FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION

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

I. APPLICANT INFORMATION

A. Applicant Name: Will McDowell, Clark Fork Coalition

Mailing Address: Box 7593

City: Missoula State: MT Zip: 59807

Telephone: 406-396-7716 E-mail: will@clarkfork.org

B. Contact Person (if different than applicant): _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ E-mail: _____

C. Landowner and/or Lessee Name (if different than applicant): USFS-Pintler District, Beaverhead DL

Mailing Address: 88 Business Loop

City: Philipsburg State: MT Zip: 59858

Telephone: 406-859-3211 E-mail: phooper@fs.fed.us

II. PROJECT INFORMATION

A. Project Name: Road 85 South Fork Dry Cottonwood AOP

River, stream, or lake: South Fork Dry Cottonwood

Location: Township: T6N Range: R8W Section: 7 NE

Latitude: 46.2045 Longitude: -112.6456 *within project (decimal degrees)*

County: Deer Lodge

B. Purpose of Project:

The purpose of the Project is to provide fish passage in the upper Dry Cottonwood Creek drainage, using a new aquatic organism passage culvert; to open 4 miles of headwater habitat and re-establish connectivity for a conservation population of westslope cutthroat trout.

C. Brief Project Description (attach additional information to end of application):

This project will enhance native trout habitat by replacing an under-sized culvert on USFS Road 85 with a larger "aquatic organism passage" culvert designed to enhance fish passage, fully opening the 4 miles of the South Fork of Dry Cottonwood for the westslope cutthroat population.

Dry Cottonwood Creek supports a conservation population of westslope cutthroat trout from near its mouth up to just below the continental divide, a total of over fourteen (14) fish-bearing stream miles. These trout are 95% pure westslope cutthroats, rated by Montana Fish Wildlife and Parks as a "conservation population." This drainage is unusual in that it contains no brown trout or brook trout, which are competitive with the native fish. Hence this watershed provides a very good conservation area for native cutthroat trout, and also a potential recruitment area for fluvial native trout to the Clark Fork river.

However, about four (4) miles of the South Fork of Dry Cottonwood Creek is cut off from upstream fish movements and migration by a fish barrier culvert located near the bottom of this drainage on Road 85. Until 2018 there were three barrier culverts in the Dry Cottonwood drainage, but the upper two were replaced in 2018 and 2020. The remaining older culvert on the South Fork at Road 85 is steep and under-sized and the US Forest Service engineers have determined it also must be replaced, to prevent its wash-out in a large flood event, and to improve fish passage.

The US Forest Service, in its East Deer Lodge Valley Landscape Restoration Management Project Record of Decision approved in 2015, specifically recommended that this culvert be replaced as part of a larger effort to enhance and restore native cutthroat trout, a Species of Special Concern for the USFS, and for the State of Montana (page 11 of ROD). The South Fork has a resident beaver population, whose ponds provide some of the best quality trout habitat in the drainage (the trout grow larger and probably more fecund, in the ponds), hence this project will benefit the westslope cutthroat population in the entire drainage.

To reconnect the South Fork to the mainstem the design recommends removal of the steep existing 71"x47"x 36-ft pipe-arch, and replacement with a 12-foot span 44-ft long structural arch pipe on pre-cast concrete foundation. The structural arch pipe provides a natural stream bed with rock weirs to assure that fish can move up through the new pipe in all flow conditions.

The project will proceed according to the following steps: 1) The US Forest Service has a completed design document and cost estimate for this new culvert. 2) The USFS signed an agreement obligating their RAC match funding and requiring the Clark Fork Coalition (CFC) to provide oversight and project management, in coordination with both the Engineering and Aquatics programs at Beaverhead Deer Lodge National Forest. 3) The USFS fish biologist will acquire a 124 permit from Montana FWP. 4) Once necessary permits are obtained, the CFC will advertise for private construction firms to install the structures, in coordination with the USFS. When a qualified contractor is selected, the CFC will provide oversight of construction, in coordination with the USFS fish biologist at BDNF. The CFC will also provide monitoring reports of project progress and photo documentation of the entire installation process, as well as verifying low-flow velocities at culverts. The CFC will also assure that the construction firm provides maintenance to five miles of Road 85 as they depart the site with their equipment.

The Clark Fork Coalition is involved in a series of activities on private and public land to address all the limiting factors for westslope cutthroat trout in Dry Cottonwood Creek. Irrigation efficiency upgrades, fish screens, road improvements (including sediment traps), off-stream livestock water sources, and riparian fencing projects on public and private land have been completed since 2010.

The replacement of this fish barrier culvert will complete the list of major fishery habitat projects required for the Dry Cottonwood drainage in the USFS East Deer Lodge Valley Landscape Management Restoration Plan.

D. Length of stream or size of lake that will be treated (project extent): 80 feet
Length/size of impact, if larger than project extent (e.g. stream miles opened): 4 miles

E. Project Budget:

Grant Request (Dollars):	$ 39,636
Matching Dollars:	$ 48,000
Matching In-Kind Services:*	$

**salaries of government employees are not considered matching contributions*

Other Contributions (not part of this application)	$
Total Project Cost:	$ 87,636

F. **Attach** itemized (line item) budget – *see budget template*

G. **Insert** or **attach** a project location map showing the project area in relation to a major landmark or town. Please indicate if the project location is on public or private property.

Project on public land (USFS). See attached map.

H. **Attach** specific project plans (e.g. detailed sketches, plan views [showing location and type of channel modifications], example photographs), current condition photographs, and maps. **If project involves water leasing or water salvage complete and attach a supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).*

I. **Attach** letters or statements of support. This includes landowner consent, community or public support, and fish biologist support.

J The project agreement includes a 20-year maintenance commitment. Please indicate (yes or no) that you will ensure project protection for 20 years. Discuss your ability to meet this commitment.
Yes [✔] No [ ]

The maintenance of this new culvert is the responsibility of the Beaverhead Deer Lodge National Forest (BVDL), which maintains all roads and drainage on Forest Road 85, a major Forest access route.

K. **Describe** or **attach** land management & maintenance plans, including changing to grazing regimes, that will ensure protection of the restored area.

The BVDL has worked very hard for last 5 years with the grazing allotment ranches to improve riparian conditions on the Dry Cottonwood Allotment through rotational grazing (one of four main pastures is rested every summer), some riparian rail fencing and log felling, more intensive monitoring, and maintenance of off-stream stock water systems. These improvements intensified 5 years ago when the Forest issued formal warnings to the allotees.

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

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

Westslope cutthroat trout are the only fish that have been sampled in the entire Dry Cottonwood watershed.

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

The project improves connectivity for the trout in this drainage, but opening up the four miles of sSouth Fork habitat. The fact that the South Fork is a beaver colony area is significant, because the beaver ponds provide deeper summer and winter holding habitat in this relatively small stream.

C. Will the project improve fish populations and/or fishing? To what extent?

We believe this type of habitat connectivity is critical to maintaining strong trout populations over the long term. There is some fishing opportunity in Dry Cottonwood Creek, especially at beaver ponds, but we also believe that Dry Cottonwood is a potential source population for recruitment of westslope cutthroat to the mainstem Clark Fork. Large adult cutthroat have been angled recently (2019-2020) in the reach of the Clark Fork near the mouth of Dry Cottonwood, in a reach where cutthroat have been very scarce in the past.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?

The public fishing opportunities are on USFS and DNRC State land. At least 11 miles of Dry Cottonwood is on public land and this project should benefit the long-term viability of this cutthroat population.

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

Forest Road construction in the past did not consider fish passage, so the fact that this culvert is too steep and too small is not surprising. The replacement of this undersized culvert with a larger Aquatic Organism Passage (stream simulation) design is a major improvement for fish passage.

F. What public benefits will be realized from this project?

The fishery will be improved by long-term population sustainability, and better opportunities for recruitment of wild cutthroat to the Clark Fork river fishery.

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

This project is entirely on USFS lands (Beaverhead Deer Lodge NF). No private owners are directly affected.

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

No.

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

Not directly, although these stream segments were placer mined 100 years ago.

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: _____ Date: 28 May 2021

Sponsor (if applicable): _____

Submittal: **Applications must be *signed and received before* December 1 and June 1 of each year to be considered for the subsequent funding period**. Late or incomplete applications will be rejected.

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

Applications may be rejected if this form is modified.

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

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				$ -			1,400.00	$ 1,400.00
Design				$ -		2,000.00	2,000.00	$ 4,000.00
Engineering				$ -				$ -
Permitting				$ -			600.00	$ 600.00
Oversight				$ -		3,000.00	4,000.00	$ 7,000.00
				$ -				$ -
			Sub-Total	$ -	$ -	$ 5,000.00	$ 8,000.00	$ 13,000.00
Travel								
Mileage	600	miles	$0.56	$ 336.00	336.00			$ 336.00
Per diem				$ -				$ -
			Sub-Total	$ 336.00	$ 336.00	$ -	$ -	$ 336.00
Construction Materials** **								
12' span arch culvert	44	feet	$350.00	$ 15,400.00		15,400.00		$ 15,400.00
Rip rap, class 4	60	cubic yards	$95.00	$ 5,700.00		5,700.00		$ 5,700.00
Aggregate road mix	60	cubic yards	$35.00	$ 2,100.00		2,100.00		$ 2,100.00
Concrete footing, precast	90	lineal feet	$220.00	$ 19,800.00		19,800.00		$ 19,800.00
fish rest rock 18"-24"	50	each	$50.00	$ 2,500.00	2,500.00			$ 2,500.00
				$ -				$ -
			Sub-Total	$ 45,500.00	$ 2,500.00	$ 43,000.00	$ -	$ 45,500.00
Equipment, Labor, and Mobilization								
Mobilization	1	lump sum	$5,000.00	$ 5,000.00	5,000.00			$ 5,000.00
Trak Hoe Excavator	12	days	$1,400.00	$ 16,800.00	16,800.00			$ 16,800.00
Dump Truck	12	days	$800.00	$ 9,600.00	9,600.00			$ 9,600.00
Skid Steer	12	days	$450.00	$ 5,400.00	5,400.00			$ 5,400.00
				$ -				$ -
				$ -				$ -
				$ -				$ -
			Sub-Total	$ 36,800.00	$ 36,800.00	$ -	$ -	$ 36,800.00
			TOTALS	$ 82,636.00	$ 39,636.00	$ 48,000.00	$ 8,000.00	$ 95,636.00

OTHER REQUIREMENTS:

SF Dry Cottonwood Creek Rd 85 fish passage 020-2021

(Revised 5/28/2021)

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

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 must include a justification or 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.

Additional details:

APPLICATION MATCHING CONTRIBUTIONS

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

CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
RAC Program Funds (US Forest Service)	$ -	$ 46,000.00	$ 46,000.00	yes
Clark Fork Coalition	$ -	$ 2,000.00	$ 2,000.00	yes
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
TOTALS	$ -	$ 48,000.00	$ 48,000.00	

OTHER CONTRIBUTIONS

(contributions not associated with the application)

CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
US Forest Service-Beaverhead DL NF-salaries	$ 8,000.00	$ -	$ 8,000.00	yes
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
TOTALS	$ 8,000.00	$ -	$ 8,000.00	

SF Dry Cottonwood Creek Rd 85 fish passage

020-2021

FWP.MT.GOV THE **OUTSIDE** IS IN US ALL.

308 Latigo Ln
Butte, MT 59701
Phone: (406) 493-2694
E-mail: caleb.uerling@mt.gov

May 27, 2021

Montana Fish, Wildlife & Parks
Future Fisheries Program, Attn: Michelle McGree
PO Box 200701
Helena, MT 59620

RE: Support for the South Fork Dry Cottonwood Creek – Culvert Replacement Project

This letter is being written in support of the proposed culvert replacement on the South Fork of Dry Cottonwood Creek at the USFS Rd 85 crossing. The current culvert is undersized, set at a steep gradient, and slightly perched. The current culvert is likely a partial fish barrier in certain water conditions due to the water velocity and perched nature of the culvert. Dry Cottonwood Creek and its tributaries support a genetically pure strain of westslope cutthroat trout and no non-native trout. It also likely supports a small number of westslope cutthroat trout from the Clark Fork River carrying out a fluvial life history. Although migratory fish have not been documented in the creek a few juveniles have been documented attempting to out-migrate. The compromised culvert is six stream miles upstream of Dry Cottonwood's confluence with the Clark Fork River, and there are four miles of potentially (exact distribution limits are un-documented) occupied stream upstream of the culvert. Replacing this culvert with a culvert meeting AOP criteria would fully connect nearly 10 miles of occupied westslope cutthroat trout habitat.

The upper Clark Fork River Drainage only supports a small handful of genetically pure "conservation populations" of westslope cutthroat trout today. However, the Dry Cottonwood Creek drainage is one place that does support genetically pure westslope cutthroat trout. Helping this population become as resilient and robust as possible by addressing this remaining passage issue is of great conservation value.

Please consider this application for funding and feel free to contact me if you have any questions or need more information about Dry Cottonwood and the benefits of this project to the fishery.

Sincerely,

Caleb Uerling
Montana Fish, Wildlife & Parks
Fisheries Biologist – Upper Clark Fork

USDA United States Department of Agriculture Forest Service Beaverhead-Deerlodge National Forest Pintler Ranger District 88 Business Loop Philipsburg, MT 59858 406-859-3211

May 26, 2021

Michelle McGree
Montana FWP
Future Fisheries Improvement Program
1420 East Sixth Ave
Helena, MT 59620

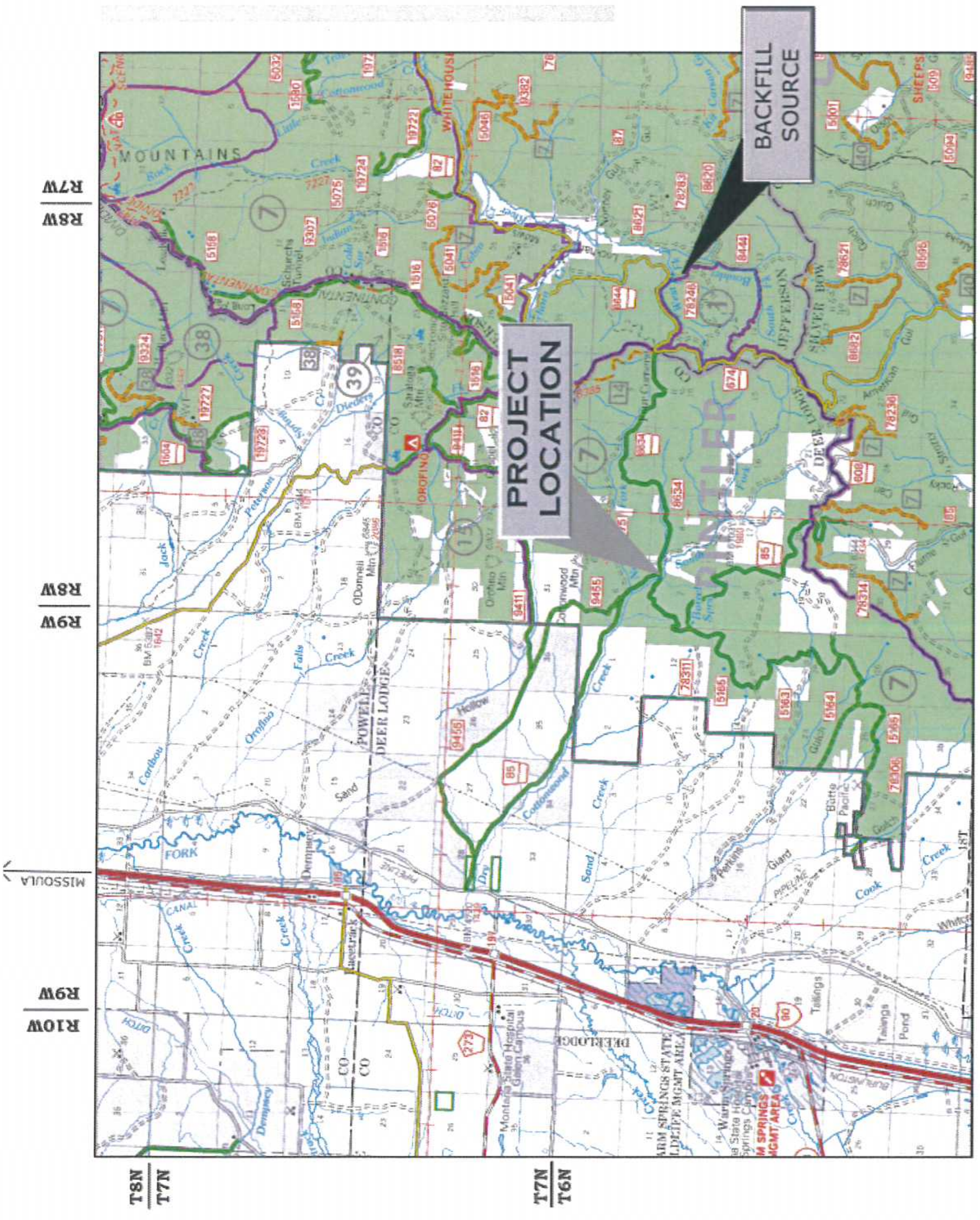
Dear Ms. McGree:

I am writing in support of the South Fork Dry Cottonwood Creek culvert replacement project on NFSR 85. The proposal is to replace the existing, undersized culvert with a structure that will allow for aquatic organism passage (AOP) and provide flow conveyance through Q_{100} flows (118 cfs). The Dry Cottonwood drainage is a priority for westslope cutthroat trout conservation and the Beaverhead-Deerlodge National Forest (BDNF) has previously invested in AOP structures at road crossings upstream and downstream of the proposed crossing. The BDNF has already completed NEPA for the proposed project and will be involved in implementation.

The BDNF supports the grant application submitted by the Clark Fork Coalition for funding to provide AOP at the South Fork Dry Cottonwood Creek crossing on NFSR 85.

Sincerely,

Erin Ryan
Hydrologist
Beaverhead-Deerlodge National Forest



VICINITY MAP

SUMMARY OF ESTIMATED QUANTITIES

ITEM NO.	ITEM DESCRIPTION	MEASUREMENT		QUANTITY
		METHOD	UNIT	
15101	MOBILIZATION	LSQ	Lump Sum	1
15102	EQUIPMENT WASHING	LSQ	Lump Sum	1
15202	STAKE CLEANUP	LSQ	Lump Sum	1
15221	CONSTRUCTION STAKING	LSQ	Lump Sum	1
15401	CONTRACTOR TESTING	LSQ	Lump Sum	1
15713	SOIL EROSION & POLLUTION CONTROL	LSQ	Lump Sum	1
15730	DEWATERING	LSQ	Lump Sum	1
20301	REMOVAL OF EXISTING 71" X 47" CORRUGATED STEEL PIPE ARCH	AQ	Each	1
20404	BACKFILL (704.03a) (GOVERNMENT FURNISHED)	CQ	Cubic Yard	60
20806	STRUCTURE EXCAVATION	LSQ	Lump Sum	1
25101	PLACED RIPRAP, CLASS 4 MACHINE PLACED (CONTRACTOR FURNISHED)	CQ	Cubic Yard	60 *
25150	FISH REST STOP ROCK	AQ	Each	20
30809	CRUSHED AGGREGATE, SURFACING, COMPACTION METHOD 2 (CONTRACTOR FURNISHED)	CQ	Cubic Yard	60
553A02	PRECAST CONCRETE MEMBER, CULVERT FOOTING	AQ	Linear Foot	90
60304	12' SPAN, 4'-0½" RISE STRUCTURAL PLATE ARCH, 0.111" THICKNESS	AQ	Linear Foot	44
62201	EQUIPMENT RENTAL, HYDRAULIC EXCAVATOR WITH THUMB	AQ	Hour	24
62202	EQUIPMENT RENTAL, LARGE DUMP TRUCK	AQ	Hour	8

* ***Material salvaged from the excavation meeting the Class 4 Riprap gradation requirements may be used.***

CQ= Contract Quantity (See SECTION 109.02(b) of the STANDARD SPECIFICATIONS)
AQ= Actual Quantity; LSQ = Lump Sum Quantity

GENERAL NOTES

DESIGN: ***This structure is designed for HL-93 live loading in accordance with AASHTO LRFD Bridge Design Specifications, 7th edition.***

HYDROLOGY AND HYDRAULICS: ***This structure has been designed to pass a flood of 118 cfs (Q100) with a Headwater Depth to Culvert Rise ratio less than 1.***

SPECIFICATIONS: ***Construct the project in compliance with Federal Highway Administration Standard Specifications for Construction of Road and Bridges on Federal Highway Projects (FP-03) and applicable Forest Service Supplemental Specifications.***

EROSION CONTROL PLAN: ***Submit a Dewatering and Soil Erosion and Sediment Control Plan to the Contracting Officer for approval at least fourteen (14) days prior to beginning work. See Section 157 of the Supplemental Specifications for details. Construct temporary means to divert the flow of the live stream as necessary to perform work. Do not pump water from excavations directly into the live stream.***

DISPOSAL: ***All materials designated for removal become the property of the Contractor and are to be disposed of by removing from site in an environmentally safe manner in accordance with all Local, State and Federal requirements.***

TEMPORARY TRAFFIC CONTROL: ***Contractor will be allowed to close Road 85 to traffic during construction of the new culvert. See Section 156.03 of the Supplemental Specifications for road closure limitations. Submit a Temporary Traffic Control Plan to the Contracting Officer for approval at least 30 days prior to intended use. Temporary traffic control is incidental to other items.***

CONCRETE: ***Use Class A(AE) Concrete for Precast members. The required 28-day compressive strength (f'c) is 5000 psi with an entrained air content of 5% ± 1%. Finish all precast elements with an ordinary surface finish. Make all concrete in accordance with an approved mix design. Chamfer all exposed edges of concrete 3/4" and fillet all acute angles 3" unless otherwise noted.***

REINFORCING STEEL: ***Use reinforcing steel of the deformed type conforming to AASHTO M31 (ASTM A615) Grade 60. Concrete cover is as shown; where not shown it must conform to AASHTO. Cut and bend reinforcing steel in conformance with ACI 315. Lap splice bars 2' min.***

HARDWARE AND STRUCTURAL STEEL: ***Use shapes, plates and bars meeting the requirements of ASTM A36, unless otherwise specified in these plans. Use hardware meeting the requirements of ASTM A325, except as noted in the drawings.***

WELDING: ***Weld in accordance with the Structural Welding Code, AWS D1.1. A certified welder is required.***

FOREST SERVICE USDA DEPARTMENT OF AGRICULTURE
REGION ONE

BY	DATE	REVISION DESCRIPTION

DESIGN ___ PROJ NO. ____
DRAWN ___ DATE ____
CHECKED ___ SURVEYED ____

DJ&A, P.C.

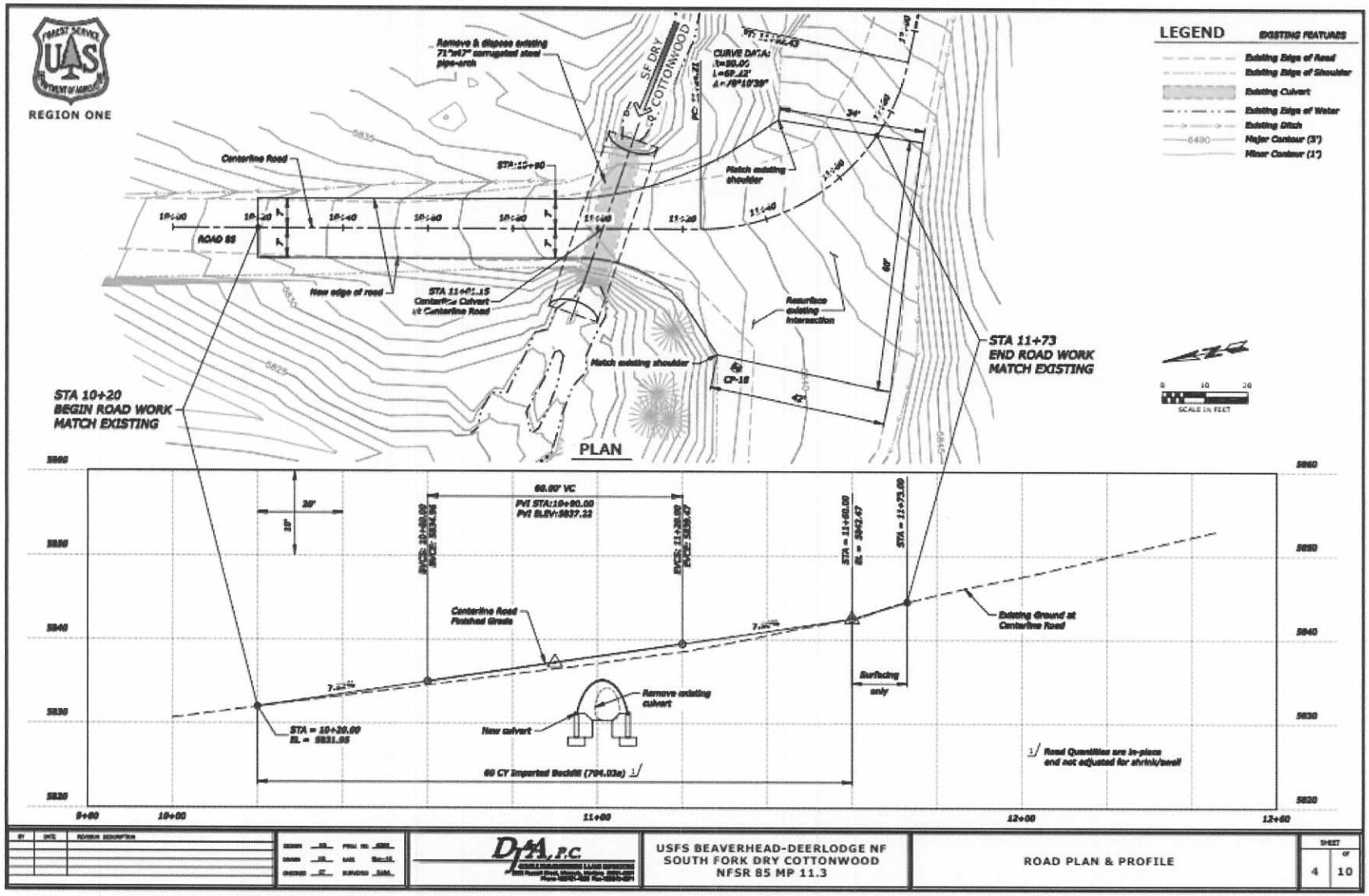
USFS BEAVERHEAD-DEERLODGE NF
SOUTH FORK DRY COTTONWOOD
NFSR 85 MP 11.3

SUMMARY OF QUANTITIES & GENERAL NOTES

SHEET 2 OF 10

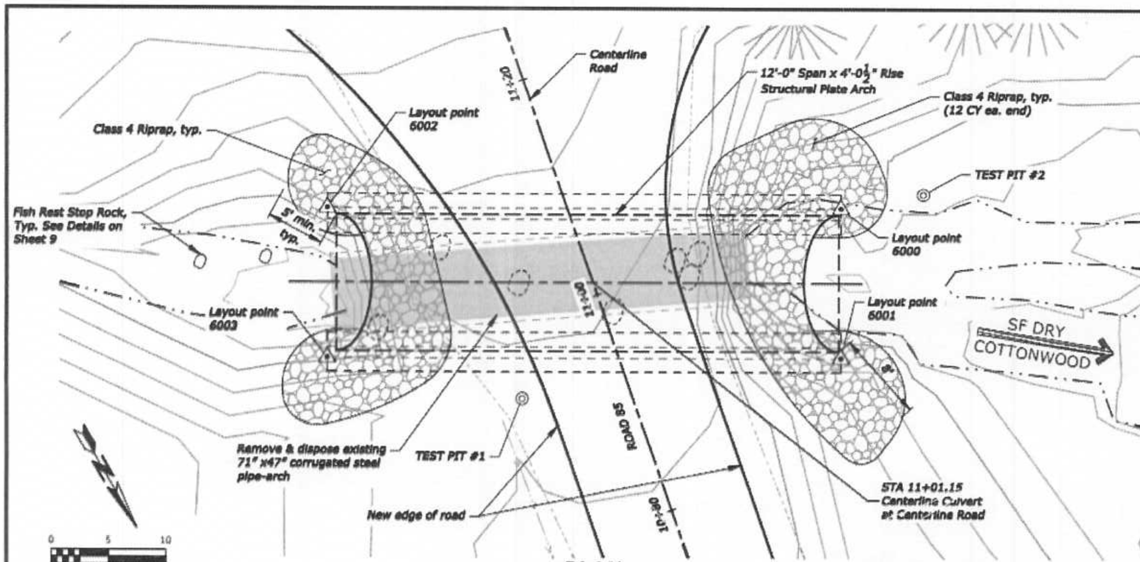
SF Dry Cottonwood Creek Rd 85 fish passage

020-2021



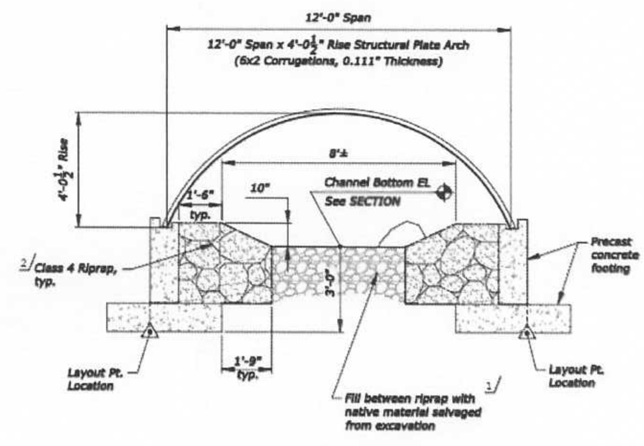
SF Dry Cottonwood Creek Rd 85 fish passage

020-2021



PLAN

NOTE: See Sheet 6 for soil test pit summary.

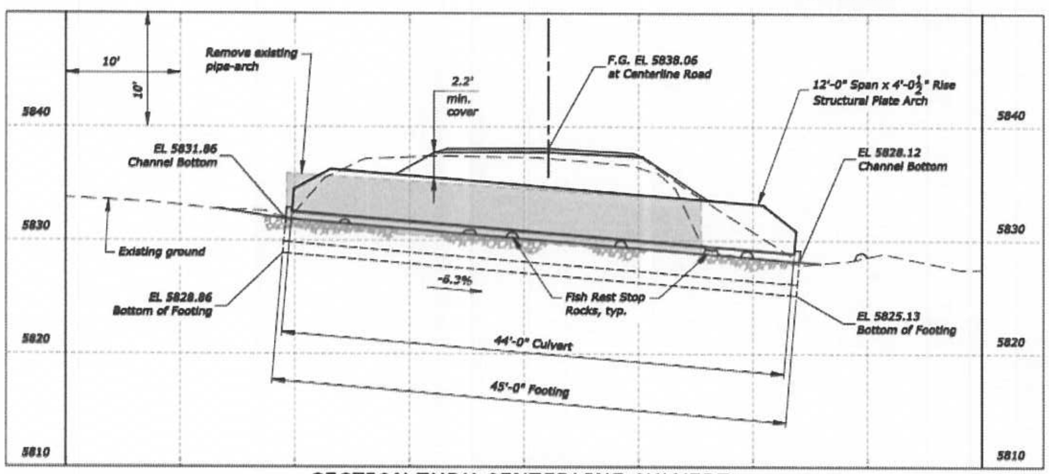


TYPICAL SECTION

Scale: Not to Scale

1/ Fill between riprap with native material preserved from the excavation that is similar to the natural channel upstream and downstream from the culvert. Final mix should be graded to produce a dense, well interlocked bed with low permeability. THE CONTRACTOR IS RESPONSIBLE TO INSURE THAT THE STREAM FLOW DOES NOT GO SUBSURFACE THROUGH THE CULVERT FOR A 48 HOUR PERIOD AFTER RE-WATERING.

2/ Inter-Mix fine native material as directed by CO during placement of riprap to seal voids. Ensure fine material is dispersed throughout the full riprap section.



SECTION THRU CENTERLINE CULVERT

Scale: 1" = 10'

HYDRAULIC DATA:
Drainage area= 8.2 sq. mi.
Q2= 23 cfs
Bankfull width= 10 ft
Avg. Depth= 1.2 ft

Q100= 118 cfs
Avg. Depth= 2.3 ft

LAYOUT POINTS

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
6000	728603.9376	1172621.9122	5825.13	Footing
6001	728615.3167	1172628.5362	5825.13	Footing
6002	728581.3770	1172660.6684	5828.86	Footing
6003	728592.7561	1172667.2924	5828.86	Footing

REGION ONE

BY	DATE	REVISION DESCRIPTION

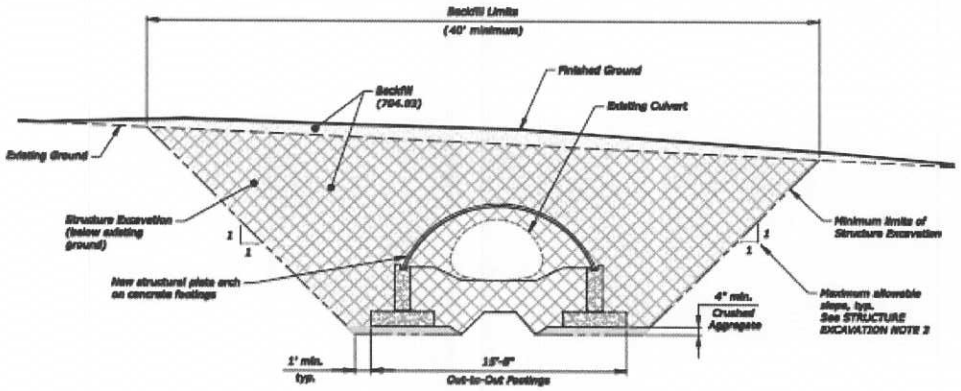
DESIGN KG PROJ. NO. 6398
DRAWN KG DATE Mar-15
CHECKED CT SURVEYED DJ&A

DJ&A, P.C.
CONSULTING ENGINEERS & LAND SURVEYORS

USFS BEAVERHEAD-DEERLODGE NF
SOUTH FORK DRY COTTONWOOD
NFSR 85 MP 11.3

CULVERT GENERAL LAYOUT

SHEET 5 OF 10



STRUCTURAL EXCAVATION & BACKFILL

Not to Scale

SOIL EXPLORATION SUMMARY

Depth (ft)	Description	USCS	AASHTO	OSHA (Visual)	%<#200	Plasticity Index	Presumptive Allowable Bearing Pressure Range (tsf)	Suitable for Backfill according to 704.03(a)	Moisture Content (%)
TEST PIT #1									
0-4.5	Light to dark brown sand & silt	no test	no test	B	no test	no test	2.5	-	no test
4.5+	Same with large cobbles & boulders	SM	A-2-4	B/C	28	8	5	YES	no test
TEST PIT #2									
0-2	Dark brown clayey-silty sand w/ cobbles & rock, moisture seeping up	SC	A-2-7	B	54	27	3	YES	23.2

Soil sample information provided by USFS

See Sheet 5 for location of test pits

STRUCTURE EXCAVATION NOTES:

1. Complete Structure Excavation in accordance with FP-03 Section 206.
2. The contractor is solely responsible for excavation support and compliance with all applicable OSHA regulations.
3. Excavation limits shown comply with OSHA sloping and benching requirements based on Soil Type B (SM, SC Unified Soil Classification). Notify the CO immediately if actual conditions vary.
4. Submit an Excavation Plan for approval prior to beginning the work. As a minimum, the Excavation Plan must include: drawings and a written outline illustrating and describing the proposed excavation limits, methods, equipment to be used, location of stockpiles, and estimated quantities. The Excavation Plan must comply with all applicable OSHA requirements and list the soil type assumed. Changes to the excavation limits shown here for the Contractor's dewatering methods or Contractor convenience must be shown on the Plan and are the responsibility of the Contractor. The Excavation Plan is incidental to the work.
5. Structure Excavation quantity shown is for information only and based on the limits shown. The Contractor is responsible for determining actual quantities based on the approved Excavation Plan.

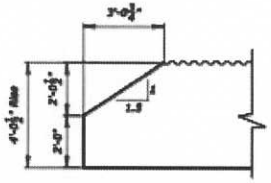
ESTIMATED QUANTITIES		
ITEM	UNIT	QUANTITY
STRUCTURE EXCAVATION	Cubic Yard	410
BACKFILL (704.03)	Cubic Yard	320

DEWATERING AND SOIL EROSION CONTROL NOTES:

1. Protect against soil erosion and sedimentation during construction in accordance with FP-03 Section 157 and the project permits. Prepare and submit a Soil Erosion and Sediment Control Plan to the CO for approval.
2. Dewater the excavation in accordance with FP-03 Sections 208 and 157 and the requirements on Sheet 10.
3. Contractor should anticipate water infiltrating the excavations.
4. Subgrade excavation, footing placement, riprap placement, and backfill are to be completed in accordance with the contract specifications. Standing or running water in the work area does not relieve the Contractor from meeting the specifications.
5. Dewatering is the sole responsibility of the Contractor. Develop and submit to the CO a project-specific Dewatering and Sediment Control Plan with the Excavation Plan for approval. Sheet 10 illustrates the general dewatering requirements and possible methods and equipment and is not considered adequate or complete for this project. Develop and submit a project-specific Dewatering Plan including drawings and a written outline illustrating and describing proposed layout, methods, equipment and anticipated stream flow volume. Approval of the Contractor's Dewatering Plan does not relieve the Contractor from completing the work as required. If the Contractor's methods are not producing adequate results, the Contractor must re-evaluate and submit another Dewatering Plan. Re-submittal of the Dewatering Plan, if required, is incidental to the work.

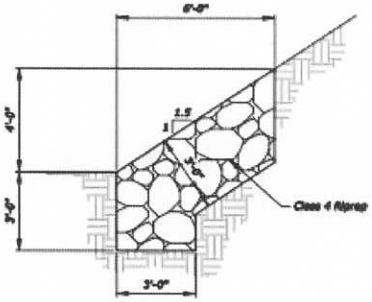
STRUCTURE BACKFILL NOTES:

1. Place Backfill for the culvert in accordance with FP-03 Section 208 with material meeting the requirements of Section 704.03, Backfill.
2. Backfill limits shown here are the minimum requirements.
3. Any backfill outside the limits shown is considered embankment and must meet the requirements for embankment.
4. It is assumed that material from Structure Excavation at this site will be meet the requirements for Backfill. Some mixing and sorting may be required. Approval from the CO must be obtained prior to use.
5. Compact Backfill in accordance with FP-03 Section 208.11 (AASHTO T99, Method C and AASHTO T310) and submit test results to the CO.
6. Backfill quantity shown is for information only and must be verified by the Contractor.



CULVERT END BEVEL

Not to Scale



RIPRAP DETAIL OUTSIDE OF CULVERT

Not to Scale

REGION ONE

BY	DATE	REVISION DESCRIPTION

DMA, P.C.

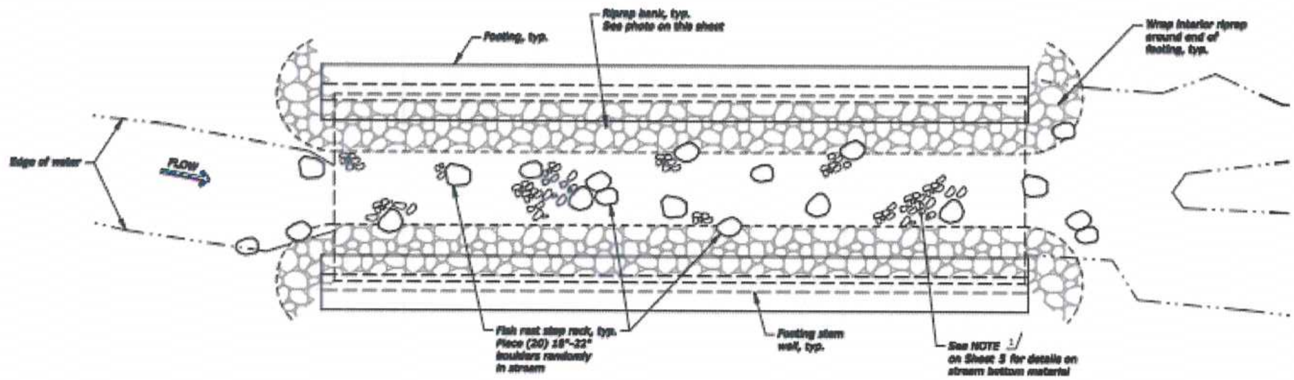
USFS BEAVERHEAD-DEERLODGE NF
SOUTH FORK DRY COTTONWOOD
NFSR 85 MP 11.3

CULVERT DETAILS

SHEET 6 OF 10

SF Dry Cottonwood Creek Rd 85 fish passage

020-2021



STREAM DETAILS

Not to Scale

NOTE: Use either native rocks salvaged from the excavation or riprap for fish rest stop rocks.

CULVERT ROCK BANK EXAMPLE

FISH REST STOP DETAIL

Not to Scale

REGION ONE

DJ&A, P.C.

USFS BEAVERHEAD-DEERLODGE NF
SOUTH FORK DRY COTTONWOOD
NFSR 85 MP 11.3

STREAM DETAILS

SHEET 9 OF 10