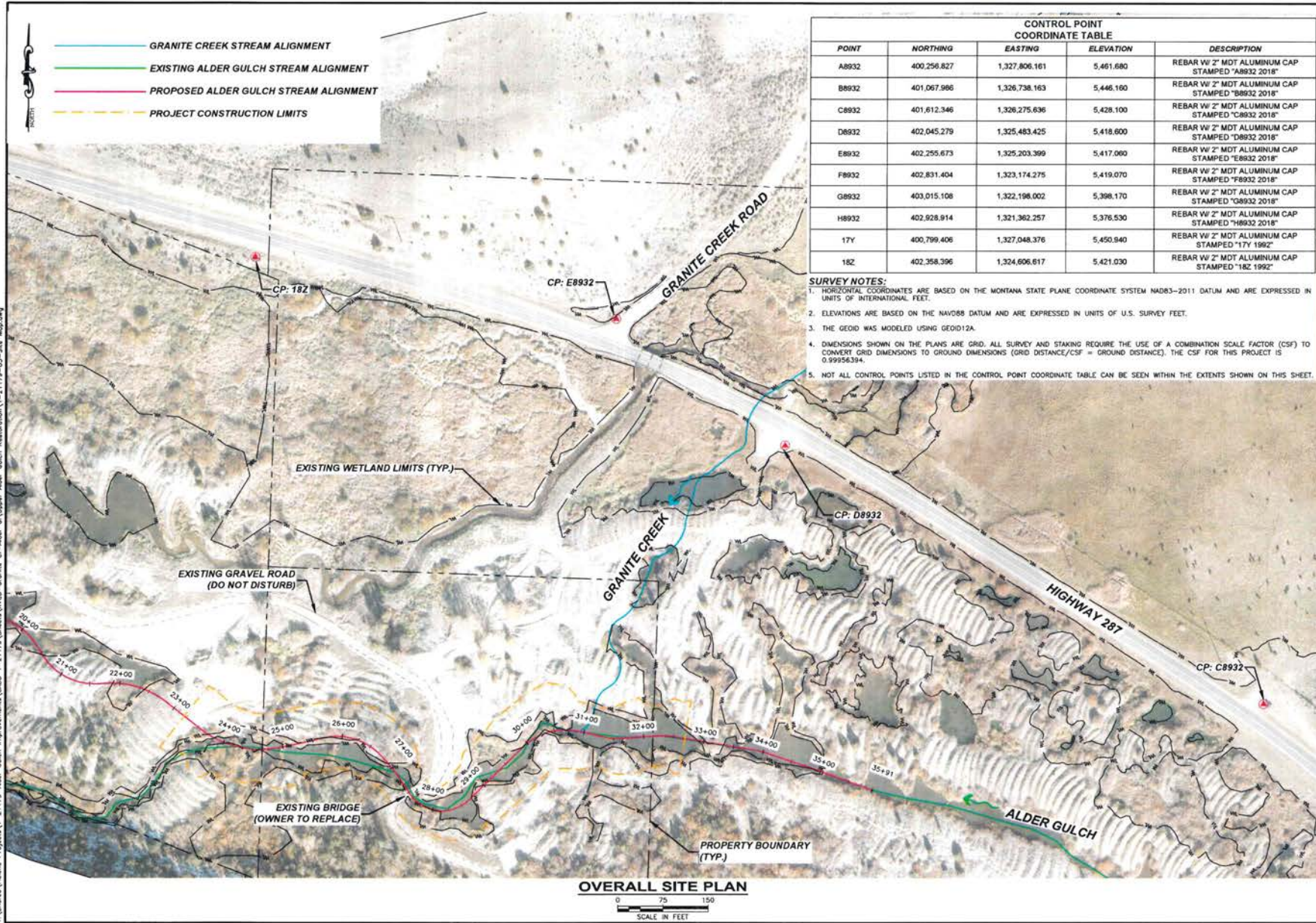
- THIS IS A STANDARD LEGEND AND ABBREVIATION LIST. THEREFORE, NOT ALL SYMBOLS AND ABBREVIATIONS MAY BE USED ON THIS PROJECT.
- UNLESS MODIFIED BY THE CONTRACT DOCUMENTS, ALL WORK WILL CONFORM TO THE MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS, SIXTH EDITION, APRIL 2010 (REFERRED TO COLLECTIVELY AS MPWS).
- EXISTING UNDERGROUND UTILITIES SHOWN ARE FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS APPROXIMATE AND MAY BE INCOMPLETE. FOR ACCURATE LOCATION, THE CONTRACTOR SHALL CONTACT, PRIOR TO EXCAVATION, THE UTILITIES UNDERGROUND LOCATION CENTER AT: 1-800-424-5555.

GENERAL DESIGN DESIGNATIONS:



PROJECT: 1-2179-02	DESIGNED: NGA	DRAWN: NGA	CHECKED: ADE	APPROVED: JLT	DATE: 1/17/2023
DRAFT					
 2501 WEST VIRGINIA DRIVE SPOKANE, ID 83401 (208) 333-4400					
RUBY VALLEY CONSERVATION DISTRICT UPPER ALDER GULCH RESTORATION LEGEND AND GENERAL NOTES					
SHEET NO.					
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OF 6					

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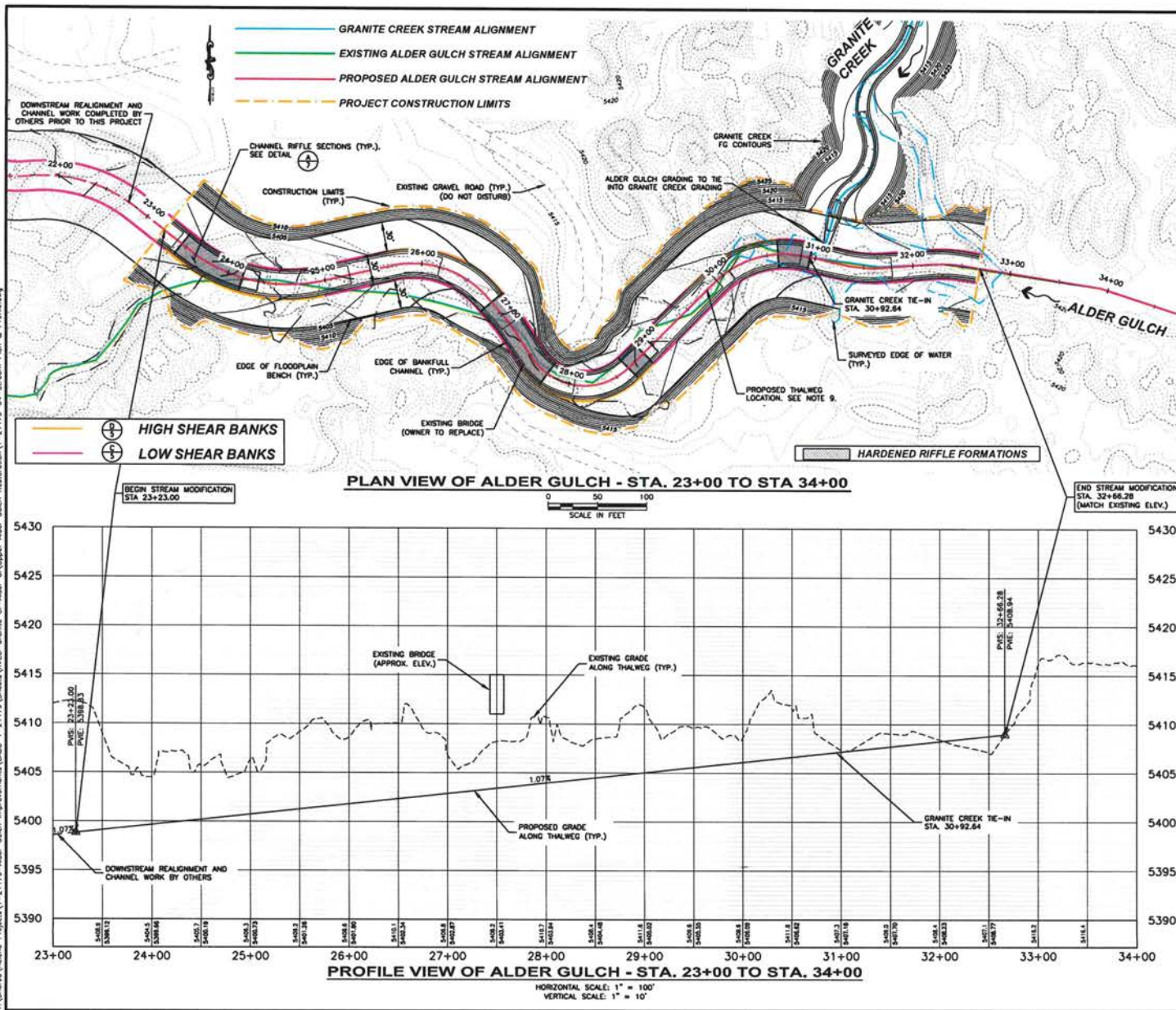


CONTROL POINT COORDINATE TABLE				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
A8932	400,256.827	1,327,806.161	5,461.680	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "A8932 2018"
B8932	401,067.986	1,326,738.163	5,446.100	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "B8932 2018"
C8932	401,612.346	1,326,275.636	5,428.100	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "C8932 2018"
D8932	402,045.279	1,325,483.425	5,418.600	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "D8932 2018"
E8932	402,255.673	1,325,203.399	5,417.000	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "E8932 2018"
F8932	402,831.404	1,323,174.275	5,419.070	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "F8932 2018"
G8932	403,015.108	1,322,198.002	5,398.170	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "G8932 2018"
H8932	402,928.914	1,321,362.257	5,376.530	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "H8932 2018"
17Y	400,799.406	1,327,048.376	5,450.940	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "17Y 1992"
18Z	402,358.396	1,324,606.617	5,421.030	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "18Z 1992"

- SURVEY NOTES:**
1. HORIZONTAL COORDINATES ARE BASED ON THE MONTANA STATE PLANE COORDINATE SYSTEM NAD83-2011 DATUM AND ARE EXPRESSED IN UNITS OF INTERNATIONAL FEET.
 2. ELEVATIONS ARE BASED ON THE NAVD83 DATUM AND ARE EXPRESSED IN UNITS OF U.S. SURVEY FEET.
 3. THE GEOID WAS MODELED USING GEOID12A.
 4. DIMENSIONS SHOWN ON THE PLANS ARE GRID. ALL SURVEY AND STAKING REQUIRE THE USE OF A COMBINATION SCALE FACTOR (CSF) TO CONVERT GRID DIMENSIONS TO GROUND DIMENSIONS (GRID DISTANCE/CSF = GROUND DISTANCE). THE CSF FOR THIS PROJECT IS 0.99956384.
 5. NOT ALL CONTROL POINTS LISTED IN THE CONTROL POINT COORDINATE TABLE CAN BE SEEN WITHIN THE EXTENTS SHOWN ON THIS SHEET.

PROJECT: 1-21179	DESIGNED: MOK	DRAWN: MOK	CHECKED: JDE	APPROVED: J/T	DATE: 1/17/2023
DRAFT					
Great West 3001 WEST 10TH AVENUE THUNDERBOLT, MONTANA 59617					
RUBY VALLEY CONSERVATION DISTRICT UPPER ALDER GULCH RESTORATION EXISTING SITE MAP					
SHEET NO. 3 OF 6					

Y:\Shared\Vegetation Projects\1-21178-Upper Alder Gulch Improvements\CAD 1-21178\Sheets\PCVD-Groble G-Upper Alder Gulch Restoration\1-21178-04-Stream Plan & Profile.dwg



PROJECT NOTES:

- CONTRACTOR SHALL USE SUITABLE MATERIAL FROM CHANNEL EXCAVATION FOR CHANNEL EMBANKMENT.
- REFER TO SHEET 6 FOR ALDER GULCH CHANNEL CROSS-SECTIONS.
- SALVAGE ALL VEGETATION ENCOUNTERED DURING CLEARING AND GRUBBING TO BE USED IN BANK TREATMENTS AND REVEGETATION.
- TOPSOIL AND DUFF LAYERS FROM CHANNEL EXCAVATION SHALL BE SALVAGED FOR PLACEMENT ON COMPLETED SLOPES ABOVE THE HIGH WATER MARK. SEGMENTATION PONDS MAY BE SALVAGED AND DRIED TO BE USED AS TOPSOIL.
- QUANTITIES PROVIDED ARE FOR INFORMATION ONLY AND ARE IN-PLACE QUANTITIES. NO SHRINKAGE OR SWELL FACTORS HAVE BEEN APPLIED. CONTRACTOR SHALL VERIFY QUANTITIES.
- CONTRACTOR TO IMPORT ALL STREAMBED MATERIAL FROM ANOTHER SOURCE. IMPORTED STREAMBED MATERIAL MUST MEET THE GRADATIONS SHOWN ON SHEET 5. REGRADE AND RESHAPE THE CHANNEL PER THE TYPICAL STREAM SECTIONS ON SHEET 5.
- ONCE OPEN CHANNEL REHABILITATION IS COMPLETE, THE STREAMBED SHALL BE WASHED AND SEDIMENT-LOADED WATER WITHIN THE ISOLATION AREA SHALL BE PUMPED OUT OF THE CHANNEL AND NOT ALLOWED TO RETURN TO THE STREAM. ONCE THE ISOLATED STREAMBED IS WASHED, WATER WILL BE SLOWLY RELEASED BACK INTO THE CHANNEL TO MINIMIZE SEDIMENT SUSPENSION.
- ALL FINISH GRADE ELEVATIONS REPRESENT THE ELEVATION OF THE AVERAGE CHANNEL SLOPE.
- CONTRACTOR SHALL GENERALLY FOLLOW THE THALWEG LOCATION SHOWN, BUT THALWEG LOCATION MAY BE MODIFIED AT THE DISCRETION OF THE OWNER.
- ALL WORK RELATED TO CHANNEL, BANK, AND FLOODPLAIN CONSTRUCTION WILL BE PAID UNDER ITEM NO. 5. THIS INCLUDES: CHANNEL EXCAVATION & EMBANKMENT, POOL & RIFFLE DEVELOPMENT, STREAMBED MATERIAL, HIGH & LOW SHEAR BANK CONSTRUCTION, ETC.
- CONTRACTOR SHALL DISPOSE OF ANY EXCESS OR UNSUITABLE EXCAVATION MATERIAL OFF-SITE. EXCAVATION MATERIAL CANNOT BE USED FOR STREAMBED MATERIAL. IMPORTED TOPSOIL SHOULD BE USED.
- QUANTITIES SHOWN ON THIS SHEET ASSUME THAT ALL TOPSOIL IS IMPORTED. CONTRACTOR MAY EJECT TO SALVAGE DEPOSITED STREAMBED MATERIAL FOR TOPSOIL PER CONTRACT DOCUMENTS AND BY APPROVAL OF THE ENGINEER.

ESTIMATED QUANTITIES

DESCRIPTION	(CY)
CHANNEL EXCAVATION	14118
CHANNEL EMBANKMENT	258
TOTAL RIFFLE STREAMBED MATERIAL	229
TOTAL POOL STREAMBED MATERIAL	794
IMPORTED TOPSOIL	1432

NOTES: CHANNEL EXCAVATION AND EMBANKMENT ARE FOR INFORMATION ONLY AND ARE BASED ON AVERAGE CHANNEL WIDTH (30.0') AND DEPTH (2.75'). SEE SHEET 3 FOR TYPICAL RIFFLE AND POOL SECTION DETAILS. THESE QUANTITIES SHALL BE VERIFIED BY THE CONTRACTOR.

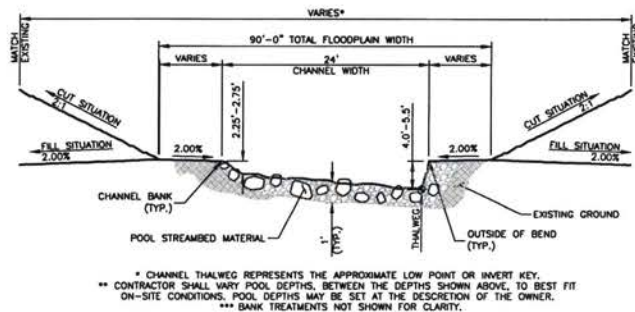
EXCAVATION AND EMBANKMENT ARE CALCULATED TO THE FINISHED GRADE AND DOES NOT INCLUDE STREAMBED QUANTITIES.

ESTIMATED QUANTITIES BELOW OHWM

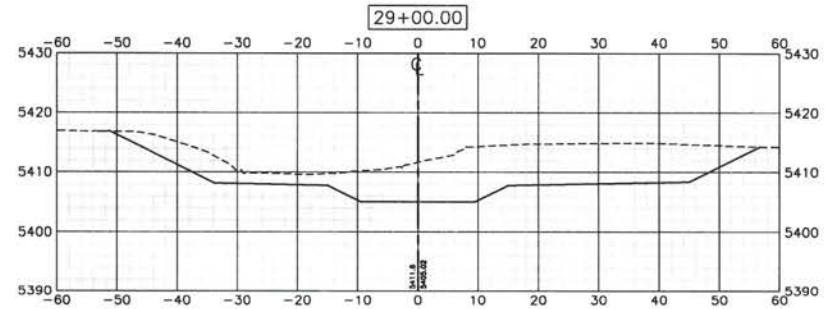
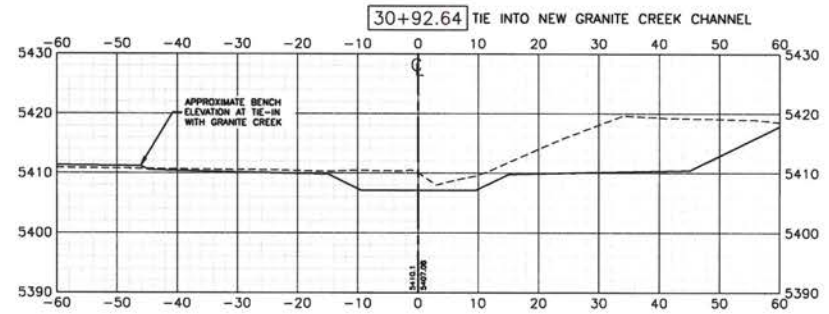
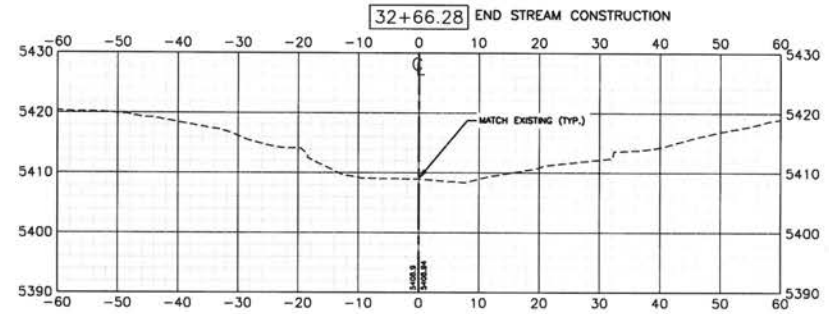
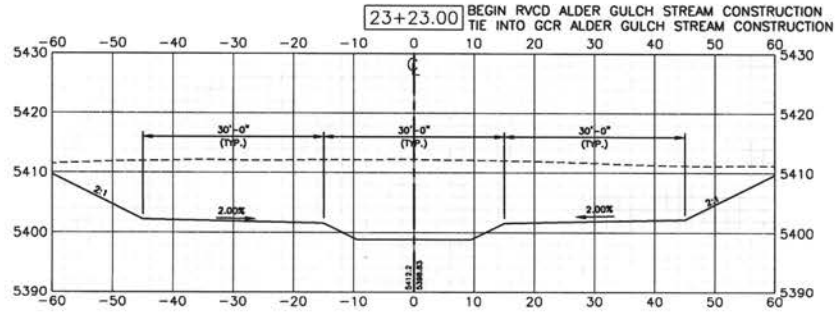
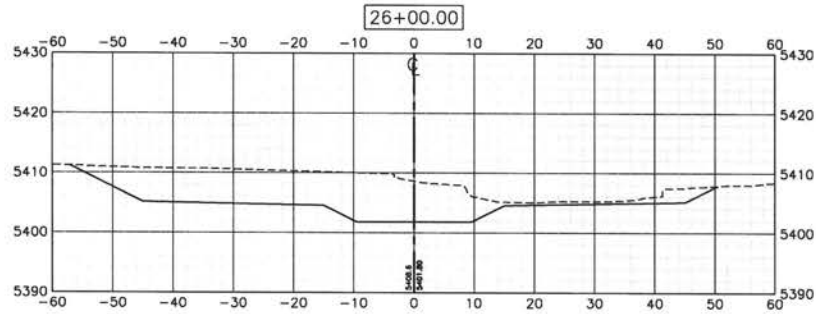
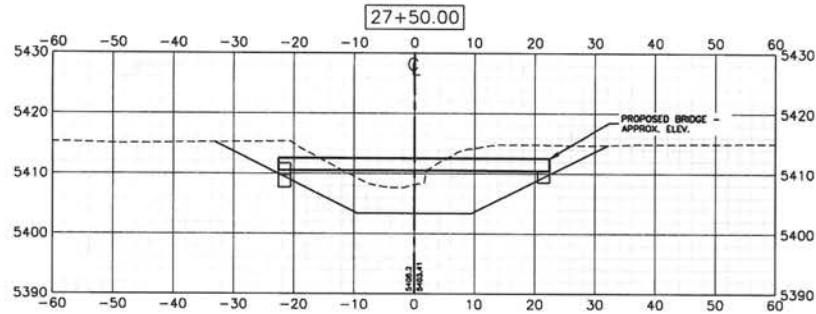
DESCRIPTION	QTY
RIFFLE STREAMBED MATERIAL	229 CY
POOL STREAMBED MATERIAL	794 CY
LOW SHEAR BANK	1206 LF
HIGH SHEAR BANK	506 LF

* FOR PERMITTING PURPOSES ONLY.

PROJECT 1-21178	DESIGNED MOK	DRAWN MOK	CHECKED JOE	APPROVED JAT	DATE 1/17/2022
<div style="text-align: center;"> DRAFT <small>2501 BELLEVUE AVENUE FARMINGTON, CT 06031</small> </div>					
RUBY VALLEY CONSERVATION DISTRICT UPPER ALDER GULCH RESTORATION ALDER GULCH PLAN & PROFILE STA. 23+00 TO STA. 34+00					
SHEET NO. <div style="text-align: center; font-size: 2em;"> 4 </div> OF 6					



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ALDER GULCH CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'

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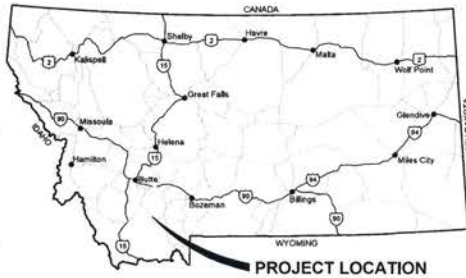
PROJECT: 1-21179
DESIGNED: MOK
DRAWN: MOK
CHECKED: JAE
APPROVED: JAT
DATE: 1/17/2022

DRAFT

GreatWest
CONSULTANTS
1001 BELT VIEW DRIVE
DENVER, CO 80202
(303) 441-4427

RUBY VALLEY CONSERVATION DISTRICT
UPPER ALDER GULCH RESTORATION
ALDER GULCH CROSS SECTIONS

SHEET NO.
6
OF 6

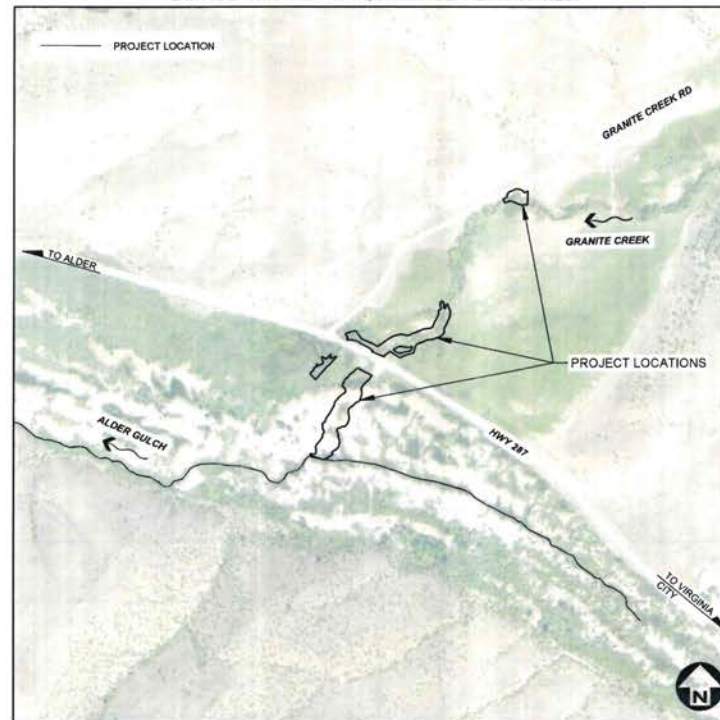


RUBY VALLEY CONSERVATION DISTRICT

GRANITE CREEK CHANNEL RESTORATION

PERMITTING PLANS

SECTION 8, TOWNSHIP 6 SOUTH, AND RANGE 3 WEST
LATITUDE: 45.324692° NORTH, LONGITUDE: 112.001404° WEST



NOT TO SCALE

PLANS PREPARED FOR:
RUBY VALLEY CONSERVATION DISTRICT



APPROVED BY:

JEREMIAH THEYS, P.E.
GREAT WEST ENGINEERING



QA/QC BY:

JUSTIN EVERTZ, P.E.
GREAT WEST ENGINEERING



PLANS PREPARED BY:

MEAGAN KEY, EI



2591 BELT VIEW DRIVE
HELENA, MT 59601
(406)449-8627

SHEET INDEX

PROJECT: 1-22124
DATE: 11/2/2022

SHEET 1	COVER
SHEET 2	LEGEND AND GENERAL NOTES
SHEET 3	OVERALL SITE PLAN
SHEET 4	GRANITE CREEK PLAN & PROFILE
SHEET 5	GRANITE CREEK PLAN & PROFILE
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SHEET 8	REVEGETATION PLAN
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SHEET 11	GRANITE CREEK CROSS SECTIONS
SHEET 12	GRANITE CREEK CROSS SECTIONS
SHEET 13	GRANITE CREEK CROSS SECTIONS
SHEET 14	GRANITE CREEK CROSS SECTIONS
SHEET 15	GRANITE CREEK OVERFLOW CHANNEL PLAN & PROFILE
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SHEET 17	ROADWAY EROSION PLAN & PROFILE
SHEET 18	ROADWAY EROSION CROSS SECTIONS

NO.	REVISION DESCRIPTION	BY	DATE	SHEET NO.
1				1

Y:\Shoreline\Projects\1-21178\Alder Gulch Improvements\CADD 1-21178\Sheets\RCD-Granite Cr-Alder 1-21178-2-Legend and General Notes.dwg

ABBREVIATIONS

AB	ANCHOR BOLT	LPG	LIQUID PROPANE GAS
ABON	ABANDON	LT	LEFT
AC	ASBESTOS CONCRETE	MAX	MAXIMUM
ADN	ADDITIONAL	MD	MEASURE DOWN
ADJ	ADJACENT	MFD	MANUFACTURED
ALT	ALTERNATE	MFR	MANUFACTURE, MANUFACTURER
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MH	MANHOLE
APPROX	APPROXIMATE	MIN	MINIMUM
APD	ARCHITECTURE, ARCHITECTURAL	MISC	MISCELLANEOUS
ASPH	ASPHALT	MJ	MECHANICAL JOINT
AVE	AVENUE	MOV	MOTOR OPERATED VALVE
AVG	AVERAGE	MPSS	MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS
BFV	BUTTERFLY VALVE	N	NORTH
BUD	BUILDING	NE	NORTHEAST
BLK	BLOCK	NG	NATURAL GAS
BLVD	BOULEVARD	NC	NOT IN CONTRACT
BM	BENCH MARK	ND	NOMINAL
BOI	BOTTOM	NOM	NOT TO SCALE
BRG	BEARING	NTS	NORTHWEST
BRKT	BRACKET	OC	ON CENTER
BVC	BEGIN VERTICAL CURVE	OD	OUTSIDE DIAMETER
C-C	CENTER TO CENTER	OF	OVERFLOW
CHAN	CHECK	OH	OVERHEAD
CHK	CHECK	OPNG	OPENING
CIP	CAST IRON	PC	POINT OF CURVATURE
CPC	CIRCULAR	PCC	POINT OF COMPOUND CURVATURE
CJ	CONSTRUCTION JOINT, CONTROL JOINT	PE	PLAIN END, POLYETHYLENE
CL	CENTER LINE	PERP	PERPENDICULAR
CLR	CLEAR, CLEARANCE	P	POINT OF INTERSECTION
CMP	CORRUGATED METAL PIPE	E	PROPERTY LINE
CNU	CONCRETE MASONRY UNITS	PRL	POINT OF REVERSE CURVATURE
COL	COLUMN	PREFAB	PREFABRICATED
CONC	CONCRETE	PREP	PREPARE, PREPARATION
CONSTR	CONSTRUCTION	PROP	PROPERTY
CONT	CONTINUE, CONTINUED, CONTINUOUS	PSF	POUNDS PER SQUARE FOOT
CONTR	CONTRACTOR	PSI	POUNDS PER SQUARE INCH
COORD	COORDINATE	PT	POINT, POINT OF TANGENCY
CP	CONTROL PANEL, CONTROL POINT	PVC	POLYVINYL CHLORIDE
CPLG	Coupling	PH	POINT OF VERTICAL INTERSECTION
CTB	CABLE TELEVISION	PMT	PAVEMENT
CTV	CUBIC FEET	R, RAD	RADIUS
CUL	CULVERT	RC	REINFORCED CONCRETE
CY	CUBIC YARD	RCP	REINFORCED CONCRETE PIPE
DET	DETAIL	RD	ROAD
DI	DIAMETER	REDR	REDUCER
DIA	DIAGONAL	REBAR	REINFORCEMENT BAR
DIS	DIMENSION	REF	REFERENCE
DR	DRAWING	RENF	REINFORCE
DWG	DRAWING	REQD	REQUIRED
E	EAST	RR	RAILROAD
EA	EACH	RST	REINFORCING STEEL
EL	ELEVATION	RT	RIGHT
ELB	ELBOW	R/W	RIGHT-OF-WAY
ELEC	ELECTRIC, ELECTRICAL	S	SOUTH, SANITARY SEWER
ENCL	ENCLOSE	SAH	SANITARY
ENGR	ENGINEER	SCH	SCHEDULE
EQ	EDGE OF PAVEMENT	SD	STORM DRAIN
EQ SP	EQUAL, EQUALLY	SDWK	SIDEWALK
EQUV	EQUIVALENT	SE	SOUTHEAST
EW	EACH WAY	SECT	SECTION
EXC	EXCAVATE	SF	SQUARE FOOT
EXP	EXPANDION	SH	SHEET
EXP JT	EXPANSION JOINT	SM	SIMILAR
EXT	EXISTING	SLP	SLOPE
FCV	FLOW CONTROL VALVE	SPEC	SPECIFICATION
FD	FLOOR DRAIN	SO	SQUARE
FDN	FOUNDATION	SSTL	STAINLESS STEEL
FES	FLARED END SECTION	STA	STATION
FET	FLARED END TERMINAL	SS	SANITARY SEWER SERVICE
FG	FRESH GRADE	STD	STANDARD
FHYD	FIRE HYDRANT	ST	STREET
FJ	FLANGE JOINT	STL	STEEL
FL	FLOW LINE	STRUCT	STRUCTURE
FLX	FORCEMAIN	SW	SOUTHWEST
FM	FOOT, FEET	SYM	SYMMETRICAL
FT	FOOTING, FITTING	TB	THRUST BLOCK
FTG	FOOTING, FITTING	TBC	TOP BACK OF CURB
G	NATURAL GAS	TBM	TEMPORARY BENCH MARK
GA	GAGE, GAUGE	TEL	TELEPHONE
GAL	GALLON	TEMP	TEMPORARY
GALV	GALVANIZED	THRU	THROUGH
GND	GROUND	TYP	TYPICAL
GRN	GRANITE	UG	UNDERGROUND
HB	HOSE BIB	UGP	UNDERGROUND POWER
HDPPE	HIGH DENSITY POLYETHYLENE	UST	UNDERGROUND TELEPHONE
HDR, HORIZ	HORIZONTAL	UTL	UTILITY
HWD	HIGHWAY	V	VALVE, VOLT
HYD	HYDRANT	VB	VALVE BOX
ID	INSIDE DIAMETER	VERT	VERTICAL
I	INVERT ELEVATION	VOL	VOLUME
IN	INCH	W	WEST, WATER
INVT	INVERT	WD	WOOD
J	JUNCTION BOX	W/O	WITHOUT
JT	JOINT	WL	WETLAND
K	RATE OF VERTICAL CURVATURE	WM	WIRE MESH, WATER METER
LBS	POUNDS	WS	WATER STOP, WATER SURFACE, WATER SERVICE
LF	LINEAR FEET	WT	WEIGHT
LN	LANE	WV	WATER VALVE
		WVF	WELDED WIRE FABRIC
		WWM	WELDED WIRE MESH
		WTR	WATER
		X-ING	CROSSING
		XS	CROSS SECTION
		YD	YARD

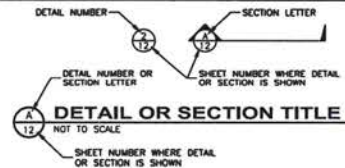
LEGEND

EXISTING	PROPOSED	DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION
		STUMP			SHRUB/BUSH
		TREE-CONIFER			TREE-DECIDUOUS
		TREE LINE			COMMUNICATION MANHOLE
		COMMUNICATION VAULT			TELEPHONE RISER
		CABLE TV RISER			NATURAL GAS METER
		NATURAL GAS RISER			NATURAL GAS VALVE
		LIGHT POLE			STREET LIGHT POLE
		POWER RISER			PNO MOUNTED TRANSFORMER
		POWER VAULT			UTILITY POLE
		GUY WIRE			SANITARY MANHOLE
		SANITARY CLEANOUT			SANITARY LAMP HOLE
		STORM MANHOLE			STORM ROUND INLET
		STORM SQUARE INLET			STORM CATCH BASIN
		11.25' ELBOW			22.50' ELBOW
		45' ELBOW			90' ELBOW
		TEE			CROSS
		CAP			FIRE HYDRANT
		GATE VALVE			REDUCER
		WATER METER			WELL
		CURB STOP			FROST FREE HYDRANT

GENERAL NOTES:

- THIS IS A STANDARD LEGEND AND ABBREVIATION LIST. THEREFORE, NOT ALL SYMBOLS AND ABBREVIATIONS MAY BE USED ON THIS PROJECT.
- UNLESS MODIFIED BY THE CONTRACT DOCUMENTS, ALL WORK WILL CONFORM TO THE MONTANA PUBLIC WORKS STANDARD SPECIFICATIONS, SIXTH EDITION, APRIL 2010 (REFERRED TO COLLECTIVELY AS MPSS).
- EXISTING UNDERGROUND UTILITIES SHOWN ARE FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS APPROXIMATE AND MAY BE INCOMPLETE. FOR ACCURATE LOCATION, THE CONTRACTOR SHALL CONTACT, PRIOR TO EXCAVATION, THE UTILITIES UNDERGROUND LOCATION CENTER AT: 1-800-424-3555.
- CONTRACTOR SHALL NOT IMPACT WETLANDS OUTSIDE OF THE SHOWN RWCD PROJECT CONSTRUCTION LIMITS.

GENERAL DESIGN DESIGNATIONS:



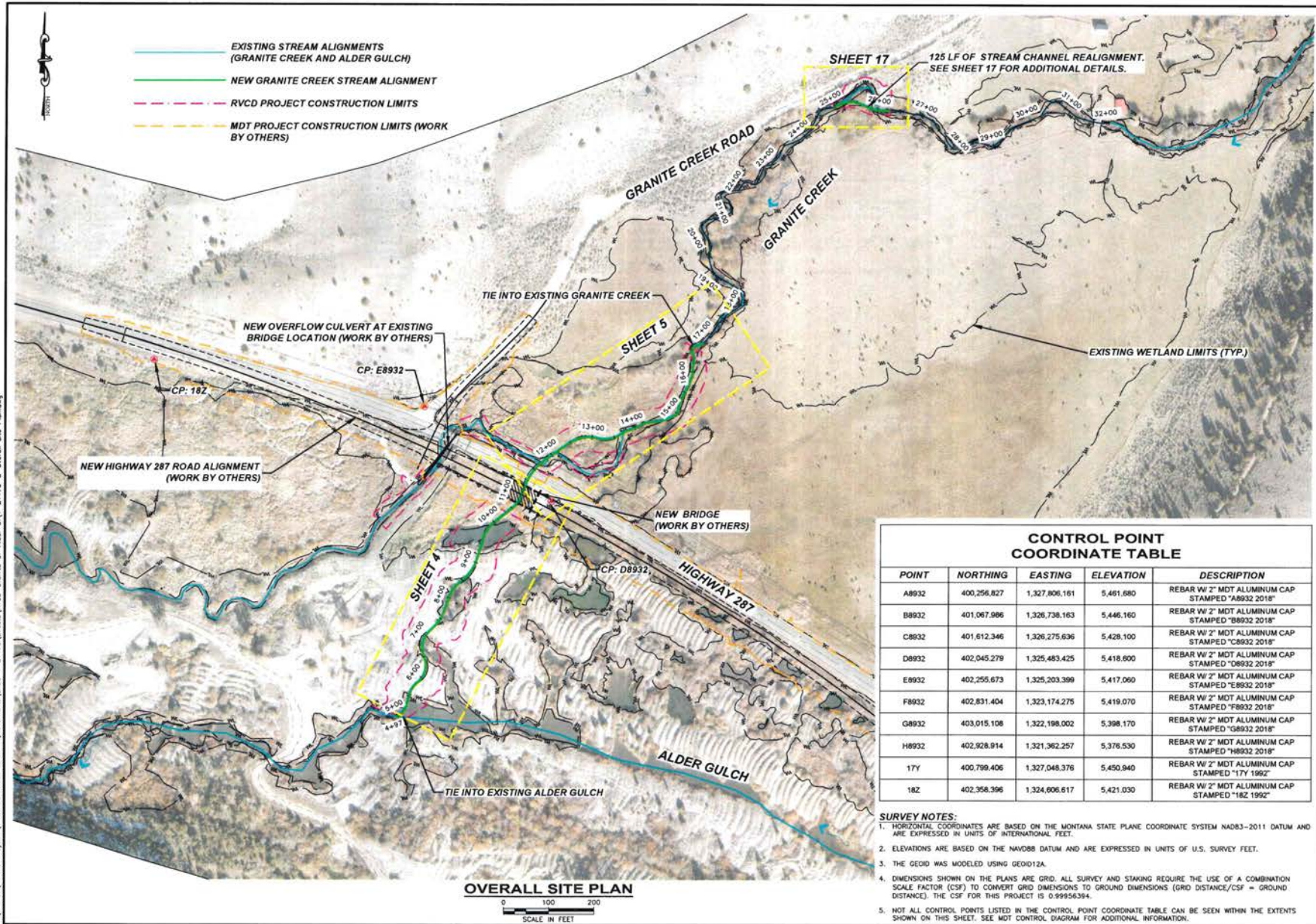
RUBY VALLEY CONSERVATION DISTRICT
GRANITE CREEK CHANNEL
RESTORATION
LEGEND AND GENERAL NOTES

SHEET NO.

2

OF 18

Y:\Shared\Visio Projects\1-21179-Alder Gulch Improvements\020 1-21179\Sheets\RVCD-Grande C-Alder CA-1-21179-3-Overall Site Plan.dwg



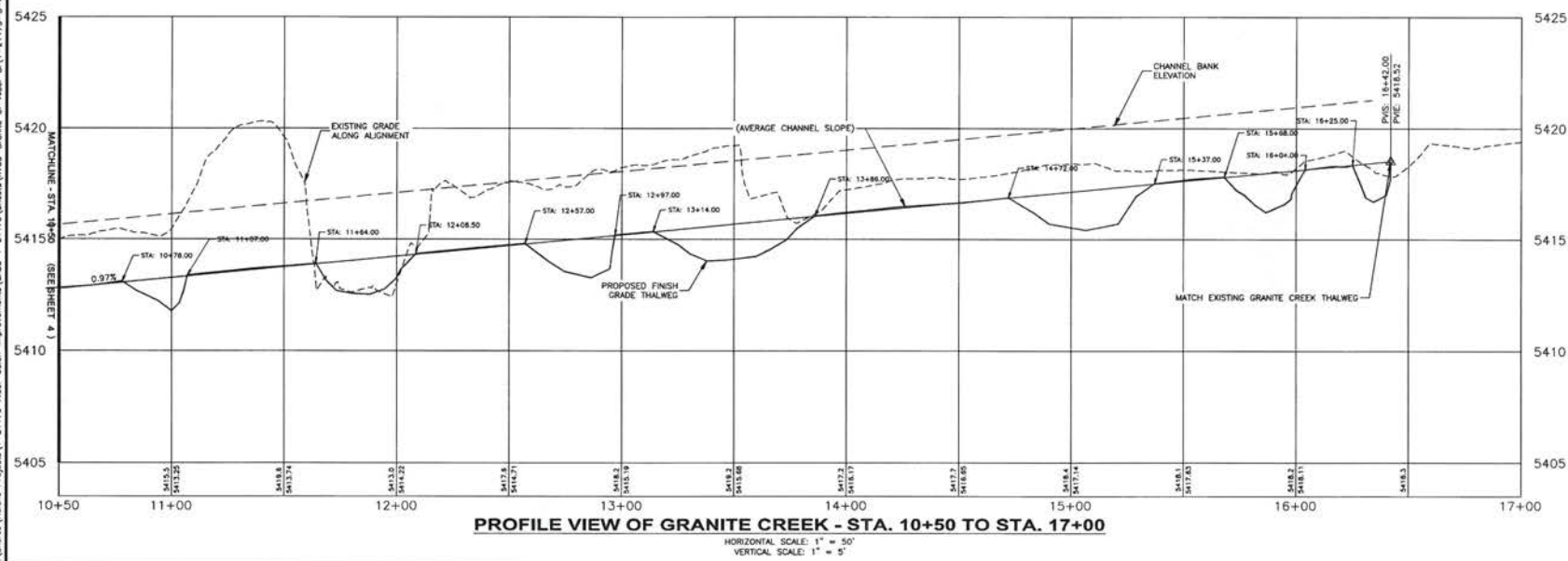
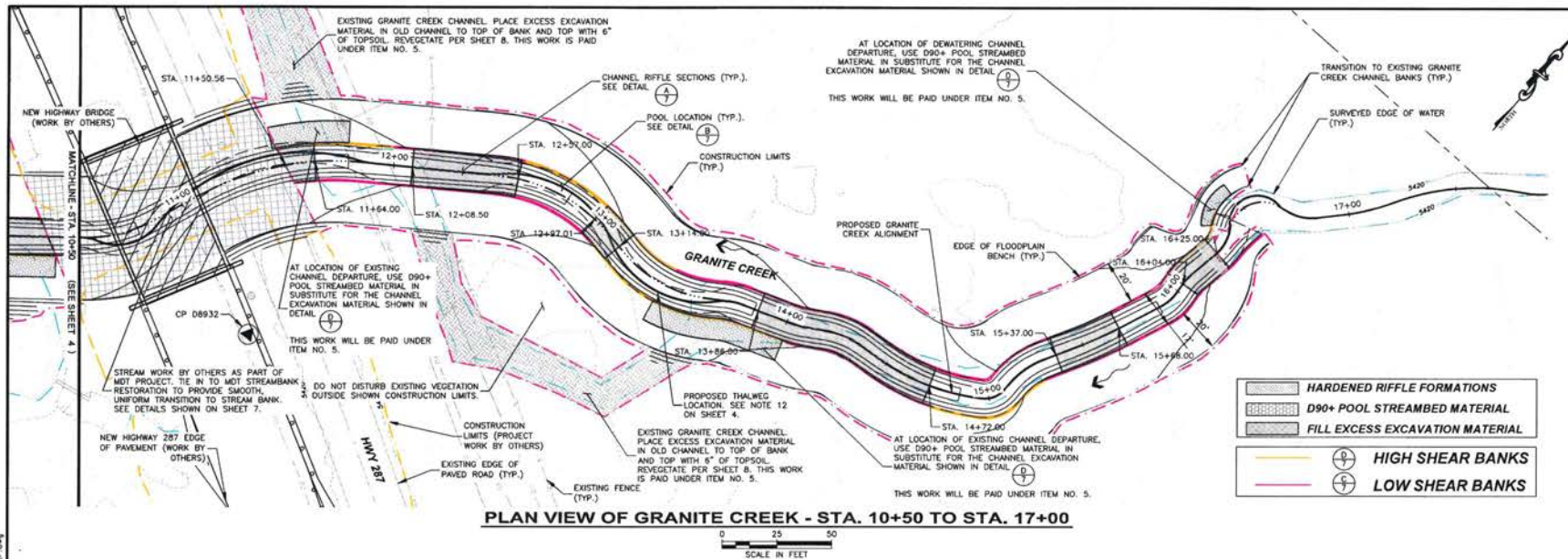
CONTROL POINT COORDINATE TABLE

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
A8932	400,256.827	1,327,806.161	5,461.680	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "A8932 2018"
B8932	401,067.996	1,326,738.163	5,446.160	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "B8932 2018"
C8932	401,612.346	1,326,275.636	5,428.100	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "C8932 2018"
D8932	402,045.279	1,325,483.425	5,418.600	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "D8932 2018"
E8932	402,255.673	1,325,203.399	5,417.060	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "E8932 2018"
F8932	402,831.404	1,323,174.275	5,419.070	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "F8932 2018"
G8932	403,015.108	1,322,198.002	5,398.170	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "G8932 2018"
H8932	402,928.914	1,321,362.257	5,376.530	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "H8932 2018"
17Y	400,799.406	1,327,048.376	5,450.940	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "17Y 1992"
18Z	402,358.396	1,324,606.617	5,421.030	REBAR W/ 2" MDT ALUMINUM CAP STAMPED "18Z 1992"

SURVEY NOTES:

- HORIZONTAL COORDINATES ARE BASED ON THE MONTANA STATE PLANE COORDINATE SYSTEM NAD83-2011 DATUM AND ARE EXPRESSED IN UNITS OF INTERNATIONAL FEET.
- ELEVATIONS ARE BASED ON THE NAVD83 DATUM AND ARE EXPRESSED IN UNITS OF U.S. SURVEY FEET.
- THE GEOID WAS MODELED USING GEOID12A.
- DIMENSIONS SHOWN ON THE PLANS ARE GRID. ALL SURVEY AND STAKING REQUIRE THE USE OF A COMBINATION SCALE FACTOR (CSF) TO CONVERT GRID DIMENSIONS TO GROUND DIMENSIONS (GRID DISTANCE/CSF = GROUND DISTANCE). THE CSF FOR THIS PROJECT IS 0.99956394.
- NOT ALL CONTROL POINTS LISTED IN THE CONTROL POINT COORDINATE TABLE CAN BE SEEN WITHIN THE EXTENTS SHOWN ON THIS SHEET. SEE MDT CONTROL DIAGRAM FOR ADDITIONAL INFORMATION.

PROJECT: 121214	DESIGNED: JAE MOK	DRAWN: MOK	CHECKED: JAE	APPROVED: JTT	DATE: 11/2/2022
REVISION DESCRIPTION					
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NO.	REVISION DESCRIPTION	BY	DATE
△	DESIGNED JOE MOK		
△	DRAWN MOK		
△	CHECKED JOE		
△	APPROVED JIT		

DRAFT



**RUBY VALLEY CONSERVATION DISTRICT
GRANITE CREEK CHANNEL
RESTORATION**

GRANITE CREEK PLAN & PROFILE

SHEET NO.

5

OF 18

GRANITE CREEK CENTERLINE COORDINATE STAKING TABLE

START STATION	TYPE	START POINT (EASTING,NORTHING)	END STATION	END POINT (EASTING,NORTHING)	LENGTH	DIRECTION	PI STATION	RADIUS	DELTA ANGLE
4+96.74	Curve	(1325144.95, 401568.36)	5+28.18	(1325165.25, 401588.87)	31.45	N89° 05' 03.82"E	5+13.74	33.35	54.0332 (d)
5+28.18	Line	(1325165.25, 401588.87)	5+53.95	(1325171.94, 401613.75)	25.76				
5+53.95	Curve	(1325171.94, 401613.75)	5+85.52	(1325188.91, 401638.75)	31.58	N15° 03' 04.40"E	5+70.28	50.00	36.1844 (d)
5+85.52	Curve	(1325188.91, 401638.75)	6+46.82	(1325204.88, 401695.03)	61.30	N51° 14' 08.38"E	6+20.69	50.00	70.3458 (d)
6+46.82	Line	(1325204.88, 401695.03)	6+54.92	(1325202.34, 401702.68)	8.10				
6+54.92	Curve	(1325202.34, 401702.68)	7+10.80	(1325214.17, 401754.34)	55.88	N19° 00' 35.90"W	6+86.19	50.00	64.0316 (d)
7+10.80	Line	(1325214.17, 401754.34)	7+31.23	(1325228.62, 401784.78)	20.42				
7+31.23	Curve	(1325228.62, 401784.78)	7+62.76	(1325245.51, 401795.12)	31.54	N45° 01' 17.90"E	7+47.25	73.05	24.7363 (d)
7+62.76	Line	(1325245.51, 401795.12)	8+13.98	(1325263.26, 401843.16)	51.22				
8+13.98	Curve	(1325263.26, 401843.16)	8+33.93	(1325274.6, 401859.3)	19.95	N20° 17' 07.32"E	8+24.16	38.60	29.6074 (d)
8+33.93	Line	(1325274.6, 401859.3)	8+55.40	(1325291.03, 401873.14)	21.47				
8+55.40	Curve	(1325291.03, 401873.14)	9+07.34	(1325319.12, 401915.95)	51.94	N49° 53' 33.98"E	8+82.12	89.50	33.2471 (d)
9+07.34	Line	(1325319.12, 401915.95)	9+57.05	(1325333.36, 401963.59)	49.72				
9+57.05	Curve	(1325333.36, 401963.59)	9+88.83	(1325356.29, 401997.76)	41.78	N16° 38' 44.33"E	9+78.59	69.49	34.4486 (d)
9+88.83	Line	(1325356.29, 401997.76)	10+52.43	(1325398, 402031.42)	53.60				
10+52.43	Curve	(1325398, 402031.42)	10+84.51	(1325416.54, 402057.14)	32.09	N51° 05' 39.17"E	10+68.86	80.00	30.5409 (d)
10+84.51	Line	(1325416.54, 402057.14)	11+08.12	(1325424.76, 402078.35)	23.60				
11+08.12	Curve	(1325424.76, 402078.35)	11+84.15	(1325470.75, 402136.30)	76.04	N20° 27' 12.11"E	11+47.35	125.00	34.8533 (d)
11+84.15	Line	(1325470.75, 402136.30)	12+46.79	(1325522.25, 402174)	62.64				
12+46.79	Curve	(1325522.25, 402174)	13+05.88	(1325578.54, 402186.09)	56.09	N55° 18' 23.86"E	12+77.96	75.00	45.1407 (d)
13+05.88	Line	(1325578.54, 402186.09)	13+17.29	(1325589.76, 402184.02)	11.41				
13+17.29	Curve	(1325589.76, 402184.02)	13+63.20	(1325633.67, 402192.83)	45.91	S79° 33' 05.72"E	13+41.44	60.00	43.8434 (d)
13+63.20	Line	(1325633.67, 402192.83)	13+69.03	(1325638.54, 402196.14)	5.83				
13+69.03	Curve	(1325638.54, 402196.14)	13+79.14	(1325647.59, 402200.59)	10.11	N56° 30' 14.08"E	13+74.11	40.00	14.4759 (d)
13+79.14	Line	(1325647.59, 402200.59)	14+01.10	(1325668.36, 402207.71)	21.96				
14+01.10	Curve	(1325668.36, 402207.71)	14+08.98	(1325675.52, 402210.98)	7.88	N71° 04' 47.47"E	14+05.05	40.00	11.2855 (d)
14+08.98	Line	(1325675.52, 402210.98)	14+17.67	(1325683.03, 402215.35)	8.69				
14+17.67	Curve	(1325683.03, 402215.35)	14+35.87	(1325700.37, 402226.68)	18.20	N59° 47' 39.84"E	14+26.93	40.00	26.0690 (d)
14+35.87	Line	(1325700.37, 402226.68)	14+45.50	(1325709.87, 402231.37)	9.63				
14+45.50	Curve	(1325709.87, 402231.37)	14+64.24	(1325755.74, 402236.37)	46.74	N85° 51' 48.10"E	14+70.37	100.00	27.8273 (d)
14+64.24	Line	(1325755.74, 402236.37)	14+96.13	(1325757.34, 402237.37)	1.89				
14+96.13	Curve	(1325757.34, 402237.37)	15+08.28	(1325762.97, 402247.55)	12.15	N57° 56' 09.80"E	15+02.78	12.00	58.0227 (d)
15+08.28	Line	(1325762.97, 402247.55)	15+10.92	(1325762.97, 402250.2)	2.64				
15+10.92	Curve	(1325762.97, 402250.2)	15+31.52	(1325768.12, 402269.9)	20.60	N0° 00' 12.05"W	15+21.46	40.00	29.5017 (d)
15+31.52	Line	(1325768.12, 402269.9)	15+44.64	(1325774.57, 402281.33)	13.12				
15+44.64	Curve	(1325774.57, 402281.33)	15+70.18	(1325765.68, 402304.3)	25.54	N29° 28' 15.70"E	15+67.42	200.00	7.3175 (d)
15+70.18	Line	(1325765.68, 402304.3)	15+89.58	(1325793, 402322.27)	19.40				
15+89.58	Curve	(1325793, 402322.27)	15+98.95	(1325794.18, 402341.66)	9.37	N22° 09' 13.79"E	15+94.35	20.00	26.8559 (d)
15+98.95	Line	(1325794.18, 402341.66)	16+04.23	(1325796.8, 402356.08)	5.28				
16+04.23	Curve	(1325796.8, 402356.08)	16+09.19	(1325794.18, 402341.66)	14.62	N4° 42' 06.42"W	16+06.72	20.00	14.2093 (d)
16+09.19	Line	(1325794.18, 402341.66)	16+23.81	(1325796.8, 402356.08)	14.62				
16+23.81	Curve	(1325796.8, 402356.08)	16+37.70	(1325794.18, 402341.66)	13.89	N9° 30' 17.12"E	16+31.05	20.00	39.7922 (d)
16+37.70	Line	(1325794.18, 402341.66)	16+38.02	(1325793.98, 402348.74)	0.32				
16+38.02	Curve	(1325793.98, 402348.74)	16+67.32	(1325804.75, 402392.15)	29.30	N30° 17' 14.81"W	16+60.23	15.00	111.9271 (d)
16+67.32	Line	(1325804.75, 402392.15)	16+71.71	(1325809.09, 402392.79)	4.39				
16+71.71	Curve	(1325809.09, 402392.79)	16+85.14	(1325820.77, 402398.89)	13.43	N81° 38' 23.05"E	16+78.69	20.00	38.4728 (d)
16+85.14	Line	(1325820.77, 402398.89)	16+97.22	(1325828.04, 402407.7)	12.08				

GRANITE CREEK CENTERLINE COORDINATE STAKING TABLE

START STATION	TYPE	START POINT (EASTING,NORTHING)	END STATION	END POINT (EASTING,NORTHING)	LENGTH	DIRECTION	PI STATION	RADIUS	DELTA ANGLE
24+97.73	Line	(1326104.02, 402923.32)	25+06.72	(1326111.8, 402927.82)	8.98	N59° 56' 17.33"E			
25+06.72	Curve	(1326111.8, 402927.82)	25+29.85	(1326133.34, 402935.28)	22.93		25+18.33	60.00	21.9005 (d)
25+29.85	Line	(1326133.34, 402935.28)	25+31.49	(1326135.16, 402935.54)	1.84				
25+31.49	Curve	(1326135.16, 402935.54)	25+53.41	(1326156.62, 402932.7)	21.92	N81° 50' 19.29"E	25+42.73	40.00	31.4019 (d)
25+53.41	Line	(1326156.62, 402932.7)	25+79.45	(1326180.55, 402932.42)	26.04	S66° 45' 34.95"E			
25+79.45	Curve	(1326180.55, 402932.42)	26+11.40	(1326211.61, 402915.93)	31.94		25+95.64	80.00	22.8763 (d)
26+11.40	Line	(1326211.61, 402915.93)	26+38.15	(1326238.33, 402914.72)	26.75	S87° 23' 55.84"E			

BANK TREATMENT SCHEDULE

LEFT BANK*			RIGHT BANK*		
START STATION	END STATION	BANK TYPE	START STATION	END STATION	BANK TYPE
4+96.25	5+91.72	LOW SHEAR	4+98.25	5+54.28	LOW SHEAR
5+91.72	6+45.51	HIGH SHEAR	5+54.28	5+89.55	HIGH SHEAR
6+45.51	8+33.72	LOW SHEAR	5+89.55	6+55.37	LOW SHEAR
8+33.72	9+01.79	HIGH SHEAR	6+55.37	7+18.00	HIGH SHEAR
9+01.79	9+33.75	LOW SHEAR	7+18.00	8+00.78	LOW SHEAR
9+33.75	10+39.45	HIGH SHEAR	8+00.78	8+57.04	HIGH SHEAR
10+39.45	11+53.33	MOT LIMITS	8+57.04	9+54.55	LOW SHEAR
11+53.33	13+04.77	LOW SHEAR	9+54.55	10+09.87	HIGH SHEAR
13+04.77	14+02.06	HIGH SHEAR	10+09.87	10+32.10	LOW SHEAR
14+02.06	14+75.33	LOW SHEAR	10+32.10	11+48.23	MOT LIMITS
14+75.33	15+28.11	HIGH SHEAR	11+48.23	11+89.46	HIGH SHEAR
15+28.11	16+54.65	LOW SHEAR	11+89.46	12+58.63	LOW SHEAR
			12+58.63	13+43.90	HIGH SHEAR
			13+43.90	16+54.65	LOW SHEAR
			16+54.65	16+54.65	HIGH SHEAR

*LEFT AND RIGHT BANKS ARE REFERENCED LOOKING DOWNSTREAM

POOL/RIFLE SCHEDULE

START STATION	END STATION	CHANNEL TYPE
4+96.25	5+28.00	POOL
5+28.00	5+77.00	RIFPLE
5+77.00	6+46.00	POOL
6+46.00	7+18.00	RIFPLE
7+18.00	7+76.00	POOL
7+76.00	8+32.50	RIFPLE
8+32.50	9+03.00	POOL
9+03.00	9+20.00	RIFPLE
9+20.00	9+95.00	POOL
9+95.00	10+35.78	RIFPLE
10+35.78	11+50.58	MOT LIMITS
11+50.58	11+64.00	RIFPLE
11+64.00	12+08.50	POOL
12+08.50	12+57.00	RIFPLE
12+57.00	12+57.00	POOL
12+57.00	13+14.00	RIFPLE
13+14.00	13+86.00	POOL
13+86.00	14+72.00	RIFPLE
14+72.00	15+37.00	POOL
15+37.00	15+68.00	RIFPLE
15+68.00	16+04.00	POOL
16+04.00	16+25.00	RIFPLE
16+25.00	16+42.00	POOL

POOL STREAMBED GRADATION

PERCENT PASSING	INCHES OR SIEVE SIZE
100	10
84	4
50	1.75
10	0.50
10	NO. 10

RIFPLE STREAMBED GRADATION

PERCENT PASSING	INCHES OR SIEVE SIZE
100	14
84	6
50	2.5
16	0.75
10	NO. 10

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 121214	DESIGNED: JDE MOK	DRAWN: MOK	CHECKED: JDE	APPROVED: JTT	DATE: 11/2/2022
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DRAFT



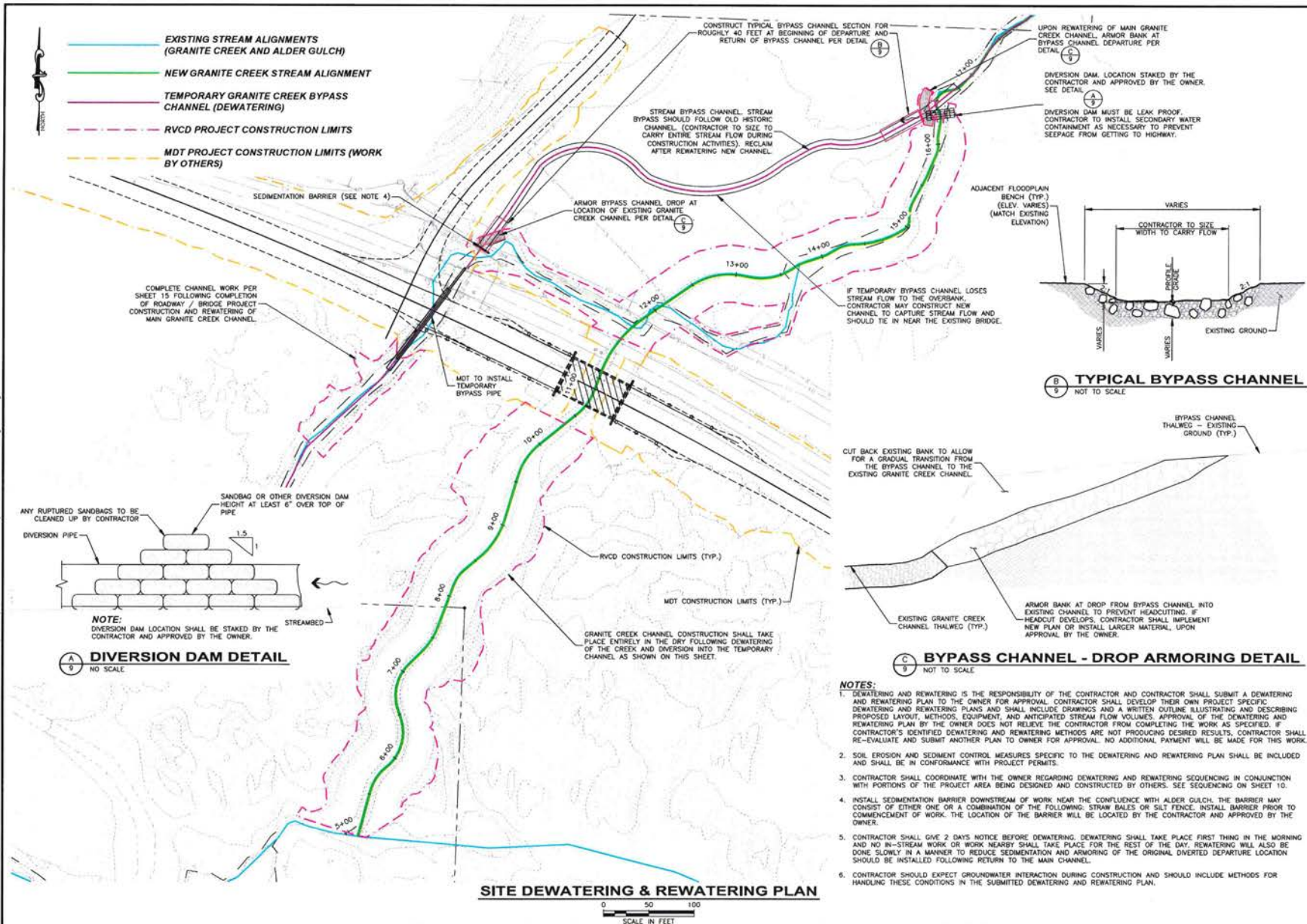
**RUBY VALLEY CONSERVATION DISTRICT
GRANITE CREEK CHANNEL
RESTORATION
STAKING TABLES**

SHEET NO.

6

OF 18

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REVISION DESCRIPTION	BY	DATE
NO.	1	1

PROJECT 1-2179	DESIGNED JAE MOK	DRAWN MOK	CHECKED JAE	APPROVED JLT	DATE 11/20/2022
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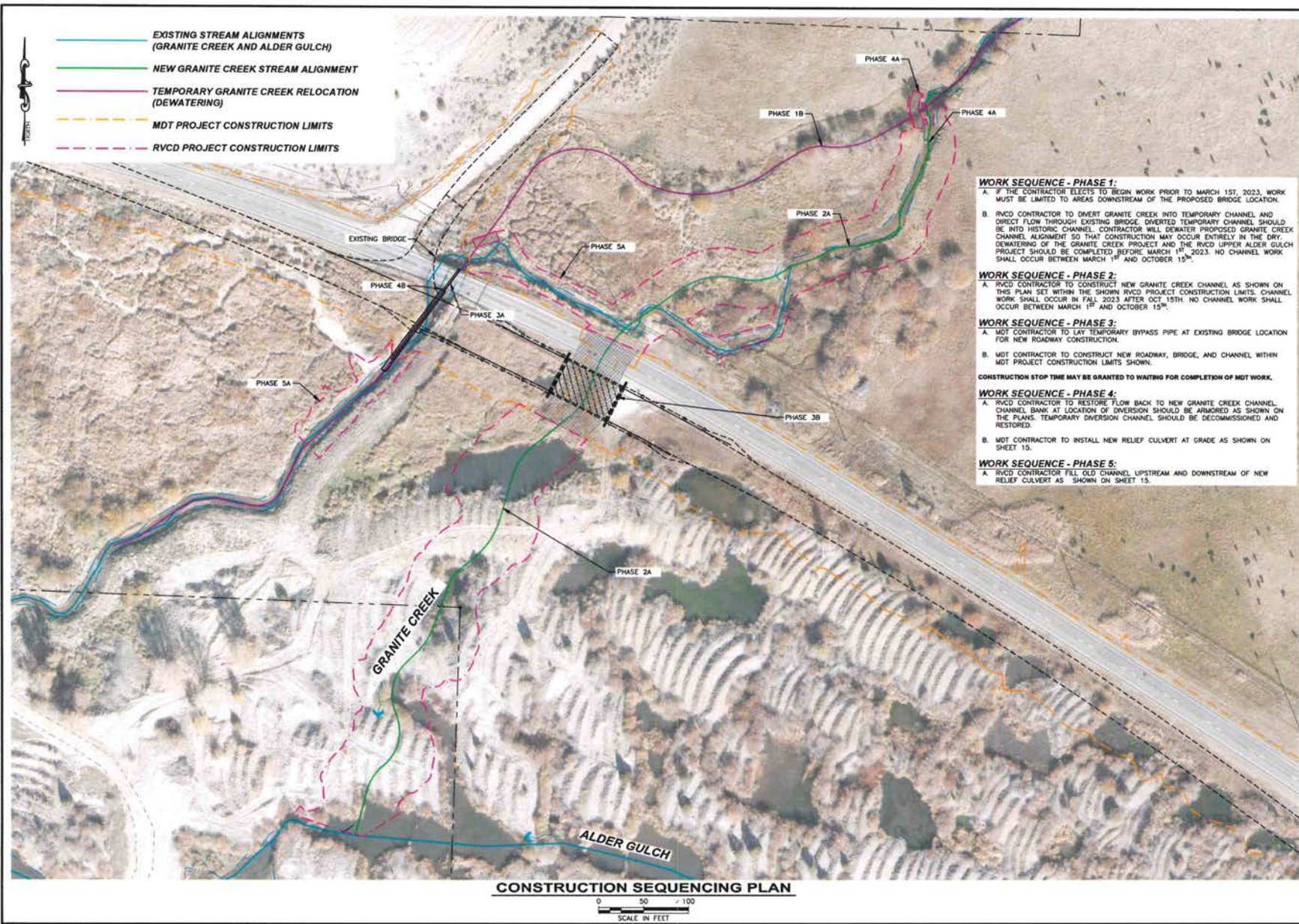
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**RUBY VALLEY CONSERVATION DISTRICT
GRANITE CREEK CHANNEL
RESTORATION
DEWATERING & REWATERING PLAN**

SHEET NO.
9
OF 18

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WORK SEQUENCE - PHASE 1:
A. IF THE CONTRACTOR ELECTS TO BEGIN WORK PRIOR TO MARCH 1ST, 2023, WORK MUST BE LIMITED TO AREAS DOWNSTREAM OF THE PROPOSED BRIDGE LOCATION.
B. RVCD CONTRACTOR TO DIVERT GRANITE CREEK INTO TEMPORARY CHANNEL AND DIRECT FLOW THROUGH EXISTING BRIDGE. DIVERTED TEMPORARY CHANNEL SHOULD BE INTO HISTORIC CHANNEL. CONTRACTOR WILL DEWATER PROPOSED GRANITE CREEK CHANNEL ALIGNMENT SO THAT CONSTRUCTION MAY OCCUR ENTIRELY IN THE DRY. DEWATERING OF THE GRANITE CREEK PROJECT AND THE RVCD UPPER ALDER GULCH PROJECT SHOULD BE COMPLETED BEFORE MARCH 1ST 2023. NO CHANNEL WORK SHALL OCCUR BETWEEN MARCH 1ST AND OCTOBER 15TH.

WORK SEQUENCE - PHASE 2:
A. RVCD CONTRACTOR TO CONSTRUCT NEW GRANITE CREEK CHANNEL AS SHOWN ON THIS PLAN SET WITHIN THE SHOWN RVCD PROJECT CONSTRUCTION LIMITS. CHANNEL WORK SHALL OCCUR IN FALL 2023 AFTER OCT 15TH. NO CHANNEL WORK SHALL OCCUR BETWEEN MARCH 1ST AND OCTOBER 15TH.

WORK SEQUENCE - PHASE 3:
A. MDT CONTRACTOR TO LAY TEMPORARY BYPASS PIPE AT EXISTING BRIDGE LOCATION FOR NEW ROADWAY CONSTRUCTION.
B. MDT CONTRACTOR TO CONSTRUCT NEW ROADWAY, BRIDGE, AND CHANNEL WITHIN MDT PROJECT CONSTRUCTION LIMITS SHOWN.
CONSTRUCTION STOP TIME MAY BE GRANTED TO WAITING FOR COMPLETION OF MDT WORK.

WORK SEQUENCE - PHASE 4:
A. RVCD CONTRACTOR TO RESTORE FLOW BACK TO NEW GRANITE CREEK CHANNEL. CHANNEL BANK AT LOCATION OF DIVERSION SHOULD BE ARMORED AS SHOWN ON THE PLANS. TEMPORARY DIVERSION CHANNEL SHOULD BE DECOMMISSIONED AND RESTORED.
B. MDT CONTRACTOR TO INSTALL NEW RELIEF CULVERT AT GRADE AS SHOWN ON SHEET 15.

WORK SEQUENCE - PHASE 5:
A. RVCD CONTRACTOR FILL OLD CHANNEL UPSTREAM AND DOWNSTREAM OF NEW RELIEF CULVERT AS SHOWN ON SHEET 15.

NO.	REVISION DESCRIPTION	BY	DATE
1			
2			
3			
4			
5			

PROJECT: 1-21179	DESIGNED: JDE/MOK	DRAWN: MOK	CHECKED: JDE	APPROVED: JAT	DATE: 11/22/23
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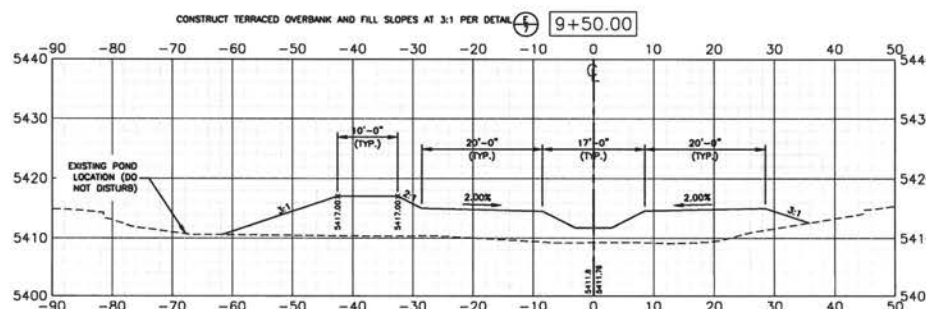
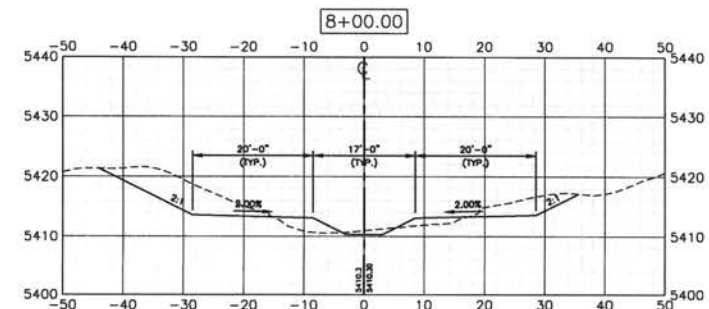
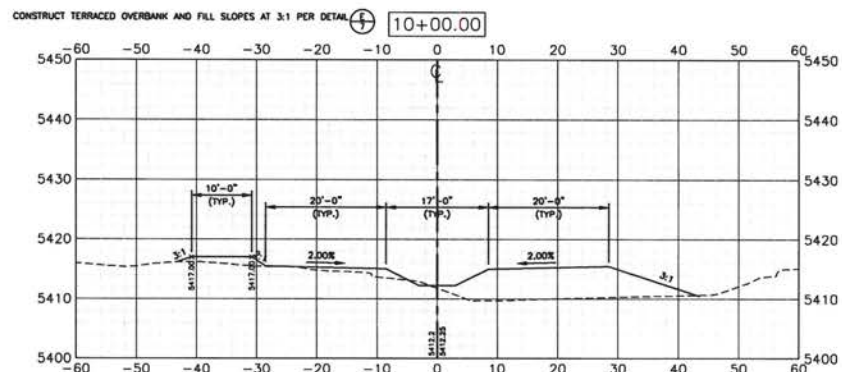
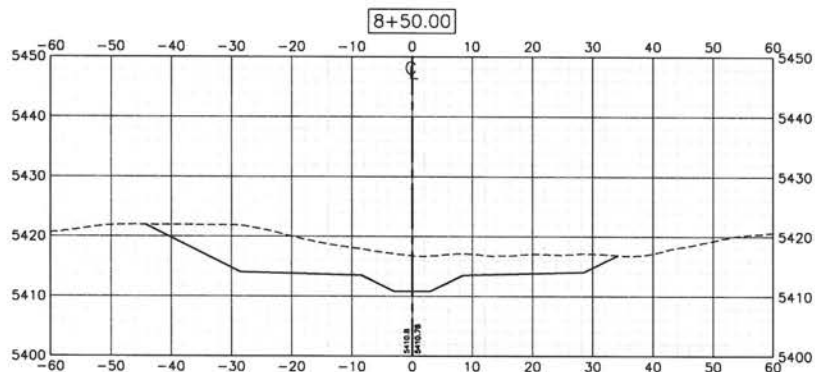
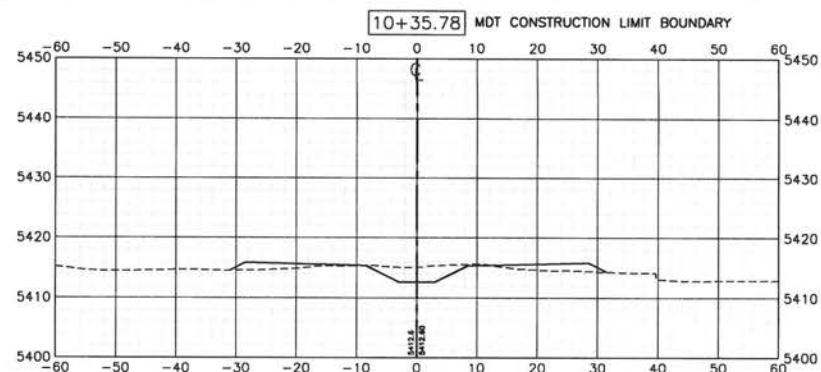
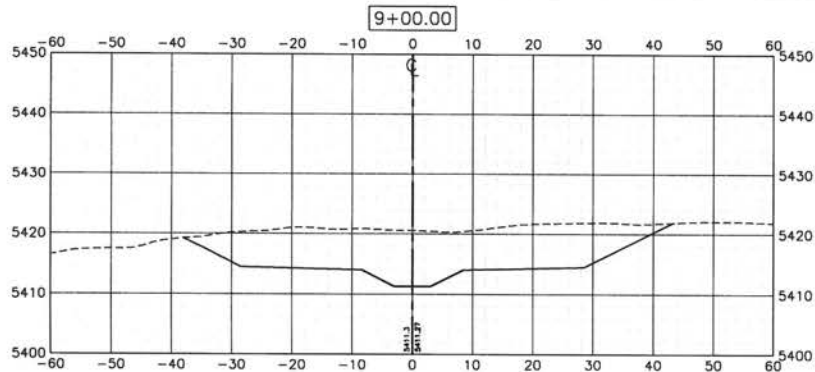
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2501 BELT VIEW DRIVE
HEALING SPRING, AR 72116

RUBY VALLEY CONSERVATION DISTRICT
GRANITE CREEK CHANNEL
RESTORATION
CONSTRUCTION SEQUENCING

SHEET NO.
10
OF 18

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NOTE:
THE TYPICAL RIFFLE CHANNEL SECTION IS SHOWN IN ALL CROSS-SECTIONS FOR UNIFORMITY. THE TYPICAL
POOL CHANNEL SECTION MAY BE SUBSTITUTED FOR THE TYPICAL RIFFLE CHANNEL SECTION IF THE STATION
IS LOCATED IN A POOL, RATHER THAN A RIFFLE. SEE POOL/RIFFLE SCHEDULE ON SHEET 6.

GRANITE CREEK CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'

NO.	REVISION DESCRIPTION	BY	DATE
1	PROJECT: 1-21179	DESIGNED: JOE MOX	
2	DRAWN: MOX	CHECKED: JOE	
3	APPROVED: JAT		
4	DATE: 10/2/2022		

DRAFT



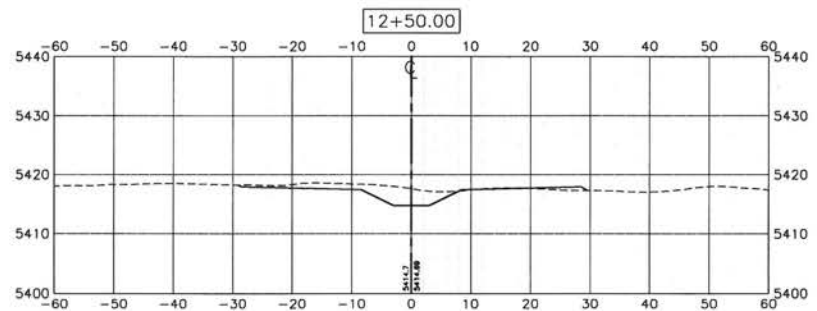
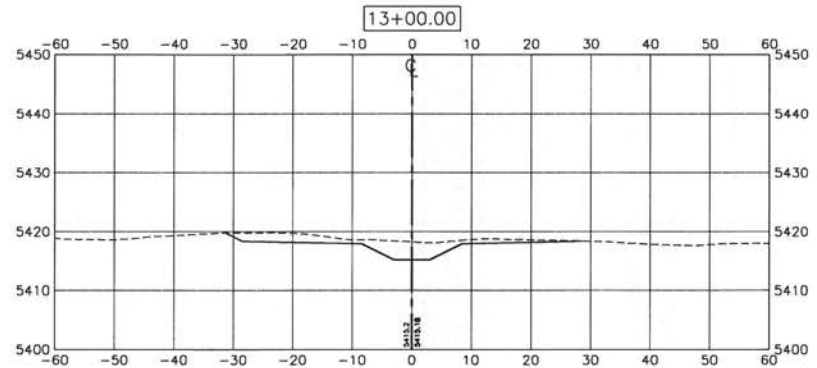
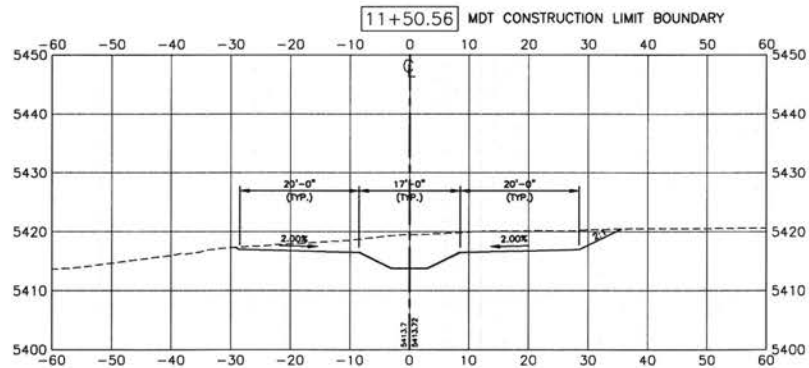
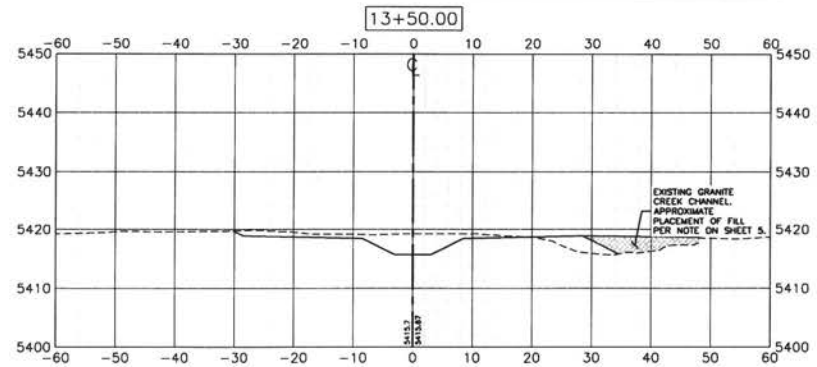
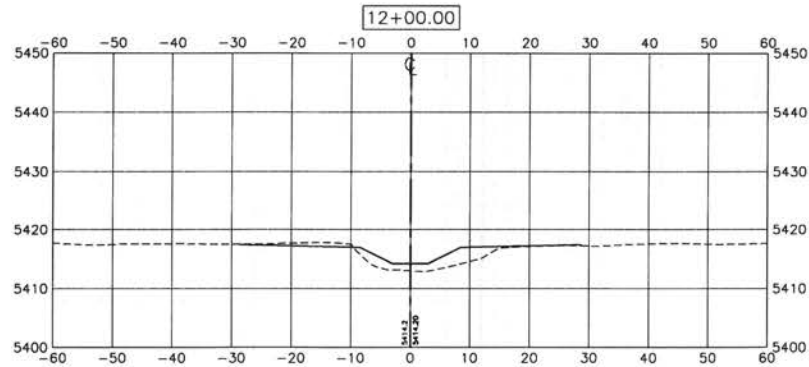
RUBY VALLEY CONSERVATION DISTRICT
GRANITE CREEK CHANNEL
RESTORATION
GRANITE CREEK CROSS SECTIONS

SHEET NO.

12

OF 18

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NOTE:
THE TYPICAL RIFFLE CHANNEL SECTION IS SHOWN IN ALL CROSS-SECTIONS FOR UNIFORMITY. THE TYPICAL POOL CHANNEL SECTION MAY BE SUBSTITUTED FOR THE TYPICAL RIFFLE CHANNEL SECTION IF THE STATION IS LOCATED IN A POOL, RATHER THAN A RIFFLE. SEE POOL/RIFFLE SCHEDULE ON SHEET 6.

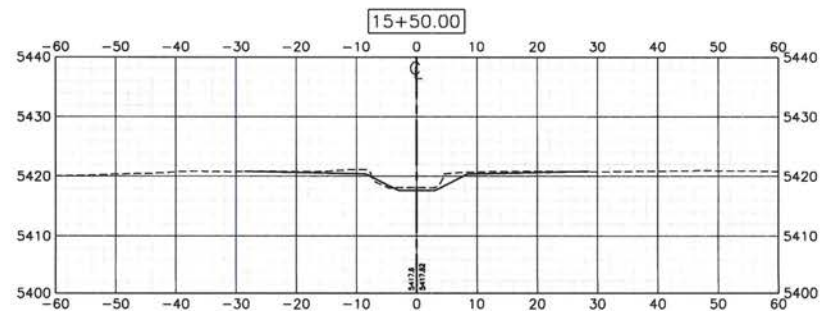
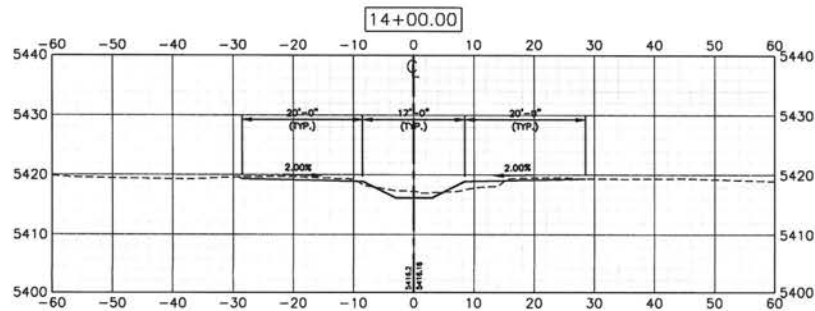
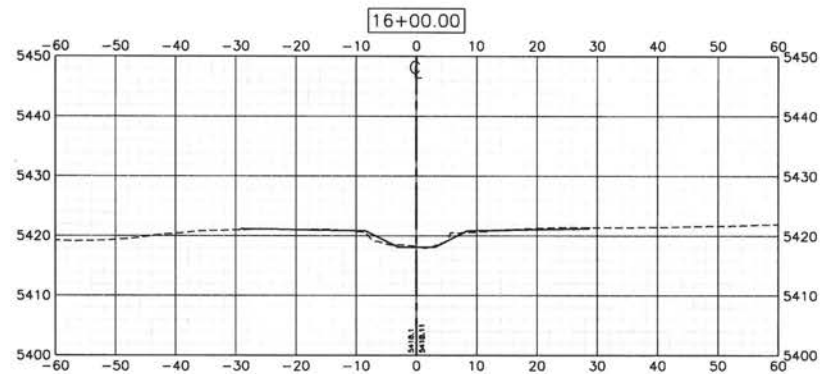
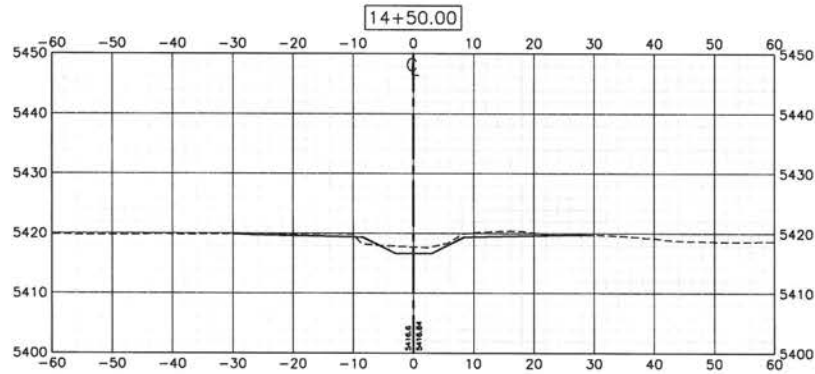
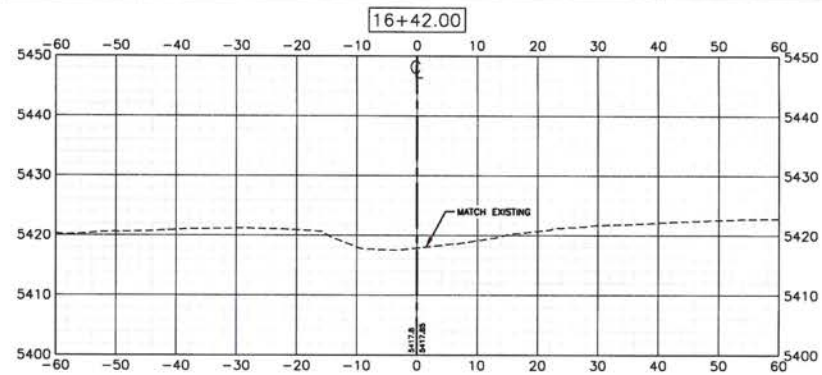
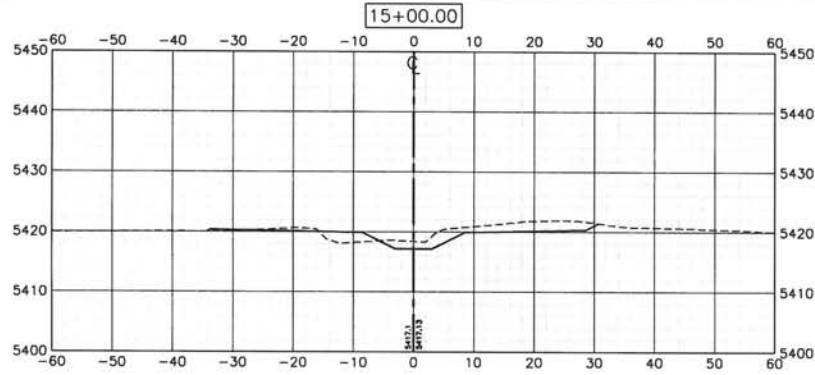
GRANITE CREEK CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'

NOTE:
WHERE THE PROPOSED FLOODPLAIN BENCH ELEVATION IS WITHIN ±0.5 FEET OF EXISTING GROUND, DO NOT DISTURB EXISTING VEGETATION OR REGRADE AREA.

PROJECT: 1-21179	DESIGNED: JOE MOK	CHECKED: JOE	APPROVED: J.T.	DATE: 11/20/2022
<div style="text-align: center;"> Great West <small>CONSULTING ENGINEERS</small> <small>2001 KENIA AVE SUITE 100</small> <small>FOUNTAIN VALLEY, CA 92708</small> </div>				
<div style="text-align: center;"> RUBY VALLEY CONSERVATION DISTRICT GRANITE CREEK CHANNEL RESTORATION GRANITE CREEK CROSS SECTIONS </div>				
<div style="text-align: center;"> SHEET NO. 13 OF 18 </div>				

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NOTE:
THE TYPICAL RIFFLE CHANNEL SECTION IS SHOWN IN ALL CROSS-SECTIONS FOR UNIFORMITY. THE TYPICAL
POOL CHANNEL SECTION MAY BE SUBSTITUTED FOR THE TYPICAL RIFFLE CHANNEL SECTION IF THE STATION
IS LOCATED IN A POOL, RATHER THAN A RIFFLE. SEE POOL/RIFFLE SCHEDULE ON SHEET 6.

GRANITE CREEK CROSS SECTIONS

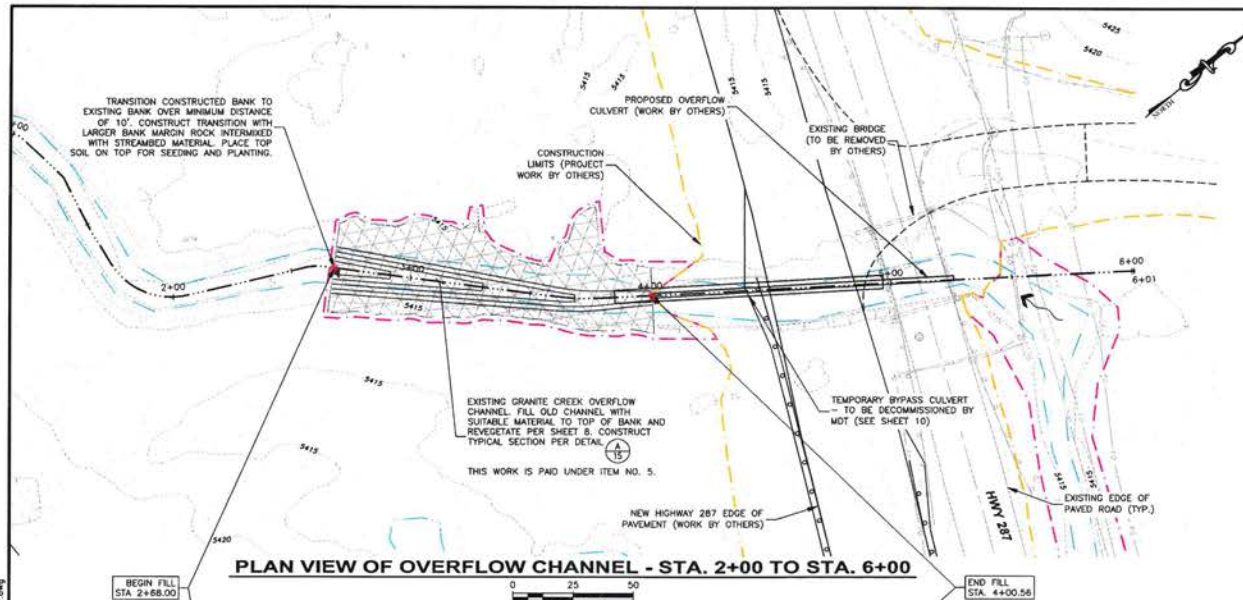
HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'

NOTE:
WHERE THE PROPOSED FLOODPLAIN BENCH ELEVATION
IS WITHIN 30.0 FEET OF EXISTING GROUND, DO NOT
DISTURB EXISTING VEGETATION OR RESIDUE AREA.

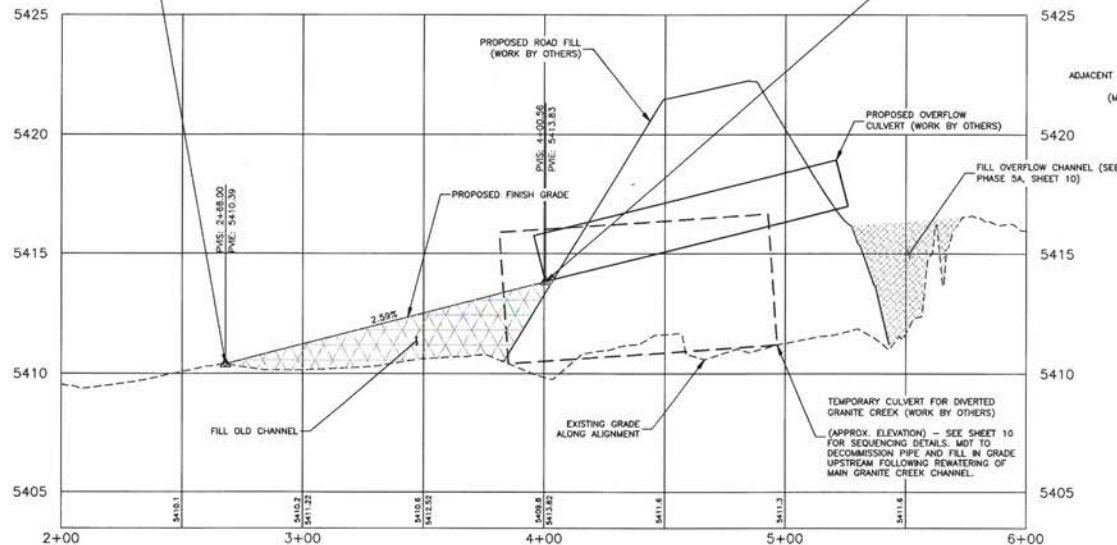
REVISION DESCRIPTION	
NO.	DATE

PROJECT: 1-21179	DRAWN: JOE MOX	CHECKED: JOE MOX	APPROVED: JTT	DATE: 10/2/2022
DRAFT				
				
RUBY VALLEY CONSERVATION DISTRICT GRANITE CREEK CHANNEL RESTORATION GRANITE CREEK CROSS SECTIONS				
SHEET NO. 14 OF 18				

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PLAN VIEW OF OVERFLOW CHANNEL - STA. 2+00 TO STA. 6+00



PROFILE VIEW OF OVERFLOW CHANNEL - STA. 2+00 TO STA. 6+00

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 5'

PROJECT NOTES:

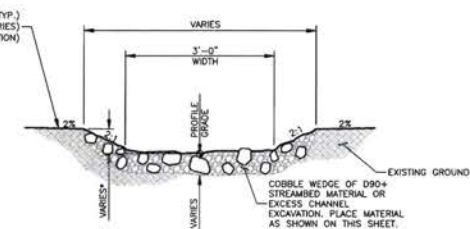
1. REFER TO SHEET 16 FOR CHANNEL CROSS-SECTIONS.
2. ANY VEGETATION ENCOUNTERED DURING CLEARING AND GRUBBING SHALL BE SALVAGED AND USED IN BANK TREATMENTS AND REVEGETATION.
3. QUANTITIES PROVIDED ARE FOR INFORMATION ONLY AND ARE IN-PLACE QUANTITIES. NO SHRINKAGE OR SWELL FACTORS HAVE BEEN APPLIED. CONTRACTOR SHALL VERIFY QUANTITIES.
4. CONTRACTOR HAS THE OPTION TO SALVAGE AND SORT STREAMBED MATERIAL FROM ONSITE OR IMPORT STREAMBED MATERIAL FROM ANOTHER SOURCE. SALVAGED OR IMPORTED STREAMBED MATERIAL MUST MEET THE GRADATIONS SHOWN ON SHEET 6. REGRADE AND RESHAPE THE CHANNEL PER THE TYPICAL STREAM SECTIONS ON THIS SHEET.
5. IF CONTRACTOR ELECTS TO IMPORT STREAMBED MATERIAL, NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS MATERIAL. ALL WORK RELATED TO STREAMBED MATERIAL SALVAGE/SUPPLY AND PLACEMENT IS PAID UNDER ITEM 5.

ESTIMATED QUANTITIES

DESCRIPTION	(CY)
OVERFLOW CHANNEL EMBANKMENT	297

FILL OVERFLOW CHANNEL COORDINATE STAKING TABLE

DESCRIPTION	NORTHING	EASTING
FC1	402,093.63	1,325,199.84
FC2	402,000.05	1,325,106.42



TYPICAL CHANNEL FILL SECTION

NOT TO SCALE

* VARIES TO TIE INTO EXISTING BANK ELEVATION.

REVISION DESCRIPTION	BY	DATE
NO.		
PROJECT 1-21179	DESIGNED: JDE MOK	
	DRAWN: MOK	
	CHECKED: JDE	
	APPROVED: JLT	
	DATE: 11/20/2022	

DRAFT



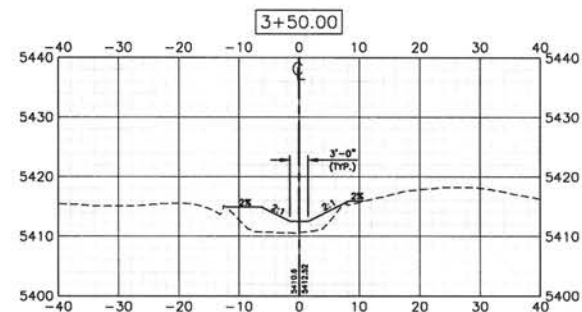
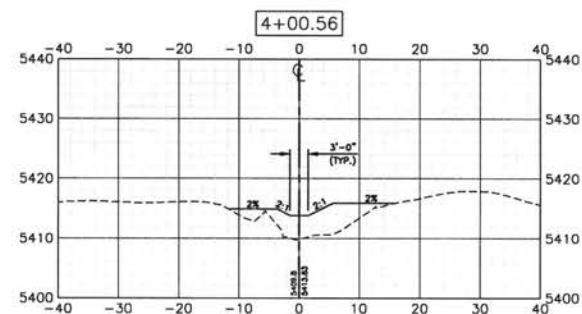
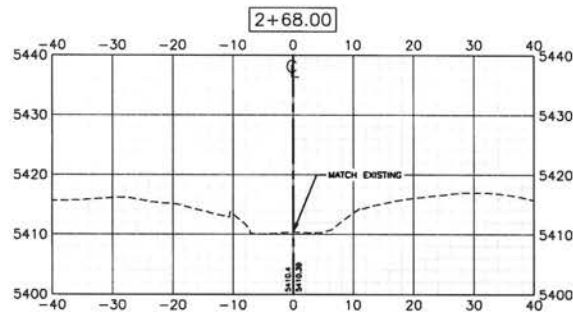
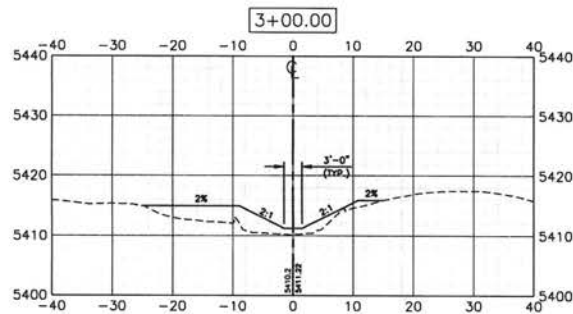
RUBY VALLEY CONSERVATION DISTRICT
GRANITE CREEK CHANNEL
RESTORATION
GRANITE CREEK OVERFLOW CHANNEL PLAN & PROFILE

SHEET NO.

15

OF 18

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NOTE:
FILL CHANNEL AS SHOWN ON SHEET 15.

OVERFLOW CHANNEL CROSS SECTIONS

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'

REVISION DESCRIPTION		BY	DATE
NO.			
PROJECT	1-21179	DESIGNED	JCE MOK
		DRAWN	MOK
		CHECKED	JCE
		APPROVED	JT
		DATE	11/2/2022

DRAFT

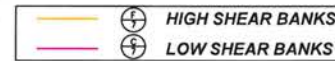
GreatWest
200 BELT VIEW DRIVE
HELENA, MT 59601
(406) 261-1000

**RUBY VALLEY CONSERVATION DISTRICT
GRANITE CREEK CHANNEL
RESTORATION**

GRANITE CREEK OVERFLOW CHANNEL CROSS SECTIONS

SHEET NO.
16
OF 18

LEGEND



ESTIMATED QUANTITIES

DESCRIPTION	QTY
CHANNEL EXCAVATION	175 CY
CHANNEL EMBANKMENT	432 CY
STREAMBED MATERIAL	29 CY
TOPSOIL	41 CY
REVEGETATION ZONE 1	0.06 AC
REVEGETATION ZONE 2	0.07 AC

NOTE: EXCAVATION AND EMBANKMENT ARE FOR INFORMATION ONLY AND ARE BASED ON AVERAGE CHANNEL WIDTH (17.0') AND DEPTH (2.75'). THESE QUANTITIES SHALL BE VERIFIED BY THE CONTRACTOR.

PROJECT NOTES:

- CONTRACTOR SHALL USE SUITABLE MATERIAL FROM CHANNEL EXCAVATION FOR CHANNEL EMBANKMENT. IF ADDITIONAL MATERIAL IS REQUIRED THE CONTRACTOR MAY USE EXCESS EXCAVATION FROM CHANNEL WORK DOWNSTREAM.
- REFER TO SHEET 18 FOR CHANNEL CROSS-SECTIONS.
- SALVAGE ALL SOO MATS AND VEGETATION ENCOUNTERED DURING CLEARING AND GRUBBING AND USE FOR BANK TREATMENTS AND REVEGETATION.
- TOPSOIL AND DUFF LAYERS FROM CHANNEL EXCAVATION SHALL BE SALVAGED FOR PLACEMENT ON COMPLETED SLOPES ABOVE THE HIGH WATER MARK AS SHOWN ON TYPICAL SECTION.
- QUANTITIES PROVIDED FOR INFORMATION ONLY AND ARE IN-PLACE QUANTITIES. NO SHRINKAGE OR SWELL FACTORS HAVE BEEN APPLIED. CONTRACTOR SHALL VERIFY QUANTITIES.
- CONTRACTOR TO IMPORT ALL STREAMBED MATERIAL FROM ANOTHER SOURCE. IMPORTED STREAMBED MATERIAL MUST MEET THE GRADATIONS SHOWN ON SHEET 6. REGRADE AND RESHAPE THE CHANNEL PER THE TYPICAL SECTIONS ON THIS SHEET. ALL WORK RELATED TO STREAMBED MATERIAL SUPPLY AND PLACEMENT IS PAID UNDER ITEM NO. 7.
- ONCE OPEN CHANNEL REHABILITATION IS COMPLETE, THE STREAMBED SHALL BE WASHED AND SEDIMENT-LOADED WATER WITHIN THE ISOLATION AREA SHALL BE PUMPED OUT OF THE CHANNEL AND NOT ALLOWED TO RETURN TO THE STREAM. ONCE THE ISOLATED STREAMBED IS WASHED, WATER WILL BE SLOWLY RELEASED BACK INTO THE CHANNEL TO MINIMIZE SEDIMENT SUSPENSION.
- ALL WORK RELATED TO CHANNEL, FLOODPLAIN, AND BANK CONSTRUCTION WILL BE PAID UNDER ITEM NO. 7. THIS INCLUDES: CHANNEL EXCAVATION & EMBANKMENT, POOL & RIFFLE DEVELOPMENT, STREAMBED MATERIAL, HIGH & LOW SHEAR BANK CONSTRUCTION, SALVAGING & REPLACING VEGETATION & SOO MATS, ETC.

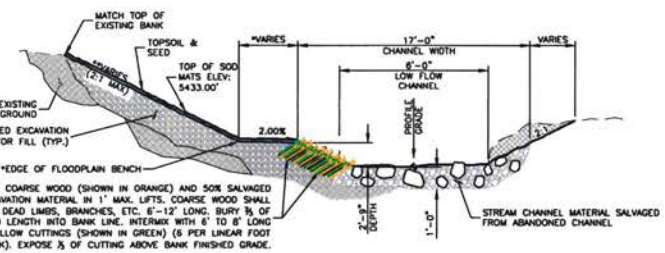
FLOODPLAIN BENCH COORDINATE STAKING TABLE

DESCRIPTION	NORTHING	EASTING
FP1	402,942.74	1,326,126.91
FP2	402,933.67	1,326,226.03

BANK TREATMENT SCHEDULE

LEFT BANK*			RIGHT BANK*		
START STATION	END STATION	BANK TYPE	START STATION	END STATION	BANK TYPE
25+00.00	25+26.71	HIGH SHEAR	25+00.00	26+25	HIGH SHEAR
25+26.71	26+25.00	LOW SHEAR			

*LEFT AND RIGHT BANKS ARE REFERENCED LOOKING DOWNSTREAM

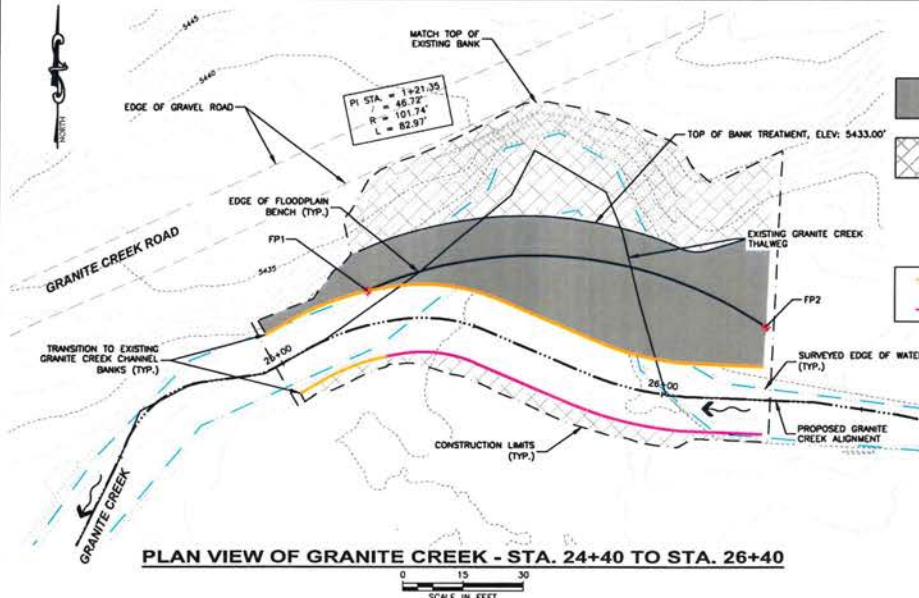


* FLOODPLAIN BENCH WIDTH VARIES. GRADE FLOODPLAIN BENCH TO ALIGNMENT SHOWN ON THIS SHEET.
 ** GRADE FLOODPLAIN BENCH FROM ALIGNMENT SHOWN ON THIS SHEET TO MATCH TOP OF EXISTING BANK.

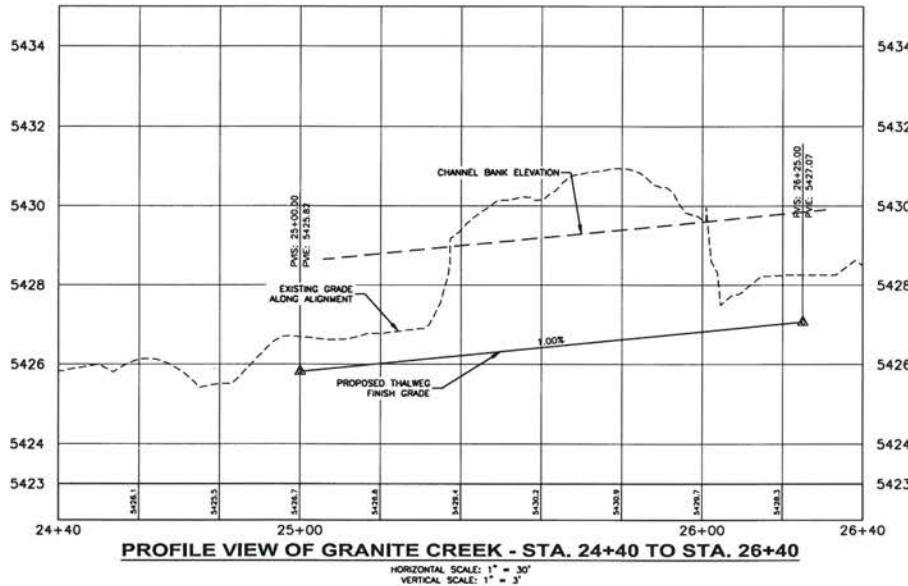
TYPICAL CHANNEL SECTION

NOT TO SCALE

PLAN VIEW OF GRANITE CREEK - STA. 24+40 TO STA. 26+40



PROFILE VIEW OF GRANITE CREEK - STA. 24+40 TO STA. 26+40



RUBY VALLEY CONSERVATION DISTRICT
 GRANITE CREEK CHANNEL
 RESTORATION
 ROADWAY EROSION PLAN & PROFILE

SHEET NO.

17

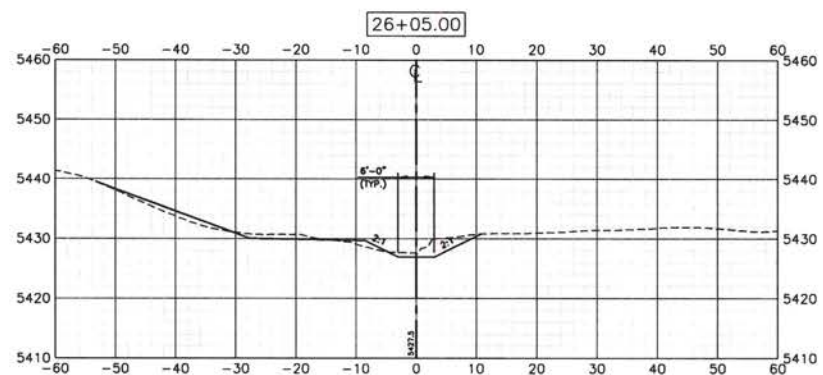
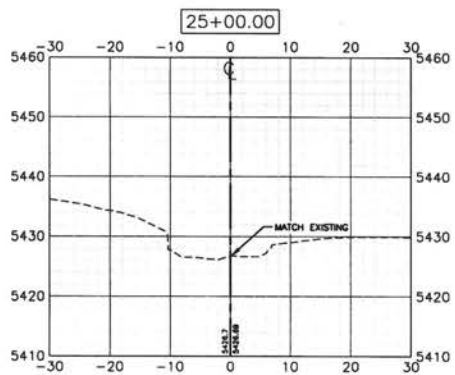
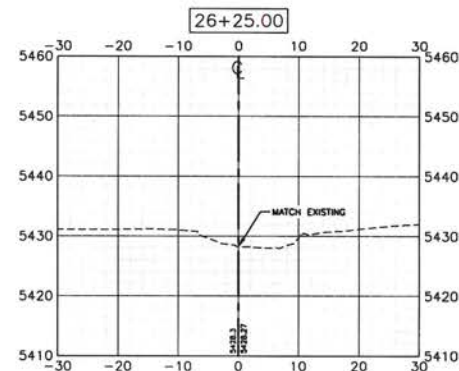
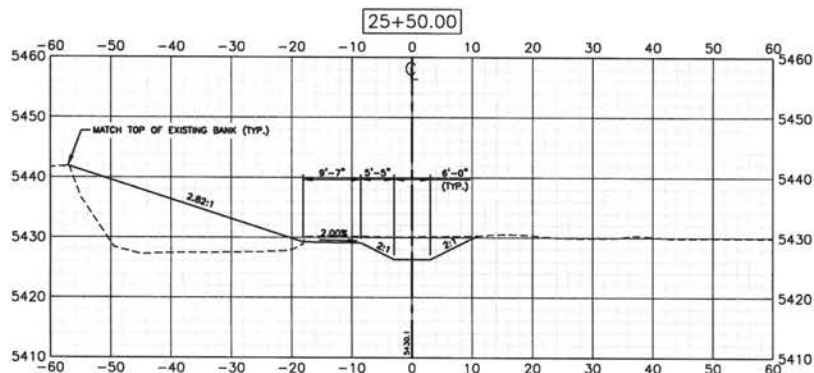
OF 18

DRAFT



PROJECT	DATE
1-2214	
DESIGNED: JDE	
DRAWN: JDE	
CHECKED: JDE	
APPROVED: JDE	
DATE	11/22/23

Y:\Shore\Videos Project\1-21179\Alder Gulch Improvements\CAD 1-21179\Sheet\WCD-Grants Cr-Alder 0\1-21179-18-100.dwg



ROADWAY EROSION CROSS-SECTIONS

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 20'

REVISION DESCRIPTION		BY	DATE
NO.			
PROJECT: 1-21179			
DESIGNED: JZE MOK			
DRAWN: MOK			
CHECKED: JZE			
APPROVED: JET			
DATE: 11/2/2022			

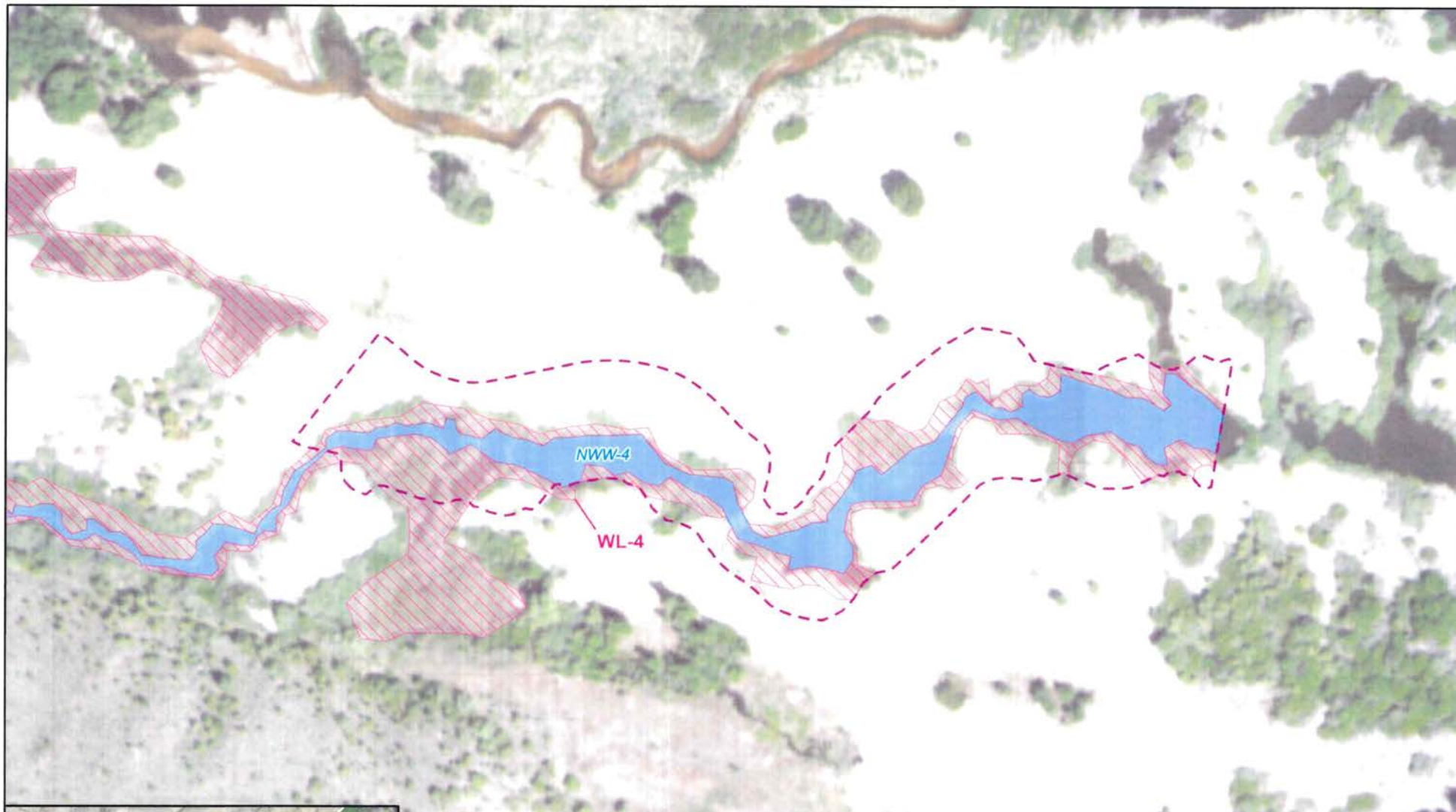
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GreatWest
1001 N. 1st Avenue
Bozeman, MT 59717
(406) 594-1000

**RUBY VALLEY CONSERVATION DISTRICT
GRANITE CREEK CHANNEL
RESTORATION**

ROADWAY EROSION CROSS SECTIONS

SHEET NO.
18
OF 18



ID	Type	Acres	Length (ft)
NWW-4	NWW/Open Water	0.6	958.27
WL-4	Wetland	0.67	

Aquatic Resource Map Alder Gulch Improvements Madison County, Montana

- RVCD Alder Gulch - Construction Limits
- NWW/Open Water
- Wetland

0 37.5 75 150 Feet



