

Contract Drawings For

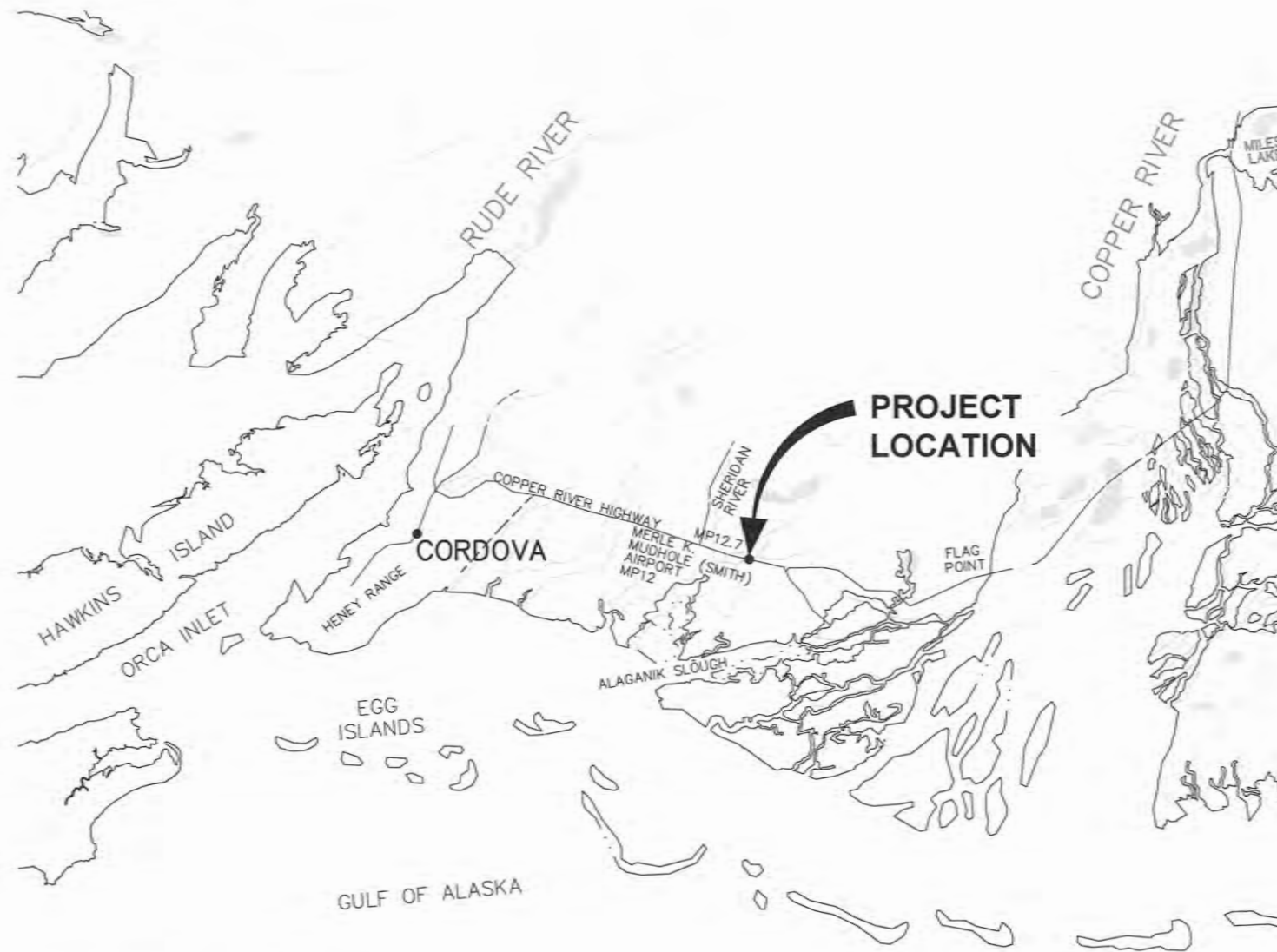
CORDOVA FISH PASSAGE IMPROVEMENT PROJECTS COPPER RIVER HIGHWAY - MP 15.3 SHERIDAN RIVER TRIBUTARY - COP 9 AND SHER 1 COPPER RIVER WATERSHED PROJECT & U.S. FISH AND WILDLIFE SERVICE



SECTION 15, TOWNSHIP 16 SOUTH, RANGE 1 WEST, COPPER RIVER MERIDIAN, ALASKA
SECTION 22, TOWNSHIP 16 SOUTH, RANGE 1 WEST, COPPER RIVER MERIDIAN, ALASKA
FEBRUARY 2024

PROJECT LOCATION		
ADF&G SITE NO.	CRWP ID	ROAD
20100475	COP 9	COPPER RIVER HIGHWAY
20101903	SHER 1	GOAT CAMP ROAD

DESIGN DESIGNATIONS	
AADT 2015	244



AS-BUILT DATA PER MCLANE CONSULTING INC. FIELD SURVEYS JUNE/JULY 2024



Approved by

DocuSigned by:
Melissa Valentin
54EE3B5C79B34E2...
September 7, 2024

VICINITY MAP
NTS

DRAWING INDEX

- C1 COVER SHEET
- C2 GENERAL NOTES AND QUANTITIES
- C3-C5 SURVEY CONTROL
- C6 EXISTING STREAM PLAN AND PROFILE & DEMOLITION PLAN
- C7-C8 STREAM PLAN AND PROFILE
- C9-C10 ROADWAY PLAN AND PROFILE
- C11-C12 STREAM DESIGN DETAILS
- C13 STREAM SECTIONS AND DETAILS
- C14-C15 ESCP, STREAM DIVERSION & ROADWAY DIVERSION PLAN
- C16 REVEGETATION PLAN
- C17 CULVERT MARKERS

PREPARED BY: DOWL

ESTIMATE OF QUANTITIES - COP 9

ITEM NO.	ITEM DESCRIPTION	PAY UNIT	QUANTITY	UNIT
201.0009.0000	CLEARING AND GRUBBING	LUMP SUM	ALL REQUIRED	LUMP SUM
202.0004.0000	REMOVAL OF CULVERT PIPE	LUMP SUM	65	LINEAR FOOT
203.0019.0000	UNCLASSIFIED EXCAVATION	LUMP SUM	1430	CUBIC YARD
203.0020.000A	BORROW, SELECTED MATERIAL, TYPE A	LUMP SUM	495	CUBIC YARD
203.0020.000F	SUBBASE, GRADING F	LUMP SUM	330	CUBIC YARD
205.0005.0000	CONTROLLED LOW-STRENGTH MATERIAL	LUMP SUM	24	CUBIC YARD
206.0001.0000	FILTER BLANKET	LUMP SUM	8	CUBIC YARD
301.0004.0000	AGGREGATE SURFACE COURSE, GRADING E-1	LUMP SUM	72	CUBIC YARD
602.0005.0000	ASSEMBLE AND INSTALL STRUCTURAL PLATE ALUMINUM ARCH CULVERT, 8'-5" SPAN, 6'-3" RISE	LUMP SUM	76	LINEAR FOOT
611.0003.0001	RIPRAP, CLASS I	LUMP SUM	96	CUBIC YARD
613.0002.0000	CULVERT MARKER POST	LUMP SUM	2	EACH
618.0005.0000	SEEDING	LUMP SUM	2	POUND
620.0003.0000	TOPSOIL (4")	LUMP SUM	70	SQUARE YARD
630.0003.0002	GEOTEXTILE, REINFORCEMENT, TYPE 2	LUMP SUM	336	SQUARE YARD
640.0001.0000	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQUIRED	LUMP SUM
641.0003.0000	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM	ALL REQUIRED	LUMP SUM
642.0001.0000	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED	LUMP SUM
642.0014.0000	AS-BUILT PLANS	LUMP SUM	ALL REQUIRED	LUMP SUM
643.0002.0000	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED	LUMP SUM
644.0015.0000	NUCLEAR TESTING EQUIPMENT STORAGE SHED	LUMP SUM	ALL REQUIRED	LUMP SUM
672.0001.0000	STREAM DIVERSION & DEWATERING	LUMP SUM	ALL REQUIRED	LUMP SUM
690.2001.0000	WATERWAY BED FILL	LUMP SUM	74	CUBIC YARD
690.2003.0000	WATERWAY BANK REVEGETATION AND PROTECTION	LUMP SUM	ALL REQUIRED	LUMP SUM

ESTIMATE OF QUANTITIES - SHER 1

ITEM NO.	ITEM DESCRIPTION	PAY UNIT	QUANTITY	UNIT
201.0009.0000	CLEARING AND GRUBBING	LUMP SUM	ALL REQUIRED	LUMP SUM
202.0004.0000	REMOVAL OF CULVERT PIPE	LUMP SUM	104	LINEAR FOOT
203.0019.0000	UNCLASSIFIED EXCAVATION	LUMP SUM	1650	CUBIC YARD
203.0020.000A	BORROW, SELECTED MATERIAL, TYPE A	LUMP SUM	473	CUBIC YARD
203.0020.000F	SUBBASE, GRADING F	LUMP SUM	330	CUBIC YARD
205.0005.0000	CONTROLLED LOW-STRENGTH MATERIAL	LUMP SUM	24	CUBIC YARD
206.0001.0000	FILTER BLANKET	LUMP SUM	8	CUBIC YARD
301.0004.0000	AGGREGATE SURFACE COURSE, GRADING E-1	LUMP SUM	84	CUBIC YARD
602.0005.0000	ASSEMBLE AND INSTALL STRUCTURAL PLATE ALUMINUM ARCH CULVERT, 8'-5" SPAN, 6'-3" RISE	LUMP SUM	78	LINEAR FOOT
611.0003.0001	RIPRAP, CLASS I	LUMP SUM	96	CUBIC YARD
613.0002.0000	CULVERT MARKER POST	LUMP SUM	2	EACH
618.0005.0000	SEEDING	LUMP SUM	3	POUND
620.0003.0000	TOPSOIL (4")	LUMP SUM	180	SQUARE YARD
630.0003.0002	GEOTEXTILE, REINFORCEMENT, TYPE 2	LUMP SUM	323	SQUARE YARD
640.0001.0000	MOBILIZATION AND DEMOBILIZATION	LUMP SUM	ALL REQUIRED	LUMP SUM
641.0003.0000	TEMPORARY EROSION, SEDIMENT AND POLLUTION CONTROL	LUMP SUM	ALL REQUIRED	LUMP SUM
642.0001.0000	CONSTRUCTION SURVEYING	LUMP SUM	ALL REQUIRED	LUMP SUM
642.0014.0000	AS-BUILT PLANS	LUMP SUM	ALL REQUIRED	LUMP SUM
643.0002.0000	TRAFFIC MAINTENANCE	LUMP SUM	ALL REQUIRED	LUMP SUM
644.0015.0000	NUCLEAR TESTING EQUIPMENT STORAGE SHED	LUMP SUM	ALL REQUIRED	LUMP SUM
672.0001.0000	STREAM DIVERSION & DEWATERING	LUMP SUM	ALL REQUIRED	LUMP SUM
690.2001.0000	WATERWAY BED FILL	LUMP SUM	215	CUBIC YARD
690.2003.0000	WATERWAY BANK REVEGETATION AND PROTECTION	LUMP SUM	ALL REQUIRED	LUMP SUM

GENERAL NOTES

- THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL SITE FEATURES. IF THE CONTRACTOR DISCOVERS CONDITIONS OTHER THAN THOSE SHOWN ON THE PLANS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE.
- UTILITIES ARE SHOWN ON THE PLANS TO THE EXTENT THEY ARE KNOWN. BEFORE CONDUCTING ANY GROUND-DISTURBING ACTIVITIES THE CONTRACTOR SHALL VERIFY UTILITY LOCATIONS. CONTACT THE ALASKA DIGLINE AT 1-907-278-3121 OR AT 811AK.COM. LOCATE ALL UTILITIES WITHIN THE PROJECT AND PROTECT THEM FROM DAMAGE THROUGH THE DURATION OF WORK. FIBER OPTIC LINE TO BE RELOCATED BY CORDOVA TELECOM COOPERATIVE (CTC). CONTACT CTC FOR MORE INFORMATION AT 1-907-424-2345.
- COORDINATE CONSTRUCTION STAGING AND MOBILIZATION AREAS AND ACTIVITIES WITH OWNER'S REPRESENTATIVE. COORDINATION WITH DOT&PF LOCAL M&O IS REQUIRED FOR CONCURRENCE.
- EXERCISE CAUTION AND COMPLY WITH ALL APPLICABLE OSHA REQUIREMENTS FOR WORKING IN CONFINED AREAS.
- STATIONING IS ALONG CENTERLINE OF STREAM OR ROADWAY.
- VERIFY ELEVATIONS OF ALL PROPOSED STRUCTURES PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
- CULVERT DESIGN LOAD: AASHTO LOADING HL-93, MINIMUM SOIL BEARING CAPACITY: 3,900 PSF.
- EXCAVATION AND COMPACTION:
 - REMOVE AND DISPOSE OF ALL ORGANIC OR OVERSATURATED SOFT MATERIAL, WHICH CANNOT BE COMPACTED.
 - BACKFILL SHALL BE PLACED AND COMPACTED WITH CARE AND SHALL BE BROUGHT UP EVENLY AND SIMULTANEOUSLY ON BOTH SIDES OF PIPE. MATERIAL TO BE COMPACTED TO 95% MAXIMUM DENSITY.
- CULVERT INSTALLATION:
 - CULVERT INFILL MATERIAL SHALL BE INSTALLED IN PIPE ACCORDING TO PLANS. MANUAL INSTALLATION IS REQUIRED.
- ALL VEGETATION IN THE AREAS NOT AFFECTED BY WORK SHALL BE PRESERVED AND PROTECTED BY THE CONTRACTOR. SEE REVEGETATION PLAN.
- VEGETATIVE MAT WITHIN THE AREA OF DISTURBANCE SHALL BE SALVAGED, STORED AND CARED FOR AS DIRECTED BY THE OWNER REPRESENTATIVE UNTIL IT CAN BE REINSTALLED.
- STRAW IS PROHIBITED ON THE PROJECT SITE.
- GROUNDWATER ENCOUNTERED AT APPROXIMATELY 7-9 FEET BELOW THE EXISTING GROUND SURFACE AT COP 9 AND 6-6.5 FEET BELOW THE EXISTING GROUND SURFACE AT SHER 1 ON 10/14/2018 AND 10/15/2018 BY NORTHERN GEOTECHNICAL ENGINEERING, INC. TERRA FIRMA TESTING.

LEGEND

DESCRIPTION	DESCRIPTION
	APPROXIMATE RIGHT-OF-WAY
	CONTROL POINT
	ORDINARY HIGH WATER
	EXISTING CULVERT
	EDGE OF PAVEMENT
	EDGE OF GRAVEL/SHOULDER
	EDGE OF VEGETATION
	EXISTING THALWEG
	TOP OF BANK
	TOE OF SLOPE
	PROPOSED CULVERT
	WATERWAY BED FILL
	WATERWAY BANK REVEGETATION AND PROTECTION VEGETATIVE MAT
	RIPRAP
	AGGREGATE SURFACE COURSE, E-1
	SELECTED MATERIAL, TYPE A
	SUBBASE, GRADING F
	ORGANIC SOILS AND VEGETATIVE MAT, AS AVAILABLE; TOPSOIL, SEED, FERTILIZER, AND MULCH, AS NEEDED
	BULK BAG COFFERDAM
	WETLAND PLUGS

ABBREVIATIONS

AVASP	AS VERTICAL AS SAFELY POSSIBLE
BFW	BANKFULL WIDTH
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CMP	CORRUGATED METAL PIPE
CRH	COPPER RIVER HIGHWAY
CTC	CORDOVA TELECOM COOPERATIVE
ELEV	ELEVATION
ESCP	EROSION AND SEDIMENT CONTROL PLAN
HW/D	HEADWATER TO DEPTH RATIO
MIN	MINIMUM
MP	MILEPOST
NTS	NOT TO SCALE
OHW	ORDINARY HIGH WATER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
Q	FLOW
ROW	RIGHT-OF-WAY
SPP	STRUCTURAL PLATE PIPE
SRT	SHERIDAN RIVER TRIBUTARY
SRT	SHERIDAN RIVER TRIBUTARY 2

STA	STATION
TYP	TYPICAL
VAP	VERTICAL ADJUSTMENT POTENTIAL

NOTES:

- ESTIMATE OF QUANTITIES ARE FOR INFORMATION ONLY AND CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES.
- EXCAVATION AND BACKFILL REQUIRED FOR STREAM DIVERSION AS SHOWN ON SHEET C14 & C15 IS SUBSIDIARY TO PAY ITEM 672.0001.0000 STREAM DIVERSION & DEWATERING.
- AGGREGATE SURFACE COURSE, GRADING E-1 FOR STREAM DIVERSION WILL BE PAID UNDER SECTION 301.
- WATERWAY BED FILL SHALL BE PRODUCED BY MIXING, BY VOLUME, 50% SELECTED MATERIAL, TYPE A, 25% 9-INCH MINUS ROCK, AND 25% POROUS BACKFILL MATERIAL. REFER TO SPECIFICATION SECTION 690 AND DETAIL 2/C13 FOR MORE INFORMATION ABOUT WATERWAY BED FILL MATERIAL.
- BORROW, SELECTED MATERIAL, TYPE A SHALL BE COMMERCIALY SOURCED IF MATERIAL FOUND DURING EXCAVATION DOES NOT MEET CONTRACT SPECIFICATIONS.

TABLE 1

COARSE MATERIAL: RIPRAP, CLASS I		
APPROX. SIZE	MASS (LBS)	% PASSING
10"	50	100
8"	25	50

TABLE 2

FINE MATERIAL: POROUS BACKFILL	
SIZE/SIEVE	% PASSING
3"	100
1"	65
0.75"	50
#4	25
#10	15

TABLE 3

WATERWAY BED FILL	
SIZE/SIEVE	% PASSING
12"	100
9"	100
6"	96
4"	88
3"	77
1"	39
0.75"	34
#4	20
#8	11

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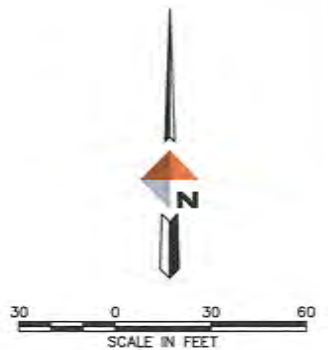
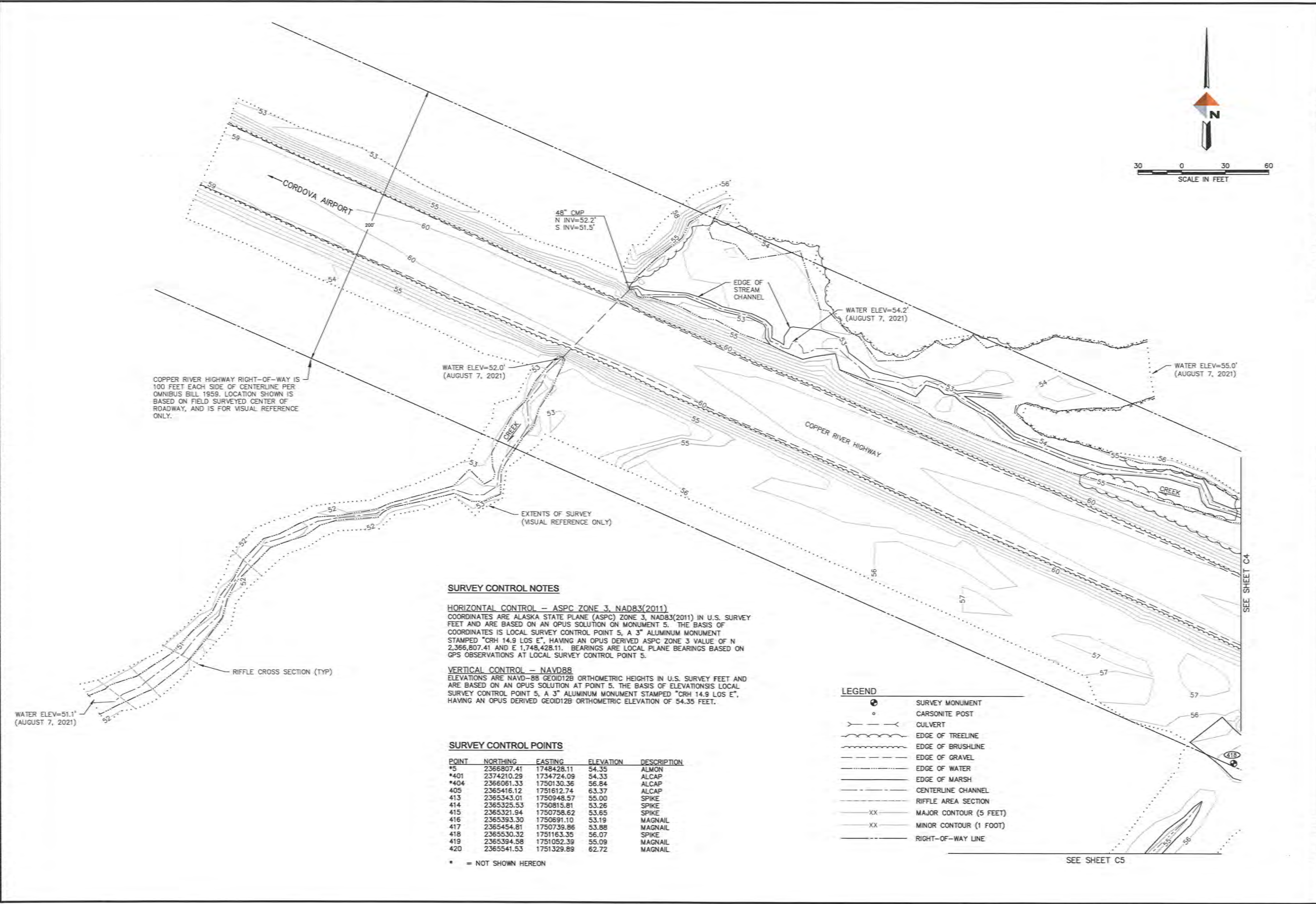
CORDOVA FISH PASSAGE IMPROVEMENTS
SHERIDAN RIVER TRIB - COP 9 & SHER 1
GENERAL NOTES AND QUANTITIES

PROJECT 1136.63349.01
DATE FEBRUARY 2024

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SHEET

C2 OF C17

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COPPER RIVER HIGHWAY RIGHT-OF-WAY IS 100 FEET EACH SIDE OF CENTERLINE PER OMNIBUS BILL 1959. LOCATION SHOWN IS BASED ON FIELD SURVEYED CENTER OF ROADWAY, AND IS FOR VISUAL REFERENCE ONLY.

SURVEY CONTROL NOTES

HORIZONTAL CONTROL — ASPC ZONE 3, NAD83(2011)
 COORDINATES ARE ALASKA STATE PLANE (ASPC) ZONE 3, NAD83(2011) IN U.S. SURVEY FEET AND ARE BASED ON AN OPUS SOLUTION ON MONUMENT 5. THE BASIS OF COORDINATES IS LOCAL SURVEY CONTROL POINT 5, A 3" ALUMINUM MONUMENT STAMPED "CRH 14.9 LOS E", HAVING AN OPUS DERIVED ASPC ZONE 3 VALUE OF N 2,366,807.41 AND E 1,748,428.11. BEARINGS ARE LOCAL PLANE BEARINGS BASED ON GPS OBSERVATIONS AT LOCAL SURVEY CONTROL POINT 5.

VERTICAL CONTROL — NAVD88
 ELEVATIONS ARE NAVD-88 GEOD12B ORTHOMETRIC HEIGHTS IN U.S. SURVEY FEET AND ARE BASED ON AN OPUS SOLUTION AT POINT 5. THE BASIS OF ELEVATIONS IS LOCAL SURVEY CONTROL POINT 5, A 3" ALUMINUM MONUMENT STAMPED "CRH 14.9 LOS E", HAVING AN OPUS DERIVED GEOD12B ORTHOMETRIC ELEVATION OF 54.35 FEET.

SURVEY CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
15	2366807.41	1748428.11	54.35	ALMON
*401	2374210.29	1734724.09	54.33	ALCAP
*404	2366061.33	1750130.36	56.84	ALCAP
405	2365416.12	1751612.74	63.37	ALCAP
413	2365343.01	1750948.57	55.00	SPIKE
414	2365325.53	1750815.81	53.26	SPIKE
415	2365321.94	1750758.62	53.65	SPIKE
416	2365393.30	1750691.10	53.19	MAGNAIL
417	2365454.81	1750739.86	53.88	MAGNAIL
418	2365530.32	1751163.35	56.07	SPIKE
419	2365394.58	1751052.39	55.09	MAGNAIL
420	2365541.53	1751329.89	62.72	MAGNAIL

* = NOT SHOWN HEREON

LEGEND

- SURVEY MONUMENT
- CARSONITE POST
- CULVERT
- EDGE OF TREELINE
- EDGE OF BRUSHLINE
- EDGE OF GRAVEL
- EDGE OF WATER
- EDGE OF MARSH
- CENTERLINE CHANNEL
- RIFFLE AREA SECTION
- MAJOR CONTOUR (5 FEET)
- MINOR CONTOUR (1 FOOT)
- RIGHT-OF-WAY LINE

REV	DATE	DESCRIPTION	BY



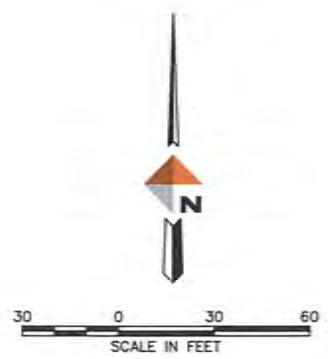
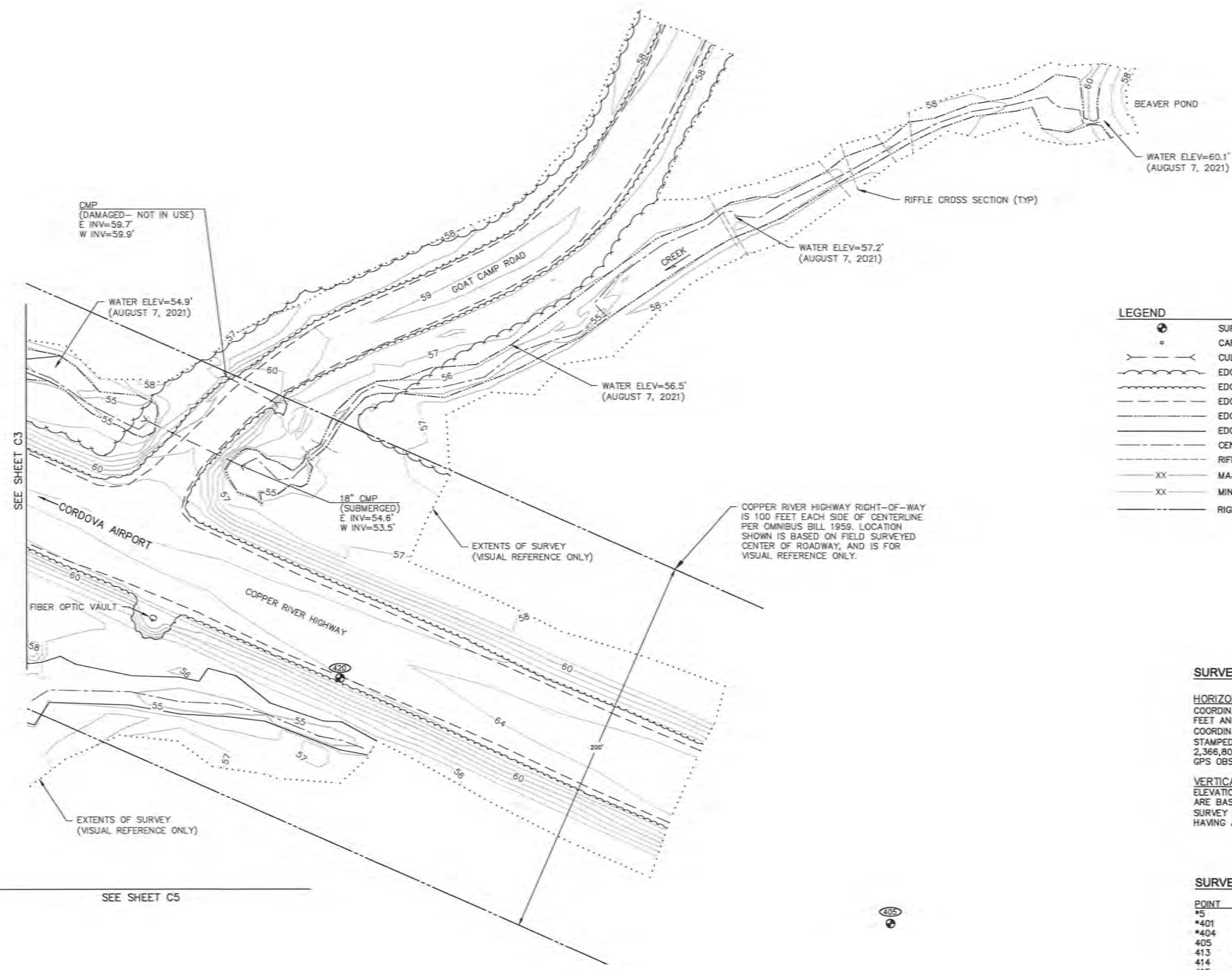
CORDOVA FISH PASSAGE IMPROVEMENTS
SHERIDAN RIVER TRIB - COP 9 & SHER 1
SURVEY CONTROL

SECTIONS 22 AND 15, T16S, R1W, COPPER RIVER MERIDIAN
 CORDOVA, ALASKA

PROJECT 1136.63349.01
 DATE FEBRUARY 2024

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C3 OF C17

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LEGEND

	SURVEY MONUMENT
	CARSONITE POST
	CULVERT
	EDGE OF TREELINE
	EDGE OF BRUSHLINE
	EDGE OF GRAVEL
	EDGE OF WATER
	EDGE OF MARSH
	CENTERLINE CHANNEL
	RIFFLE AREA SECTION
	MAJOR CONTOUR (5 FEET)
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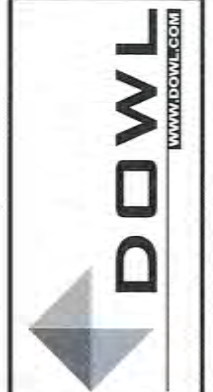
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414	2365325.53	1750815.81	53.26	SPIKE
415	2365321.94	1750758.62	53.65	SPIKE
416	2365393.30	1750691.10	53.19	MAGNAIL
417	2365454.81	1750739.86	53.88	MAGNAIL
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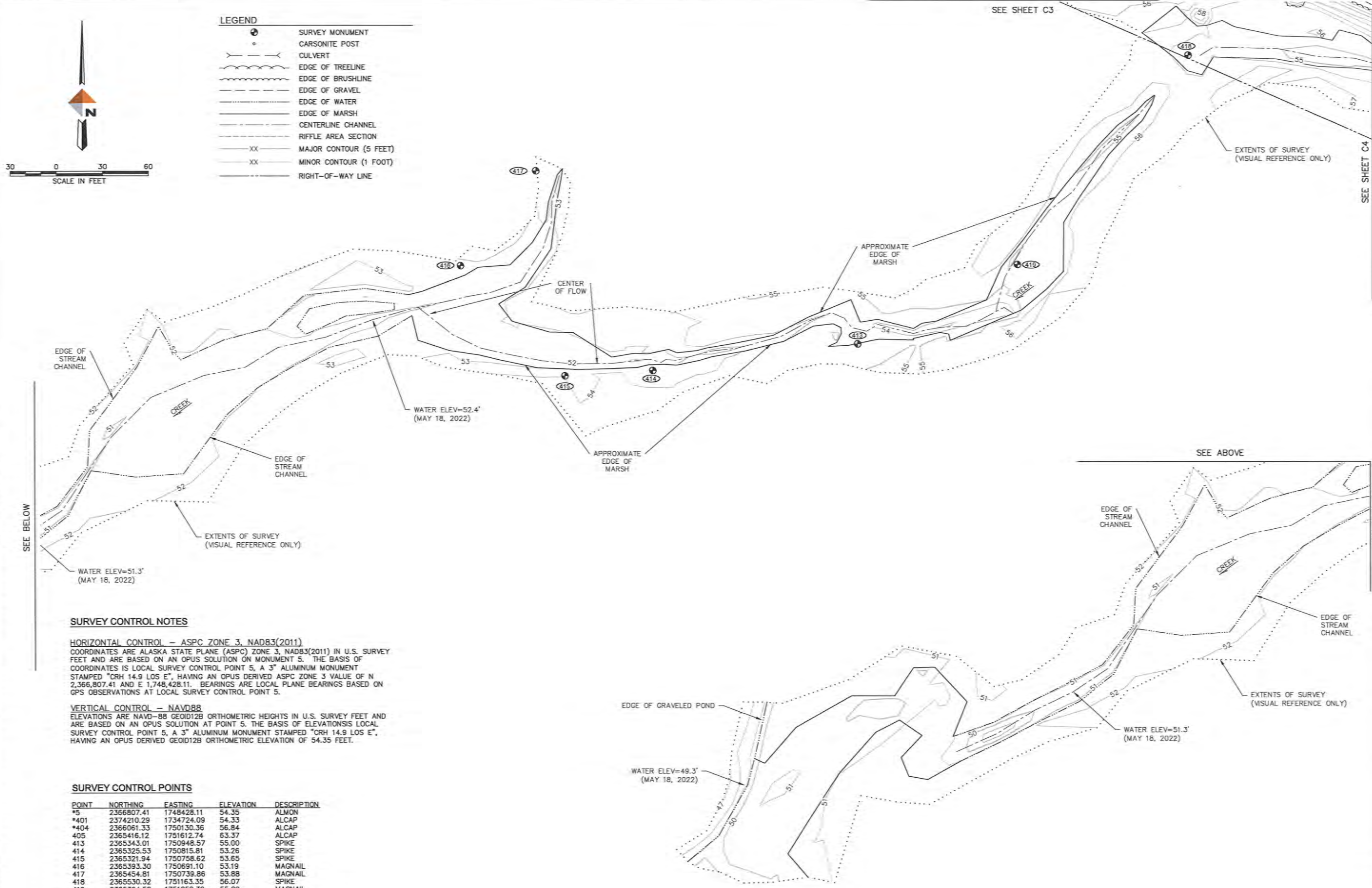
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SHERIDAN RIVER TRIB - COP 9 & SHER 1
SURVEY CONTROL

SECTIONS 22 AND 15, T16S, R1W, COPPER RIVER MERIDIAN
 CORDOVA, ALASKA

PROJECT 1136.63349.01
 DATE FEBRUARY 2024

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 SHEET

C4 OF C17



LEGEND

- SURVEY MONUMENT
- CARSONITE POST
- CULVERT
- EDGE OF TREELINE
- EDGE OF BRUSHLINE
- EDGE OF GRAVEL
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- EDGE OF MARSH
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- MAJOR CONTOUR (5 FEET)
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 SECTIONS 22 AND 15, T16S, R1W, COPPER RIVER MERIDIAN
 CORDOVA, ALASKA

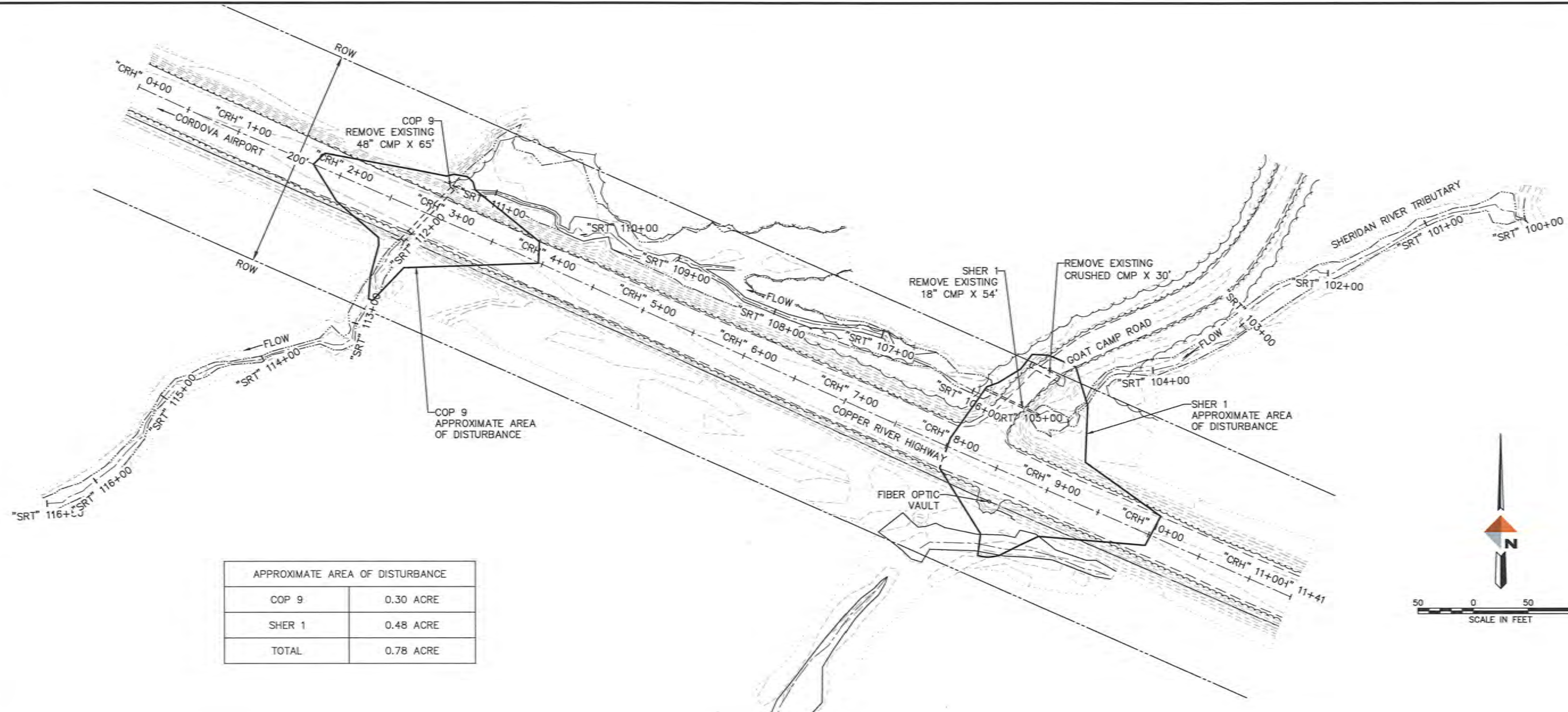
PROJECT 1136.63349.01
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 SHEET

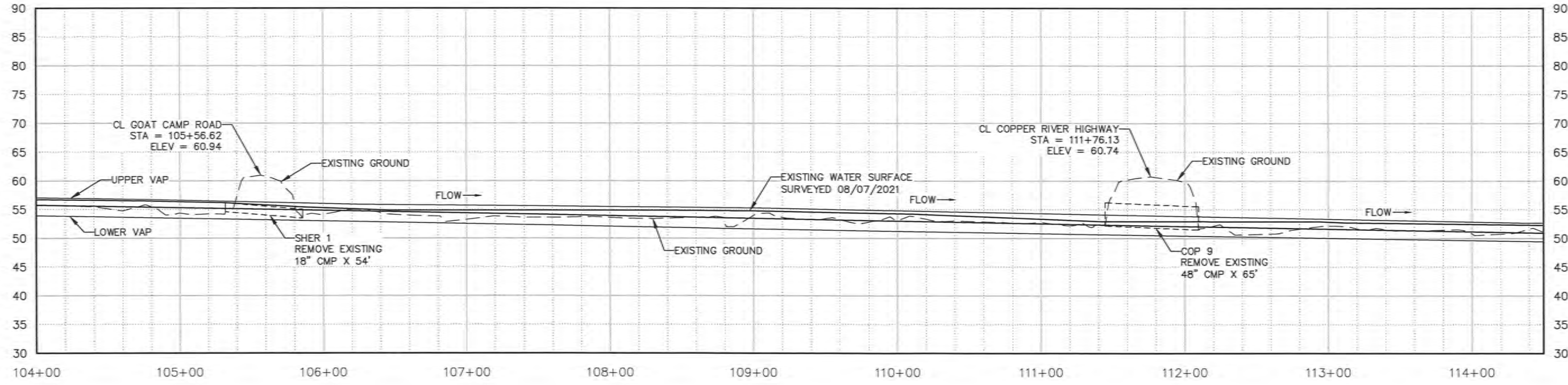
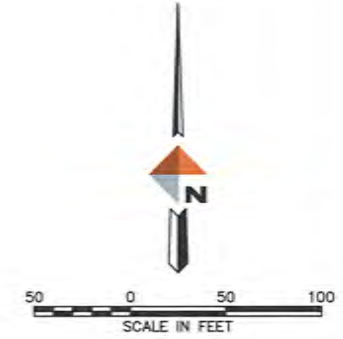
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APPROXIMATE AREA OF DISTURBANCE	
COP 9	0.30 ACRE
SHER 1	0.48 ACRE
TOTAL	0.78 ACRE

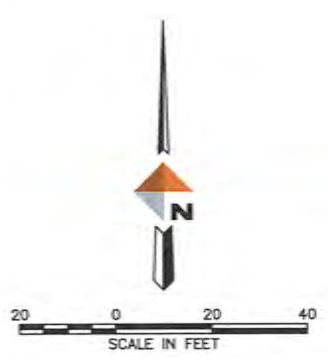
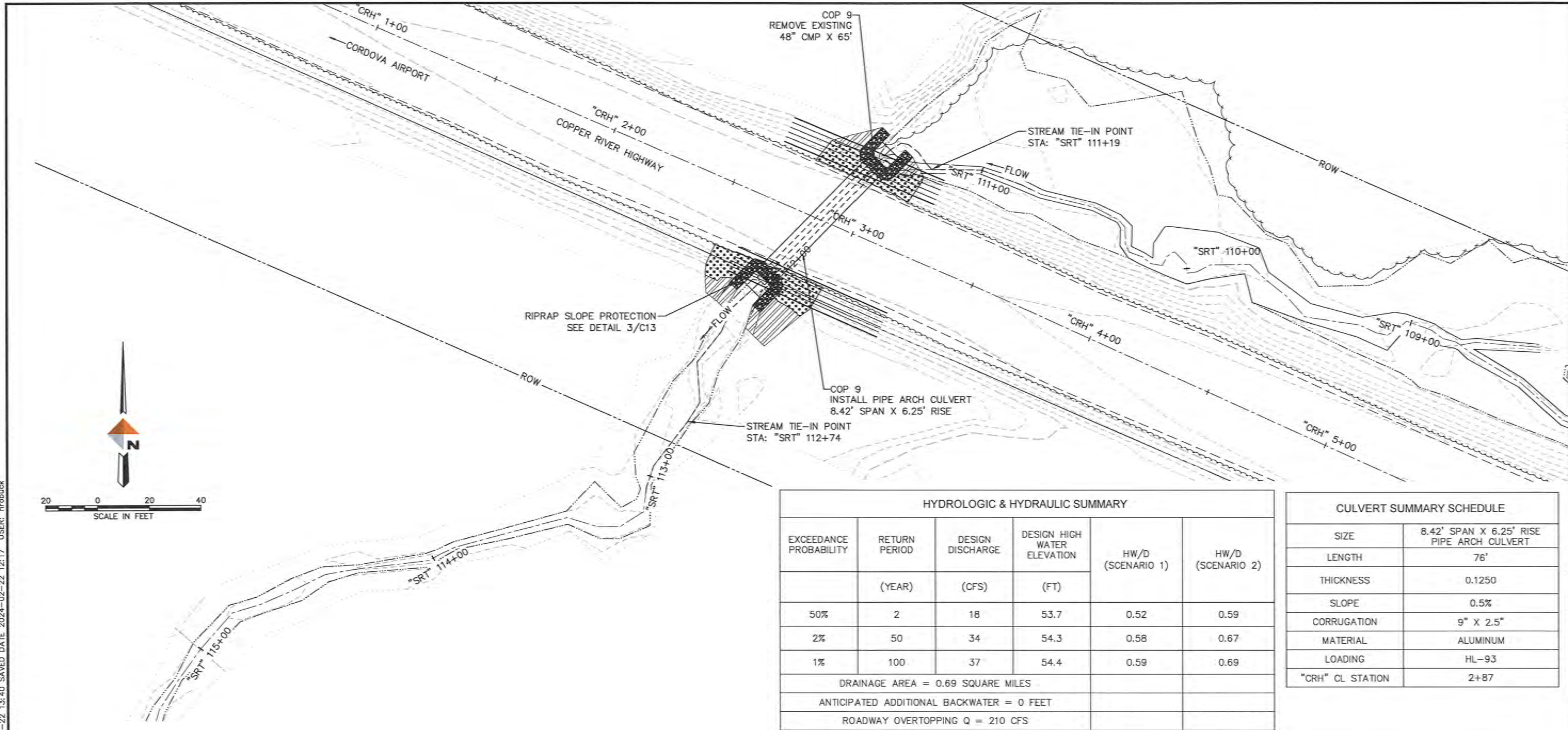


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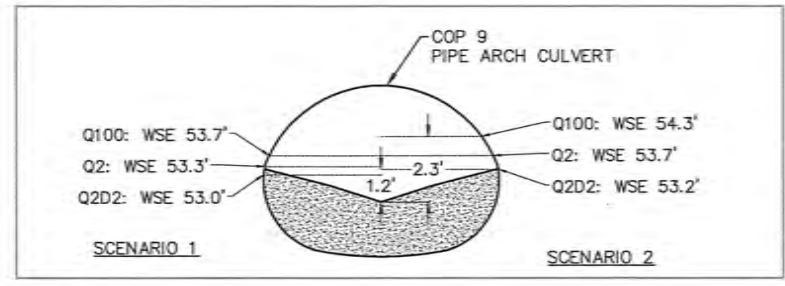
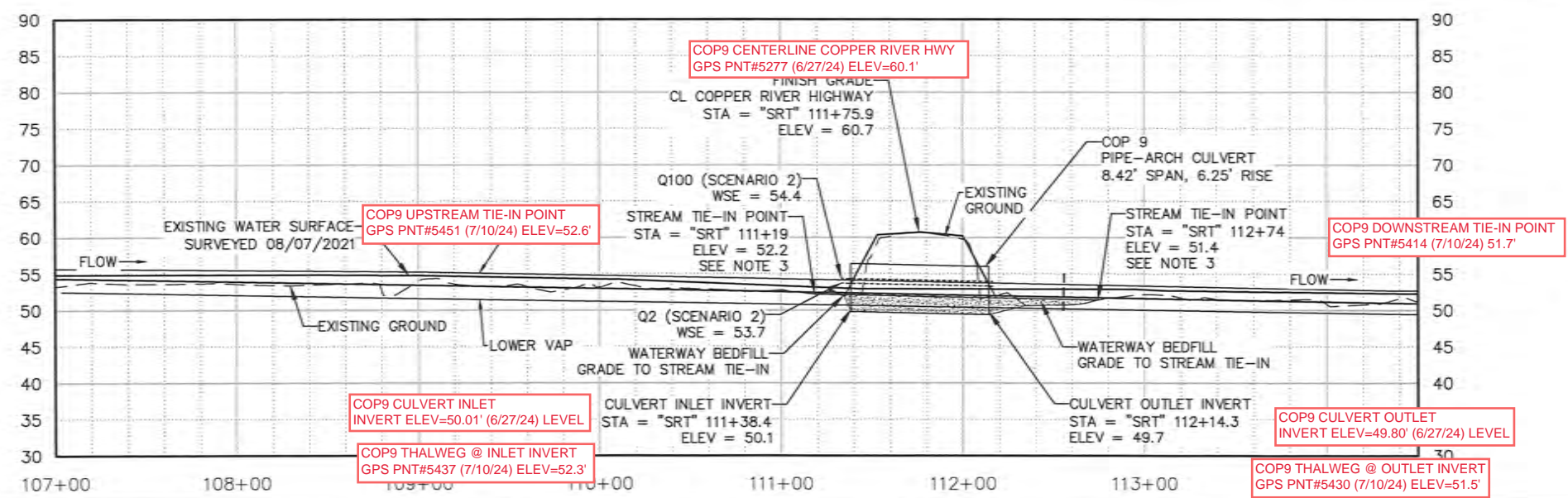
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 SHERIDAN RIVER TRIB - COP 9 & SHER 1
 EXISTING STREAM PLAN AND PROFILE AND
 DEMOLITION PLAN
 CORDOVA, ALASKA

PROJECT	1136.63349.01
DATE	FEBRUARY 2024
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SHEET	
C6 OF C17	



HYDROLOGIC & HYDRAULIC SUMMARY					
EXCEEDANCE PROBABILITY	RETURN PERIOD (YEAR)	DESIGN DISCHARGE (CFS)	DESIGN HIGH WATER ELEVATION (FT)	HW/D (SCENARIO 1)	HW/D (SCENARIO 2)
50%	2	18	53.7	0.52	0.59
2%	50	34	54.3	0.58	0.67
1%	100	37	54.4	0.59	0.69
DRAINAGE AREA = 0.69 SQUARE MILES					
ANTICIPATED ADDITIONAL BACKWATER = 0 FEET					
ROADWAY OVERTOPPING Q = 210 CFS					

CULVERT SUMMARY SCHEDULE	
SIZE	8.42' SPAN X 6.25' RISE PIPE ARCH CULVERT
LENGTH	76'
THICKNESS	0.1250
SLOPE	0.5%
CORRUGATION	9" X 2.5"
MATERIAL	ALUMINUM
LOADING	HL-93
"CRH" CL STATION	2+87



- 1**
C7
- WATER SURFACE ELEVATIONS AT DESIGN FLOW**
- NTS
- NOTES:
- SCENARIO 1: FLOW FROM WATERSHED IS EVENLY SPLIT TO COP 9 AND SHER 1.
 - SCENARIO 2: FLOW FROM WATERSHED IS DIRECTED TO SINGLE CULVERT.
 - STREAM TIE IN LOCATIONS AND ELEVATIONS ARE APPROXIMATE AND SHALL BE CONFIRMED BY AN ENGINEER AFTER CULVERT PLACEMENT.

REVISIONS

REV	DATE	DESCRIPTION	BY

STATE OF ALASKA
49th
Bradley W. Meade
REGISTERED PROFESSIONAL ENGINEER

DOWL
WWW.DOWL.COM

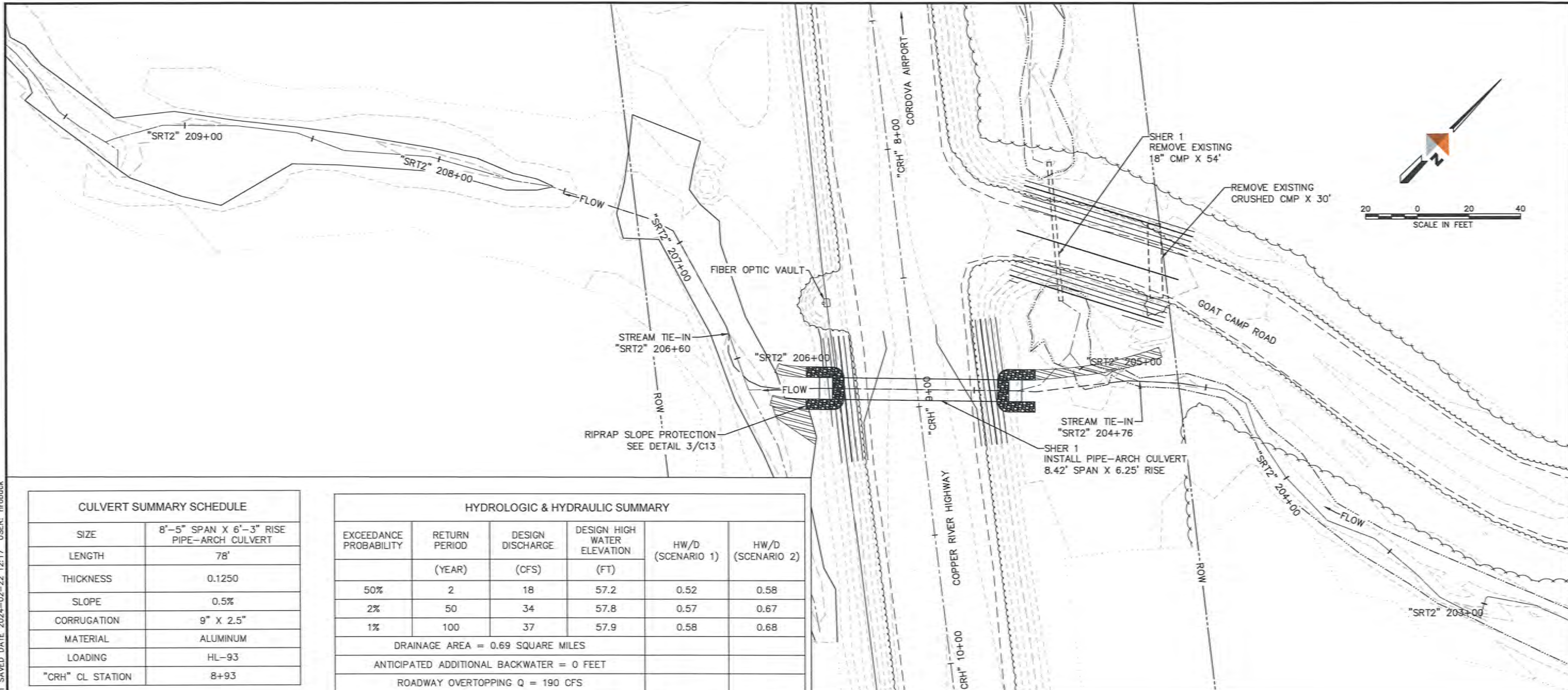
CORDOVA FISH PASSAGE IMPROVEMENTS
SHERIDAN RIVER TRIB - COP 9 & SHER 1
COP 9 - STREAM PLAN AND PROFILE

PROJECT 1136.63349.01
DATE FEBRUARY 2024

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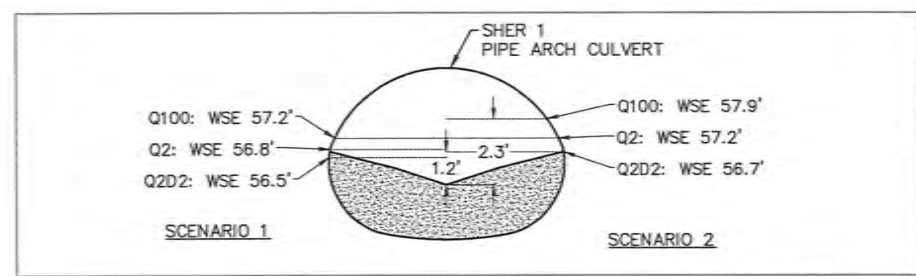
C7 OF C17

C:\dowl_pw\03984483\SC20-CH-DR-63349-COP9-SHR1.dwg PLOT DATE 2024-02-22 13:40 SAVED DATE 2024-02-22 12:17 USER: hrobuck



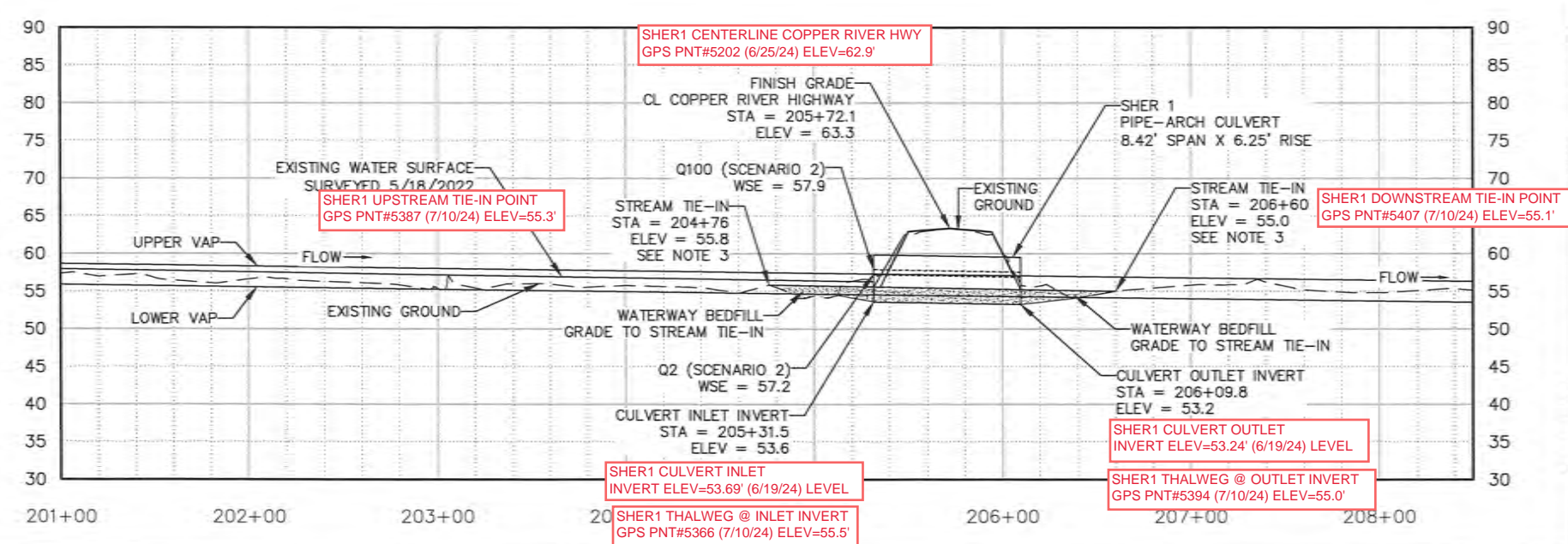
CULVERT SUMMARY SCHEDULE	
SIZE	8'-5" SPAN X 6'-3" RISE PIPE-ARCH CULVERT
LENGTH	78'
THICKNESS	0.1250
SLOPE	0.5%
CORRUGATION	9" X 2.5"
MATERIAL	ALUMINUM
LOADING	HL-93
"CRH" CL STATION	8+93

HYDROLOGIC & HYDRAULIC SUMMARY					
EXCEEDANCE PROBABILITY	RETURN PERIOD (YEAR)	DESIGN DISCHARGE (CFS)	DESIGN HIGH WATER ELEVATION (FT)	HW/D (SCENARIO 1)	HW/D (SCENARIO 2)
50%	2	18	57.2	0.52	0.58
2%	50	34	57.8	0.57	0.67
1%	100	37	57.9	0.58	0.68
DRAINAGE AREA = 0.69 SQUARE MILES					
ANTICIPATED ADDITIONAL BACKWATER = 0 FEET					
ROADWAY OVERTOPPING Q = 190 CFS					



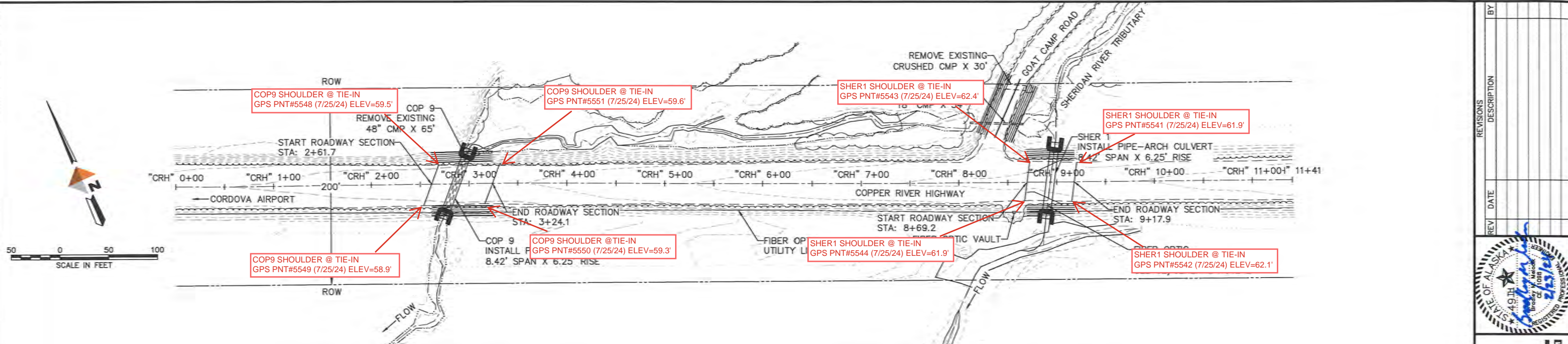
1 WATER SURFACE ELEVATIONS AT DESIGN FLOW
C8 NTS

- NOTES:
- SCENARIO 1: FLOW FROM WATERSHED IS EVENLY SPLIT TO COP 9 AND SHER 1.
 - SCENARIO 2: FLOW FROM WATERSHED IS DIRECTED TO SINGLE CULVERT.
 - STREAM TIE IN LOCATIONS AND ELEVATIONS ARE APPROXIMATE AND SHALL BE CONFIRMED BY AN ENGINEER AFTER CULVERT PLACEMENT.

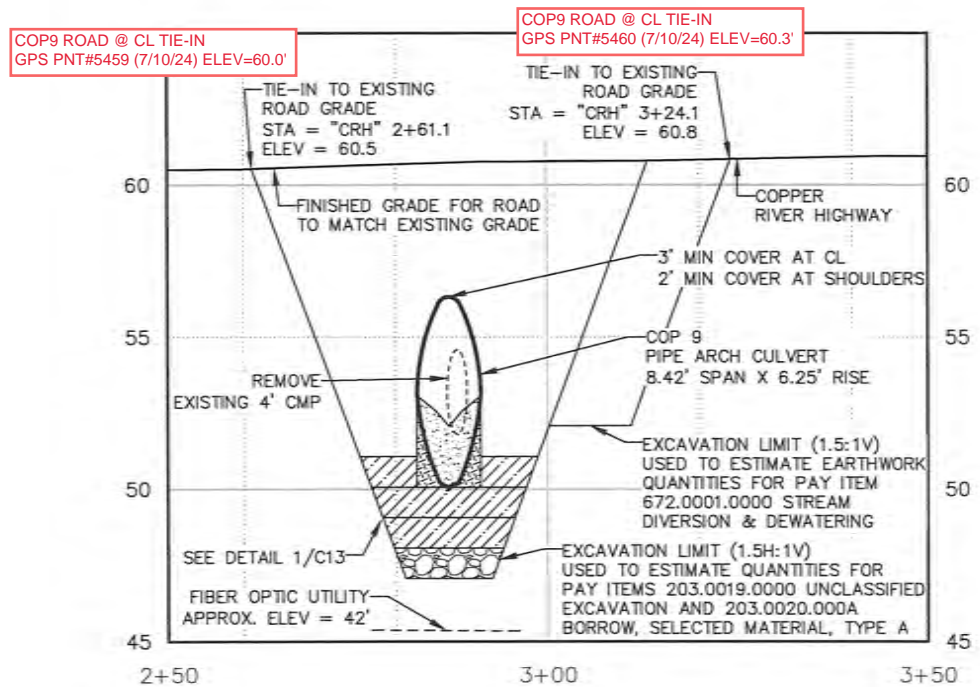


BY	
REVISIONS	DESCRIPTION
REV	DATE
CORDOVA FISH PASSAGE IMPROVEMENTS SHERIDAN RIVER TRIB - COP 9 & SHER 1 SHER 1 - STREAM PLAN AND PROFILE	
PROJECT	1136.63349.01
DATE	FEBRUARY 2024
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SHEET	
C8 OF C17	

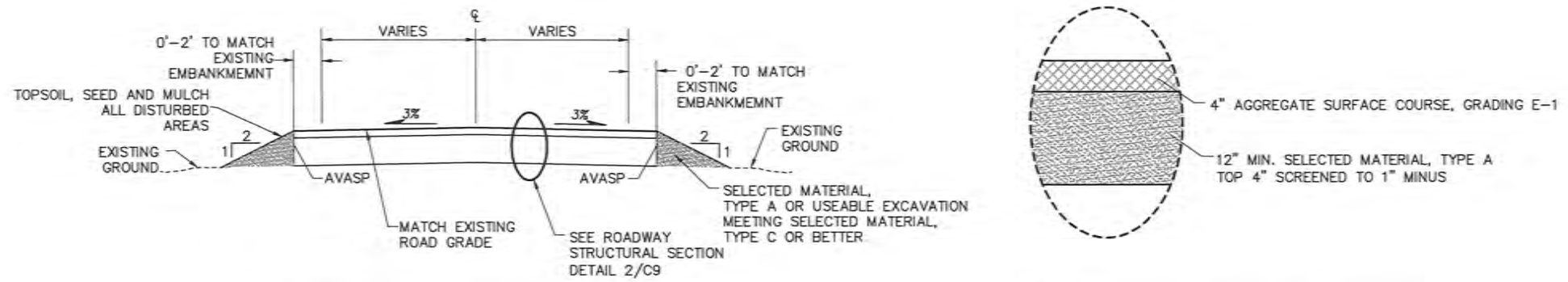
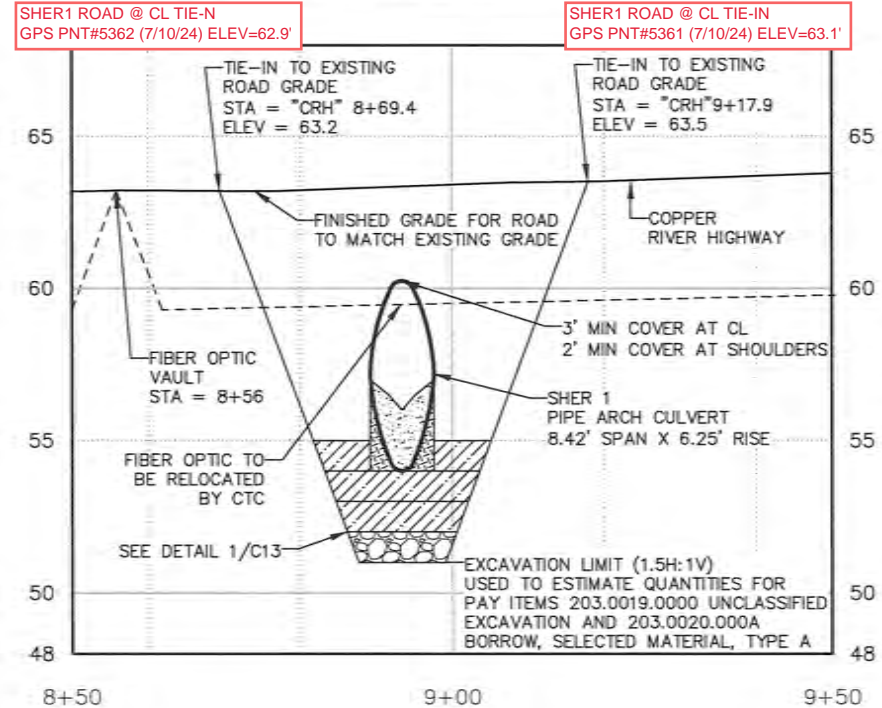
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COPPER RIVER HIGHWAY – COP 9



COPPER RIVER HIGHWAY – SHER 1



- NOTES:
1. TRANSITION ROADWAY SECTION TO EXISTING WIDTH WITHIN 10 FEET OF WORK LIMITS.
 2. TRANSITION SECTION SHALL BE SUBSIDIARY TO 203 AND 301 PAY ITEMS.

1 ROADWAY SECTION
C9 STA "CRH" 2+61.7 TO "CRH" 3+24.1
STA "CRH" 8+69.2 TO "CRH" 9+17.9

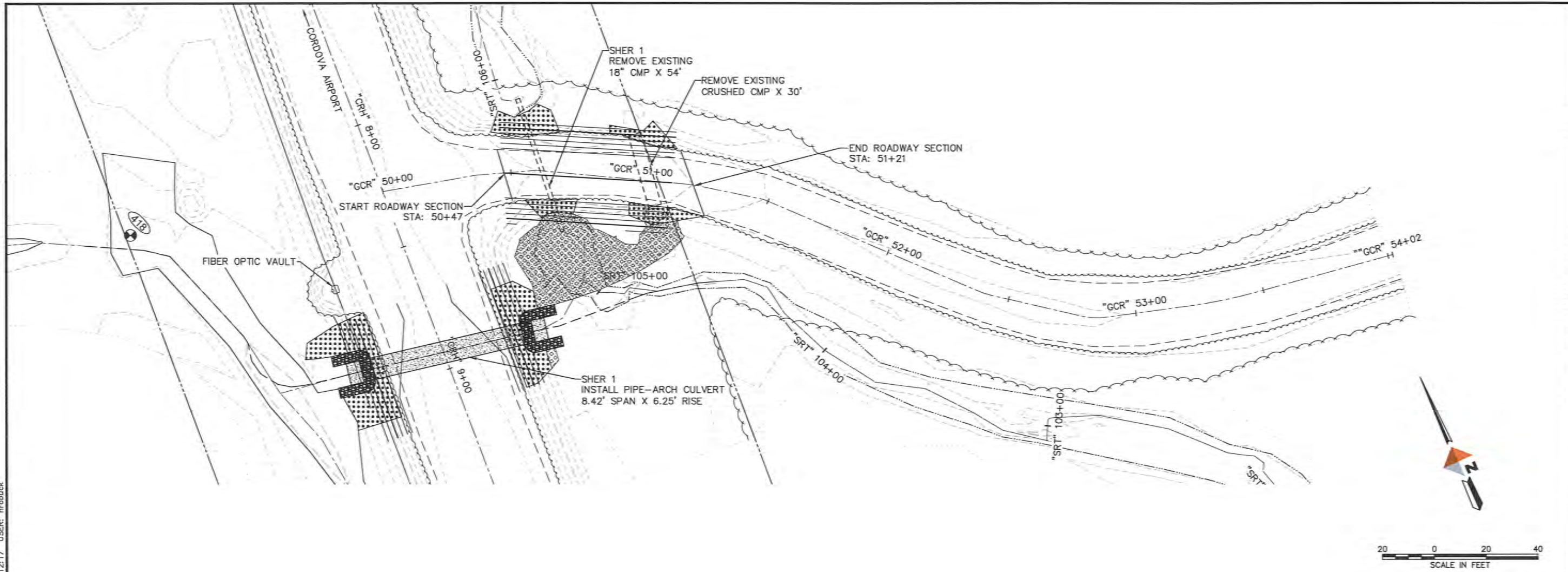
2 ROADWAY STRUCTURAL SECTION
C9 NTS

REV	DATE	DESCRIPTION	BY



CORDOVA FISH PASSAGE IMPROVEMENTS
SHERIDAN RIVER TRIB – COP 9 & SHER 1
CRH – ROADWAY PLAN AND PROFILE
CORDOVA, ALASKA

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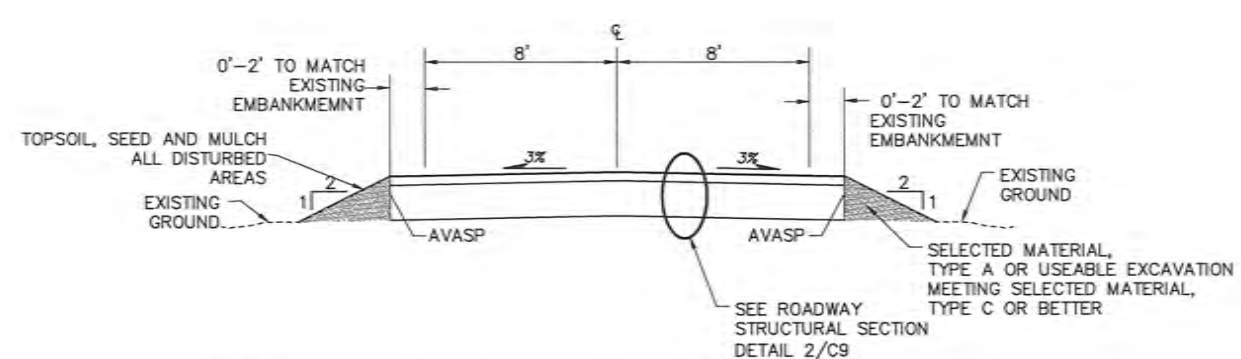
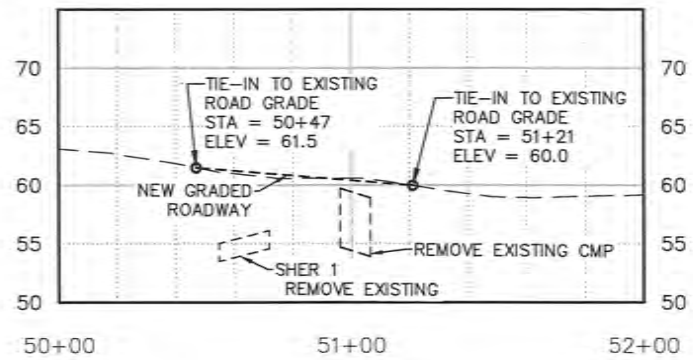


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GOAT CAMP ROAD



1 ROADWAY SECTION
C10 STA "GCR" 50+47 TO "GCR" 51+21

NOTES:

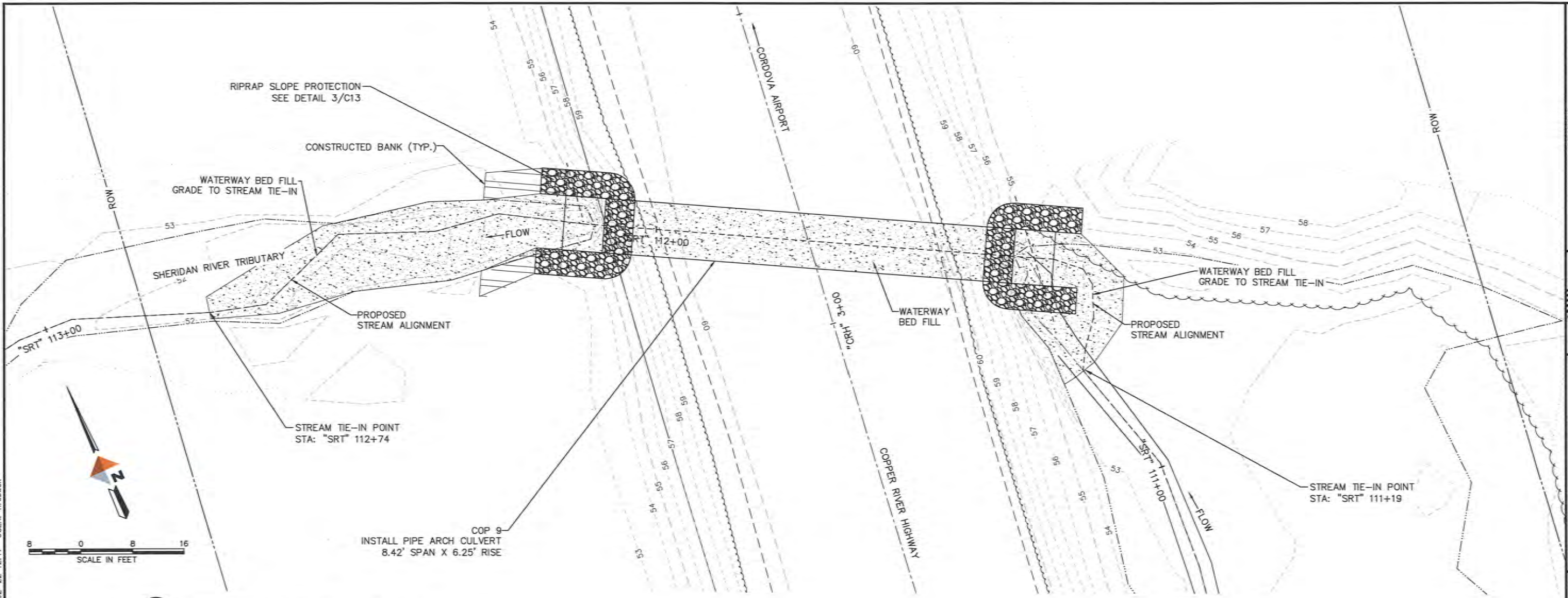
1. TRANSITION ROADWAY SECTION TO EXISTING WIDTH WITHIN 10 FEET OF WORK LIMITS.
2. TRANSITION SECTION SHALL BE SUBSIDIARY TO 203 AND 301 PAY ITEMS.

CORDOVA FISH PASSAGE IMPROVEMENTS
SHERIDAN RIVER TRIB - COP 9 & SHER 1
GCR - ROADWAY PLAN AND PROFILE
CORDOVA, ALASKA

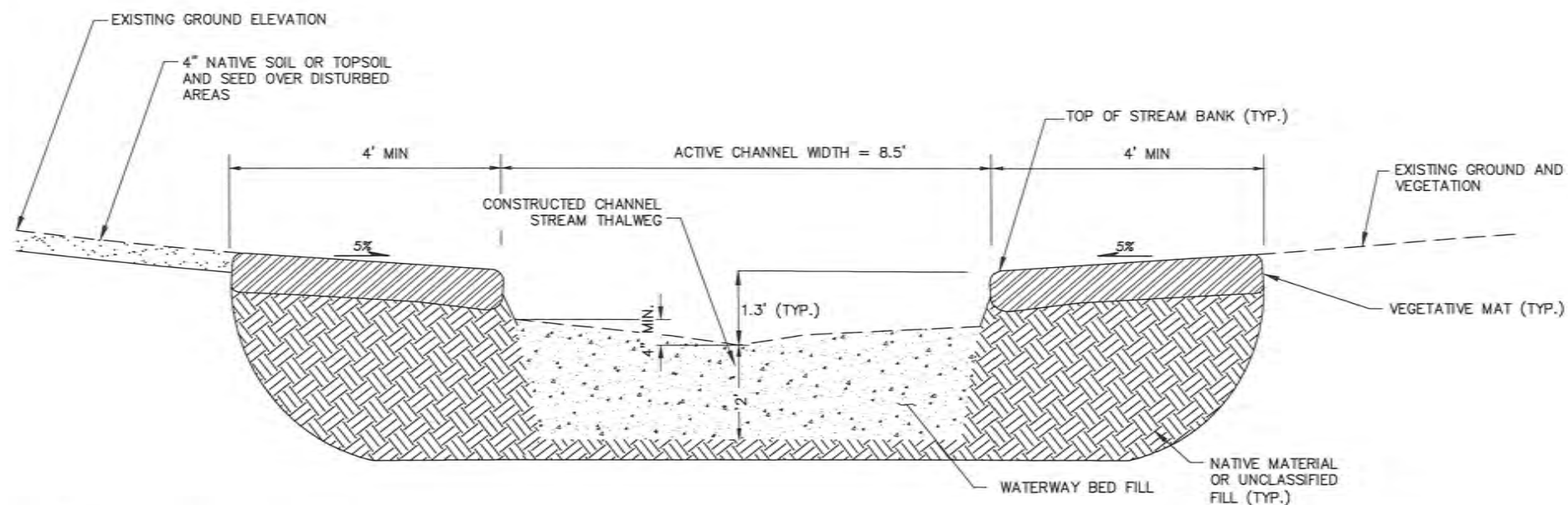
PROJECT 1136.63349.01
DATE FEBRUARY 2024

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SHEET

C10 OF C17



1
C11 STREAM DESIGN DETAIL - PLAN VIEW



2
C11 CONSTRUCTED BANK
NTS

- NOTES:**
- SALVAGED VEGETATIVE MAT MUST HAVE A MINIMUM THICKNESS OF 12 INCHES AND BE SOURCED FROM THE DISTURBED AREA OR LOCAL AREA COORDINATED WITH CRWP AND USFS.
 - VEGETATIVE MAT WITH THICKNESS LESS THAN 12 INCHES MAY BE USED WITH TOPSOIL BELOW TO BRING THE TOTAL THICKNESS TO 12 INCHES.
 - GRADE TO STREAM THALWEG SHOWN IN PROFILE ON C7.
 - IF FILL IS REQUIRED TO CONSTRUCT CHANNEL TO DIMENSIONS SHOWN, USE WATERWAY BED FILL MATERIAL AND COORDINATE CHANNEL RECONSTRUCTION WITH HABITAT PERSONNEL (CRWP, USFWS OR ADF&G) PRIOR TO STARTING WORK ON SITE.
 - PLACEMENT OF WATERWAY BED FILL MATERIAL FOR CONSTRUCTED BANK DETAIL IS SUBSIDIARY TO PAY ITEM 690.2001.0000.
 - TAPER BANKS AND TIE INTO EXISTING BANKS UPSTREAM AND DOWNSTREAM, AS DIRECTED BY THE ENGINEER.

REV	DATE	DESCRIPTION	BY



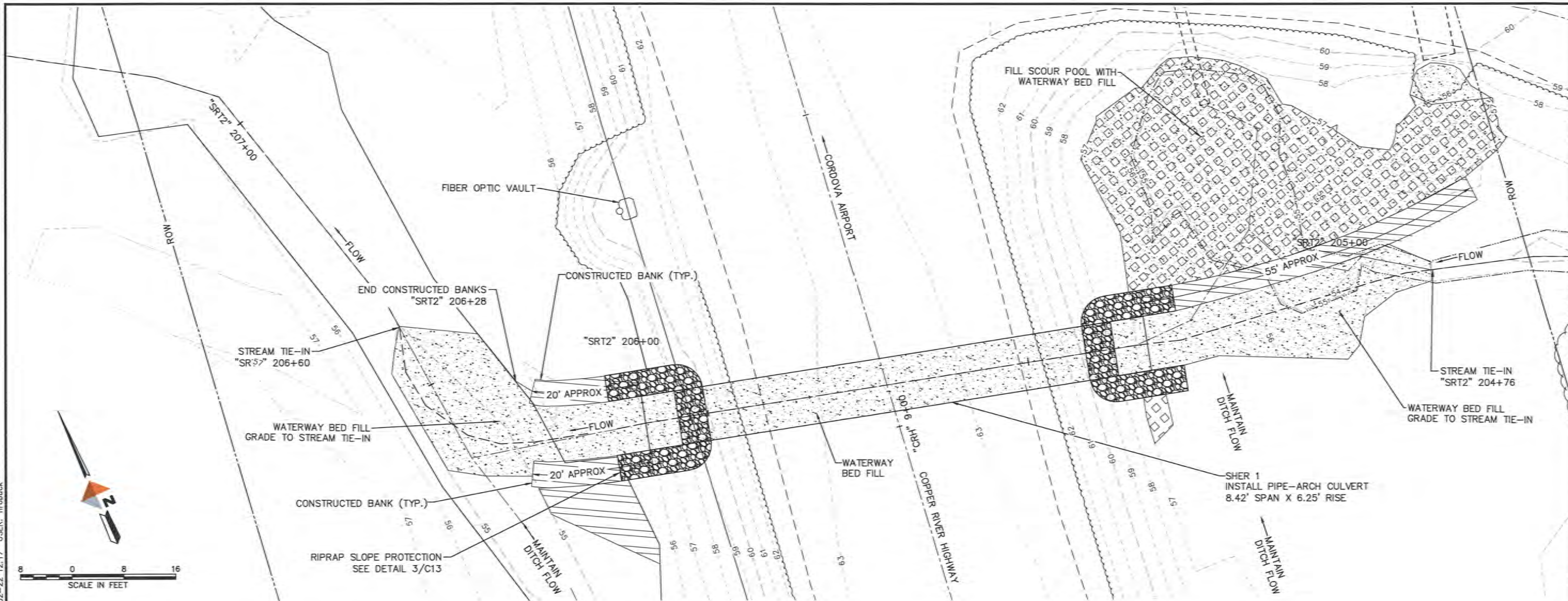
CORDOVA FISH PASSAGE IMPROVEMENTS
SHERIDAN RIVER TRIB - COP 9 & SHER 1
COP 9 - STREAM DESIGN DETAILS

PROJECT 1136.63349.01
DATE FEBRUARY 2024

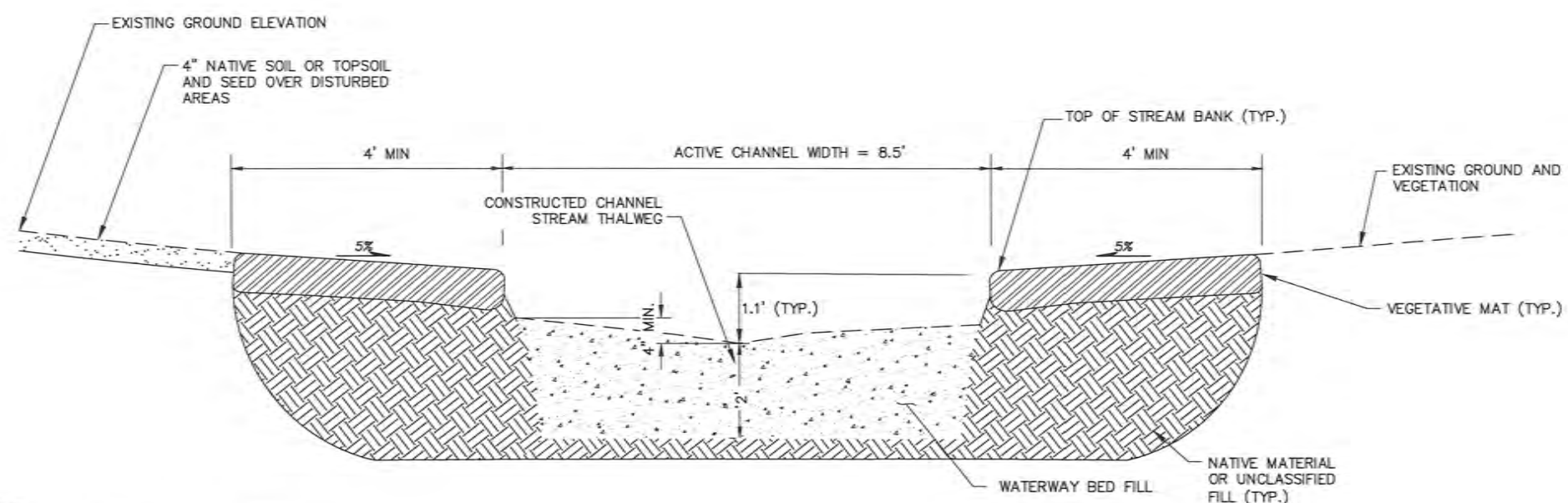
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C11 OF C17

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1 STREAM DESIGN DETAIL - PLAN VIEW
C12



2 CONSTRUCTED BANK
NTS
C12

- NOTES:**
1. SALVAGED VEGETATIVE MAT MUST HAVE A MINIMUM THICKNESS OF 12 INCHES AND BE SOURCED FROM THE DISTURBED AREA OR LOCAL AREA COORDINATED WITH CRWP AND USFS.
 2. VEGETATIVE MAT WITH THICKNESS LESS THAN 12 INCHES MAY BE USED WITH TOPSOIL BELOW TO BRING THE TOTAL THICKNESS TO 12 INCHES.
 3. GRADE TO STREAM THALWEG SHOWN IN PROFILE ON C8.
 4. IF FILL IS REQUIRED TO CONSTRUCT CHANNEL TO DIMENSIONS SHOWN, USE WATERWAY BED FILL MATERIAL AND COORDINATE CHANNEL RECONSTRUCTION WITH HABITAT PERSONNEL (CRWP, USFWS OR ADF&G) ON SITE.
 5. PLACEMENT OF WATERWAY BED FILL MATERIAL FOR CONSTRUCTED BANK DETAIL IS SUBSIDIARY TO PAY ITEM 690.2001.0000.
 6. TAPER BANKS AND TIE INTO EXISTING BANKS UPSTREAM AND DOWNSTREAM, AS DIRECTED BY THE ENGINEER.

REV	DATE	DESCRIPTION	BY



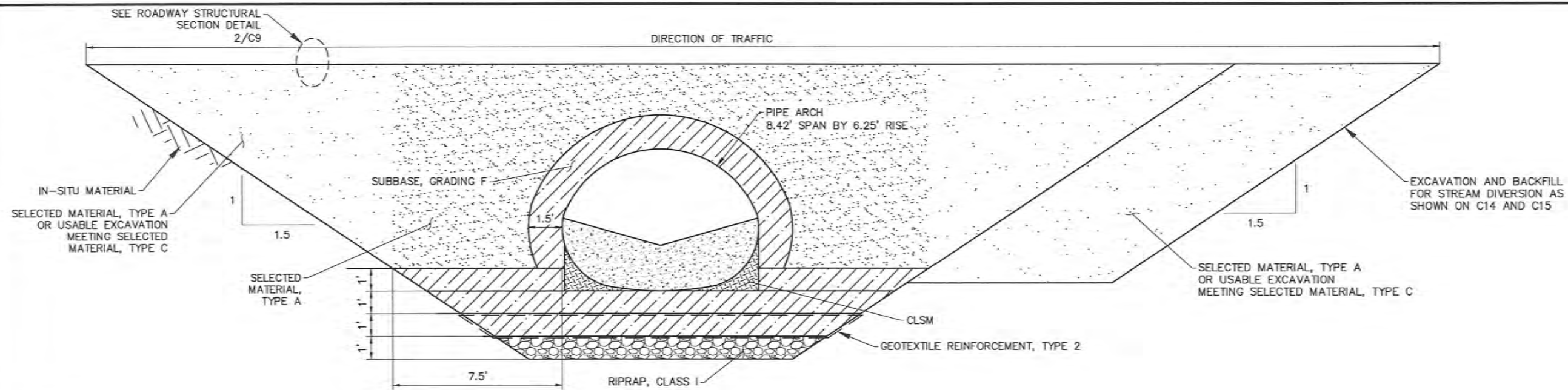
CORDOVA FISH PASSAGE IMPROVEMENTS
SHERIDAN RIVER TRIB - COP 9 & SHER 1
SHER 1 - STREAM DESIGN DETAILS

PROJECT 1136.63349.01
DATE FEBRUARY 2024

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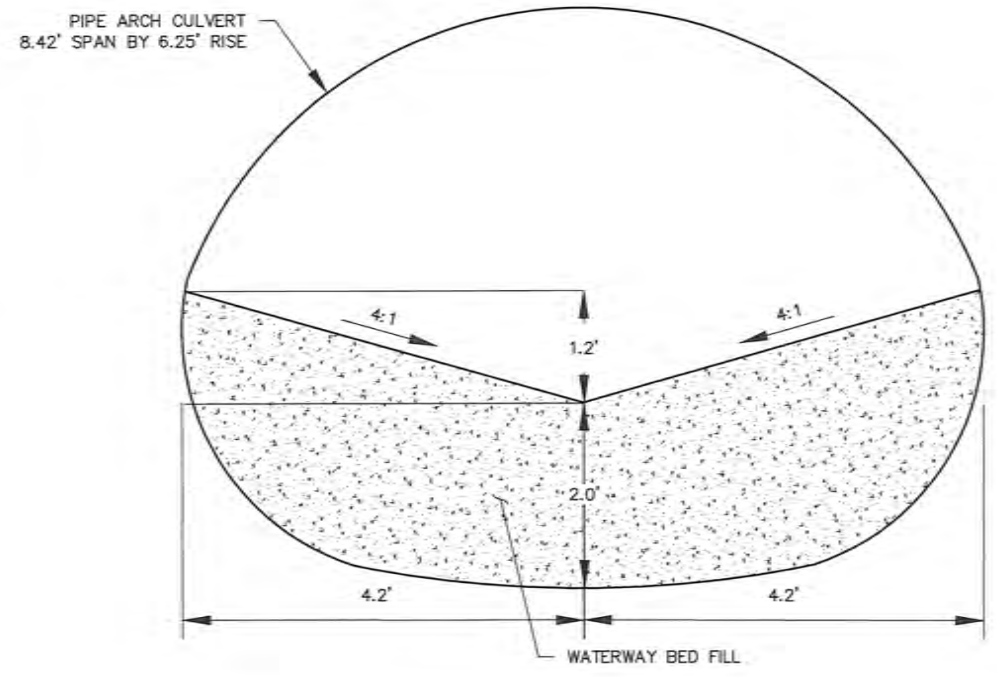
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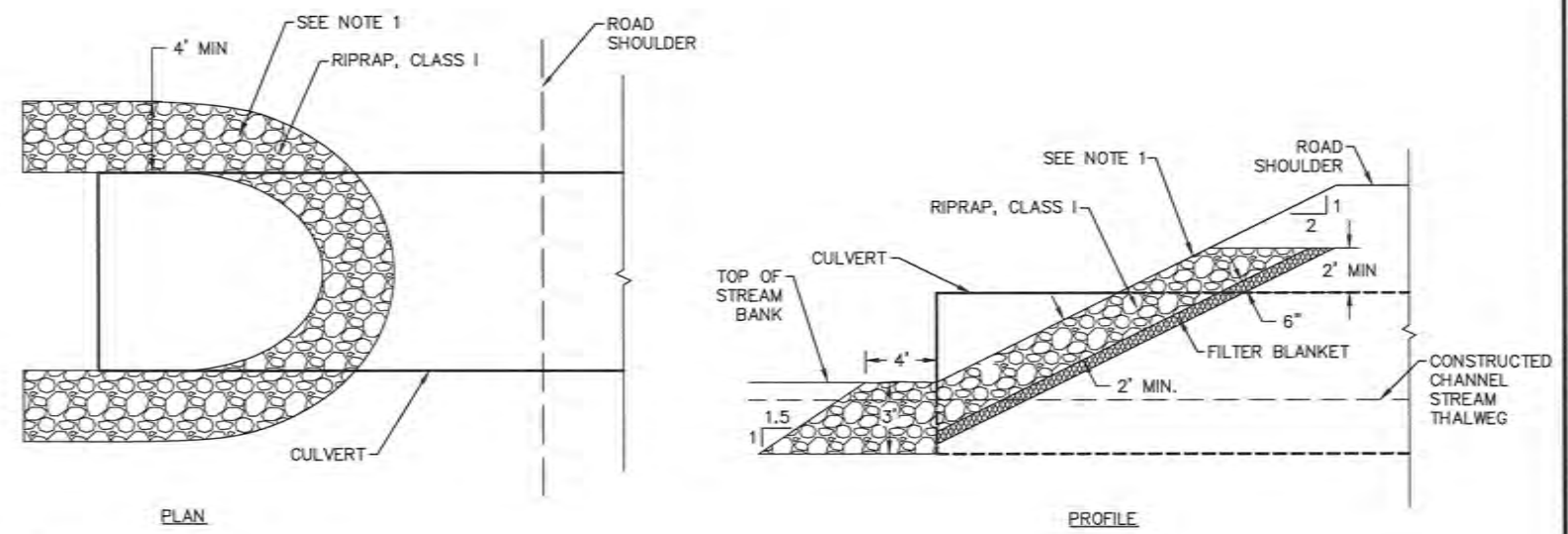
1 TYPICAL CULVERT TRENCH SECTION

- NTS
- NOTES:**
1. GEOTEXTILE REINFORCEMENT, TYPE 2 SHALL BE PLACED BETWEEN RIPRAP, CLASS I AND SUBBASE, GRADING F, AND PLACED BETWEEN EACH ONE-FOOT LAYER OF SUBBASE, GRADING F BENEATH CULVERT INVERT.
 2. FOR QUANTITY ESTIMATION PURPOSES, NO USABLE EXCAVATION WAS ASSUMED AND EMBANKMENT QUANTITIES WERE CALCULATED USING SELECTED MATERIAL, TYPE A.
 3. MINIMUM COVER FOR PIPE ARCH CULVERT IS 2.0'.
 4. CONTROLLED LOW-STRENGTH MATERIAL SHALL BE USED FOR PIPE BEDDING. PREPARATION AND PLACEMENT PER SPECIFICATION 205-2.01 AND REFERENCE SUBSECTION 712-2.22. PAY ITEM 205.0005.



2 TYPICAL CULVERT INFILL SECTION

- NTS
- NOTES:**
1. MIX MATERIAL FOR WATERWAY BED FILL TO ACHIEVE A WELL GRADED MIXTURE.
 2. FILL VOIDS IN FOR WATERWAY BED FILL AND WASH FINES IN AFTER PLACEMENT.
 3. PLACEMENT AND SHAPE OF WATERWAY BED FILL TO BE COORDINATED WITH HABITAT PERSONNEL (CRWP OR USFWS OR ADF&G) ON SITE.



3 RIPRAP SLOPE PROTECTION SECTION

- NTS
- NOTES:**
1. FILL VOIDS IN RIPRAP SLOPE PROTECTION WITH SELECTED MATERIAL, TYPE A OR USABLE EXCAVATION MEETING SELECTED MATERIAL, TYPE C.
 2. PLACE SALVAGED ORGANIC TOPSOIL AND SEED ON SURFACE OF PLACED RIPRAP PER SPECIFICATION SECTIONS 611-3.01 AND 620-3.01.

REV	DATE	DESCRIPTION	BY



CORDOVA FISH PASSAGE IMPROVEMENTS
 SHERIDAN RIVER TRIB - COP 9 & SHER 1
 STREAM SECTIONS AND DETAILS
 CORDOVA, ALASKA

PROJECT 1136.63349.01
 DATE FEBRUARY 2024

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C13 OF C17

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ROADWAY DIVERSION NOTES:

1. REFER TO SPECIFICATIONS FOR ROAD CLOSURE AND TRAFFIC CONTROL INFORMATION.
2. COPPER RIVER HIGHWAY DETOUR ROAD AND GOAT CAMP ROAD CLOSURE PLAN SHALL BE SUBMITTED BY CONTRACTOR FOR APPROVAL BY OWNER AND DOT&PF.

STREAM DIVERSION NOTES:

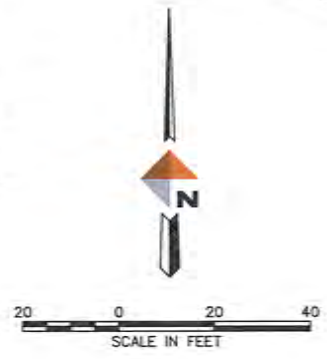
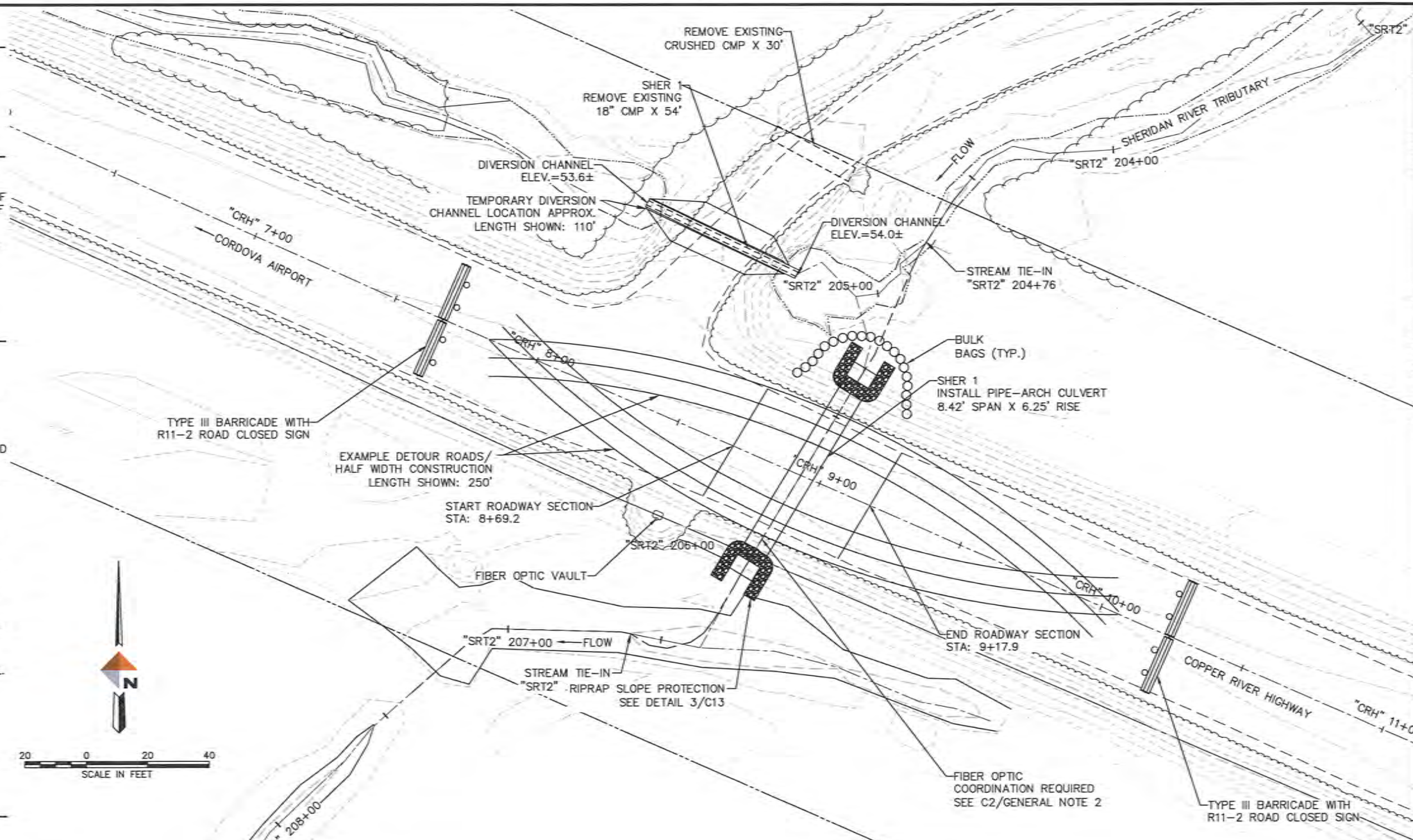
A COFFERDAM MADE OF SHEET PILE MAY BE NEEDED TO REDUCE GROUNDWATER FLOW INTO EXCAVATED AREA. TEMPORARY DIKES OR BERMS MAY BE USED TO ISOLATE THE WORK AREA FROM WATERS OF THE SURROUNDING AREA. THIS WORK MAY REQUIRE A DIVERSION OF STREAM WATER. THE DESIGNERS RECOGNIZE THAT DIFFERENT CONTRACTORS WILL HAVE VARIOUS APPROACHES FOR CONTROLLING WATER AND CONSTRUCTION SEQUENCING. THIS DIVERSION PLAN HAS BEEN DEVELOPED TO CHECK FOR CONSTRUCTABILITY AND AS A STARTING POINT FOR A CONTRACTOR-GENERATED PLAN. CONTRACTOR MUST SUBMIT DIVERSION PLANS TO ENGINEER FOR APPROVAL PRIOR TO IMPLEMENTATION.

DIVERSION PLAN:

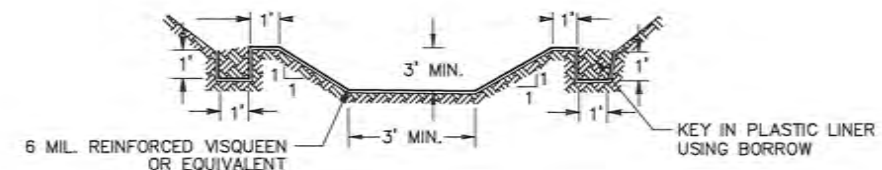
1. PLACE BARRICADES, SIGNS, AND TEMPORARY ROAD DETOUR IN COMPLIANCE WITH SPECIFICATIONS, ADOT&PF, AND MUTCD. COORDINATE WITH OTHER CONTRACTORS WHO MAY BE PRESENT IN AREA AND USING COPPER RIVER HIGHWAY FOR CONSTRUCTION ACCESS.
2. IF EXISTING CULVERTS ON GOAT CAMP ROAD ARE NOT SUFFICIENT, REMOVE THE 18" EXISTING CULVERT AND CONSTRUCT VISQUEEN LINED DIVERSION CHANNEL.
3. USE BULK BAGS (SUPERSACKS) TO DIVERT STREAM FLOW THROUGH DIVERSION CHANNEL.
4. CONSTRUCT THE NEW PIPE ARCH CULVERT.
5. INFILL CULVERT AND RECONSTRUCT CREEK CHANNEL AS SHOWN IN PLANS.
6. DIVERT CREEK FLOW THROUGH THE NEW ALUMINUM ARCH CULVERT.
7. FILL DIVERSION CHANNEL/GOAT CAMP ROAD.
8. RECONSTRUCT CREEK CHANNEL AND BANKS AS SHOWN IN PLANS.
9. RECONSTRUCT COPPER RIVER HIGHWAY OVER THE NEWLY INSTALLED CULVERT.
10. RETURN VEHICULAR TRAFFIC TO COPPER RIVER HIGHWAY. REMOVE DETOUR ROAD AND FILL REMAINING PORTION OF DIVERSION CHANNEL.
11. STABILIZE AND REVEGETATE ALL REMAINING DISTURBED AREAS.

ESCP AND DEWATERING NOTES:

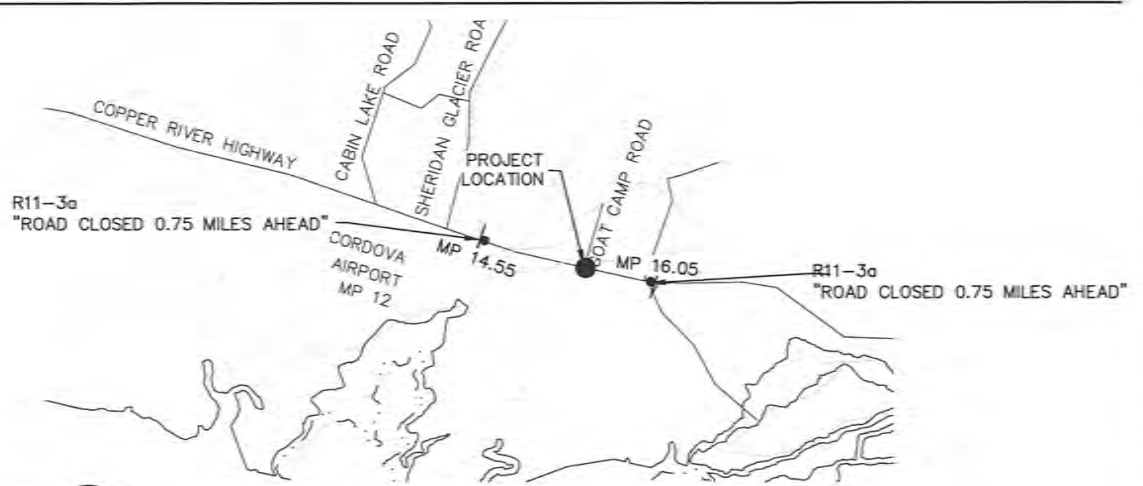
1. DEWATER TRENCH AND WORK AREA WITH PUMP HOSE IF REQUIRED.
2. ALL DISCHARGE POINTS REQUIRE PERMANENT OR TEMPORARY VELOCITY CONTROLS.
3. PROVIDE FOR SEDIMENT REMOVAL FOR ALL DEWATERING ACTIVITY PRIOR TO DISCHARGE FROM THE PROJECT INTO ANY WATER OF THE U.S.
4. PROVIDE SPARE (EXTRA) PUMPS FOR BOTH THE STREAM BYPASS PUMP AND DETWATERING PUMP.
5. EXISTING RIPARIAN VEGETATION SHOULD BE PROTECTED TO MINIMIZE DISTURBANCE.
6. SILT FENCING TO BE USED TO PREVENT DISTURBED SEDIMENT FROM ENTERING THE WATERBODY. ADJUST LOCATION AS NECESSARY AND AS DIRECTED BY THE ENGINEER DURING CONSTRUCTION.
7. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSPECTED AND MAINTAINED ON A DAILY BASIS. MAINTENANCE SHALL INCLUDE REMOVAL AND DISPOSAL OF ACCUMULATED SEDIMENT, CLEANING AND REPAIR OF DAMAGED SEDIMENT CONTROL DEVICES.
8. ALL DISTURBED GROUND CAPABLE OF SUPPORTING VEGETATION SHALL BE REVEGETATED FOR FINAL STABILIZATION. ALL AREAS NOT REVEGETATED SHALL BE 100% COVERED BY ROCK OR OTHER PERMANENT NON-ERODIBLE MATERIAL. FINAL STABILIZATION SHALL BE AS APPROVED BY THE ENGINEER.
9. PUMPS OUTSIDE OF THE FISH EXCLUSION AREA MUST HAVE FISH SCREENS MADE OF WEDGE WIRE WITH OPENINGS NOT GREATER THAN 1/16TH INCH.



1 ESCP, STREAM DIVERSION & ROADWAY DIVERSION PLAN



2 DIVERSION CHANNEL
NTS



3 TRAFFIC CONTROL SIGNS
NTS

REV	DATE	DESCRIPTION	BY



CORDOVA FISH PASSAGE IMPROVEMENTS
SHERIDAN RIVER TRIB - COP 9 & SHER 1
SHER 1 - STREAM DIVERSION & TRAFFIC CONTROL PLAN
CORDOVA, ALASKA

PROJECT 1136.63349.01
DATE FEBRUARY 2024

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C14 OF C17

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ROADWAY DIVERSION NOTES:

1. REFER TO SPECIFICATIONS FOR ROAD CLOSURE AND TRAFFIC CONTROL INFORMATION.
2. COPPER RIVER HIGHWAY DETOUR ROAD AND GOAT CAMP ROAD CLOSURE PLAN SHALL BE SUBMITTED BY CONTRACTOR FOR APPROVAL BY OWNER AND DOT&PF.

STREAM DIVERSION NOTES:

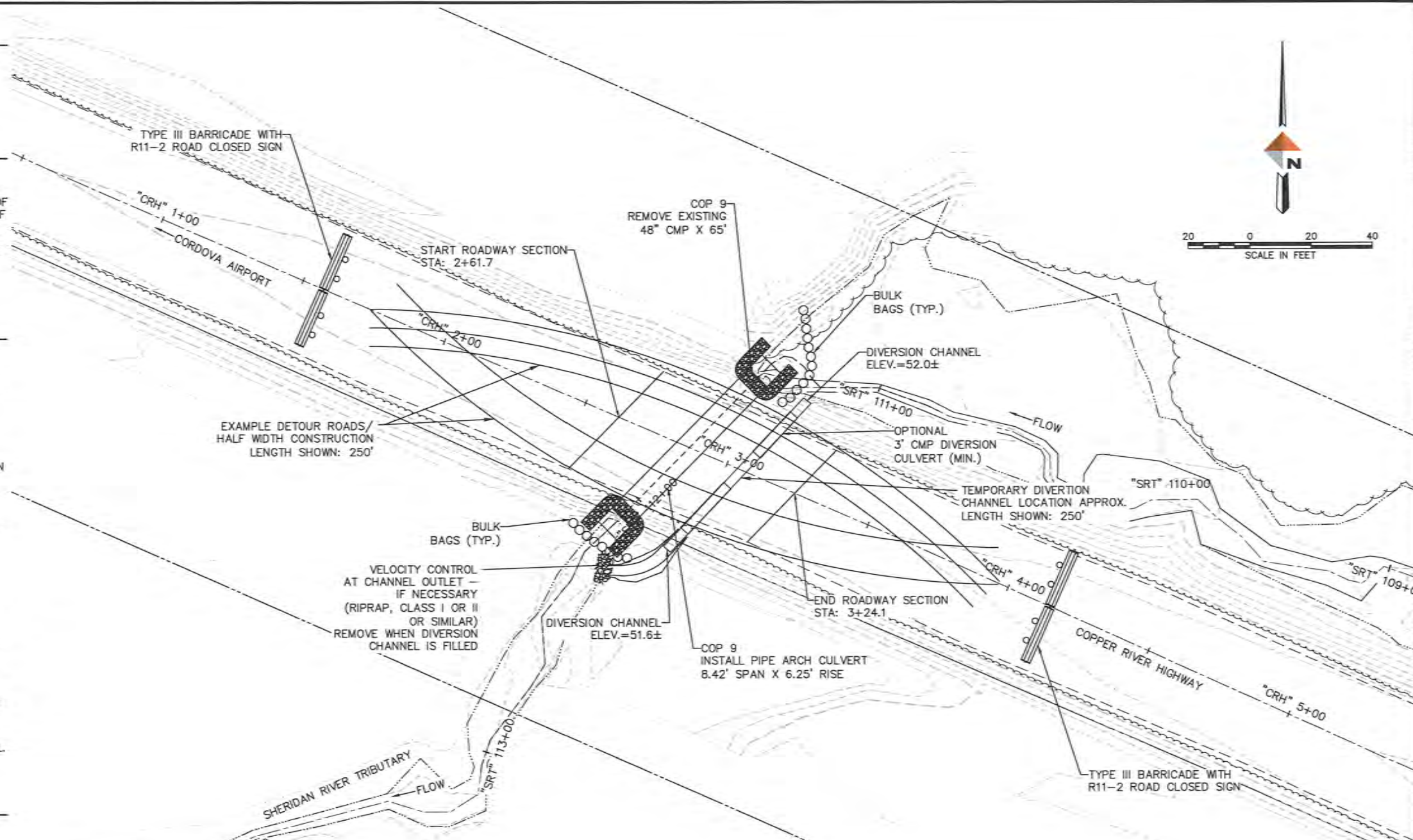
A COFFERDAM MADE OF SHEET PILE MAY BE NEEDED TO REDUCE GROUNDWATER FLOW INTO EXCAVATED AREA. TEMPORARY DIKES OR BERMS MAY BE USED TO ISOLATE THE WORK AREA FROM WATERS OF THE SURROUNDING AREA. THIS WORK MAY REQUIRE A DIVERSION OF STREAM WATER. THE DESIGNERS RECOGNIZE THAT DIFFERENT CONTRACTORS WILL HAVE VARIOUS APPROACHES FOR CONTROLLING WATER AND CONSTRUCTION SEQUENCING. THIS DIVERSION PLAN HAS BEEN DEVELOPED TO CHECK FOR CONSTRUCTABILITY AND AS A STARTING POINT FOR A CONTRACTOR-GENERATED PLAN. CONTRACTOR MUST SUBMIT DIVERSION PLANS TO ENGINEER FOR APPROVAL PRIOR TO IMPLEMENTATION.

DIVERSION PLAN:

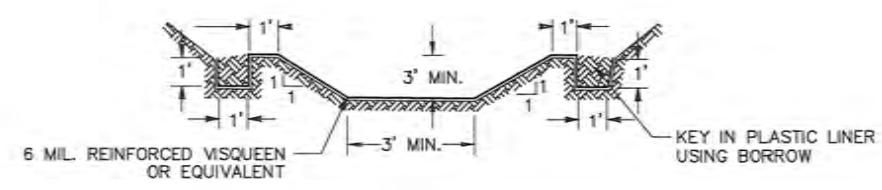
1. PLACE BARRICADES, SIGNS, AND TEMPORARY ROAD DETOUR IN COMPLIANCE WITH SPECIFICATIONS, ADOT&PF, AND MUTCD. COORDINATE WITH OTHER CONTRACTORS WHO MAY BE PRESENT IN AREA AND USING COPPER RIVER HIGHWAY FOR CONSTRUCTION ACCESS.
2. CONSTRUCT VISQUEEN LINED DIVERSION CHANNEL EAST OF THE EXISTING CROSSING LOCATION.
3. ONE 36" MINIMUM DIAMETER (OR LARGER) CULVERT CAN BE USED IN DIVERSION CHANNEL TO PROVIDE VEHICULAR ACCESS. CONSTRUCT DIVERSION CHANNEL BANKS TO BE MINIMUM 1' HIGHER THAN THE TOP OF THE DIVERSION PIPE, IF USED.
4. USE BULK BAGS (SUPERSACKS) TO DIVERT STREAM FLOW THROUGH DIVERSION CHANNEL LOCATION OF DIVERSION CHANNEL IS APPROXIMATE AND SUBJECT TO SITE CONDITIONS.
5. EXCAVATE ROADWAY TO REMOVE EXISTING 48" CULVERT.
6. CONSTRUCT THE ALUMINUM ARCH CULVERT.
7. INFILL CULVERT AND RECONSTRUCT CREEK CHANNEL AS SHOWN IN PLANS.
8. DIVERT CREEK FLOW THROUGH THE NEW ALUMINUM BOX CULVERT.
9. FILL DIVERSION CHANNEL/COPPER RIVER HIGHWAY.
10. RECONSTRUCT CREEK CHANNEL AND BANKS AS SHOWN IN PLANS.
11. RECONSTRUCT COPPER RIVER HIGHWAY OVER THE NEWLY INSTALLED CULVERT.
12. RETURN VEHICULAR TRAFFIC TO COPPER RIVER HIGHWAY. REMOVE DETOUR ROAD AND FILL REMAINING PORTION OF DIVERSION CHANNEL.
13. STABILIZE AND REVEGETATE ALL REMAINING DISTURBED AREAS.

ESCP AND DEWATERING NOTES:

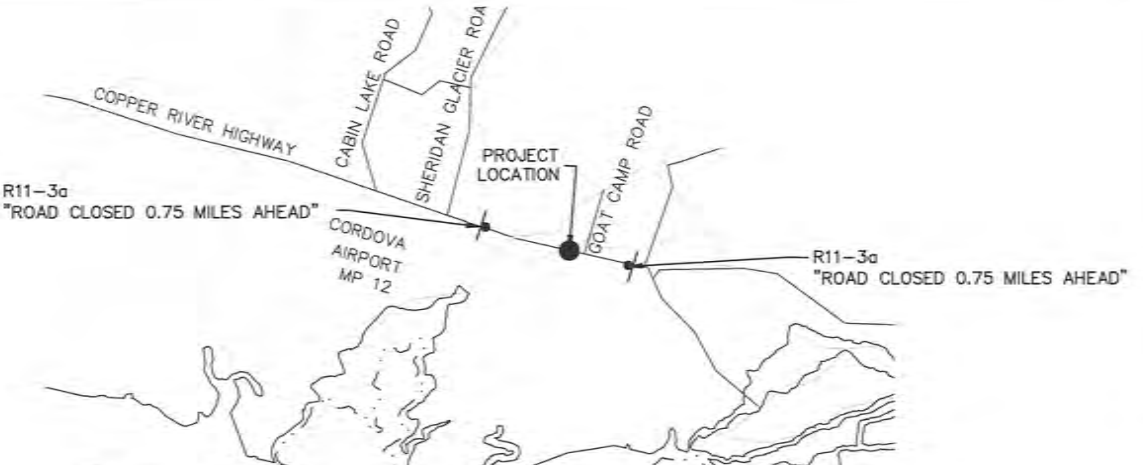
1. DEWATER TRENCH AND WORK AREA WITH PUMP HOSE IF REQUIRED.
2. ALL DISCHARGE POINTS REQUIRE PERMANENT OR TEMPORARY VELOCITY CONTROLS.
3. PROVIDE FOR SEDIMENT REMOVAL FOR ALL DEWATERING ACTIVITY PRIOR TO DISCHARGE FROM THE PROJECT INTO ANY WATER OF THE U.S.
4. PROVIDE SPARE (EXTRA) PUMPS FOR BOTH THE STREAM BYPASS PUMP AND DETWATERING PUMP.
5. EXISTING RIPARIAN VEGETATION SHOULD BE PROTECTED TO MINIMIZE DISTURBANCE.
6. SILT FENCING TO BE USED TO PREVENT DISTURBED SEDIMENT FROM ENTERING THE WATERBODY. ADJUST LOCATION AS NECESSARY AND AS DIRECTED BY THE ENGINEER DURING CONSTRUCTION.
7. EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSPECTED AND MAINTAINED ON A DAILY BASIS. MAINTENANCE SHALL INCLUDE REMOVAL AND DISPOSAL OF ACCUMULATED SEDIMENT, CLEANING AND REPAIR OF DAMAGED SEDIMENT CONTROL DEVICES.
8. ALL DISTURBED GROUND CAPABLE OF SUPPORTING VEGETATION SHALL BE REVEGETATED FOR FINAL STABILIZATION. ALL AREAS NOT REVEGETATED SHALL BE 100% COVERED BY ROCK OR OTHER PERMANENT NON-ERODIBLE MATERIAL. FINAL STABILIZATION SHALL BE AS APPROVED BY THE ENGINEER.
9. PUMPS OUTSIDE OF THE FISH EXCLUSION AREA MUST HAVE FISH SCREENS MADE OF WEDGE WIRE WITH OPENINGS NOT GREATER THAN 1/16TH INCH.



1 ESCP, STREAM DIVERSION & ROADWAY DIVERSION PLAN

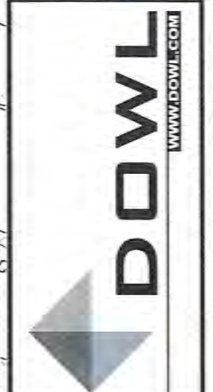


2 DIVERSION CHANNEL
NTS



3 TRAFFIC CONTROL SIGNS
NTS

REV	DATE	DESCRIPTION	BY



CORDOVA FISH PASSAGE IMPROVEMENTS
 SHERIDAN RIVER TRIB - COP 9 & SHER 1
 COP 9 - STREAM DIVERSION & TRAFFIC CONTROL PLAN
 CORDOVA, ALASKA

PROJECT 1136.63349.01
DATE FEBRUARY 2024

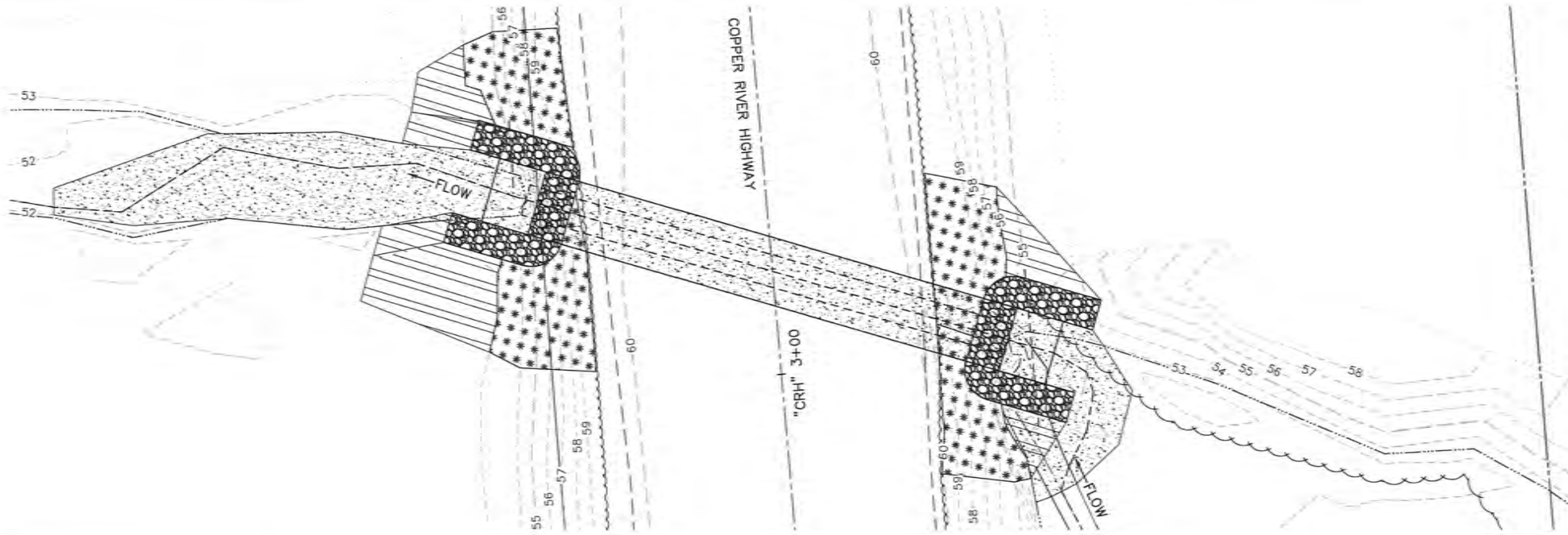
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C15 OF C17

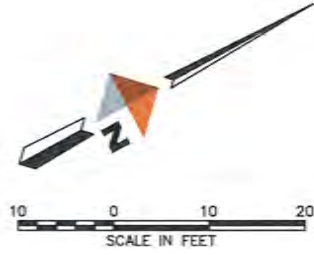
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NOTES:

1. VEGETATIVE MAT OR WETLAND PLUGS SHALL BE PLACED ON DISTURBED AREAS OUTSIDE OF THE SEEDING AREAS AS SHOWN ON THE PLANS.
2. VEGETATIVE MAT AND WETLAND PLUG LOCATIONS MAY VARY BASED ON SITE CONDITIONS AND AVAILABILITY DURING CONSTRUCTION AND SHOULD BE COORDINATED WITH HABITAT PERSONNEL (CRWP OR USFWS OR ADF&G) ON SITE.
3. SALVAGED VEGETATIVE MAT MUST HAVE A MINIMUM THICKNESS OF 12 INCHES AND BE SOURCED FROM THE DISTURBED AREA OR LOCAL AREA AS COORDINATED WITH THE ENGINEER.
4. REFER TO SPECIFICATION SECTION 690 FOR ADDITIONAL BANK REVEGETATION INFORMATION.



1 COP 9 REVEGETATION PLAN
C16



SITE REVEGETATION

- ORGANIC SOILS AND VEGETATIVE MAT, AS AVAILABLE TOPSOIL, SEED, FERTILIZER, AND MULCH AS NEEDED
- WATERWAY BANK REVEGETATION AND PROTECTION VEGETATIVE MAT
- WATERWAY BED FILL
- RIPRAP
- WETLAND PLUGS



2 SHER 1 REVEGETATION PLAN
C16

REV	DATE	DESCRIPTION	BY



CORDOVA FISH PASSAGE IMPROVEMENTS
SHERIDAN RIVER TRIB - COP 9 & SHER 1
REVEGETATION PLAN
CORDOVA, ALASKA

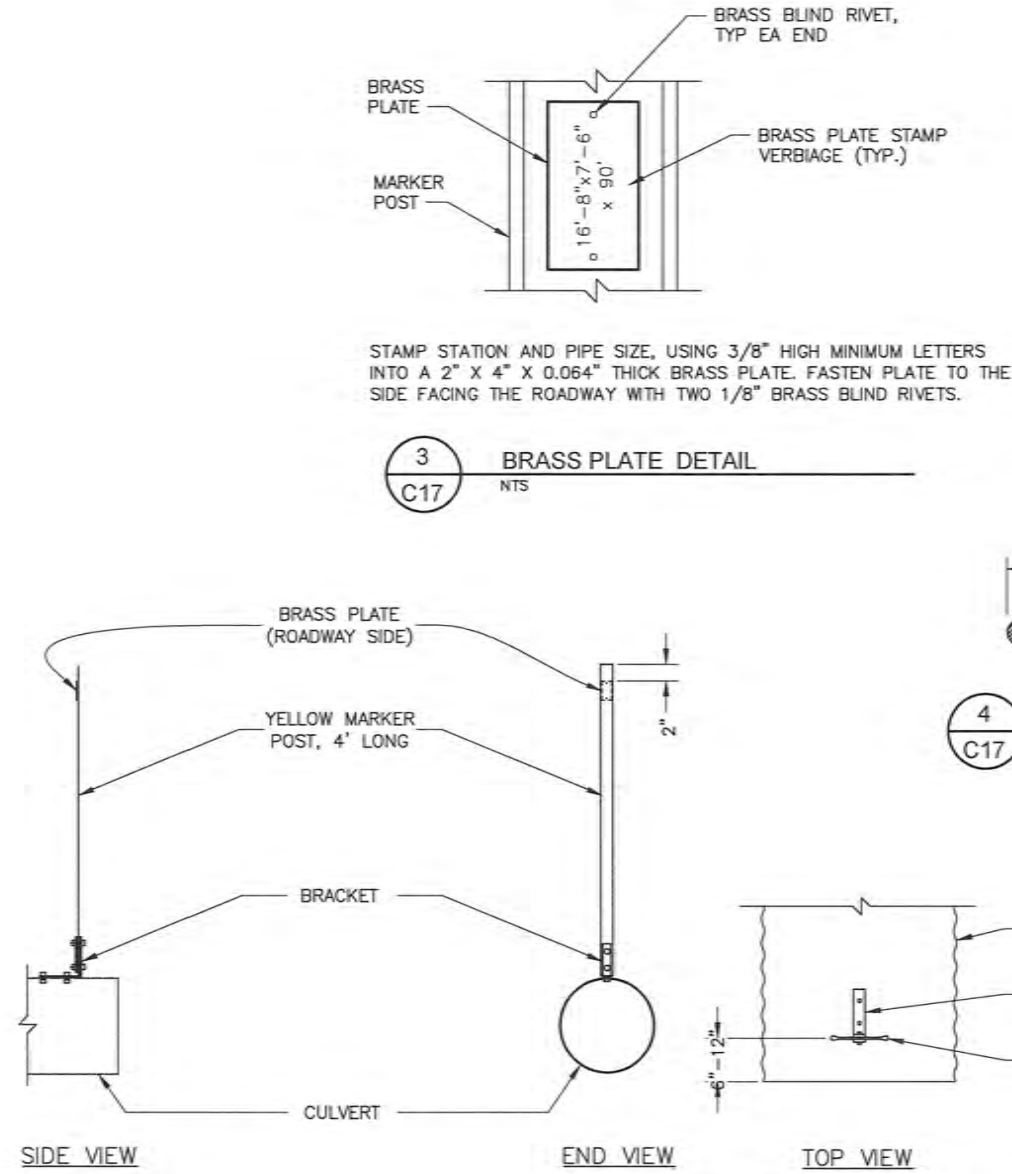
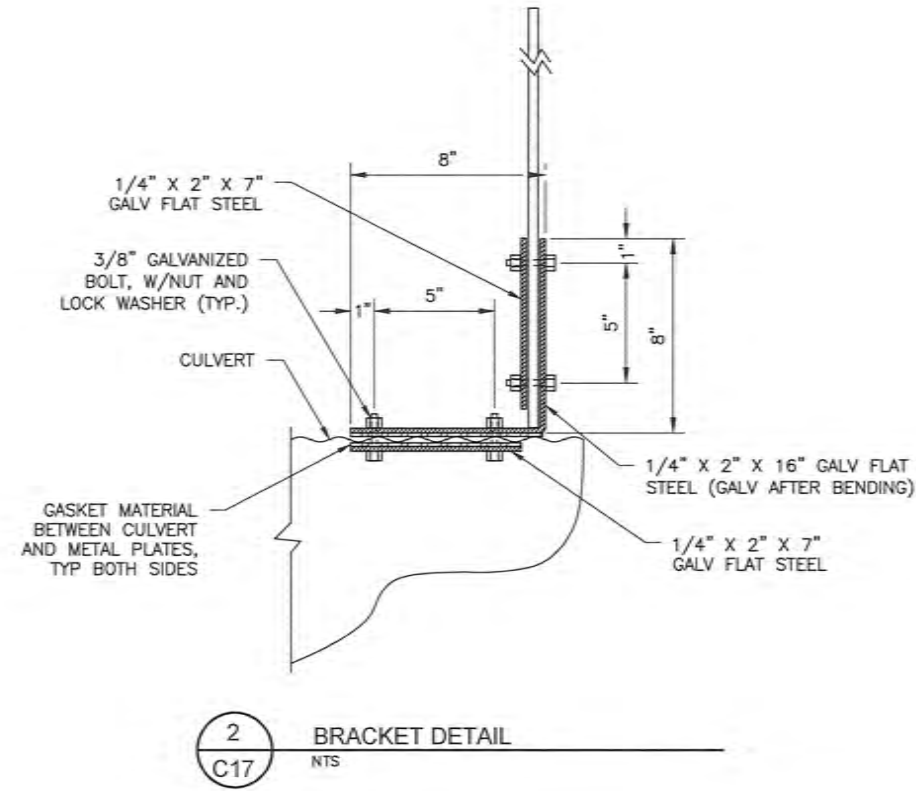
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C16 OF C17

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CORDOVA FISH PASSAGE IMPROVEMENTS
SHERIDAN RIVER TRIB - COP 9 & SHER 1
CULVERT MARKERS

PROJECT 1136.63349.01
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C17 OF C17