



DUCKS UNLIMITED

2114 MIDPOINT POINT DR. SUITE 1
FORT COLLINS, CO 80525

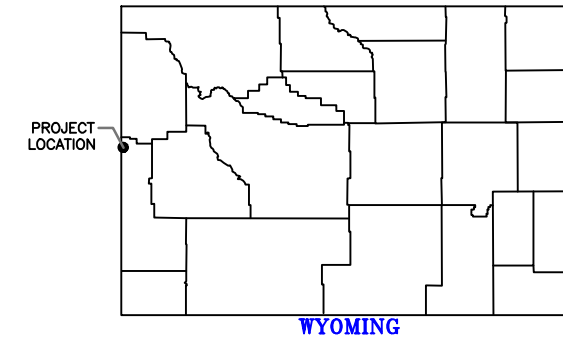
DUCKS UNLIMITED

PROJECT

ALPINE WETLANDS

WY-178-1

LOCATED IN PARTS OF
SECTIONS 3, 4, & 10
TOWNSHIP 36N, RANGE 119W,
6TH P.M., LINCOLN COUNTY, WYOMING



WYOMING

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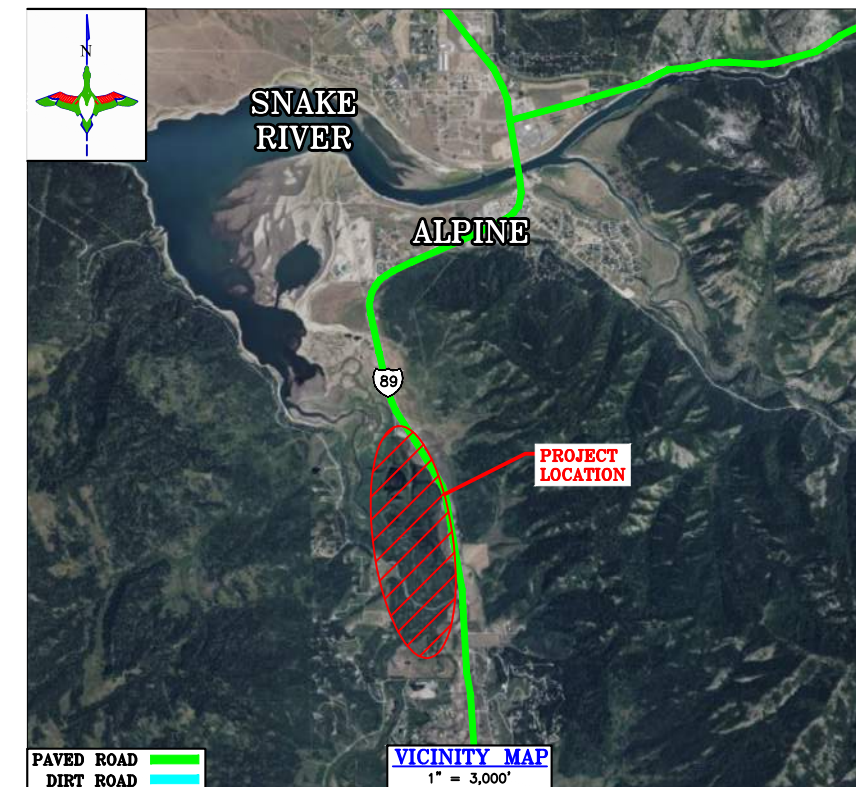
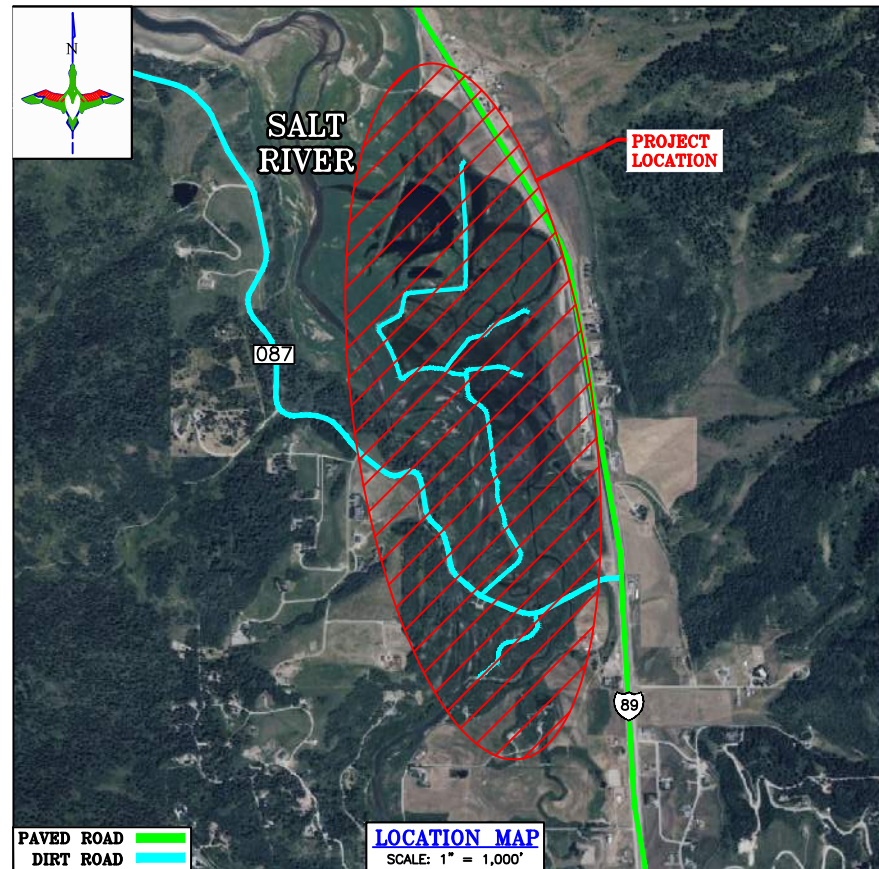
ESTIMATED QUANTITIES

MOBILIZATION:	1 L.S.
SITE PREPARATION (TOP SOIL):	1 L.S.
DEWATERING:	1 L.S.
EXCAVATION:	
GRADE IN SETTLING BASIN	520 C.Y.-P
CLEANOUT & REGRADE COOT DITCH	710 C.Y.-P
CONSTRUCTED TOPOGRAPHY:	
RE-GRADE HEADGATE AREA	1,383 C.Y.-P
REINFORCE HEADGATE AREA	230 C.Y.-P
WATER CONTROL STRUCTURES (WCS) - SUPPLY & INSTALL:	
48"Ø FRESNO SERIES 6800 MODEL 101C SCREW GATE (12' TALL)	1 EA.
36"Ø FRESNO SERIES 6800 MODEL 101C SCREW GATE (12' TALL)	1 EA.
24"Ø (5' TALL) INLINE WCS	1 EA.
CULVERTS & PIPE - SUPPLY & INSTALL:	
ALBC ALUMINUM BOX CULVERT (16'-10" SPAN x 8'-3" RISE x 45'-3" LENGTH)	1 EA.
48"Ø REINFORCED CONCRETE PIPE	25 L.F.-A
36"Ø REINFORCED CONCRETE PIPE	35 L.F.-A
24"Ø PVC PIPE (SDR 51)	52 L.F.-A
CAST-IN-PLACE REINFORCED CONCRETE:	
REINFORCED CONCRETE FLUSHING CULVERT HEADWALL	1 EA.
REINFORCED CONCRETE HEADWALL/TAILWALL	1 EA.
REINFORCED CONCRETE TAILWALL	1 EA.
ROCK, RIPRAP, & REVETMENT - SUPPLY & PLACE:	
DU CLASS IV ROCK RIPRAP W/ FILTER FABRIC	40 C.Y.-P
DU CLASS II ROCK RIPRAP W/ FILTER FABRIC	135 C.Y.-P
ROCK PITRUN	25 C.Y.-P
WELL-GRADED SAND	11.5 C.Y.-P
1" MINUS ANGULAR GRANULAR AGGREGATE	12 C.Y.-P
MISCELLANEOUS MAINTENANCE/DISPOSAL:	
REMOVAL & OFFSITE DISPOSAL OF EXISTING PIPE & WATER CONTROL STRUCTURES	1 L.S.
TRAFFIC MAINTENANCE AND CONTROL	
INSTALL & MAINTAIN TRAFFIC CONTROL SIGNALS, SIGNAGE & EQUIPMENT	1 L.S.

C.Y.-P - PAYMENT WILL BE BASED ON THE PLAN QUANTITY LISTED ABOVE.
L.F.-A - PAYMENT WILL BE BASED ON ACTUAL QUANTITY EXCAVATED, FILLED, RE-GRADED, CLEANED OUT, OR SUPPLIED AND INSTALLED

SPECIFICATIONS

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"BEFORE YOU DIG"
BEFORE THE START OF CONSTRUCTION, THE OWNER OF ANY UTILITIES INVOLVED MUST BE NOTIFIED. THE EXCAVATOR/CONTRACTOR IS RESPONSIBLE FOR GIVING THIS NOTICE BY CALLING "ONE CALL OF WYOMING" AT 811. A 72 HOUR NOTIFICATION AND FULL DESCRIPTION OF LOCATION IS REQUIRED.

DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375



DESIGNED BY: KJP	DRAWN BY: JUV	SURVEYED BY: TP	CHECKED BY:	APPROVED BY:
DATE:	DATE:	DATE:	DATE:	DATE:
REVISION:	1	2	3	4

PROJECT: ALPINE WETLANDS
SHEET TITLE: TITLE PAGE & LOCATION MAP

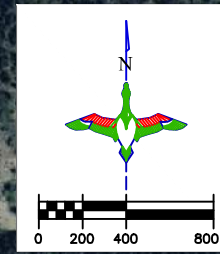
DATE: 04/16/2025
SHEET TITLE: TITLE PAGE & LOCATION MAP

SCALES ARE ACCURATE ON 24"X36" SHEET SIZE
DU PROJECT NUMBER: WY-178-1

SHEET NUMBER: 1
SHEET 1 OF 20

OVERALL PLAN

SCALE: 1"=400'



REPLACE WCS FOR GOLDENEYE RESERVOIR
 INSTALL AGRI-DRAIN (5-FT TALL)
 W/ 52 LF OF 24" SDR 51 PVC PIPE
 W/ 4 CY OF DU CLASS II RIPRAP
 EX UPSTREAM INVERT: 5,616.3'
 EX DOWNSTREAM INVERT: 5,615.1'
 PROPOSED INVERT: 5,616.0'
 SEE SHEET 17

GOLDENEYE RESERVOIR
 FSL: 5,617.0'
 (12.8 ACRES)

ARMOR SPILLWAY FOR GOLDENEYE RESERVOIR
 SUPPLY & INSTALL 25 CY OF DU CLASS II ROCK RIPRAP
 EX INVERT: 5,619.0'
 TOP ARMORMENT: 5,621.0'
 SEE SHEET 16

EXISTING WCS FOR MERGANSER RESERVOIR

MERGANSER RESERVOIR
 FSL: 5,615.0'
 (15.1 ACRES)

ARMOR SPILLWAY FOR TEAL RESERVOIR
 SUPPLY & INSTALL 20 CY OF DU CLASS II ROCK RIPRAP
 INVERT: 5,621.0'
 TOP ARMORMENT: 5,623.0'
 SEE SHEET 14

ARMOR SPILLWAY FOR MERGANSER RESERVOIR
 SUPPLY & INSTALL 12 CY OF DU CLASS II ROCK RIPRAP
 INVERT: 5,615.0'
 TOP ARMORMENT: 5,617.0'
 SEE SHEET 15

TEAL RESERVOIR
 FSL: 5,621.0'
 (45.9 ACRES)

REMOVE TREE AND REPLACE DROP IN CHANNEL WITH ROCK CHECK
 SUPPLY & INSTALL 8 CY OF DU CLASS II ROCK RIPRAP
 INVERT: 5,623.0'
 TOP ROCK CHECK: 5,625.0'
 SEE SHEET 13

EXISTING WCS FOR TEAL RESERVOIR

SALT RIVER

PINTAIL RESERVOIR
 FSL: 5,623.0'
 (10.3 ACRES)

ARMOR SPILLWAY FOR PINTAIL RESERVOIR
 SUPPLY & INSTALL 10 CY OF DU CLASS II ROCK RIPRAP
 INVERT: 5,623.0'
 TOP ARMORMENT: 5,625.0'
 SEE SHEET 13

EXISTING WCS FOR PINTAIL RESERVOIR

RUDDY DUCK RESERVOIR
 FSL: 5,624.0'
 (17.1 ACRES)

ARMOR SPILLWAY FOR RUDDY DUCK RESERVOIR
 SUPPLY & INSTALL 30 CY OF DU CLASS II ROCK RIPRAP
 INVERT: 5,624.0'
 TOP ARMORMENT: 5,626.0'
 SEE SHEET 12

REMOVE & OFF-SITE DISPOSAL OF EX. 4' CMP

SURVEY CONTROL (DU-157-2022)
 N: 15,665,512.93
 E: 1,632,229.30
 ELEV: 5,631.12
 LAT: 43°7'34.9239"N
 LONG: 111°1'50.4908"W

ROAD CULVERT REPLACEMENT
 REPLACE EX. CULVERT W/ ALBC ALUMINUM BOX CULVERT (16'-10" SPAN X 8'-3" RISE X 45'-3" LENGTH)
 W/ 12 CY 1" MINUS ANGULAR GRANULAR AGGREGATE
 W/ 20 CY OF DU CLASS II ROCK RIPRAP
 INVERT: 5,623.5'
 TOP: 5,635.5'
 SEE SHEETS 11, 11A, 11B, 11C, 11D, & 11E

TEMPORARY ROAD CONSTRUCTION (20-FT WIDTH)
 BUILD TEMPORARY BYPASS ROAD (2:1 SIDE SLOPES & 10:1 LONGITUDINAL SLOPE FROM EX. ROAD SURFACE) FOR USE DURING CULVERT REPLACEMENT (1,000 CY FILL)
 SEE SHEET 10

SURVEY CONTROL (DU-156-2022)
 N: 15,665,915.69
 E: 1,633,633.17
 ELEV: 5,641.81
 LAT: 43°7'38.9082"N
 LONG: 111°1'31.5543"W

CLEANOUT & REGRADE COOT DITCH
 CLEANOUT & REGRADE 1,600 LF OF COOT DITCH CHANNEL BOTTOM DOWN TO 5622.5 AT 100' BEFORE THE CULVERT REPLACEMENT, GRADUALLY GRADE UP TO 5623.5
 CUT: 710 CY
 SEE SHEET 9

GRADE IN SETTLING BASIN (CUT 520 CY)
 OVER-EXCAVATE OUTLET CHANNEL (COOT DITCH) DOWN TO 5,620' AS ACCESSIBLE SEDIMENT BAY FOR CLEANOUT
 SEE SHEET 8

INSTALL CONCRETE TAILWALL
 W/ CONCRETE WINGWALLS (13-FT TALL) (11 CY OF TOTAL CONCRETE)
 W/ 6 CY OF DU CLASS II RIPRAP
 INVERT: 5,624.0'
 TOP: 5,635.0'
 SEE SHEET 7

SURVEY CONTROL (DU-158-2022)
 N: 15,664,589.30
 E: 1,632,143.25
 ELEV: 5,632.59
 LAT: 43°7'25.7973"N
 LONG: 111°1'51.6468"W

REGRADE HEADGATE AREA
 CUT: 1,383 CY
 FILL: 1,383 CY
 25 CY PITRUN ROCK
 SEE SHEET 8

REINFORCE HEADGATE AREA
 FILL: 230 CY
 SEE SHEET 8

INSTALL NEW HEADGATE
 W/ 12-FT TALL SCREW GATE (48" DIA)
 W/ CONCRETE HEADWALL (13-FT TALL)
 W/ CONCRETE WINGWALLS (14.5 CY OF TOTAL CONCRETE)
 W/ (4) DRILL STEM REINFORCEMENTS B/T HEADWALL & TAILWALL
 W/ 25 LF OF 48" RCP PIPE
 W/ 5.5 CY WELL-GRADED SAND PIPE BEDDING
 W/ 20 CY OF DU CLASS IV RIPRAP
 INVERT: 5,624.0'
 TOP: 5,635.0'
 SEE SHEETS 5 & 6

ROCK RIPRAP FLOOD PROTECTION
 SALVAGE EXISTING ROCK PENINSULA & PLACE ROCK RIPRAP FOR FLOOD PROTECTION BETWEEN HEADWALLS
 SEE SHEET 8

INSTALL FLUSHING CULVERT & SCREW GATE
 W/ 12-FT TALL SCREW GATE (36" DIA)
 W/ CONCRETE HEADWALL (13-FT TALL)
 W/ CONCRETE WINGWALLS (11 CY OF TOTAL CONCRETE)
 W/ (4) DRILL STEM REINFORCEMENTS B/T HEADWALLS
 W/ 35 LF OF 36" RCP PIPE
 W/ 6 CY WELL-GRADED SAND PIPE BEDDING
 W/ 20 CY OF DU CLASS II RIPRAP
 INVERT: 5,624.0'
 TOP: 5,635.0'
 SEE SHEETS 3 & 4

NOTES:

- NEW HEADGATE LOCATION SHOULD REDUCE SEDIMENTATION ISSUES BY UTILIZING BACKWATER TO SUPPLY HEADGATE. FLUSHING CULVERT AND SCREW GATE CAN ALSO HELP MITIGATE ANY SEDIMENTATION ISSUES.
- RAISING THE SURROUNDING AREA FROM THE EXISTING ~5,632.0' ELEVATION TO 5,635.0' AND ADDING ROCK RIPRAP WILL HELP PREVENT OVERTOPPING DURING FLOOD EVENTS.
- FLUSHING CULVERT & SCREW GATE TO BE USED TO FLUSH ANY SEDIMENT ACCUMULATION AT PROPOSED HEADGATE, AS WELL AS, PROVIDE WATER TO THE HEADGATE DURING LOW FLOW CONDITIONS
- THE PROPOSED LOCATION OF THE HEADGATE AND FLUSHING CULVERT FALLS MORE IN LINE WITH HISTORIC CHANNEL BANK ALIGNMENT WHICH WILL HELP MITIGATE SEDIMENTATION ISSUES AND KEEP THE RIVER CHANNEL DEEPER NEAR OUR SCREW GATES.
- REINFORCING UPLAND AREA WITH LARGE ROCK RIPRAP AND MIXING IN 25 CY OF PITRUN ROCK WILL PROVIDE FLOOD PROTECTION IN CASE OF OVERTOPPING DURING STORM OR HIGH FLOW EVENTS.

LEGEND

- PROPERTY BOUNDARY
- FULL SERVICE LEVEL (FSL)
- EARTHWORK
- WATER CONTROL STRUCTURE (AGRI-DRAIN)
- CONCRETE HEADWALL/ TAILWALL
- SCREW GATE
- REINFORCED CONCRETE PIPE
- REPLACE CULVERT
- RIPRAP
- EXISTING CULVERT
- TEMPORARY ROAD

Dirt Balance

Location	Cut (CY)	Fill (CY)
Regrade Headgate	1383	1383
Grade In Settling Basin	520	
Cleanout & Regrade Coot Ditch	710	
Temporary Road Construction		≈ 1000
Reinforce Headgate Area		230
Total	2613	2613

HORIZONTAL AND VERTICAL CONTROL OPUS SOLUTION - COORDINATES ARE UTM ZONE 12 GRID COORDINATES IN US FEET [NAD83]. THEY WERE ESTABLISHED FROM THE WGS84 ELLIPSOID WITH INFORMATION FROM A TRIMBLE R10 SURVEY GRADE GPS RECEIVER ON NOVEMBER 10, 2022 AT DUCKS UNLIMITED CONTROL POINT DU-156-2022 AND CALIBRATED TO AN OPUS POSITION OCCUPIED FOR 3 HOURS AND 27 MINUTES AND SENT TO NGS FOR SOLUTION. THE VERTICAL CONTROL CAME FROM THE SAME SOLUTION USING GEOID 18 CONUS IN THE NAVD83. THE FULL OPUS SOLUTION REPORT IS ON FILE AT THE DUCKS UNLIMITED ENGINEERING DEPARTMENT IN FORT COLLINS, COLORADO.



EXAMPLE OF DUCKS UNLIMITED CONTROL POINT SURVEY CAP

ABBREVIATIONS LIST

- BLDC = BUILDING CORNER
 - BRK = BREAK
 - BTM. = BOTTOM
 - C.L. = CENTER LINE
 - CMP = CORRUGATED METAL PIPE ROUND
 - CMPA = CORRUGATED METAL PIPE ARCH
 - CONC. = CONCRETE
 - DIA. = DIAMETER
 - E = EASTING COORDINATE OR EAST
 - ELEV. = ELEVATION
 - EMB. = EMBANKMENT
 - EPAV = EDGE OF PAVEMENT
 - EX. = EXISTING
 - EXIST. = EXISTING
 - FES = FLARED END SECTION
 - FSL = FULL SERVICE LEVEL
 - GA. = GAUGE
 - G.W. = GUY WIRE
 - INV = INVERT
 - LAT = LATITUDE (WGS84)
 - LONG = LONGITUDE (WGS84)
 - L.F. = LINEAR FEET
 - MISC = MISCELLANEOUS
 - N = NORTHING COORDINATE OR NORTH
 - NFES = NON-FLARED END SECTION
 - O.C. = ON CENTER
 - O.C.E.W. = ON CENTER EACH WAY
 - OHE = OVERHEAD ELECTRIC
 - P.C. = POINT OF INTERSECTION
 - P.I. = POINT OF INTERSECTION
 - P.T. = POINT OF TANGENCY
 - RCP = REINFORCED CONCRETE PIPE
 - RD = ROAD
 - REM. = REMOVE
 - REQ'D = REQUIRED
 - R.O.W. = RIGHT OF WAY
 - S = SOUTH
 - SED. = SEDIMENT
 - SHLD = SHOULDER
 - SLP = SLOPE
 - STPLOG = STOPLOG
 - TBM = TEMPORARY BENCHMARK
 - TEL = TELEPHONE/COMMUNICATIONS
 - UG = UNDERGROUND
 - VEG = VEGETATION
 - W = WEST OR WITH
 - WCS = WATER CONTROL STRUCTURE
 - WL = WATER LEVEL
 - WS = WATER SHOT
- *NOTE: NOT ALL ABBREVIATIONS IN THIS LIST APPEAR ON THIS SHEET

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DU PROJECT ENGINEER:
 THOMAS PARKER, P.E.
 (970) 692-3375

DUCKS UNLIMITED INC.
 GREAT PLAINS REGIONAL OFFICE

P.E. SEAL:
 Professional Engineer (Civil)
 KEVIN JAMES PARKER
 15300
 Date
 WYOMING

DESIGNED BY: KJV
 DRAWN BY: JUV
 SURVEYED BY: TP
 CHECKED BY:
 APPROVED BY:

REVISION:

NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		

PROJECT: **ALPINE WETLANDS**

SHEET TITLE: **OVERALL PLAN**

DATE: 04/16/2025

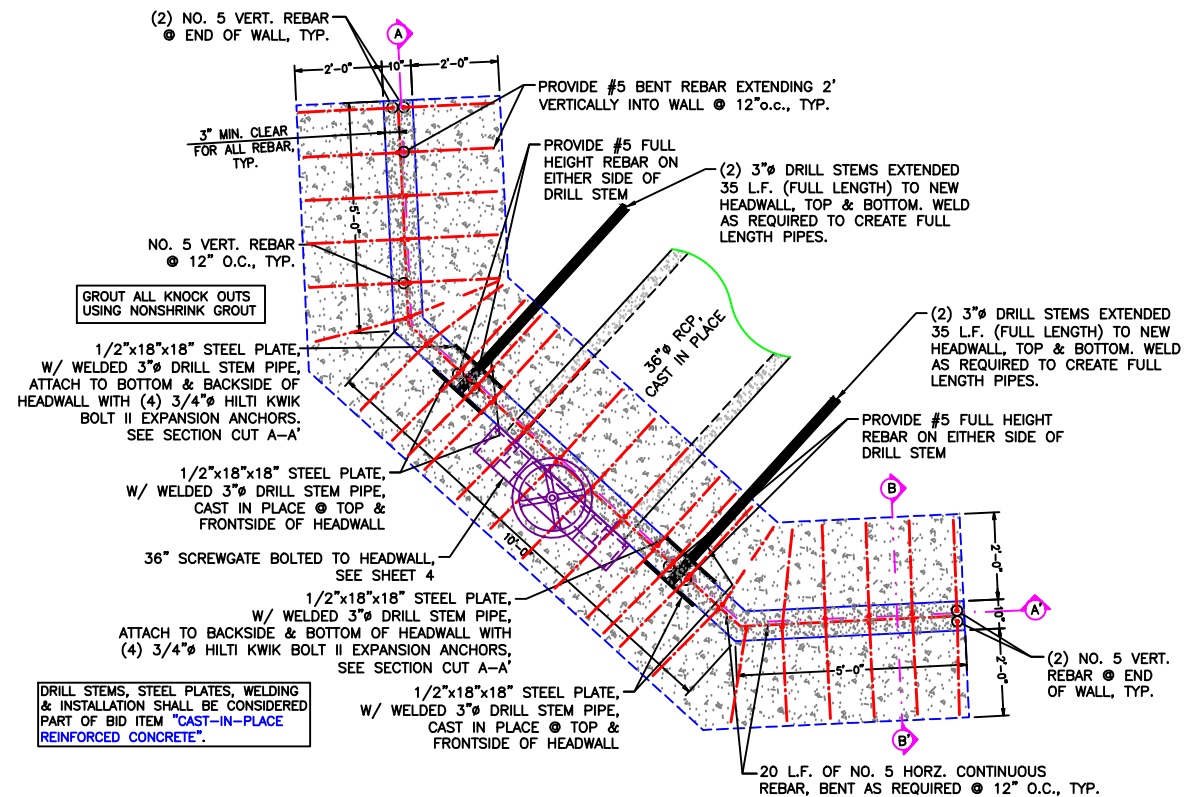
SHEET TITLE: **OVERALL PLAN**

SCALES ARE ACCURATE ON 24"x36" SHEET SIZE

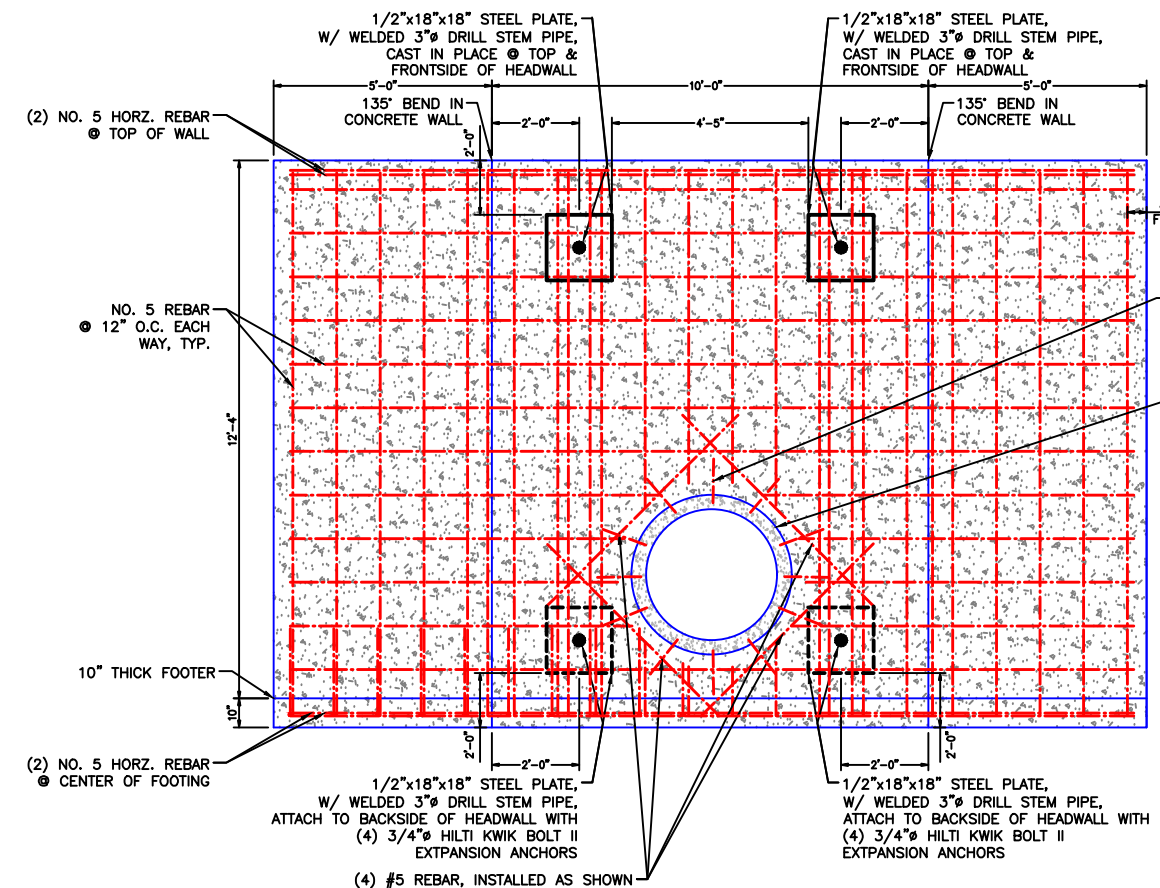
DU PROJECT NUMBER: **WY-178-1**

SHEET NUMBER: **2**

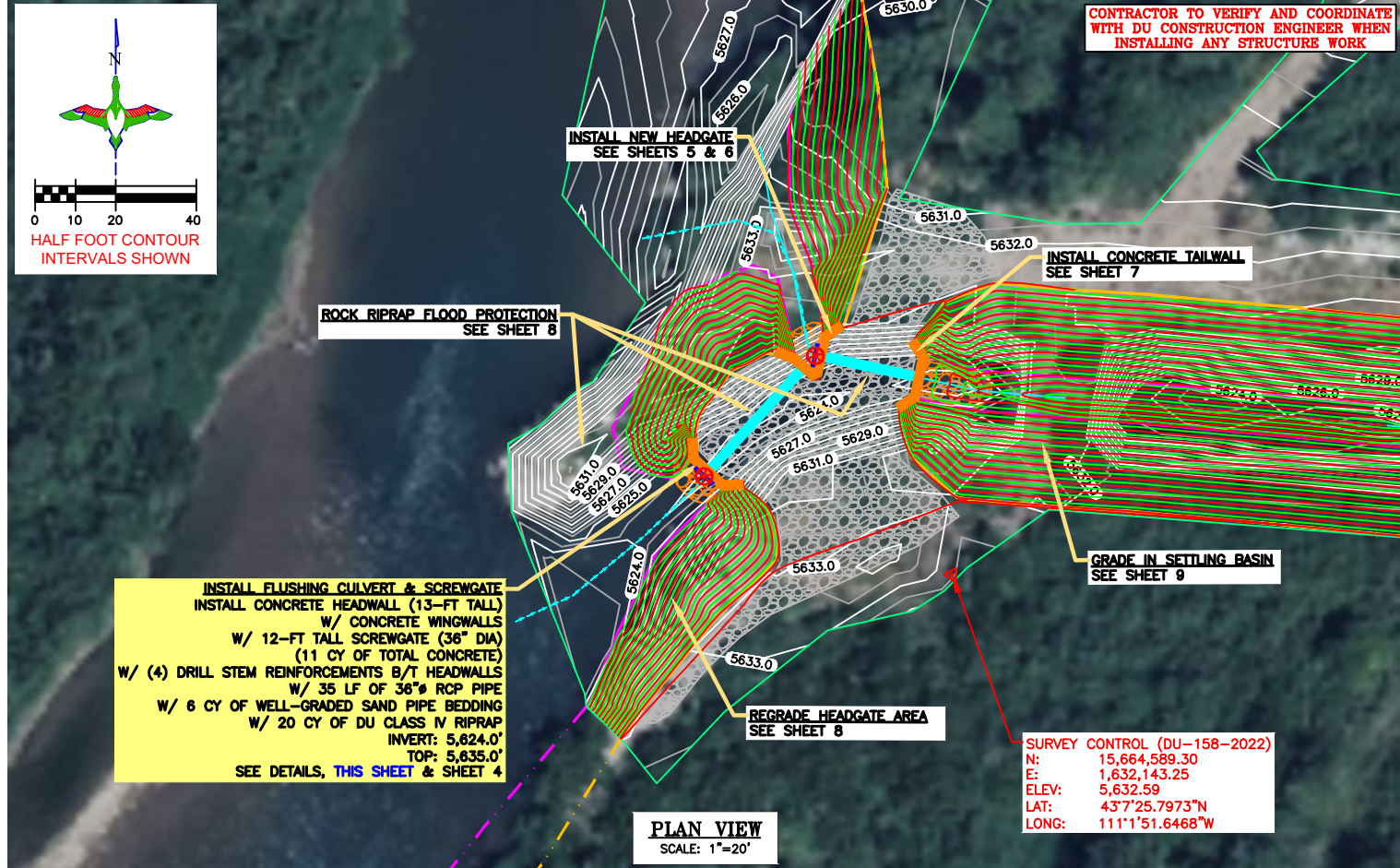
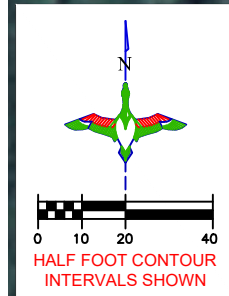
SHEET 2 OF 20



FLUSHING CULVERT HEADGATE STRUCTURE PLAN VIEW
SCALE 1"=2'



FLUSHING CULVERT HEADGATE STRUCTURE SECTION CUT A-A'
SCALE 1"=2'

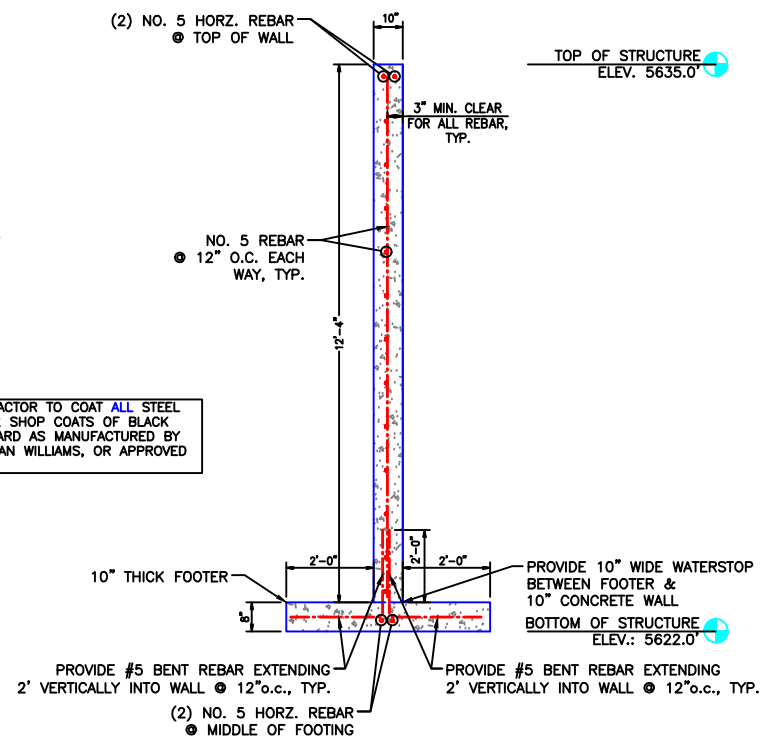


PLAN VIEW
SCALE: 1"=20'

LEGEND

PROPERTY BOUNDARY	
EARTHWORK	
CONCRETE HEADWALL/ TAILWALL	
SCREW GATE	
REINFORCED CONCRETE PIPE	
REPLACE CULVERT	
RIPRAP	

CONTRACTOR TO COAT ALL STEEL WITH 2 SHOP COATS OF BLACK TARQUARD AS MANUFACTURED BY SHERMAN WILLIAMS, OR APPROVED EQUAL.



FLUSHING CULVERT HEADGATE STRUCTURE SECTION CUT B-B'
SCALE 1"=2'

CONTRACTOR TO VERIFY AND COORDINATE WITH DU CONSTRUCTION ENGINEER WHEN INSTALLING ANY STRUCTURE WORK

DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE
P.E. SEAL:
Professional Engineer
KEVIN JAMES PARKER
15300
WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JJW
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
DATE:	
REVISION:	

PROJECT: ALPINE WETLANDS
SHEET TITLE: FLUSHING CULVERT HEADWALL

DATE: 04/16/2025
SHEET TITLE: FLUSHING CULVERT HEADWALL

SCALES ARE ACCURATE ON 24"x36" SHEET SIZE
DU PROJECT NUMBER: WY-178-1
SHEET NUMBER: 3
SHEET 3 OF 20

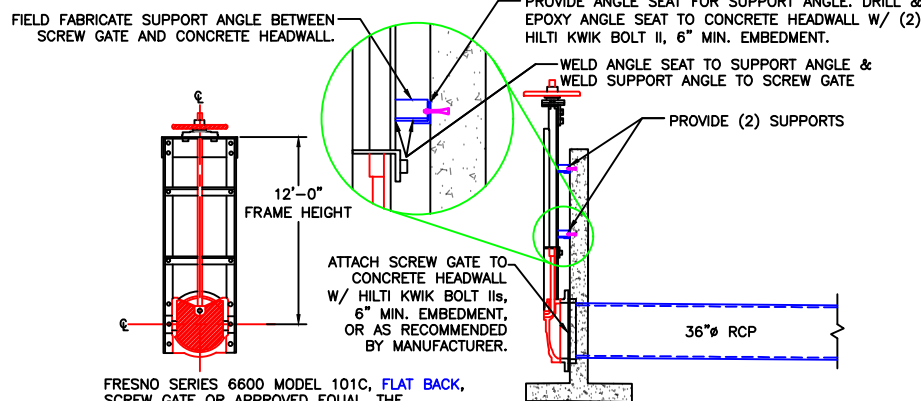
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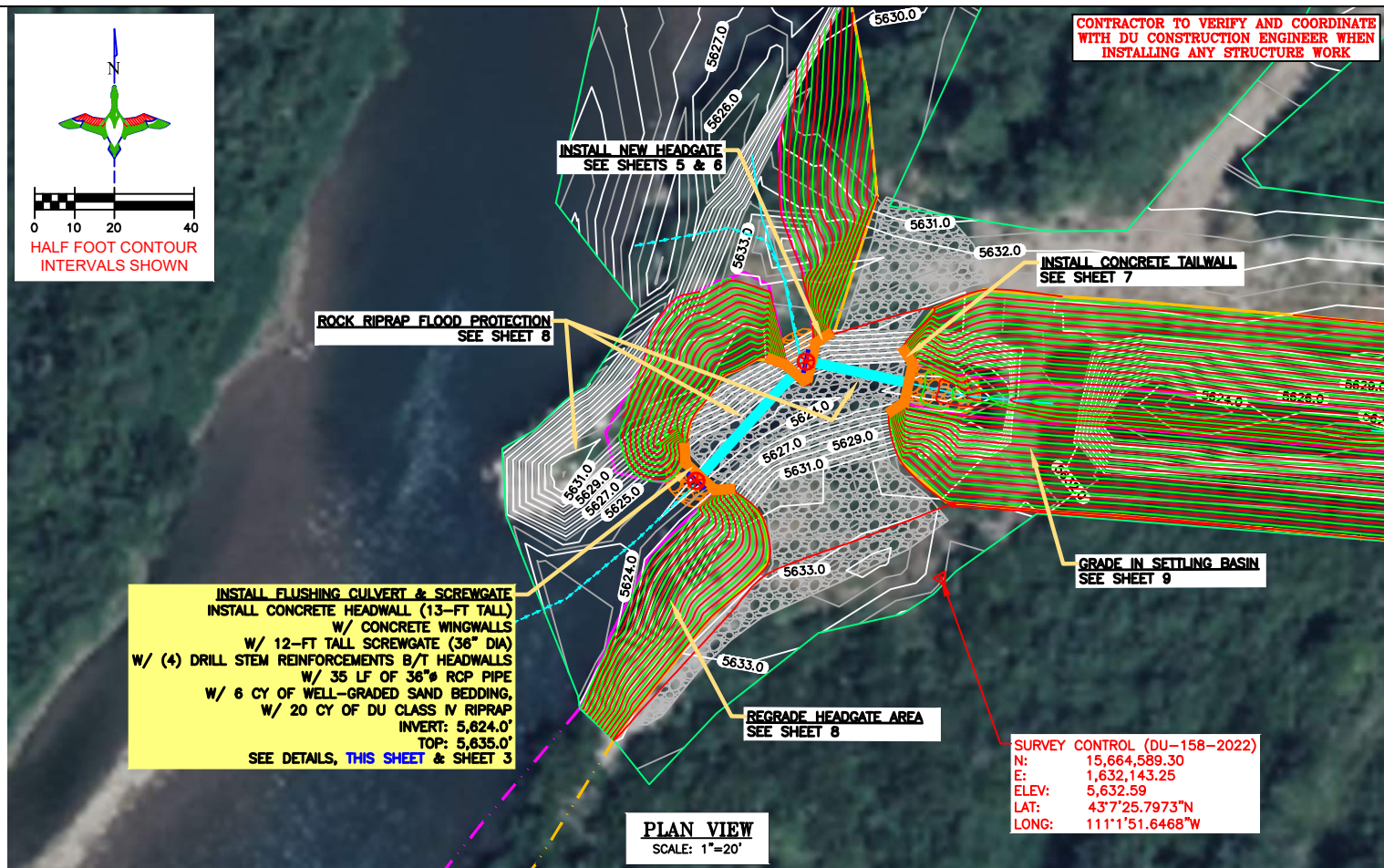
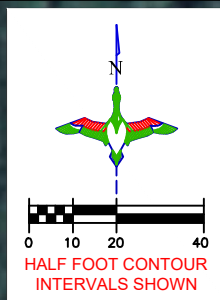
CONCRETE HEADWALL NOTES:

1. INLET AND OUTLET PIPE SHALL BE PLACED ON LEVEL SURFACE OF COMPACTED SOIL.
2. COST OF STRUCTURE INSTALLATION SHALL BE PAID AS BID ITEM "CONCRETE HEADWALL STRUCTURE"
3. HEADWALL STRUCTURE SHALL BE 10" THICK REINFORCED CONCRETE
4. ALL WELDS TO BE 1/4" FILLET WELDS.
5. ALL WELDED SEAMS SHALL BE CONTINUOUS AND WATERTIGHT, UNLESS OTHERWISE STATED.
6. ALL STEEL SHALL BE GIVEN 2 SHOP COATS OF BLACK TARGUARD AS MANUFACTURED BY SHERMAN WILLIAMS, OR APPROVED EQUAL. PAINT ALL STEEL SURFACES PER MANUFACTURER'S RECOMMENDATIONS, EXCEPT GALVANIZED SHEET PILE.
7. INVERT ELEVATION OF WATER CONTROL STRUCTURES ARE APPROXIMATE AND WILL BE DETERMINED BY DU ENGINEER IN FIELD.



FRESNO SERIES 6600 MODEL 101C, **FLAT BACK**, SCREW GATE OR APPROVED EQUAL. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE ANCHOR BOLTS AND INSTALLING THE GATE. SEE www.fresnovalves.com OR CALL 1-800-333-1658

FLUSHING CULVERT SCREW GATE DETAIL
NOT TO SCALE



CONTRACTOR TO VERIFY AND COORDINATE WITH DU CONSTRUCTION ENGINEER WHEN INSTALLING ANY STRUCTURE WORK

DUCKS UNLIMITED, INC.
GREAT PLAINS REGIONAL OFFICE

P.E. SEAL:
Professional Engineer
KEVIN JAMES PARKER
15300
Date
WYOMING

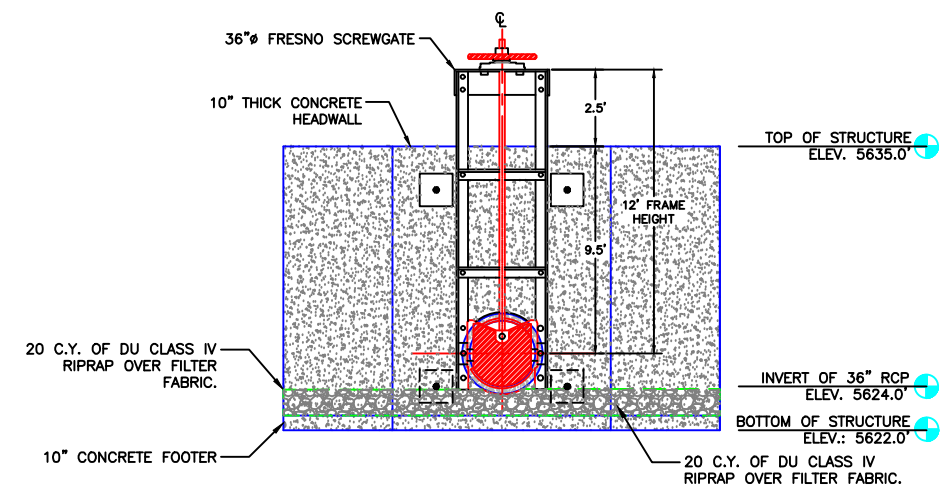
DESIGNED BY:	KJW
DRAWN BY:	JJW
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	
BY:	
DATE:	
REVISION:	
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LEGEND

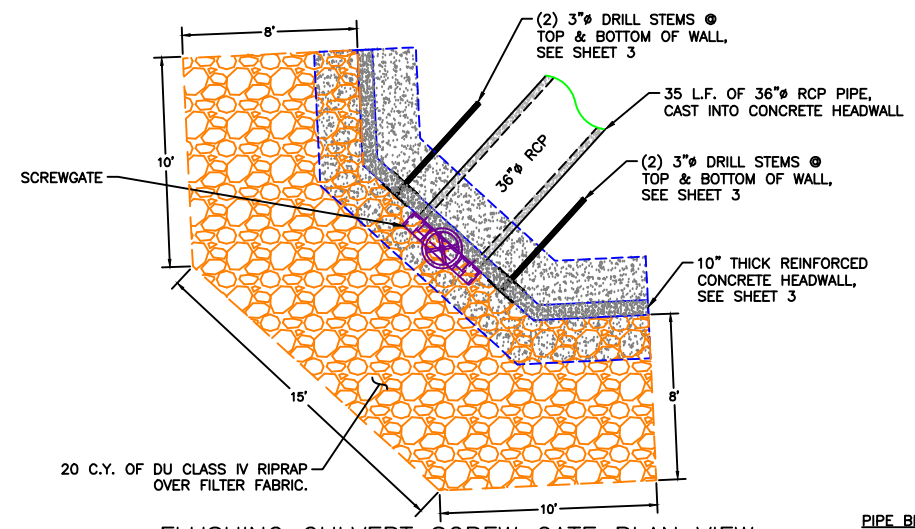
PROPERTY BOUNDARY	
EARTHWORK	
CONCRETE HEADWALL/ TAILWALL	
SCREW GATE	
REINFORCED CONCRETE PIPE	
REPLACE CULVERT	
RIPRAP	

PROJECT: **ALPINE WETLANDS**

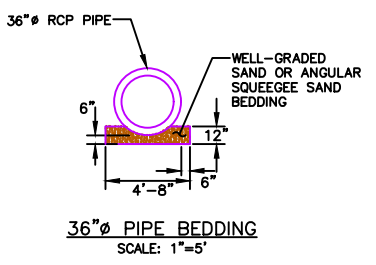
SHEET TITLE: **FLUSHING CULVERT SCREW GATE**



FLUSHING CULVERT SCREW GATE FRONT VIEW
SCALE 1"=4'



FLUSHING CULVERT SCREW GATE PLAN VIEW
SCALE 1"=4'



- PIPE BEDDING NOTES:**
1. THERE SHALL BE A MINIMUM OF 12" OF BACKFILL OVER THE PIPE BEFORE OTHER THAN HAND COMPACTION EQUIPMENT IS USED IN THE TRENCH.
 2. THE BEDDING MATERIAL SHALL BE CLEAN, FREE DRAINING WELL-GRADED SAND AND SHALL CONFORM TO THE LIMITS DEFINED IN THE CONSTRUCTION SPECIFICATIONS WHEN TESTED BY MEANS OF LABORATORY SIEVES.
 3. BEDDING SHALL BE DEPOSITED IN LAYERS NOT EXCEEDING SIX (6) INCHES. EACH LAYER SHALL BE COMPACTED BY SURFACE OR INTERNAL VIBRATORS, HAND OR POWER TAMPERS OR OTHER SUITABLE COMPACTION EQUIPMENT. THE MATERIAL SHALL HAVE A MINIMUM COMPACTION OF 70% RELATIVE DENSITY AS DETERMINED BY ASTM D-4253.

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"BEFORE YOU DIG"
BEFORE THE START OF CONSTRUCTION. THE OWNER OF ANY UTILITIES INVOLVED MUST BE NOTIFIED. THE EXCAVATOR/CONTRACTOR IS RESPONSIBLE FOR GIVING THIS NOTICE BY CALLING "ONE CALL OF WYOMING" AT 811. A 72 HOUR NOTIFICATION AND FULL DESCRIPTION OF LOCATION IS REQUIRED.

DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375

DATE: 04/16/2025

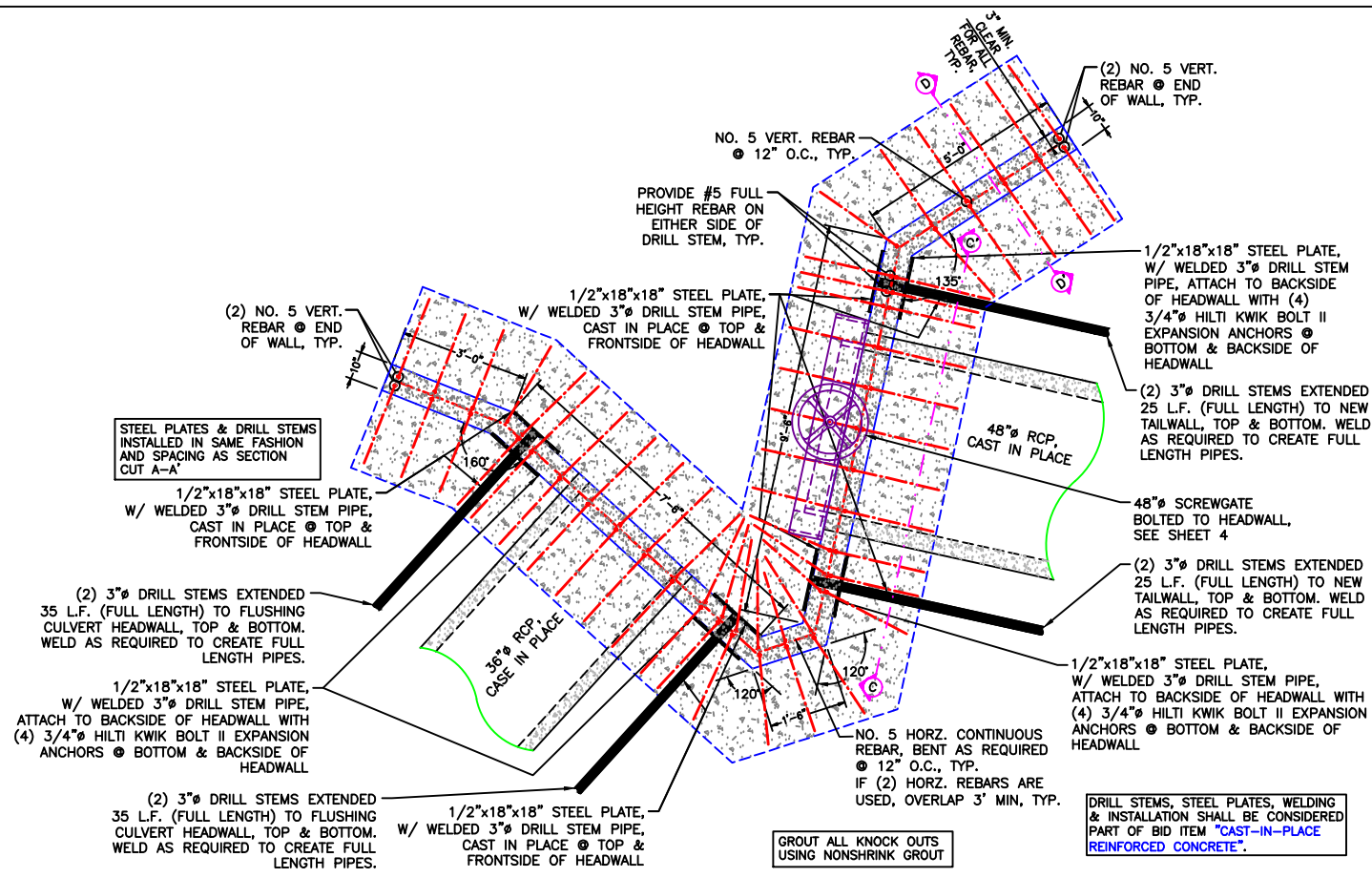
SHEET TITLE: **FLUSHING CULVERT SCREW GATE**

SCALES ARE ACCURATE ON 24"X36" SHEET SIZE

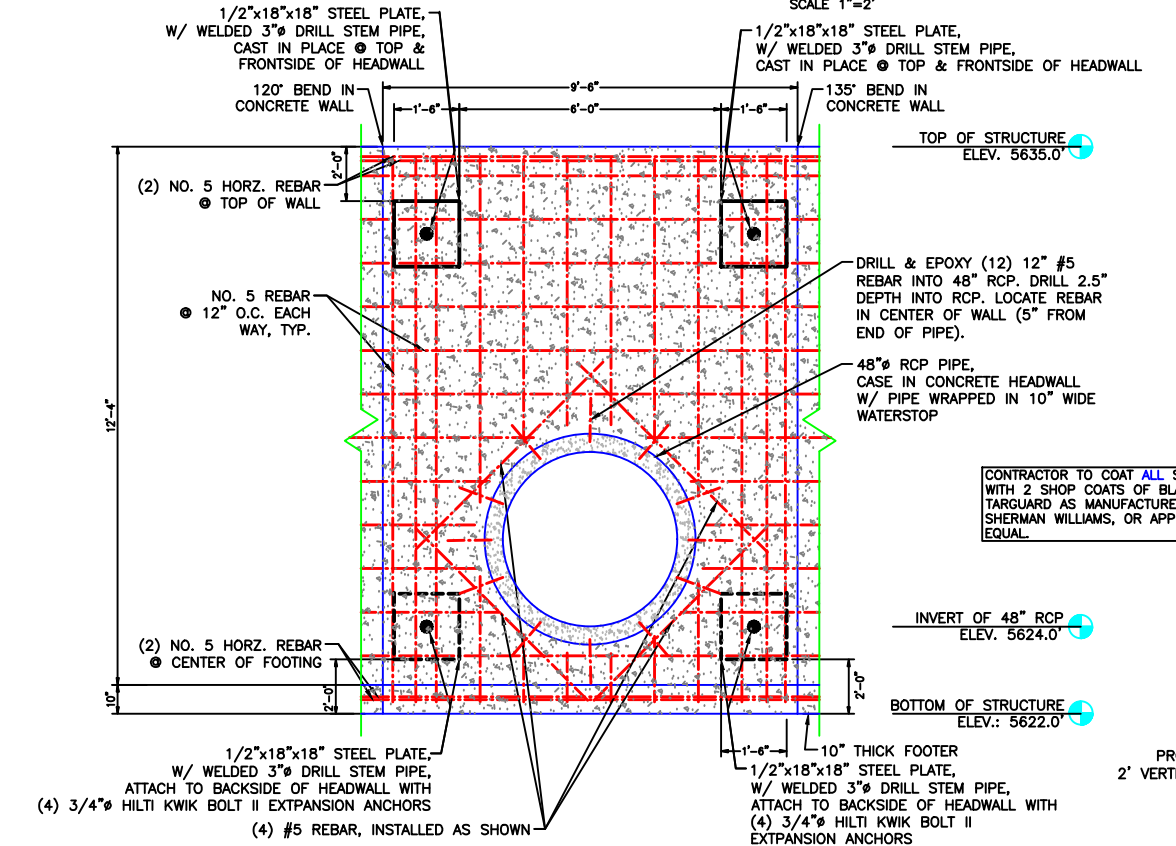
DU PROJECT NUMBER: **WY-178-1**

SHEET NUMBER: **4**

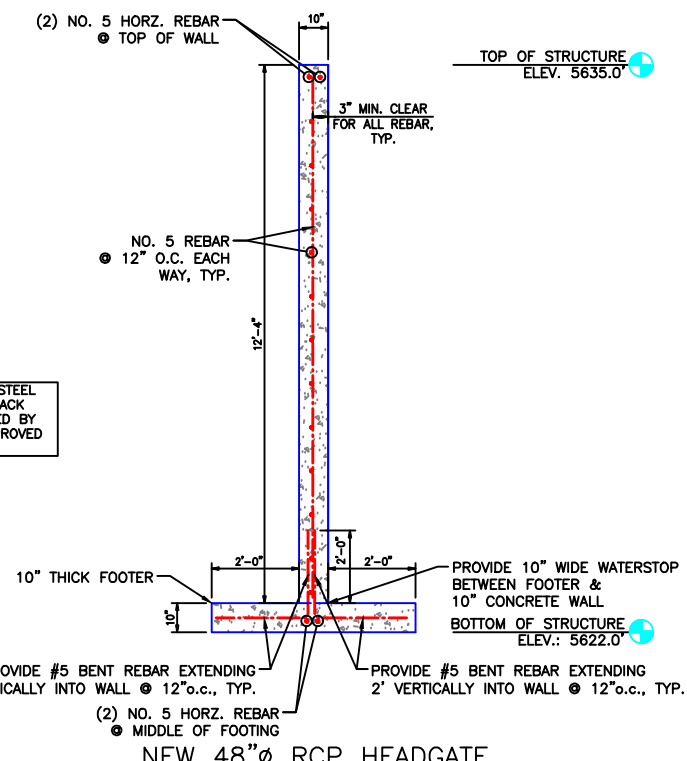
SHEET 4 OF 20



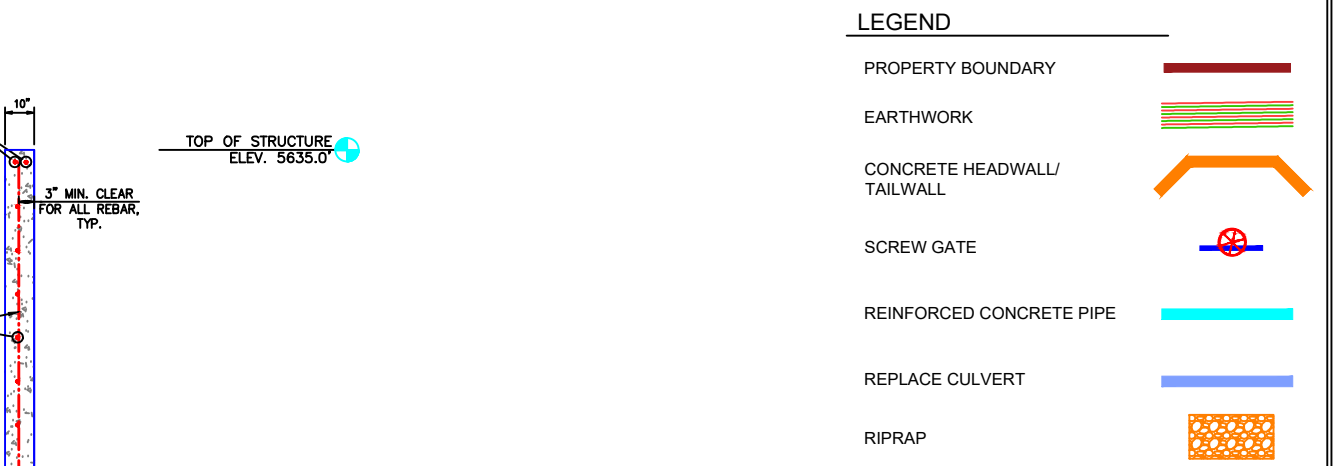
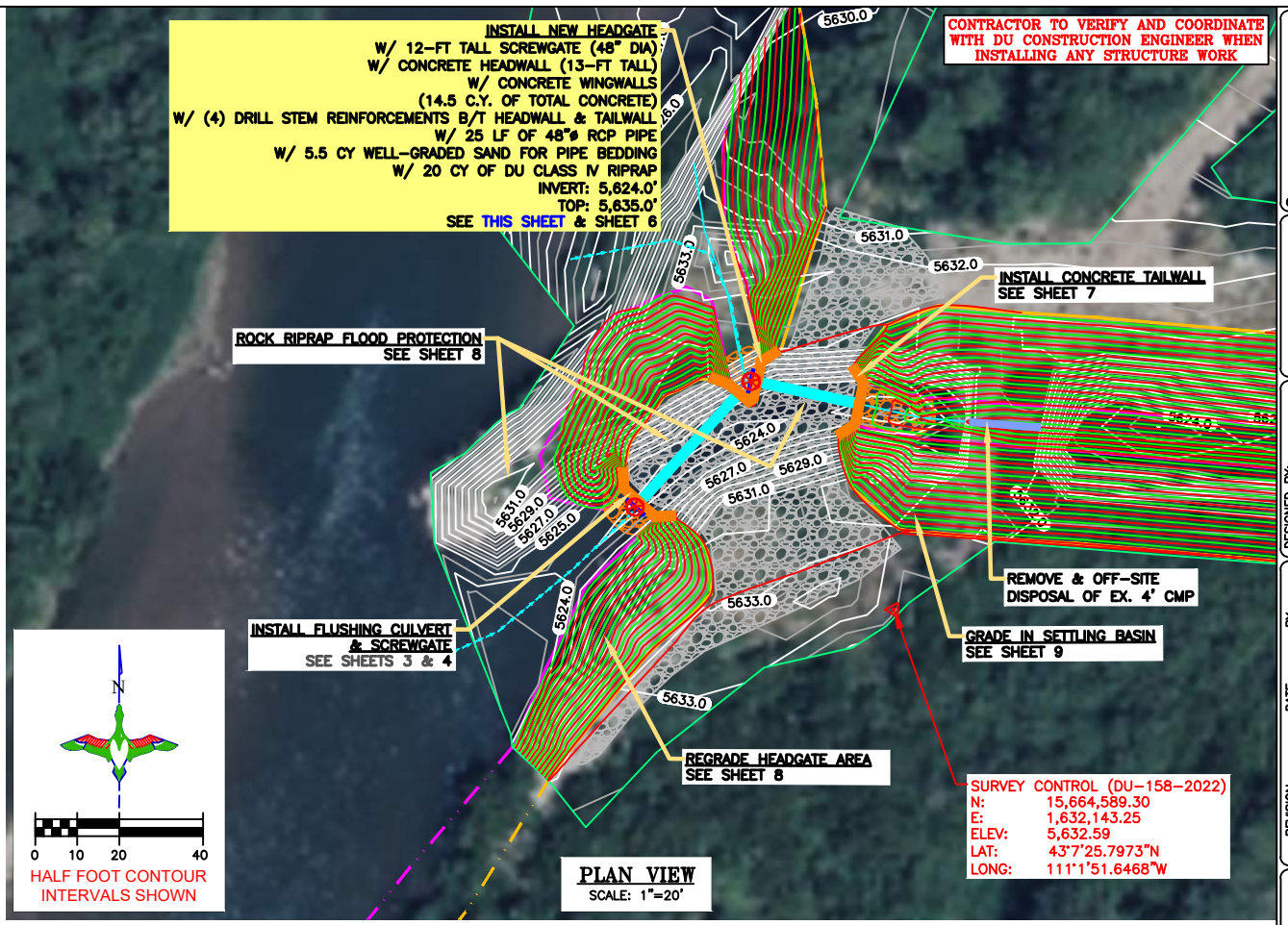
NEW 48" RCP HEADGATE STRUCTURE PLAN VIEW
SCALE 1"=2'



NEW 48" RCP HEADGATE STRUCTURE SECTION CUT C-C'
SCALE 1"=2'



NEW 48" RCP HEADGATE STRUCTURE SECTION CUT D-D'
SCALE 1"=2'



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DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375

GREAT PLAINS REGIONAL OFFICE
P.E. SEAL: KEVIN JAMES PARKER, 15300, WYOMING

DESIGNED BY: KJV
DRAWN BY: JUV
SURVEYED BY: TP
CHECKED BY:
APPROVED BY:

1	DATE:
2	REVISION:
3	
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PROJECT: ALPINE WETLANDS
SHEET TITLE: MAIN HEADWALL

DATE: 04/16/2025

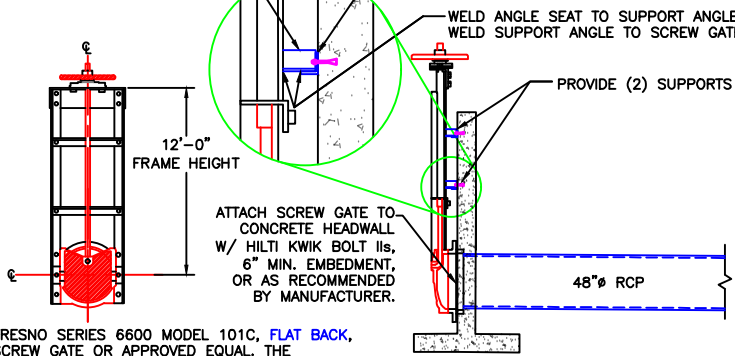
SHEET NUMBER: 5
SHEET 5 OF 20

SCALES ARE ACCURATE ON 24"x36" SHEET SIZE
DU PROJECT NUMBER: WY-178-1

CONCRETE HEADWALL NOTES:

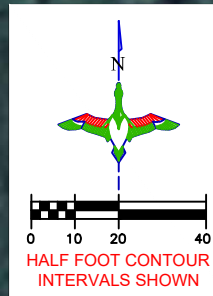
1. INLET AND OUTLET PIPE SHALL BE PLACED ON LEVEL SURFACE OF COMPACTED SOIL.
2. COST OF STRUCTURE INSTALLATION SHALL BE PAID AS BID ITEM "CONCRETE HEADWALL STRUCTURE"
3. HEADWALL STRUCTURE SHALL BE 10" THICK REINFORCED CONCRETE
4. ALL WELDS TO BE 1/4" FILLET WELDS.
5. ALL WELDED SEAMS SHALL BE CONTINUOUS AND WATERTIGHT, UNLESS OTHERWISE STATED.
6. ALL STEEL SHALL BE GIVEN 2 SHOP COATS OF BLACK TARGUARD AS MANUFACTURED BY SHERMAN WILLIAMS, OR APPROVED EQUAL. PAINT ALL STEEL SURFACES PER MANUFACTURER'S RECOMMENDATIONS, EXCEPT GALVANIZED SHEET PILE.
7. INVERT ELEVATION OF WATER CONTROL STRUCTURES ARE APPROXIMATE AND WILL BE DETERMINED BY DU ENGINEER IN FIELD.

FIELD FABRICATE SUPPORT ANGLE BETWEEN SCREW GATE AND CONCRETE HEADWALL. PROVIDE ANGLE SEAT FOR SUPPORT ANGLE. DRILL & EPOXY ANGLE SEAT TO CONCRETE HEADWALL W/ (2) HILTI KWIK BOLT II, 6" MIN. EMBEDMENT.



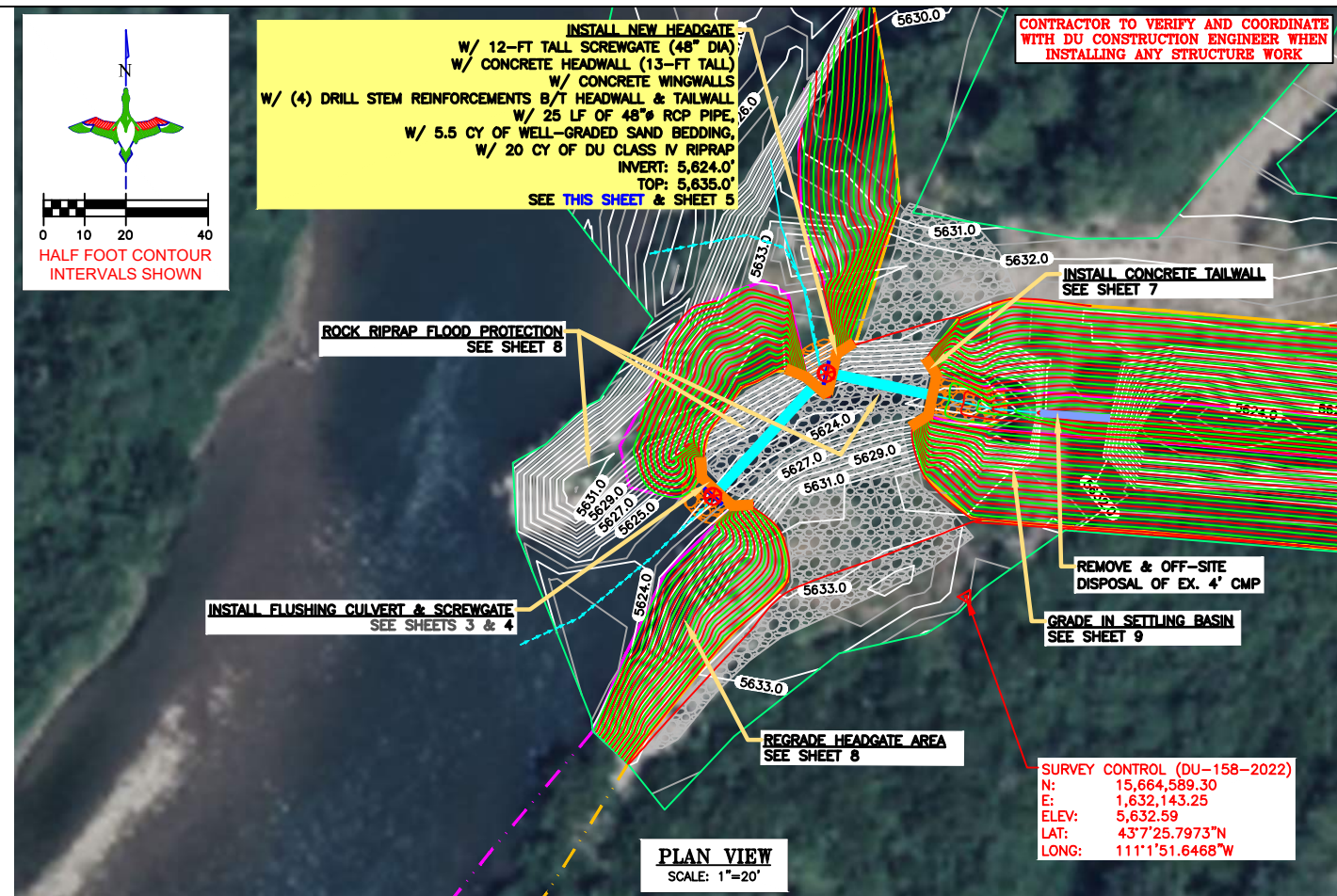
FRESNO SERIES 6600 MODEL 101C, FLAT BACK, SCREW GATE OR APPROVED EQUAL. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE ANCHOR BOLTS AND INSTALLING THE GATE. SEE www.fresnovalves.com OR CALL 1-800-333-1658

48" SCREW GATE DETAIL
NOT TO SCALE



INSTALL NEW HEADGATE
W/ 12-FT TALL SCREWGATE (48" DIA)
W/ CONCRETE HEADWALL (13-FT TALL)
W/ CONCRETE WINGWALLS
W/ (4) DRILL STEM REINFORCEMENTS B/T HEADWALL & TAILWALL
W/ 25 LF OF 48" RCP PIPE
W/ 5.5 CY OF WELL-GRADED SAND BEDDING
W/ 20 CY OF DU CLASS IV RIPRAP
INVERT: 5,624.0'
TOP: 5,635.0'
SEE THIS SHEET & SHEET 5

CONTRACTOR TO VERIFY AND COORDINATE WITH DU CONSTRUCTION ENGINEER WHEN INSTALLING ANY STRUCTURE WORK



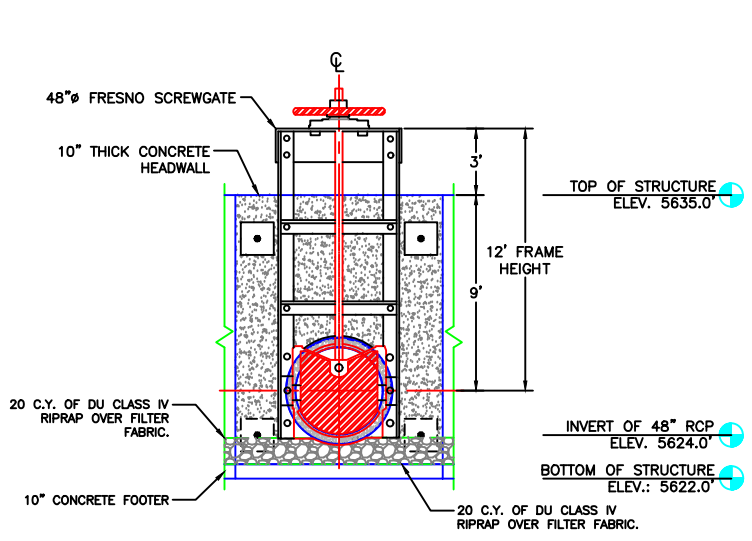
SURVEY CONTROL (DU-158-2022)
N: 15,664,589.30
E: 1,632,143.25
ELEV: 5,632.59
LAT: 43°7'25.7973"N
LONG: 111°1'51.6468"W

DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE
P.E. SEAL:
Professional Engineer
KEVIN JAMES PARKER
15300
WYOMING

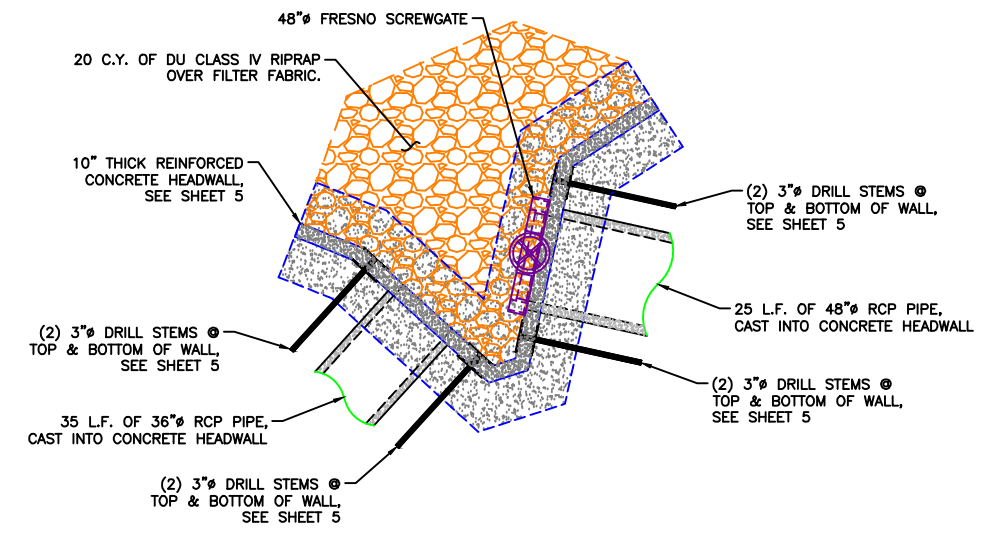
DESIGNED BY:	KJP
DRAWN BY:	JWV
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
DATE:	
REVISION:	
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LEGEND

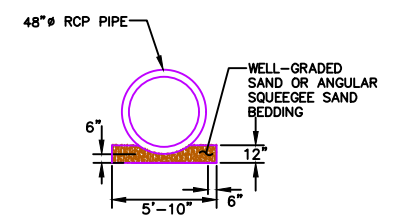
PROPERTY BOUNDARY	
EARTHWORK	
CONCRETE HEADWALL/ TAILWALL	
SCREW GATE	
REINFORCED CONCRETE PIPE	
REPLACE CULVERT	
RIPRAP	



48" SCREW GATE FRONT VIEW
SCALE 1"=4'



48" SCREW GATE PLAN VIEW
SCALE 1"=4'



- PIPE BEDDING NOTES:**
1. THERE SHALL BE A MINIMUM OF 12" OF BACKFILL OVER THE PIPE BEFORE OTHER THAN HAND COMPACTION EQUIPMENT IS USED IN THE TRENCH.
 2. THE BEDDING MATERIAL SHALL BE CLEAN, FREE DRAINING WELL-GRADED SAND AND SHALL CONFORM TO THE LIMITS DEFINED IN THE CONSTRUCTION SPECIFICATIONS WHEN TESTED BY MEANS OF LABORATORY SIEVES.
 3. BEDDING SHALL BE DEPOSITED IN LAYERS NOT EXCEEDING SIX (6) INCHES. EACH LAYER SHALL BE COMPACTED BY SURFACE OR INTERNAL VIBRATORS, HAND OR POWER TAMPERS OR OTHER SUITABLE COMPACTION EQUIPMENT. THE MATERIAL SHALL HAVE A MINIMUM COMPACTION OF 70% RELATIVE DENSITY AS DETERMINED BY ASTM D-4253.

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DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375

PROJECT: ALPINE WETLANDS
SHEET TITLE: MAIN SCREW GATE

DATE: 04/16/2025
SHEET TITLE: MAIN SCREW GATE
DU PROJECT NUMBER: WY-178-1
SHEET NUMBER: 6
SHEET 6 OF 20

DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE

P.E. SEAL:
Professional Engineer
KEVIN JAMES PARKER
15300
Date
WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JWV
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	
DATE:	
REVISION:	
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PROJECT: ALPINE WETLANDS

SHEET TITLE: MAIN TAILWALL

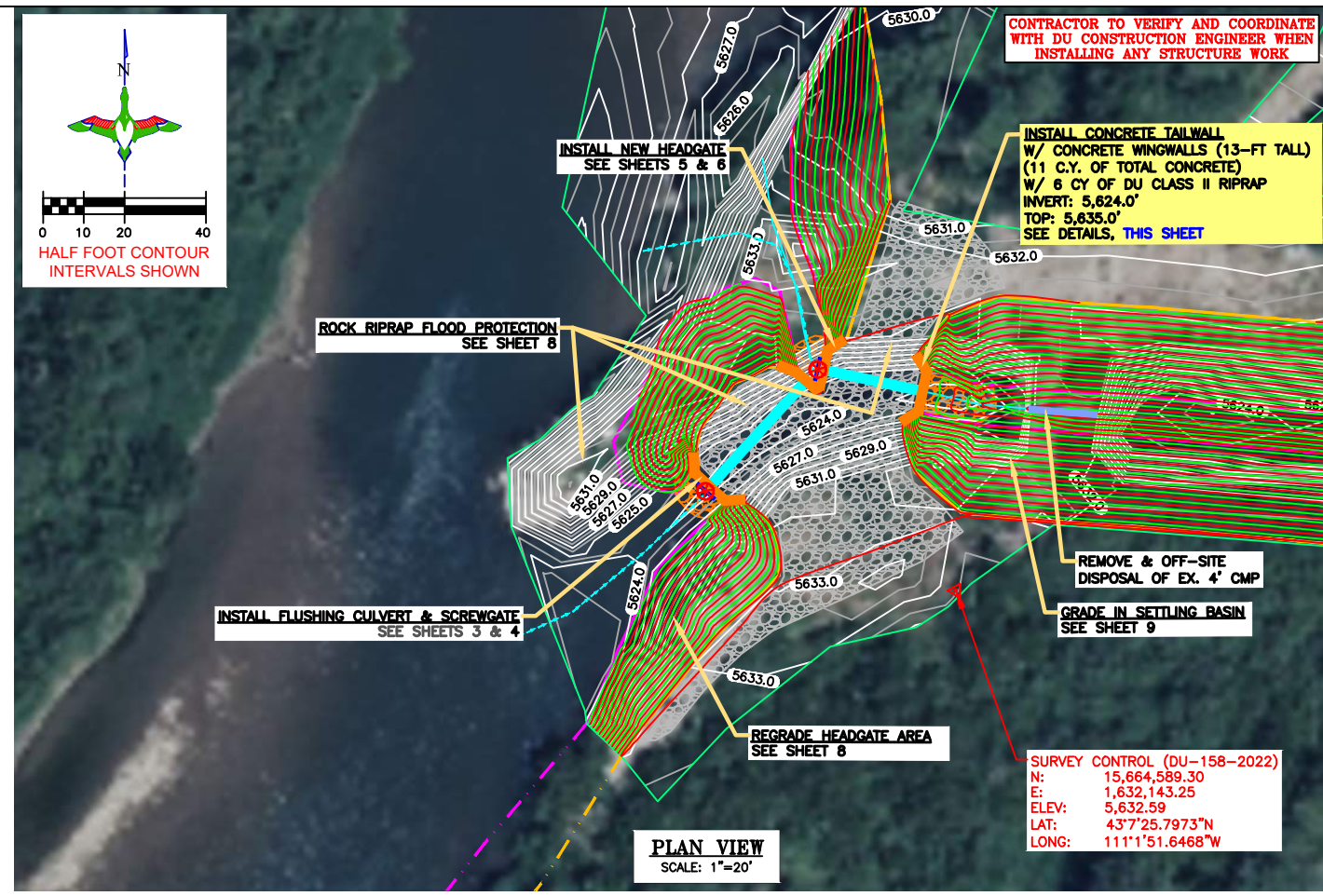
DATE: 04/16/2025

SHEET TITLE: MAIN TAILWALL

DU PROJECT NUMBER: WY-178-1

SHEET NUMBER: 7

SHEET 7 OF 20



CONTRACTOR TO VERIFY AND COORDINATE WITH DU CONSTRUCTION ENGINEER WHEN INSTALLING ANY STRUCTURE WORK

INSTALL CONCRETE TAILWALL W/ CONCRETE WINGWALLS (13-FT TALL) (11 C.Y. OF TOTAL CONCRETE) W/ 6 CY OF DU CLASS II RIPRAP INVERT: 5,624.0' TOP: 5,635.0' SEE DETAILS, THIS SHEET

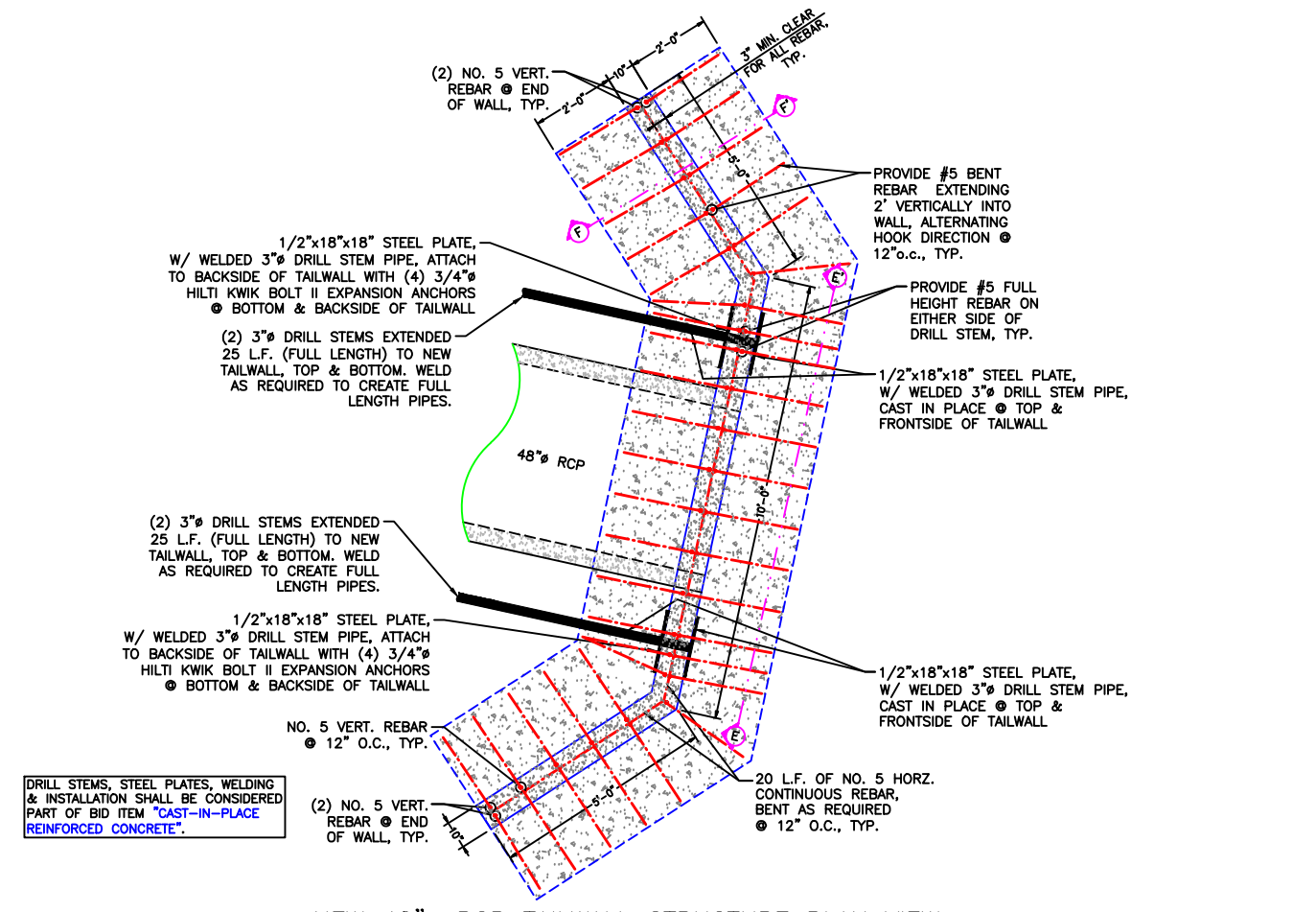
ROCK RIPRAP FLOOD PROTECTION SEE SHEET 8

INSTALL FLUSHING CULVERT & SCREWGATE SEE SHEETS 3 & 4

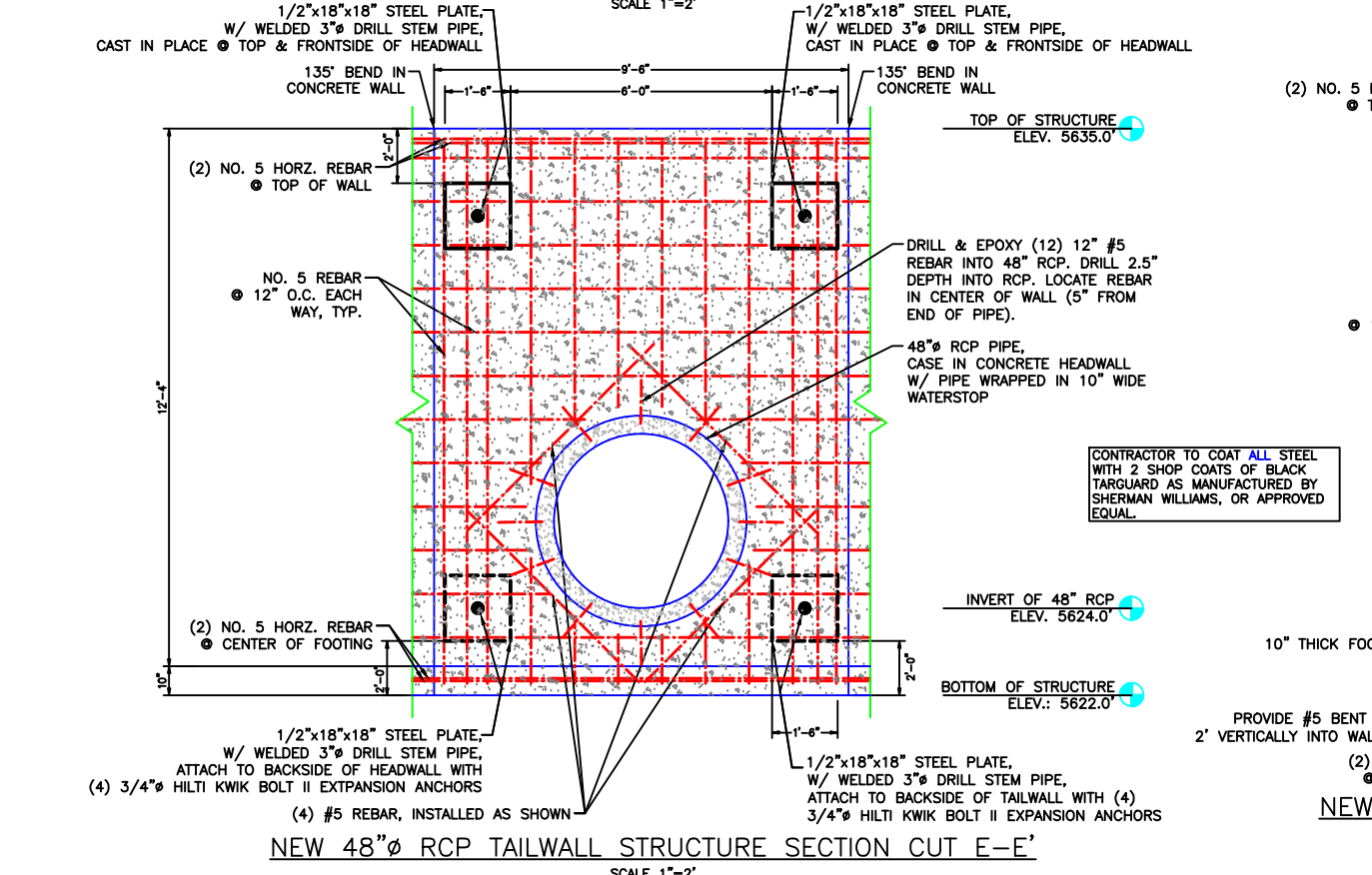
REGRADE HEADGATE AREA SEE SHEET 8

GRADE IN SETTLING BASIN SEE SHEET 9

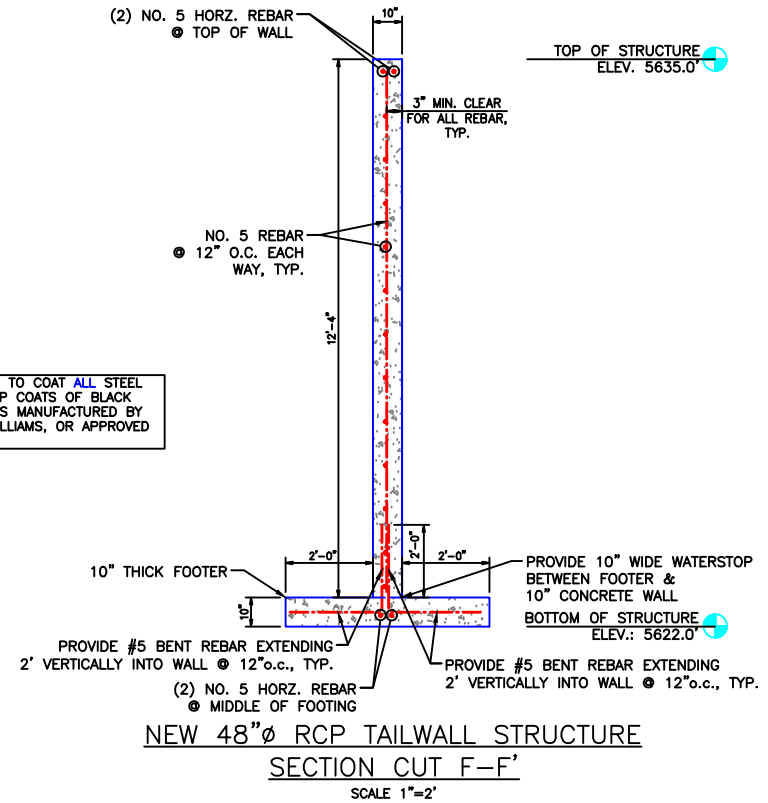
SURVEY CONTROL (DU-158-2022)
N: 15,664,589.30
E: 1,632,143.25
ELEV: 5,632.59
LAT: 43°7'25.7973"N
LONG: 111°1'51.6468"W



NEW 48" RCP TAILWALL STRUCTURE PLAN VIEW SCALE: 1"=2'



NEW 48" RCP TAILWALL STRUCTURE SECTION CUT E-E' SCALE: 1"=2'



NEW 48" RCP TAILWALL STRUCTURE SECTION CUT F-F' SCALE: 1"=2'

LEGEND

PROPERTY BOUNDARY	
EARTHWORK	
CONCRETE HEADWALL/ TAILWALL	
SCREW GATE	
REINFORCED CONCRETE PIPE	
REPLACE CULVERT	
RIPRAP	

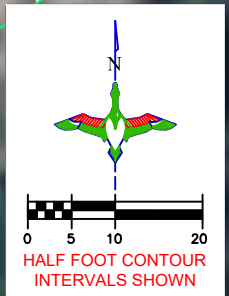
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DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375

LEGEND

PROPERTY BOUNDARY	
EARTHWORK	
CONCRETE HEADWALL/ TAILWALL	
SCREW GATE	
REINFORCED CONCRETE PIPE	
RIPRAP	
RIPRAP FLOOD PROTECTION	
EXISTING CULVERT	
REGRADING SPOT ELEVATION	
TOE OF NEW REGRADING	
TOP OF BANK OF NEW REGRADING	



DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE
P.E. SEAL:
Professional Engineer (Civil)
KEVIN JAMES PARKER
15300
Date
WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JWV
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	

BY:	
DATE:	
REVISION:	
1	
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ALPINE WETLANDS

PROJECT TITLE:
REGRADE HEADGATE AREA, MOVE EX. ROCK PENINSULA & GRADE-IN SETTLING BASIN

PROJECT:

DATE: 04/16/2025

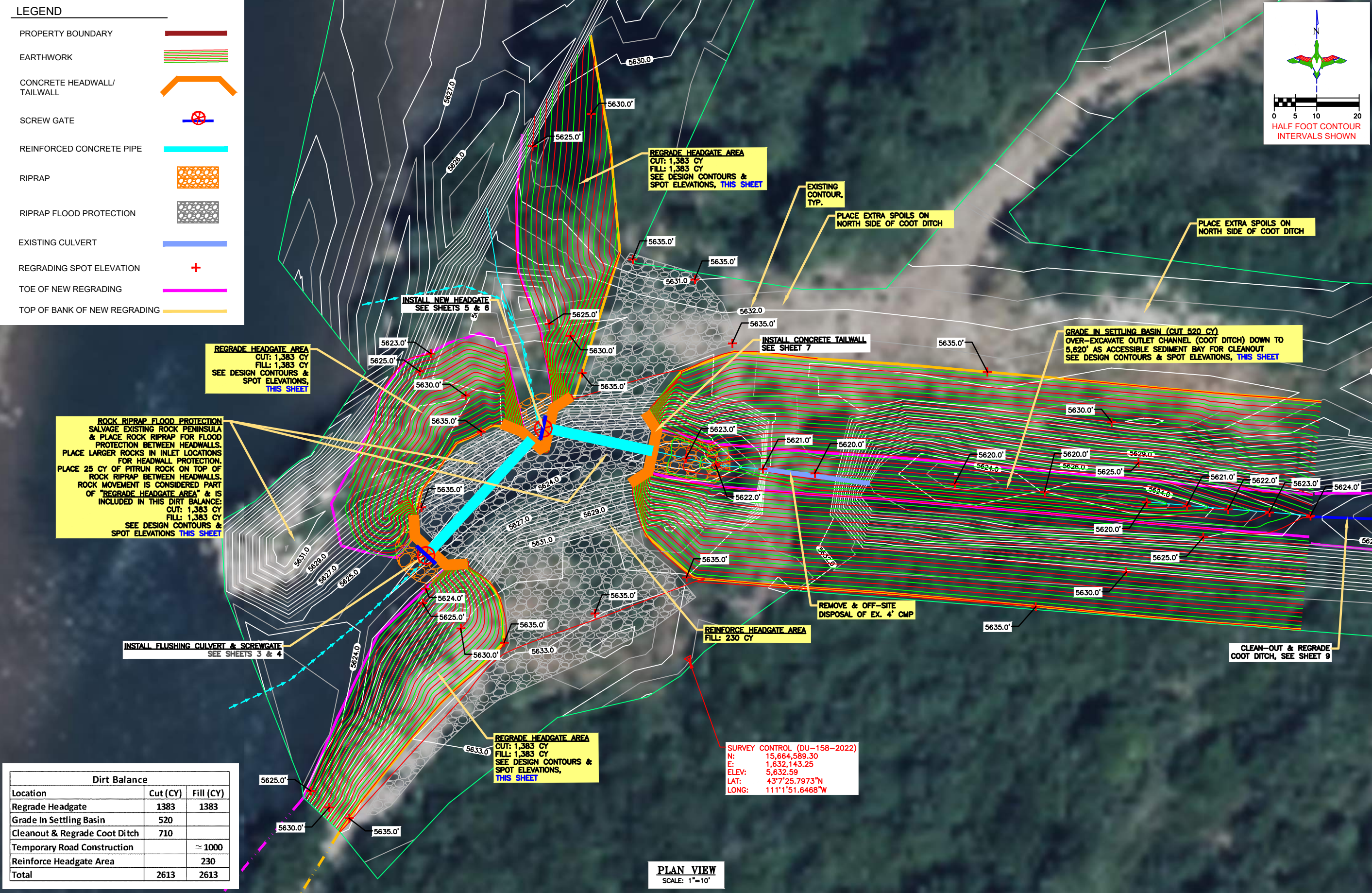
SHEET TITLE:
REGRADE HEADGATE AREA, MOVE EX. ROCK PENINSULA & GRADE-IN SETTLING BASIN

SCALES ARE ACCURATE ON 24"X36" SHEET SIZE

DU PROJECT NUMBER:
WY-178-1

SHEET NUMBER:
8

SHEET 8 OF 20



Dirt Balance

Location	Cut (CY)	Fill (CY)
Regrade Headgate	1383	1383
Grade In Settling Basin	520	
Cleanout & Regrade Coot Ditch	710	
Temporary Road Construction		≈ 1000
Reinforce Headgate Area		230
Total	2613	2613

PLAN VIEW
SCALE: 1"=10'

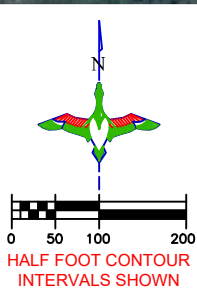
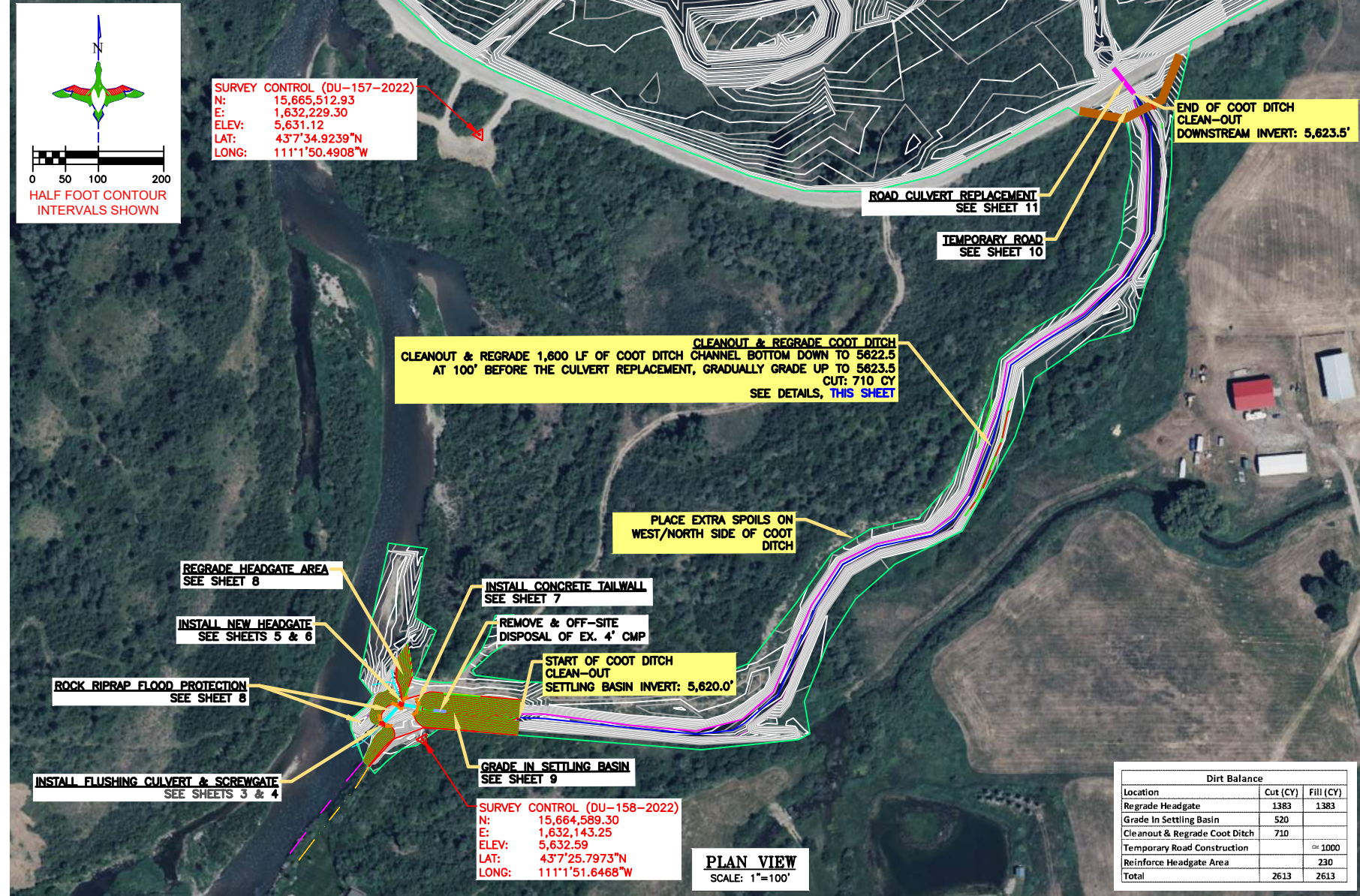
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THOMAS PARKER, P.E.
(970) 692-3375

LEGEND

PROPERTY BOUNDARY	
EARTHWORK	
CONCRETE HEADWALL/ TAILWALL	
SCREW GATE	
REINFORCED CONCRETE PIPE	
REPLACE CULVERT	
RIPRAP	
EXISTING CULVERT	
TEMPORARY ROAD	



SURVEY CONTROL (DU-157-2022)
 N: 15,665,512.93
 E: 1,632,229.30
 ELEV: 5,631.12
 LAT: 43°7'34.9239"N
 LONG: 111°1'50.4908"W

CLEANOUT & REGRADE COOT DITCH
 CLEANOUT & REGRADE 1,600 LF OF COOT DITCH CHANNEL BOTTOM DOWN TO 5622.5 AT 100' BEFORE THE CULVERT REPLACEMENT, GRADUALLY GRADE UP TO 5623.5 CUT: 710 CY SEE DETAILS, THIS SHEET

PLACE EXTRA SPOILS ON WEST/NORTH SIDE OF COOT DITCH

REGRADE HEADGATE AREA SEE SHEET 8

INSTALL CONCRETE TAILWALL SEE SHEET 7

INSTALL NEW HEADGATE SEE SHEETS 5 & 6

REMOVE & OFF-SITE DISPOSAL OF EX. 4' CMP

ROCK RIPRAP FLOOD PROTECTION SEE SHEET 8

START OF COOT DITCH CLEAN-OUT SETTLING BASIN INVERT: 5,620.0'

INSTALL FLUSHING CULVERT & SCREWGATE SEE SHEETS 3 & 4

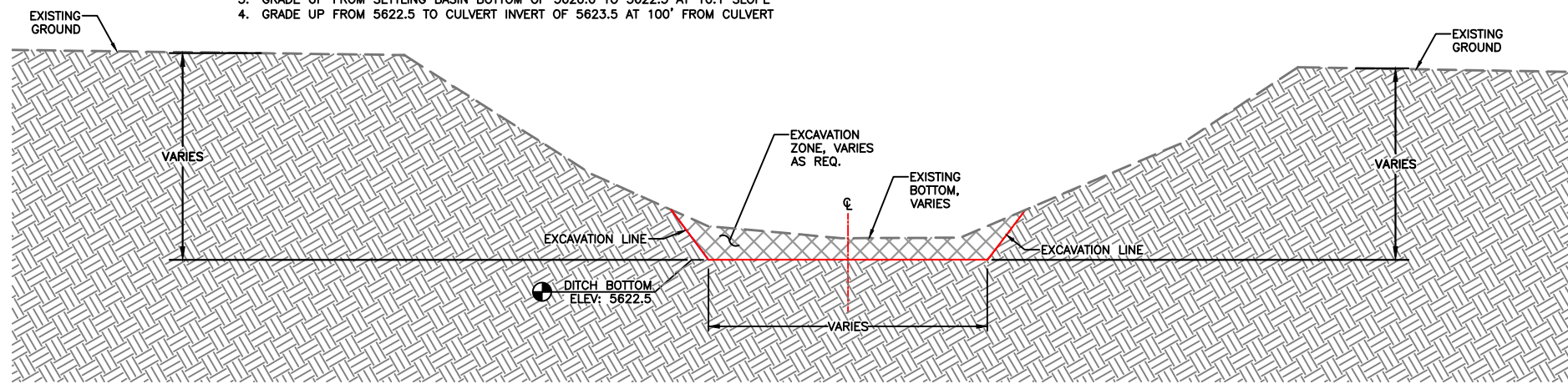
GRADE IN SETTLING BASIN SEE SHEET 9

SURVEY CONTROL (DU-158-2022)
 N: 15,664,589.30
 E: 1,632,143.25
 ELEV: 5,632.59
 LAT: 43°7'25.7973"N
 LONG: 111°1'51.6468"W

PLAN VIEW
 SCALE: 1"=100'

Dirt Balance		
Location	Cut (CY)	Fill (CY)
Regrade Headgate	1383	1383
Grade In Settling Basin	520	
Cleanout & Regrade Coot Ditch	710	
Temporary Road Construction		≈ 1000
Reinforce Headgate Area		230
Total	2613	2613

- NOTES:**
1. ACCEPTABLE CUT MATERIAL GENERATED TO BE USED AS FILL FOR TEMPORARY ROAD CONSTRUCTION.
 2. EXTRA DIRT GENERATED MAY BE PLACED ON NORTH/WEST BANK. FINAL GRADING TO BE SMOOTH AND AESTHETICALLY PLEASING.
 3. GRADE UP FROM SETTLING BASIN BOTTOM OF 5620.0 TO 5622.5 AT 10:1 SLOPE
 4. GRADE UP FROM 5622.5 TO CULVERT INVERT OF 5623.5 AT 100' FROM CULVERT



CLEANOUT & REGRADE COOT DITCH SECTION (TYP.)
 SCALE: 1"=2'

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DU PROJECT ENGINEER:
 THOMAS PARKER, P.E.
 (970) 692-3375

P.E. SEAL:
 Professional Engineer (Civil)
 KEVIN JAMES PARKER
 15300
 Date
 WYOMING

DESIGNED BY: KJP	DRAWN BY: JWP	CHECKED BY: TP	APPROVED BY:
SURVEYED BY: TP			

REVISION:	DATE:	BY:
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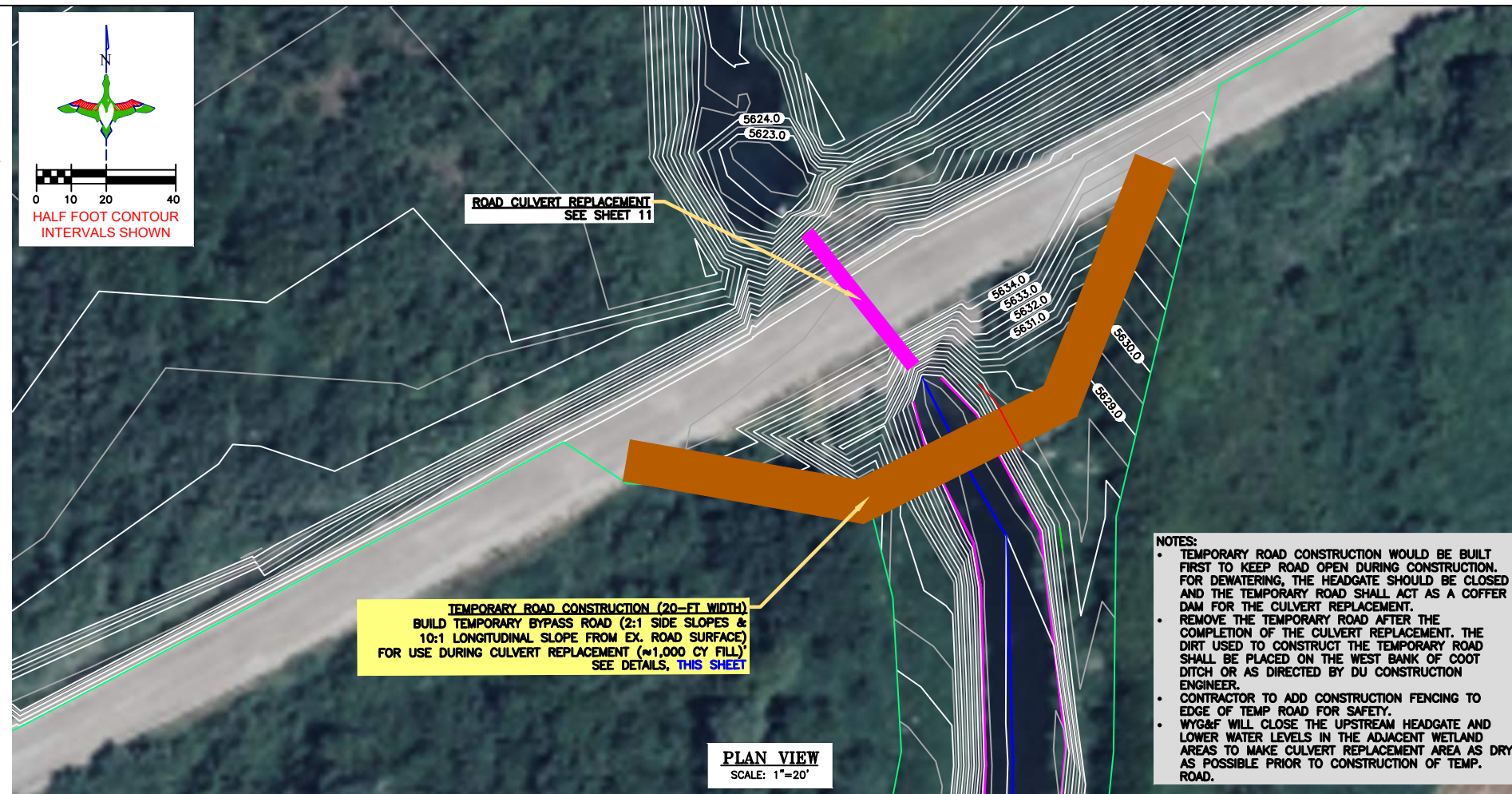
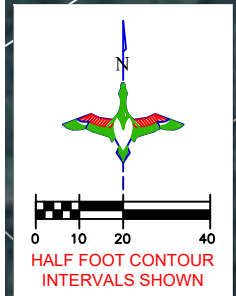
PROJECT: **ALPINE WETLANDS**
 SHEET TITLE: **CLEANOUT & REGRADE COOT DITCH**

DATE: 04/16/2025
 SHEET TITLE: **CLEANOUT & REGRADE COOT DITCH**

SCALES ARE ACCURATE ON 24"X36" SHEET SIZE
 DU PROJECT NUMBER: **WY-178-1**
 SHEET NUMBER: **9**
 SHEET 9 OF 20

LEGEND

- PROPERTY BOUNDARY
- EARTHWORK
- CONCRETE HEADWALL/ TAILWALL
- SCREW GATE
- REINFORCED CONCRETE PIPE
- REPLACE CULVERT
- RIPRAP
- TEMPORARY ROAD



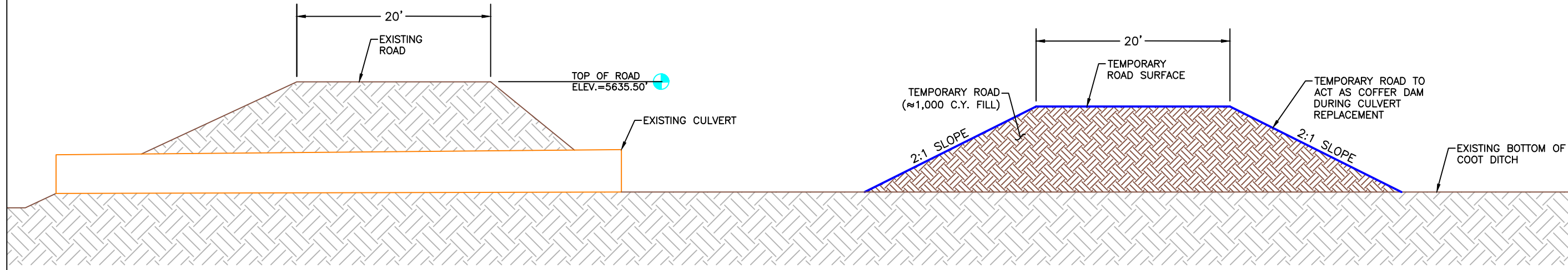
TEMPORARY ROAD CONSTRUCTION (20-FT WIDTH)
 BUILD TEMPORARY BYPASS ROAD (2:1 SIDE SLOPES & 10:1 LONGITUDINAL SLOPE FROM EX. ROAD SURFACE) FOR USE DURING CULVERT REPLACEMENT (≈1,000 CY FILL) SEE DETAILS, THIS SHEET

PLAN VIEW
 SCALE: 1"=20'

- NOTES:**
- TEMPORARY ROAD CONSTRUCTION WOULD BE BUILT FIRST TO KEEP ROAD OPEN DURING CONSTRUCTION. FOR DEWATERING, THE HEADGATE SHOULD BE CLOSED AND THE TEMPORARY ROAD SHALL ACT AS A COFFER DAM FOR THE CULVERT REPLACEMENT.
 - REMOVE THE TEMPORARY ROAD AFTER THE COMPLETION OF THE CULVERT REPLACEMENT. THE DIRT USED TO CONSTRUCT THE TEMPORARY ROAD SHALL BE PLACED ON THE WEST BANK OF COOT DITCH OR AS DIRECTED BY DU CONSTRUCTION ENGINEER.
 - CONTRACTOR TO ADD CONSTRUCTION FENCING TO EDGE OF TEMP ROAD FOR SAFETY.
 - WYG&F WILL CLOSE THE UPSTREAM HEADGATE AND LOWER WATER LEVELS IN THE ADJACENT WETLAND AREAS TO MAKE REPLACEMENT AREA AS DRY AS POSSIBLE PRIOR TO CONSTRUCTION OF TEMP. ROAD.

TEMPORARY ROAD CONSTRUCTION NOTES:

- FILL SHALL BE OBTAINED FROM ACCEPTABLE CUT FROM COOT DITCH CLEAN-OUT, FROM SETTLING BASIN GRADING OR FROM LOCATION AS DESIGNATED BY DU CONSTRUCTION ENGINEER.
- FILL SHALL BE PLACED IN LIFTS NO MORE THAN 8" AND COMPACTED PRIOR TO PLACING SUBSEQUENT LIFTS.
- CONSTRUCTION OF TEMPORARY ROAD IS CONSIDERED PART OF BID ITEM "SITE PREPARATION".



TEMPORARY ROAD CONSTRUCTION SECTION
 SCALE 1" = 5'

DUCKS UNLIMITED INC.
 GREAT PLAINS REGIONAL OFFICE

P.E. SEAL:
 Professional Engineer (Civil)
 KEVIN JAMES PARKER
 15300
 Date
 WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JJW
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	

BY:							
DATE:							
REVISION:							
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PROJECT: **ALPINE WETLANDS**

SHEET TITLE: **TEMPORARY ROAD CONSTRUCTION**

DATE: 04/16/2025

SHEET TITLE: **TEMPORARY ROAD CONSTRUCTION**

SCALES ARE ACCURATE ON 24"X36" SHEET SIZE

DU PROJECT NUMBER: **WY-178-1**

SHEET NUMBER: **10**

SHEET 10 OF 20

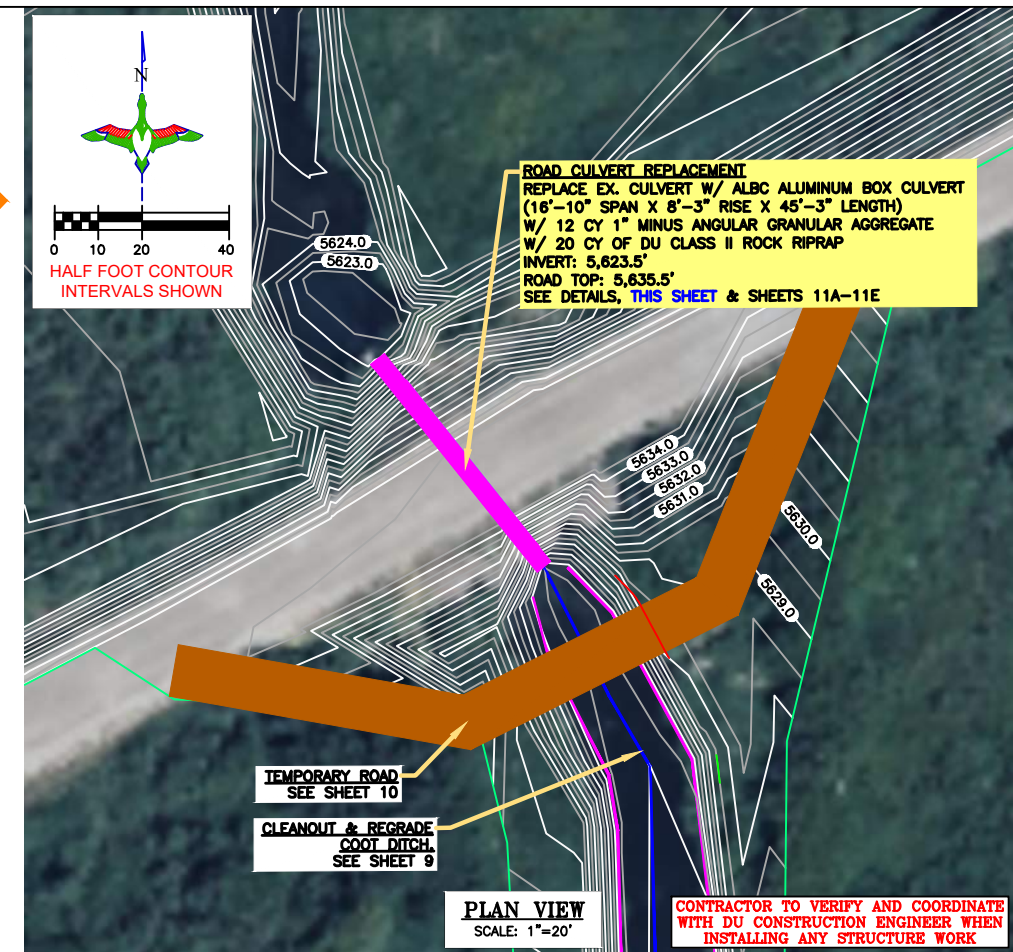
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"BEFORE YOU DIG"
 BEFORE THE START OF CONSTRUCTION, THE OWNER OF ANY UTILITIES INVOLVED MUST BE NOTIFIED. THE EXCAVATOR/CONTRACTOR IS RESPONSIBLE FOR GIVING THIS NOTICE BY CALLING "ONE CALL OF WYOMING" AT 811. A 72 HOUR NOTIFICATION AND FULL DESCRIPTION OF LOCATION IS REQUIRED.

DU PROJECT ENGINEER:
 THOMAS PARKER, P.E.
 (970) 692-3375

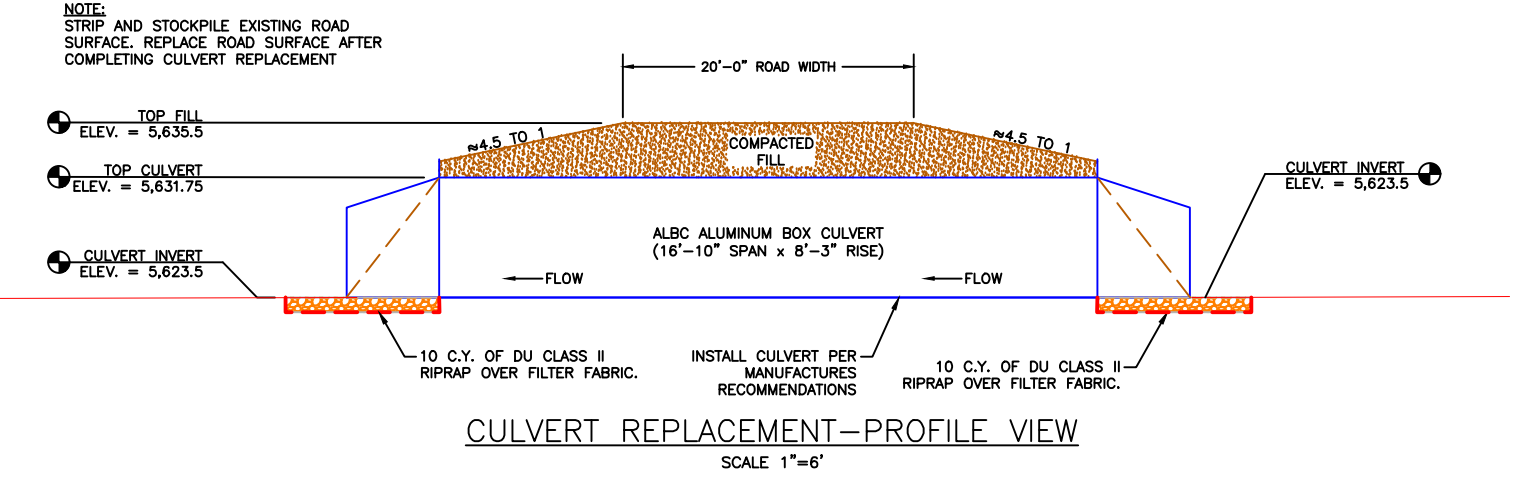
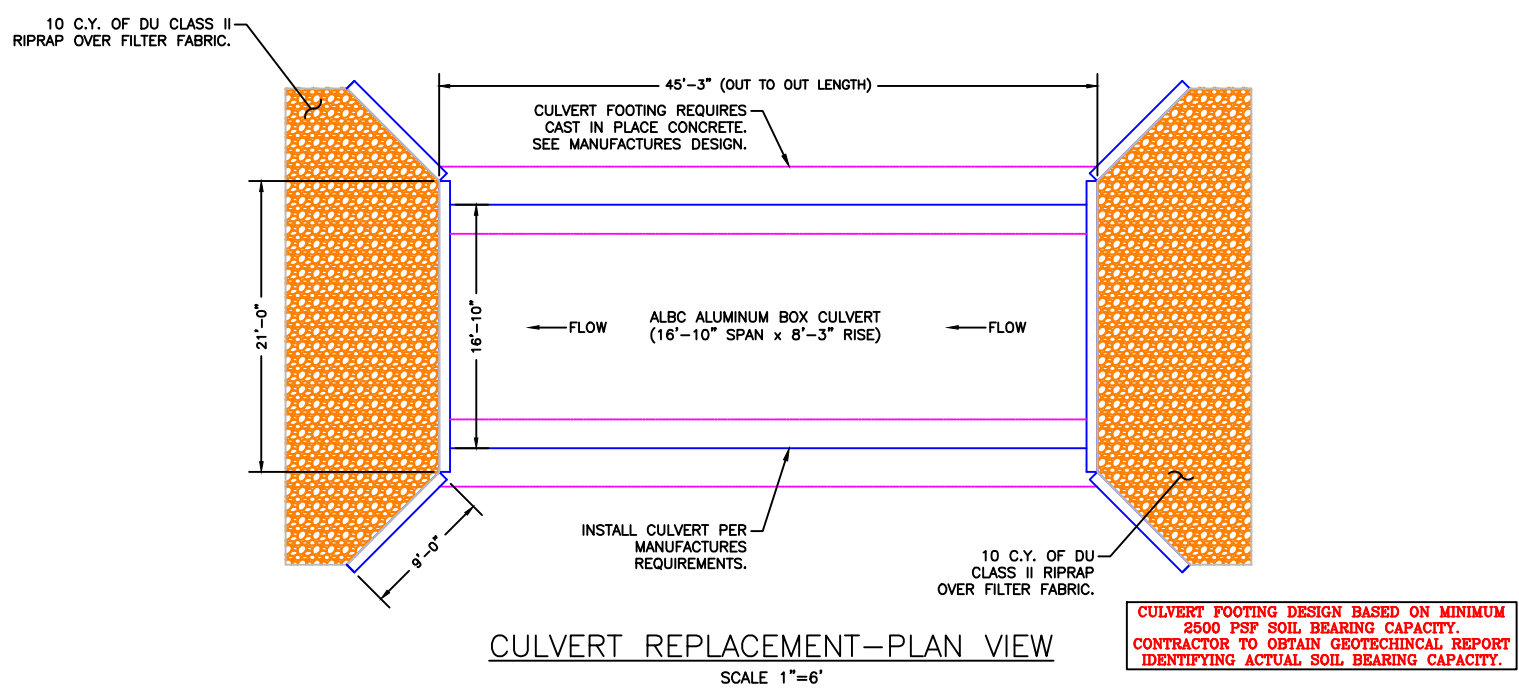
LEGEND

PROPERTY BOUNDARY	
EARTHWORK	
CONCRETE HEADWALL/ TAILWALL	
SCREW GATE	
REINFORCED CONCRETE PIPE	
REPLACE CULVERT	
RIPRAP	
TEMPORARY ROAD	



DESIGNED BY: KJV
 DRAWN BY: JUV
 SURVEYED BY: TP
 CHECKED BY:
 APPROVED BY:
 APPROVED BY:

REVISION	DATE	BY
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CONTECH CULVERT INSTALLATION NOTES:

- Assembly:** The structure shall be assembled in accordance with the Contech shop drawings and plate layout provided by Contech. Bolts shall be tightened to an applied torque between 100 and 150 ft-lbs.
- Installation:** The structure shall be installed in accordance with AASHTO Standard Specifications for Highway Bridges Section 26 or ASTM A807, the plans and specifications, and Contech's recommendations.
 - The Contractor shall provide footings as required per the Contech plans and specifications.
 - The Contractor shall provide proper bedding and backfill to avoid distortion that may create undesirable stresses in the structure and/or settlement of the roadway. The bedding shall be free of rock formations, protrusions, frozen material or organic material.
- Backfill:** The structure shall be backfilled using clean, well graded granular materials that meets the requirements of AASHTO M145 soil classifications A-1, A-2 or A-3. Aluminum box culverts shall be backfilled with A-1, A-2-4, A-2-5 or A-3 material.
 - Backfill materials shall be placed in symmetrical lifts on each side of the structure. The differential between the lifts on either side shall not exceed 24 inches. Each layer of soil shall be placed in 6 to 8 inch loose lifts and compacted to a minimum of 90% density per AASHTO T99 or ASTM D698 (Standard Proctor). Aluminum box culverts shall be compacted to 90% density per AASHTO T180 or ASTM D1557 (Modified Proctor).
 - Backfill soils shall be free of rocks exceeding 3 inches, frozen lumps, ice, organic matter and foreign materials that could cause hard spots or decompose to create voids.
 - The presence of a high percentage of silt or fine sand in the native soils suggests the need for well graded granular material in the critical backfill zone or the use of non-woven geotextile to prevent soil migration.
 - During backfilling operations, only small tracked construction equipment (such as a D-4 dozer or smaller) shall be near the structure as fill progresses above the crown and to the minimum height of cover. After adequate cover and compaction is achieved, live loads may increase at the direction of the Engineer.
- Critical Backfill Zone:** The Engineer shall determine the extents of the critical backfill zone and provide a detail on the plans.

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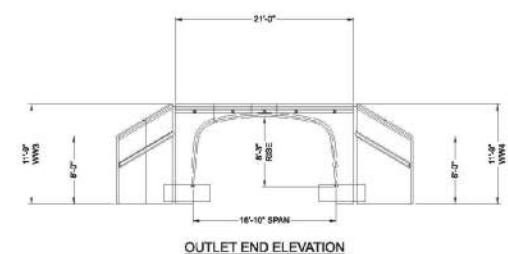
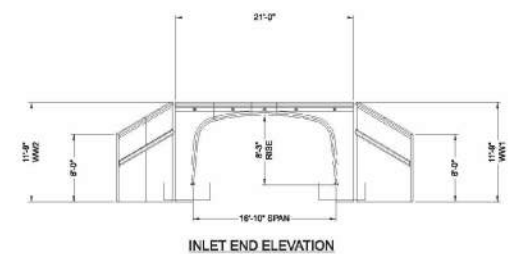
"BEFORE YOU DIG"
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DU PROJECT ENGINEER:
 THOMAS PARKER, P.E.
 (970) 692-3375

PROJECT: ALPINE WETLANDS
 SHEET TITLE: ROAD CULVERT REPLACEMENT

DATE: 04/16/2025
 SHEET TITLE: ROAD CULVERT REPLACEMENT

SCALES ARE ACCURATE ON 24"x36" SHEET SIZE
 DU PROJECT NUMBER: WY-178-1
 SHEET NUMBER: 11
 SHEET 11 OF 20



PRELIMINARY
NOT FOR CONSTRUCTION

CONTECH ENGINEERED SOLUTIONS LLC
www.conteches.com
4855 Center Plaza Dr., Suite 400, West Chester, OH 45386
910-338-7122 913-645-7000 913-645-7993 FAX

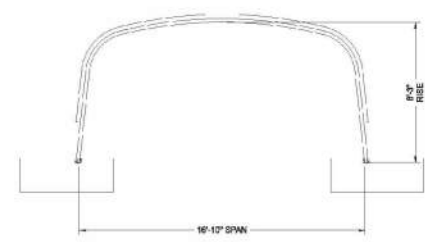
CONTECH STRUCTURAL PLATE
DYOB (DESIGNED)

DYO40949 ALPINE WETLAND CROSSING
ALBC
ALPINE, WY
ALBC ALUMINUM BOX CULVERT 16'-10" SPAN X 8'-3" RISE

PROJECT NO.	21901	DRAWN BY	40949	DATE	04/17/2025
DESIGNED BY	DYOB	CHECKED BY	DYOB		
APPROVED BY	DYOB				
SHEET NO.	D4	OF	D10		

- 1.0 STANDARDS AND DEFINITIONS**
- 1.1 STANDARDS - ALL STANDARDS REFER TO LATEST EDITION UNLESS OTHERWISE NOTED.
 - 1.1.1 ASTM 9-84 "STANDARD SPECIFICATION FOR CORRUGATED ALUMINUM BOX CULVERTS" (AASHTO DESIGNATION M-219).
 - 1.1.2 AASHTO LRFD SPECIFICATION FOR HIGHWAY BRIDGES - SECTION 12 DIVISION 11 - DESIGN.
 - 1.1.3 AASHTO LRFD SPECIFICATION FOR HIGHWAY BRIDGES - SECTION 20 DIVISION 11 - CONSTRUCTION.
 - 1.2 DEFINITIONS
 - 1.2.1 OWNER - IN THESE SPECIFICATIONS THE WORD "OWNER" SHALL MEAN XXXX.
 - 1.2.2 ENGINEER - IN THESE SPECIFICATIONS THE WORD "ENGINEER" SHALL MEAN THE ENGINEER OF RECORD OR OWNER'S DESIGNATED ENGINEERING REPRESENTATIVE.
 - 1.2.3 MANUFACTURER - IN THESE SPECIFICATIONS THE WORD "MANUFACTURER" SHALL MEAN CONTECH ENGINEERED SOLUTIONS, LLC 800-338-1122.
 - 1.2.4 CONTRACTOR - IN THESE SPECIFICATIONS THE WORD "CONTRACTOR" SHALL MEAN THE FIRM OR CORPORATION UNDERTAKING THE EXECUTION OF ANY INSTALLATION WORK UNDER THE TERMS OF THESE SPECIFICATIONS.
 - 1.2.5 APPROVED - IN THESE SPECIFICATIONS THE WORD "APPROVED" SHALL REFER TO THE APPROVAL OF THE ENGINEER OR HIS DESIGNATED REPRESENTATIVE.
 - 1.2.6 AS DIRECTED - IN THESE SPECIFICATIONS THE WORDS "AS DIRECTED" SHALL REFER TO THE DIRECTIONS TO THE CONTRACTOR FROM THE OWNER OR HIS DESIGNATED REPRESENTATIVE.

- 2.0 GENERAL CONDITIONS**
- 2.1 THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIAL AND EQUIPMENT AND PERFORM ALL WORK AND SERVICES EXCEPT THOSE SET OUT AND FURNISHED BY THE OWNER, NECESSARY TO COMPLETE IN A SATISFACTORY MANNER THE SITE PREPARATION, EXCAVATION, FILLING, COMPACTING, GRADING AS SHOWN ON THE PLANS AND AS DESCRIBED THEREIN. THIS WORK SHALL CONSIST OF ALL MOBILIZATION, CLEARING AND GRADING, GRUBBING, STRIPPING, REMOVAL OF EXISTING MATERIAL, UNLESS OTHERWISE STATED, PREPARATION OF THE LAND TO BE FILLED, FILLING OF THE LAND, SPREADING AND COMPACTION OF THE FILL AND ALL SUBSIDIARY WORK NECESSARY TO COMPLETE THE GRADING OF THE CUT AND FILL AREAS TO CONFORM WITH THE LINES, GRADES, SLOPES, AND SPECIFICATIONS. THIS WORK IS TO BE ACCOMPLISHED UNDER THE OBSERVATION OF THE OWNER OR HIS DESIGNATED REPRESENTATIVE.
 - 2.2 PRIOR TO BIDDING THE WORK, THE CONTRACTOR SHALL EXAMINE, INVESTIGATE AND INSPECT THE CONSTRUCTION SITE AS TO THE NATURE AND LOCATION OF THE WORK AND THE GENERAL AND LOCAL CONDITIONS AT THE CONSTRUCTION SITE, INCLUDING WITHOUT LIMITATION, THE CHARACTER OF SURFACE OR SUBSURFACE CONDITIONS AND OBSTACLES TO BE ENCOUNTERED ON AND AROUND THE CONSTRUCTION SITE AND SHALL MAKE SUCH ADDITIONAL INVESTIGATION AS HE MAY DEEM NECESSARY FOR THE PLANNING AND PROPER EXECUTION OF THE WORK.
 - IF CONDITIONS OTHER THAN THOSE INDICATED ARE DISCOVERED BY THE CONTRACTOR, THE OWNER SHALL BE NOTIFIED IMMEDIATELY. THE MATERIAL WHICH THE CONTRACTOR BELIEVES TO BE A CHANGED CONDITION SHALL NOT BE DISTURBED SO THAT THE OWNER CAN INVESTIGATE THE CONDITION.
 - 2.3 THE CONSTRUCTION SHALL BE PERFORMED UNDER THE DIRECTION OF THE ENGINEER.
 - 2.4 ALL ASPECTS OF THE STRUCTURE DESIGN AND SITE LAYOUT INCLUDING FOUNDATIONS, BACKFILL, END TREATMENTS AND NECESSARY SCOUR CONSIDERATION SHALL BE PERFORMED BY THE ENGINEER.
- ANY INSTALLATION GUIDANCE PROVIDED HEREIN SHALL BE ENCLOSED BY THE ENGINEER OR SUPERSEDED BY THE ENGINEER'S PLANS AND SPECIFICATIONS.



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NOT FOR CONSTRUCTION

CONTECH ENGINEERED SOLUTIONS LLC
www.conteches.com
4855 Center Plaza Dr., Suite 400, West Chester, OH 45386
910-338-7122 913-645-7000 913-645-7993 FAX

CONTECH STRUCTURAL PLATE
DYOB (DESIGNED)

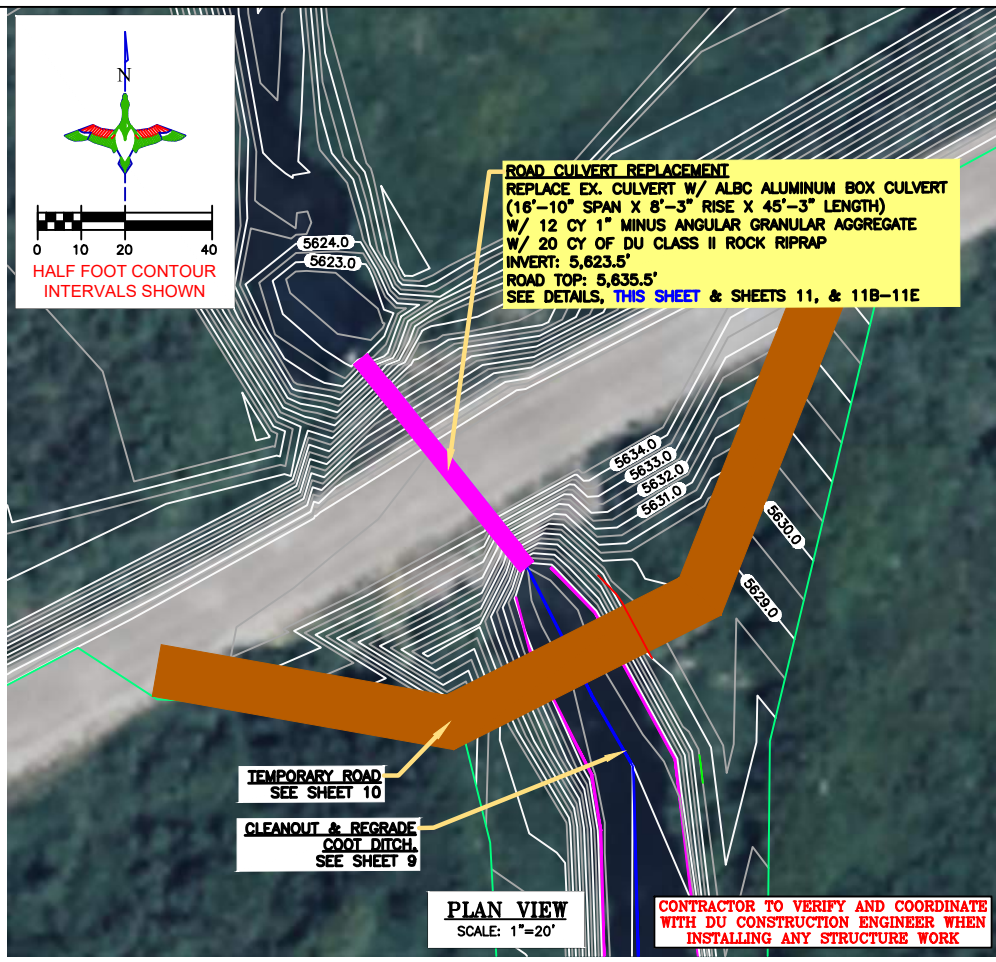
DYO40949 ALPINE WETLAND CROSSING
ALBC
ALPINE, WY
ALBC ALUMINUM BOX CULVERT 16'-10" SPAN X 8'-3" RISE

PROJECT NO.	21901	DRAWN BY	40949	DATE	04/17/2025
DESIGNED BY	DYOB	CHECKED BY	DYOB		
APPROVED BY	DYOB				
SHEET NO.	D2	OF	D10		

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DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375



THE DRAWINGS PRESENTED HERE FROM CONTECH ENGINEERING SOLUTIONS LLC ARE "PRELIMINARY - NOT FOR CONSTRUCTION". CONTRACTOR TO REACH OUT TO CONTECH FOR FINAL DESIGN DRAWINGS.

LEGEND

PROPERTY BOUNDARY	
EARTHWORK	
CONCRETE HEADWALL/ TAILWALL	
SCREW GATE	
REINFORCED CONCRETE PIPE	
REPLACE CULVERT	
RIPRAP	
TEMPORARY ROAD	

DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE

P.E. SEAL:
Professional Engineer
KEVIN JAMES PARKER
15300
Date
WYOMING

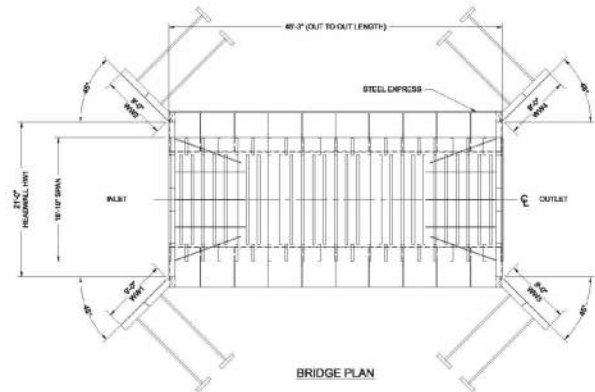
DESIGNED BY: KJP
DRAWN BY: JWW
SURVEYED BY: TP
CHECKED BY:
APPROVED BY:
APPROVED BY:

REVISION:	BY:	DATE:
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PROJECT: ALPINE WETLANDS
SHEET TITLE: CONTECH CULVERT DESIGN SHEETS 1-2

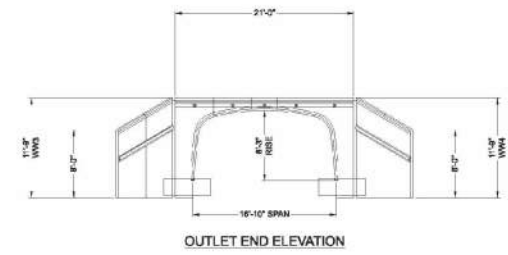
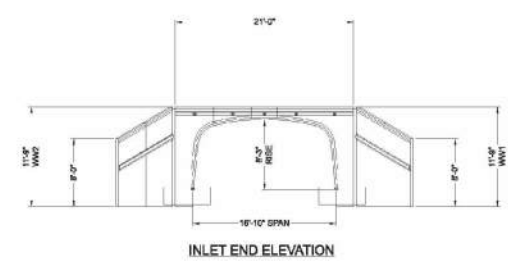
DATE: 04/16/2025
SHEET TITLE: CONTECH CULVERT DESIGN SHEETS 1-2

SCALES ARE ACCURATE ON 24"X36" SHEET SIZE
DU PROJECT NUMBER: WY-178-1
SHEET NUMBER: 11A
SHEET 1A OF 20



PRELIMINARY
NOT FOR CONSTRUCTION

				DYO40949 ALPINE WETLAND CROSSING ALBC ALPINE, WY ALBC ALUMINUM BOX CULVERT 16'-10" SPAN X 8'-3" RISE	
PROJECT NO.	21901	DRAWN BY	JWV	DATE	04/17/2025
DESIGNED BY	DYO	CHECKED BY	DYO	APPROVED BY	DYO
DATE		REVISION DESCRIPTION	BY	DATE	



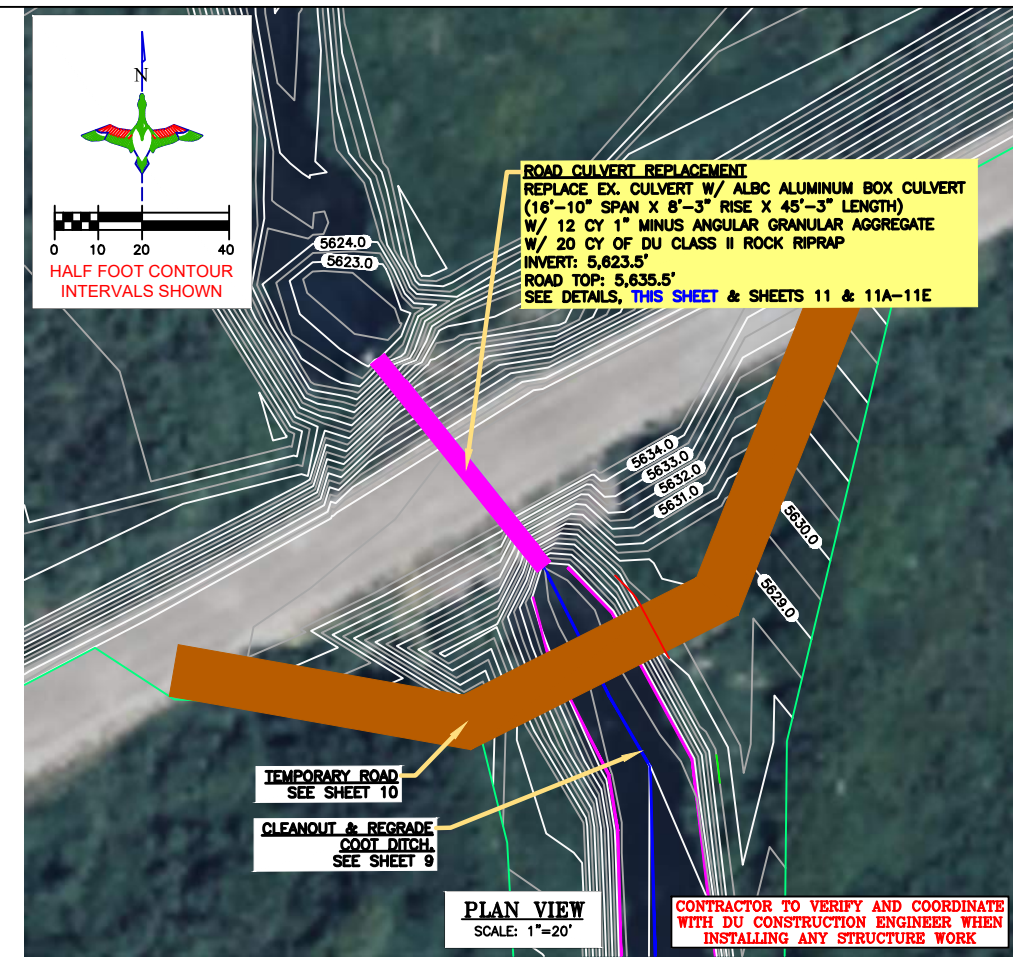
PRELIMINARY
NOT FOR CONSTRUCTION

				DYO40949 ALPINE WETLAND CROSSING ALBC ALPINE, WY ALBC ALUMINUM BOX CULVERT 16'-10" SPAN X 8'-3" RISE	
PROJECT NO.	21901	DRAWN BY	JWV	DATE	04/17/2025
DESIGNED BY	DYO	CHECKED BY	DYO	APPROVED BY	DYO
DATE		REVISION DESCRIPTION	BY	DATE	

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DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375



ROAD CULVERT REPLACEMENT
REPLACE EX. CULVERT W/ ALBC ALUMINUM BOX CULVERT (16'-10" SPAN X 8'-3" RISE X 45'-3" LENGTH) W/ 12 CY 1" MINUS ANGULAR GRANULAR AGGREGATE W/ 20 CY OF DU CLASS II ROCK RIPRAP
INVERT: 5,623.5'
ROAD TOP: 5,635.5'
SEE DETAILS, THIS SHEET & SHEETS 11 & 11A-11E

HALF FOOT CONTOUR INTERVALS SHOWN

TEMPORARY ROAD
SEE SHEET 10

CLEANOUT & REGRADE
FOOT DITCH
SEE SHEET 9

PLAN VIEW
SCALE: 1"=20'

CONTRACTOR TO VERIFY AND COORDINATE WITH DU CONSTRUCTION ENGINEER WHEN INSTALLING ANY STRUCTURE WORK

THE DRAWINGS PRESENTED HERE FROM CONTECH ENGINEERING SOLUTIONS LLC ARE "PRELIMINARY - NOT FOR CONSTRUCTION". CONTRACTOR TO REACH OUT TO CONTECH FOR FINAL DESIGN DRAWINGS.

LEGEND

- PROPERTY BOUNDARY
- EARTHWORK
- CONCRETE HEADWALL/ TAILWALL
- SCREW GATE
- REINFORCED CONCRETE PIPE
- REPLACE CULVERT
- RIPRAP
- TEMPORARY ROAD

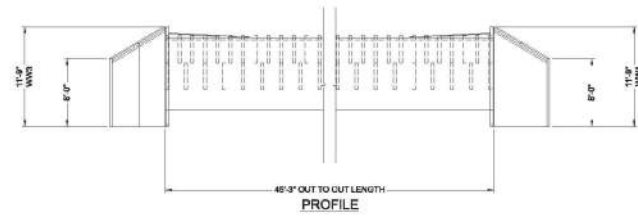
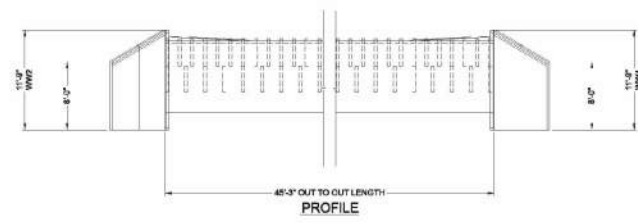
GREAT PLAINS REGIONAL OFFICE
P.E. SEAL:
Professional Engineer
KEVIN JAMES PARKER
15300
Date
WYOMING

DESIGNED BY:	KJV
DRAWN BY:	JWV
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	
REVISION:	
DATE:	
BY:	
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PROJECT: **ALPINE WETLANDS**
SHEET TITLE: **CONTECH CULVERT DESIGN SHEETS 3-4**

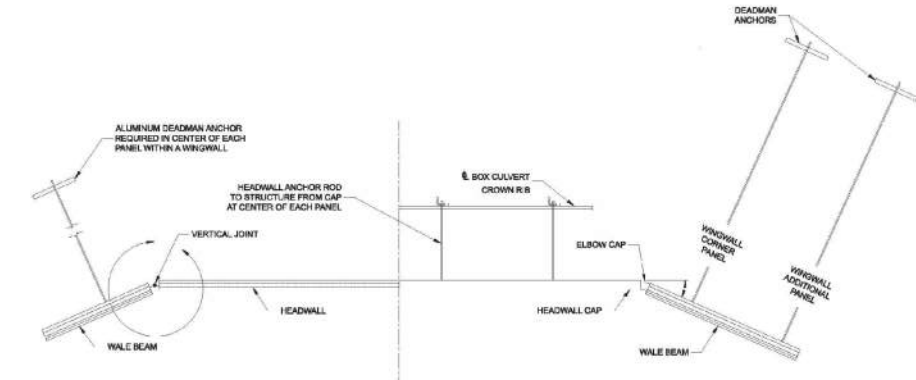
DATE: 04/16/2025
SHEET TITLE: **CONTECH CULVERT DESIGN SHEETS 3-4**

SCALES ARE ACCURATE ON 24"X36" SHEET SIZE
DU PROJECT NUMBER: **WY-178-1**
SHEET NUMBER: **11B**
SHEET 1B OF 20

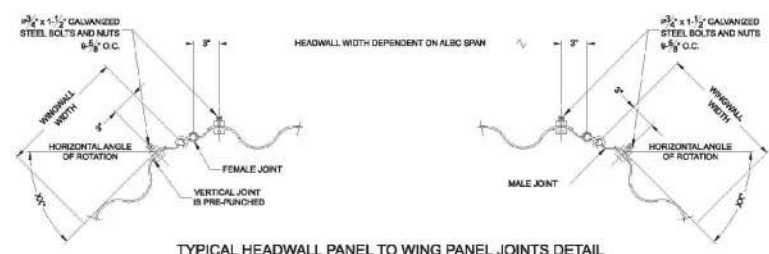


PRELIMINARY
NOT FOR CONSTRUCTION

CONTECH ENGINEERED SOLUTIONS LLC 4855 Center Pointe Dr., Suite 400, West Chester, OH 45386 910-338-7122 913-645-7000 913-645-7993 FAX		CONTECH STRUCTURAL PLATE DYOB (DESIGNED)		DYO40949 ALPINE WETLAND CROSSING ALBC ALPINE, WY ALBC ALUMINUM BOX CULVERT 16'-10" SPAN X 8'-3" RISE		PROJECT NO: 21901 SHEET NO: 40949 DATE: 04/17/2025 DESIGNED: DYD DRAWN: DYD CHECKED: DYD APPROVED: DYD SUBMIT: D5 OF D10
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PLAN VIEW



TYPICAL HEADWALL PANEL TO WING PANEL JOINTS DETAIL (BOTH ENDS)

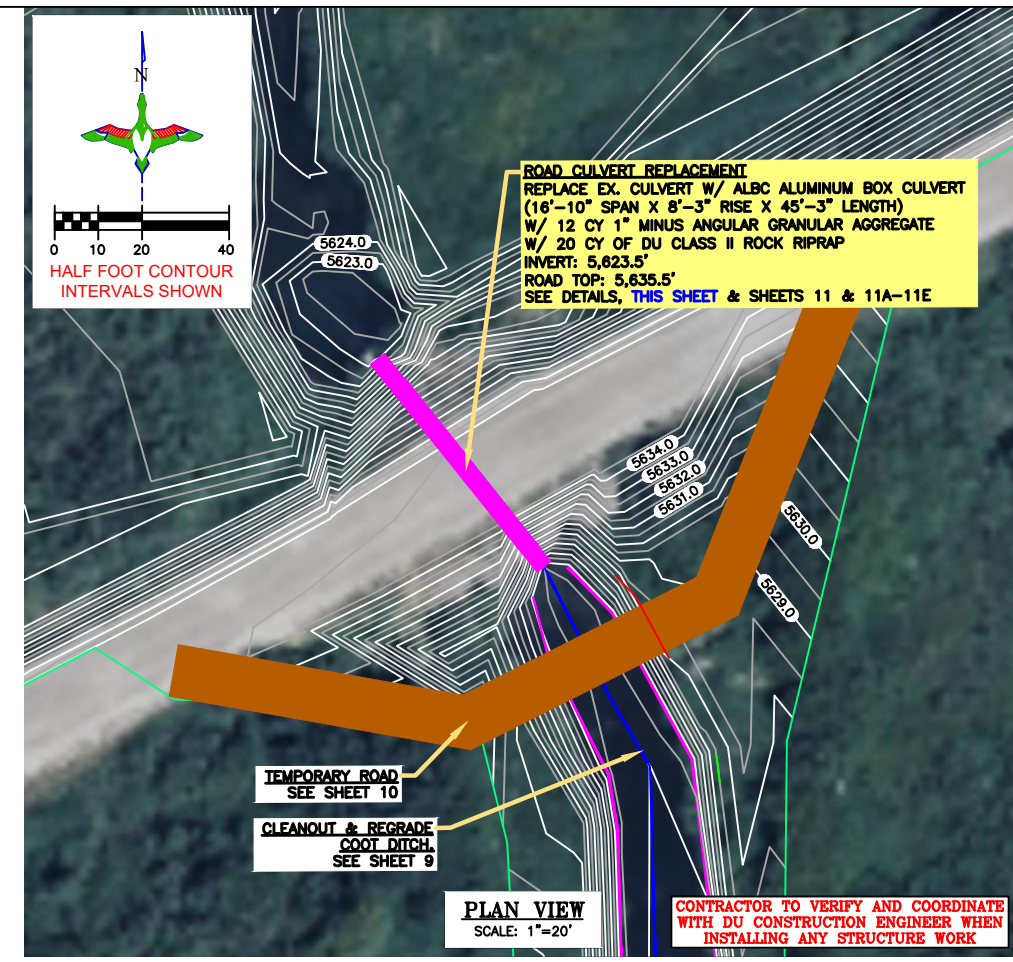
PRELIMINARY
NOT FOR CONSTRUCTION

CONTECH ENGINEERED SOLUTIONS LLC 4855 Center Pointe Dr., Suite 400, West Chester, OH 45386 910-338-7122 913-645-7000 913-645-7993 FAX		CONTECH STRUCTURAL PLATE DYOB (DESIGNED)		DYO40949 ALPINE WETLAND CROSSING ALBC ALPINE, WY ALBC ALUMINUM BOX CULVERT 16'-10" SPAN X 8'-3" RISE		PROJECT NO: 21901 SHEET NO: 40949 DATE: 04/17/2025 DESIGNED: DYD DRAWN: DYD CHECKED: DYD APPROVED: DYD SUBMIT: D6 OF D10
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DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375



PLAN VIEW
SCALE: 1"=20'

CONTRACTOR TO VERIFY AND COORDINATE WITH DU CONSTRUCTION ENGINEER WHEN INSTALLING ANY STRUCTURE WORK

THE DRAWINGS PRESENTED HERE FROM CONTECH ENGINEERING SOLUTIONS LLC ARE "PRELIMINARY - NOT FOR CONSTRUCTION". CONTRACTOR TO REACH OUT TO CONTECH FOR FINAL DESIGN DRAWINGS.

LEGEND

- PROPERTY BOUNDARY
- EARTHWORK
- CONCRETE HEADWALL/ TAILWALL
- SCREW GATE
- REINFORCED CONCRETE PIPE
- REPLACE CULVERT
- RIPRAP
- TEMPORARY ROAD

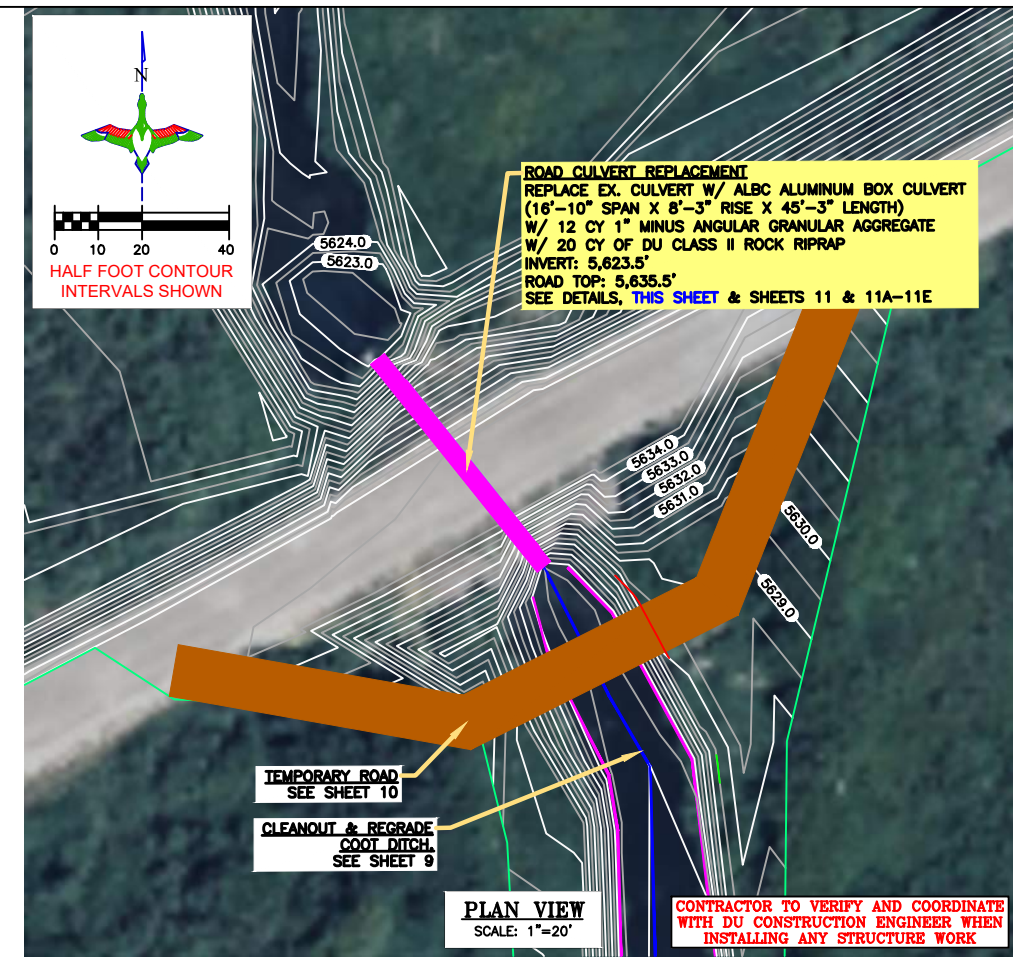
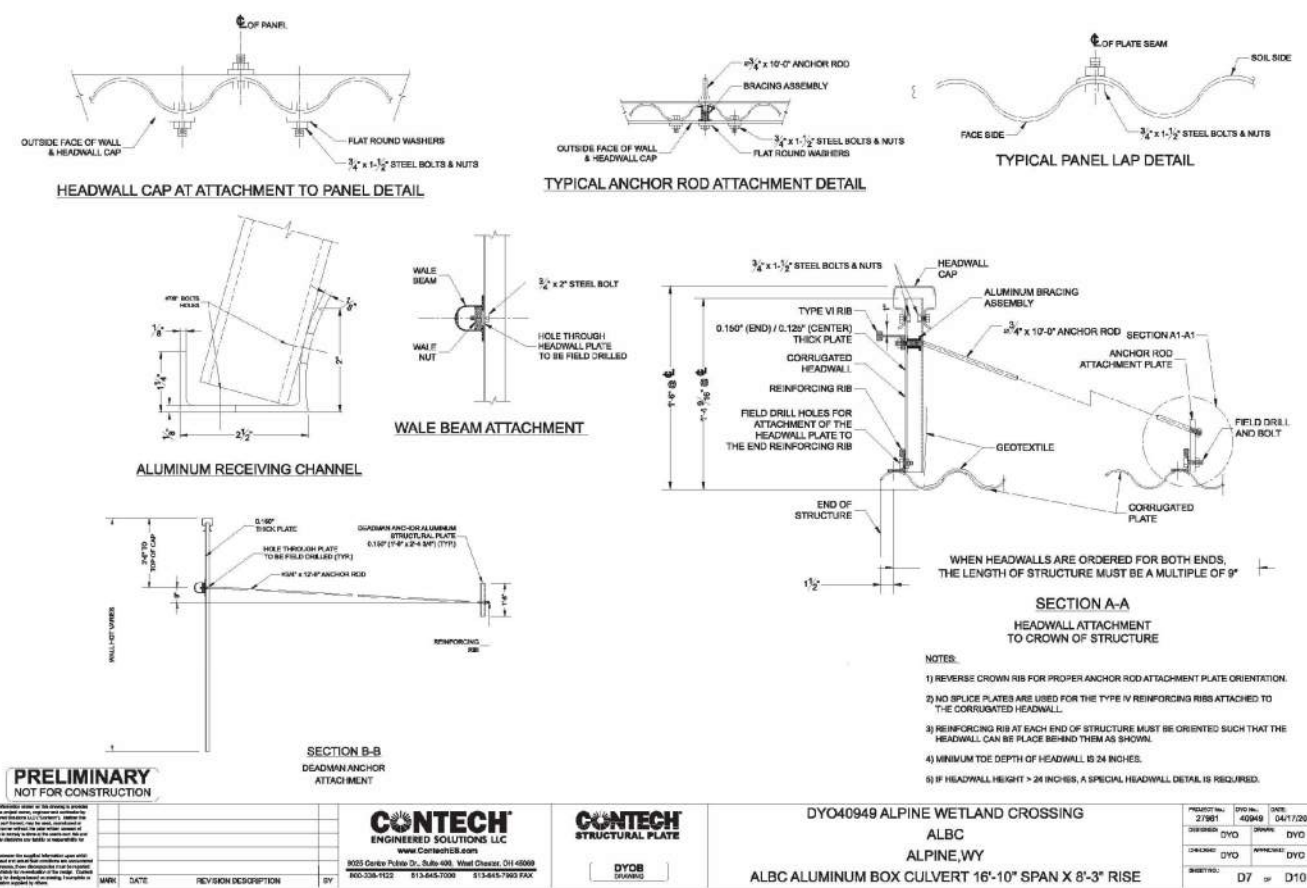
DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE
P.E. SEAL: KEVIN JAMES PARKER, 15300, WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JJW
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
DATE:	
REVISION:	

PROJECT: ALPINE WETLANDS
SHEET TITLE: CONTECH CULVERT DESIGN SHEETS 5-6

DATE: 04/16/2025
SHEET TITLE: CONTECH CULVERT DESIGN SHEETS 5-6

SCALES ARE ACCURATE ON 24"X36" SHEET SIZE
DU PROJECT NUMBER: WY-178-1
SHEET NUMBER: 11C
SHEET 1C OF 20



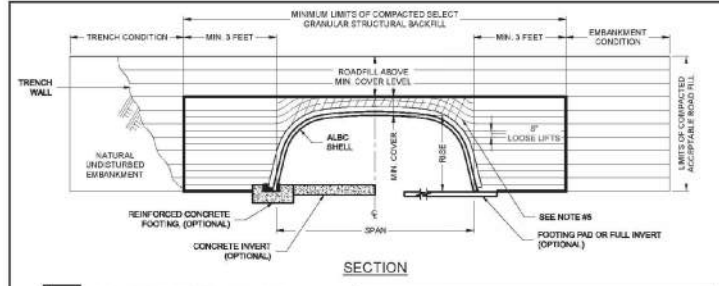
DESIGNED BY: KJP
 DRAWN BY: JWW
 SURVEYED BY: TP
 CHECKED BY:
 APPROVED BY:
 APPROVED BY:

REVISION	DATE	BY
1		
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LEGEND

PROPERTY BOUNDARY	
EARTHWORK	
CONCRETE HEADWALL/ TAILWALL	
SCREW GATE	
REINFORCED CONCRETE PIPE	
REPLACE CULVERT	
RIPRAP	
TEMPORARY ROAD	



ADDITIONAL SPECIFICATIONS AND NOTES:

1. ALL REINFORCING BARS SHALL BE EPOXY COATED...
 2. CONCRETE SHALL BE PLACED IN LAYERS...
 3. RIPRAP SHALL BE PLACED BETWEEN THE SELECT BACKFILL AND THE STRUCTURE...
 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS...

- 10. CONSTRUCTION AND INSTALLATION**
- 10.1. STANDARDS - All standards refer to the current AASHTO...
 10.2. APPROVED - All materials and methods...
 10.3. APPROVED - All materials and methods...
 10.4. APPROVED - All materials and methods...
 10.5. APPROVED - All materials and methods...

- 11. CONSTRUCTION AND INSTALLATION**
- 11.1. STANDARDS - All standards refer to the current AASHTO...
 11.2. APPROVED - All materials and methods...
 11.3. APPROVED - All materials and methods...
 11.4. APPROVED - All materials and methods...
 11.5. APPROVED - All materials and methods...

STRUCTURAL PLATE BACKFILL GROUP CLASSIFICATION	A-1-A	A-1-B	A-2-A	A-2-B	A-3
Minimum Depth (ft)	30	30	30	30	30
Minimum Width (ft)	10	10	10	10	10
Minimum Thickness (in)	10	10	10	10	10

- 12. CONSTRUCTION AND INSTALLATION**
- 12.1. STANDARDS - All standards refer to the current AASHTO...
 12.2. APPROVED - All materials and methods...
 12.3. APPROVED - All materials and methods...
 12.4. APPROVED - All materials and methods...

CONTECH ENGINEERING SOLUTIONS LLC
 8000 Centre Pointe Dr., Suite 400, Wood County, OH 43086
 614-443-1122 614-443-7891 614-443-7892 FAX

ALBC SPECIFICATIONS

"BEFORE YOU DIG"
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DU PROJECT ENGINEER:
 THOMAS PARKER, P.E.
 (970) 692-3375

PROJECT: ALPINE WETLANDS
 SHEET TITLE: CONTECH CULVERT DESIGN SHEETS 7-8

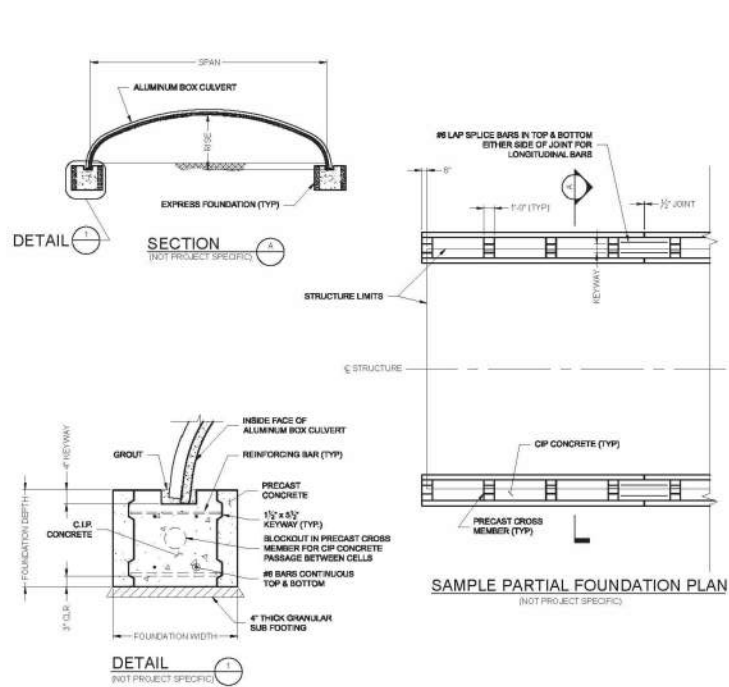
DATE: 04/16/2025

SHEET TITLE: CONTECH CULVERT DESIGN SHEETS 7-8

DU PROJECT NUMBER: WY-178-1

SHEET NUMBER: 11D
 SHEET 1D OF 20

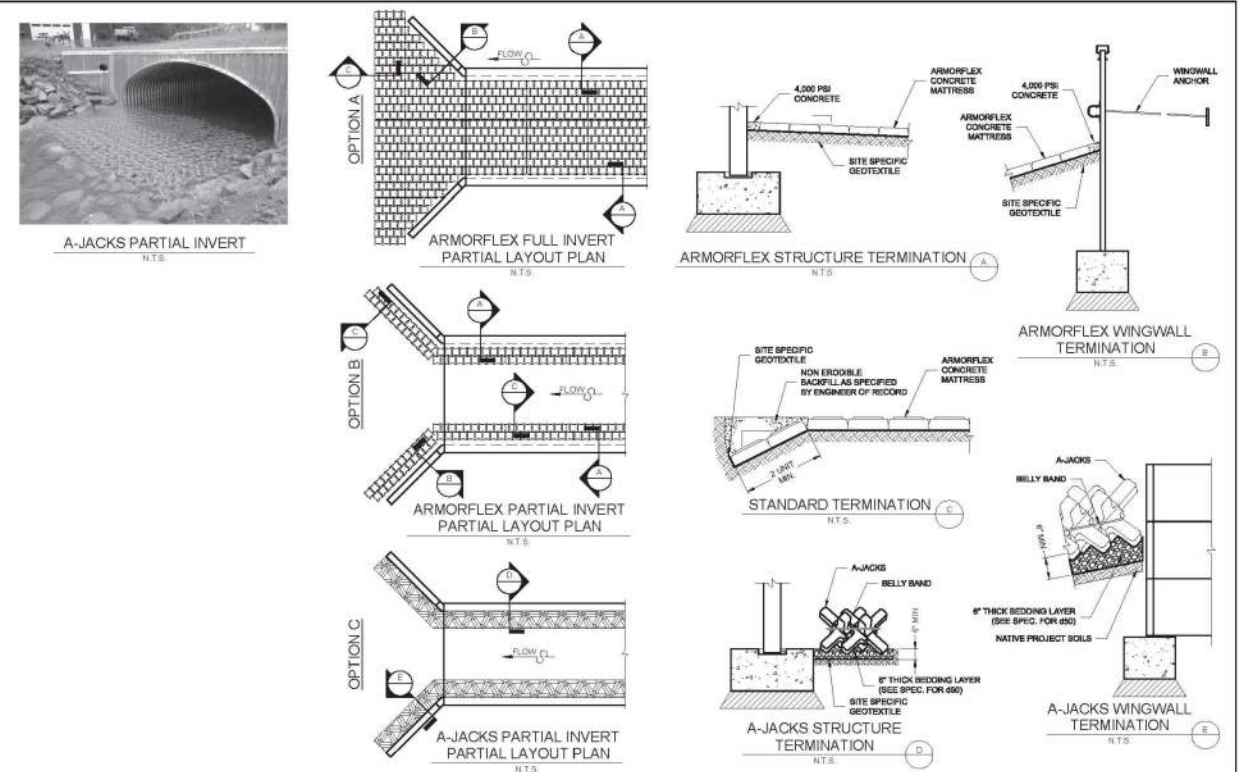
SAMPLE DRAWING ONLY



EXPRESS FOUNDATIONS

				ALBC EXPRESS FOUNDATION SAMPLES	
DATE	REVISION	DESCRIPTION	BY	DATE	DESCRIPTION

SAMPLE DRAWING ONLY

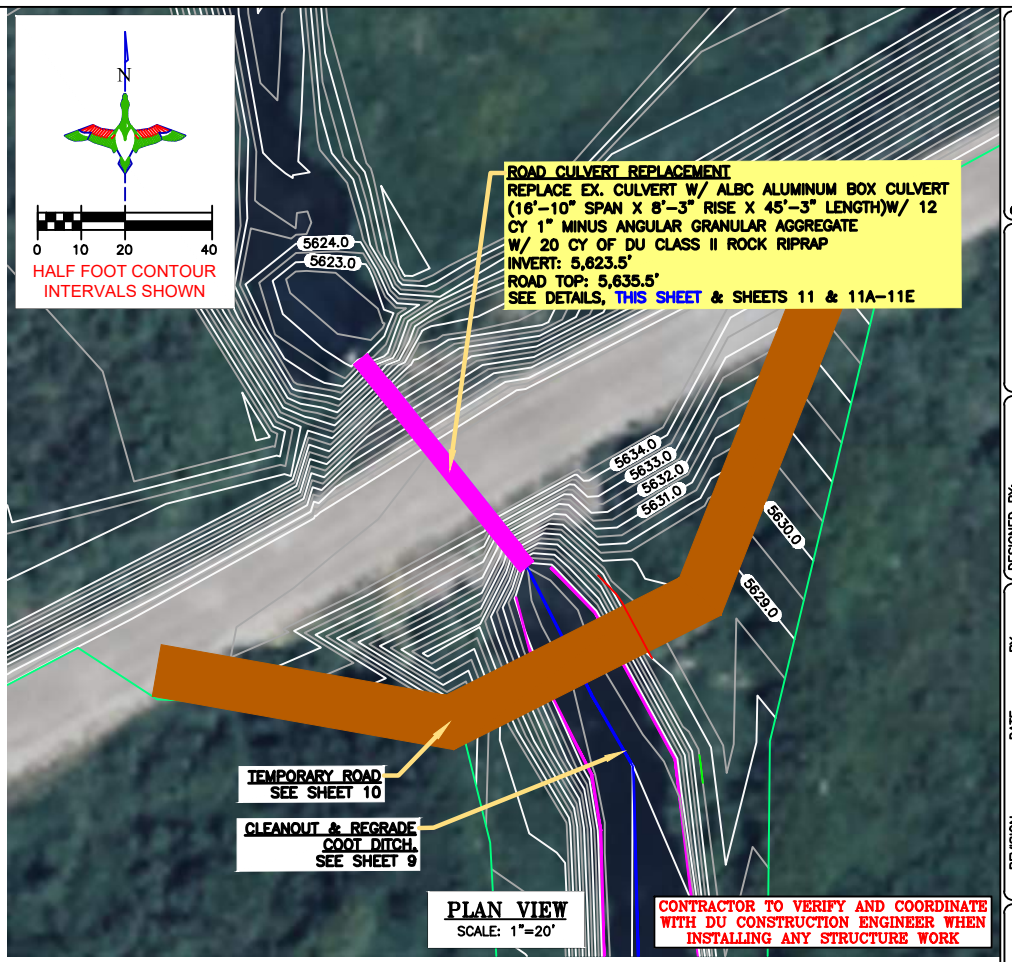


				ALBC ARMORTEC SAMPLES	
DATE	REVISION	DESCRIPTION	BY	DATE	DESCRIPTION

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DU PROJECT ENGINEER:
 THOMAS PARKER, P.E.
 (970) 692-3375



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LEGEND	
PROPERTY BOUNDARY	
EARTHWORK	
CONCRETE HEADWALL/ TAILWALL	
SCREW GATE	
REINFORCED CONCRETE PIPE	
REPLACE CULVERT	
RIPRAP	
TEMPORARY ROAD	

GREAT PLAINS REGIONAL OFFICE
 P.E. SEAL:
 Professional Engineer
 KEVIN JAMES PARKER
 15300
 Date
 WYOMING




DESIGNED BY:	KJW
DRAWN BY:	JWV
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	
DATE:	
REVISION:	
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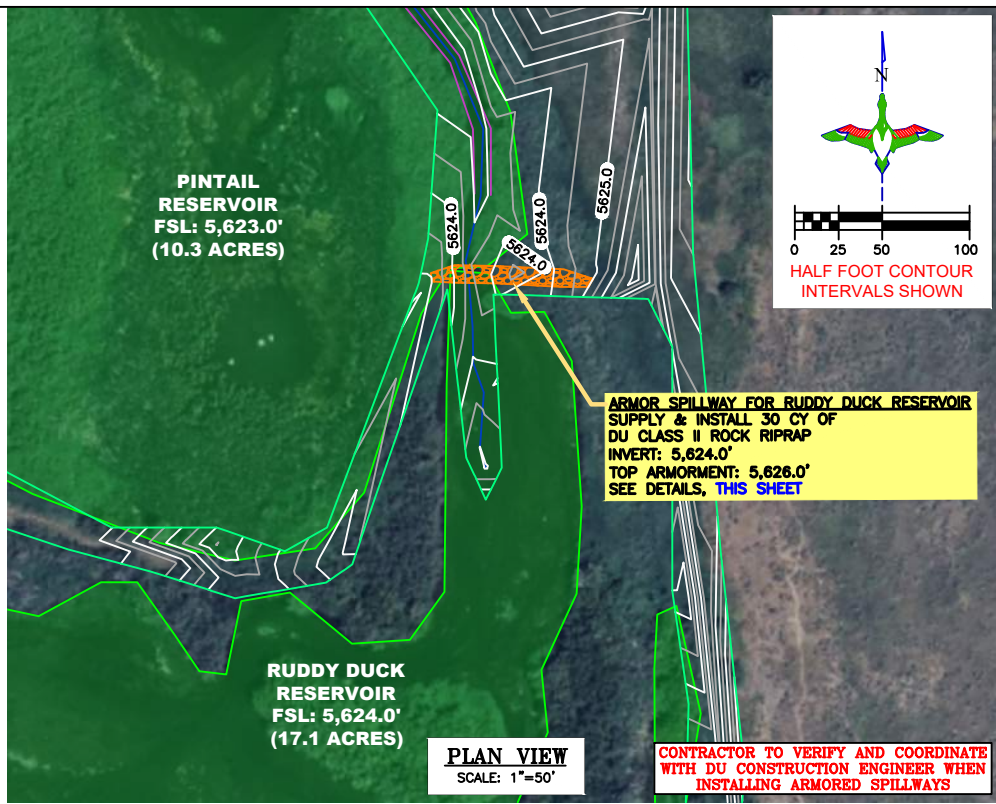
PROJECT: ALPINE WETLANDS
 SHEET TITLE: CONTECH CULVERT DESIGN SHEETS 9-10

DATE: 04/16/2025
 SHEET TITLE: CONTECH CULVERT DESIGN SHEETS 9-10

SCALES ARE ACCURATE ON 24"x36" SHEET SIZE
 DU PROJECT NUMBER: WY-178-1

SHEET NUMBER:
11E
 SHEET 1E OF 20

- LEGEND**
- PROPERTY BOUNDARY 
 - FULL SERVICE LEVEL (FSL) 
 - RIPRAP 



PLAN VIEW
SCALE: 1"=50'

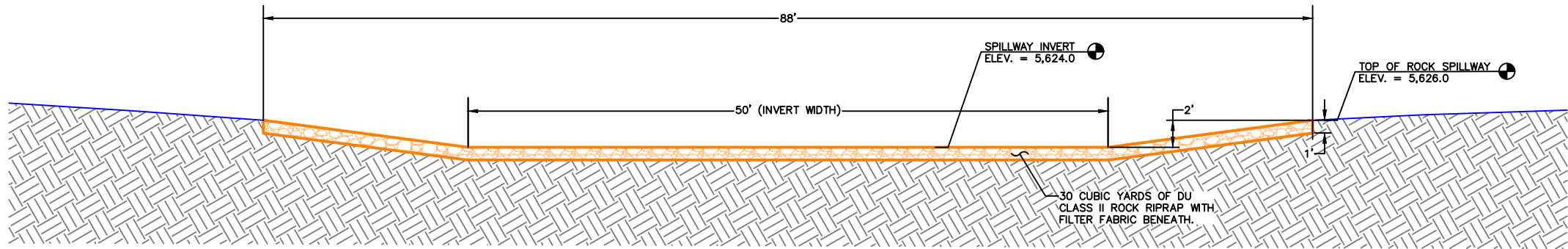
CONTRACTOR TO VERIFY AND COORDINATE WITH DU CONSTRUCTION ENGINEER WHEN INSTALLING ARMORED SPILLWAYS



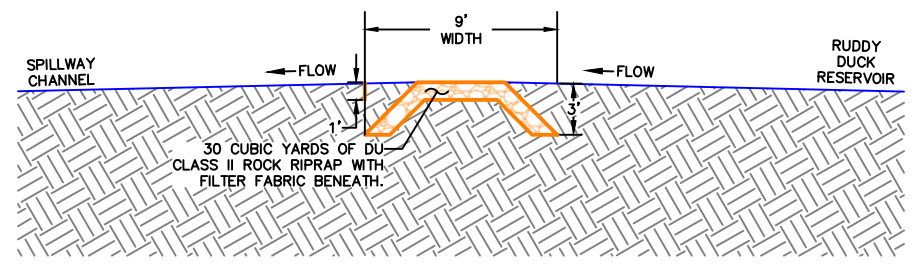
DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE
P.E. SEAL:
Professional Engineer (Civil)
KEVIN JAMES PARKER
15300
Date
WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JJW
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	

REVISION:	DATE:	BY:
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ARMORED SPILLWAY SECTION CUT (RUDDY DUCK RESERVOIR)
SCALE 1"=5'



ARMORED SPILLWAY PROFILE VIEW (RUDDY DUCK RESERVOIR)
SCALE 1"=5'

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DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375

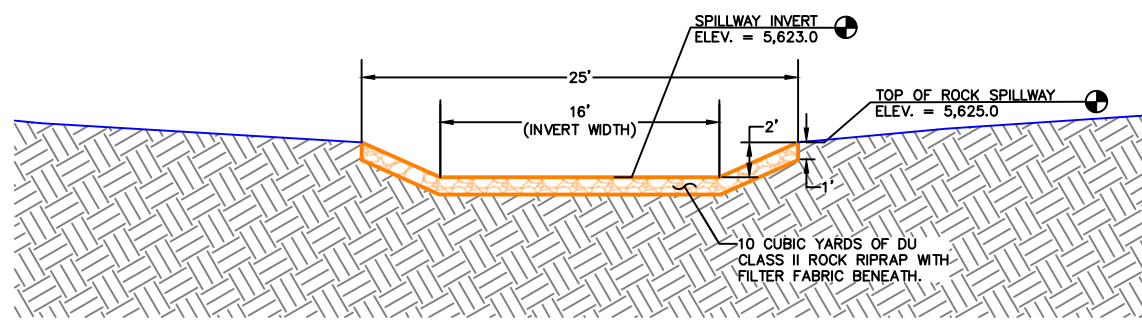
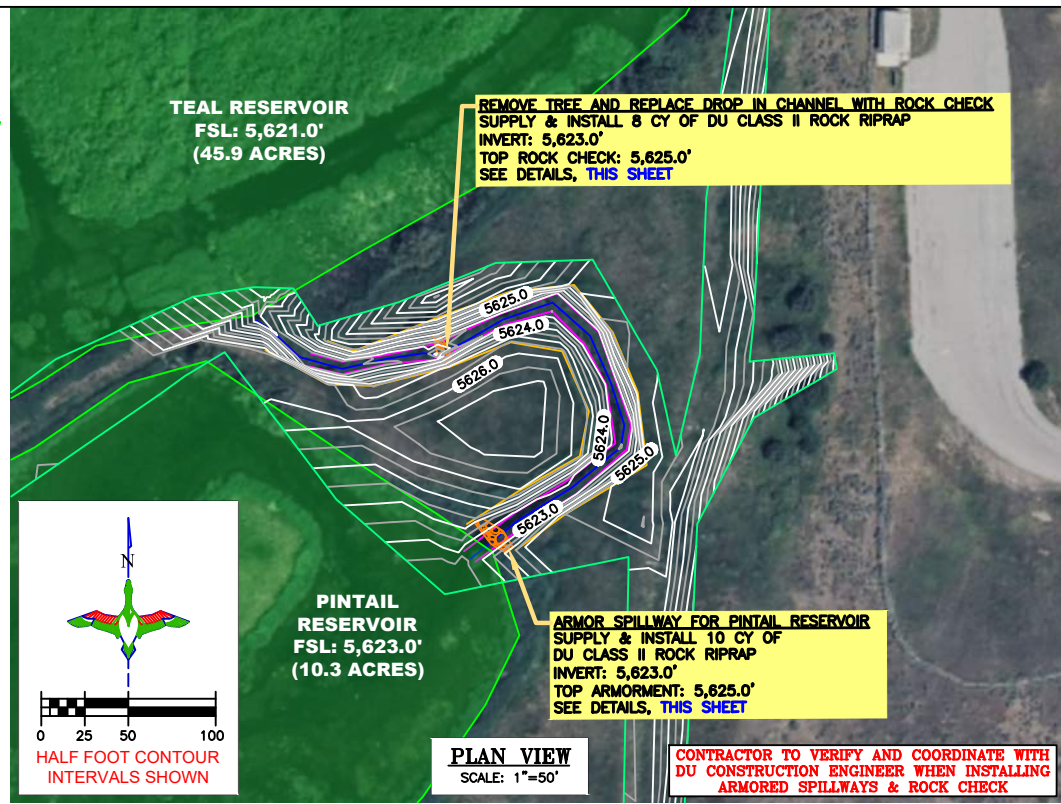
PROJECT: ALPINE WETLANDS
SHEET TITLE: RUDDY DUCK RESERVOIR ARMORED SPILLWAY

DATE: 04/16/2025
SHEET NUMBER: 12

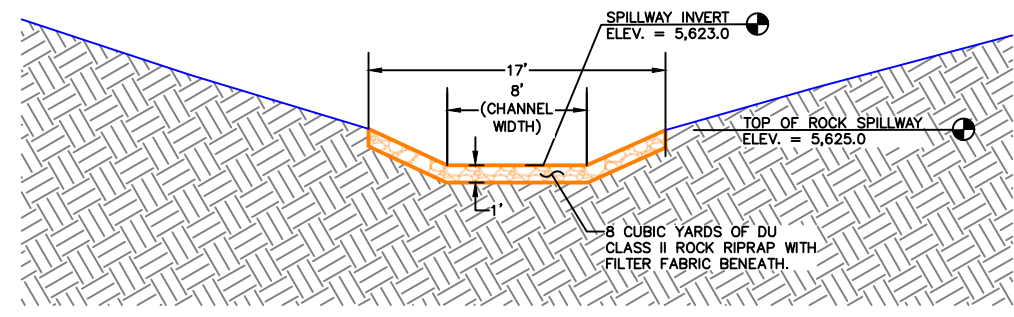
SCALES ARE ACCURATE ON 24"X36" SHEET SIZE
DU PROJECT NUMBER: WY-178-1
SHEET NUMBER: 12
SHEET 12 OF 20

LEGEND

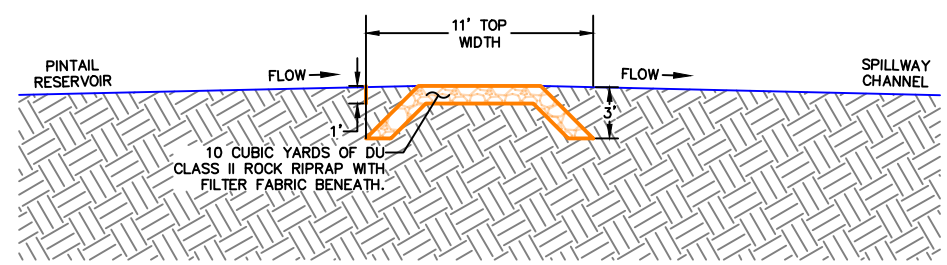
PROPERTY BOUNDARY	
FULL SERVICE LEVEL (FSL)	
RIPRAP	



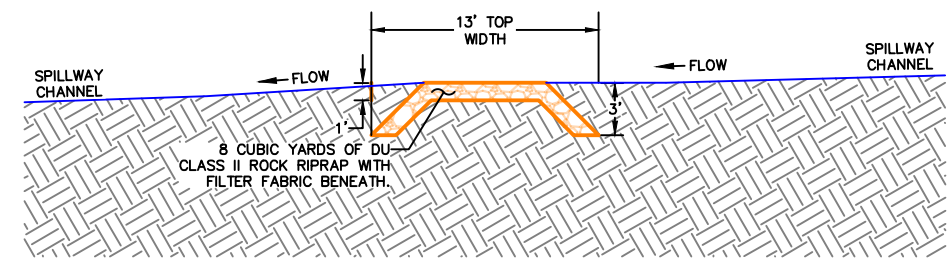
ARMORED SPILLWAY SECTION CUT (PINTAIL RESERVOIR)
SCALE 1"=5'



ROCK CHECK SECTION CUT (PINTAIL RESERVOIR)
SCALE 1"=5'



ARMORED SPILLWAY PROFILE VIEW (PINTAIL RESERVOIR)
SCALE 1"=5'



ROCK CHECK PROFILE VIEW (PINTAIL RESERVOIR)
SCALE 1"=5'



DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE

P.E. SEAL:
Professional Engineer (Civil)
KEVIN JAMES PARKER
15300
Date
WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JWV
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	

BY:	
DATE:	
REVISION:	
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PROJECT: **ALPINE WETLANDS**

SHEET TITLE: **PINTAIL RESERVOIR ARMORED SPILLWAY & ROCK CHECK**

DATE: 04/16/2025

SHEET TITLE: **PINTAIL RESERVOIR ARMORED SPILLWAY & ROCK CHECK**

SCALES ARE ACCURATE ON 24"X36" SHEET SIZE

DU PROJECT NUMBER: **WY-178-1**


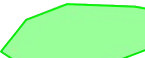

SHEET NUMBER: **13**
SHEET 13 OF 20

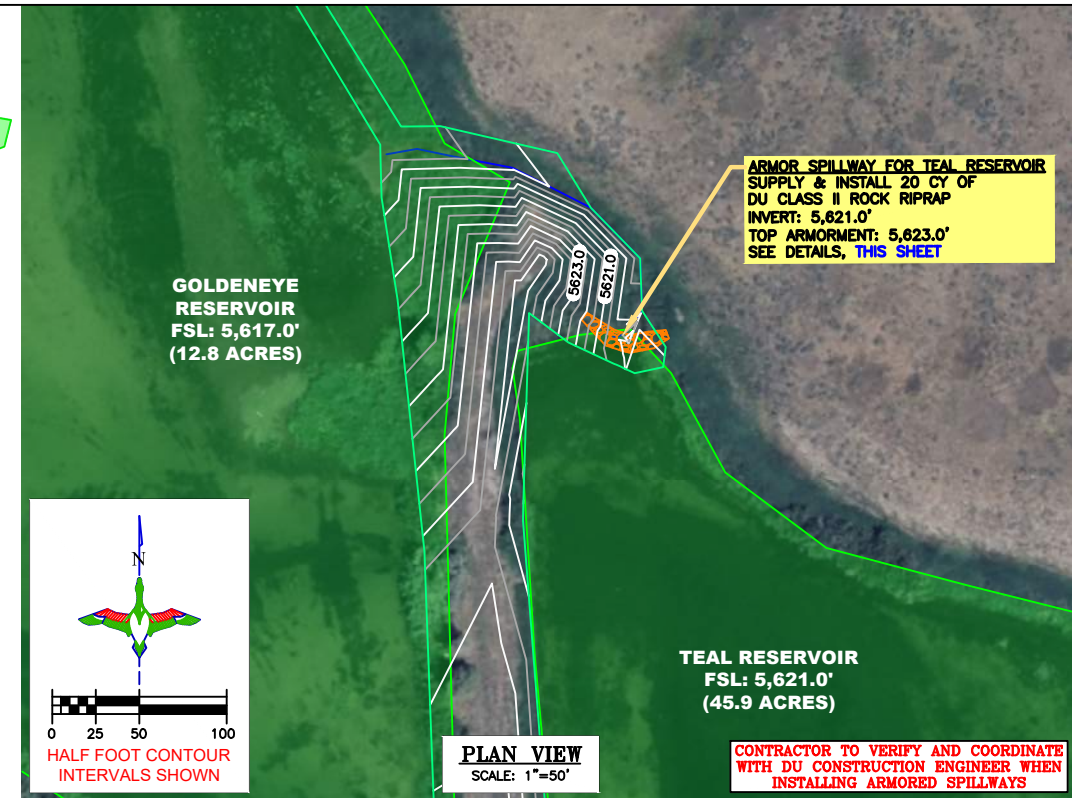
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DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375

LEGEND

- PROPERTY BOUNDARY 
- FULL SERVICE LEVEL (FSL) 
- RIPRAP 

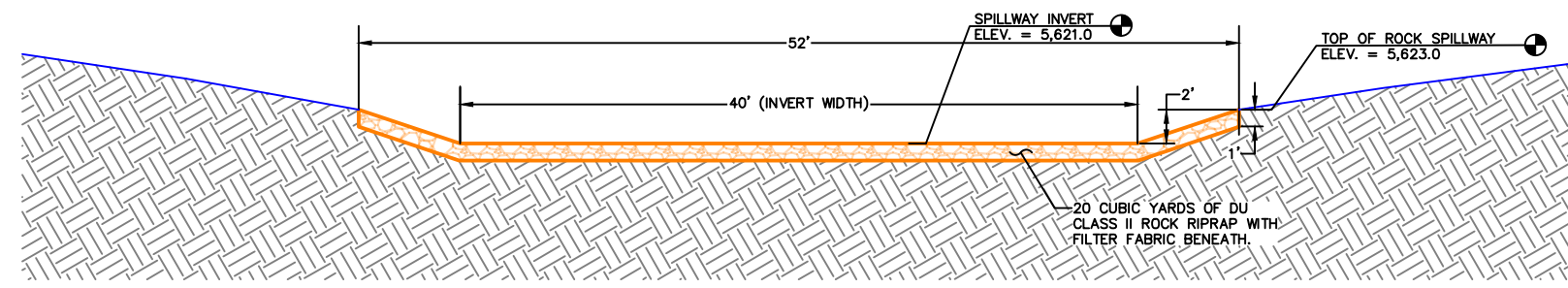



DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE

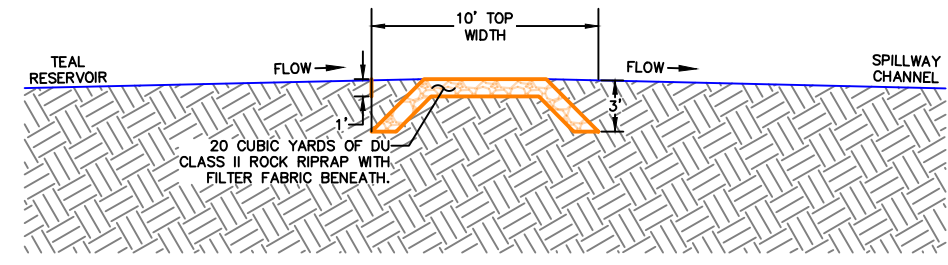
P.E. SEAL:
Professional Engineer (Civil)
KEVIN JAMES PARKER
15300
Date
WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JJW
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	

REVISION:	DATE:	BY:
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ARMORED SPILLWAY SECTION CUT (TEAL RESERVOIR)
SCALE 1"=5'



ARMORED SPILLWAY PROFILE VIEW (TEAL RESERVOIR)
SCALE 1"=5'

PROJECT: **ALPINE WETLANDS**

SHEET TITLE: **TEAL RESERVOIR ARMORED SPILLWAY**

DATE: 04/16/2025

SHEET TITLE: **TEAL RESERVOIR ARMORED SPILLWAY**

SCALES ARE ACCURATE ON 24"x36" SHEET SIZE

DU PROJECT NUMBER: **WY-178-1**





SHEET NUMBER: **14**
SHEET 14 OF 20

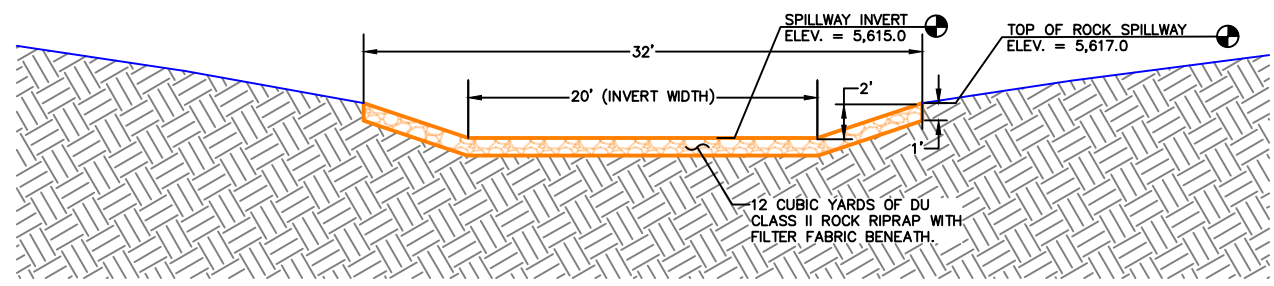
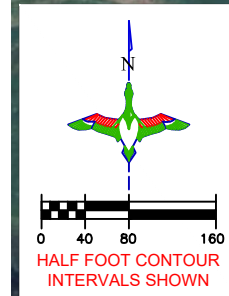
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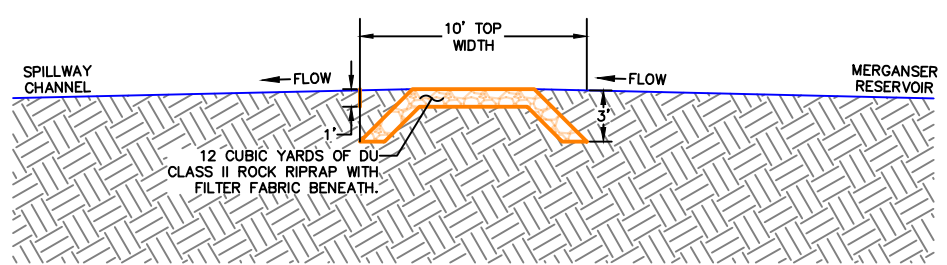
DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375

LEGEND

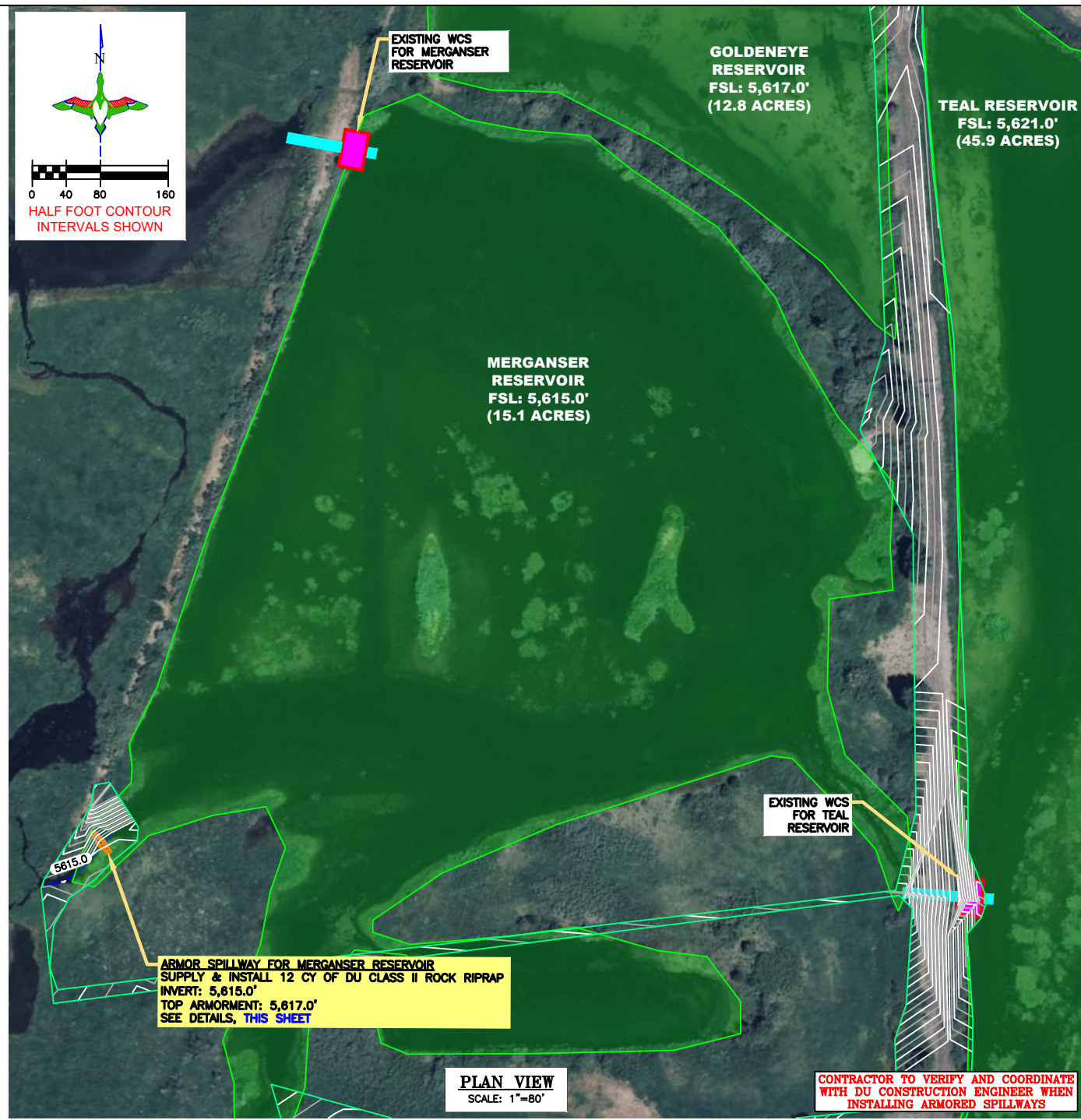
PROPERTY BOUNDARY	
FULL SERVICE LEVEL (FSL)	
RIPRAP	
WATER CONTROL STRUCTURE (AGRI-DRAIN)	



AMORED SPILLWAY SECTION CUT (MERGANSER RESERVOIR)
SCALE 1"=5'



ARMORED SPILLWAY PROFILE VIEW (MERGANSER RESERVOIR)
SCALE 1"=5'



PLAN VIEW
SCALE: 1"=80'



DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE
P.E. SEAL:
Professional Engineer (Civil)
KEVIN JAMES PARKER
15300
Date
WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JWV
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	

REVISION:	DATE:	BY:
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PROJECT:	ALPINE WETLANDS
SHEET TITLE:	MERGANSER RESERVOIR ARMORED SPILLWAY

DATE:	04/16/2025
SHEET TITLE:	MERGANSER RESERVOIR ARMORED SPILLWAY





SCALES ARE ACCURATE ON 24"x36" SHEET SIZE	
DU PROJECT NUMBER:	WY-178-1
SHEET NUMBER:	15
SHEET 15 OF 20	

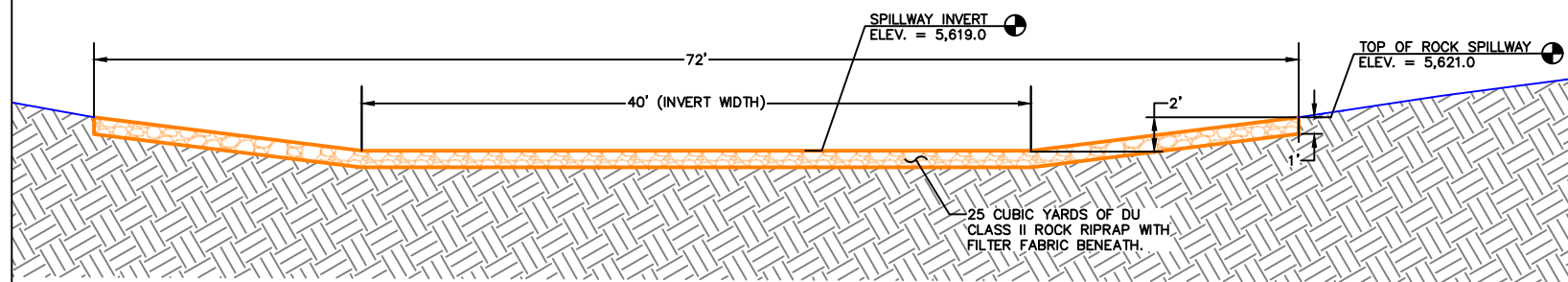
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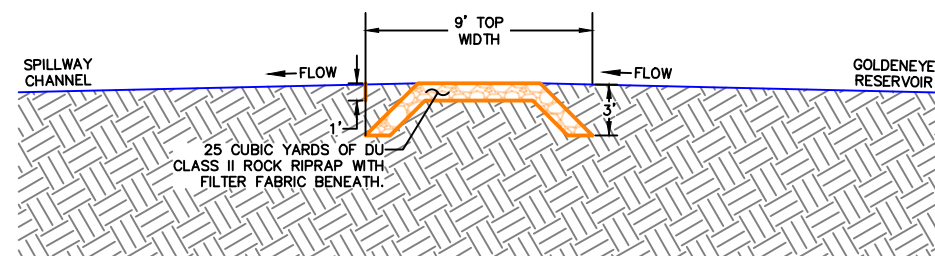
DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375

LEGEND

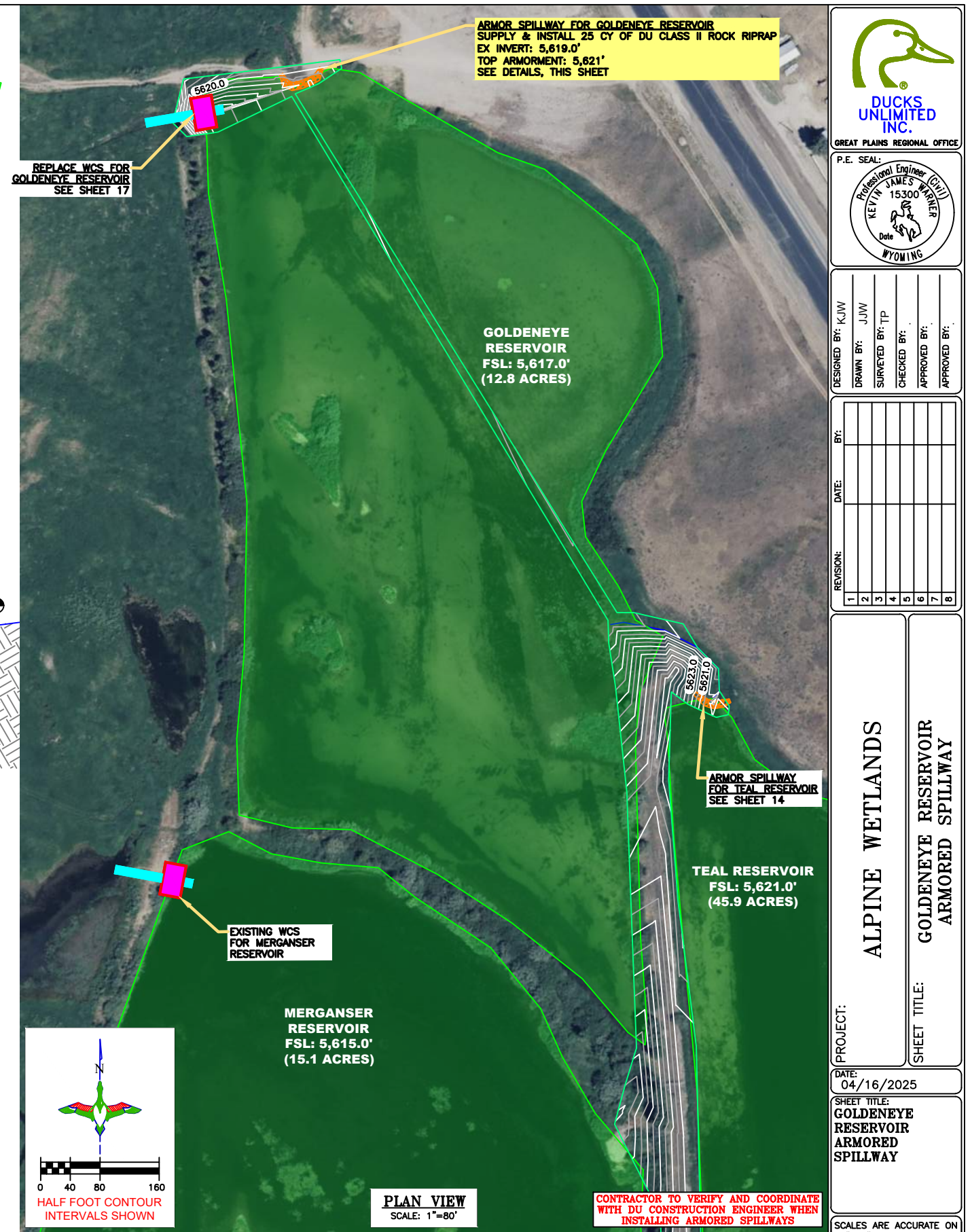
- PROPERTY BOUNDARY 
- FULL SERVICE LEVEL (FSL) 
- RIPRAP 
- WATER CONTROL STRUCTURE (AGRI-DRAIN) 



ARMORED SPILLWAY SECTION CUT (GOLDENEYE RESERVOIR)
SCALE 1"=5'



ARMORED SPILLWAY PROFILE VIEW (GOLDENEYE RESERVOIR)
SCALE 1"=5'



PLAN VIEW
SCALE: 1"=80'

ARMOR SPILLWAY FOR GOLDENEYE RESERVOIR
SUPPLY & INSTALL 25 CY OF DU CLASS II ROCK RIPRAP
EX INVERT: 5,619.0'
TOP ARMORMENT: 5,621'
SEE DETAILS, THIS SHEET

REPLACE WCS FOR GOLDENEYE RESERVOIR
SEE SHEET 17

ARMOR SPILLWAY FOR TEAL RESERVOIR
SEE SHEET 14

EXISTING WCS FOR MERGANSER RESERVOIR



DUCKS UNLIMITED INC.
GREAT PLAINS REGIONAL OFFICE

P.E. SEAL:
Professional Engineer (Civil)
KEVIN JAMES PARKER
15300
Date
WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JJW
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	

PROJECT: ALPINE WETLANDS
SHEET TITLE: GOLDENEYE RESERVOIR ARMORED SPILLWAY

DATE: 04/16/2025
SHEET TITLE: GOLDENEYE RESERVOIR ARMORED SPILLWAY

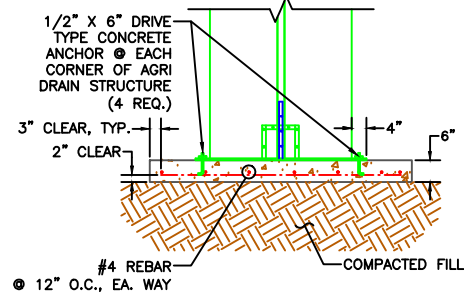
SCALES ARE ACCURATE ON 24"x36" SHEET SIZE
DU PROJECT NUMBER: WY-178-1
SHEET NUMBER: 16
SHEET 16 OF 20

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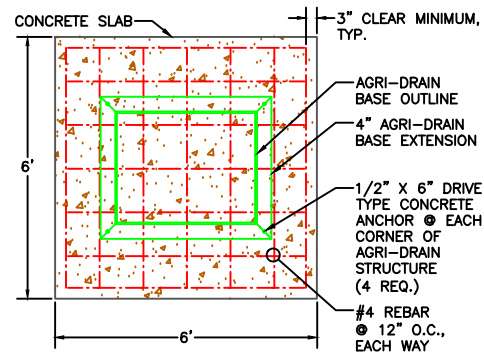
"BEFORE YOU DIG"
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DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
(970) 692-3375

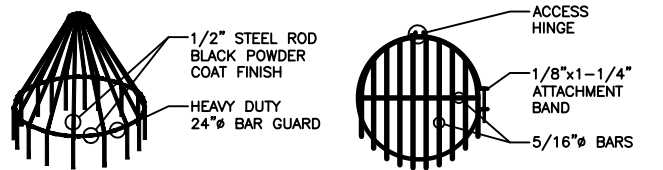
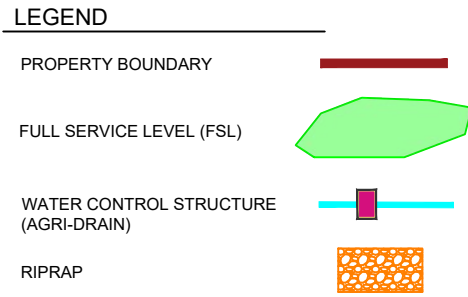
CONCRETE SLAB NOTES:
 1. THE CONCRETE SLAB OR APPROVED EQUAL AND ITS INSTALLATION WILL BE CONSIDERED INCIDENTAL TO BID ITEMS UNDER "WATER CONTROL STRUCTURE - SUPPLY & INSTALL".



PIPE NOT SHOWN FOR CLARITY.
AGRI DRAIN CONCRETE SLAB PROFILE
 SCALE: 1"=2"



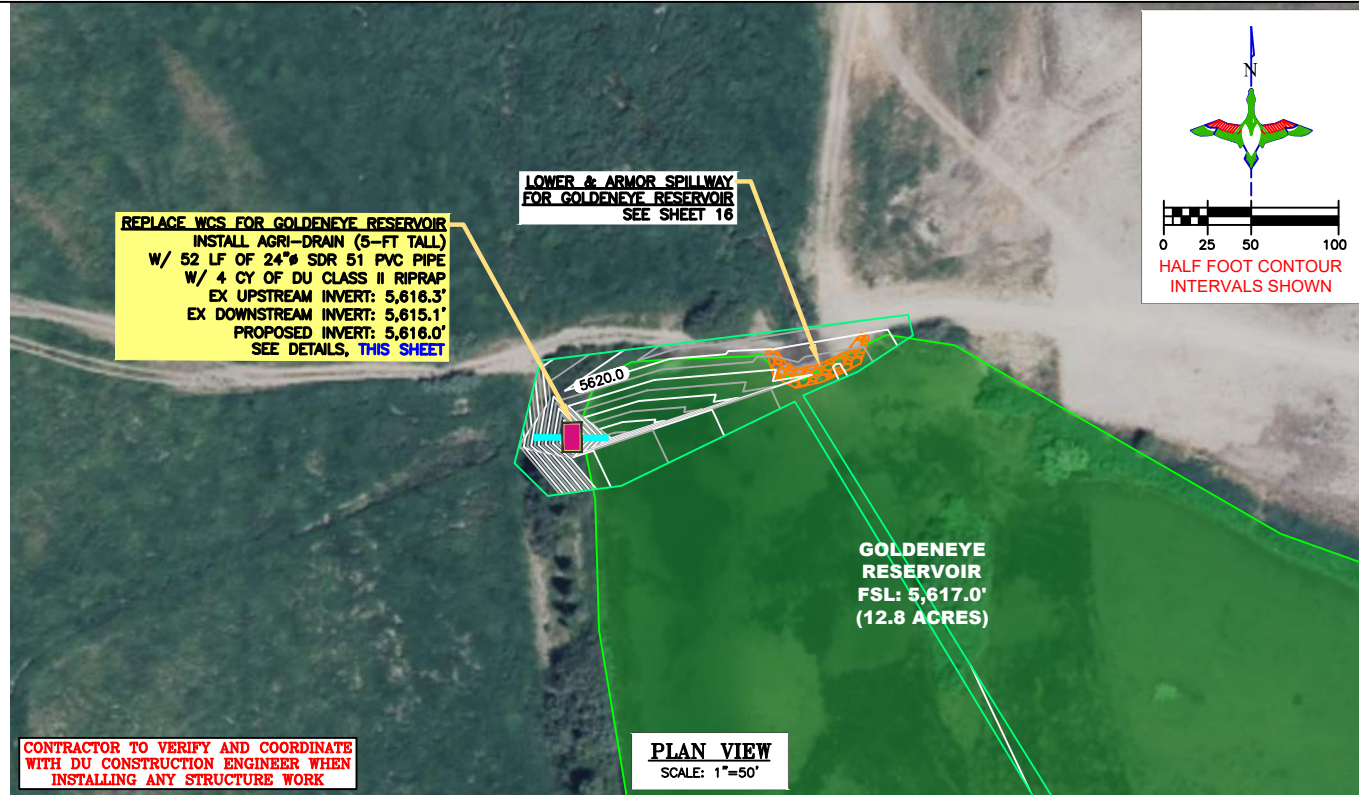
PIPE NOT SHOWN FOR CLARITY.
AGRI DRAIN CONCRETE SLAB PLAN
 SCALE: 1"=2"



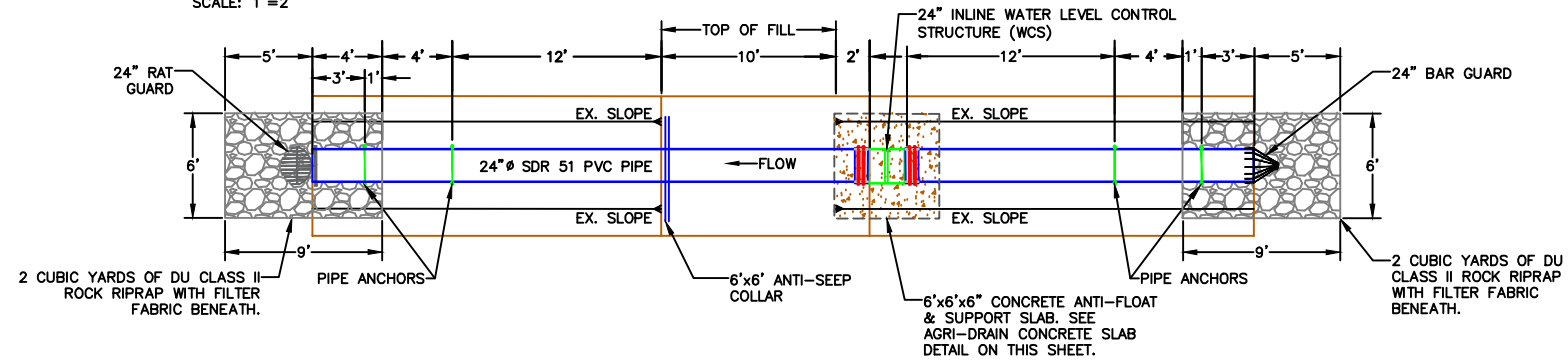
HEAVY DUTY 24" BAR GUARD **24" RAT GUARD, BAND-TYPE**
 NOT TO SCALE

BAR GUARD/RAT GUARD INSTALLATION NOTES:
 1. THE BAR GUARD/RAT GUARD OR APPROVED EQUAL AND ITS INSTALLATION WILL BE CONSIDERED INCIDENTAL TO BID ITEMS UNDER "WATER CONTROL STRUCTURE - SUPPLY & INSTALL".
 2. BAR GUARD TO BE INSTALLED ON THE UPSTREAM LOCATION OF THE WCS.
 3. RAT GUARD TO BE INSTALLED ON THE DOWNSTREAM LOCATION OF THE WCS.
 4. AGRI DRAIN CORP. TELEPHONE NUMBER IS 1-800-232-4742.

CONTRACTOR TO VERIFY AND COORDINATE WITH DU CONSTRUCTION ENGINEER WHEN INSTALLING ANY STRUCTURE WORK



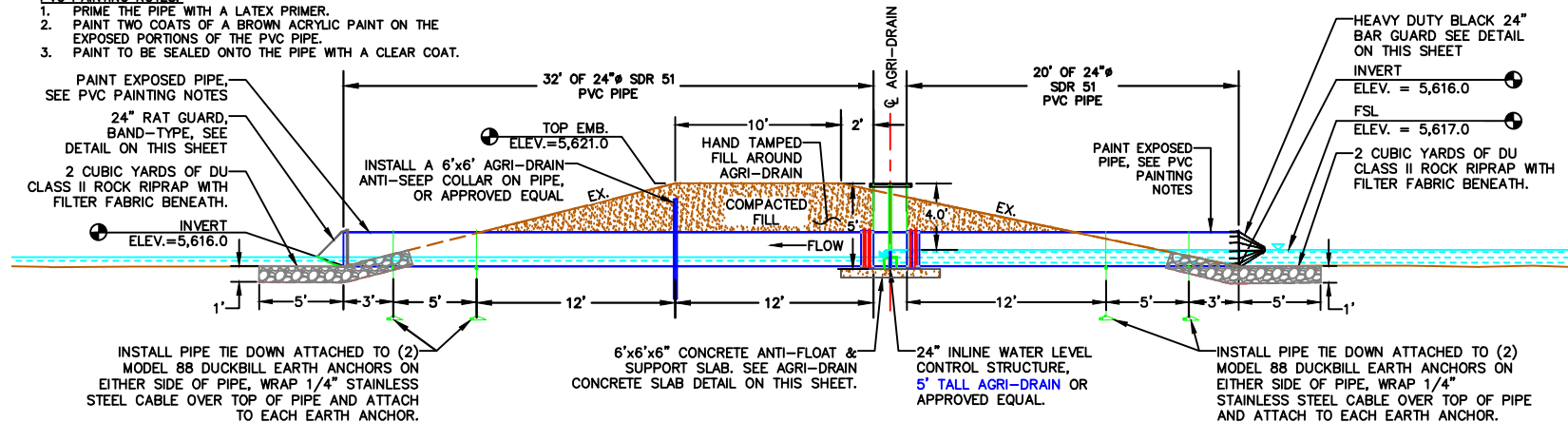
PLAN VIEW
 SCALE: 1"=50'



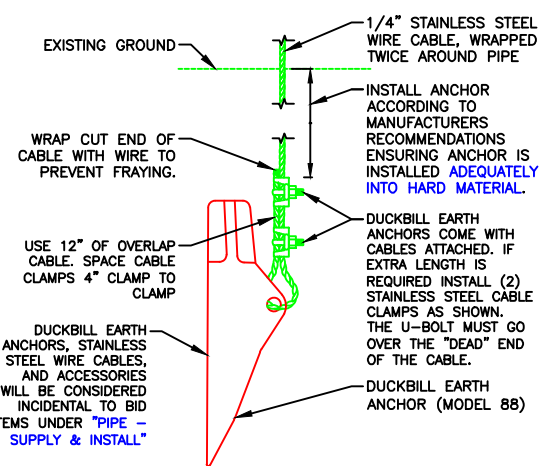
AGRI DRAIN STRUCTURE PLAN
 SCALE 1"=5' (GOLDENEYE WCS)

AGRI DRAIN STRUCTURE INSTALLATION NOTES:
 1. STRUCTURE, CONCRETE BASE, INLET AND OUTLET PIPE SHALL BE PLACED ON A LEVEL SURFACE OF COMPACTED SOIL.
 2. LEVEL STRUCTURE VERTICALLY PRIOR TO PLACING BACKFILL. BACKFILL AROUND STRUCTURE BY HAND IN 6" LIFTS. HAND TAMP ONLY. COST OF STRUCTURE INSTALLATION SHALL BE PAID AS BID ITEM UNDER "WATER CONTROL STRUCTURE - SUPPLY & INSTALL".
 3. ANTI-SEEP COLLARS WILL BE CONSIDERED INCIDENTAL TO BID ITEMS UNDER "PIPE - SUPPLY & INSTALL".
 4. AGRI DRAIN PVC STOP LOGS SHALL BE WATERTIGHT AND PROVIDED BY SUPPLIER.
 5. STOP LOGS WILL BE CONSIDERED INCIDENTAL TO BID ITEMS UNDER "WATER CONTROL STRUCTURE - SUPPLY & INSTALL".
 6. DUCKBILL EARTH ANCHORS, STAINLESS STEEL WIRE CABLES, AND ACCESSORIES WILL BE CONSIDERED INCIDENTAL TO BID ITEMS UNDER "PIPE - SUPPLY & INSTALL".
 7. AGRI DRAIN CORP. TELEPHONE NUMBER IS 1-800-232-4742 SPECIFY SIZE AND TYPE OF PIPE WHEN ORDERING. ORDER BASE EXTENSION TO ALLOW ANCHORING OF AGRI DRAIN TO CONCRETE SLAB.

PVC PAINTING NOTES:
 1. PRIME THE PIPE WITH A LATEX PRIMER.
 2. PAINT TWO COATS OF A BROWN ACRYLIC PAINT ON THE EXPOSED PORTIONS OF THE PVC PIPE.
 3. PAINT TO BE SEALED ONTO THE PIPE WITH A CLEAR COAT.



AGRI DRAIN STRUCTURE PROFILE
 SCALE 1"=5' (GOLDENEYE WCS)



DUCKBILL EARTH ANCHOR (MODEL 88) DETAIL
 NOT TO SCALE

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DU PROJECT ENGINEER:
 THOMAS PARKER, P.E.
 (970) 692-3375

DUCKS UNLIMITED INC.
 GREAT PLAINS REGIONAL OFFICE
 P.E. SEAL: KEVIN JAMES PARKER, 15300, WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JWV
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
DATE:	
REVISION:	

ALPINE WETLANDS

GOLDENEYE WCS REPLACEMENT

PROJECT: GOLDENEYE WCS REPLACEMENT

DATE: 04/16/2025

SCALE: ACCURATE ON 24"x36" SHEET SIZE

DU PROJECT NUMBER: WY-178-1

SHEET NUMBER: 17

SHEET 17 OF 20



AUTOMATED TRAFFIC SIGNALS

AUTOMATED TRAFFIC SIGNALS
 PROVIDE (2) AUTOMATED TRAFFIC SIGNALS TO ALLOW ONE LANE OF TRAFFIC TO TRAVEL ON THE TEMPORARY ROAD AT A TIME.

ROAD CLOSED SIGN
 PROVIDE ROAD CLOSED SIGN ON EACH SIDE OF CONSTRUCTION ZONE

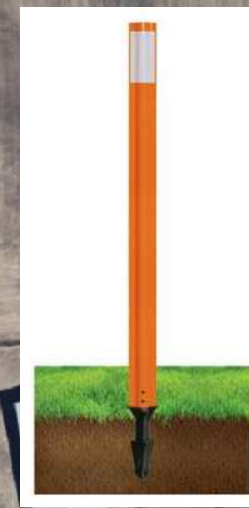
TEMPORARY BYPASS ROAD
 20' WIDE TEMPORARY BYPASS ROAD WITH 10:1 MAX DRIVABLE SLOPE

ROAD CLOSED SIGN
 PROVIDE ROAD CLOSED SIGN ON EACH SIDE OF CONSTRUCTION ZONE

EDGE OF ROAD GUIDE POSTS
 PROVIDE TEMPORARY GUIDE POSTS @ 25' O.C. ON BOTH SIDES OF TEMPORARY ROAD

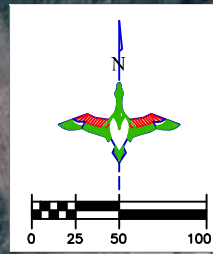


ROAD CLOSED SIGN



ROAD GUIDE POST

OVERALL PLAN
 SCALE: 1"=50'



LEGEND

- PROPERTY BOUNDARY ———
- REPLACE CULVERT ———
- TEMPORARY ROAD ———

ABBREVIATIONS LIST

- | | |
|-----------------------------------|--------------------------------|
| BLDC = BUILDING CORNER | O.C.E.W. = ON CENTER EACH WAY |
| BRK = BREAK | OHE = OVERHEAD ELECTRIC |
| BTM. = BOTTOM | P.C. = POINT OF INTERSECTION |
| C.L. = CENTER LINE | P.I. = POINT OF INTERSECTION |
| CMP = CORRUGATED METAL PIPE ROUND | P.T. = POINT OF TANGENCY |
| CMPA = CORRUGATED METAL PIPE ARCH | RCP = REINFORCED CONCRETE PIPE |
| CONC. = CONCRETE | RD = ROAD |
| DIA. = DIAMETER | REM. = REMOVE |
| E = EASTING COORDINATE OR EAST | REQ'D = REQUIRED |
| ELEV. = ELEVATION | R.O.W. = RIGHT OF WAY |
| EMB. = EMBANKMENT | S = SOUTH |
| EPAV = EDGE OF PAVEMENT | SED. = SEDIMENT |
| EX. = EXISTING | SHLD = SHOULDER |
| EXIST. = EXISTING | SLP = SLOPE |
| FES = FLARED END SECTION | STPLG = STOPLOG |
| FSL = FULL SERVICE LEVEL | TBM = TEMPORARY BENCHMARK |
| GA. = GAUGE | TEL = TELEPHONE/COMMUNICATIONS |
| G.W. = GUY WIRE | UG = UNDERGROUND |
| INV = INVERT | VEG = VEGETATION |
| LAT = LATITUDE (WGS84) | W = WEST OR WITH |
| LONG = LONGITUDE (WGS84) | WCS = WATER CONTROL STRUCTURE |
| L.F. = LINEAR FEET | WL = WATER LEVEL |
| MISC = MISCELLANEOUS | WS = WATER SHOT |
| N = NORTHING COORDINATE OR NORTH | |
| NFES = NON-FLARED END SECTION | |
| O.C. = ON CENTER | |
- *NOTE: NOT ALL ABBREVIATIONS IN THIS LIST APPEAR ON THIS SHEET

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DU PROJECT ENGINEER:
 THOMAS PARKER, P.E.
 (970) 692-3375

DUCKS UNLIMITED INC.
 GREAT PLAINS REGIONAL OFFICE
 P.E. SEAL:
 Professional Engineer (Civil)
 KEVIN JAMES PARKER
 15300
 Date
 WYOMING

DESIGNED BY:	KJW
DRAWN BY:	JWV
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	

REVISION:	BY:	DATE:
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PROJECT: **ALPINE WETLANDS**

SHEET TITLE: **TRAFFIC CONTROL PLAN**

DATE: 04/16/2025

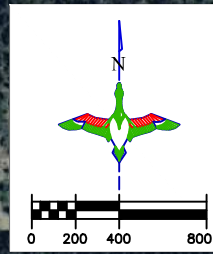
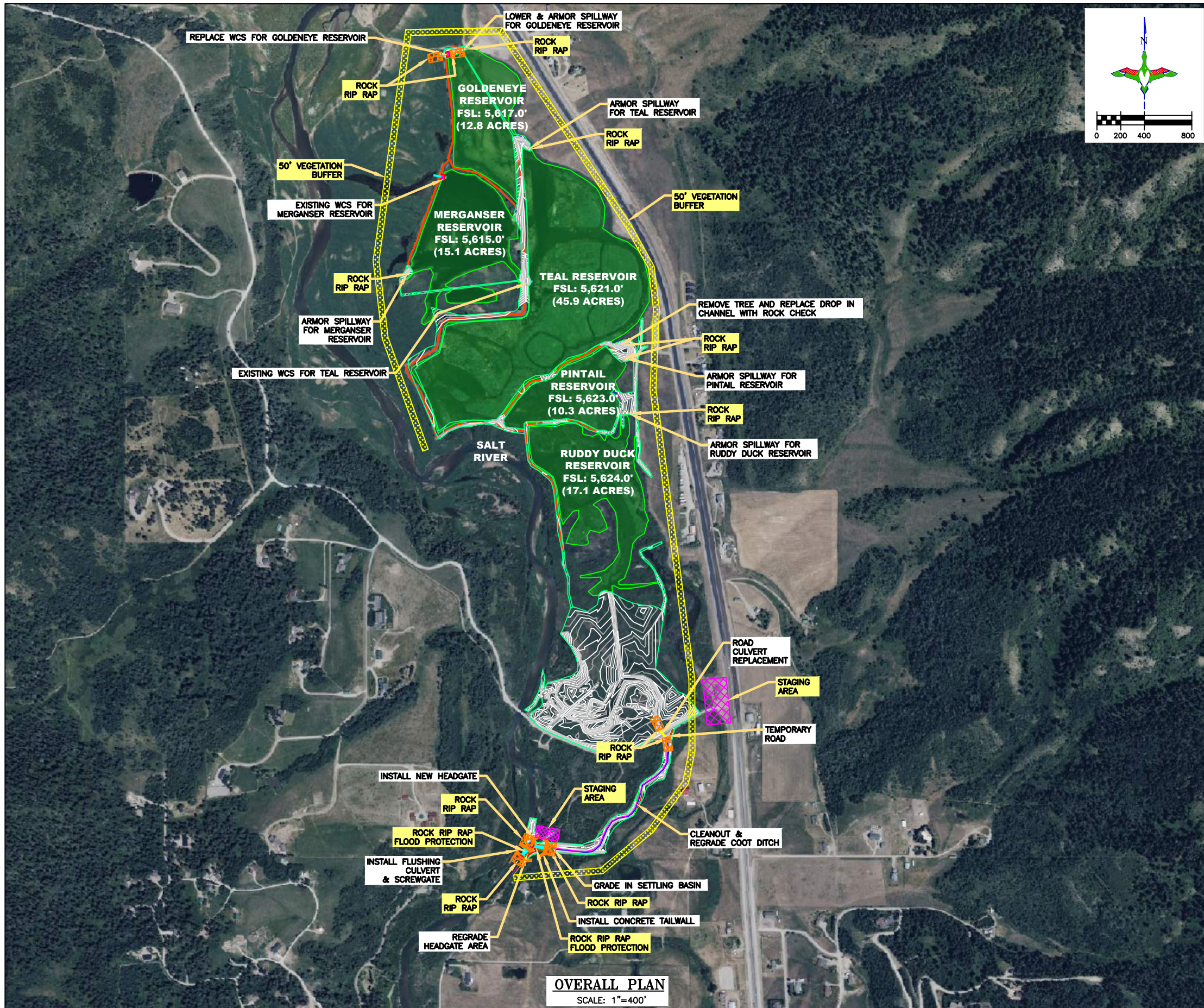
SHEET TITLE: **TRAFFIC CONTROL PLAN**

SCALES ARE ACCURATE ON 24"x36" SHEET SIZE

DU PROJECT NUMBER: **WY-178-1**

SHEET NUMBER: **18**

SHEET 18 OF 20



LEGEND

- PROPERTY BOUNDARY
- FULL SERVICE LEVEL (FSL)
- EARTHWORK
- WATER CONTROL STRUCTURE (AGRI-DRAIN)
- CONCRETE HEADWALL/ TAILWALL
- SCREW GATE
- REINFORCED CONCRETE PIPE
- REPLACE CULVERT
- RIPRAP
- EXISTING CULVERT
- 50' VEGETATION BUFFER
- STAGING AREA

ABBREVIATIONS LIST

- BLDC = BUILDING CORNER
 - BRK = BREAK
 - BTM = BOTTOM
 - C.L. = CENTER LINE
 - CMP = CORRUGATED METAL PIPE ROUND
 - CMPA = CORRUGATED METAL PIPE ARCH
 - CONC. = CONCRETE
 - DIA. = DIAMETER
 - E = EASTING COORDINATE OR EAST
 - ELEV. = ELEVATION
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 - EPAV = EDGE OF PAVEMENT
 - EX. = EXISTING
 - FES = FLARED END SECTION
 - FSL = FULL SERVICE LEVEL
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 - LAT = LATITUDE (WGS84)
 - LONG = LONGITUDE (WGS84)
 - L.F. = LINEAR FEET
 - MISC = MISCELLANEOUS
 - N = NORTHING COORDINATE OR NORTH
 - NFES = NON-FLARED END SECTION
 - O.C. = ON CENTER
 - O.C.E.W. = ON CENTER EACH WAY
 - OHE = OVERHEAD ELECTRIC
 - P.C. = POINT OF INTERSECTION
 - P.I. = POINT OF INTERSECTION
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 - SHLD = SHOULDER
 - SLP = SLOPE
 - STPLG = STOPLOG
 - TBM = TEMPORARY BENCHMARK
 - TEL = TELEPHONE/COMMUNICATIONS
 - UG = UNDERGROUND
 - VEG = VEGETATION
 - W = WEST OR WITH
 - WCS = WATER CONTROL STRUCTURE
 - WL = WATER LEVEL
 - WS = WATER SHOT
- *NOTE: NOT ALL ABBREVIATIONS IN THIS LIST APPEAR ON THIS SHEET



DESIGNED BY:	KJW
DRAWN BY:	JWV
SURVEYED BY:	TP
CHECKED BY:	
APPROVED BY:	
APPROVED BY:	

BY:	
DATE:	
REVISION:	
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ALPINE WETLANDS
STORMWATER POLLUTION PREVENTION PLAN

PROJECT: ALPINE WETLANDS
 SHEET TITLE: STORMWATER POLLUTION PREVENTION PLAN

DATE: 04/16/2025
 SHEET TITLE: STORMWATER POLLUTION PREVENTION PLAN
 SCALES ARE ACCURATE ON 24"x36" SHEET SIZE
 DU PROJECT NUMBER: WY-178-1
 SHEET NUMBER: 19
 SHEET 19 OF 20

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DU PROJECT ENGINEER:
THOMAS PARKER, P.E.
 (970) 692-3375

STORM WATER POLLUTION PREVENTION PLAN

WYPDES Permit # _____ issued on ____/____/____ shall apply for this project.

ABBREVIATIONS

WDEQ: Wyoming Department of Environmental Quality
WYPDES: Wyoming Pollution Discharge Elimination System
USFWS: United States Fish and Wildlife Service
SWMP: Storm Water Management Plan

LOCATION/NARRATIVE

Location: See Sheet 1 for the location of this project.
Project Limits: See Sheet 2 of this plan for the project limits. This sheet covers the earthwork, water control structures and rock riprap.

PROJECT CONTACTS

SWPPP Administrator:
Thomas Parker, P.E.
Ducks Unlimited
Cell: 970-692-3375
Email: tparker@ducks.org

The Contractor is responsible for implementation of the SWPPP and installation, inspection and maintenance of the erosion prevention and sediment control BMP's before and during construction.

Contractor Name: _____
Company: _____
Telephone Number: _____
Email: _____

SPILL NOTIFICATION

In the event of a spill, the contractor's site superintendent will make the appropriate notification(s), consistent with the following procedures:

- 1. A reportable spill is a quantity of 25 gallons of petroleum which must be reported immediately to the DEQ Water Quality Division.
- 2. Any spill of oil or hazardous substance to waters of the state must be reported immediately.
- 3. Wyoming Department of Environmental Quality's Spill and Complaint: DEQSpills.wyo.gov -or- 24 Hour (307) 777-7781
- 4. Within 7 days following a release, submit a written report to the DEQ Water Quality Division describing the reportable release, the response, and the steps taken to prevent recurrence.

POTENTIAL POLLUTION SOURCES

Heavy machinery will be operated on the project site requiring the use of fuel trucks. Contamination due to fuel spills and oil leaks is possible due to the large volume of work being performed. Day to day cleaning and maintenance of equipment has the potential to impact stormwater quality. Delivery of site materials also has potential for impacting runoff quality. Another potential pollution source is sediment transport from earthwork.

POLLUTION PREVENTION MANAGEMENT MEASURES

- Solid Wastes (None anticipated): Collected sediment, asphalt, and concrete millings, floating debris, paper, plastic, fabric, construction and demolition debris and other wastes must be disposed of properly and must comply with the DEQ Water Quality Division disposal requirements.
- Hazardous Materials (None anticipated): Oil, gasoline, paint and any hazardous substances must be properly stored, including secondary containment, to prevent spills, leaks or other discharge. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal of hazardous waste must be in compliance with DEQ Water Quality Division regulations.
- Vehicle Washing: External washing of trucks and other construction vehicles must be limited to a defined area of the site. Runoff must be contained and waste properly disposed of. No engine degreasing is allowed on site.
- Concrete Washout Onsite (No concrete anticipated): All liquid and solid wastes generated by concrete washout operation must be contained in a leak-proof containment facility or impermeable liner. A compacted clay liner that does not allow washout liquids to enter ground water is considered an impermeable liner. The liquid and solid wastes must not contact the ground, and there must not be runoff from the concrete washout operation or areas. Liquid and solid wastes must be disposed of properly and in compliance with DEQ Water Quality Division regulations. A sign must be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities.

EROSION AND SEDIMENT CONTROLS

- (Check all that apply)
- Stabilization Practices
 - Temporary or Permanent Seeding
 - Sod Placement
 - Planting
 - Mulching (Straw or Cellulose Fiber)
 - Erosion Control Blankets or Mats
 - Vegetation Buffer Strips
 - Roughened Surface (e.g. tracking)
 - Gabions-Gabion Mattress
 - Other: Rip Rap

Structural Temporary Erosion and Sediment Controls

- Silt Fence
- Temporary Berm
- Temporary Slope Drain
- Straw Wattles or Rolls
- Diversion Channels/Swales
- Channel Liners (TRM)
- Stone Rip Rap Sheet
- Rock Check Dams
- Sediment Traps/Basins
- Inlet Protection
- Outlet Protection
- Surface Inlet Protection
- Curb Inlet Protection
- Stabilized Construction Entrances
- Other

DESCRIPTION OF CONSTRUCTION ACTIVITIES

The proposed construction activities will provide water level management to the site. Through this management more desirable wetlands will be created.

Major Soil Disturbing Activities (check all that apply):

- Clearing & Grubbing
- Grading & Shaping
- Cutting & Filling
- Other (describe):

ORDER OF CONSTRUCTION ACTIVITIES

(Stabilization measures shall be initiated as soon as possible, but in no case later than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.)

- Install initial erosion and sediment control measures.
- Proceed with site grading and construction activities.
- Stabilize areas disturbed by construction activities with temporary erosion and sediment control measures.
- Install water control structure.
- Complete final grading.
- Complete permanent erosion and sediment control measures.

ESTIMATED PROJECT AREA QUANTITIES

Total Project Area: 189 Acres
Total Area to Be Disturbed: 4.8 Acres
Existing Impervious Area: 0.0 Acres
Proposed Impervious Area: 0.0 Acres

EXISTING GROUND COVER

Currently the site is mostly native grass and trees. There are six existing wetlands on-site. Water is managed in the reservoirs using water control structures.

NON-STORMWATER DISCHARGE

None.

RECEIVING WATER

Runoff from the site is retained by the existing reservoir outlet works. During a flooding event, water from the project area would ultimately drain into the Shoshone River.

STREAM CROSSINGS LOCATED WITHIN THE CONSTRUCTION SITE BOUNDARY

None.

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

See the Erosion and Sediment Control notes and details on the Stormwater Pollution Prevention Plan sheets.

FINAL STABILIZATION AND LONGTERM STORMWATER MANAGEMENT

Following site construction, the goal is to achieve a stabilized cover condition to provide long-term stormwater protection. Stabilization is quantified by achieving uniform cover equal to 70% of the pre-disturbance condition. The post-construction condition of the site shall be that the majority of the disturbed area will be compacted soil and seeded. Once the seeding takes, this shall virtually eliminate erosion from the site. Permanent seeding with mulching is installed as needed. Drainage ditches, pans, and culverts shall be cleaned of debris and sediment. Repair eroded sloped or drainage paths by backfilling. Remove all silt fences following establishment of permanent stable vegetation.

CONSTRUCTION CHANGES

When changes are made to the construction project that will require alterations in the temporary erosion controls of the site, the Storm Water Pollution Prevention Plan (SWPPP) will be amended to provide appropriate protection to disturbed areas, all storm water structures, and adjacent waters. The SWPPP will be retained in a designated place for review over the course of the project.

DAILY STORMWATER POLLUTION PREVENTION PLAN LOG BOOK

SWPPP ADMINISTRATOR: _____
INSPECTOR: _____ DATE/TIME: _____

INSPECTION ITEMS:

- Inlet Filters
- Straw Bale Dikes
- Silt Fence
- Pond Outlet
- Vehicle Tracking Pad
- Pond Sediment
- Surface Erosion
- Riprap Structures
- Drainage Pans

REPAIRS OR MAINTENANCE NEEDED: _____

REPAIRS OR MAINTENANCE MADE: _____

MAINTENANCE ITEMS: _____

CONTACTS MADE: _____ AGENCY: _____

MATERIALS HANDLING:
ITEMS DELIVERED: _____

ACTIONS TAKEN: _____

SPILL REPORTING:
MATERIAL SPILLED: _____

WHY MATERIAL SPILLED: _____

QUANTITY: _____

LOCATION: _____

WEATHER CONDITIONS: _____

SPILL START TIME: _____ SPILL STOP TIME: _____ AM/PM

CLEANUP METHOD: _____

DISPOSAL METHOD: _____

ENTER N/A IF ITEM IS NOT APPLICABLE TO THE SITE SWPPP.

MAINTENANCE AND INSPECTION

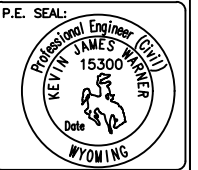
Maintenance and Inspection Practices

- Inspections will be conducted at least one time per week and after a storm event of 0.50 inches or greater.
- All controls will be maintained in good working order. Necessary repairs will be initiated within 24 hours of the site inspection report or as soon as field conditions allow access.
- Where work has been suspended due to frozen ground conditions, the required inspections and maintenance must take place as soon as runoff occurs at the site or prior to resuming construction, whichever comes first.
- Where parts of the construction site have undergone final stabilization, but work remains on other parts of the site, inspections of the stabilized areas may be reduced to once per month.
- Silt fence will be inspected for depth of sediment and for tears in order to ensure the fabric is securely anchored. Sediment buildup will be removed from the silt fence when it reaches 1/2 of the height of the silt fence. All silt fences must be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/2 of the height of the fence.
- Sediment basins and traps will be checked. Sediment will be removed when the depth reaches approximately 50 percent of the structure's capacity.
- Check dams will be inspected for stability. Sediment will be removed when the depth reaches 1/2 the height of the dam.
- All seeded areas will be checked for bare spots, washouts, and vigorous growth free of significant weed infestations.
- Surface waters, including drainage ditches and conveyance systems, must be inspected for evidence of sediment being deposited by erosion.
- Construction site vehicle exit locations must be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment must be removed from all off-site paved surfaces within 24 hours of discovery.
- Disturbed areas will be checked for stabilization. Stabilization measures shall be initiated as soon as construction activity in that portion of the site has temporarily or permanently ceased.
- The normal wetted perimeter of any temporary or permanent drainage ditch or swale that drains water from any portion of the construction site, or diverts water around the site, must be stabilized within 200 lineal feet from the property edge, or from the point of discharge into any surface water. Stabilization of the last 200 lineal feet must be completed within 24 hours after connection to a surface water.
- Stabilization of the remaining portions of any temporary or permanent ditches or swales must be completed within 14 days after connecting to a surface water and construction in that portion of the ditch has temporarily or permanently ceased.
- Temporary or permanent ditches or swales that are being used as a sediment containment system (with properly designed rock ditch checks, bio rolls, silt dikes, etc.) do not need to be stabilized. These areas must be stabilized within 24 hours after no longer being used as a sediment containment system.
- Pipe outlets must be provided with temporary or permanent energy dissipation within 24 hours after connection to a surface water.
- Discharge procedures for water control and dewatering operations will be inspected. If the water cannot be discharged to a sedimentation basin prior to entering the surface water, it must be treated with the appropriate BMPs, such that the discharge does not adversely affect the receiving water or downstream landowners.
- Inspection and maintenance reports will be completed for each site inspection, this form will also be used to document changes to the SWMP. The report shall include the date and amount of precipitation or snowmelt events that cause surface erosion. A copy of the completed inspection form will be filed with the SWMP documents.
- The Contractor's site superintendent is responsible for inspection. Maintenance and repair activities are the responsibility of the Contractor.



DUCKS UNLIMITED INC.

GREAT PLAINS REGIONAL OFFICE



DESIGNED BY: KJP
DRAWN BY: JUV
SURVEYED BY: TP
CHECKED BY:
APPROVED BY:

REVISION:	DATE:	BY:
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ALPINE WETLANDS
SWPPP NOTES

PROJECT: _____
DATE: 04/16/2025
SHEET TITLE: **SWPPP NOTES**

SCALES ARE ACCURATE ON 24"X36" SHEET SIZE
DU PROJECT NUMBER: **WY-178-1**
SHEET NUMBER: **20**
SHEET 20 OF 20

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"BEFORE YOU DIG"
BEFORE THE START OF CONSTRUCTION. THE OWNER OF ANY UTILITIES INVOLVED MUST BE NOTIFIED. THE EXCAVATOR/CONTRACTOR IS RESPONSIBLE FOR GIVING THIS NOTICE BY CALLING "ONE CALL OF WYOMING" AT 811. A 72 HOUR NOTIFICATION AND FULL DESCRIPTION OF LOCATION IS REQUIRED.

DU PROJECT ENGINEER:
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