

**DUCKS UNLIMITED**

**SPECIFICATIONS**

- DU 101 GENERAL CONDITIONS
- DU 102 SUPPLEMENTAL CONDITIONS
- NRCS 6 SEEDING, SPRIGGING, AND MULCHING
- NRCS 7 CONSTRUCTION SURVEYS
- NRCS 8 MOBILIZATION AND DEMOBILIZATION
- NRCS 11 REMOVAL OF WATER
- NRCS 21 EXCAVATION
- NRCS 23 EARTHFILL
- NRCS 26 TOPSOILING
- NRCS 45 PLASTIC PIPE
- NRCS 61 ROCK RIPRAP
- NRCS 94 CONTRACTOR QUALITY CONTROL

**PLAN INDEX**

- 1 LOCATION & VICINITY MAPS
- 2 OVERALL PLAN
- 3 EMBANKMENT BREACH PLAN, PROFILE & DETAILS
- 4 EMBANKMENT FILL PLAN, PROFILE & DETAILS
- 5 CHANNEL 1A & 1B PLAN, PROFILE, & DETAILS
- 6 WCS PLAN, SECTION, & DETAILS

**TABLE OF QUANTITIES**

**659: WETLAND ENHANCEMENT**

- 1. EARTHFILL:
  - 1a. EMBANKMENT FILL AT WCS 28 C.Y.
  - 1b. EMBANKMENT FILL LOW AREAS 24 C.Y.
  - 1c. FILL EXISTING CHANNEL 4 C.Y.
- 2. EXCAVATION:
  - 2a. CHANNEL 1A 35 C.Y.
  - 2b. CHANNEL 1B 24 C.Y.

**587: STRUCTURE FOR WATER CONTROL**

- 3. WATER CONTROL STRUCTURE (3' TALL) 1 L.S.
- 4. 12" SDR 35 PVC PIPE 27.5 L.F.

**468: LINED WATERWAY AND OUTLET STRUCTURE**

- 5. RIPRAP 4 C.Y.

**342: CRITICAL AREA PLANTING**

- 6. SEEDING & MULCHING 0.2 ACRES

NOTE, FILL QUANTITIES INCLUDE A 20% SHRINKAGE FACTOR

UTILITIES NOTE: 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 "KANSAS ONE CALL" AT 811 OR 1-800-DIG-SAFE (1-800-344-7233) AT LEAST 48 HOURS PRIOR TO ANY EXCAVATION.

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# DUCKS UNLIMITED

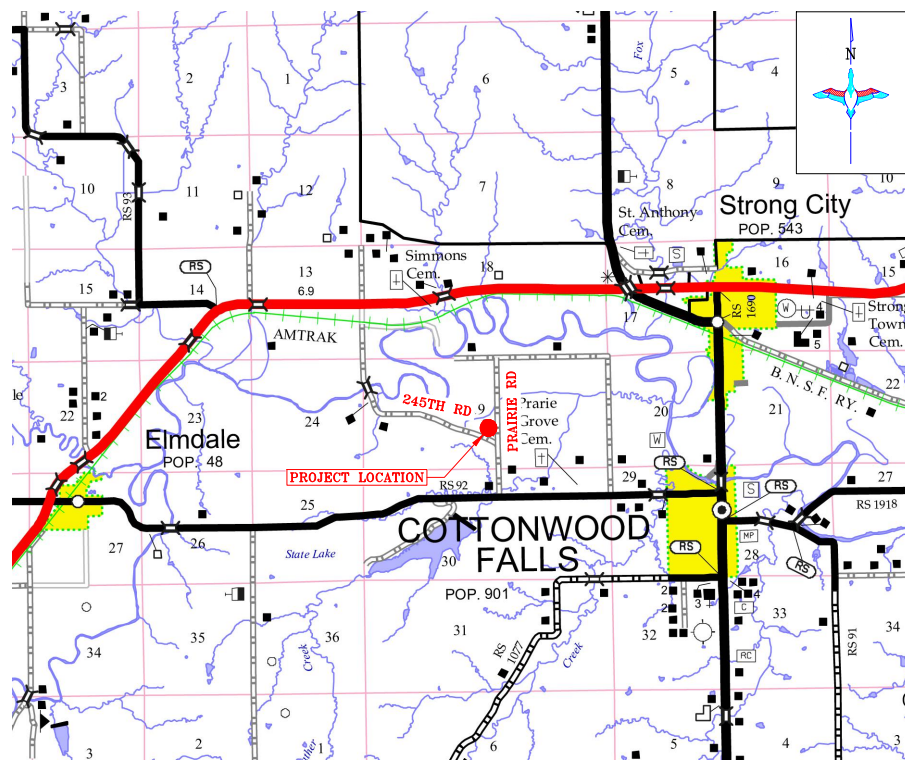
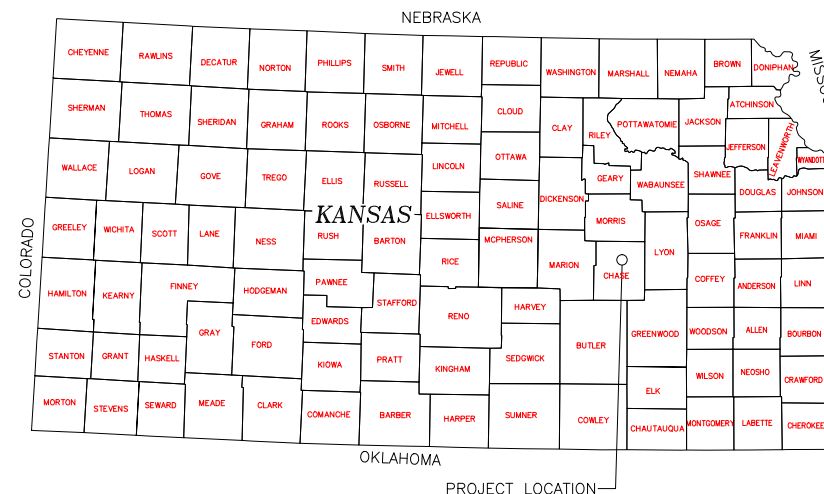
PROJECT

## NEVA MARSH

LOCATED IN THE SW<sup>1</sup>/<sub>4</sub> & SE<sup>1</sup>/<sub>4</sub> OF SECTION 19 TOWNSHIP 19S, RANGE 08E, 6TH P.M. CHASE COUNTY, KANSAS

IN COOPERATION WITH

NRCS

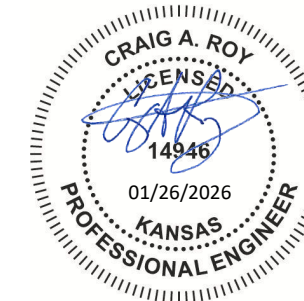


VICINITY MAP  
NOT TO SCALE



LOCATION MAP  
NOT TO SCALE

ALL WRITTEN SCALES ARE ACCURATE ON 24x36 INCH SHEETS. THE BELOW SCALE BAR CAN BE USED TO CHECK PLAN SET SCALE.



TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, JUDGEMENT, AND BELIEF, THESE PLANS MEET APPLICABLE NRCS STANDARDS.

DESIGNED BY: CRAIG A. ROY, P.E., DUCKS UNLIMITED, INC.  
DATE: 01/21/26

DU REGIONAL ENGINEER:  
CRAIG ROY, P.E.  
LOUISBURG, KS 66053  
(913) 991-2223

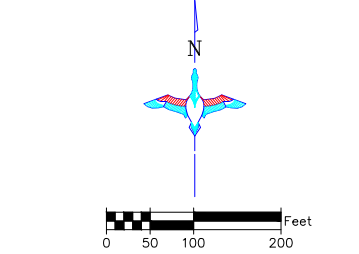
**CONSTRUCTION ISSUE**

 GREAT PLAINS REGIONAL OFFICE DATE: 1/26/2026	PROJECT NO. KS-336-100 NEVA MARSH	DESIGNED BY: CAR DRAWN BY: CAR SURVEYED BY: CAR CHECKED BY:
	LOCATION & VICINITY MAPS SHEET NO. 1 OF 6	APPROVED BY:

DIRT BALANCE TABLE			
LOCATION	FILL (C.Y.)*	EXCAVATION (C.Y.)	NET (C.Y.)**
EMBANKMENT FILL AT BREACH	28		28
EMBANKMENT FILL LOW AREAS	24		24
CHANNEL 1A		35	(35)
CHANNEL 1B		24	(24)
EXISTING CHANNEL FILL	4		4
			-
			-
TOTAL	56	59	(3)

\* FILL INCLUDES A 20% SHRINKAGE FACTOR  
\*\* SPREAD EXCESS CUT MATERIAL ON TOP OF EXISTING EMBANKMENT AT LOW AREA

WETLAND STAGE STORAGE TABLE					
ELEVATION	SURFACE AREA (AC)	AVE. AREA (AC)	CONTOUR INTERVAL (FT)	VOLUME (AC-FT)	CUMULATIVE VOLUME (AC-FT)
1184.5	1.36	8.83	0.50	4.41	4.41
1185.0	16.29	18.37	0.50	9.18	13.60
FSL	20.44				
1185.5		21.73	0.50	10.87	24.46
TOP OF EMB	23.02				
1186.0					



**BORROW AREA NOTE:**  
SUITABLE CLAY MATERIAL FOR EMBANKMENT FILL SHALL BE OBTAINED FROM THE DESIGNATED EXCAVATION AREAS SHOWN ON THIS SHEET AS APPROVED BY THE DU FIELD ENGINEER. FINISHED SLOPES SHALL BE 6:1 OR FLATTER UNLESS NOTED OTHERWISE. SIX INCHES OF TOPSOIL SHALL BE STRIPPED FROM BORROW/EXCAVATION AREAS AND RESPREAD AFTER BORROW IS COMPLETE.

- SEEDING AND MULCHING NOTES:**
- SEEDING AND MULCHING SHALL BE REQUIRED ON EMBANKMENT FILL AREAS, CHANNEL EXCAVATION 1B, AND FILL IN EXISTING CHANNEL.
  - THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AN ADEQUATE SEED BED TO ALLOW SEEDING WITH STANDARD SEEDING EQUIPMENT. THIS WILL INCLUDE USE OF A HARROW OR OTHER MEANS IN ORDER TO LEAVE A SMOOTH, TRACK-FREE FINISH. BACK DRAGGING WITH A DOZER IS NOT AN ACCEPTABLE FINISH.
  - BEFORE LAST SPRING FROST OR APRIL 15TH (WHICHEVER IS EARLIER), AREA WILL BE SEEDING WITH A MIXTURE OF CUSTOM NATIVE GRASS MIX (SEE TABLE BELOW).
  - MULCHING SHALL REQUIRE ANCHORING OF SOME TYPE SUCH AS TACKING, MATTING, HAND PUNCHING, ROLLER PUNCHING, CRIMPER PUNCHING, OR HYDRO-SEEDING TO PREVENT BLOWING OR WASHING AWAY.
  - MULCHING APPLICATION RATE SHALL BE TWO TONS PER ACRE OR ONE 74 POUND BALE PER 800 SQUARE FEET.

Species	Variety	Pure Live Seed (PLS) per Acre
Big Bluestem	Kaw	3.00 lbs
Indiangrass	Osage	3.00 lbs
Switchgrass	Kanlow	1.20 lbs
Sideoats Grama	El Reno	1.80 lbs
Switchgrass	Blackwell	0.60 lbs
Western Wheatgrass	Barton	1.80 lbs
<b>Total</b>		<b>11.40 lbs</b>

- ABBREVIATIONS LIST**
- BLDC = BUILDING CORNER
  - BRK = BREAK
  - BTM = BOTTOM
  - CL = 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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  - FX = FENCE
  - GA = GAUGE
  - GW = GUY WIRE
  - INV = INVERT
  - LAT = LATITUDE (WGS84)
  - LONG = LONGITUDE (WGS84)
  - LF = LINEAR FEET
  - MISC = MISCELLANEOUS
  - N = NORTHING COORDINATE OR NORTH
  - NFES = NON-FLARED END SECTION
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  - STPLG = STOPLOG
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  - TEL = TELEPHONE/COMMUNICATIONS
  - UC = UNDERGROUND
  - VEG = VEGETATION
  - W = WEST OR WITH
  - WCS = WATER CONTROL STRUCTURE
  - WL = WATER LEVEL
  - WS = WATER SHOT

- GENERAL NOTES**
- ONE HALF FOOT CONTOUR INTERVAL SHOWN.
  - ITALICIZED TEXT DENOTES EXISTING FEATURE OR EXISTING ELEVATION.

**OVERALL PLAN**  
SCALE 1" = 100'

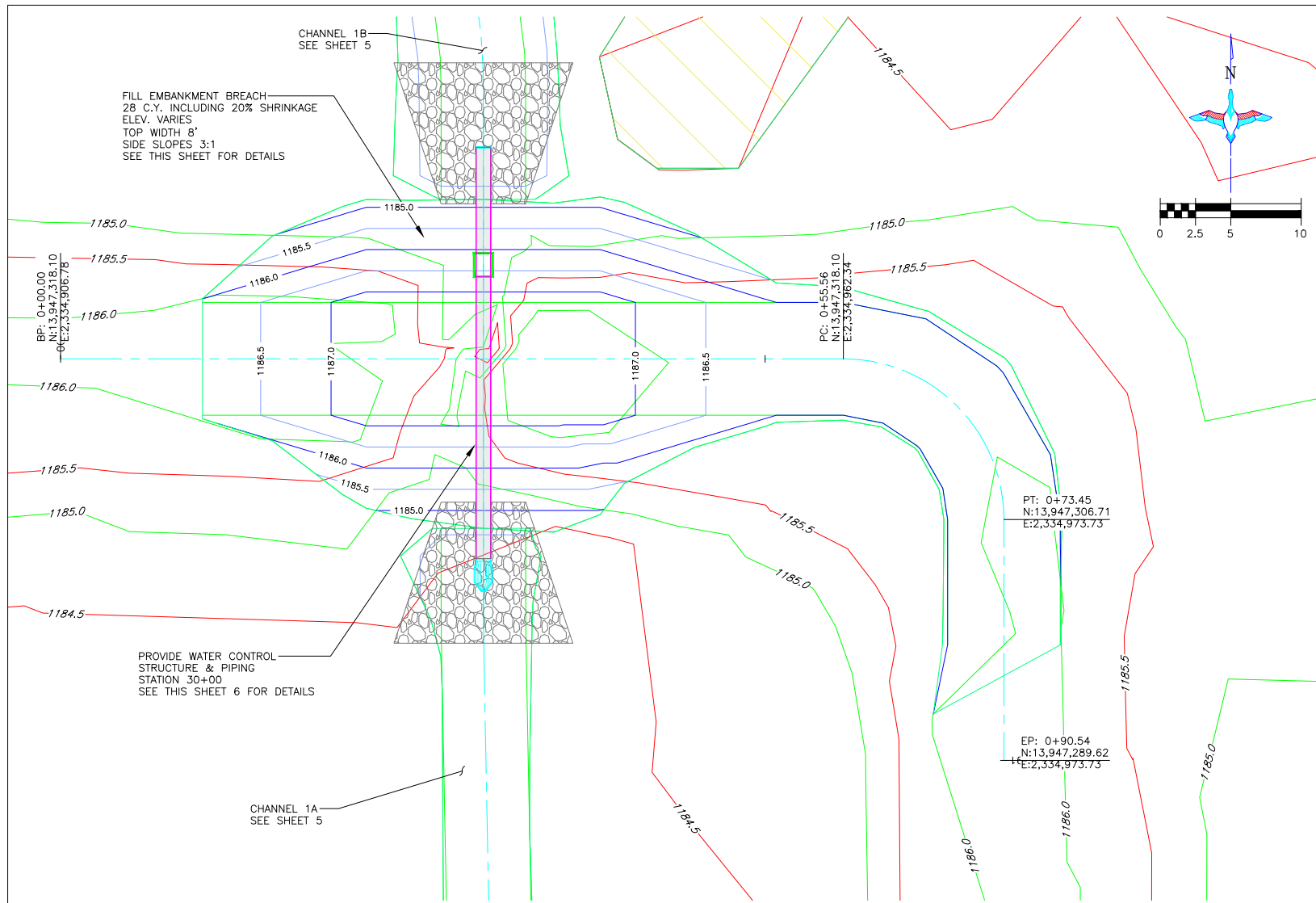
- CONSTRUCTION NOTES:**
- IF ANY CULTURAL OR ARCHEOLOGICAL REMAINS OR ARTIFACTS ARE DISCOVERED, IMMEDIATELY NOTIFY THE ENGINEER AND AVOID CONSTRUCTION ACTIVITIES THAT MAY AFFECT THE REMAINS AND ARTIFACTS.
  - ALL FILLS SHALL BE PLACED IN LOOSE LIFTS OF NOT MORE THAN 6 INCHES THICKNESS. MATERIAL BEING PLACED SHALL BE SUFFICIENTLY MOIST TO PREVENT DUSTY CONDITIONS AND SUFFICIENTLY DRY TO BE WORKABLE WITHOUT EXCESSIVE RUTTING OF THE COMPACTED SURFACE BY EARTHMOVING EQUIPMENT. THE MOISTURE CONTENT OF THE MATERIAL FOR HAND COMPACTION OF CLAYS AND SILTS SHALL BE SUCH THAT A BALL FORMED WITH THE HANDS DOES NOT CRACK OR SEPARATE WHEN STRUCK SHARPLY AND WILL EASILY RIBBON OUT BETWEEN THUMB AND FINGER.
  - STRIP 6" TOPSOIL FROM ALL BORROW AND FILL AREAS. RESPREAD TOPSOIL OVER AREAS WHEN COMPLETE.
  - EXCESS EXCAVATION MATERIAL SHALL BE UNIFORMLY SPREAD ON LOW AREAS OF EXISTING EMBANKMENT WHERE DESIGNATED BY ENGINEER.

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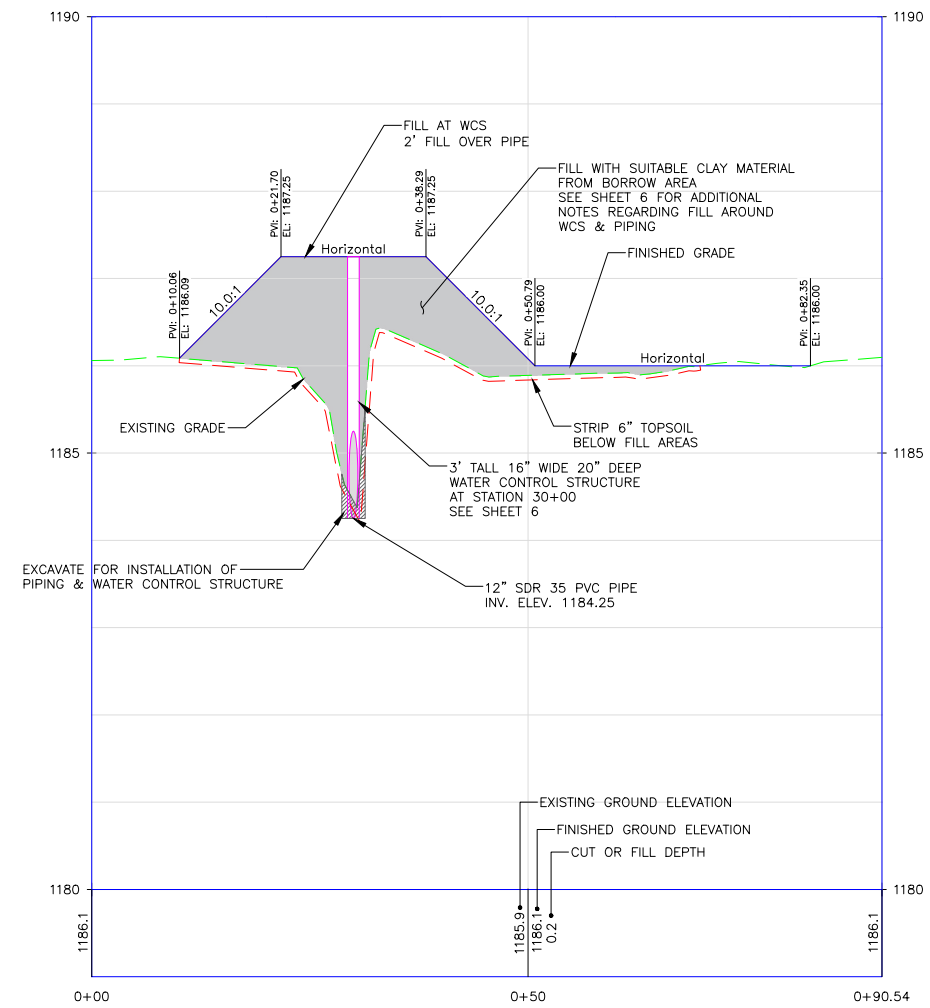
HORIZONTAL AND VERTICAL CONTROL OPUS SOLUTION— COORDINATES ARE UTM ZONE 14 GRID COORDINATES IN US FEET [NAD83]. THEY WERE ESTABLISHED FROM THE WGS84 ELLIPSOID WITH INFORMATION FROM A TRIMBLE R12 SURVEY GRADE GPS RECEIVER ON MARCH 11, 2024 AT DUCKS UNLIMITED CONTROL POINT DU-412-24 AND CALIBRATED TO AN OPUS POSITION OCCUPIED FOR 4 HOURS AND 51 MINUTE(S) AND SENT TO NGS FOR SOLUTION. THE VERTICAL CONTROL CAME FROM THE SAME SOLUTION USING GEOID 18 CONUS IN THE NAVD88. THE FULL OPUS SOLUTION REPORT IS ON FILE AT THE DUCKS UNLIMITED ENGINEERING DEPARTMENT IN GRAND ISLAND, NEBRASKA.

**CONSTRUCTION ISSUE**

	PROJECT NO.	KS-336-100	DESIGNED BY:	CAR
		NEVA MARSH	DRAWN BY:	CAR
			SURVEYED BY:	CAR
			CHECKED BY:	
GREAT PLAINS REGIONAL OFFICE		OVERALL PLAN		
DATE:	SHEET NO.	APPROVED BY:	APPROVED BY:	
1/26/2026	2 OF 6			



EMBANKMENT PLAN AT BREACHED AREA  
SCALE 1" = 5'



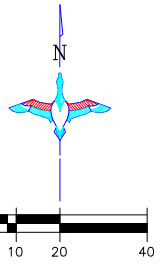
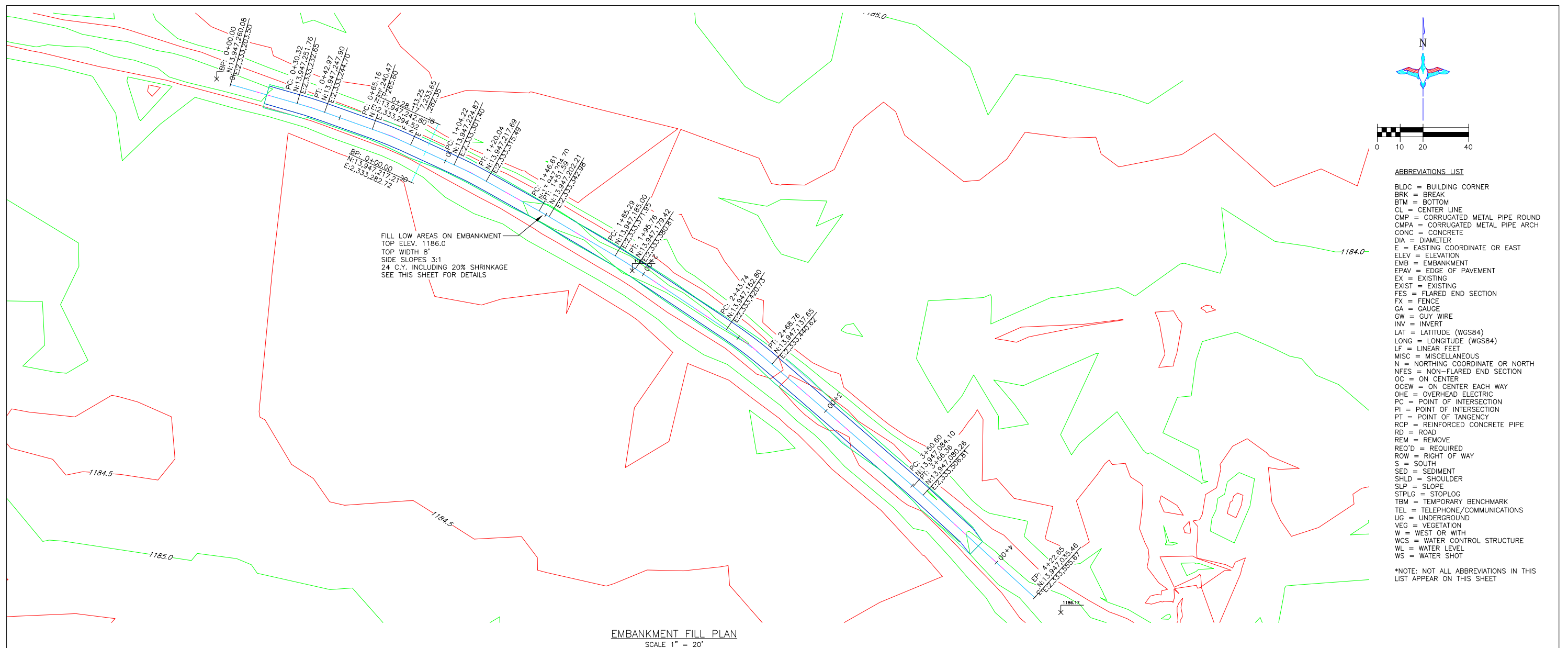
EMBANKMENT PROFILE AT BREACHED AREA  
HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 1'

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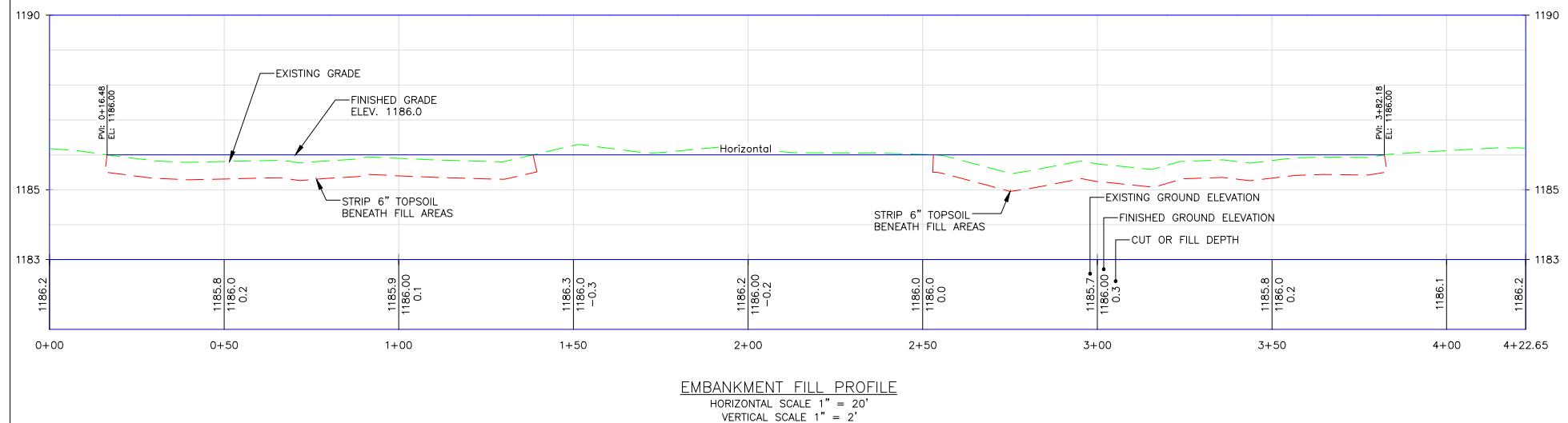
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**CONSTRUCTION ISSUE**

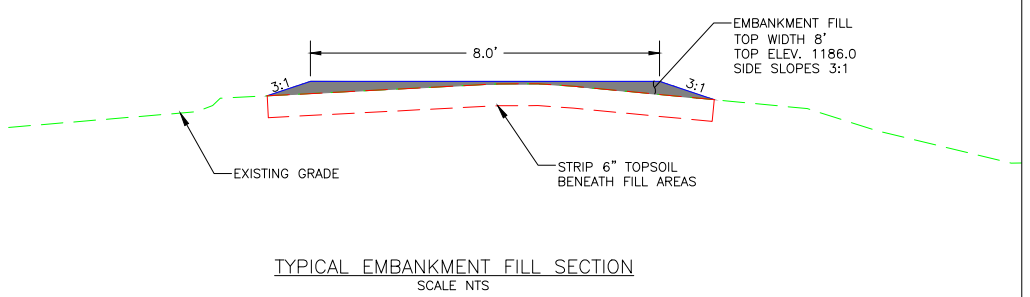
	PROJECT NO. KS-336-100	DESIGNED BY: CAR
	NEVA MARSH EMBANKMENT BREACH PLAN, PROFILE, & DETAILS	DRAWN BY: CAR
GREAT PLAINS REGIONAL OFFICE	SHEET NO. 3 OF 6	CHECKED BY: .
DATE: 1/26/2026	APPROVED BY:	APPROVED BY:



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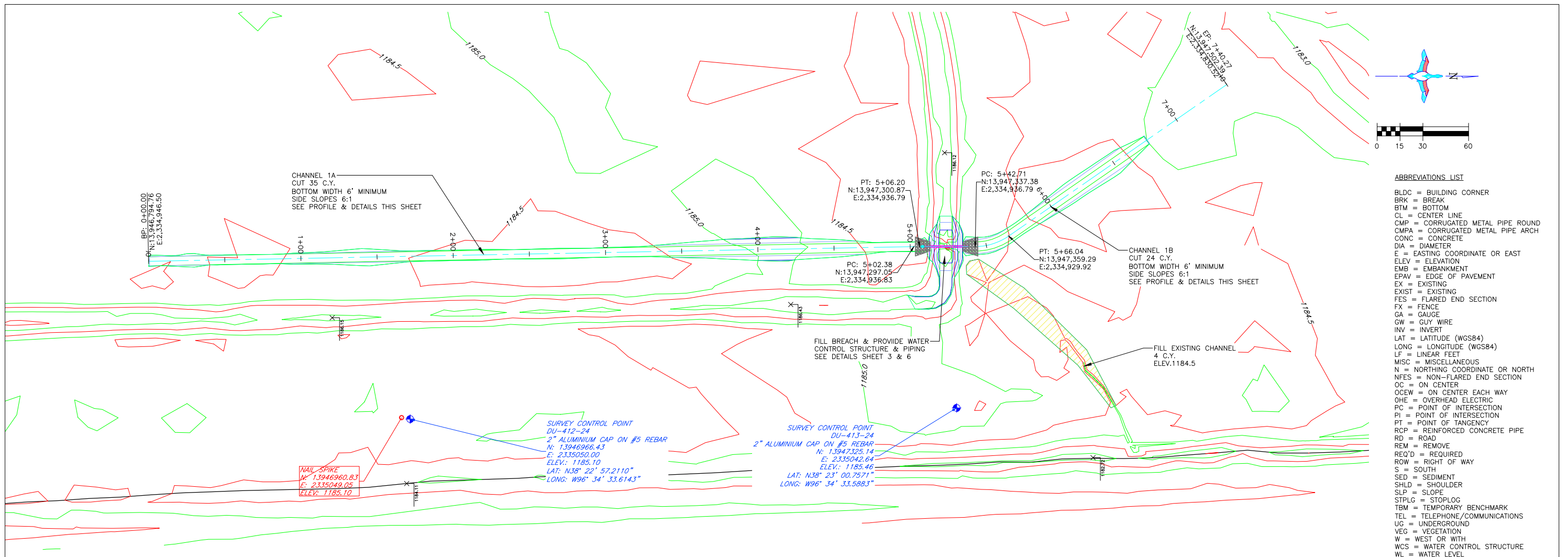
- CONSTRUCTION NOTES:**
1. EMBANKMENT CONSTRUCTION SHALL BE FROM COMPACTED EARTHEN MATERIAL.
  2. MATERIAL FOR EMBANKMENT CONSTRUCTION SHALL BE OBTAINED FROM THE EXCAVATION AREAS. ANY ADDITIONAL MATERIAL REQUIRED SHALL BE OBTAINED FROM A FIELD IDENTIFIED BORROW AREA BY A DUCKS UNLIMITED REPRESENTATIVE.
  3. STRIP 6" OF TOPSOIL BENEATH ALL FILL AREAS. RESPREAD OVER FILL AREAS WHEN COMPLETE.
  4. EMBANKMENT FILL TO BE PLACED IN LIFTS OF NO MORE THAT 6" AND COMPACTED PRIOR TO PLACING SUBSEQUENT LIFTS.
  5. SEED AND MULCH EMBANKMENT FILL AREAS. SEE SEEDING AND MULCHING NOTES SHEET 2.



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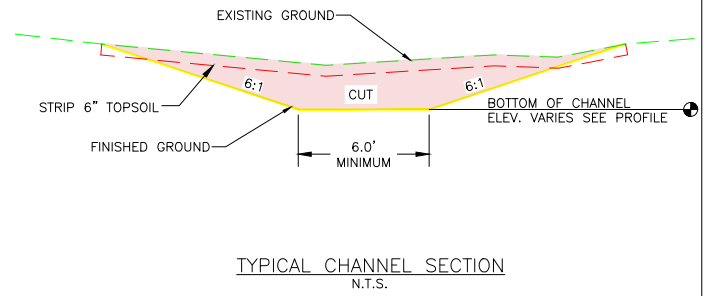
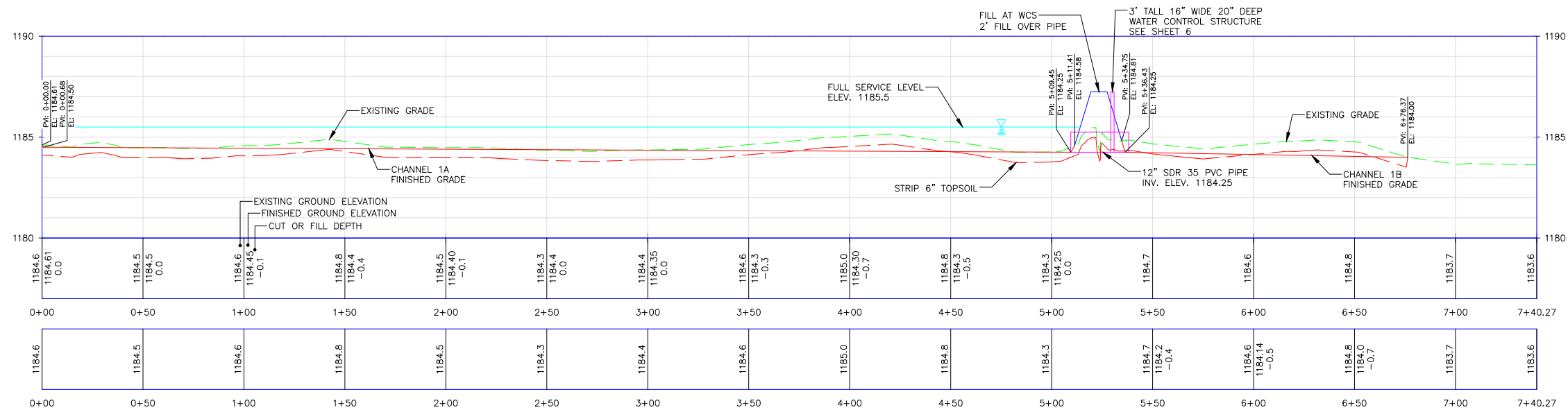
**CONSTRUCTION ISSUE**

 <b>DUCKS UNLIMITED INC.</b> GREAT PLAINS REGIONAL OFFICE	PROJECT NO. KS-336-100	DESIGNED BY: CAR
	NEVA MARSH EMBANKMENT FILL	DRAWN BY: CAR
	PLAN, PROFILE, & DETAILS	SURVEYED BY: CAR
DATE: 1/26/2026	SHEET NO. 4 OF 6	CHECKED BY: .
	APPROVED BY:	APPROVED BY:



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CHANNEL PLAN  
SCALE 1" = 30'

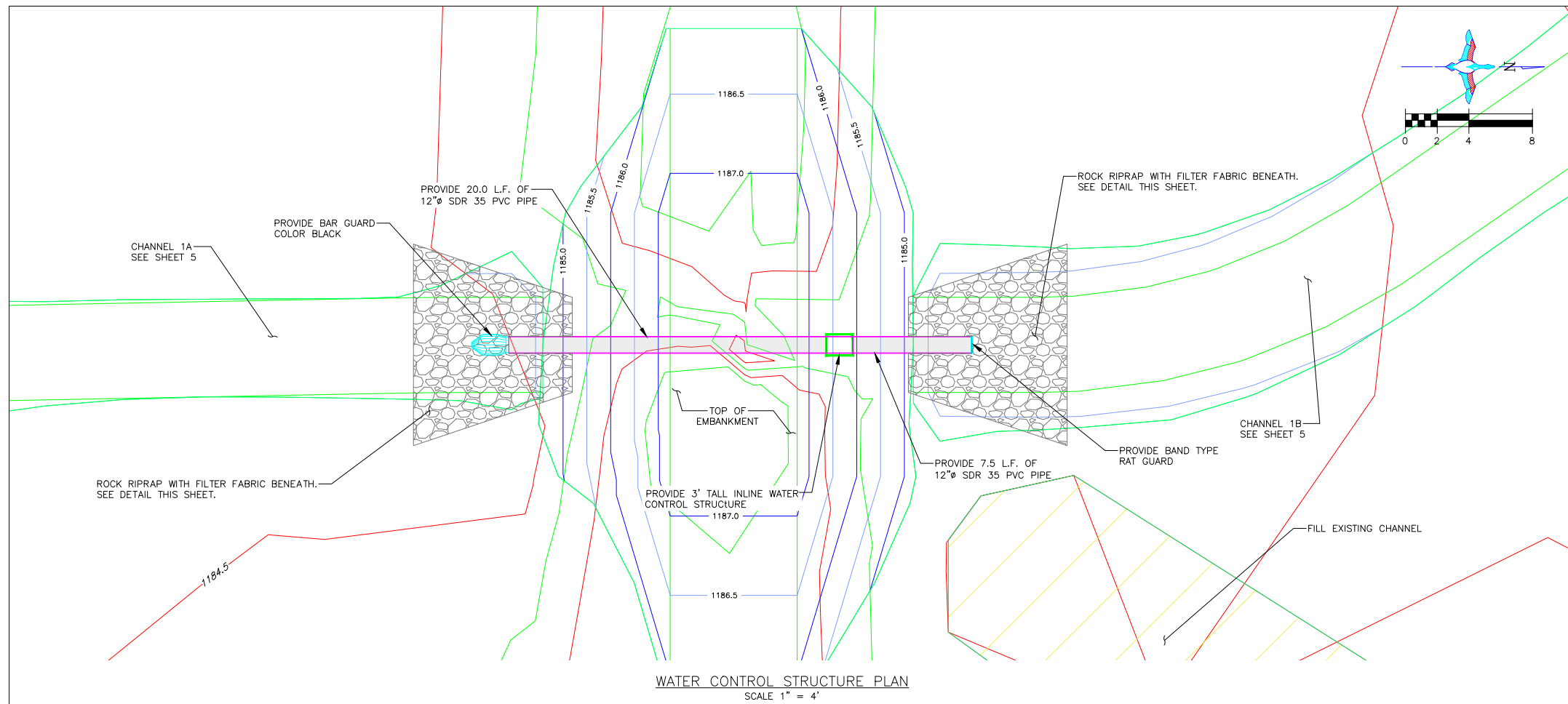


CHANNEL PROFILE  
HORIZONTAL SCALE 1" = 30'  
VERTICAL SCALE 1" = 3'

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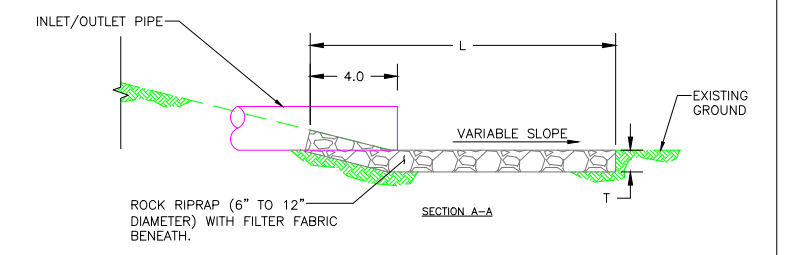
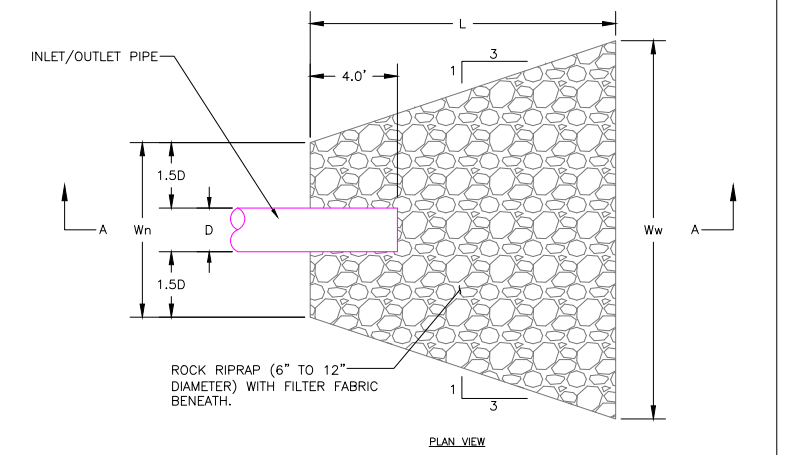
**CONSTRUCTION ISSUE**

<p><b>DUCKS UNLIMITED INC.</b> GREAT PLAINS REGIONAL OFFICE</p>	PROJECT NO. KS-336-100	DESIGNED BY: CAR
	NEVA MARSH CHANNEL 1A & 1B PLAN, PROFILE, & DETAILS	DRAWN BY: CAR
DATE: 1/26/2026	SHEET NO. 5 OF 6	CHECKED BY: .
	APPROVED BY:	APPROVED BY:



WATER CONTROL STRUCTURE PLAN  
SCALE 1" = 4'

INLET & OUTLET RIPRAP TABLE						
PIPE SIZE (D) INCHES	APRON WIDTH NARROW SIDE (Wn) FEET	APRON WIDTH WIDE SIDE (Ww) FEET	APRON LENGTH (L) FEET	SQUARE FEET	THICKNESS (T) FEET	CUBIC YARDS
12	4.0	9.3	8.0	53.5	1.0	2.0



INLET/OUTLET RIPRAP DETAIL  
SCALE N.T.S.

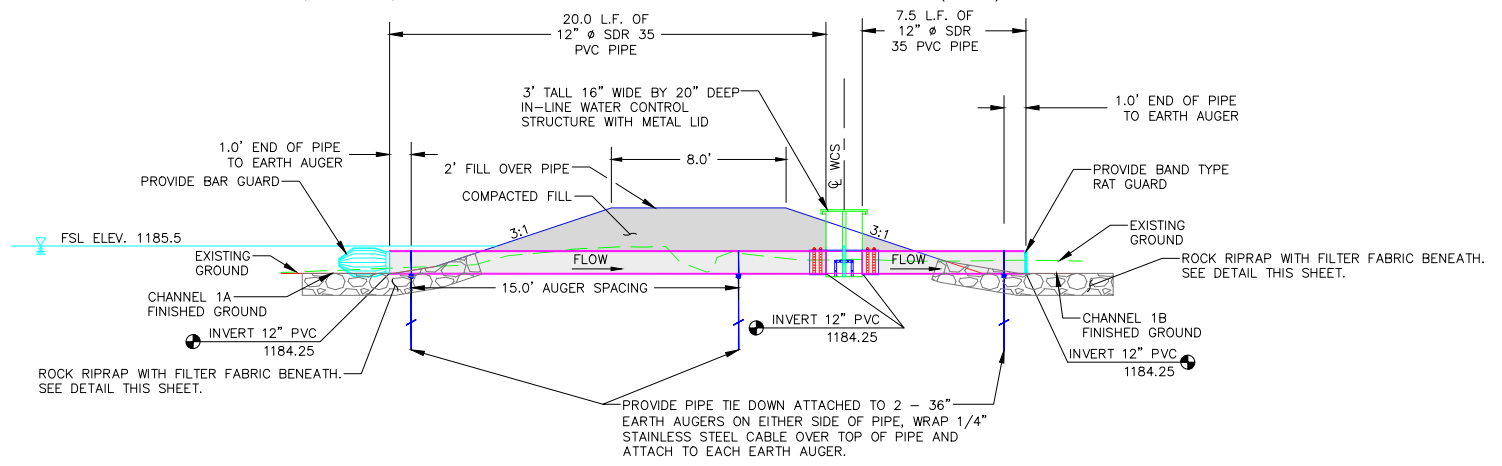
**STRUCTURE INSTALLATION NOTES:**

1. STRUCTURE, 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.
3. COST OF STRUCTURE INSTALLATION SHALL BE PAID AS BID ITEM "WATER CONTROL STRUCTURE (3' TALL)".
4. PROVIDE BAR AND BAND TYPE RAT GUARDS ON PIPE INLET AND OUTLET.
5. PVC STOP LOGS SHALL BE WATERTIGHT AND PROVIDED BY SUPPLIER.
6. PROVIDE 4" WATER CONTROL STRUCTURE BASE EXTENSION TO HELP PREVENT FLOATATION.
7. BENTONITE CLAY SHALL BE MIXED WITH BACKFILL MATERIAL AROUND WCS AND PIPE TO PROVIDE A WATER TIGHT SEAL. TEN - FIFTY POUND BAGS ARE REQUIRED. COST FOR BENTONITE CLAY AND INSTALLATION SHALL BE INCIDENTAL TO "WATER CONTROL STRUCTURE (3' TALL)".
8. BAR GUARD, RAT GUARD, AND PIPE TIE DOWNS SHALL BE INCIDENTAL TO "WATER CONTROL STRUCTURE (3' TALL)".

**ABBREVIATIONS LIST**

- BLDC = BUILDING CORNER
- BRK = BREAK
- BTM = BOTTOM
- CL = 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
- FX = FENCE
- GA = GAUGE
- GW = GUY WIRE
- INV = INVERT
- LAT = LATITUDE (WGS84)
- LONG = LONGITUDE (WGS84)
- LF = LINEAR FEET
- MISC = MISCELLANEOUS
- N = NORTHING COORDINATE OR NORTH
- NFES = NON-FLARED END SECTION
- OC = ON CENTER
- OCEW = ON CENTER EACH WAY
- OHE = OVERHEAD ELECTRIC
- PC = POINT OF INTERSECTION
- PI = POINT OF INTERSECTION
- PT = POINT OF TANGENCY
- RCP = REINFORCED CONCRETE PIPE
- RD = ROAD
- REM = REMOVE
- REQ'D = REQUIRED
- ROW = RIGHT OF WAY
- S = SOUTH
- SED = SEDIMENT
- 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



WATER CONTROL STRUCTURE SECTION  
SCALE 1" = 4'

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**CONSTRUCTION ISSUE**

	PROJECT NO. KS-336-100	DESIGNED BY: CAR
	NEVA MARSH	DRAWN BY: CAR
GREAT PLAINS REGIONAL OFFICE	WCS PLAN, SECTION, & DETAILS	SURVEYED BY: CAR
DATE: 1/26/2026	SHEET NO. 6 OF 6	CHECKED BY: .
	APPROVED BY:	APPROVED BY: