

Buffalo Creek at May Road Bank Stabilization

DSR 119-16-003 EWP Project

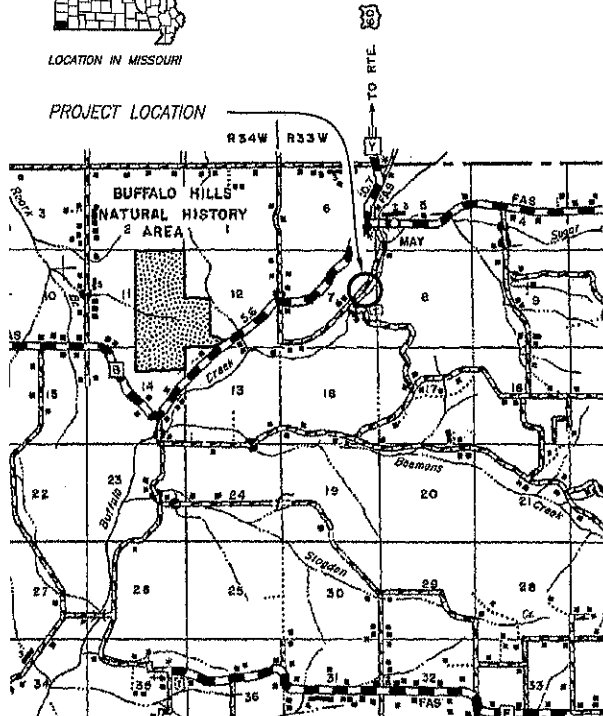
NE 1/4 NE 1/4 Sec. 7-T23N-R33W

Lat= 36.74591 N ; Long= 94.52733 W

McDonald County, Missouri



LOCATION IN MISSOURI



NOTES:

1. All construction shall be completed in compliance with the conditions of the U.S. Army Corps of Engineers General Permit (GP) 41.
2. Missouri law requires that any person making or beginning any excavation notify all underground facility owners/operators which may be affected by said excavation at least two but not more than ten working days in advance, except in the case of an emergency. A "working day" is everyday, except Saturday, Sunday, or a legally declared local, state or federal holiday.
3. To make this notification and locate all utilities at the site or on ingress & egress roads prior to excavation, contact the Missouri One Call system and submit a locate request. The phone number for the Missouri One Call System is 800-344-7483 (1-800-DIG-RITE).
4. Contact county road department prior to starting work to confirm tonnage limitations on local bridges.
5. The contact numbers for technical assistance concerning the plan set are as follows:

Sponsor Liaison: Keith Lindquist, McDonald Co. Commission 417-223-7516
Government Liaison: John Feistner or Michael Malone 417-831-5246 x123



The excavator is responsible for having all utilities located at the site or on ingress road prior to beginning work. Call 1-800-DIG-RITE (344-7483) or 811 or click www.mocall.com 3 days before you dig! The landowner shall ensure that the excavator completes the utility locate request.

ESTIMATED PROJECT QUANTITIES	
Length of Stream Armament	225 FT
Riprap Armament Volume	775 CY
Riprap Armament Weight	1,160 TN*
Excavation	180 CY
Seeding and Mulching	1 AC
Pollution Control	1 LS

* Estimate based on 1.5 tons per cubic yard of placed and compacted rock

SHEET INDEX

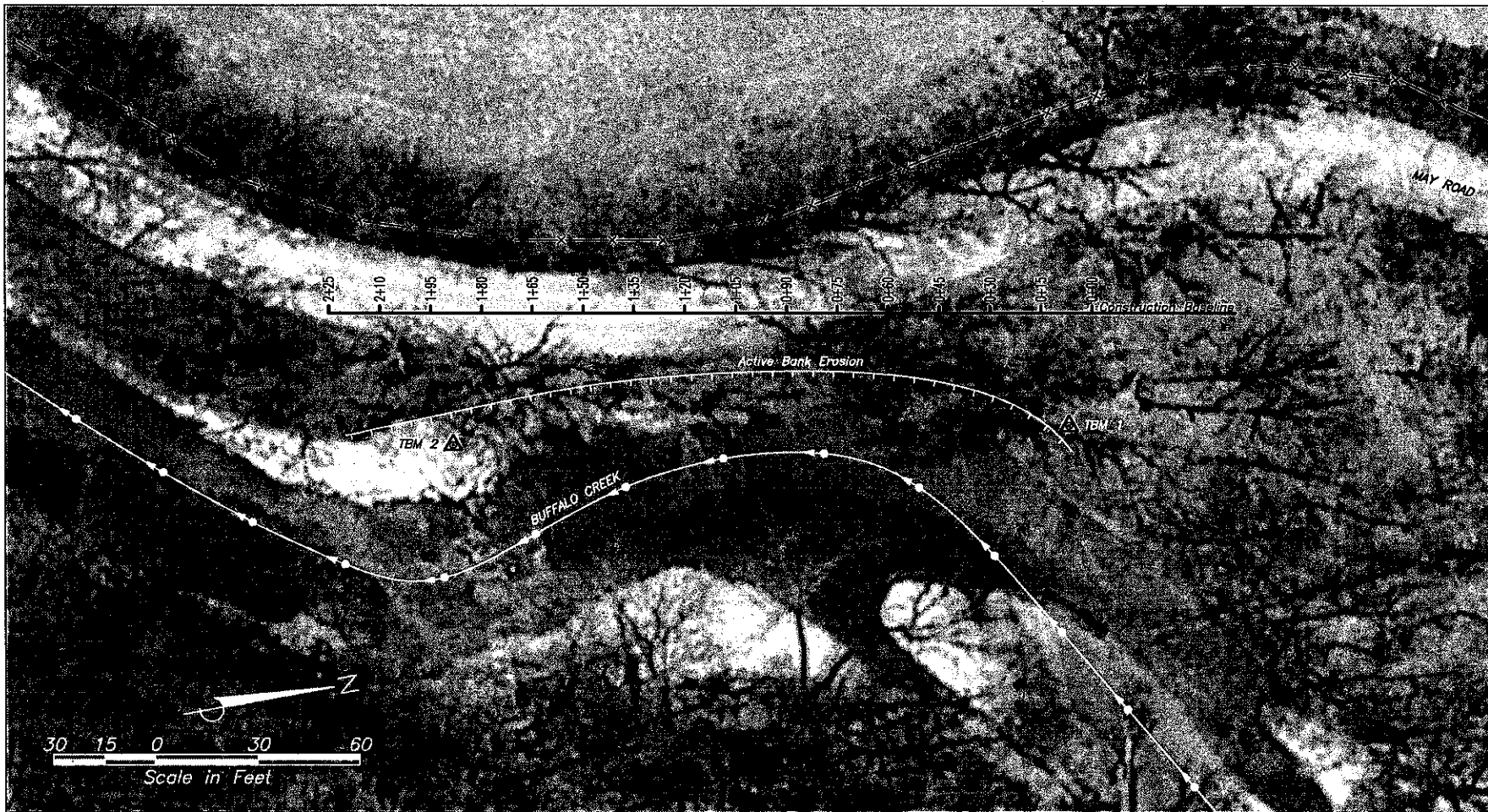
- Sheet -1- Cover Sheet
- Sheet -2- Existing Condition
- Sheet -3- Planned Construction
- Sheet -4- Cross Section Data
- Sheet -5- Project Details
- Sheet -6- Pollution Control

Date: 8/16
 Drawn: 8/16
 Checked: 8/16
 Approved: 8/23/16
 (Signatures)

COVER SHEET
 Buffalo Creek at May Road
 DSR 119-16-003 EWP
 McDonald County, Missouri

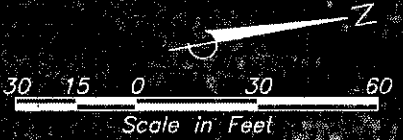
United States
 Department of
 Agriculture
USDA
 Natural Resources
 Conservation Service

File Name:
 Drawing Name:
 Sheet 1 of 6



Date 8/16
 Designed mjm
 Drawn mjm
 Checked _____
 Approved _____

EXISTING CONDITION
 Buffalo Creek at May Road
 DSR 119-16-003 EWP
 McDonald County, Missouri



CONSTRUCTION BASELINE DATA			
Station	Northing	Easting	Elevation
TBM 1	13,345,816.36	1,193,092.22	886.3
TBM 2	13,345,636.20	1,193,087.62	882.7
S1 AP	13,345,742.10	1,193,121.52	--
S2 AP	13,345,643.50	1,193,104.87	--
0+00	13,345,828.46	1,193,060.56	--
0+60	13,345,769.29	1,193,050.57	--
1+20	13,345,710.13	1,193,040.58	--
1+80	13,345,650.97	1,193,030.60	--
2+25	13,345,606.59	1,193,023.11	--

NOTES ON CONTROL POINTS:

- Control established using GPS survey method. Horizontal control is reference the North American Datum 83. Vertical control is reference the North American Vertical Datum 88. All displayed units in feet.
- TBM 1 control is the head of 1/2" dia. steel bolt driven flush with the ground marked with fluorescent paint. TBM 2 control is top of rock outcrop with etched X marked with fluorescent paint.

NOTES ON PLANNED CONSTRUCTION:

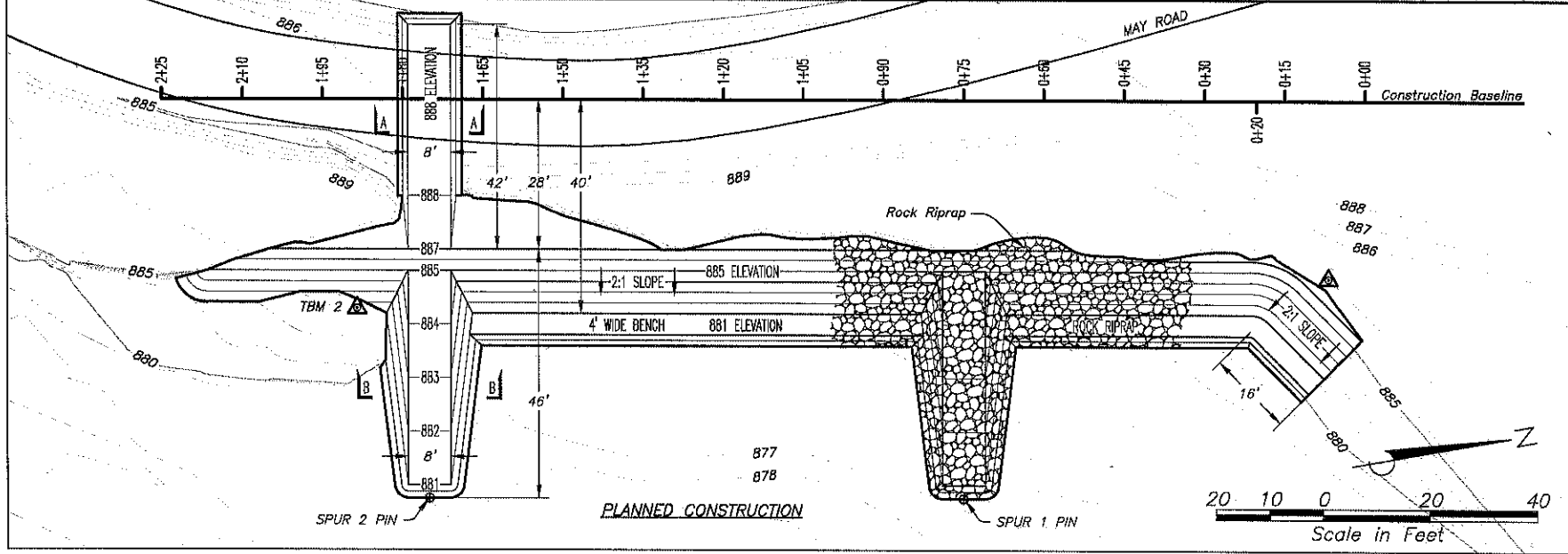
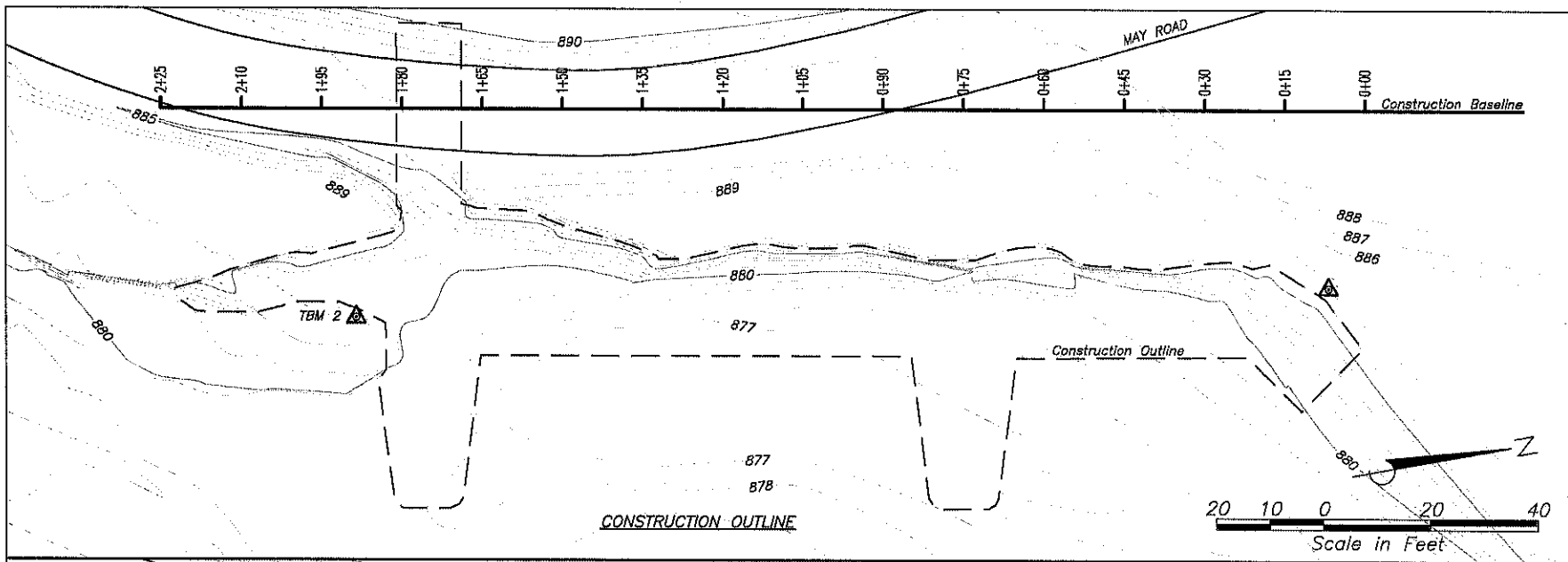
- All construction shall be completed in compliance with the conditions of the U.S. Army Corps of Engineers General Permit (GP) 41.
- Contractor will coordinate haul route with the county road department to confirm tonnage limitations on bridges and will submit a transportation safety plan to ensure proper signage and safety measures are in place prior to construction.
- Government representatives listed on Sheet 1 are available on request to establish the construction baseline. Layout of the slope protection measures shall be approved in the field by the government representative.

LEGEND:

- Streamflow
- Active Erosion
- Overhead Utility
- Existing Fence
- Benchmark

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 Natural Resources Conservation Service

File Name _____
 Drawing Name _____
 Sheet 2 of 6

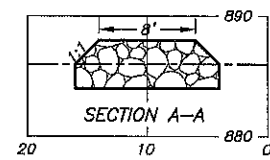
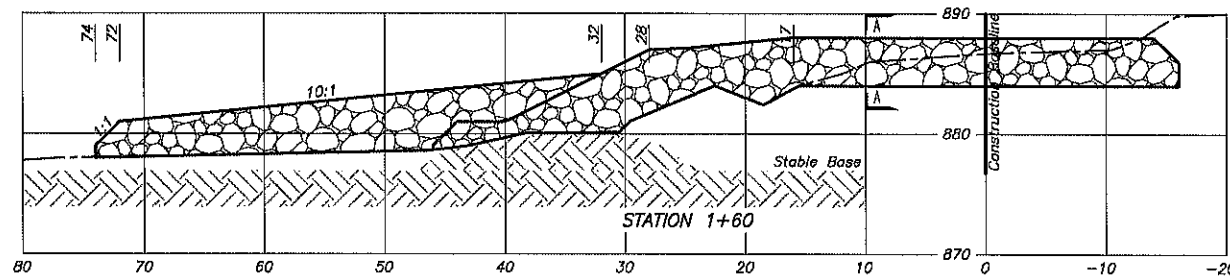
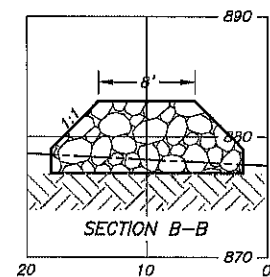
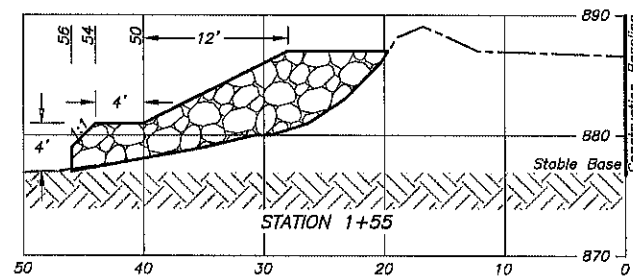
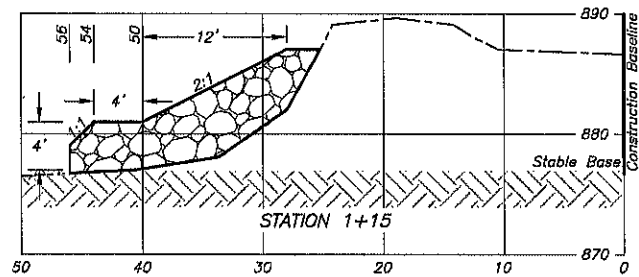
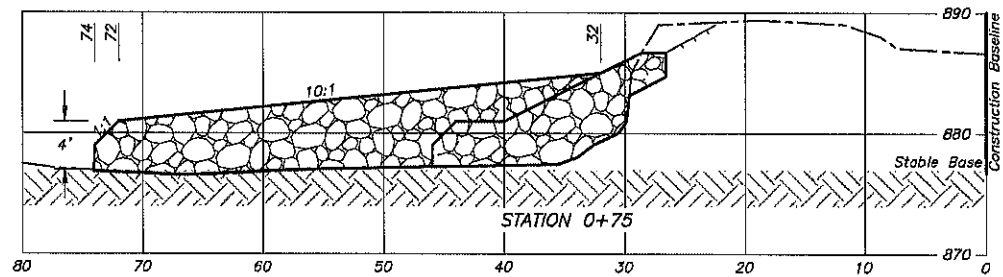
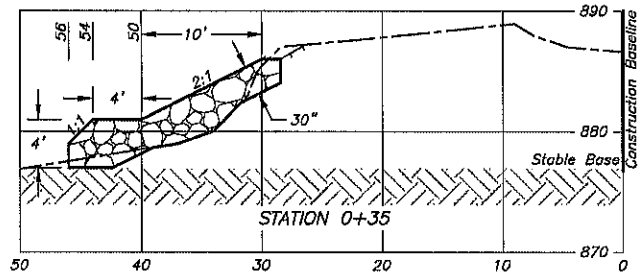


Date 8/16
 Designed mjm
 Drawn mjm
 Checked _____
 Approved _____

PLANNED CONSTRUCTION
Buffalo Creek at May Road
DSR 119-16-003 EWP
McDonald County, Missouri

United States
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USDA
 Natural Resources
 Conservation Service

File Name _____
 Drawing Name _____
 Sheet **3** of **6**



NOTES:

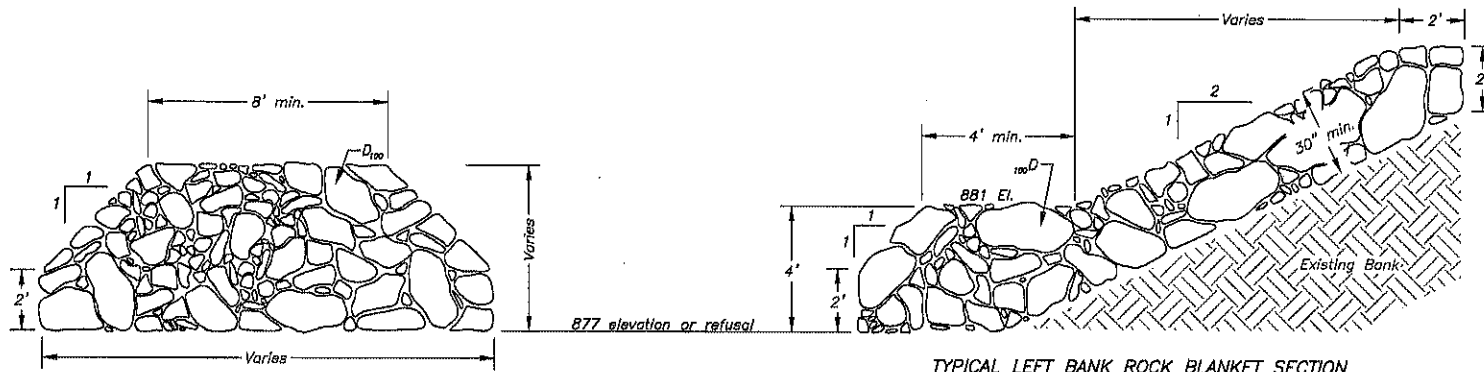
1. Beginning of project (BOP) and end of project (EOP) are taken to be 0+00 and 2+22 respectively.
2. For gradation of rock and for stationing coordinates, refer to Sheet 5 of the plan set.
3. Stone spurs tips at 881 elevation and slope upward toward the bank at the rate of 10:1.
4. Stone placement shall be to an excavated depth of 877 or until stable rock base is encountered. Do not excavate below stable rock bed.
5. Stone tieback extends across May Road. County Road Department is responsible for raising road in the vicinity of the tieback to meet the 888 elevation tieback crest and restoring trafficability of the road.

- LEGEND:**
- Rock Riprap
 - Onsite Spoil
 - Stable Base
 - Existing Ground
 - Excavation Line

Date	8/16
Designed	mjm
Drawn	mjm
Checked	
Approved	

CROSS SECTION DATA
 Buffalo Creek at May Road
 DSR 119-16-003 EWP
 McDonald County, Missouri

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TYPICAL STONE SPUR SECTION

TYPICAL LEFT BANK ROCK BLANKET SECTION

NOTES ON PLACEMENT:

- All rock shall be delivered and placed in a manner that will ensure that the installed measures are reasonably homogeneous with the larger rocks uniformly distributed and firmly in contact one to another with the smaller rocks and spalls filling the voids between the larger rocks. Larger rock shall be placed at the toe of the rock protection measures to form a stable base. End-dumping of rocks without any further compactive effort to ensure consolidation is not an acceptable method of construction.
- Slopes flatter than specified in this plan set are allowed, however, no adjustments to quantities will be made. All stone shall be placed by equipment on the surfaces and to the depths specified. The channel shall be excavated to the cross sections and grades shown on the plans. The excavated surfaces shall be reasonably smooth. The channel bank alignment shall be uniform.
- Rock Blanket shall be a minimum of thirty (30) inches thick when measured perpendicular to the slope, which will be uniformly 2:1 throughout the project. Rock blanket shall be anchored at the base by a bench that is fashioned four (4) feet wide and four (4) feet tall with an angle of repose no steeper than 1:1 as shown.
- Stone Spurs shall be eight (8) feet wide at the top, with an angle of repose no steeper than 1:1 as shown. The spurs shall be placed to an 881 elevation at the tip, sloping upward toward the bank at a rate of 10:1, terminating at the rock blanket slope at an elevation of 885.
- Voids encountered in forming the rock blanket shall be filled with offsite rock. No onsite spoil or excavate may be used as fill unless approved by the NRCS government representative listed on Sheet 1.

NOTES ON ROCK GRADATION:

- Rock riprap is the source material to achieve the lines and grades described in this plan set. Rock riprap shall be sound, durable stone meeting the requirements of MoDOT Type 4 Ditch Liner with the approximate gradation show at right.
- The source, type, and gradation of rock shall be reviewed and approved by the government representative prior to procurement or placement.
- Rock riprap shall not be placed until the foundation is completed and the subgrade surfaces have been inspected and approved by the government representative.

GRADATION OF ROCK

PERCENT PASSING BY SIZE	SIZE (INCHES)
100	2.0 D ₅₀ = 30"
50-80	1.4 D ₅₀ = 21"
25-50	D ₅₀ = 15"
10-30	.5 D ₅₀ = 8"
0-5	.2 D ₅₀ = 3"

NOTES ON SPOIL AND DISTURBED EARTH SURFACES:

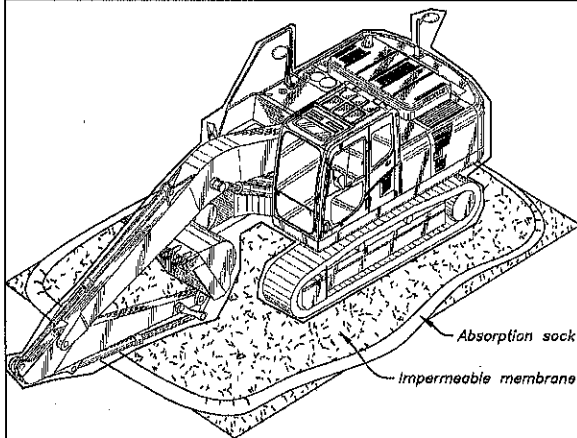
- Separate topsoil from all on-site excavate. Use separated topsoil as a final cover over disturbed and low bank areas to provide a sufficient substrate for seed.
- During construction, spoil will be stockpiled away from concentrated flow areas. After rock riprap operations are completed, excess spoil shall be spread uniformly in designated areas and along the rock armament toe.
- Seed and mulch all disturbed areas due to construction and equipment operation to include the equipment staging area according to plan specifications.
- Fences removed to enable contractor access shall be replaced by the contractor to an equal or improved condition upon completion of the rock fill operations.

Date 8/16
 Designed mj/m 8/16
 Drawn mj/m
 Checked
 Approved

PROJECT DETAILS
 Buffalo Creek at May Road
 DSR 119-16-003 EWP
 McDonald County, Missouri

United States Department of Agriculture
USDA
 Natural Resources Conservation Service

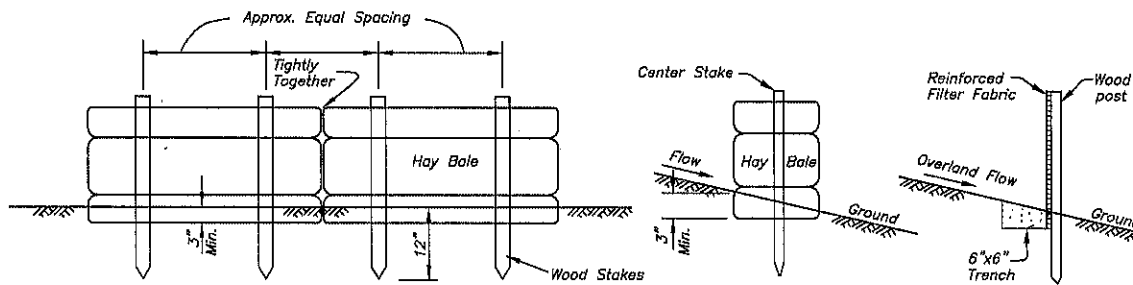
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 Drawing Name



EXAMPLE EQUIPMENT REFUELING & MAINTENANCE STATION

NOTES ON PETROLEUM, OIL, AND LUBRICANT CONTAINMENT:

1. The contractor shall provide a site-adapted plan for the prevention of petroleum, oil, and lubricants (POL) used onsite from entering the stream channel in accordance with the COE general permit.
2. Equipment refueling and maintenance will be consistently conducted in a centralized location where spill control materials are present.
3. When equipment is shut down for maintenance or refueling operations, place drip pans, diapers, or absorbents under vehicles to mitigate spills.
4. Recycle solvents, coolants, and lubricants to the maximum extent possible. Label and date all waste accumulation containers and keep POL waste products separate from other refuse.



STRAW OR GRASS HAY BALES

SILT FENCE

NOTES ON EROSION PREVENTION:

1. For large disturbed areas that shall be left open for an extended period of time, silt fence may be required to reduce erosion and the transport of solids into the stream.
2. Post spacing shall be as needed to properly support silt fence or hay bales but shall not exceed 8 feet for the silt fence.
3. Wood posts shall be a minimum 1 1/2" x 1 1/2" for softwoods such as pine and a minimum 1 1/2" x 1 1/2" for hardwoods such as oak.

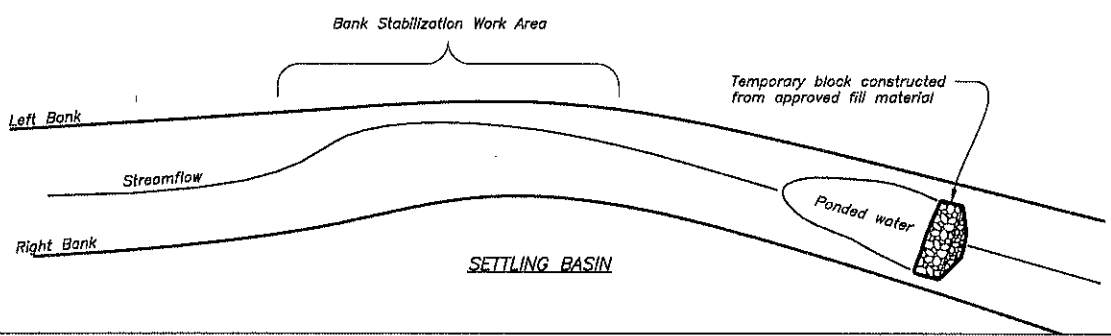
NOTES ON DETENTION OF SUSPENDED SOLIDS:

1. For non-navigable streams, a settling basin may be appropriate to reduce suspended solids from being transferred downstream.
2. Construct the settling basin by constructing a temporary dam immediately downstream of the project site. The temporary dam shall be constructed of rock rip-rap or other approved fill materials.
3. Near the end of the project, remove the temporary dam, restoring normal flow to the watercourse. Reuse the fill material to complete the planned stabilization work.

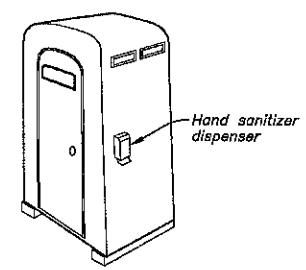
NOTES ON SITE SANITATION:

1. The contractor shall provide adequate and readily accessible sanitation facilities as required by the Occupational Safety and Health Administration.
2. Portable toilets shall be present at the rate of one (1) portable toilet per fifteen (15) onsite workers of the same gender.
3. The portable toilet will be installed as a part of mobilization and will be removed from the site during demobilization.
4. The portable toilet will be maintained in a clean, sanitary, and serviceable condition during the period of construction.
5. A hand washing station or antibacterial gel dispenser shall be located in the vicinity of the portable toilet.
6. A trash collection point shall be established onsite for use by the workforce, and all generated trash will be collected and removed from the site weekly.

~ DRAWINGS NOT TO SCALE ~



SETTLING BASIN



TYPICAL PORTABLE TOILET

Date	8/16
Designed	mjm
Drawn	mjm
Checked	
Approved	

POLLUTION CONTROL
Buffalo Creek at May Road
DSR 119-16-003 EWP
McDonald County, Missouri

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