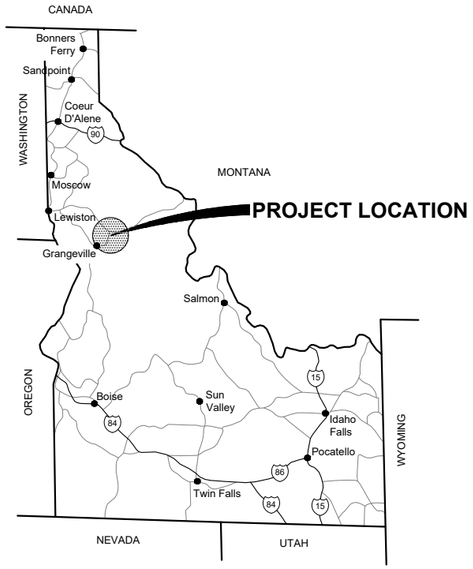
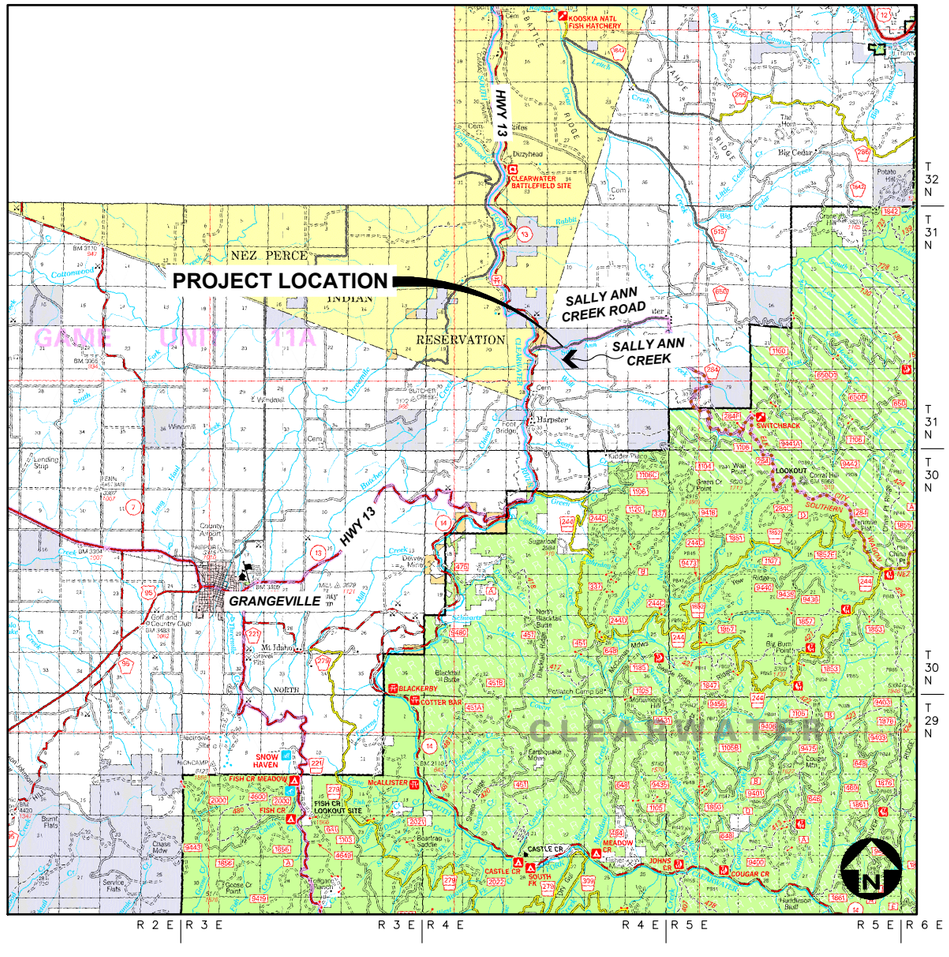


NEZ PERCE TRIBE
SALLY ANN CREEK ROAD AOP
CULVERT REPLACEMENT, CROSSING #1

SECTION 22, TOWNSHIP 31 NORTH, AND RANGE 4 EAST
LATITUDE: 46.012036 N; LONGITUDE: 115.945378 W



NOT TO SCALE

SHEET INDEX

PROJECT: 1-22212
DATE: MAY 12, 2023

PLANS PREPARED FOR:

NEZ PERCE TRIBE & BONNEVILLE POWER ADMINISTRATION

APPROVED BY:

JONATHAN WEAVER, P.E.
GREAT WEST ENGINEERING

PROFESSIONAL ENGINEER LICENSED 18293 STATE OF IDAHO JONATHAN ROBERT WEAVER

QA/QC BY:

JEREMIAH THEYS, P.E.
GREAT WEST ENGINEERING

PROFESSIONAL ENGINEER REGISTERED 12313 STATE OF IDAHO JEREMIAH J. THEYS

PLANS PREPARED BY:

LISBETH OLSEN, E.I.

GreatWest ENGINEERING
2501 BELT VIEW DRIVE
HELENA, MT 59601
(406)449-8627

NO.	REVISION DESCRIPTION	BY	DATE

SET NO.

SHEET NO. 1

Y:\Shared\Helena Projects\1-22212-NPT-Sally Ann Cr Watershed AOPs\Sally Ann 1\CADD 1-22212-Sally Ann 1\Sheets\1-22212-01-SA1-Cover.dwg

GENERAL NOTES:

SPECIFICATIONS:
MATERIALS AND CONSTRUCTION OF THIS STRUCTURE SHALL BE IN ACCORDANCE WITH THE IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION (ISPWC) AS MODIFIED BY THE SPECIFICATIONS AND SPECIAL PROVISIONS.

DESIGN SPECIFICATION:
DESIGNS SHALL CONFORM TO HL-93 LOADING IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION WITH CURRENT INTERIMS.

HYDROLOGY & HYDRAULICS:
THE STRUCTURE WAS DESIGNED TO PASS THE 100-YEAR FLOOD EVENT OF 273 CUBIC FEET PER SECOND (CFS) WITH A MINIMUM OF TWO FEET OF FREEBOARD. FOR THIS SITE, THE 2-YEAR EVENT WAS ESTIMATED AT 64 CFS.

STEEL STRUCTURAL PLATE ARCH:
THE CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS AND CONDITIONS PRIOR TO ORDERING MATERIALS.

THE STRUCTURAL PLATE ARCH CULVERT SHALL BE ASSEMBLED IN ACCORDANCE WITH THE PLATE LAYOUT DRAWINGS PROVIDED BY THE MANUFACTURER AND PER THE MANUFACTURER'S RECOMMENDATIONS.

CONCRETE:
USE CLASS 4000A CONCRETE. REFER TO ISPWC SECTION 703.

ALL CONCRETE SHALL BE MADE IN ACCORDANCE WITH AN APPROVED MIX DESIGN. CHAMFER ALL EXPOSED EDGES OF CONCRETE AND FILLET ALL RE-ENTRANT ANGLES ¾" UNLESS NOTED OTHERWISE.

DEWATERING & EROSION CONTROL PLAN:
SUBMIT A DEWATERING AND SOIL EROSION AND SEDIMENT CONTROL PLAN TO THE OWNER FOR APPROVAL AT LEAST THIRTY (30) DAYS PRIOR TO BEGINNING WORK. SEE SECTION 205 OF THE ISPWC AND GENERAL REQUIREMENTS SHOWN ON SHEET 6. 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.

REINFORCING STEEL:
ALL REINFORCING SHALL BE OF THE DEFORMED BAR TYPE CONFORMING TO AASHTO M31 (ASTM A615), GRADE 60. CONCRETE CLEAR COVER SHALL BE 2" UNLESS SHOWN OTHERWISE ON THE PLANS. BENDING AND SPLICING OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI 315.

TEMPORARY TRAFFIC CONTROL:
SUBMIT A TEMPORARY TRAFFIC CONTROL PLAN TO THE OWNER FOR APPROVAL. SEE ISPWC SECTION 1103.

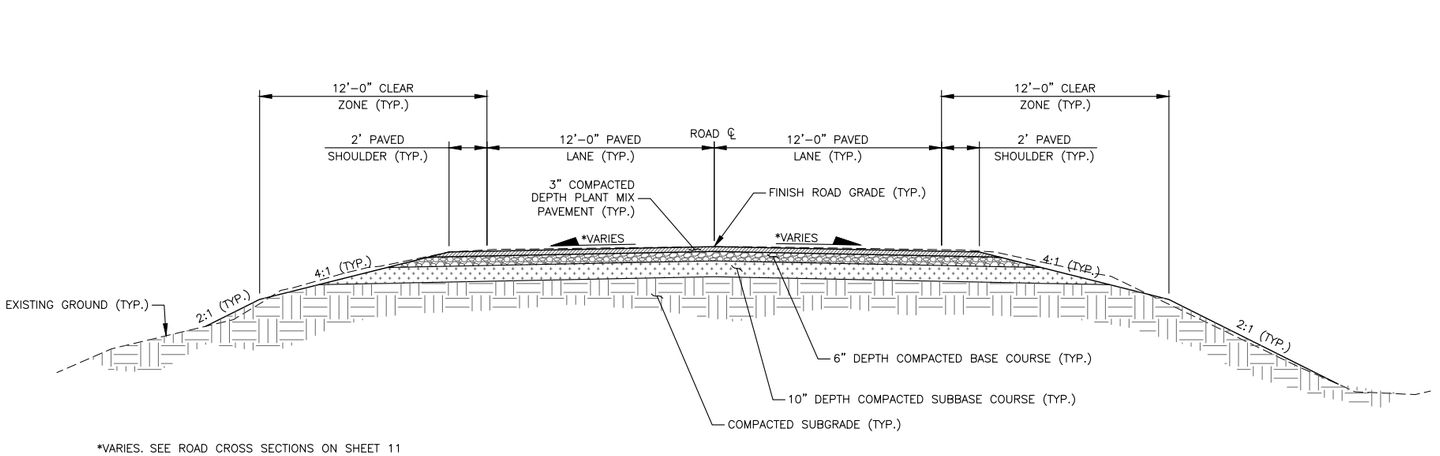
HARDWARE AND STRUCTURAL STEEL:
ALL STEEL SHAPES, PLATES AND BARS SHALL CONFORM TO AASHTO M270 (ASTM A36) AND SHALL BE GALVANIZED. HARDWARE SHALL MEET REQUIREMENTS OF ASTM A325 UNLESS SHOWN OTHERWISE ON THE PLANS. ALL WELDING TO BE CONDUCTED BY A CERTIFIED WELDER WITH CREDENTIALS SUBMITTAL REQUIRED. ALL WELDING SHALL BE IN ACCORDANCE WITH AWS D1.1, STRUCTURAL WELDING CODE. ALL ELECTRODES SHALL BE E70XX.

SEEDING:
SEEDING WILL BE COMPLETED BY THE OWNER.

UTILITIES:
EXISTING UTILITIES SHOWN ARE FROM THE BEST INFORMATION AVAILABLE. THIS INFORMATION IS APPROXIMATE AND MAY BE INCOMPLETE. FOR ACCURATE LOCATION, THE CONTRACTOR SHALL CONTACT, PRIOR TO EXCAVATION, THE IDAHO DIGLINE AT: 811 OR 1-800-342-1585.

FENCING:
CONTRACTOR TO RESET ANY FENCES IMPACTED BY EXCAVATION AND OTHER CONSTRUCTION. THIS WORK IS INCIDENTAL TO THE PROJECT.

VIEW OF EXISTING CULVERT INLET



*VARIES. SEE ROAD CROSS SECTIONS ON SHEET 11

TYPICAL ROAD SECTION
NO SCALE

VIEW OF EXISTING CULVERT OUTLET

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-22212
DESIGNED: LEO
DRAWN: LEO
CHECKED: JJT
APPROVED: JRW
DATE: MAY 12, 2023

PROFESSIONAL ENGINEER LICENSED IDAHO 18293 STATE OF JONATHAN ROBERT WEAVER

GreatWest ENGINEERING
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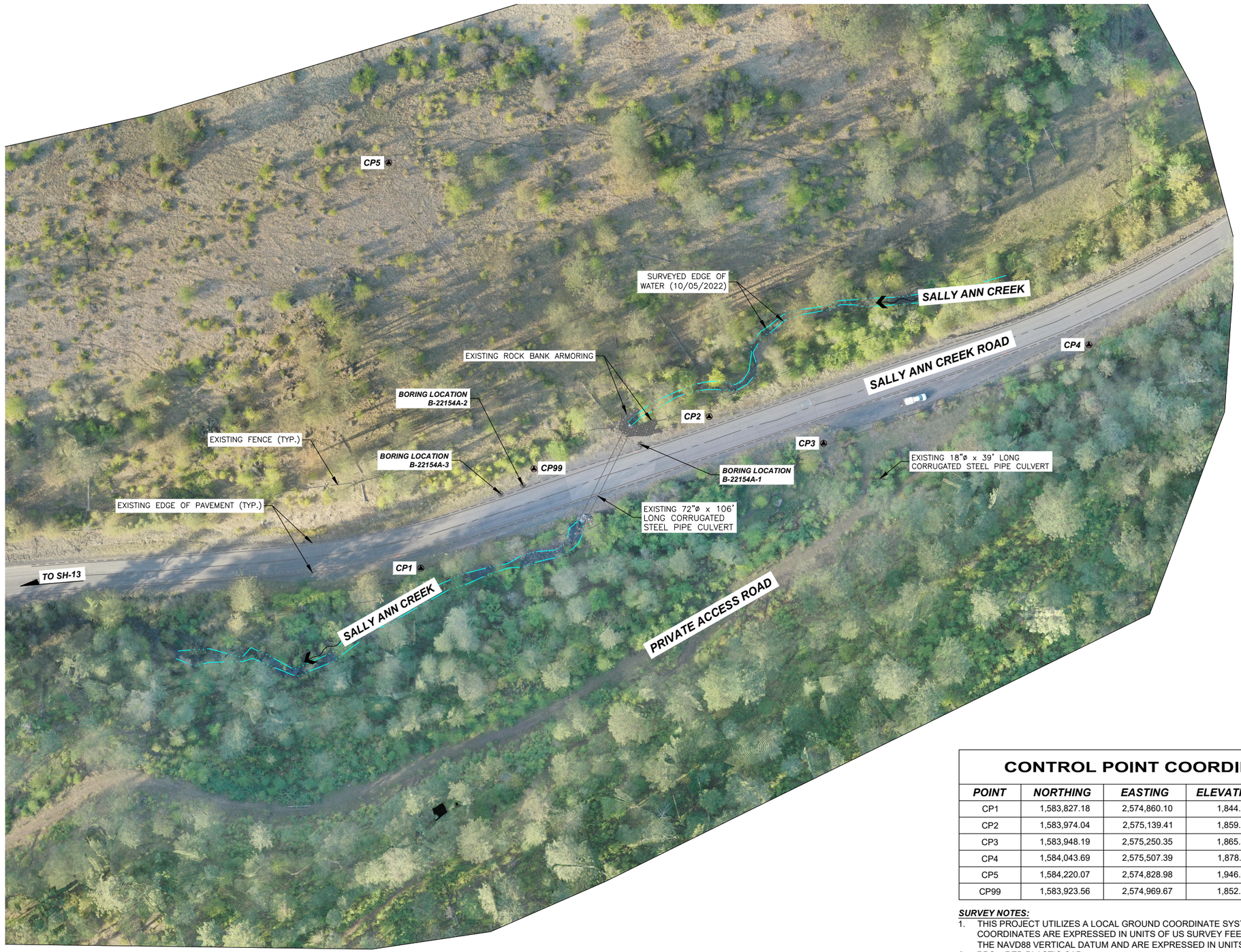
(406)449-8927

NEZ PERCE TRIBE
SALLY ANN CREEK ROAD AOP CULVERT REPLACEMENT, CROSSING #1
GENERAL NOTES & TYPICAL ROAD SECTION

SHEET NO.
2
OF 14



NORTH

CONTROL POINT COORDINATE TABLE

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP1	1,583,827.18	2,574,860.10	1,844.99	REBAR W/ RPC
CP2	1,583,974.04	2,575,139.41	1,859.99	REBAR W/ RPC
CP3	1,583,948.19	2,575,250.35	1,865.35	REBAR W/ RPC
CP4	1,584,043.69	2,575,507.39	1,878.81	REBAR W/ RPC
CP5	1,584,220.07	2,574,828.98	1,946.67	REBAR W/ RPC
CP99	1,583,923.56	2,574,969.67	1,852.13	REBAR W/ RPC

SURVEY NOTES:

1. THIS PROJECT UTILIZES A LOCAL GROUND COORDINATE SYSTEM. NORTHING AND EASTING COORDINATES ARE EXPRESSED IN UNITS OF US SURVEY FEET. ELEVATIONS ARE REFERENCED TO THE NAVD88 VERTICAL DATUM AND ARE EXPRESSED IN UNITS OF US SURVEY FEET.
2. RPC = RED PLASTIC CAP
3. BORING LOCATIONS SHOWN ARE APPROXIMATE. BORINGS WERE OBSERVED BY GEOPROFESSIONAL INNOVATION (GPI) ON OCTOBER 25 AND NOVEMBER 9, 2022. BORING LOGS ARE INCLUDED ON SHEETS 13-14.

OVERALL EXISTING SITE PLAN & CONTROL DIAGRAM

0 50 100
SCALE IN FEET

NO.	REVISION DESCRIPTION	BY	DATE

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OVERALL EXISTING SITE PLAN & CONTROL DIAGRAM

SHEET NO.
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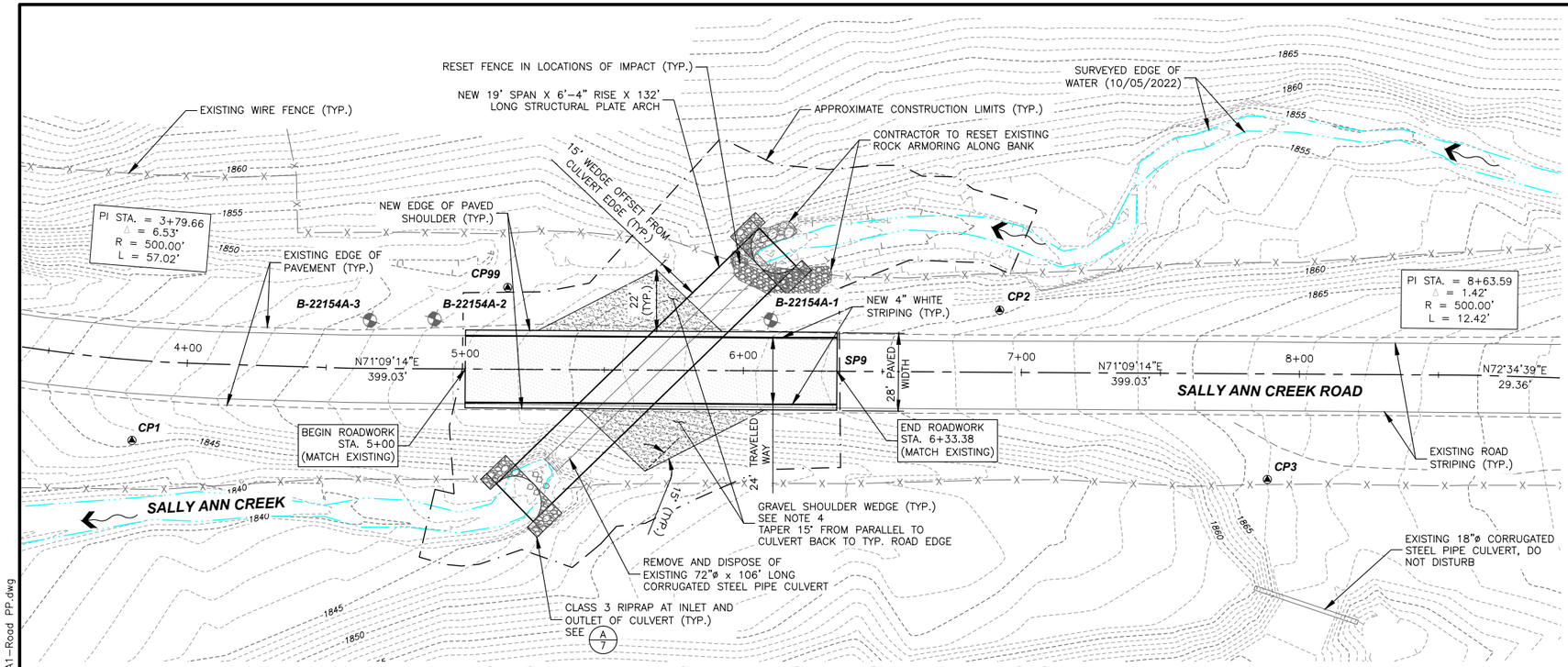
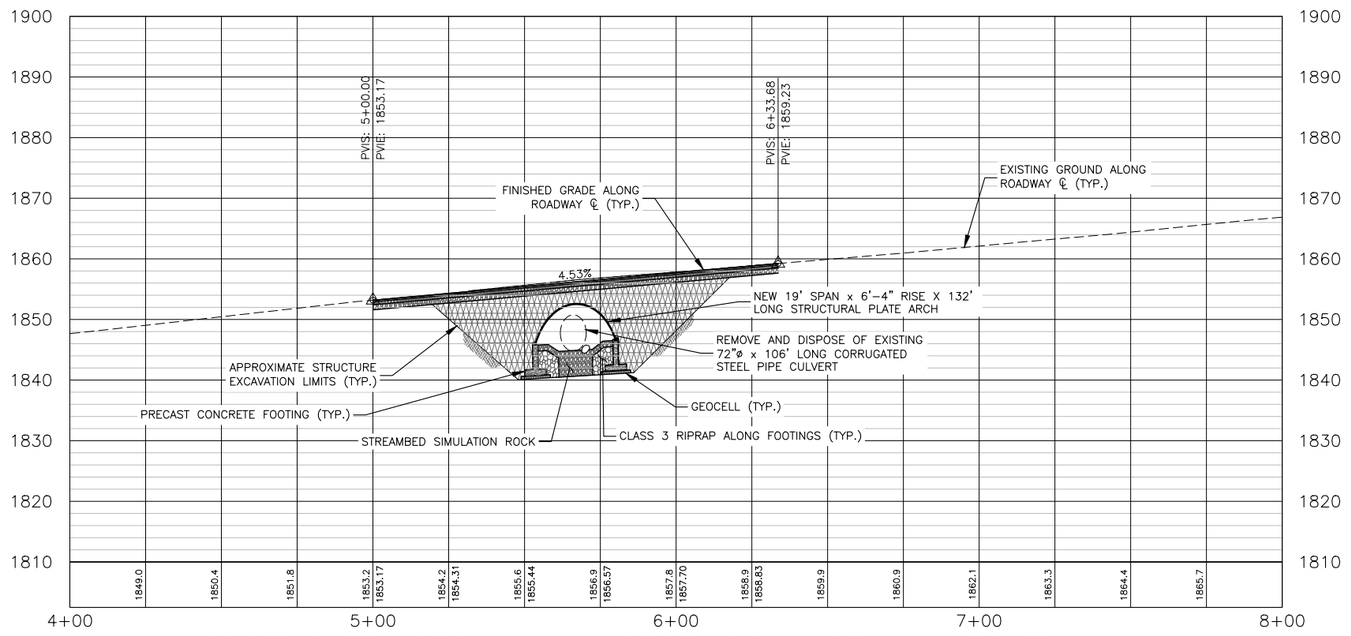
OF 14



PLAN VIEW OF SALLY ANN CREEK ROAD - STA. 4+00 TO STA 8+00

0 25 50
SCALE IN FEET



PROFILE VIEW OF SALLY ANN CREEK ROAD - STA. 4+00 TO STA. 8+00

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 25'

NOTES:

1. QUANTITIES ARE PROVIDED FOR INFORMATION ONLY AND ARE IN-PLACE QUANTITIES, NO SHRINKAGE OR SWELL FACTORS HAVE BEEN APPLIED. CONTRACTOR SHALL VERIFY QUANTITIES.
2. CONTRACTOR TO PRESERVE ALL LARGE DIAMETER TREES PER DIRECTION OF THE OWNER. TREES THAT ARE REMOVED CAN BE KEPT INTACT AND PLACED DOWNSTREAM OF THE NEW CULVERT SO AS NOT TO INTERFERE WITH STREAM FUNCTION (AS DIRECTED BY THE OWNER).
3. NO MATERIALS OR EQUIPMENT MAY BE STORED BELOW THE ORDINARY HIGH WATER MARK OF THE CREEK.
4. DUE TO THE CULVERT SKEW – CONTRACTOR SHALL COMPLETE BALANCED FILL FOR CULVERT INSTALLATION BY INSTALLING SHOULDER WEDGE (AS SHOWN), ALONG WITH OTHER INSTALLATION PROCEDURES AS RECOMMENDED BY THE CULVERT SUPPLIER. REFER TO ROAD CROSS SECTIONS ON SHEET 11. GRAVEL QUANTITY IS ACCOUNTED FOR IN THE CRUSHED AGGREGATE BASE LINE ITEM.

ROAD CENTERLINE COORDINATE STAKING TABLE

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
SP1	1,583,894.35	2,574,975.36	1,853.17	STA. 5+00.00 BEGIN ROAD WORK
SP2	1,583,902.76	2,575,000.00	1,854.35	STA. 5+26.05 BEGIN LEFT SHOULDER WEDGE
SP3	1,583,907.56	2,575,014.07	1,855.03	STA. 5+40.92 BEGIN RIGHT SHOULDER WEDGE
SP4	1,583,915.29	2,575,036.73	1,856.11	STA. 5+64.86 RIGHT WIDENED SHOULDER WEDGE 22 FEET FROM PAVED SHOULDER TO WEDGE END
SP5	1,583,915.93	2,575,038.59	1,856.20	STA. 5+66.83 ALONG CULVERT CENTERLINE
SP6	1,583,916.50	2,575,040.25	1,856.28	STA. 5+68.58 LEFT WIDENED SHOULDER WEDGE 22 FEET FROM PAVED SHOULDER TO WEDGE END
SP7	1,583,924.16	2,575,062.71	1,857.36	STA. 5+92.31 END LEFT SHOULDER WEDGE
SP8	1,583,929.15	2,575,077.32	1,858.05	STA. 6+07.75 END RIGHT SHOULDER WEDGE
SP9	1,583,937.52	2,575,101.86	1,859.23	STA. 6+33.68 END ROAD WORK

NO.	REVISION DESCRIPTION	BY	DATE

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DATE: MAY 12, 2023

PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO JONATHAN ROBERT WEAVER 18293 5-12-2023

GreatWest ENGINEERING
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HELENA, MT 59601
(406)449-8627

NEZ PERCE TRIBE
SALLY ANN CREEK ROAD AOP CULVERT REPLACEMENT, CROSSING #1
SALLY ANN CREEK ROAD PLAN & PROFILE

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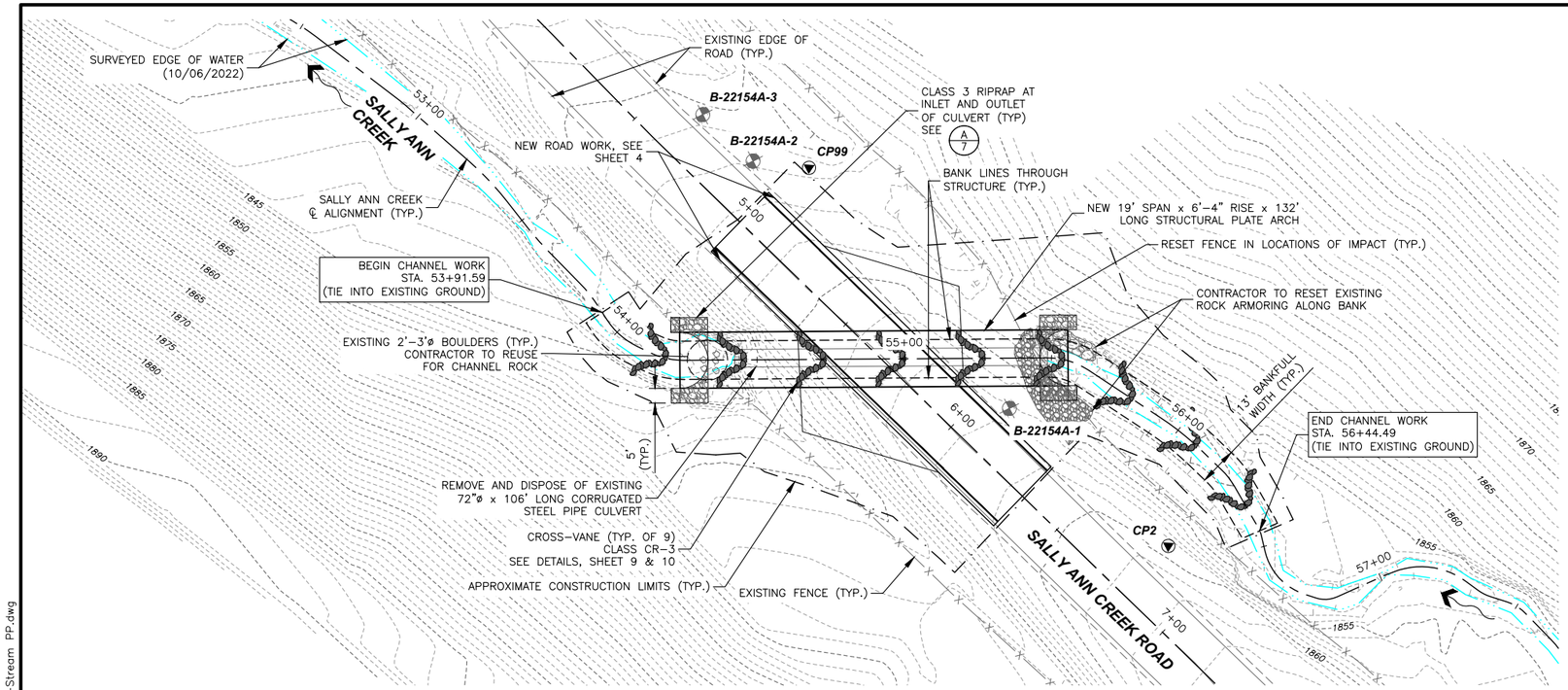
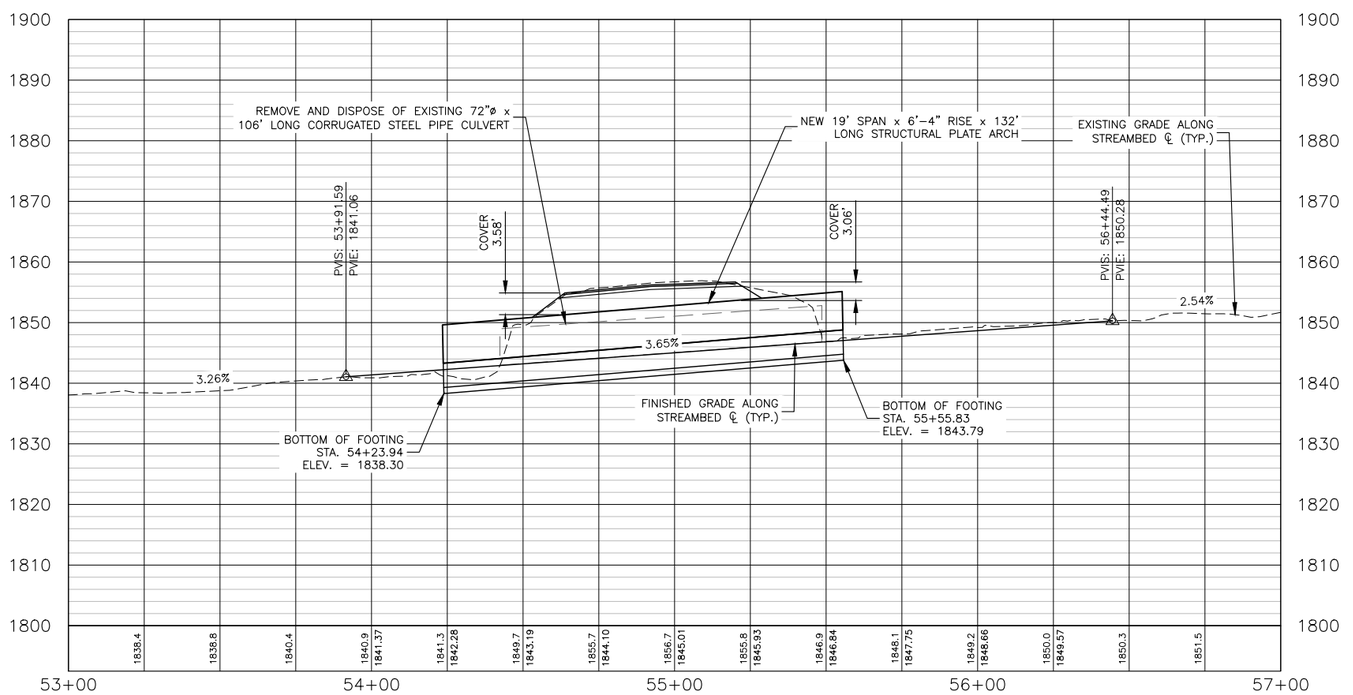
OF 14



PLAN VIEW OF SALLY ANN CREEK - STA. 53+00 TO STA. 57+00

0 25 50
SCALE IN FEET



PROFILE VIEW OF SALLY ANN CREEK - STA. 53+00 TO STA. 57+00

HORIZONTAL SCALE: 1" = 50'
VERTICAL SCALE: 1" = 25'

NORTH

NOTES:

1. CONTRACTOR SHALL USE SUITABLE ON-SITE MATERIAL FROM CHANNEL AND STRUCTURE EXCAVATION FOR STREAMBED SIMULATION ROCK AND PLACED CHANNEL ROCK (KEY PIECE ROCK). SORTING OF THE MATERIAL WILL BE REQUIRED TO MEET THE REQUIREMENTS SPECIFIED IN ISPWC SECTION 206.
2. STREAMBED MATERIAL TO BE INSTALLED NON-UNIFORMLY.
3. CHANNEL EXCAVATION AND EMBANKMENT QUANTITIES ARE FOR INFORMATION ONLY AND ARE CALCULATED TO THE CHANNEL FINISH GRADE (WHICH INCLUDES A PORTION OF STREAMBED SIMULATION ROCK). EXCAVATION AND EMBANKMENT REQUIRED FOR CHANNEL WORK (TO BOTTOM OF THE STREAMBED SIMULATION ROCK) IS INCLUDED IN ITEM 5, STRUCTURAL EXCAVATION.
4. THE FINAL CHANNEL BOTTOM SHOULD BE A DENSE, INTERLOCKED STREAMBED WITH LOW PERMEABILITY. COMPACT EACH LAYER AND FILL SURFACE VOIDS BY WASHING IN FINE MATERIAL. USE WATER PRESSURE, TAMPING RODS, AND SIMILAR HAND OPERATED EQUIPMENT TO FORCE FINE MATERIAL INTO ALL SURFACE VOIDS.
5. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE STREAM FLOW DOES NOT GO SUBSURFACE THROUGH THE CULVERT FOR A 48-HOUR PERIOD AFTER REWATERING.
6. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE EXISTING ROCK ARMORING AND RIPRAP IS RESET AFTER CONSTRUCTION.
6. CONTRACTOR MAY REUSE ANY SUITABLE ON-SITE RIPRAP.

STREAM CENTERLINE COORDINATE STAKING TABLE

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
SP1	1,583,838.72	2,574,981.52	1,841.06	STA. 53+91.59 BEGIN STREAM WORK
SP2	1,583,850.61	2,575,004.96	1,842.05	STA. 54+18.59 CROSS-VANE
SP3	1,583,854.98	2,575,008.03	1,838.30	STA. 54+23.94 CULVERT OUTLET - FOOTING INVERT
SP4	1,583,874.33	2,575,017.74	1,843.03	STA. 54+45.59 CROSS-VANE
SP5	1,583,898.46	2,575,029.84	1,844.02	STA. 54+72.59 CROSS-VANE
SP6	1,583,922.60	2,575,041.93	1,845.00	STA. 54+99.59 CROSS-VANE
SP7	1,583,946.74	2,575,054.03	1,845.98	STA. 55+26.59 CROSS-VANE
SP8	1,583,970.62	2,575,066.57	1,846.97	STA. 55+53.59 CROSS-VANE
SP9	1,583,972.32	2,575,068.03	1,843.79	STA. 55+55.83 CULVERT INLET - FOOTING INVERT
SP10	1,583,985.46	2,575,088.91	1,847.95	STA. 55+80.59 CROSS-VANE
SP11	1,583,997.78	2,575,112.90	1,848.94	STA. 56+07.59 CROSS-VANE
SP12	1,584,003.02	2,575,129.47	1,849.57	STA. 56+25.00
SP13	1,584,003.59	2,575,139.04	1,849.92	STA. 56+34.59 CROSS-VANE
SP14	1,584,004.03	2,575,148.93	1,850.28	STA. 56+44.49 END STREAM WORK

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-22212
DESIGNED: LEO
DRAWN: LEO
CHECKED: JJT
APPROVED: JRW
DATE: MAY 12, 2023

PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO JONATHAN ROBERT WEAVER 18293 5-12-2023

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NEZ PERCE TRIBE
SALLY ANN CREEK ROAD AOP CULVERT REPLACEMENT, CROSSING #1
SALLY ANN CREEK PLAN & PROFILE

SHEET NO.
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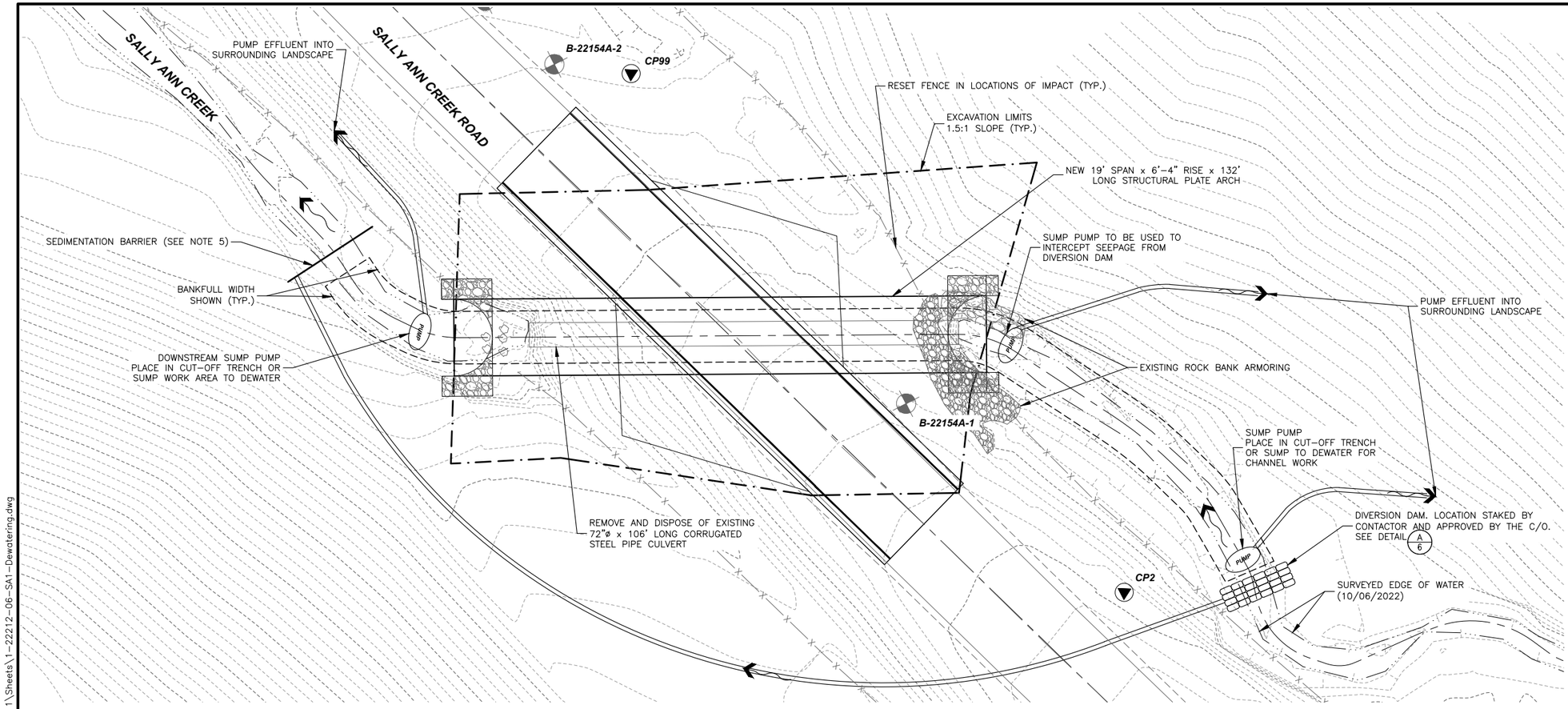
OF 14

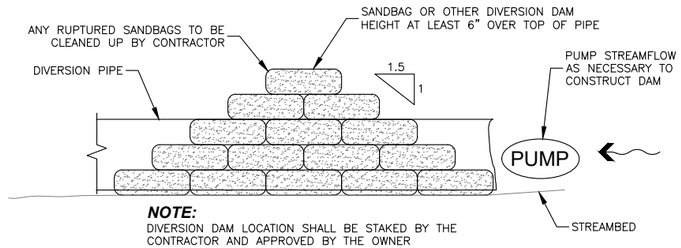


SALLY ANN CREEK DEWATERING & DIVERSION PLAN

0 15 30
SCALE IN FEET

NOTES:

1. DEWATER THE EXCAVATION IN ACCORDANCE WITH ISPWC SECTION 205 AND THE REQUIREMENTS ON THIS SHEET.
2. DEWATERING IS THE RESPONSIBILITY OF THE CONTRACTOR AND CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE OWNER FOR APPROVAL ALONG WITH THE EXCAVATION PLAN. THE DEWATERING PLAN SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL 30 DAYS PRIOR TO CONSTRUCTION. THIS SHEET ILLUSTRATES GENERIC DEWATERING REQUIREMENTS AND POSSIBLE METHODS AND EQUIPMENT AND IS NOT CONSIDERED ADEQUATE FOR THIS PROJECT. CONTRACTOR SHALL DEVELOP THEIR OWN PROJECT SPECIFIC DEWATERING PLANS AND SHALL INCLUDE DRAWINGS AND A WRITTEN OUTLINE ILLUSTRATING AND DESCRIBING PROPOSED LAYOUT, METHODS, EQUIPMENT, AND ANTICIPATED STREAM FLOW VOLUMES. APPROVAL OF THE DEWATERING PLAN BY THE OWNER 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 THE OWNER FOR APPROVAL. NO ADDITIONAL PAYMENT WILL BE MADE FOR THIS WORK. ALL WORK RELATING TO THE STREAM DIVERSION IS PAID UNDER ITEM 7, DEWATERING.
3. CONTRACTOR IS RESPONSIBLE FOR SIZING ALL PUMPS, DAMS, BYPASS PIPES, OPEN CHANNELS, ETC. AND WILL NEED TO MAINTAIN PUMPING CAPACITY OF THE INFLOW DURING THE DURATION OF THE PROJECT. PUMPS TO BE PLACED IN LOCATION OR WITHIN SECONDARY CONTAINMENT TO PREVENT FUEL/OIL FROM SPILLING INTO THE STREAM. CONTRACTOR TO BE RESPONSIBLE FOR CLEANUP OF ANY FUEL/OIL SPILL.
4. SOIL EROSION AND SEDIMENT CONTROL MEASURES SPECIFIC TO THE DEWATERING PLAN SHALL BE INCLUDED AND SHALL BE IN CONFORMANCE WITH PROJECT PERMITS.
5. INSTALL SEDIMENTATION BARRIER DOWNSTREAM OF WORK. THE BARRIER MAY CONSIST OF EITHER ONE OR A COMBINATION OF THE FOLLOWING: STRAW BALES OR SILT FENCE. INSTALL BARRIER PRIOR TO COMMENCEMENT OF WORK. THE LOCATION OF THE BARRIER WILL BE LOCATED BY THE CONTRACTOR AND APPROVED BY THE OWNER. THIS WORK IS PAID UNDER ITEM 7, DEWATERING.
6. CONTRACTOR SHALL GIVE 2 DAYS NOTICE BEFORE DEWATERING. REWATERING WILL BE DONE SLOWLY IN A MANNER TO REDUCE SEDIMENTATION.
7. CLEARING LIMITS WILL VARY DEPENDING ON THE DIVERSION PLAN SUBMITTED BY THE CONTRACTOR. CONTRACTOR TO SUBMIT PROPOSED CLEARING LIMITS WITH DIVERSION PLAN.
8. IF A BYPASS CHANNEL IS SELECTED FOR DEWATERING, CONTRACTOR MUST ENSURE BYPASS CHANNEL IS LINED.



NOTE:
DIVERSION DAM LOCATION SHALL BE STAKED BY THE CONTRACTOR AND APPROVED BY THE OWNER

A/6 DIVERSION DAM DETAIL

NO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-22212
DESIGNED: LEO
DRAWN: LEO
CHECKED: JJT
APPROVED: JRW
DATE: MAY 12, 2023

PROFESSIONAL ENGINEER — LICENSED — 18293 — STATE OF IDAHO — JONATHAN ROBERT WEAVER — 5-12-2023

GreatWest ENGINEERING
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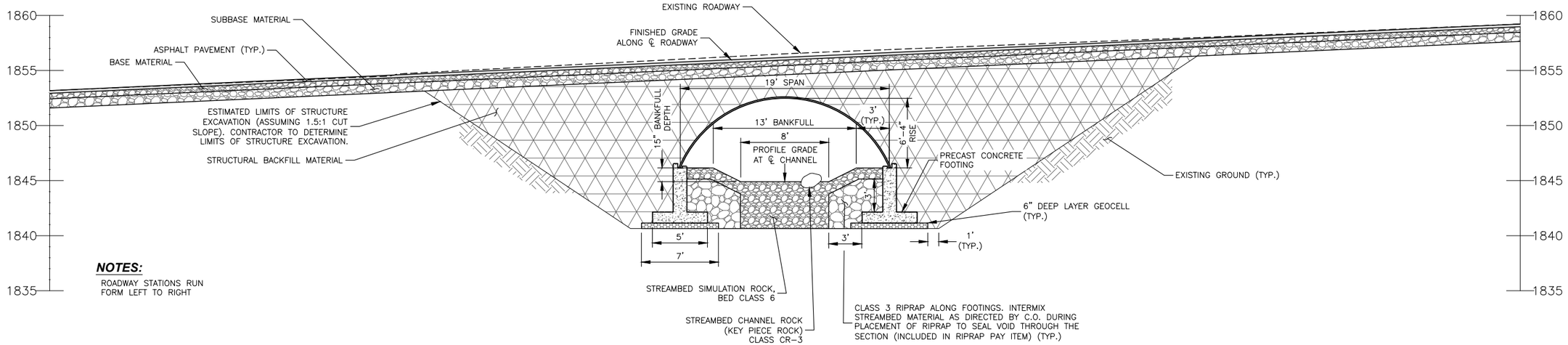
NEZ PERCE TRIBE
SALLY ANN CREEK ROAD AOP CULVERT REPLACEMENT, CROSSING #1
DEWATERING & DIVERSION PLAN

SHEET NO.
6
OF 14



NOTES:

ROADWAY STATIONS RUN FORM LEFT TO RIGHT

TYPICAL SECTION - STEEL STRUCTURAL PLATE - ARCH CULVERT

SCALE: 1" = 10'

STRUCTURAL EXCAVATION NOTES:

1. STRUCTURAL EXCAVATION SHALL BE COMPLETED IN ACCORDANCE WITH ISPWC SECTION 204.
2. LIMITS SHOWN ARE MINIMUM EXCAVATION REQUIREMENTS BASED ON ASSUMPTION OF OSHA SOIL TYPE C AND OSHA EXCAVATION REQUIREMENTS. DETERMINATION IS BASED ON LIMITED DATA AND ACTUAL SITE CONDITIONS MAY VARY.
3. STRUCTURAL EXCAVATION QUANTITY SHOWN IS FOR INFORMATION ONLY BASED ON THE LIMITS SHOWN. CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL QUANTITIES BASED ON THEIR OWN EXCAVATION PLAN.
4. CONTRACTOR SHALL SUBMIT EXCAVATION PLAN TO OWNER FOR APPROVAL. PLAN SHALL INCLUDE DRAWINGS AND WRITTEN OUTLINE ILLUSTRATING AND DESCRIBING PROPOSED EXCAVATION LIMITS, METHODS, EQUIPMENT, LOCATION OF STOCKPILES, AND ESTIMATED QUANTITIES AND IT MUST COMPLY WITH OSHA EXCAVATION SOIL TYPING AND REQUIREMENTS. CHANGES TO THE EXCAVATION LIMITS SHOWN ON THIS SHEET FOR CONTRACTOR'S DEWATERING METHODS OR OTHER CONTRACTOR CONVENIENCE, MUST BE SHOWN ON THE CONTRACTOR'S PLAN AND ARE THE RESPONSIBILITY OF THE CONTRACTOR. THIS WORK IS INCLUDED IN ITEM 5, STRUCTURAL EXCAVATION.
5. GRANULAR SITE SOIL FROM STRUCTURAL EXCAVATION MATERIAL IS ANTICIPATED TO BE SUITABLE FOR USE AS ROADWAY EMBANKMENT, STREAMBED SIMULATION ROCK, AND CHANNEL ROCK.
   A. MUST HAVE APPROVAL FROM OWNER PRIOR TO REUSE.
   B. MIXING, SORTING, AND DRYING MAY BE REQUIRED PRIOR TO RE-USE.

STRUCTURAL BACKFILL MATERIAL:

1. ALL STRUCTURAL BACKFILL MATERIAL SHALL MEET THE MATERIAL REQUIREMENTS IN ISPWC SECTION 204.2 AND BE COMPACTED IN ACCORDANCE WITH SECTION 204. THE PROCTOR DENSITY FOR BACKFILL MATERIAL(S) SHALL BE OBTAINED IN ACCORDANCE WITH AASHTO T99, METHOD C. SAMPLING AND TESTING IS REQUIRED.
2. STRUCTURAL BACKFILL LIMITS SHOWN ARE MINIMUM REQUIREMENTS. ANY MATERIAL OUTSIDE THE SHOWN LIMITS OF STRUCTURAL BACKFILL SHALL BE CONSIDERED ROADWAY EMBANKMENT AND MUST MEET THE REQUIREMENTS OUTLINED IN ISPWC SECTION 204.
3. PLACE STRUCTURAL BACKFILL MATERIAL IN HORIZONTAL LAYERS THAT DO NOT EXCEED 6 INCHES IN COMPACTED THICKNESS.

GEOCELL:

1. INSTALL GEOCELL PER ISPWC SECTION 2050. CONTRACTOR SHALL HOLD GEOCELL IN PLACE TO THE LINES AND GRADES SHOWN ON THE DRAWINGS WITH SUITABLE SIDE FORMS (STRETCHER FRAMES).
2. PLACE GEOTEXTILE UNDER GEOCELL ON LEVEL COMPACTED SUBGRADE. BACKFILL GEOCELL WITH COARSE GRANULAR BACKFILL (GOVERNMENT FURNISHED SOURCE). WRAP GEOTEXTILE OVER TOP OF THE GEOCELL AFTER IT IS BACKFILLED AND COMPACTED. ALL WORK AND MATERIALS RELATED TO GEOCELL INSTALLATION ARE INCLUDED IN ITEM 19, GEOCELL.

STREAMBED SIMULATION ROCK:

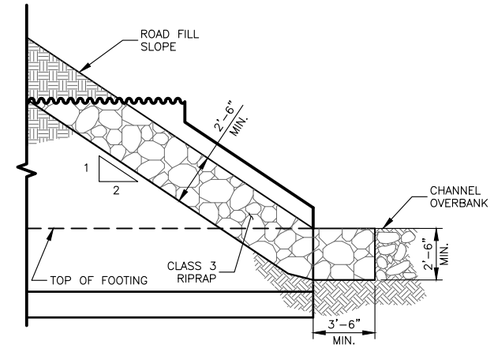
1. STREAMBED SIMULATION ROCK SHALL BE AS SHOWN ON THIS SHEET THROUGH THE CULVERT. IN CHANNEL RECONSTRUCTION OUTSIDE CULVERT EXTENTS, STREAMBED SIMULATION ROCK SHALL BE SHAPED TO A MINIMUM DEPTH OF 12".
2. STREAMBED SHALL BE INSTALLED NON-UNIFORMLY. BANKFULL WIDTH SHALL BE 13'-0" AND THE LOW FLOW CHANNEL SHALL BE 8'-0", OR AS DIRECTED BY THE OWNER.
3. CONTRACTOR SHALL USE SUITABLE ON-SITE MATERIAL FROM CHANNEL AND STRUCTURE EXCAVATION FOR STREAMBED SIMULATION ROCK. SORTING WILL BE REQUIRED TO MEET THE REQUIREMENTS SPECIFIED IN ISPWC SECTION 206.

DEWATERING AND EROSION CONTROL:

1. PROTECT AGAINST SOIL EROSION AND SEDIMENTATION DURING CONSTRUCTION IN ACCORDANCE WITH ISPWC SECTION 1001 AND THE PROJECT PERMITS. CONTRACTOR SHALL PREPARE AND SUBMIT A SOIL EROSION AND SEDIMENT CONTROL PLAN TO THE OWNER FOR APPROVAL. PLAN SHALL INCLUDE DRAWINGS AND A WRITTEN OUTLINE ILLUSTRATING AND DESCRIBING PROPOSED LAYOUT, METHODS, AND EQUIPMENT.
2. DEWATER THE EXCAVATION IN ACCORDANCE WITH ISPWC SECTION 205 AND THE REQUIREMENTS ON SHEET 6.
3. CONTRACTOR SHOULD ANTICIPATE WATER INFILTRATING THE EXCAVATIONS.
4. CULVERT EXCAVATION, FOOTING PLACEMENT, RIPRAP PLACEMENT, STREAM CHANNEL SHAPING, GEOCELL INSTALLATION AND BACKFILL ARE TO BE COMPLETED PER THE CONTRACT SPECIFICATIONS AND STANDING OR RUNNING WATER IN THE WORK AREA DOES NOT RELIEVE THE CONTRACTOR FROM MEETING THE SPECIFICATIONS.

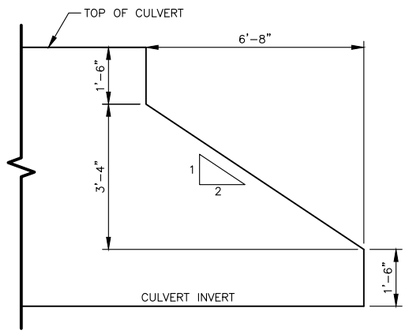
ESTIMATED QUANTITIES

TOTAL STRUCTURE EXCAVATION	2,947	CY
STRUCTURAL BACKFILL	1,328	CY
STREAMBED SIMULATION ROCK	284	CY
RIPRAP (ALONG FOOTINGS)	168	CY
RIPRAP (AT CULVERT ENDS)	30	CY



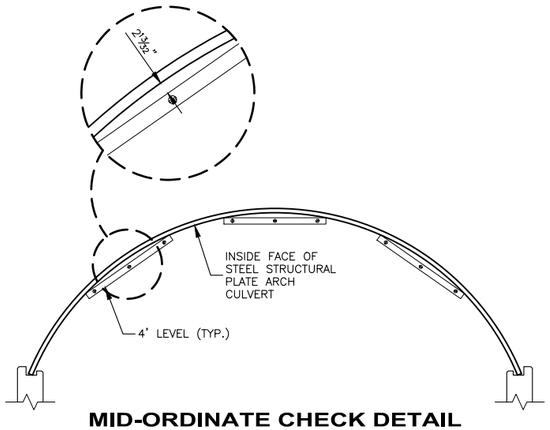
A/7 **RIPRAP AT INLET & OUTLET**

NO SCALE



B/7 **CULVERT END TREATMENT**

NOT TO SCALE



MID-ORDINATE CHECK DETAIL

NO SCALE

NOTES:

1. PRIOR TO BACKFILLING, CHECK THE SPAN AND RISE. VERIFY THAT THE MEASUREMENTS ARE WITHIN THE MANUFACTURERS TOLERANCES. CHECK AND RECORD THE CULVERT RADIUS BY MEASURING THE MIDDLE ORDINATE AT THREE LOCATIONS ALONG THE ROOF OF THE CULVERT, AS SHOWN ABOVE, WITH A 4' LEVEL. TAKE MEASUREMENTS ALONG THE FULL LENGTH OF THE PIPE AT A SPACING OF NO GREATER THAN 8'. MARK ALL SAMPLE LOCATIONS WITH PAINT. VERIFY THAT THE MID-ORDINATE MEASUREMENTS FALL WITHIN THE RANGE SHOWN ON THE DETAIL.
2. DURING BACKFILLING CONTINUE TO CHECK THE CULVERT AT THE MARKED LOCATIONS AS OUTLINED ABOVE. ADJUST MATERIAL PLACEMENT AND COMPACTION PROCEDURES TO CORRECT ANY DETECTED CHANGE IN SHAPE DURING BACKFILLING.

CULVERT SHAPE CHECK TABLE

MEASUREMENT	*DESIGN*	*ALLOWED RANGE*	
		MINIMUM	*MAXIMUM*
MID-ORDINATE "M"	2 13/32"	2"	2 13/16"
*ALL MEASUREMENTS ARE TO THE INSIDE CREST OF CORRUGATIONS.			

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-22212
DESIGNED: LEO
DRAWN: LEO
CHECKED: JJT
APPROVED: JRW
DATE: MAY 12, 2023

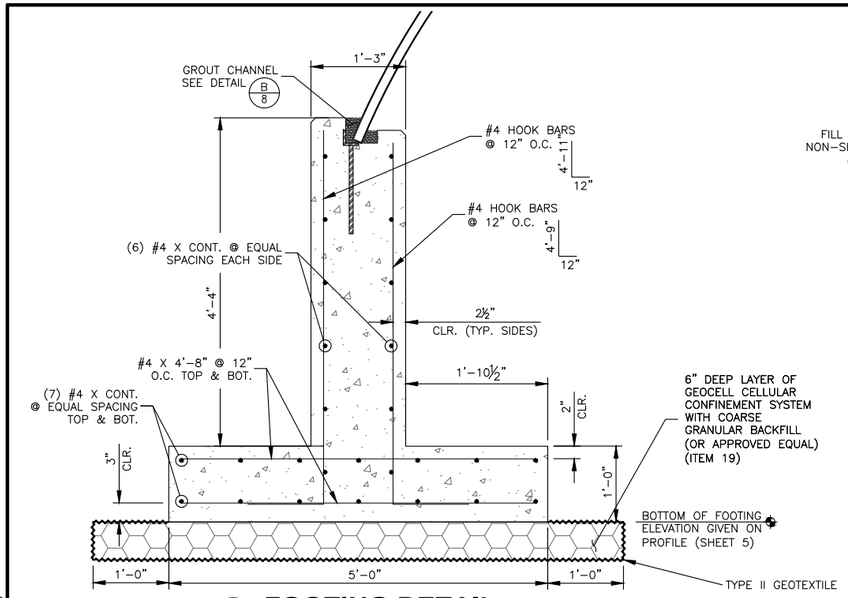
PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO JONATHAN ROBERT WEAVER 18293

GreatWest ENGINEERING
2501 BELT VIEW DRIVE
HELENA, MT 59601
(406)449-8627

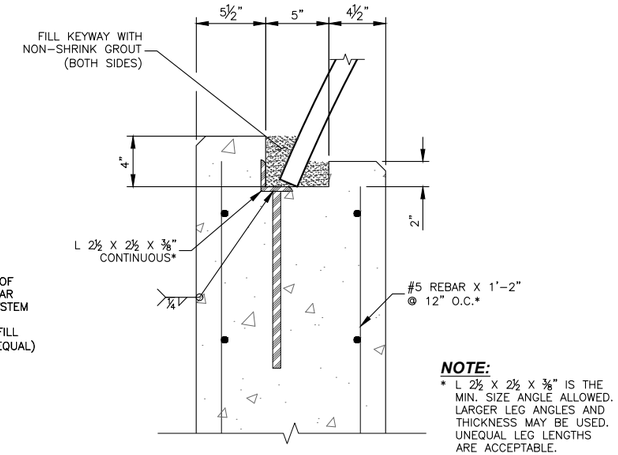
NEZ PERCE TRIBE
SALLY ANN CREEK ROAD AOP CULVERT REPLACEMENT, CROSSING #1
CULVERT DETAILS

SHEET NO.
7
OF 14

X:\Shared\Helena Projects\1-22212-NPT-Sally Ann Cr Watershed AOPs\Sally Ann 1\CADD 1-22212-Sally Ann 1\Sheets\1-22212-07-SA1-Culvert Details.dwg

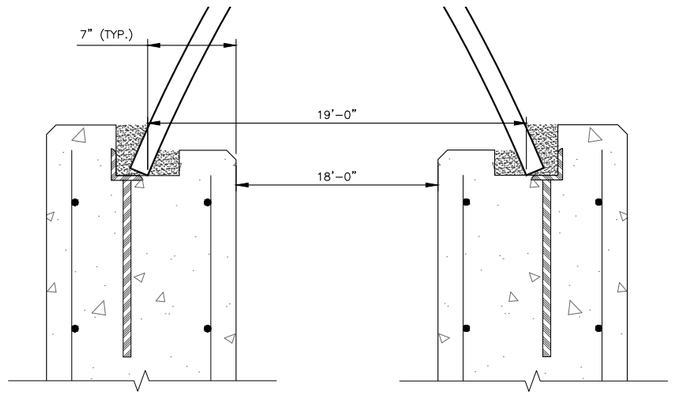


A/8 **FOOTING DETAIL**
SCALE: 1/2" = 1'-0"



NOTE:
* L 2½ X 2½ X ⅜" IS THE MIN. SIZE ANGLE ALLOWED. LARGER LEG ANGLES AND THICKNESS MAY BE USED. UNEQUAL LEG LENGTHS ARE ACCEPTABLE.

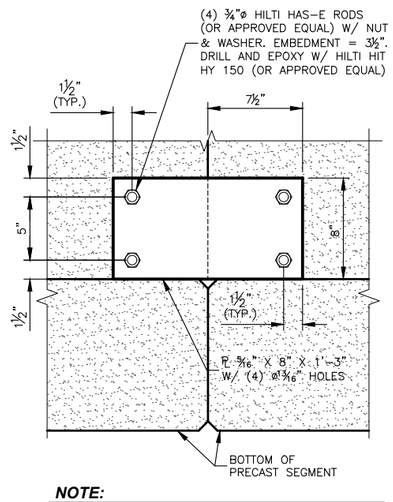
B/8 **GROUT CHANNEL DETAIL**
SCALE: 1" = 1'-0"



C/8 **STEMWALL POSITIONING DETAIL**
NO SCALE

FOOTING NOTES:

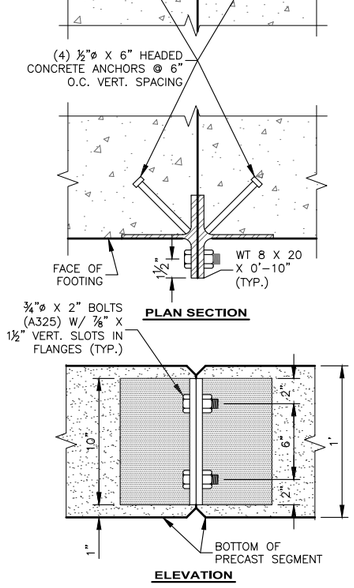
1. AN UNBALANCED CHANNEL (OR SIMILAR ANGLE) CONNECTION WILL NOT BE ALLOWED.
2. ALL CONCRETE REINFORCING STEEL SHALL BE CONSIDERED INCIDENTAL TO FOOTING CONCRETE. MIN. 1½" CLEAR COVER OVER REBAR UNLESS OTHERWISE NOTED.
3. PLACE GEOCELL ON UNDISTURBED SOIL. BACKFILL GEOCELL W/COARSE GRANULAR BACKFILL PER ISPWC SECTION 2050.
4. PLACE TYPE II GEOTEXTILE UNDER GEOCELL AND WRAP OVER TOP AFTER GEOCELL IS BACKFILLED (INCLUDED IN ITEM 19).
5. FOOTINGS SHALL BE PRECAST. ALL PRECAST UNITS MUST BE SPLICED AS SHOWN OR SUPPLIED CONTINUOUS.



NOTE:
IN LIEU OF PRECAST MECHANICAL SPLICE CONNECTIONS AT FOOTING, ALL POST-INSTALLED SPLICE PLATES MAY BE INSTALLED ON THE STEM WALL AS SHOWN ON TYPICAL PRECAST SEGMENT DETAIL.

ELEVATION

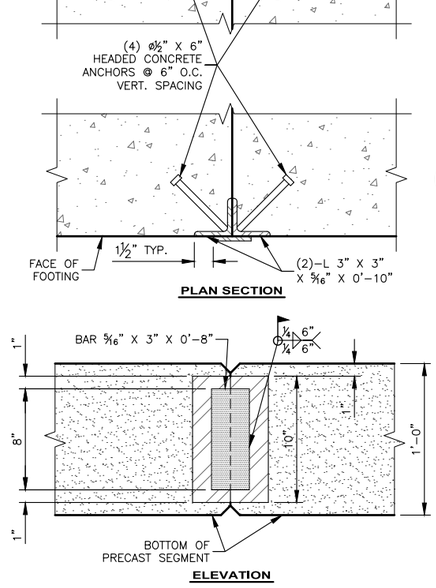
POST-INSTALLED ANCHOR PLATE ALTERNATIVE



PLAN SECTION

ELEVATION

BOLTED ALTERNATIVE



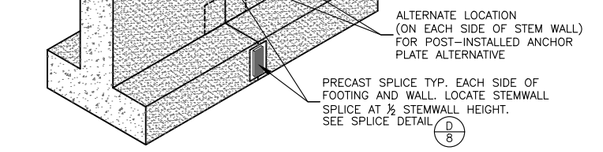
PLAN SECTION

ELEVATION

WELDED ALTERNATIVE

NOTE:
FOOTING CONNECTION IS SHOWN. WALL CONNECTION IS SIMILAR.

D/8 **TYPICAL FOOTING SPLICE DETAILS**
NO SCALE



NOTE:
SPLICE ASSEMBLY SHALL BE INDIRECTLY PAID BY ITEM 21, PRECAST CONCRETE MEMBERS (CULVERT STEM WALL W/ FOOTING). FOOTING SEGMENTS SHALL BE PLACED WITH A VERTICAL TOLERANCE OF ¼" MAX.

E/8 **TYPICAL PRECAST FOOTING SEGMENTS**
NO SCALE

NO.	REVISION DESCRIPTION	BY	DATE

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DESIGNED: LEO
DRAWN: LEO
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PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO JONATHAN ROBERT WEAVER 18293

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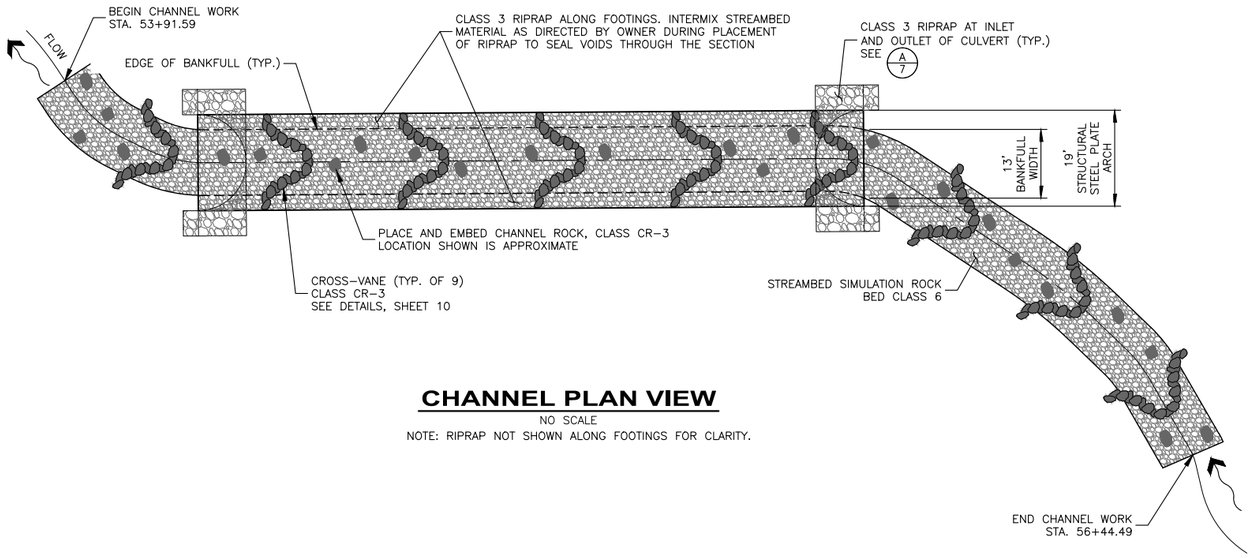
FOOTING DETAILS

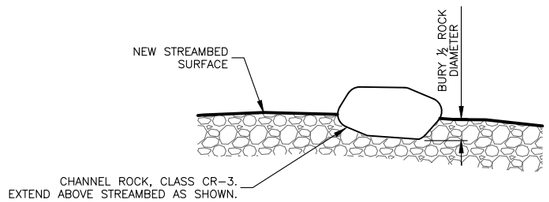
SHEET NO.
8
OF 14



CHANNEL PLAN VIEW

NO SCALE

NOTE: RIPRAP NOT SHOWN ALONG FOOTINGS FOR CLARITY.



CHANNEL ROCK - TYPICAL DETAIL

NO SCALE

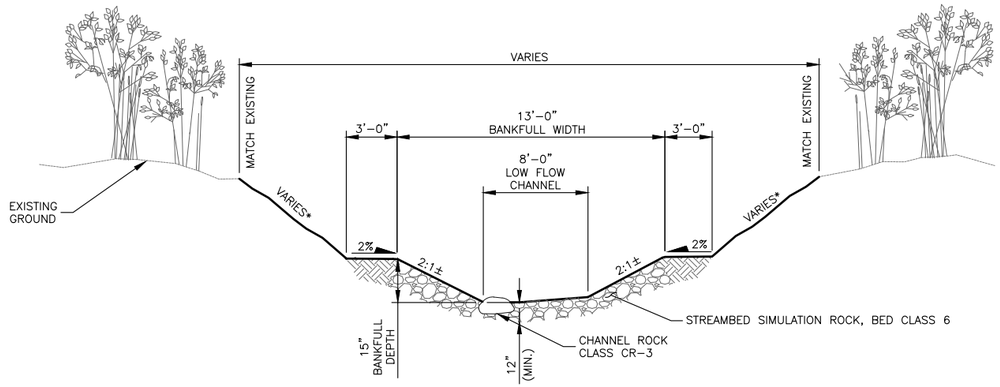
CHANNEL ROCK (CR)*	
ROCK	***RANGE OF INTERMEDIATE DIMENSIONS***
CR-3	24"-30"

* SEE ADDITIONAL REQUIREMENTS IN ISPWC SECTION 206.

GRADATION REQUIREMENTS FOR STREAMBED SIMULATION ROCK (INCHES OR SIEVE SIZE)					
BED CLASS	***100% PASSING***	***84% PASSING***	***50% PASSING***	***16% PASSING***	***10% PASSING***
6	14"	6"	2½"	¾"	NO. 10

NOTES:

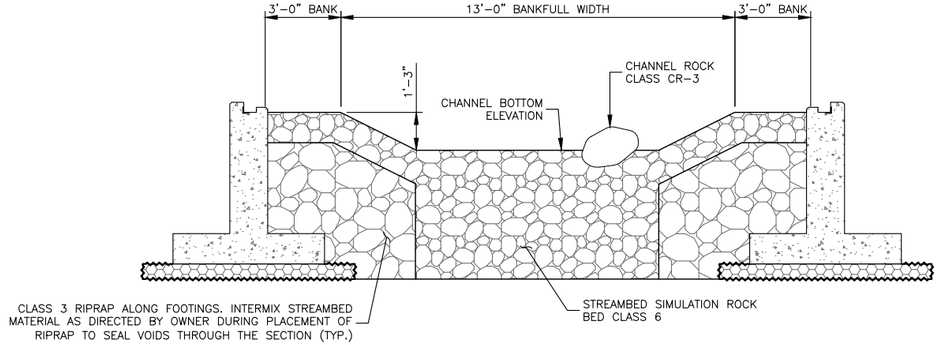
1. THE FINAL CHANNEL BOTTOM SHOULD BE A DENSE, INTERLOCKED STREAMBED WITH LOW PERMEABILITY. COMPACT EACH LAYER AND FILL SURFACE VOIDS BY WASHING IN FINE MATERIAL. USE WATER PRESSURE, TAMPING RODS, AND SIMILAR HAND OPERATED EQUIPMENT TO FORCE FINE MATERIAL INTO ALL SURFACE VOIDS.
2. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT THE STREAM FLOW DOES NOT GO SUBSURFACE THROUGH THE CULVERT FOR A 48 HOUR PERIOD AFTER REWATERING.



*SEE CROSS SECTIONS

TYPICAL CHANNEL SECTION

NO SCALE



TYPICAL CHANNEL SECTION THROUGH STRUCTURE

NO SCALE

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PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO JONATHAN ROBERT WEAVER 18293 5-12-2023

GreatWest ENGINEERING
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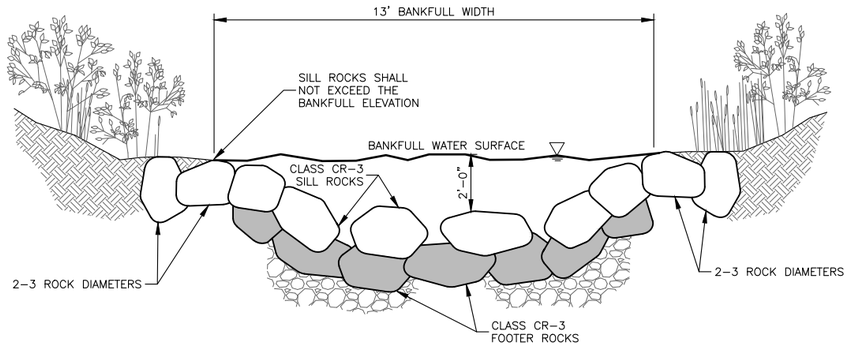
SALLY ANN CREEK ROAD AOP CULVERT REPLACEMENT, CROSSING #1

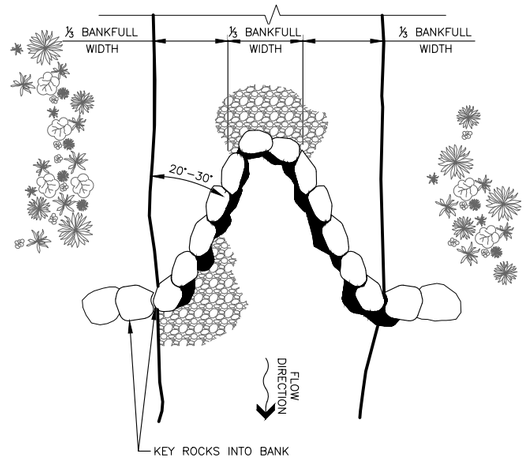
CHANNEL DETAILS

SHEET NO.
9
OF 14



CROSS-VANE SECTION VIEW

NO SCALE

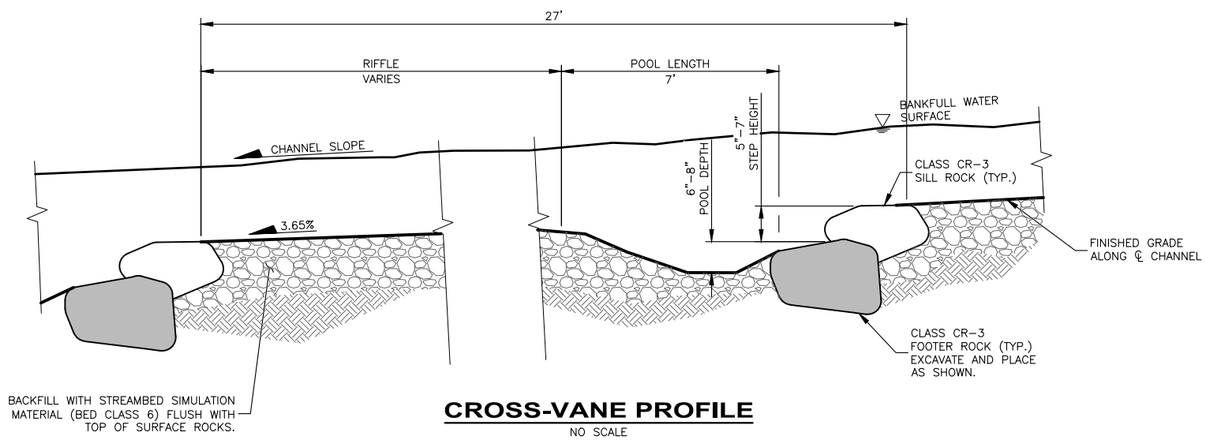


CROSS-VANE STRUCTURE PLAN

NO SCALE

NOTES:

1. MINIMIZE GAPS BETWEEN FOOTER ROCKS. BACKFILL SIDES OF FOOTER ROCKS WITH STREAMBED SIMULATION ROCK.
2. PLACE SILL ROCKS SLIGHTLY UPSTREAM OF FOOTER ROCKS. MINIMIZE GAPS IN SILL ROCKS IN THE OUTER ⅓ CHANNEL WIDTHS. SILL ROCKS IN THE MIDDLE ⅓ OF THE CHANNEL SHALL HAVE A GAP EQUAL TO ¼ OF THE ROCK DIAMETER.



CROSS-VANE PROFILE

NO SCALE

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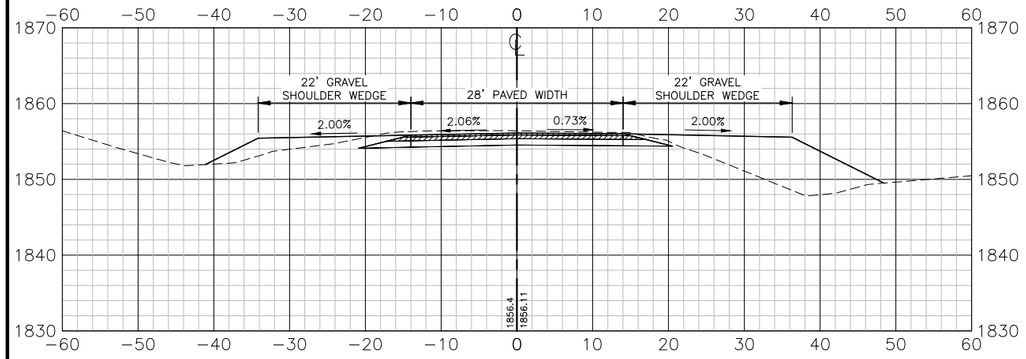
CROSS-VANE DETAILS

SHEET NO.
10
OF 14

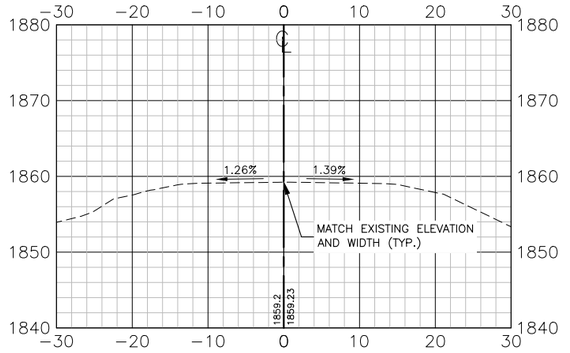
WIDENED SHOULDER WEDGE

5+64.85

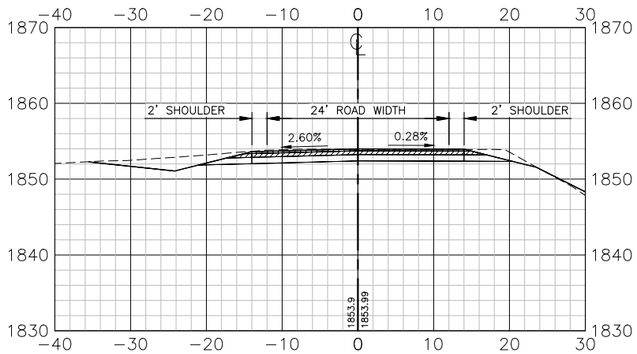


END ROAD WORK

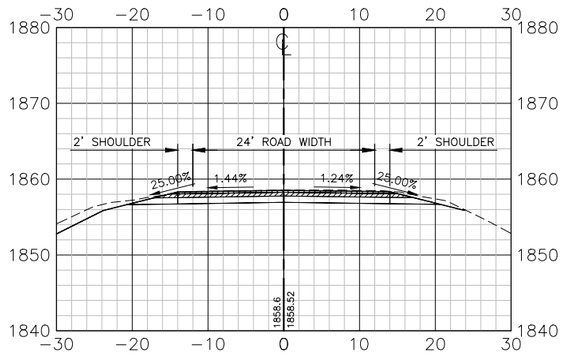
6+33.68



5+18.00

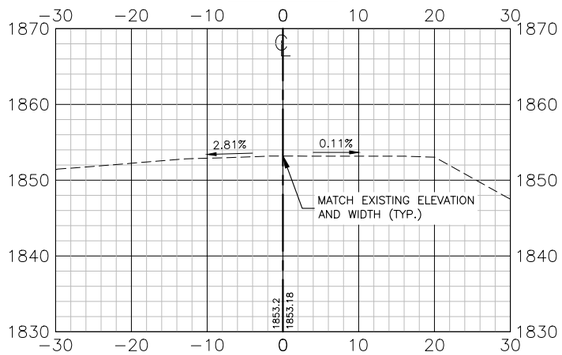


6+18.00



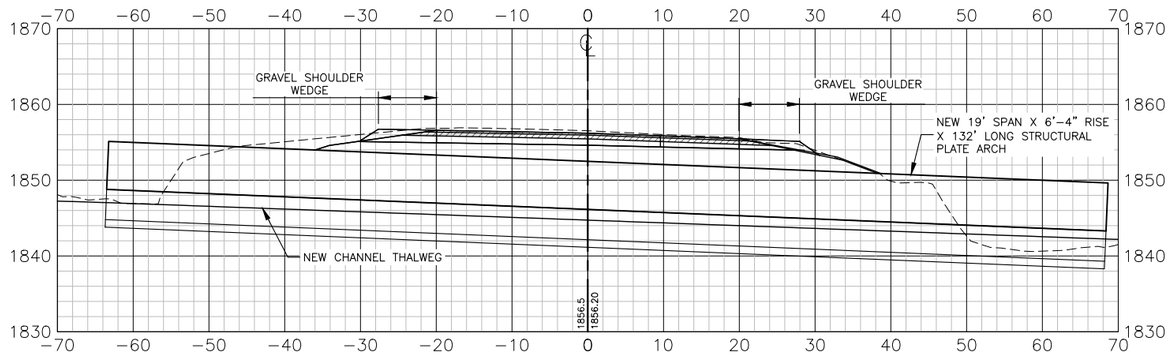
BEGIN ROAD WORK

5+00.02



SHOWN ALONG CULVERT ℄

5+66.83



SALLY ANN CREEK ROAD CROSS-SECTIONS

0 10 20

SCALE IN FEET

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-22212
DESIGNED: LEO
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APPROVED: JRW
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PROFESSIONAL ENGINEER
LICENSED
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STATE OF IDAHO
JONATHAN ROBERT WEAVER

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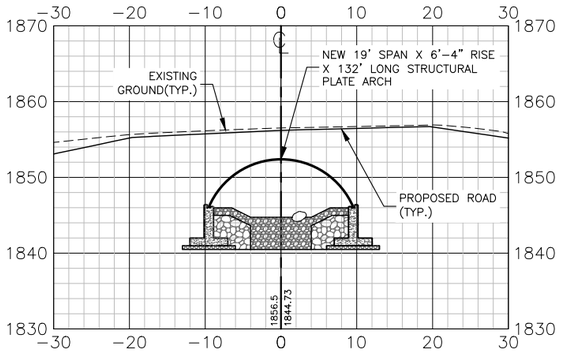
SALLY ANN CREEK ROAD CROSS-SECTIONS

SHEET NO.
11
OF 14

Y:\Shared\Helena Projects\1-22212-NPT-Sally Ann Cr Watershed AOPs\Sally Ann 1\CADD 1-22212-Sally Ann 1\Sheets\1-22212-11-SA1-Road XSs.dwg

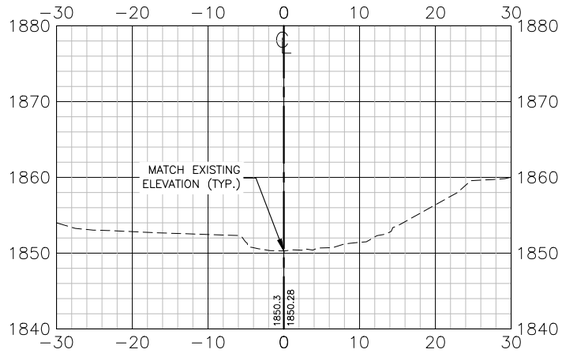
AT ROADWAY CROSSING

54+92.12



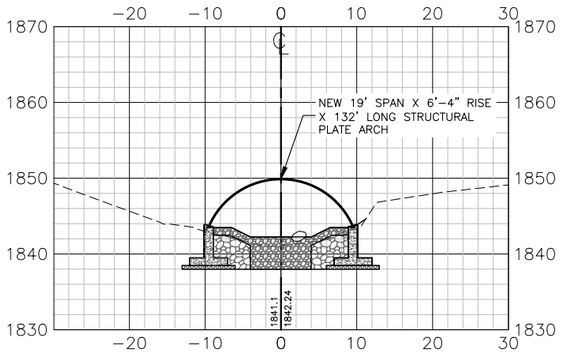
END STREAM WORK

56+44.49



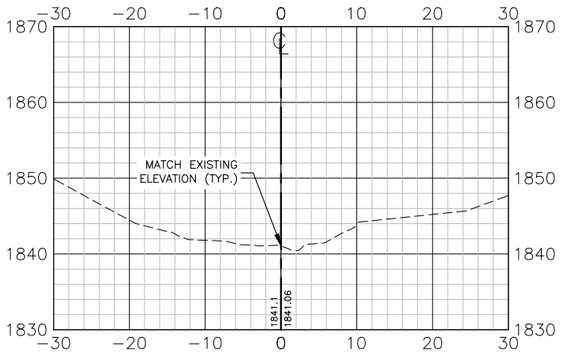
CULVERT INLET

54+23.78

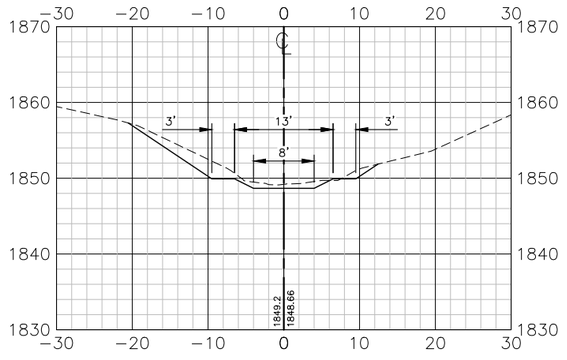


BEGIN STREAM WORK

53+91.59

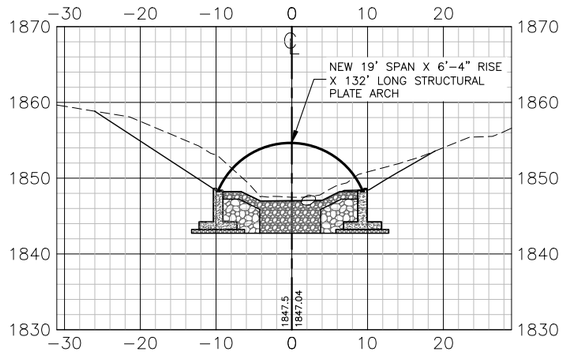


56+00.00



CULVERT OUTLET

55+55.67



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SALLY ANN CREEK ROAD AOP CULVERT REPLACEMENT, CROSSING #1

SALLY ANN CREEK CROSS-SECTIONS

SHEET NO.
12
OF 14

USCS Description	Depth (ft)	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT N	Dry Density (pcf)	TEST RESULTS: Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value ●; % Passing No. 200 Sieve ★; PL MC LL (20 40 60 80)	Remarks Note: BGS = Below Ground Surface
FILL - SILTY GRAVEL WITH COBBLES, (GM) gray, loose to dense, damp to wet	0.0	GM	BK					No vegetation or organics noted in soil.
FILL - POORLY-GRADED GRAVEL WITH COBBLES, (GP) gray, dense, moist	2.5	GP		15 22 23	45		●	Boring backfilled with auger cuttings and capped with bentonite upon completion.
Borehole Terminated at 5.0 Feet.	5.0							Boring refused at 5.0-feet within dense gravel and cobbles.

Client: Great West Engineering	**Boring Number:** B-22154A-1	GeoProfessional Innovation	**EXPLORATORY BORING LOG**
Project: MO22154A	**Date Drilled:** 10-25-2022		
Drill Rig: B-57	**Borehole Diameter:** 8		Sheet 1 Of 1
Depth to Groundwater: N.E.	**Logged By:** JTK		

USCS Description	Depth (ft)	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT N	Dry Density (pcf)	TEST RESULTS: Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value ●; % Passing No. 200 Sieve ★; PL MC LL (20 40 60 80)	Remarks Note: BGS = Below Ground Surface
FILL - SILTY GRAVEL WITH COBBLES, (GM) gray, medium dense, moist	0.0	GM						No vegetation or organics noted in soil.
FILL - POORLY-GRADED GRAVEL WITH COBBLES, (GP) gray, dense, moist	2.5	GP		10 16 19	35		●	Boring backfilled with auger cuttings and capped with bentonite upon completion.
Borehole Terminated at 4.5 Feet.								Boring refused at 4.5-feet within dense gravel and cobbles.

Client: Great West Engineering	**Boring Number:** B-22154A-2	GeoProfessional Innovation	**EXPLORATORY BORING LOG**
Project: MO22154A	**Date Drilled:** 10-25-2022		
Drill Rig: B-57	**Borehole Diameter:** 8		Sheet 1 Of 1
Depth to Groundwater: N.E.	**Logged By:** JTK		

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-22212
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PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO JONATHAN ROBERT WEAVER 18293 5-12-2023

GreatWest ENGINEERING
2501 BELT VIEW DRIVE
HELENA, MT 59601
(406)449-8927

NEZ PERCE TRIBE
SALLY ANN CREEK ROAD AOP CULVERT REPLACEMENT, CROSSING #1
BORING LOGS

SHEET NO.
13
OF 14

X:\Shared\Helena Projects\1-22212-NPT-Sally Ann Cr Watershed AOPs\Sally Ann 1\CADD 1-22212-Sally Ann 1\Sheets\1-22212-13-SA1-Boring Logs.dwg

USCS Description	Depth (ft)	Symbol	Sample Type	SPT Blows Per 6 Inches	SPT N	Dry Density (pcf)	TEST RESULTS: Pocket Penetrometer, TSF ▲ (0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5); SPT, N-Value ●; % Passing No. 200 Sieve ★; PL MC LL (20 40 60 80)	Remarks Note: BGS = Below Ground Surface
FILL - SILTY SAND WITH GRAVEL, (SM) gray to brown, medium dense, moist	0	SM	BK				○ 6.3 ★	No vegetation or organics noted in soil. Drill chatter from 1.0- to 6.0-feet. Cobbles evident in cuttings. ASTM D1557: Modified Proctor Optimum Moisture Content: 6.0% Maximum Dry Density: 141.0 pcf
	5			10 12 6	18			
ALLUVIUM - CLAYEY GRAVEL, (GC) dark brown, medium dense, moist to wet	10	GC		12 10 6	16			
ALLUVIUM - POORLY-GRADED GRAVEL WITH COBBLES, (GP) brown to gray, dense, moist to saturated	15	GP		14 14 20	34			Drill chatter observed at 14.0-feet BGS.
	20			18 28 18	46			Boring backfilled with auger cuttings and capped with bentonite upon completion.
Borehole Terminated at 21.5 Feet.								

Client: Great West Engineering	**Boring Number:** B-22154A-3
Project: MO22154A	**Date Drilled:** 11-09-2022
Drill Rig: CME 75	**Borehole Diameter:** 8
Depth to Groundwater: N.E.	**Logged By:** JTK

GeoProfessional Innovation

EXPLORATORY BORING LOG

Sheet 1 Of 1

NO.	REVISION DESCRIPTION	BY	DATE

PROJECT: 1-22212
DESIGNED: LEO
DRAWN: LEO
CHECKED: JJT
APPROVED: JRW
DATE: MAY 12, 2023

PROFESSIONAL ENGINEER LICENSED STATE OF IDAHO JONATHAN ROBERT WEAVER 18293 5-12-2023

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BORING LOGS CONTINUED

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