



GENERAL NOTES:

1. MATERIALS AND CONSTRUCTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE CURRENT ADOPTED USDA FOREST SERVICE SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES, AS MODIFIED FOR THIS CONTRACT.
2. LOGS USED FOR STRINGERS SHALL BE ENGELMANN SPRUCE WITH MINIMUM PEELED MID SPAN DIAMETERS OF 15". TREES USED FOR STRINGERS SHALL BE STRAIGHT, SOUND, AND FREE OF BOLES, ROT INFESTATION, OR DISEASE. STRINGERS SHALL BE CHOSEN FROM TREES WITH RELATIVELY FEW LIMBS, AND HAVE NO KNOT GREATER THAN 3" IN DIAMETER. LOGS SHALL BE NOTCHED AT ENDS TO CREATE A LEVEL BEARING SURFACE AT SUPPORTS TAKING CARE TO AVOID OVER CUTTING. NOTCH UPPER SURFACE OF LOGS TO PROVIDE A LEVEL BEARING SURFACE FOR DECK PLANKS. TREES TO BE USED FOR STRINGERS SHALL BE FIRST PEELED THEN HAVE AN ADDITIONAL 1/8" LAYER OF THEIR OUT SURFACE REMOVED PRIOR TO BEING USED AS BRIDGE STRINGERS. REFER TO PAGE 6, DRAWING 3 FOR NOTHING DETAIL.
3. SOLID SAWN TIMBER MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF THE GRADING AGENCY FOR THE SPECIES, TYPE, AND GRADE SPECIFIED BELOW.
 - 3.1. DECK PLANKS, CURB ELEMENTS, SILLS, AND BACKING PLANKS - COASTAL REGION DOUGLAS FIR-LARCH ROUGH SAWN, NO. 1 GRADE, AGENCY: W/WPA, WCLIB
 - 3.2. RUNNING PLANKS - COASTAL REGION DOUGLAS FIR-LARCH ROUGH SAWN, NO. 2 GRADE, AGENCY: W/WPA, WCLIB
 - 3.3. BRIDGE RAILS AND POSTS
 - 3.3.1. SAWN UNTREATED - REDWOOD S4S, NO.1 GRADE, AGENCY: RIS OR WESTERN RED CEDAR S4S, SELECT STRUCTURAL GRADE, AGENCY: W/WPA, WCLIB
 - 3.3.2. SAWN TREATED - HEM-FIR/DOUGLAS FIR S4S, NO. 1 GRADE, AGENCY: W/WPA, WCLIB
 - 3.3.3. POLES - LODGE POLE PINE/PONDEROSA PINE PEELED AND DRIED, AGENCY: NLGA
4. ALL PURCHASED LUMBER INCLUDING ROUGH SAWN SPECIAL ORDERED SUCH AS DECK PLANKS AND SILLS SHALL BE PRESSURE TREATED BY SUPPLIER. ALL CUT LUMBER SUCH AS STRINGERS SHALL BE TREATED USING THE METHODS STATED BELOW WITH OIL BOURN PRESERVATIVES. TREATMENT WILL COMPLY WITH THE REQUIREMENTS OF THE CURRENT EDITION OF WWP'S "BEST MANAGEMENT PRACTICES FOR THE USE OF TREATED WOOD IN AQUATIC ENVIRONMENTS."
 - 4.1. LOG STRINGERS - AWPA C4, PENTACHLOROPHENOL IN LIGHT OIL (TYPE C SOLVENT), COPPER NAPHTHENATE IN LIGHT OIL (TYPE C SOLVENT)
 - 4.2. SOLID SAWN LUMBER - AWPA C2 (ABOVE GROUND USE), PENTACHLOROPHENOL IN LIGHT OIL (TYPE C SOLVENT), COPPER NAPHTHENATE IN LIGHT OIL (TYPE C SOLVENT)
 - 4.3. SOLID SAWN LUMBER AND POLES USED FOR BRIDGE RAILS AND POSTS - AWPA C2 (ABOVE GROUND USE), PENTACHLOROPHENOL IN LIGHT OIL (TYPE C SOLVENT), COPPER NAPHTHENATE IN LIGHT OIL (TYPE C SOLVENT), OXINE COPPER IN LIGHT OIL (TYPE C SOLVENT), ACZA,
5. COPPER NAPHTHENATE (2% SOLUTION) SHALL BE FURNISHED FOR FIELD TREATING OF WOOD. ALL ABRASIONS AND FIELD CUTS - APPROVED BY THE CO - SHALL BE CAREFULLY TRIMMED AND GIVEN THREE BRUSH COATS OF THE FIELD TREATMENT SOLUTION. WHERE APPROVED FIELD DRILLING OF BOLT OR NAIL HOLES IS REQUIRED, THE HOLES SHALL BE POURED FULL OF PRESERVATIVE PRIOR TO INSERTING FASTENER. THE ENDS OF THE LOG STRINGERS SHALL ALSO RECEIVE THREE BRUSH COATS OF THE FIELD TREATMENT PRIOR TO INSTALLATION OF BACKING PLANKS. SILLS AND BACKING PLANKS SHALL BE TREATED FOR GROUND CONTACT.
6. ALL HARDWARE, INCLUDING THE ANCHOR BOLTS, SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153. MALLEABLE IRON WASHERS SHALL CONFORM TO ASTM A47 GRADE 35018.
7. BRIDGE HAS BEEN LOAD RATED FOR USE BY HIKERS, BIKERS, AND SKIERS. TRAIL SHALL BE POSTED AS OFF LIMITS TO MOTORIZED TRAVEL AND PACK ANIMALS
8. APPROACH AND EXIT TRAILS SHALL BE BUILT IN ACCORDANCE WITH USDA FOREST SERVICE SPECIFICATIONS AND SHALL BE MADE ACCESSIBLE TO EXPECTED USERS. GRADES SHALL NOT EXCEED USUALLY ACCEPTED AMOUNTS.
9. TRAILS SHALL SLOPE AWAY FROM THE BRIDGE AT A 2% SLOPE TO ALLOW FOR PROPER DRAINAGE. SLOPES UNDER THE BRIDGE WHERE RIPRAP IS APPLIED SHALL BE GRADE TO A 2% SLOPE. RIPRAP SHALL BE KEYED AT BOTTOM OF SLOPE. SEE RIPRAP DETAIL ON PAGE 7, DRAWING 1.
- 9.1. RIPRAP SHALL BE CLASS 4, AS DETERMINED FROM HEC 18 AND MATCH THE GRADATION SHOWN BELOW.

% ROCK BY MASS	MASS (KG)	APPROXIMATE CUBIC DIMENSION (MM)
20	100-150	350-400
30	100-250	250-350
40	10-100	125-250
10	0-10	0-125
10. GEODELL FOUNDATION SHALL BE PLACED ON UNDISTURBED SOIL BELOW SILL. ANCHOR BOLTS SHALL BE INSTALLED TO ATTACH THE SILL TO THE GEODELL, AND SELECT BACKFILL FREE OF DEBRIS AND ORGANIC MATERIALS SHALL BE PLACED TO A HEIGHT OF 4" BELOW TOP OF SILL. GEODELL FOUNDATION SHALL BE MANUFACTURED BY PRESTO PRODUCTS COMPANY OR WEBTEC INC. OR APPROVED EQUAL. GEODELL FOUNDATION SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATION. SEE PROVIDED SPECIFICATIONS FOR MORE DEATILED INFORMATION ABOUT CONSTRUCTION AND INSTALLATION TECHNIQUES.
11. PILOT HOLES SHALL BE DRILLED FOR ALL LAG SCREWS, DOWELS, AND ANCHOR BOLTS. FOR THE DOWELS, THE HOLES SHALL BE 1/8 INCH SMALLER THAN THE DIAMETER OF THE DOWEL. THE LAG SCREW AND ANCHOR BOLTS SHALL BE BY INSTALLED IN PILOT HOLES OF 70% OF THE SHANK DIAMETER.

1 LITTLE RAVEN TRAIL BRIDGE PROPOSED SITE LAYOUT

Scale: NOT TO SCALE

U.S. DEPARTMENT OF AGRICULTURE
 FOREST SERVICE
 R-2
 ROCKY MOUNTAIN REGION



Drawn: B. JESSEE
 Design: B. JESSEE
 Checked: J. RYBAL

TITLE	PROJECT
SITE PLAN AND LAYOUT	LITTLE RAVEN TRAIL BRIDGE
	ARAPAHO & ROOSEVELT NATIONAL FOREST
	FILE NAME: PLOT SCALE: NOT TO SCALE

SHEET NO.
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