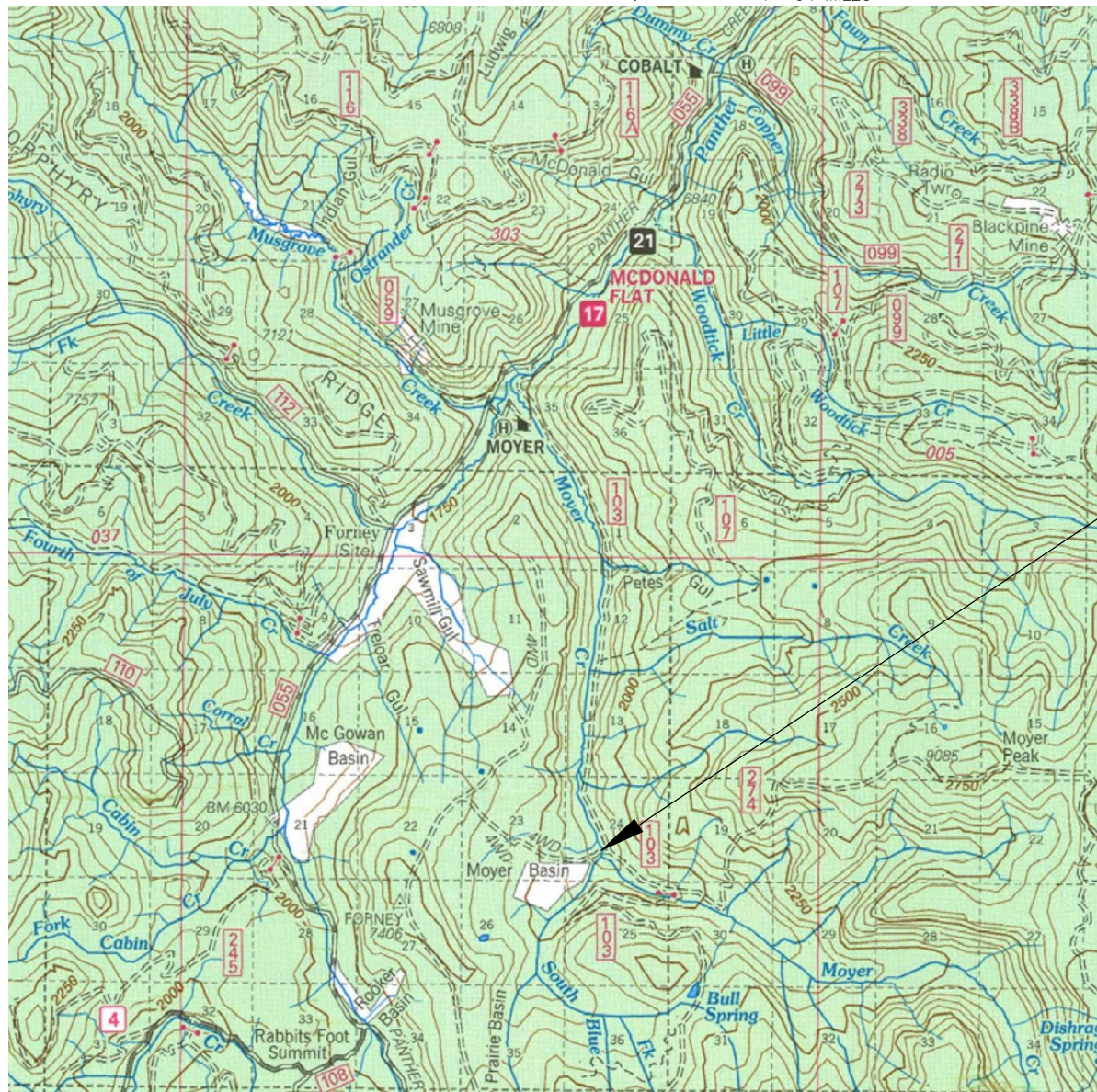


MOYER CREEK BRIDGE

BRIDGE No. 036-0.1

SALMON-CHALLIS NATIONAL FOREST

SALMON RIVER ROAD
(VIA PANTHER CREEK ROAD)
24 MILES
NORTH FORK, ID 51 MILES
SALMON, ID
(VIA WILLIAMS CREEK
SUMMIT AND HWY 93)
34 MILES



PROJECT DESCRIPTION

- 1) INSTALL GLULAM ABUTMENTS AND WINGWALLS.
- 2) RECONSTRUCT CHANNEL & BENCHES & INSTALL RIPRAP.
- 3) INSTALL NEW MODULAR STEEL BRIDGE SUPERSTRUCTURE, DECK & RAIL.
- 4) CONSTRUCT NEW APPROACHES.
- 5) INSTALL AGGREGATE WEAR SURFACE ON BRIDGE AND APPROACHES.
- 6) INSTALL TYPE 3 OBJECT MARKERS.

INDEX TO PLANS

SHEET NO.	TITLE
1	PLAN INDEX & PROJECT DESCRIPTION
2	SPECIFICATIONS AND SCHEDULE OF ITEMS
3	SITE PLAN & ROAD PROFILE
4	STRUCTURE LAYOUT AND DETAILS
5	ABUTMENT DETAILS
6	WINGWALL DETAILS
7	BRIDGE ELEVATION & ROAD DETAILS
8	ABUTMENT BILL OF MATERIALS
9	CHANNEL PLAN AND PROFILE
10	CHANNEL TYPICAL DETAILS

APPROVED

FOREST SUPERVISOR

for DIRECTOR, ENGINEERING

BRIDGE PLAN G-074

U. S. Department of Agriculture
FOREST SERVICE
Intermountain Region 4
SALMON-CHALLIS NATIONAL FOREST



BY: T. STONE	DATE 3/24/2023
CHECK: C. PORTER	
BY: T. STONE	
CHECK: C. PORTER	
APPROVED: /s/ Chad Porter, PE for DIRECTOR, ENGINEERING	

MOYER CREEK BRIDGE
BRIDGE No. 036-0.1

PLAN INDEX & PROJECT DESCRIPTION

SHEET
1 of 10
DRAWING NUMBER
G-074

NOTES:

GENERAL MATERIALS, CONSTRUCTION, & WORKMANSHIP SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS, FP-14 U.S. CUSTOMARY UNITS AND APPLICABLE FOREST SERVICE SUPPLEMENTAL SPECIFICATIONS.

- DESIGN
- SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL 2 WEEKS PRIOR TO FABRICATION.
 - FINAL BRIDGE SIZES AND DIMENSIONS TO BE PROVIDED IN MANUFACTURER SHOP DRAWINGS. CONTRACTOR MAY SUBMIT ALTERNATE SIZES AND DIMENSIONS OF BRIDGE COMPONENTS, INCLUDING AN ALTERNATE BEARING PLATE CONNECTION, FOR APPROVAL BY COR.

- HARDWARE AND STRUCTURAL STEEL
- ALL STEEL SHAPES, PLATES, AND BARS SHALL CONFORM TO AASHTO M270 GRADE 36 (ASTM A36).
 - ALL BOLTS AND NUTS SHALL CONFORM TO ASTM A307 EXCEPT AS NOTED.
 - HARDWARE AND STEEL ELEMENTS ARE TO BE UNCOATED (BLACK).

- ELASTOMERIC BEARING PADS
- BEARING PADS SHALL BE PLAIN ELASTOMERIC PAD 1" THICK, 60 DUROMETER, LOW TEMPERATURE, ZONE D.

- DIMENSIONS
- ALL LONGITUDINAL DIMENSIONS FOR THE STRUCTURE ARE MEASURED HORIZONTALLY AND INCLUDE NO CORRECTION FOR GRADE.

- STRUCTURE EXCAVATION
- STRUCTURE EXCAVATION SHALL BE COMPLETED IN ACCORDANCE WITH FP-14, SECTION 208.
 - CONTRACTOR SHALL SUBMIT AN EXCAVATION PLAN TO THE CONTRACTING OFFICER (CO) FOR APPROVAL. PLAN SHALL INCLUDE DRAWINGS AND WRITTEN OUTLINE ILLUSTRATING AND DESCRIBING PROPOSED EXCAVATION LIMITS, METHODS, EQUIPMENT, LOCATION OF STOCKPILES, METHODS TO REMOVE THE EXISTING BRIDGE AND ESTIMATED QUANTITIES AND COMPLY WITH OSHA EXCAVATION SOIL TYPING AND REQUIREMENTS. CHANGES TO THE EXCAVATION LIMITS, AS SHOWN ON THESE PLANS, FOR CONTRACTOR'S DEWATERING METHODS OR OTHER CONTRACTOR CONVENIENCES, MUST BE SHOWN ON THE EXCAVATION PLAN AND ARE THE RESPONSIBILITY OF THE CONTRACTOR AND INCIDENTAL TO THE WORK.
 - WASTE EXCESS MATERIAL AT DESIGNATED LOCATIONS. SHAPE TO BLEND INTO SURROUNDING TERRAIN.

- STRUCTURAL BACKFILL
- BACKFILL THE ABUTMENTS IN ACCORDANCE WITH SECTION 208 TO PREVENT DAMAGE TO THE TREATED TIMBER. NO ROCK OVER 3" IN DIAMETER, WHICH IS CONTAINED IN THE COMPACTED BACKFILL, SHALL CONTACT THE TIMBER. USE CARE WHEN PLACING RIPRAP AGAINST THE ABUTMENTS AND WINGWALLS.
 - SUITABLE SURPLUS STRUCTURE EXCAVATION MATERIAL MAY BE USED FOR STRUCTURAL BACKFILL MATERIAL. STRUCTURAL BACKFILL MATERIAL SHALL MEET FP-14, 704.04, STRUCTURAL BACKFILL. STRUCTURE BACKFILL SHALL BE PLACED AND BE COMPACTED IN ACCORDANCE WITH FP-14, 208.10 AND 208.11 (AASHTO T99, METHOD C AND AASHTO T310).

- ROADWAY EMBANKMENT
- USE SURPLUS MATERIAL FROM EXCAVATION THAT IS APPROVED BY COR.
 - CONSTRUCT ROADWAY EMBANKMENTS ACCORDING TO FP-14 SECTION 204.
 - WASTE EXCESS MATERIAL AT DESIGNATED LOCATIONS. SHAPE TO BLEND INTO SURROUNDING TERRAIN.

- DEWATERING AND SOIL EROSION CONTROL
- PROTECT AGAINST SOIL EROSION AND SEDIMENTATION DURING CONSTRUCTION IN ACCORDANCE WITH FP-14, SECTION 157 AND THE PROJECT PERMITS. CONTRACTOR SHALL PREPARE AND SUBMIT A SOIL EROSION AND SEDIMENT CONTROL PLAN TO CO FOR APPROVAL. PLAN SHALL INCLUDE DRAWINGS AND WRITTEN OUTLINE ILLUSTRATING AND DESCRIBING PROPOSED LAYOUT, METHODS AND EQUIPMENT.
 - DEWATER THE EXCAVATION IN ACCORDANCE WITH FP-14 SECTIONS 208 AND 157.
 - CONTRACTOR SHOULD ANTICIPATE WATER INFILTRATING THE EXCAVATIONS.
 - SUBGRADE EXCAVATION, FOOTING PLACEMENT, RIPRAP PLACEMENT, AND BACKFILL ARE TO BE COMPLETED PER THE CONTRACT SPECIFICATIONS. STANDING OR RUNNING WATER IN THE WORK AREA DOES NOT RELIEVE THE CONTRACTOR FROM MEETING THE SPECIFICATIONS.
 - DEWATERING IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE CO FOR APPROVAL WITH THE EXCAVATION PLAN. CONTRACTOR SHALL DEVELOP THEIR OWN PROJECT SPECIFIC DEWATERING PLAN AND SHALL INCLUDE DRAWINGS AND WRITTEN OUTLINE ILLUSTRATING AND DESCRIBING PROPOSED LAYOUT, METHODS, EQUIPMENT AND ANTICIPATED STREAM FLOW VOLUMES. APPROVAL OF THE DEWATERING PLAN BY THE CO DOES NOT RELIEVE THE CONTRACTOR FROM COMPLETING THE WORK AS SPECIFIED. IF CONTRACTOR'S IDENTIFIED DEWATERING METHODS ARE NOT PRODUCING DESIRED RESULTS, CONTRACTOR SHALL RE-EVALUATE AND SUBMIT ANOTHER PLAN TO CO FOR APPROVAL AND IS INCIDENTAL TO THE WORK.

HARDWARE AND STRUCTURAL STEEL

USE MALLEABLE IRON WASHERS AGAINST WOOD EXCEPT WHERE OTHERWISE NOTED. ALL DOWEL PINS AND DRIFT PINS SHALL HAVE THEIR ENDS GROUND ROUND. ALL BOLTS AND NUTS SHALL CONFORM TO ASTM A307 AND NEED NOT BE GALVANIZED UNLESS NOTED SPECIFICALLY IN THE BILL OF HARDWARE. BOLT LENGTHS SHOWN ON THE PLANS ARE CALCULATED FOR CONNECTIONS OF STANDARD SAWN MEMBERS. IF LUMBER OR TIMBER IS FURNISHED, THAT DEVIATES FROM THE STANDARD SAWN DIMENSIONS, THE CONTRACTOR SHALL BE RESPONSIBLE TO FURNISH BOLTS WITH THREAD LENGTHS SUFFICIENT TO MAKE THE CONNECTIONS AS SHOWN ON THE PLANS, WITH 1" MAX. THREAD EXTENSION BEYOND THE NUT, WHEN TIGHT. UNLESS OTHERWISE SHOWN, EXTRA WASHERS SHALL NOT BE USED TO COMPENSATE FOR THREAD LENGTH DEFICIENCY.

FABRICATION:

ALL BRIDGE MEMBERS SHALL BE FABRICATED AS SHOWN IN THE BILL OF MATERIAL OR ELSEWHERE ON THE PLANS. HOLES FOR SMOOTH DRIFT PINS OR DOWELS SHALL BE DRILLED WITH A DRILL HAVING A DIAMETER 1/16 INCH LESS THAN THE PIN OR DOWEL TO BE USED. HOLES FOR BOLTS NOT SHOWN AS BEING DRILLED BEFORE TREATMENT SHALL BE DRILLED IN THE FIELD WITH A DRILL HAVING THE SAME DIAMETER AS THE BOLT TO BE USED.

FIELD TREATMENT:

ALL CUTS, HOLES, AND ABRASIONS MADE IN LUMBER AFTER TREATMENT SHALL BE GIVEN TWO COATS OF COPPER NAPHTHENATE, AWPA STD P8 AND P9, TYPE A OR TYPE C SOLVENT.

OBJECT MARKERS:

TYPE 3 SHALL BE 12" X 36" WITH RETROREFLECTIVE STRIP BONDED TO A 16 GAGE GALVANIZED STEEL OR 14 GAGE ALUMINIUM SHEET. REFLECTIVE STRIPS SHALL BE ASTM TYPE III, HIGH INTENSITY. MOUNT OBJECT MARKER ON 4" X 4" PRESSURE TREATED POST. INSTALL POSTS AT LOCATION DIRECTED BY THE ENGINEER. SEE DETAIL SHEET 7.

ELASTOMERIC BEARING PADS

BEARING PADS SHALL BE PLAIN ELASTOMERIC PAD 1" THICK, 60 DUROMETER, LOW TEMPERATURE, ZONE D.

LUMBER

ALL LUMBER SHALL BE COAST REGION DOUGLAS FIR GRADED IN ACCORDANCE WITH THE WEST COAST LUMBER INSPECTION BUREAU STANDARD GRADING AND DRESSING RULES NO. 17. EACH ITEM SHALL CONFORM TO THE PARAGRAPH NUMBER LISTED IN THE BILL OF MATERIAL.

ALL LUMBER OVER 2" NOMINAL THICKNESS SHALL BE INCISED ON ALL FOUR SIDES AND ALL 2" NOMINAL LUMBER SHALL BE INCISED ON TWO FACES ONLY. MEMBERS TOO LARGE FOR MACHINE INCISING SHALL BE MANUALLY INCISED. ALL FABRICATION AND INCISING OF THE GLUED-LAMINATED MEMBERS SHALL BE DONE PRIOR TO TREATMENT.

GLUED-LAMINATED MEMBERS SHALL BE COAST REGION DOUGLAS FIR FABRICATED IN ACCORDANCE WITH SPECIFICATIONS NOTED IN THE BILL OF LUMBER, CURRENT EDITION OF "STRUCTURAL GLUED-LAMINATED TIMBER" AITC/ANSI A 190.1, CURRENT EDITION OF AITC117 STANDARD SPECIFICATIONS FOR GLUED-LAMINATED TIMBER FOR SOFTWOOD SPECIES, THE STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS FP-14 SECTION 716.04, AND SHALL BE INDUSTRIAL APPEARANCE GRADE FOR WET USE CONDITIONS USING PHENOL-RESORCINOL RESIN TYPE OF ADHESIVE THROUGHOUT, USING ONLY SINGLE PIECE OR MULTIPLE PIECE LAMINATIONS WITH BONDED EDGE JOINTS ON EXTERIOR SURFACES.

ALL TREATMENT SHALL BE IN ACCORDANCE WITH AASHTO M133 AND SHALL BE PRESSURE TREATED BY THE EMPTY CELL PROCESS IN ACCORDANCE WITH ALL REQUIREMENTS OF AWPA U1-08 WITH COPPER NAPHTHENATE (CuN) OR PENTACHLOROPHENOL (PCP-A, HEAVY-OIL). THE MINIMUM PRESERVATIVE RETENTIONS (pcf) FOR SOLID SAWN TIMBER AND GLUED-LAMINATED TIMBER SHALL CONFORM TO AWPA USE CATAGORY UC4B GROUND CONTACT OR FRESH WATER FOR COASTAL DOUGLAS FIR.


ALL SAWN LUMBER SUPPLIED FOR THIS BRIDGE, WITH THE EXCEPTION OF TREATED TIMBER DEADMAN MEMBERS FOR ABUTMENTS AND WINGWALLS, SHALL BE 100% FREE OF HEART CENTER AND HAVE A MOISTURE CONTENT LESS THAN 19% PRIOR TO TREATMENT, AND MUST BE CERTIFIED PRIOR TO ANY PAYMENT TO THE CONTRACTOR.

SPECIAL NOTE: ALL MATERIALS SHALL BE PRODUCED IN COMPLIANCE WITH "BEST MANAGEMENT PRACTICES FOR THE USE OF WOOD IN AQUATIC ENVIRONMENTS", CURRENT EDITION.

SCHEDULE OF ITEMS

Item No.	Description	Unit	Quantity
15101	Mobilization	Lump Sum	1
15221	Construction Survey and Staking	Lump Sum	1
15713	Soil erosion and pollution control	Lump Sum	1
20102	Clearing and Grubbing, Slash Treatment Methods for Tops and Limbs (f), Logs (f), and Stumps (f)	Lump Sum	1
20401	Roadway Excavation and Embankment, Placement Method 6	Lump Sum	1
20806	Structure Excavation and Backfill	Lump Sum	1
25101	Placed Riprap, Class 4 (Government Source)	Cubic Yard*	96
32203	Aggregate surface course, Compaction (B) (Government Source)	Cubic Yard*	68
57102	16'x40' Prefabricated Bridge Superstructure- Govemment Supplied- Transport, & Install (includes railing)	Lump Sum	1
57704	Prefabricated Treated Glulam Abutments; Fabricate, Transport, & Install	Lump Sum	1
62503	Seeding with Mulch, Method (a) Dry Method	Lump Sum	1
63306	Object Markers (Type 3)	Each	4
64801	Placed Channel Rock, Clas s CR-0, Method C (Government Source)	Cubic Yard*	12
64802	Placed Channel Rock, Clas s CR-1, Method C (Government Source)	Cubic Yard*	80
64803	Channel bench construction	Lump Sum	1
64804	Willow Transplants, 4 locations	Lump Sum	1
*Indicates Contract Quantities			

U. S. Department of Agriculture
FOREST SERVICE
Intermountain Region 4
SALMON-CHALLIS NATIONAL FOREST



BY: T. STONE
CHECK: C. PORTER

DESIGN

BY: T. STONE
CHECK: C. PORTER

DRAWING

APPROVED: /s/ Chad Porter, PE
for DIRECTOR, ENGINEERING

DATE 3/24/2023

MOYER CREEK BRIDGE
BRIDGE No. 036-0.1

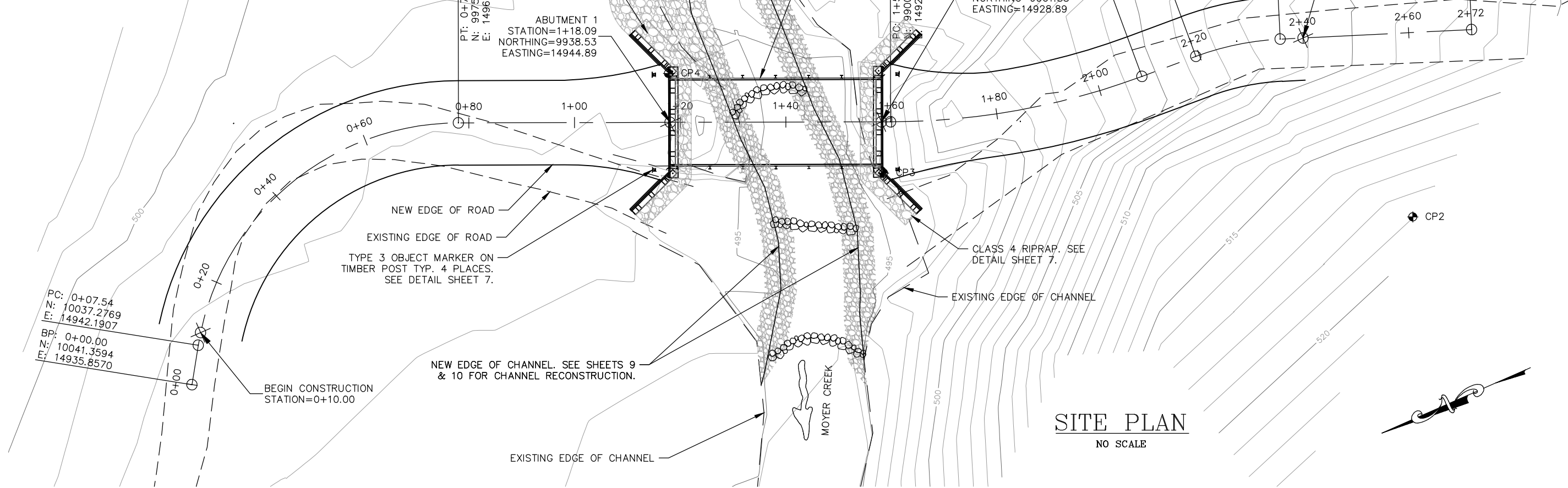
SPECIFICATIONS & SCHEDULE OF ITEMS

SHEET
2 of 10

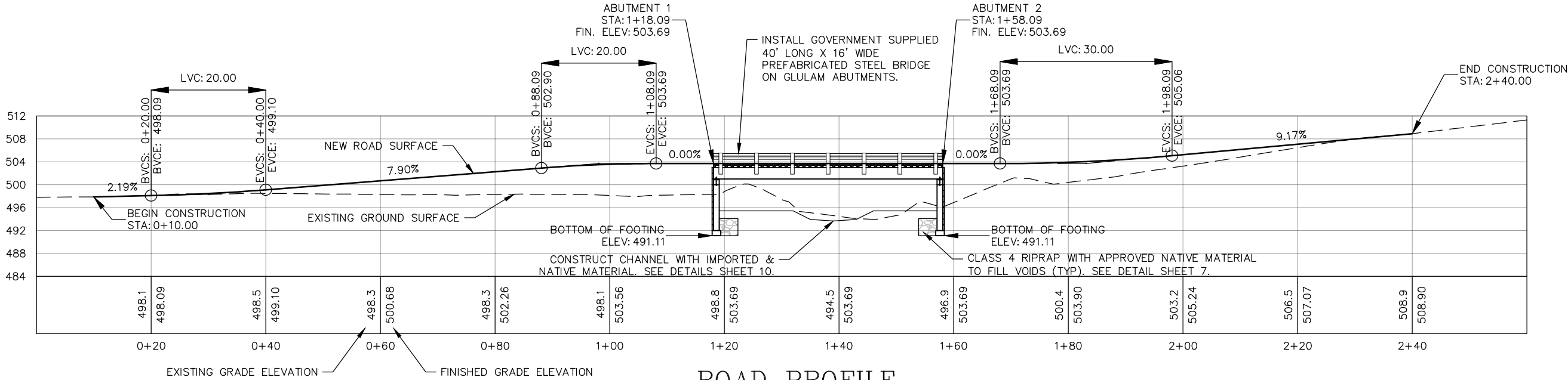
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Point Table				
Point #	Elevation	Northing	Easting	Description
1	500.00	10000.00	15000.00	CP1
2	519.00	9817.05	14871.91	CP2
3	496.33	9905.41	14919.85	CP3
4	498.38	9935.08	14953.48	CP4
5	499.15	9927.80	14996.75	CP5

NOTE: LOCAL COORDINATES.



SITE PLAN
NO SCALE



ROAD PROFILE
NO SCALE

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Intermountain Region 4
SALMON-CHALLIS NATIONAL FOREST

UAS
U. S. DEPARTMENT OF AGRICULTURE
FOREST SERVICE

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for DIRECTOR, ENGINEERING

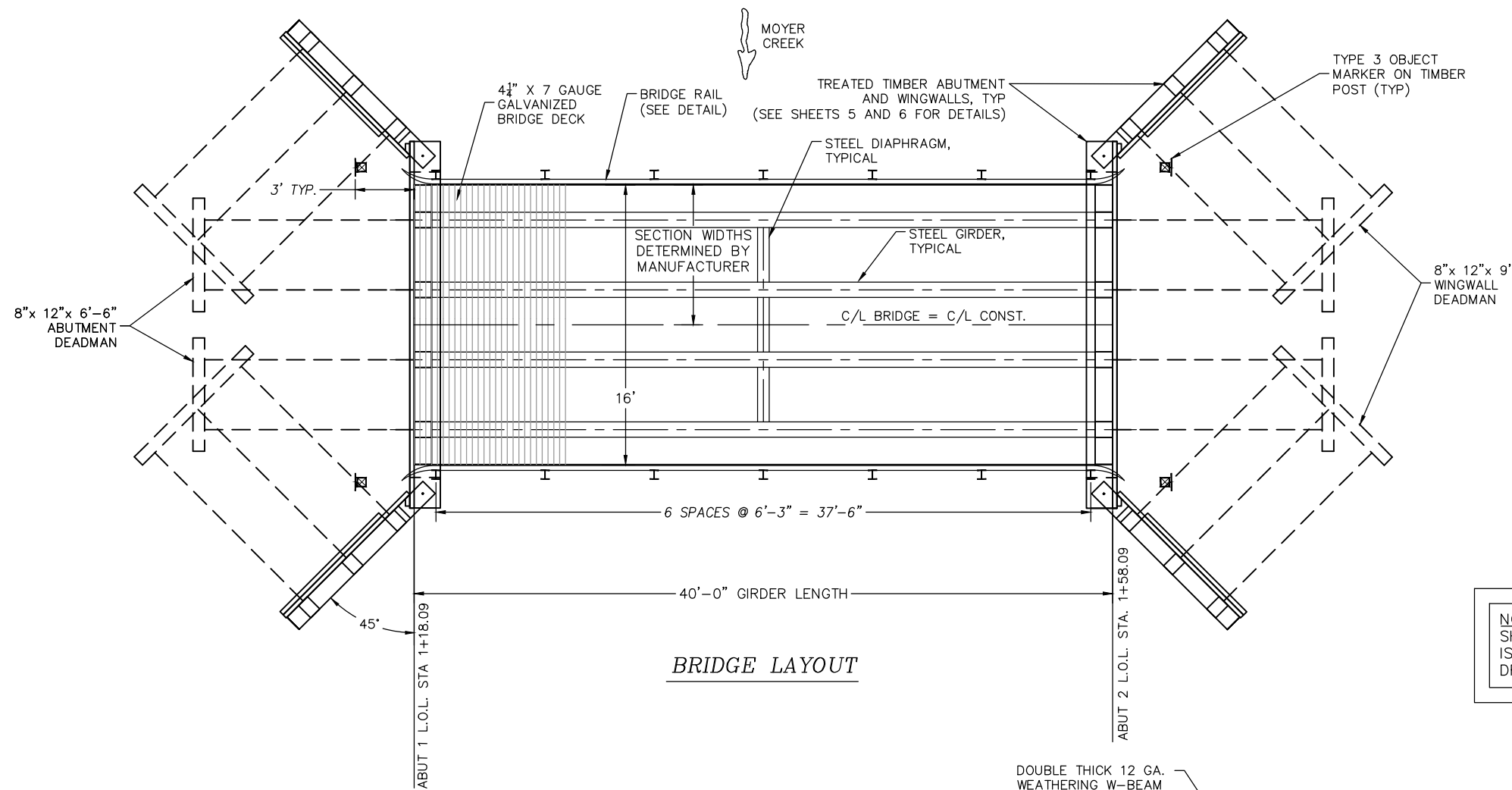
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MOYER CREEK BRIDGE
BRIDGE No. 036-0.1

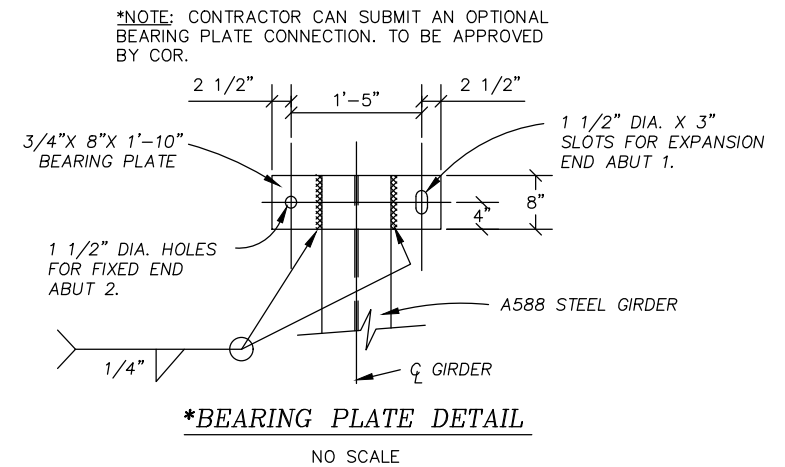
SITE PLAN & ROAD PROFILE

SHEET
3 of 10

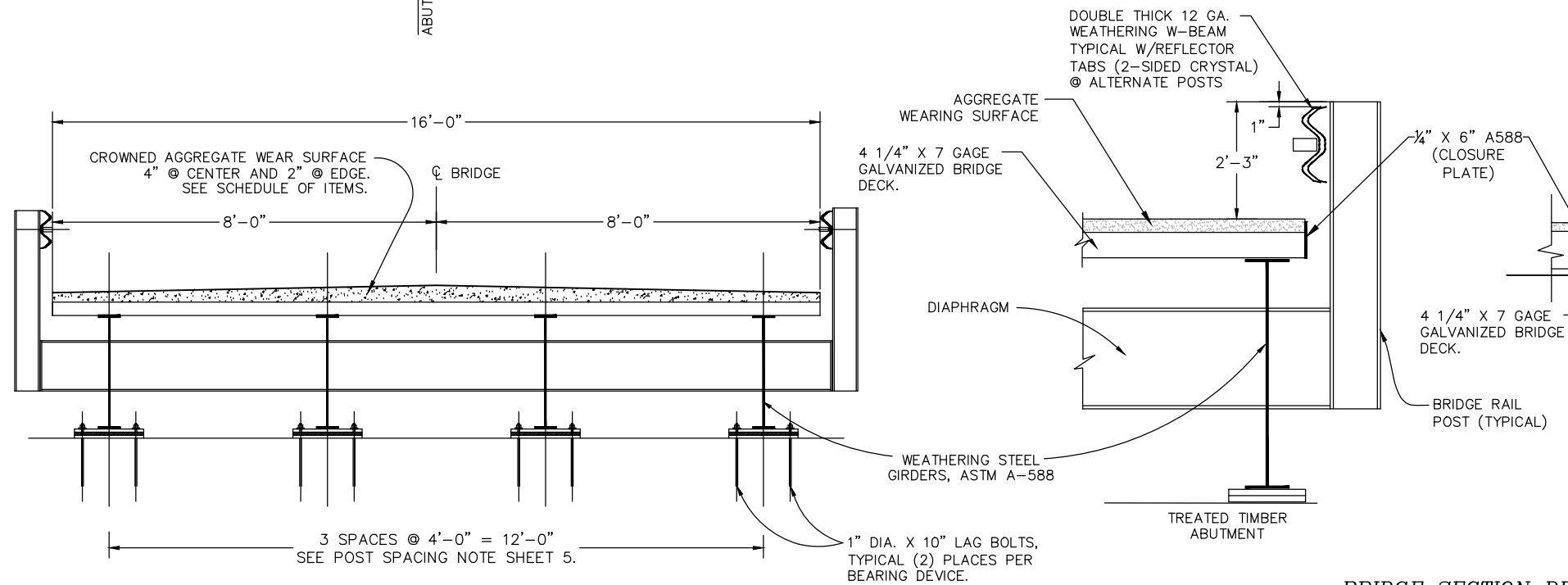
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BRIDGE LAYOUT



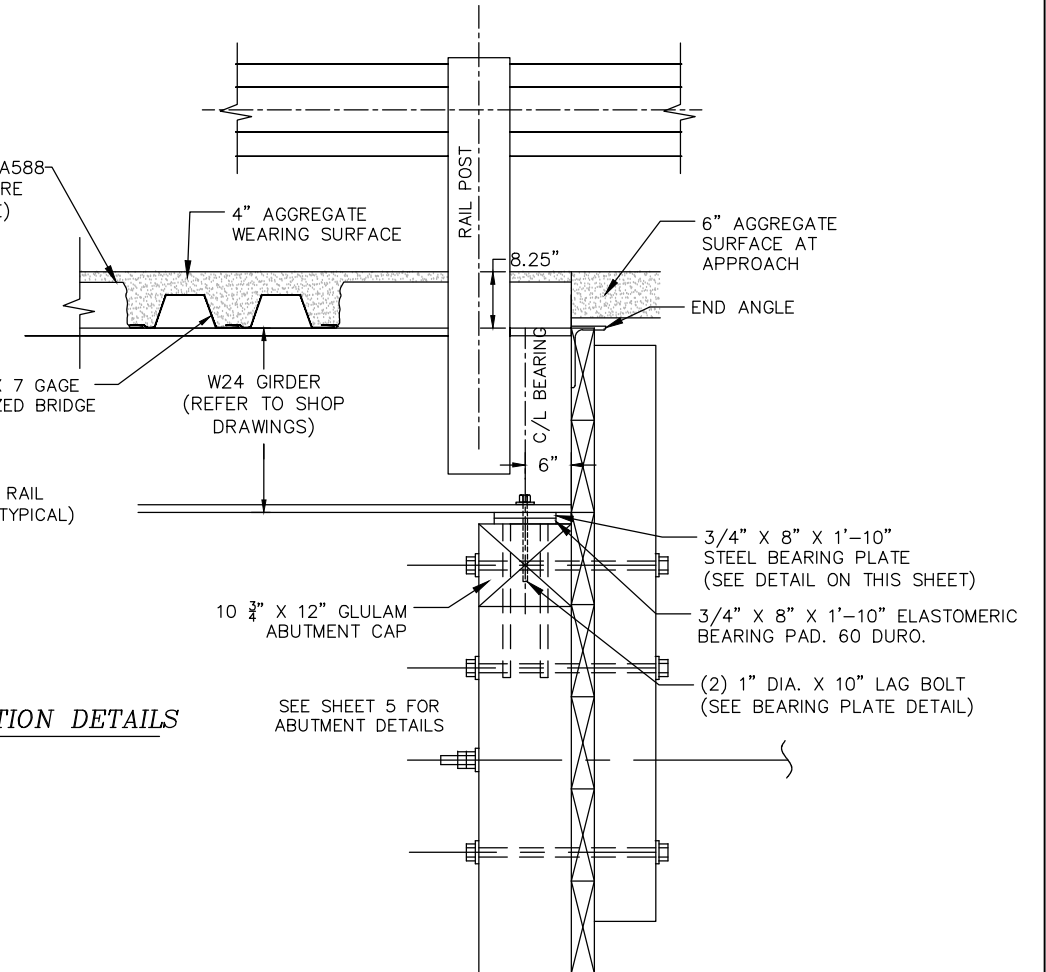
NOTE: THE SUPERSTRUCTURE DETAILS ON THIS SHEET ARE AN EXAMPLE. THE SUPERSTRUCTURE IS TO BE GOVERNMENT SUPPLIED. SEE SHOP DRAWINGS FOR FINAL DIMENSIONS.



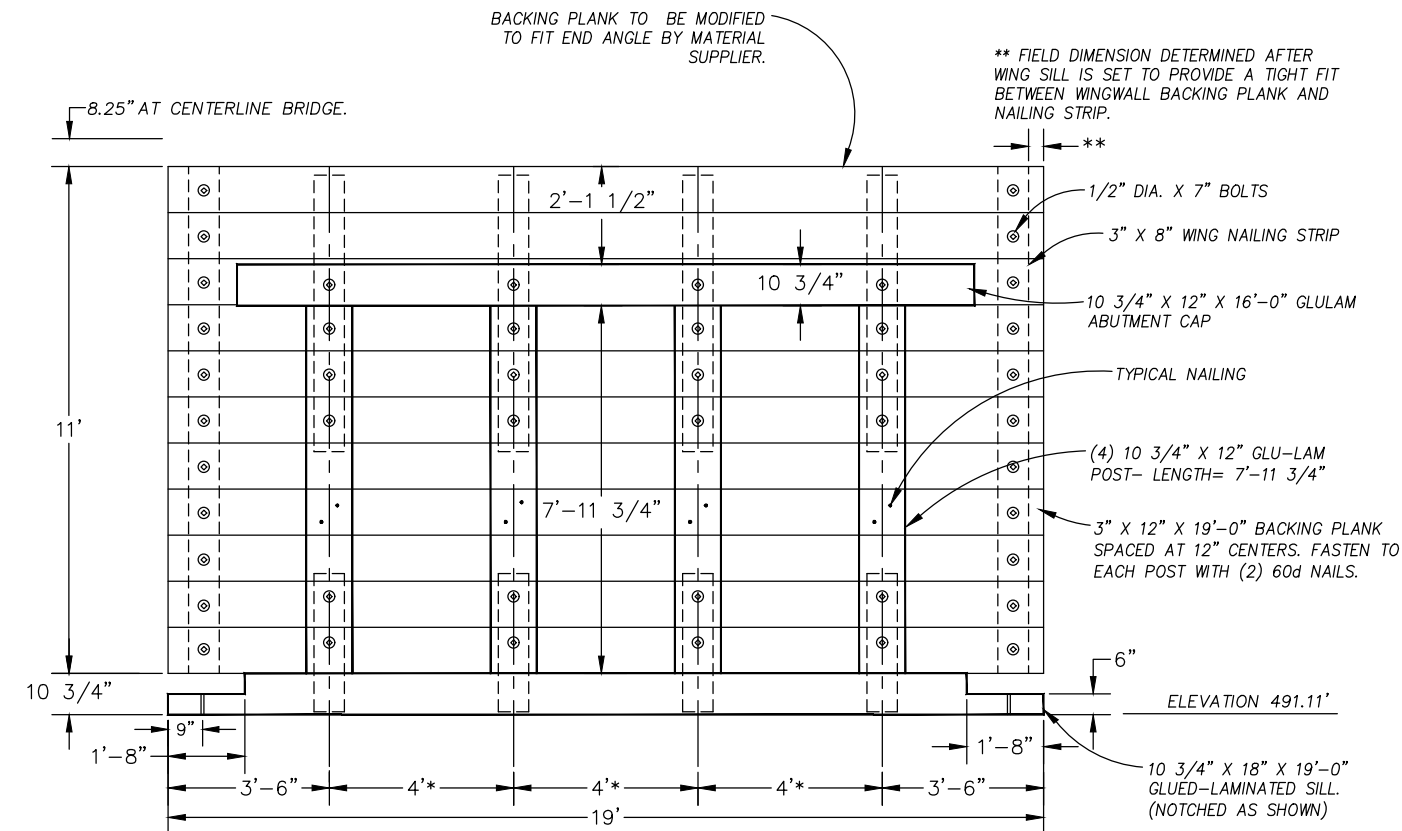
TYPICAL SECTION

NO SCALE

BRIDGE SECTION DETAILS



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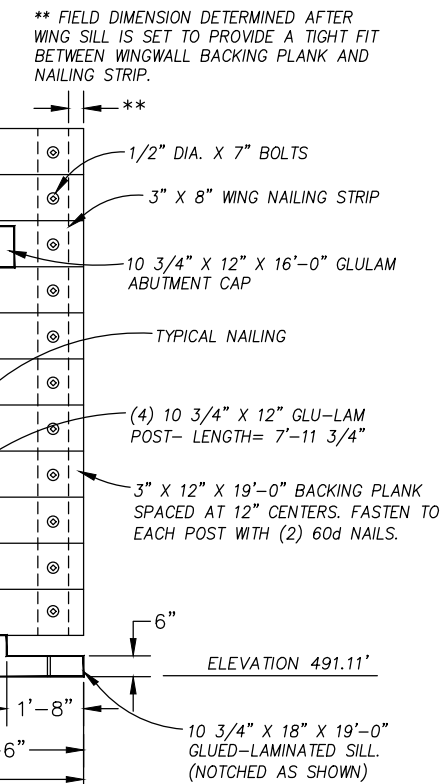


ABUTMENT ELEVATION VIEW

NO SCALE

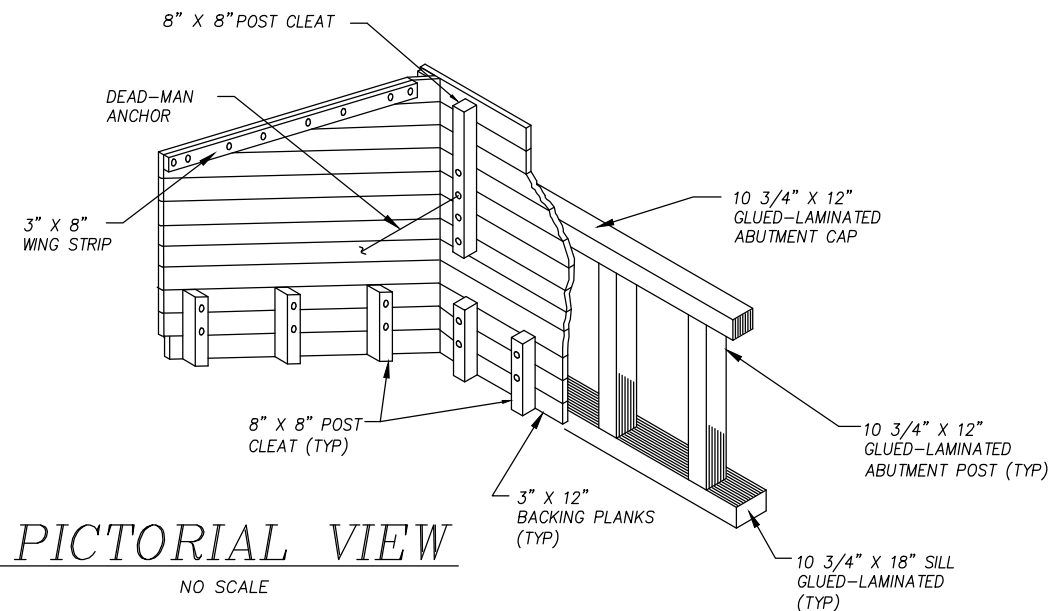
SPECIAL NOTE: ALL PLANKS FOR WINGWALLS AND ABUTMENTS ARE TO BE SET AT 12" CENTERS. GAPS ARE TO BE EXPECTED BETWEEN PLANKS AS MOST PLANKS WILL BE PROVIDED FROM THE MANUFACTURER AT LESS THAN FULL SAWN DIMENSIONS.

***POST SPACING NOTE:** POSTS ARE INTENDED TO BE SPACED DIRECTLY UNDER STEEL GIRDERS. COORDINATE SUPERSTRUCTURE DESIGN AND ABUTMENT FABRICATION. PROPOSED DEVIATIONS FROM THE GIRDER SPACING SHOWN ON THESE PLANS SHALL BE SUBMITTED TO THE C.O. FOR APPROVAL.



ABUTMENT END VIEW

NO SCALE



PICTORIAL VIEW

NO SCALE



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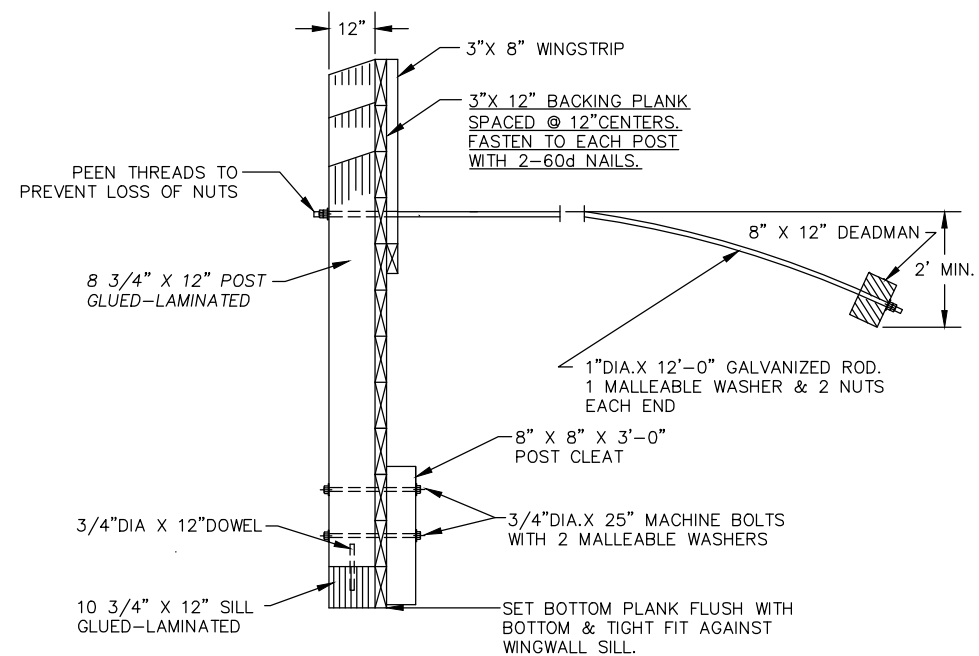
MOYER CREEK BRIDGE
BRIDGE No. 036-0.1

ABUTMENT DETAILS

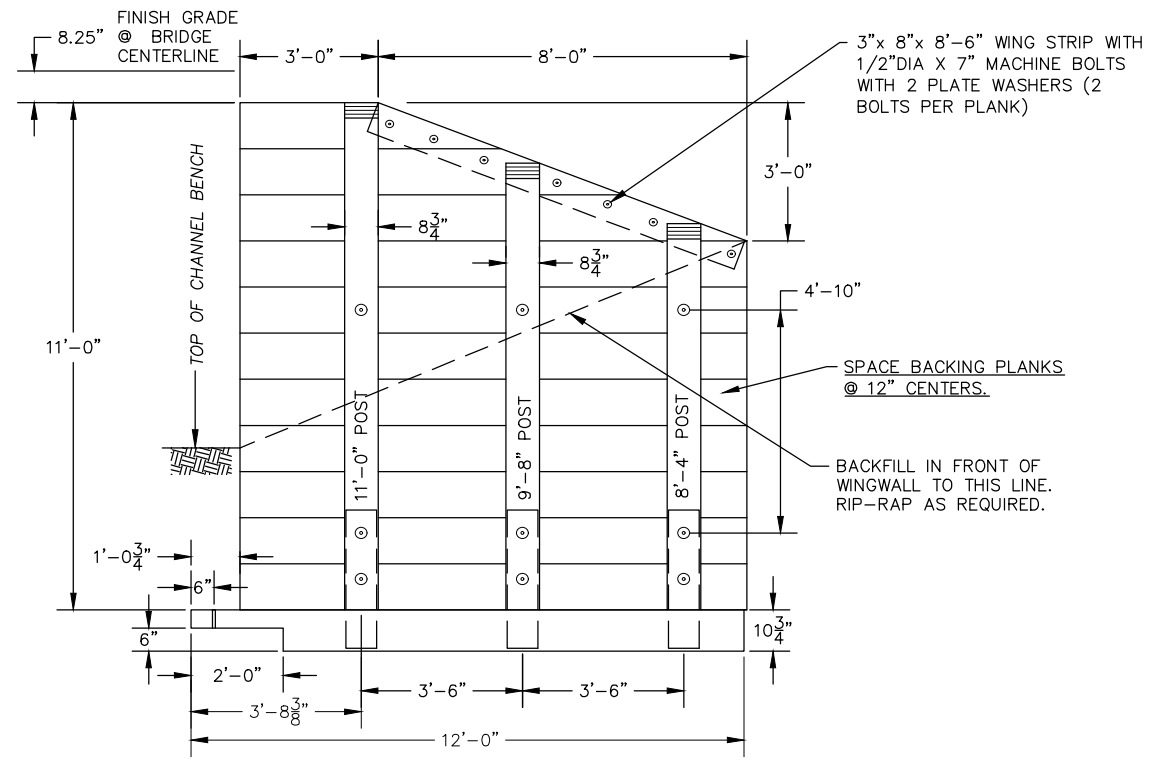
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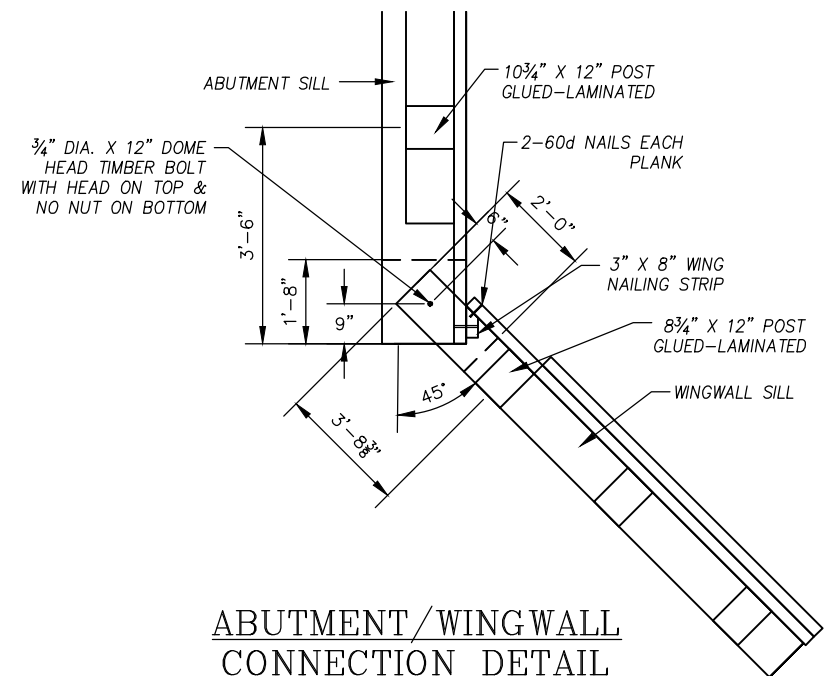
DRAWING NUMBER
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**TYPICAL WINGWALL END
ELEVATION**
NO SCALE



WINGWALL DETAIL (TYP)
NO SCALE



**ABUTMENT/WINGWALL
CONNECTION DETAIL**
NO SCALE

U. S. Department of Agriculture
FOREST SERVICE
Intermountain Region 4 Engineering

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FOR DIRECTOR, ENGINEERING

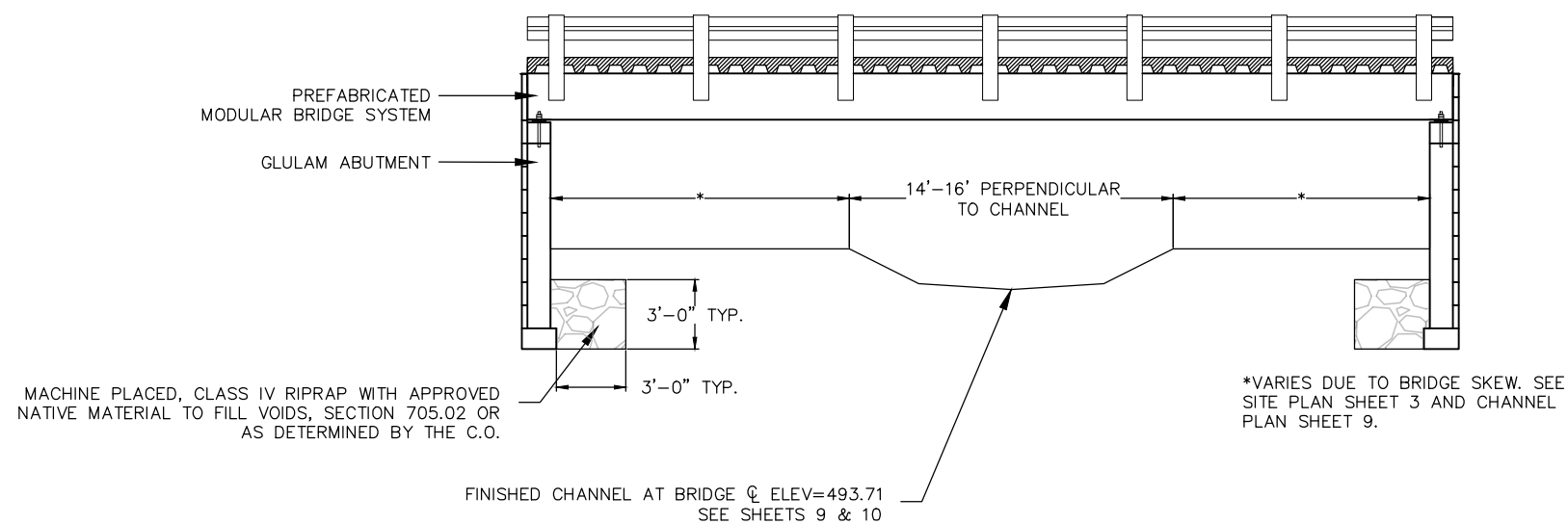
MOYER CREEK BRIDGE
BRIDGE No. 036-0.1

WINGWALL DETAILS

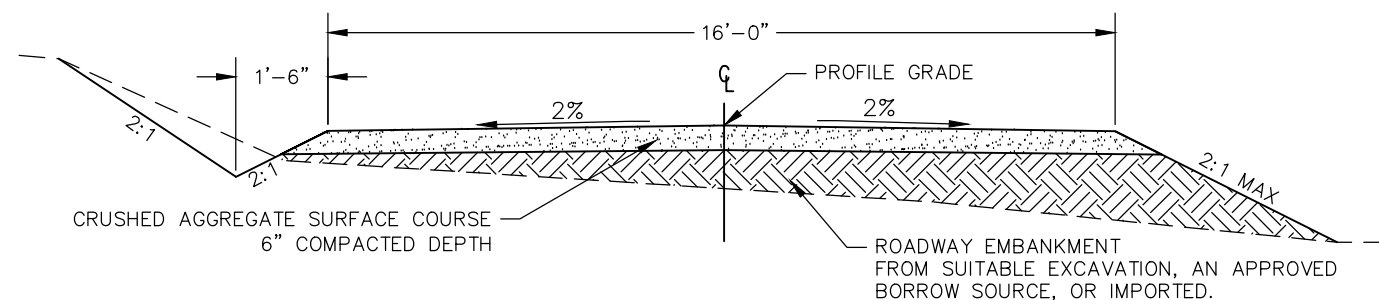
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SHEET
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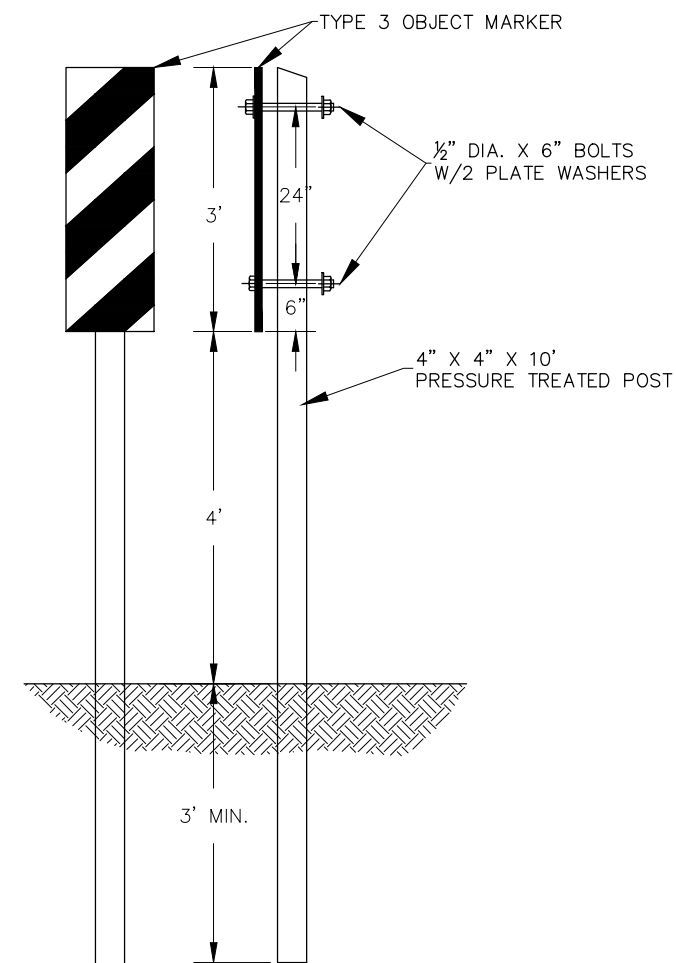
DRAWING NUMBER
G-074



BRIDGE ELEVATION DETAIL
NO SCALE



SINGLE LANE ROAD
NO SCALE



OBJECT MARKER DETAIL
R.H. MARKER SHOWN (NO SCALE)

OBJECT MARKERS, TYPE 3, SHALL BE 12" X 36" WITH RETROREFLECTIVE STRIP BONDED TO A 16 GAGE GALVANIZED STEEL OR 14 GAGE ALUMINIUM SHEET. REFLECTIVE STRIPS SHALL BE ASTM TYPE III, HIGH INTENSITY.

INSTALL POSTS AT LOCATION AND ANGLE DIRECTED BY THE ENGINEER. SEE BRIDGE LAYOUT ON SHEET 4.

DESIGN	BY: T. STONE CHECK: C. PORTER
DRAWING	BY: T. STONE CHECK: C. PORTER
APPROVED:	/s/ Chlod Porter, PE for DIRECTOR, ENGINEERING
DATE	3/24/2023

MOYER CREEK BRIDGE BRIDGE No. 036-0.1 BRIDGE ELEVATION & ROAD DETAILS

SHEET 7 of 10
DRAWING NUMBER G-074

ABUTMENT BILL OF LUMBER

ITEM	SPEC.	FIN. SIZE	LENGTH	NO. PIECES	SKETCH	NET BD.FT.
WING SILL	GLUED-LAMINATED MEMBERS SHALL CONFORM TO COMBINATION SYMBOL 3 PER MOST CURRENT AITC 117 STANDARD SPECIFICATIONS FOR STRUCTURAL GLUED-LAMINATED TIMBER OF SOFTWOOD SPECIES, FOR WET CONDITION OF USE.	10 3/4" X 12"	12'-0"	4		516
WING POST		8 3/4" X 12"	11'-0"	4		385
			9'-8"	4		338
			8'-4"	4		292
ABUTMENT CAP		10 3/4" X 12"	16'-0"	2		344
ABUTMENT SILL		10 3/4" X 18"	19'-0"	2		613
ABUTMENT POST	10 3/4" X 12"	7'-11 3/4"	8		686	

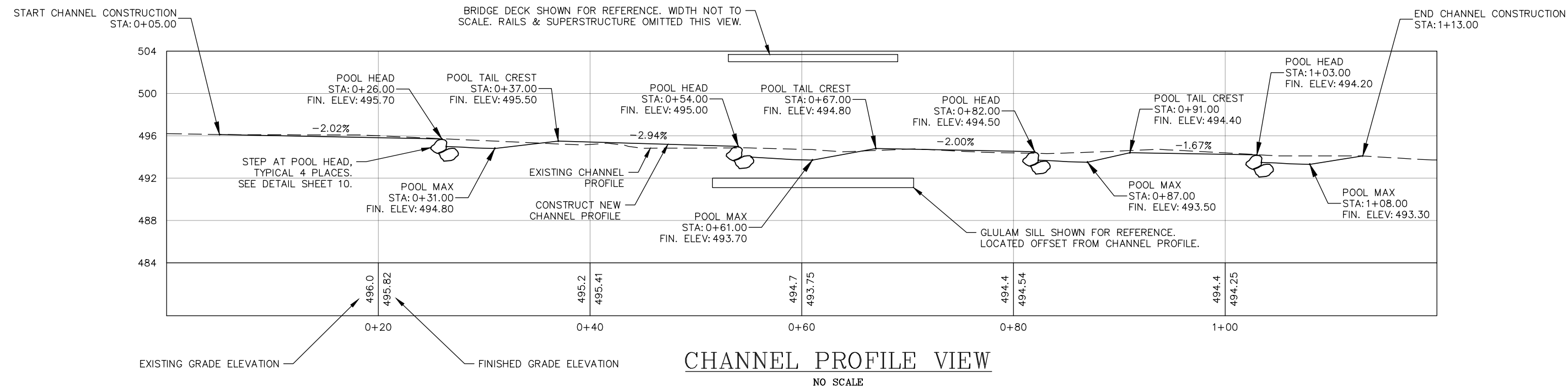
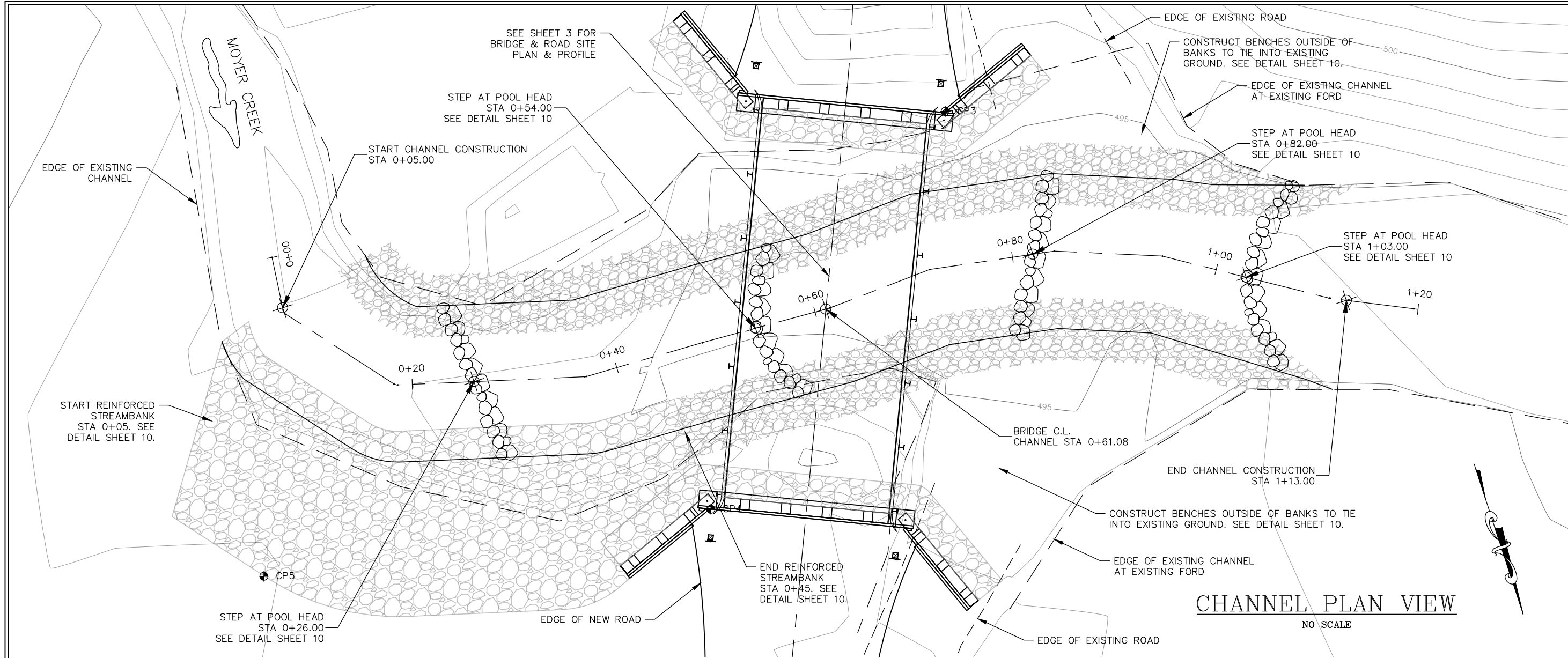
ABUTMENT BILL OF HARDWARE

ITEM	SIZE	NO.REQ
MACHINE BOLTS	1/2"DIA.X 7"	79
	1/2"DIA.X 4 1/2"	10
	3/4"DIA.X 25"	70
TIMBER BOLTS WITH DOME HEAD	3/4"DIA.X 12"	4
NUTS	FOR 1/2"DIA. BOLTS	89
	FOR 3/4"DIA. BOLTS	70
	FOR 1"DIA. BOLTS	88
PLATE WASHERS	FOR 1/2"DIA. BOLTS	178
	FOR 1"DIA. BOLTS	18
MALLEABLE WASHERS	FOR 3/4"DIA. BOLTS	140
	FOR 1"DIA. BOLTS	44
DOWEL PINS	3/4"DIA.X 12"	20
	3/4"DIA.X 20"	16
LAG BOLTS	1"DIA.X 10"	18
STEEL RODS THREADED 6" EACH END. GALVANIZED	1"DIA.X 12'-0"	20
GALVANIZED NAILS	60d	460
TYPE 3 OBJECT MARKER 1' X 3'		2 LH 2 RH
NOTE: BOLT, NUT, NAIL, & WASHER TOTALS INCLUDE APPROXIMATELY 10% EXTRA.		

TOTAL TREATED TIMBER = 4023 NOM. BD.FT.
TOTAL GLUED-LAMINATED TREATED TIMBER = 3174 NET BD. FT.

SEE SHEET 2 FOR LUMBER NOTES AND TREATMENT SPECIFICATIONS.





U. S. Department of Agriculture
FOREST SERVICE
Intermountain Region 4
SALMON-CHALLIS NATIONAL FOREST

U.S. FOREST SERVICE
DEPARTMENT OF AGRICULTURE

DESIGN	BY: T. STONE CHECK: C. PORTER
DRAWING	BY: T. STONE CHECK: C. PORTER

APPROVED:
for DIRECTOR, ENGINEERING

DATE 3/24/2023

MOYER CREEK BRIDGE
BRIDGE No. 036-0.1

CHANNEL PLAN & PROFILE

SHEET	9 of 10
DRAWING NUMBER	G-074

STREAM RECONSTRUCTION NOTES:

THE GOAL OF STREAM RECONSTRUCTION IS TO RESTORE THE STREAM TO A NATURAL CONDITION UPON INSTALLATION OF THE NEW CROSSING STRUCTURE AND REMOVAL OF THE EXISTING FORD. THE STREAM SECTIONS, STREAM BED, FEATURES AND ROCK SIZES HAVE BEEN DESIGNED TO ACT IN A SIMILAR WAY AS THE EXISTING STREAM WITH THE HYDRAULIC CONDITIONS THROUGH THE NEW CROSSING.

CHANNEL EXTENTS & STREAMBED ELEMENTS TO BE STAKED IN THE FIELD BY THE CONTRACTOR AND APPROVED BY THE COR.

ELEVATIONS SHOWN IN THE DRAWINGS ARE THE TOP OF RECONSTRUCTED STREAM BED. THE ACTUAL TOP OF THE STEPS WILL BE DEPENDENT ON THE SIZE OF THE ROCK AND THE REQUIREMENTS LISTED BELOW. ALSO REFER TO FSSS 648 AND 705. PLACE ALL STREAMBED MATERIAL AT THE GRADE AND ELEVATIONS LISTED ON THE PLANS.

BANK & GRADE CONTROL CONSTRUCTION

CONSTRUCT BANKS OUT OF CR CLASS 1 ROCK, TIGHTLY KEYED TOGETHER. CHINK GAPS IN BANK ROCK WITH SMALLER COBBLES. LEAVE BANK ROUGH WITH LARGER ROCK PROTRUDING. CONSTRUCT GRADE CONTROL (STEPS & FOOTERS) OUT OF CR CLASS 0 AND CLASS 1 ROCK, TIGHTLY KEYED TOGETHER. PLACE GRADE CONTROL ROCK WITH THE LONG AXIS PARALLEL WITH THE LONGITUDINAL DIRECTION OF THE STREAM. STEP ROCKS SHOULD PROTRUDE NO MORE THAN 2" ABOVE THE BED. VARY DIRECTION AND SHAPE OF THE STEPS. ANGLE SLIGHTLY AND CHANGE ORIENTATION. STEPS STRAIGHT ACROSS THE CHANNEL ARE NOT DESIRABLE. KEY STEPS & FOOTERS INTO BANKS. BANKFULL WIDTH IS 14-16 FT. TRANSITION BANK WIDTH AND BLEND AT THE START AND END OF CHANNEL CONSTRUCTION.

REINFORCED BANK CONSTRUCTION

CONSTRUCT REINFORCED BANK OUT OF CLASS 4 RIPRAP, TIGHTLY KEYED TOGETHER. CHINK GAPS IN BANK ROCK WITH SMALLER COBBLES. LEAVE BANK ROUGH WITH ROCK PROTRUDING. BANKFULL WIDTH IS 14-16 FT. TRANSITION BANK WIDTH AND BLEND AT THE START AND END OF CHANNEL CONSTRUCTION.

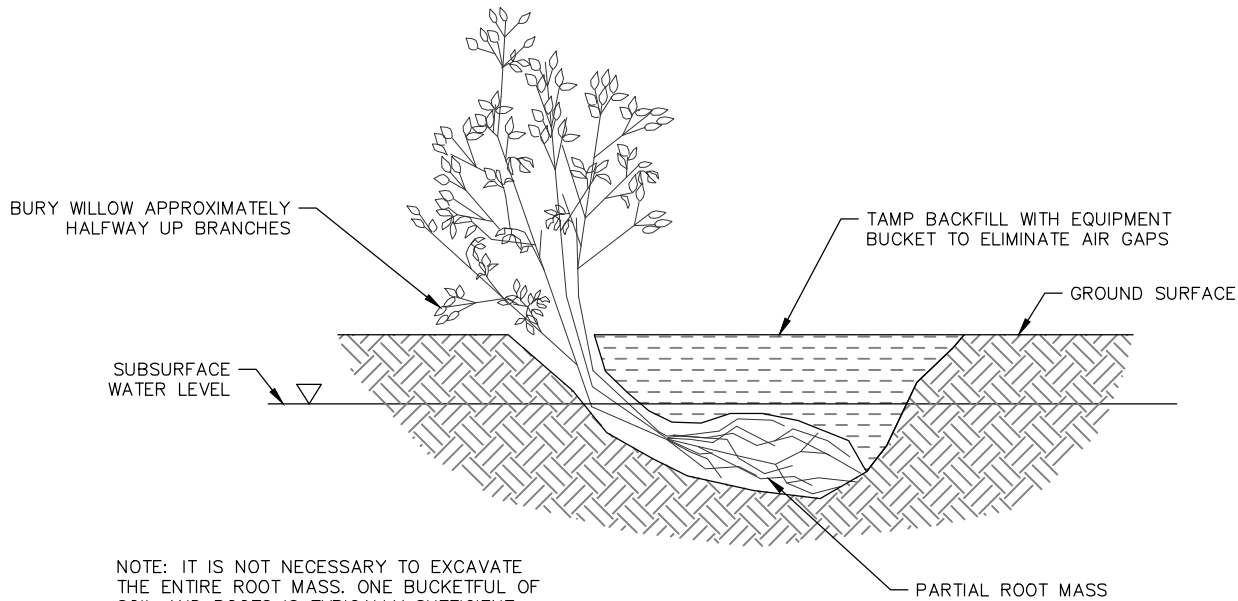
BENCH CONSTRUCTION

CONSTRUCT BENCHES (NOT INCLUDING THE REINFORCED BANK BENCH) OUT OF SURPLUS EXCAVATION.

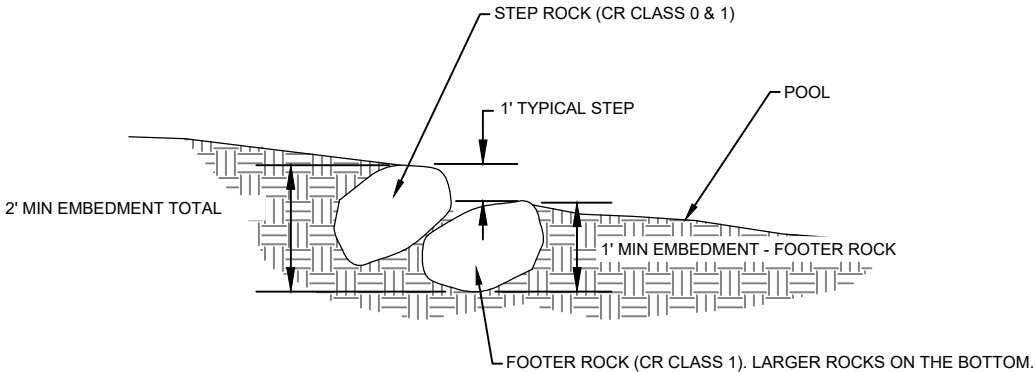
FILL VOIDS IN BANKS, REINFORCED BANK, & GRADE CONTROL ROCK WITH GRAVEL AND FINER MATERIAL. USE EQUIPMENT, WATER PRESSURE, METAL TAMPING RODS AND SIMILAR HAND OPERATED EQUIPMENT TO FORCE MATERIAL INTO ALL VOIDS TO OBTAIN A WELL-GRADED LOW PERMEABILITY MASS. SEE SPECIFICATIONS.

IT IS ANTICIPATED THAT SOME OF THE EXCAVATION MAY BE REUSED AS A PART OF THE BANK, REINFORCED BANK, GRADE CONTROL, & BENCH MATERIALS, WHEN SUPPLEMENTED BY ADDITIONAL MATERIAL TO MEET THE SPECIFIED GRADATION.

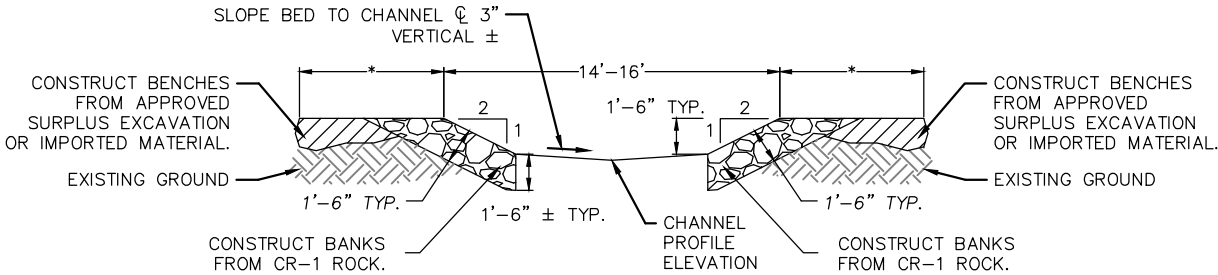
INCORPORATE UP TO 4 TRANSPLANTED WILLOW CLUMPS FROM THE VICINITY INTO THE CONSTRUCTED BANKS, TO BE SELECTED BY THE COR, AT LOCATIONS DESIGNATED BY THE COR. SEE TRANSPLANT DETAIL THIS SHEET.



TYPICAL WILLOW TRANSPLANT DETAIL
NO SCALE

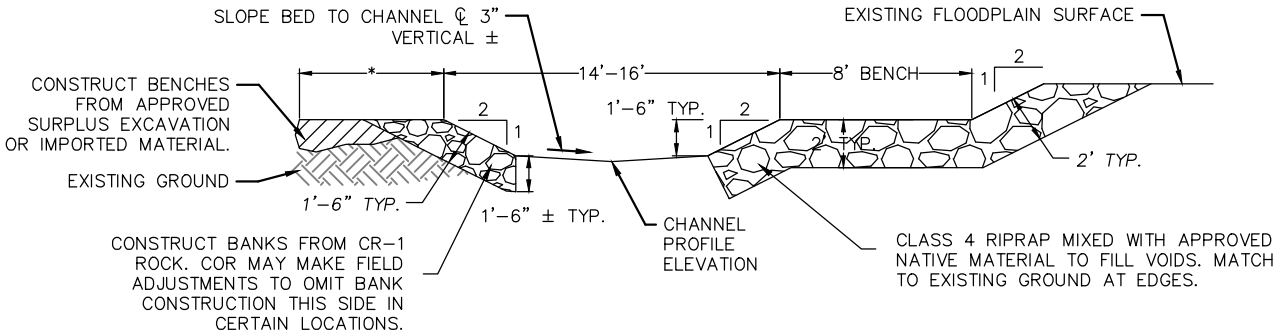


TYPICAL STEP GRADE CONTROL DETAIL
NO SCALE



TYPICAL CHANNEL SECTION
NO SCALE

*BENCH WIDTH AS REQUIRED TO TIE INTO EXISTING GROUND OR LESS IF FIELD ADJUSTED BY COR.



TYPICAL REINFORCED CHANNEL SECTION
NO SCALE
CHANNEL STA 0+05 TO 0+45

*BENCH WIDTH AS REQUIRED TO TIE INTO EXISTING GROUND OR LESS IF FIELD ADJUSTED BY COR.



DESIGN	BY: T. STONE CHECK: C. PORTER
DRAWING	BY: T. STONE CHECK: C. PORTER
APPROVED:	/s/ Chad Porter, PE for DIRECTOR, ENGINEERING
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