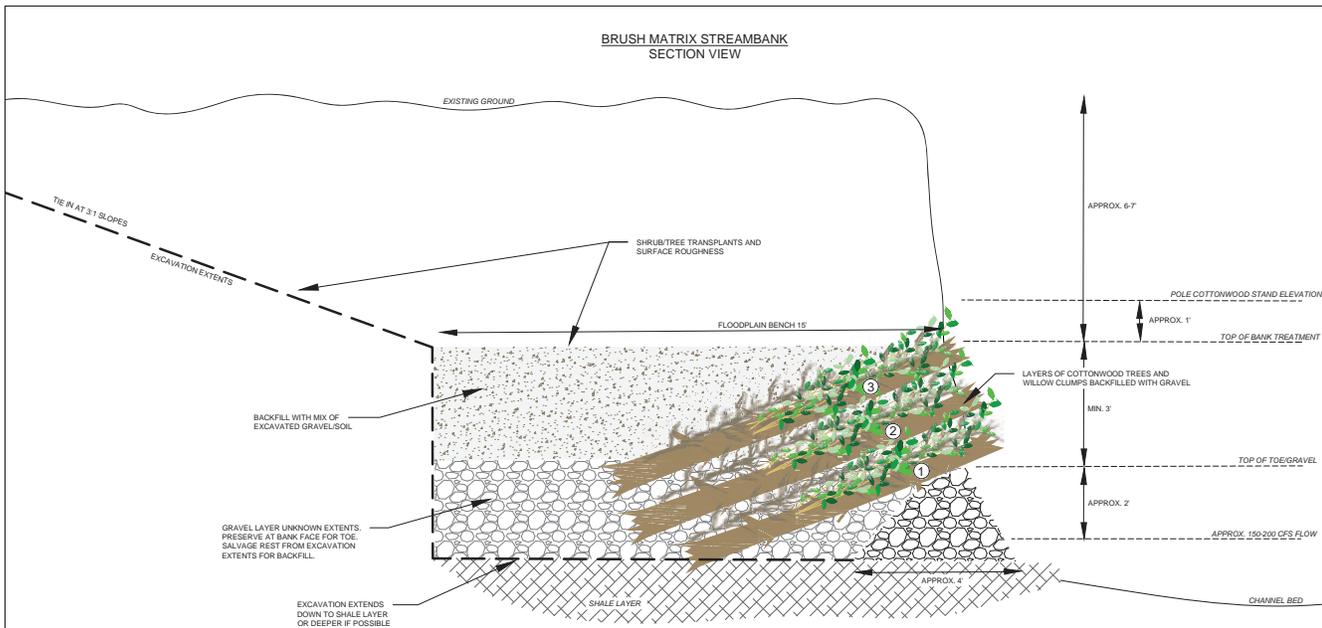


BRUSH MATRIX STREAMBANK SECTION VIEW



TREATMENT DESCRIPTION

THE INTENT OF THE BRUSH MATRIX STREAMBANK TREATMENT IS TO PROVIDE TEMPORARY BANK STABILIZATION AND CREATE A COMPLEX, VEGETATED BANK MARGIN THAT CREATES AQUATIC HABITAT AND SUPPORTS VEGETATION ESTABLISHMENT. TREATMENT CONSISTS OF A GRAVEL TOE WITH LAYERS OF LIVING WOODY MATERIAL AND GRAVEL PLACED ON THE TOE TO THE DESIRED TOP OF BANK HEIGHT.

CONSTRUCTION NOTES

- EXCAVATE STREAMBANK TO SUBGRADE ELEVATIONS - PRESERVE COBBLE AT BANKLINE TO CREATE GRAVEL TOE PER DIMENSIONS SHOWN ON DRAWING. SUBGRADE EXCAVATION FOR BRUSH MATRIX STREAMBANK TREATMENT IS APPROXIMATELY 15' WIDE AND 12' DEEP.
- INSTALL MATRIX OF LOGS, BRUSH, AND WILLOW CLUMPS ON TOP OF STREAMBANK TOE AND AT A DOWNWARD ANGLE TO THE STREAMBANK LOGS CAN OVERLAP AND CAN BE ORIENTED FACING UPSTREAM OR DOWNSTREAM. INSTALL LOG AND BRUSH IN APPROXIMATELY 1-FOOT HIGH LIFTS. BACKFILL EACH LIFT WITH GRAVEL EXCAVATED FROM SUBGRADE EXCAVATION. IF INSUFFICIENT GRAVEL IS EXCAVATED DURING SUBGRADE EXCAVATION IT MAY BE NECESSARY TO HARVEST GRAVEL FROM UPSTREAM OR DOWNSTREAM BARS TO USE AS STRUCTURE BACKFILL.
- AFTER LIFTS HAVE BEEN BUILT TO DESIGN TOP OF BANK ELEVATION, BACKFILL STREAMBANK TREATMENT WITH A MIX OF EXCAVATED GRAVEL AND SOIL TO TOP OF BANK ELEVATION AND EXTEND FILL BACK TO SUBGRADE EXCAVATION EXTENT TO CREATE A FLOODPLAIN BENCH.
- LAY BACK THE GROUND BEHIND THE FLOODPLAIN BENCH BY EXCAVATING MATERIAL TO FORM A SLOPE AT A MINIMUM OF 3H:1V TO BLEND BRUSH MATRIX STREAMBANK TREATMENT AND FLOODPLAIN BENCH INTO EXISTING GROUND.
- ROUGHEN FLOODPLAIN BENCH AND SLOPE AND TRANSPLANT SMALL COTTONWOODS AND WILLOW CLUMPS INTO BACKFILL.

MATERIAL SCHEDULE - PER LINEAR FOOT		
ITEM	DIMENSIONS	QUANTITY/LINEAR FOOT
COTTONWOOD TREES	6-8" D, 10-12' L	2
WHOLE WILLOW TRANSPLANTS	EACH	3 (1 PER LIFT)
EXCAVATION	NATIVE	6.7 CY
FILL	MIX OF GRAVEL AND SOIL	2.5 CY

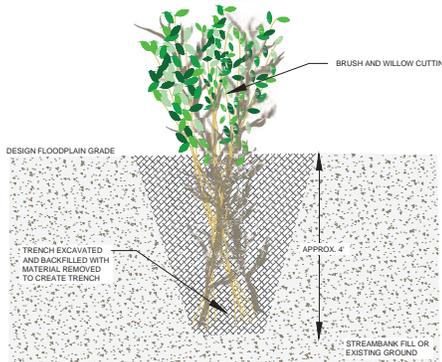


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UNITS: INTL Feet  
DATA SOURCES:

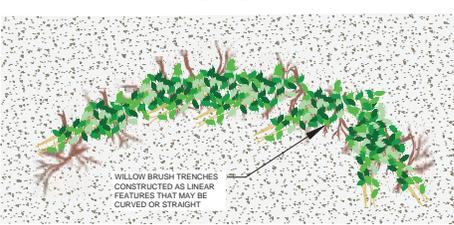
BRUSH MATRIX STREAMBANK TREATMENT  
MUSSELHELL RIVER

DRAWN BY: A. STEPHENSON  
DESIGNED BY: A. SACRY  
DATE: JULY 2025

WILLOW BRUSH TRENCH PROFILE VIEW



WILLOW BRUSH TRENCH PLAN VIEW



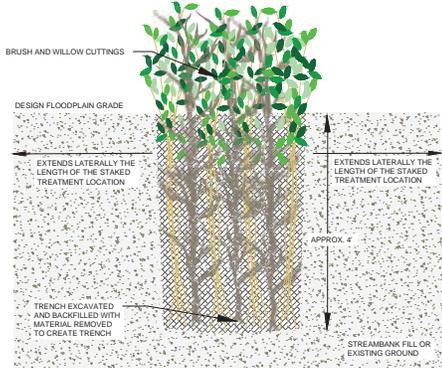
**GENERAL NOTES**  
THIS WORK INCLUDES INSTALLATION OF WILLOW BRUSH TRENCHES IN APPROXIMATE LOCATIONS SHOWN ON SHEET 3.0. THE INTENT OF THESE FEATURES IS TO DISPERSE SURFACE FLOWS AND PROMOTE REVEGETATION. CONSTRUCTION OF WILLOW BRUSH TRENCHES WILL OCCUR IN CLOSE COORDINATION WITH INSTALLATION OF FLOODPLAIN SIDE CHANNELS. THE CONTRACTOR SHALL PROVIDE BRUSH AND WILLOW CUTTINGS.

- NOTES ON WILLOW AND BRUSH TRENCH INSTALLATION**
- WILLOW BRUSH TRENCHES WILL BE CONSTRUCTED WITHIN THE FLOODPLAIN AND ACROSS SIDE CHANNELS IN APPROXIMATE LOCATIONS SHOWN ON SHEET 3.0. FINAL LOCATIONS WILL BE IDENTIFIED BY THE PROJECT MANAGER.
  - A TRENCH WILL BE CONSTRUCTED APPROXIMATELY 4' DEEP AND EXTEND THE LENGTH OF THE STAKED TREATMENT LOCATION. WILLOW CUTTINGS AND BRUSH WILL BE PLACED IN THE TRENCH SUCH THAT THEY ARE INTERMIXED AND ORIENTED AT A NEAR VERTICAL ANGLE.
  - THE TRENCH WILL THEN BE BACKFILLED WITH THE SAME MATERIAL REMOVED TO CREATE THE TRENCH AND SHOULD MATCH THE ELEVATION OF THE SURROUNDING FLOODPLAIN GRADE.

MATERIAL SCHEDULE		
ITEM	DIMENSIONS	QUANTITY/LINEAR FOOT
BRUSH AND SMALL WOOD	<4" D, 6-10' L (BRANCHES AND MULTIPLE STEMS PREFERRED)	1
WILLOW CUTTINGS*	MIN. 2" D, 8' L	5

\*PROVIDED BY CFC AFTER OCTOBER 15TH

WILLOW BRUSH TRENCH SECTION VIEW



EXAMPLES OF WILLOW BRUSH TRENCH TREATMENTS



DATUM:  
PROJECTION:  
UNITS: INTL Feet  
DATA SOURCES:

WILLOW BRUSH TRENCH DETAIL  
MILLER CREEK LEIK PARCEL RESTORATION PROJECT  
MISSOULA, MONTANA

DRAWN BY: Geum  
DESIGNED BY: Geum  
DATE: February 2024