

STATE OF OKLAHOMA  
DEPARTMENT OF TRANSPORTATION

OKLAHOMA DEPARTMENT OF TRANSPORTATION		
DESCRIPTION	REVISIONS	DATE

PLAN OF PROPOSED  
**COUNTY BRIDGE**

FEDERAL AID PROJECT NO. STP-259D(044)CI  
BRIDGE AND APPROACHES  
COUNTY ROAD E0510 OVER UNNAMED CREEK

**PAWNEE COUNTY**

STATE JOB NO. JP29930(04)  
BRIDGE "A" LOCATION NO. 59E051N3490007  
LOCAL ID: 089  
LATITUDE N36°16'31.5" LONGITUDE W96°46'16.5"  
EXISTING NBI NO. 04189; NEW NBI NO. 32009

INDEX OF SHEETS

001	TITLE SHEET
002	TYPICAL SECTION
AR01	PAY QUANTITIES & NOTES (ROADWAY & BRIDGE)
AT01	PAY QUANTITY & NOTES (TRAFFIC)
B01	GENERAL PLAN & ELEVATION
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S01	SURVEY AND ALIGNMENT DATA
T01	TRAFFIC CONTROL
X01-X02	CROSS SECTIONS

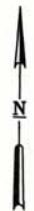
UTILITIES INFORMATION

<b>CALL OKIE</b> 1-800-522-OKIE (1-800-522-6543) OR 811	<b>ELECTRIC</b> INDIAN ELECTRIC COOP 918-295-9517
<b>PAWNEE COUNTY RWD#3</b> DELMAN WEAVER JR. 405-747-5426	<b>TELEPHONE</b> CIMARRON TELEPHONE 918-839-2484
<b>PAWNEE COUNTY SHERIFF</b> 500 HARRISON STREET PAWNEE, OK 74058 918-762-2565	<b>NATURAL GAS</b> ONG 405-707-5609

FOR SURVEY CONTROL DATA  
SEE SURVEY DATA SHEETS

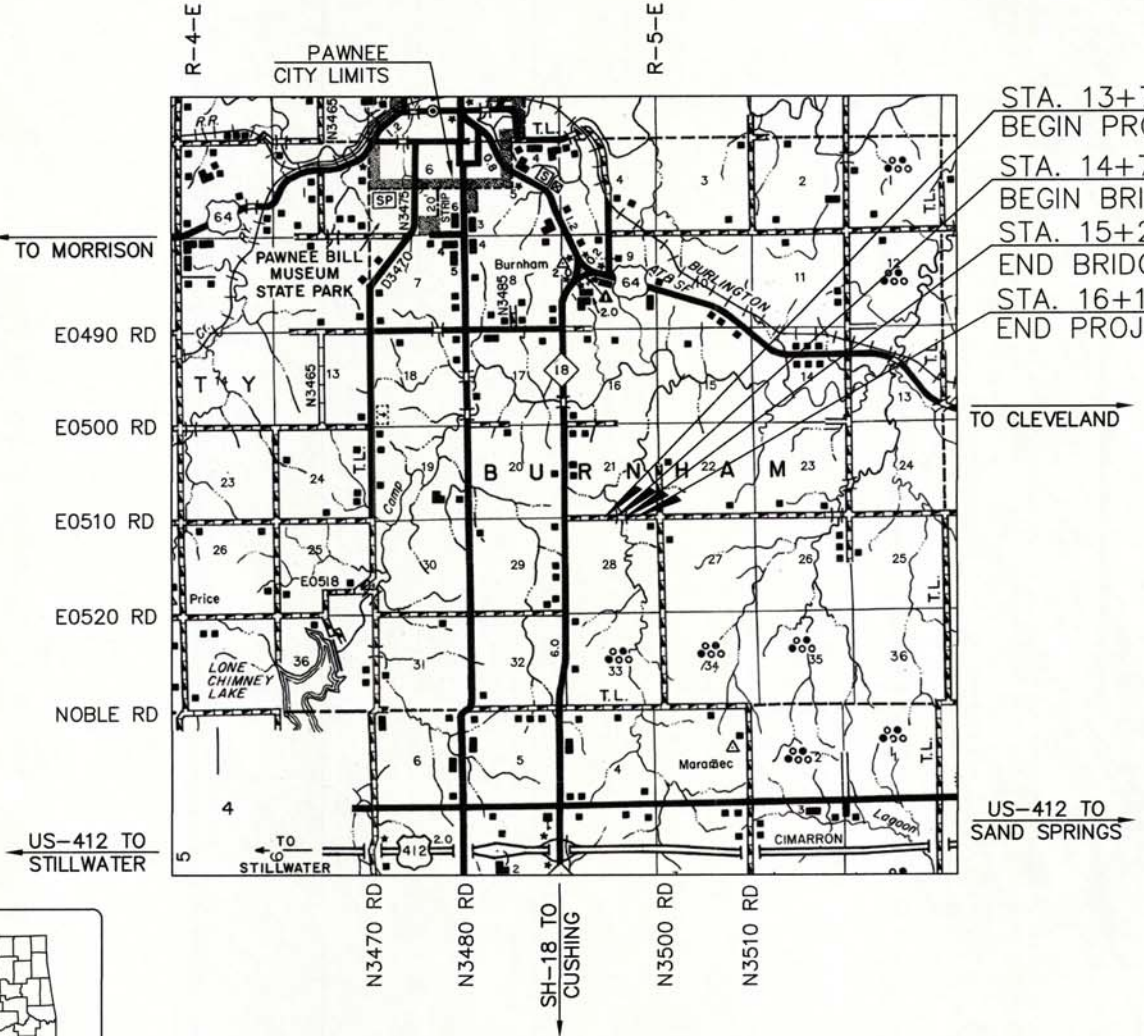
**DESIGN DATA**

ADT 2015	= 100
ADT 2035	= 160
T (% ADT)	= 10%
V	= 30MPH
20YR FLEX ESALS	=100,000



SCALES  
1" = 50'  
PROFILE HOR. 1" = 50'  
VER. 1" = 5'  
LAYOUT MAP 1" = 5280'

- CONVENTIONAL SYMBOLS
- PROPOSED ROAD
  - RAILROADS
  - RANGE & TOWNSHIP
  - SECTION LINES
  - QUARTER SECTION LINES
  - FENCES
  - GROUND LINE
  - EXISTING ROADS
  - BASE LINE
  - GRADE LINES
  - TELEPHONE & TELEGRAPH
  - POWER LINES
  - BUILDINGS
  - OILWELL
  - DRAINAGE STRUCTURES - IN PLACE
  - DRAINAGE STRUCTURES - NEW
  - RIGHT-OF-WAY LINES - EXISTING
  - RIGHT-OF-WAY LINES - NEW
  - CONTROLLED ACCESS
  - RIGHT-OF-WAY FENCE



STA. 13+75.00  
BEGIN PROJECT  
STA. 14+73.00  
BEGIN BRIDGE "A"  
STA. 15+28.00  
END BRIDGE "A"  
STA. 16+10.00  
END PROJECT

THE FOLLOWING STANDARD  
DRAWINGS WILL BE NEEDED:

ROADWAY	TRAFFIC
SSS-1-1	TCS1-1-01
TSB-2-0	TCS2-1-00
TSC2-3-2	TCS4-1-01
	TCS5-1-00
	TCS7-1-02
	TCS8-1-00
	TCS9-1-01
	TCS14-1-00
	TCS20-1-00

DATE: August 21, 2017  
DIST. 1: [Signature]  
DIST. 2: [Signature]  
DIST. 3: [Signature]  
ATTEST: [Signature]



PRIOR TO PERFORMING ANY GRADING OR  
EXCAVATING WORK, THE CONTRACTOR SHALL  
NOTIFY ALL UTILITY OWNERS OR "CALL OKIE  
(OKLAHOMA ONE-CALL)" NOT LESS THAN 48  
HOURS IN ADVANCE AND SHALL VERIFY OR  
ESTABLISH THE EXACT LOCATION AND DEPTH  
OF ALL UNDERGROUND LINES.

PREPARED BY:  
MESHEK & ASSOCIATES, LLC  
FOR THE OKLAHOMA  
DEPARTMENT OF TRANSPORTATION  
WILLIAM T. MESHEK, P.E., P.L.S.  
OKLA. REG. NO. 17353  
CA NO. 1487 EXPIRES 6-30-19  
DATE August 11, 2017

OKLAHOMA DEPARTMENT OF TRANSPORTATION	DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION
DATE APPROVED	DATE APPROVED
BY [Signature] CHIEF ENGINEER	BY [Signature] DIVISION ADMINISTRATOR
COUNTY PAWNEE	COUNTY ROAD E0510
STATE JOB NO. JP29930(04)	SHEET NO. 001

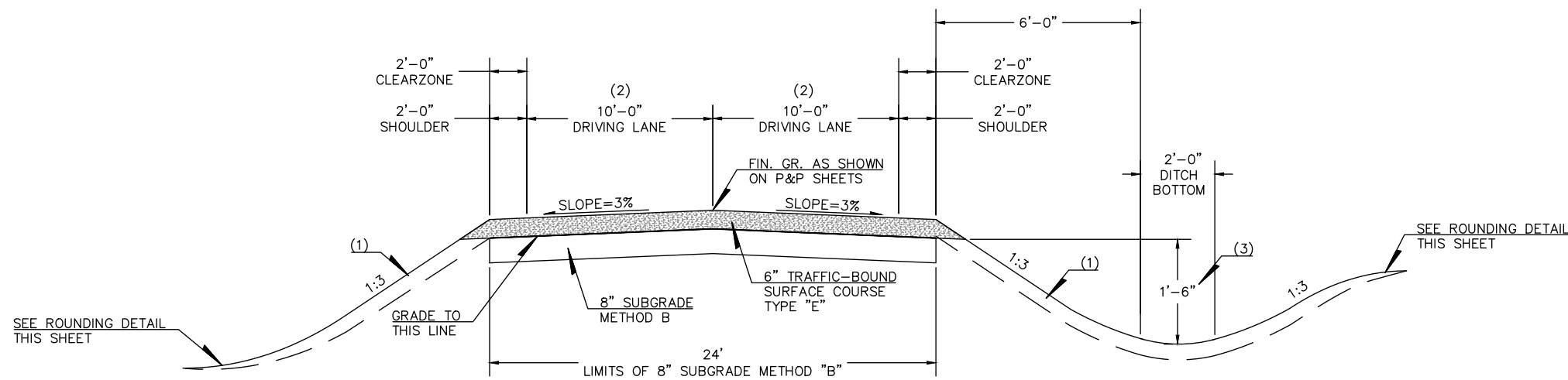
NOTE: PROJECT LENGTH BASED ON CRL STATIONING

ROADWAY LENGTH	235.00 FT.	0.04 MI.
BRIDGE LENGTH	55.00 FT.	0.01 MI.
PROJECT LENGTH	0.05 MI.	

EQUATIONS : NONE  
EXCEPTIONS : NONE

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2009 OKLAHOMA STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION GOVERN, APPROVED BY  
THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, JANUARY 4, 2010.



PAVEMENT REQUIREMENT		
6" PAVT. STRUCTURE	10'-0" DRIVING LANES	2'-0" SHOULDERS
SURFACE COURSE	6" TRAFFIC-BOUND SURFACE COURSE TYPE "E"	6" TRAFFIC-BOUND SURFACE COURSE TYPE "E"

TYPICAL T.B.S.C. SECTION (2)

NOT TO SCALE  
STA. 13+75.00 TO STA. 16+10.00

(1) TOPSOIL NOTE:  
The Contractor Shall Strip All Of The Available Topsoil, Stockpile It, And Place It Back On The Section In Accordance With Section 205 Of The Standard Specifications. Reserved Topsoil Shall Be Spread First On The Completed Slopes Of The Cut Sections And The Remainder On Completed Fill Slopes Or Other Priority Areas Located By The Engineer. All Additional Costs Associated With Operations Shall Be Included In The Pay Item For Salvaged Topsoil, Lump Sum.  
  
The Grading Line As Shown On The Typical And Cross Sections Is To The Top Of The Topsoil. Earthwork Quantities Were Not Adjusted for Salvage and The Topsoil Quantity Is Included In The mass Line Balance.

(2) EXCEPTIONS:  
-STA. 13+75.00 TO STA. 14+28.89 TRANSITION FROM EX. ROADWAY TO TYPICAL SECTION  
-STA. 15+39.66 TO STA. 16+10.00 TRANSITION FROM TYPICAL SECTION TO EX. ROADWAY

(3) Distance Measured Vertically From Edge Of Finished Grade Shoulder.

ROUNDING DETAIL

● INTERSECTION OF CUT AND/OR FILL SLOPES WITH GROUND LINE TO BE ROUNDED AS PART OF FINISHING OPERATIONS. ROUNDED SHALL BE 5' MINIMUM FOR SMALLER CUTS AND FILLS TO 15' MAXIMUM FOR LARGER CUTS AND FILLS OR AS DESIGNATED BY THE ENGINEER. COST OF ROUNDED TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS OF WORK.



DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION
DRAWN	ATD	6/17	
CHECKED	BWF	6/17	
APPROVED	WTM	6/17	
SQUAD	MESHEK		
COUNTY PAWNEE COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO. 002			TYPICAL SECTION

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TRAFFIC OPERATIONS GENERAL CONSTRUCTION NOTES

ANY SIGNS AND/OR DELINEATORS WHICH ARE TO BE REMOVED DURING THIS PROJECT WILL BE STORED IN A PROTECTED AREA DESIGNATED BY THE RESIDENT ENGINEER, UNTIL SUCH A TIME THAT THEY ARE TO BE RESET BY THE CONTRACTOR. COST OF THIS WORK TO BE INCLUDED IN OTHER ITEMS OF WORK.

FIVE (5) WORKING DAYS PRIOR TO THE START OF CONSTRUCTION ON THIS PROJECT, THE RESIDENT ENGINEER SHALL CONTACT THE OKLAHOMA HIGHWAY PATROL, SIZE AND WEIGHTS SECTION (405)-425-2210 AND ADVISE THE OFFICE WHEN SAID DETOURING WILL BEGIN AND THAT WIDE LOADS OVER 12 FT. SHOULD BE ADVISED AND RESTRICTED. UPON COMPLETION OF THE PROJECT, THE RESIDENT ENGINEER SHALL CONTACT THE OKLAHOMA HIGHWAY PATROL AND ADVISE THE OFFICE THAT THE PROJECT IS COMPLETE.

FIVE (5) WORKING DAYS PRIOR TO DETOURING WIDE LOAD VEHICLES, FOR THE CONSTRUCTION OF THE PROJECT, THE RESIDENT ENGINEER SHALL CONTACT THE OKLAHOMA HIGHWAY PATROL, SIZE AND WEIGHTS SECTION (405)-425-2210 AND ADVISE THE OFFICE WHEN SAID DETOURING WILL BEGIN AND THAT WIDE LOADS OVER 12 FT. SHOULD BE ADVISED AND RESTRICTED (SEE PLANS FOR PROPOSED WIDE LOAD DETOUR ROUTE). UPON COMPLETION OF THE PROJECT THE RESIDENT ENGINEER SHALL CONTACT THE OKLAHOMA HIGHWAY PATROL AND ADVISE THE OFFICE THAT THE WIDE LOAD DETOUR IS NO LONGER IN EFFECT.

ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL MEET ODOT'S, "QUALITY STANDARDS FOR TEMPORARY TRAFFIC CONTROL DEVICES".

THE CONTRACTOR SHALL PRESERVE ALL SURVEY MARKERS AND RESET ANY MARKERS OBLITERATED USING A REGISTERED LAND SURVEYOR.

TRAFFIC SIGNING GENERAL CONSTRUCTION NOTES

REMOVED MATERIAL TO BECOME PROPERTY OF CONTRACTOR AND IT SHALL BE DISPOSED OF IN A MANNER APPROVED BY THE ENGINEER.

ANY DAMAGE CAUSED BY THE CONTRACTOR TO ANY STRUCTURES, ROADWAY SURFACES, STRIPING, RAISED PAVEMENT MARKERS, GUARDRAIL, SLOPES, AND SIGNS SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE ENGINEER.

ALL REMOVED SIGNS, SIGN POSTS, BOLTS, MISCELLANEOUS HARDWARE, AND DELINEATORS SHALL REMAIN THE PROPERTY OF THE COUNTY. THE CONTRACTOR SHALL NEATLY STACK SUCH REMOVED MATERIAL AT A LOCATION ON THE JOB SITE AS DESIGNATED BY THE ENGINEER UNTIL SUCH TIME AS DIVISION PERSONNEL CAN REMOVE THE MATERIAL FROM THE JOB SITE.

AFTER REMOVAL OF ANY SIGN FOOTINGS, THE HOLES SHALL BE FILLED WITH SOIL AND TAMPED AND SHAPED IN A MANNER APPROVED BY THE ENGINEER.

TRAFFIC CONSTRUCTION PAY ITEM NOTES

(TC-26) CONSTRUCTION TRAFFIC CONTROL WILL BE INSTALLED IN A MANNER APPROVED BY THE ENGINEER, IN ACCORDANCE WITH CHAPTER VI OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION, AND APPLICABLE O.D.O.T. STANDARD DRAWINGS. PRICE BID FOR THIS ITEM SHALL BE PAYMENT IN FULL FOR THE INSTALLATION, MAINTENANCE AND SUBSEQUENT REMOVAL OF ALL NECESSARY CONSTRUCTION TRAFFIC CONTROL DEVICES REQUIRED FOR COMPLETION OF THE PROJECT.

(TC-33) ALL CONSTRUCTION WORK ZONE SIGNS SHALL HAVE FLUORESCENT SHEETING. THE FLUORESCENT SHEETING SHALL MEET THE REQUIREMENTS OF ASTM D4956 (LATEST REVISION)

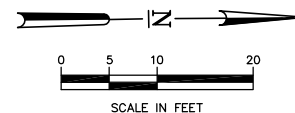
THE MANUFACTURER SHALL FURNISH A TYPE "D" CERTIFICATION IN ACCORDANCE WITH O.D.O.T. STANDARD SPECIFICATIONS (CURRENT EDITION) SUBSECTION 106.04. THE CERTIFICATION SHALL INCLUDE TEST RESULTS ON MATERIAL SUBMITTED FOR APPROVAL.

~~Δ1 (TC-84) 120 CONSTRUCTION CALENDAR DAYS WERE USED TO COMPUTE THE SIGN DAY PAY ITEMS. THE AMOUNT OF CALENDAR DAYS USED TO COMPUTE THE SIGN DAY PAY ITEMS IS AN ESTIMATED QUANTITY ONLY, BASED ON THE CURRENT O.D.O.T. STANDARDS AND SUGGESTED CONSTRUCTION SEQUENCE FOR THIS PROJECT. THESE ESTIMATED SIGN DAY QUANTITIES MAY CHANGE AS THE PROJECT'S CONSTRUCTION TRAFFIC CONTROL IS MODIFIED DURING CONSTRUCTION.~~

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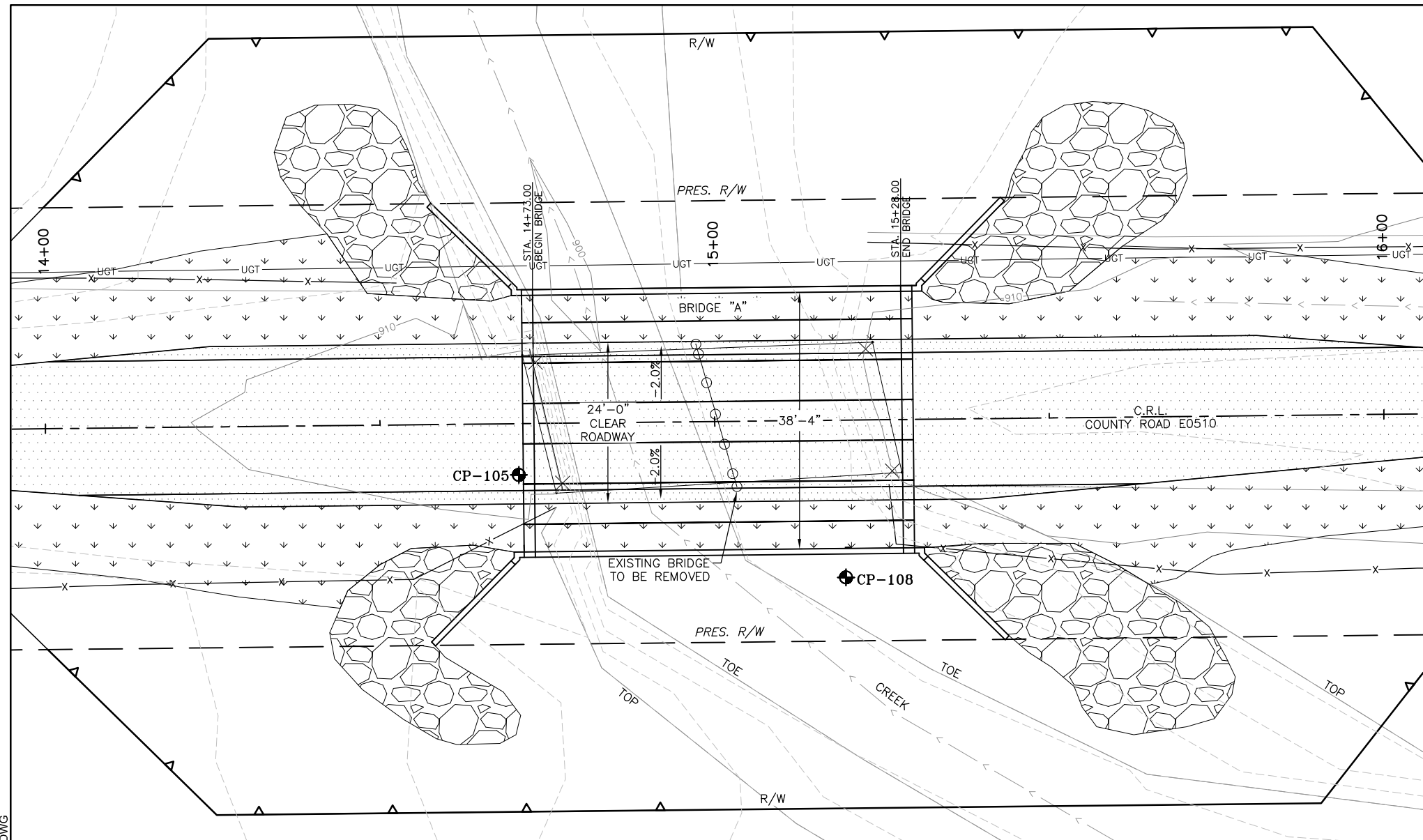
DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION  <b>PAY QUANTITIES &amp; NOTES (TRAFFIC)</b>
DRAWN	ATD	6/17	
CHECKED	BWF	6/17	
APPROVED	WTM	6/17	
SQUAD	MESHEK		
COUNTY <u>PAWNEE</u> , COUNTY RD. <u>E0510</u> , STATE JOB NO. <u>JP29930(04)</u> SHEET NO. <u>AT01</u>			

DESCRIPTION	REVISIONS	DATE



**CONTROL POINT CP-105**  
 RBS, 1/2" IPS  
 N=466562.703  
 E=2330661.916  
 Z=911.29

**CONTROL POINT CP-108**  
 60D NAIL SET  
 N=466547.39  
 E=2330710.80  
 Z=902.79



**PLAN**  
 SCALE: 1"=10'

EX. BRIDGE: CL STA. 15+00.53  
 1-25' AND 1-27' I-BEAM SPANS AT 15° SKEW  
 20' CLEAR ROADWAY

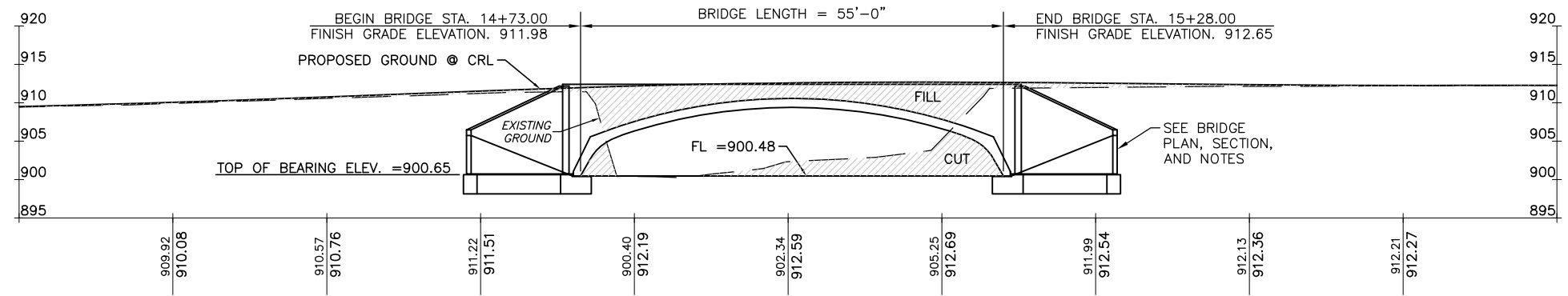
BRIDGE "A" CRL STA. 15+00.50  
 CONSTRUCT 55' SPAN O-1055 SERIES  
 CON/SPAN ARCH BRIDGE (OR APPROVED  
 EQUAL) AT 0° SKEW 24' CLEAR ROADWAY  
 (38'-4" W/ SIDES)

**HYDRAULIC DATA**

D.A. = 5.07 SQ. MI.  
 CONTROLLED DRAINAGE AREA = 0.00 SQ. MI.  
 EFFECTIVE DRAINAGE AREA = 5.07 SQ. MI.

Q2 = 607 CFS	Q25 = 2890 CFS
CHW = 904.45 FT.	CHW = 907.59 FT.
V = 2.97FPS	V = 7.44 FPS
Q5 = 1240 CFS	Q50 = 3620 CFS
CHW = 905.59 FT.	CHW = 908.10 FT.
V = 4.65 FPS	V = 7.20 FPS
Q10 = 1860 CFS	Q100 = 4520 CFS
CHW = 907.35 FT.	CHW = 908.56 FT.
V = 4.56 FPS	V = 7.24 FPS

Rdwy OT = 7  
 Q OT = Q7 = 1506 CFS  
 OT ELEV = 906.43  
 V OT = 4.6 FPS  
 Natural CHW = 904.48



**ELEVATION**  
 SCALE: 1"=10'

DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION
DRAWN	ATD	6/17	
CHECKED	BWF	6/17	
APPROVED	WTM	6/17	
SQUAD	MESHEK		

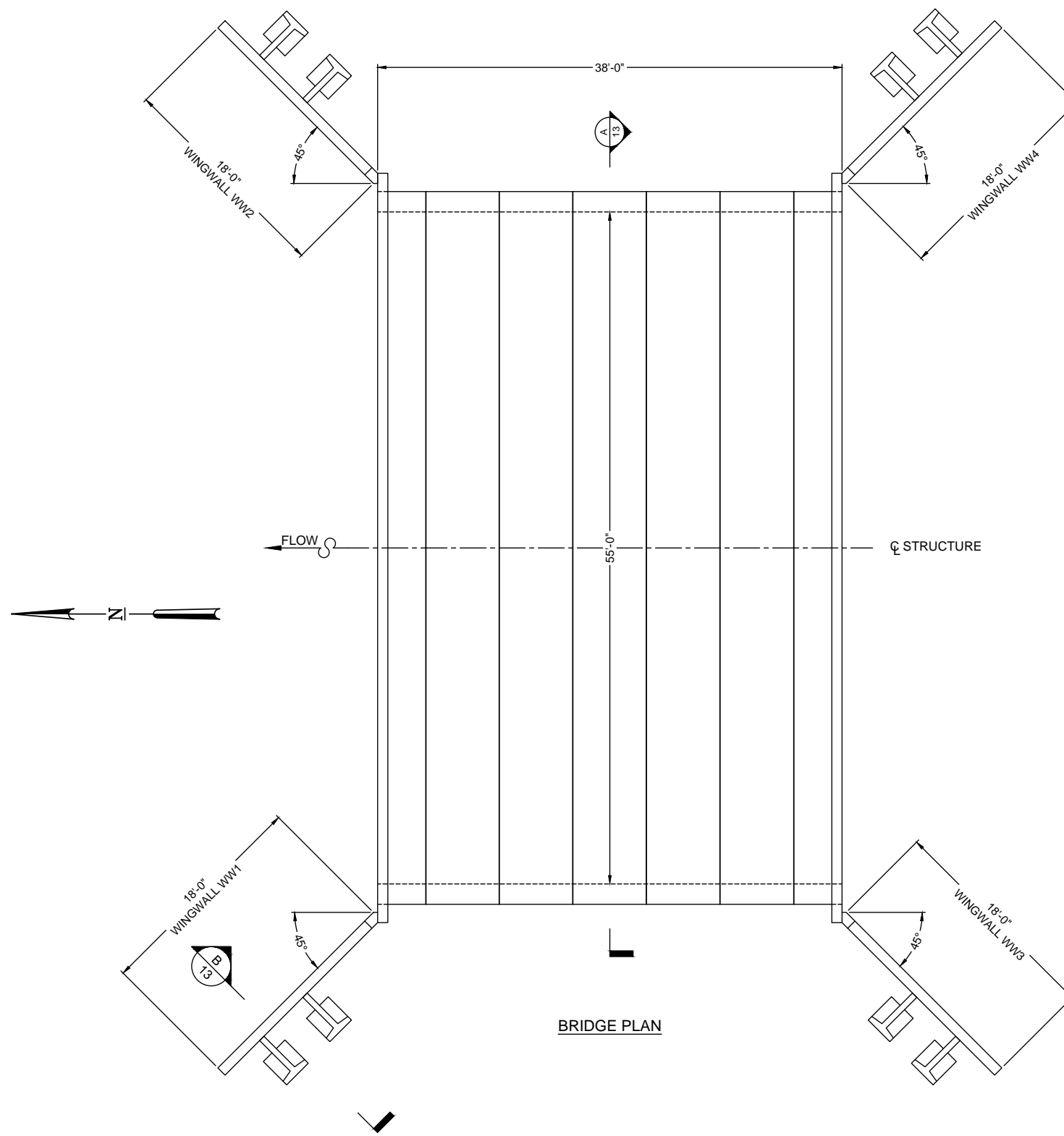
**GENERAL PLAN & ELEVATION**

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DESCRIPTION	REVISIONS	DATE

**NOTES**  
**GENERAL NOTES:**

- ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF OKLAHOMA, EMPLOYED BY THE PRECAST CONCRETE BRIDGE SUPPLIER, ARE SUBMITTED TO THE ENGINEER 2 WEEKS PRIOR TO THE BID DATE FOR REVIEW AND APPROVAL.
- ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT THE ALTERNATE DESIGN DOES NOT REDUCE THE HYDRAULIC OPENING OF THE STRUCTURE AS SHOWN ON THE DRAWINGS. AT A MINIMUM THE ALTERNATE STRUCTURE MUST PROVIDE THE SAME OR LARGER SPAN AND RISE AS THE STRUCTURE SHOWN ON THE DRAWINGS.
- THE PRECAST ARCH SUPPLIER MUST ATTEND THE PRE-BID MEETING, IF ONE IS HELD.
- SUPPLIER OF PROPOSED ALTERNATES TO A CON/SPAN® BRIDGE SYSTEM MUST SUBMIT AT LEAST TWO (2) INDEPENDENTLY VERIFIED FULL SCALE LOAD TESTS THAT CONFIRM THE PROPOSED DESIGN METHODOLOGY OF THE THREE SIDED/ARCH STRUCTURE(S). THE PROPOSED ALTERNATE, UPON SATISFACTORY CONFIRMATION OF DESIGN METHODOLOGY, MAY BE CONSIDERED AN ACCEPTABLE ALTERNATE.
- PROPOSED ALTERNATE STRUCTURES MAY BE CONSIDERED, PROVIDED THAT THE PRECAST CONCRETE BRIDGE STRUCTURES ARE PROVIDED BY A SUPPLIER THAT HAS A MINIMUM OF TWO (2) OKLAHOMA REGISTERED PROFESSIONAL ENGINEERS ON STAFF THAT ARE DEDICATED TO THE DESIGN OF THESE TYPES OF STRUCTURES. SUPPLIER MUST PROVIDE THESE NAMES, P.E. LICENSE NUMBERS AND DATES OF HIRE AT TIME OF ALTERNATE SUBMITTAL.
- PRIOR TO CONSTRUCTION, CONTRACTOR MUST VERIFY ALL ELEVATIONS SHOWN THROUGH THE ENGINEER.



**BRIDGE PLAN**

**DESIGN DATA**

DESIGN LOADING:  
 BRIDGE UNITS: HS20  
 HEADWALLS: EARTH PRESSURE ONLY  
 WINGWALLS: EARTH PRESSURE ONLY  
 DESIGN FILL HEIGHT: DESIGN FILL HEIGHT  
 FROM TOP OF CROWN TO TOP OF PAVEMENT.  
 DESIGN METHOD: LOAD RESISTANCE FACTOR DESIGN PER AASHTO LRFD SPECIFICATION

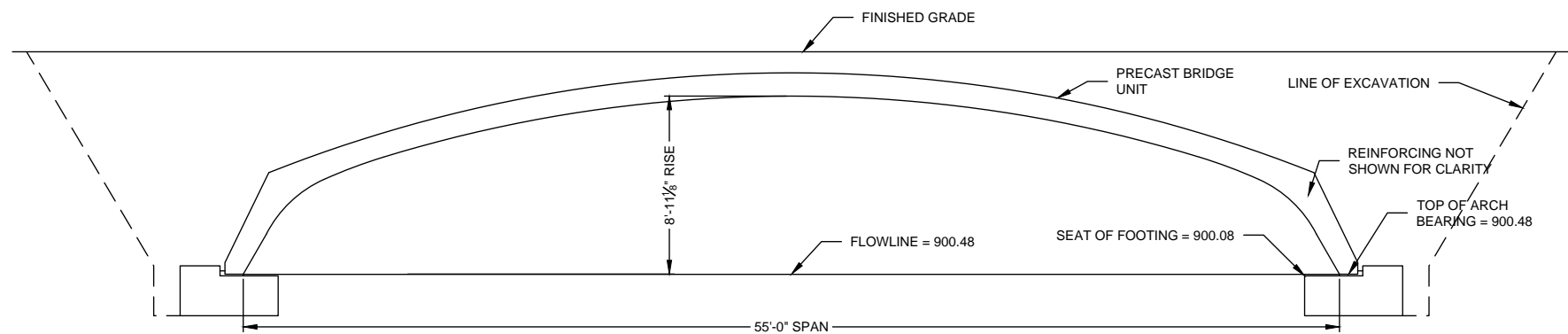
**MATERIALS**

PRECAST UNITS SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH CON/SPAN® SPECIFICATIONS. CONCRETE FOR FOOTINGS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI. REINFORCING STEEL FOR FOOTINGS SHALL CONFORM TO ASTM A615 OR A996-GRADE 60.

DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION
DRAWN	ATD	6/17	
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APPROVED	WTM	6/17	
SQUAD	MESHEK		
COUNTY <u>PAWNEE</u> COUNTY RD. <u>E0510</u> STATE JOB NO. <u>JP29930(04)</u> SHEET NO. <u>B02</u>			<b>BRIDGE PLAN</b>

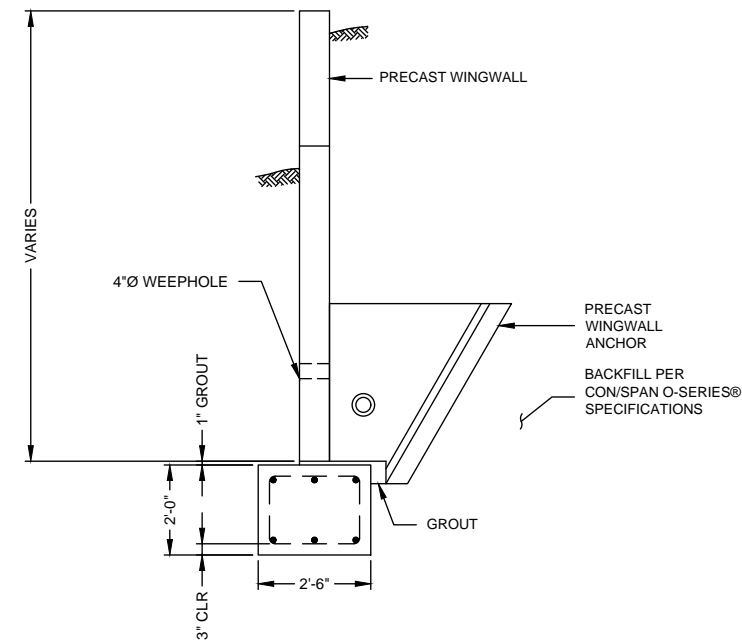
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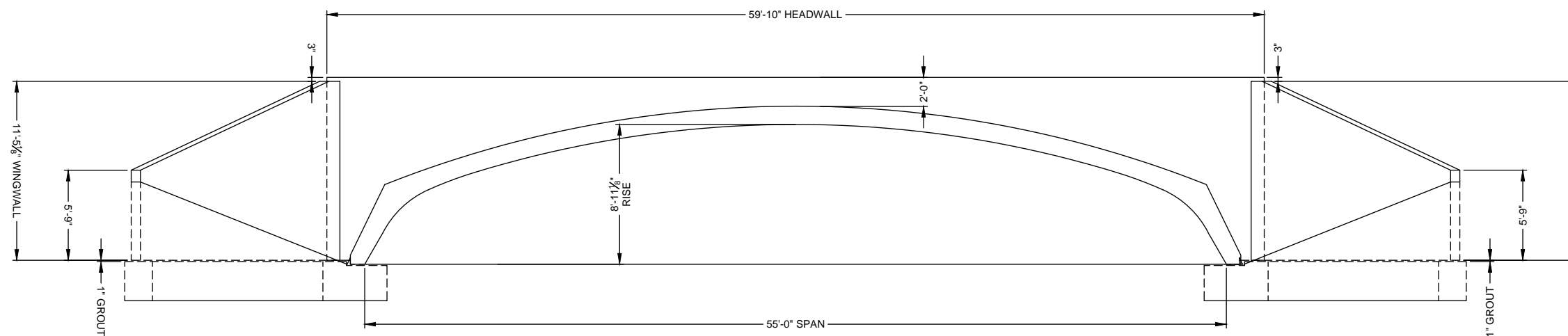


SECTION A  
12

NOTE: CONTRACTOR TO CONSTRUCT CAST IN PLACE FOOTINGS FOR ARCH SECTIONS. CONTRACTOR TO SUBMIT FOOTING DESIGN FOR REVIEW. COST TO BE INCLUDED IN PRICE BID FOR CLASS AA CONCRETE AND REINFORCING STEEL.



SECTION B  
12



TYPICAL END ELEVATION

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DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION
DRAWN	ATD	6/17	
CHECKED	BWF	6/17	
APPROVED	WTM	6/17	
SQUAD	MESHEK		
COUNTY PAWNEE COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO. B03			<b>BRIDGE SECTIONS</b>





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# SPECIFICATIONS FOR MANUFACTURE AND INSTALLATION OF CON/SPAN O-SERIES BRIDGE SYSTEMS OR APPROVED EQUAL (CONT'D)

- 11. MARKING**  
EACH BRIDGE UNIT SHALL BE CLEARLY MARKED BY WATERPROOF PAINT. THE FOLLOWING SHALL BE SHOWN ON THE INSIDE OF THE VERTICAL LEG OF THE BRIDGE SECTION:  
BRIDGE SPAN x BRIDGE RISE  
DATE OF MANUFACTURE  
NAME OR TRADEMARK OF THE MANUFACTURER
- 12. INSTALLATION PREPARATION**  
TO ENSURE CORRECT INSTALLATION OF THE PRECAST CONCRETE BRIDGE SYSTEM, CARE AND CAUTION MUST BE EXERCISED IN FORMING THE SUPPORT AREAS FOR BRIDGE UNITS, HEADWALL, AND WINGWALL ELEMENTS. EXERCISING SPECIAL CARE WILL FACILITATE THE RAPID INSTALLATION OF THE PRECAST COMPONENTS.
- 12.1. FOOTINGS**  
DO NOT OVER EXCAVATE FOUNDATIONS UNLESS DIRECTED BY SITE SOIL ENGINEER TO REMOVE UNSUITABLE SOIL.
- THE SITE SOILS ENGINEER SHALL CERTIFY THAT THE BEARING CAPACITY MEETS OR EXCEEDS THE FOOTING DESIGN REQUIREMENTS, PRIOR TO THE CONTRACTOR POURING OF THE FOOTINGS.
- THE BRIDGE UNITS AND WINGWALLS SHALL BE INSTALLED ON EITHER PRECAST OR CAST-IN-PLACE CONCRETE FOOTINGS. THE SIZE AND ELEVATION OF THE FOOTINGS SHALL BE AS DESIGNED BY THE ENGINEER. A KEYWAY SHALL BE FORMED IN THE TOP SURFACE OF THE BRIDGE FOOTING AS SPECIFIED ON THE PLANS. NO KEYWAY IS REQUIRED IN THE WINGWALL FOOTINGS, UNLESS OTHERWISE SPECIFIED ON THE PLANS.
- THE FOOTINGS SHALL BE GIVEN A SMOOTH FLOAT FINISH AND SHALL REACH A COMPRESSIVE STRENGTH OF 2,000 PSI BEFORE PLACEMENT OF THE BRIDGE AND WINGWALL ELEMENTS. BACKFILLING SHALL NOT BEGIN UNTIL THE FOOTING HAS REACHED THE FULL DESIGN COMPRESSIVE STRENGTH.
- THE FOOTING SURFACE SHALL BE CONSTRUCTED IN ACCORDANCE WITH GRADES SHOWN ON THE PLANS. WHEN TESTED WITH A 10'-0" STRAIGHT EDGE, THE SURFACE SHALL NOT VARY MORE THAN 1/4" IN 10'-0".
- IF A PRECAST CONCRETE FOOTING IS USED, THE CONTRACTOR SHALL PREPARE A 4" THICK BASE LAYER OF COMPACTED GRANULAR MATERIAL THE FULL WIDTH OF THE FOOTING PRIOR TO PLACING THE PRECAST FOOTING.
- THE FOUNDATIONS FOR PRECAST CONCRETE BRIDGE ELEMENTS AND WINGWALLS MUST BE CONNECTED BY REINFORCEMENT TO FORM ONE MONOLITHIC BODY. EXPANSION JOINTS SHALL NOT BE USED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF THE FOUNDATIONS PER THE PLANS AND SPECIFICATIONS.

- 13. INSTALLATION**
- 13.1. GENERAL** - THE INSTALLATION OF THE PRECAST CONCRETE ELEMENTS SHALL BE AS EXPLAINED IN THE PUBLICATION CON/SPAN BRIDGE SYSTEMS INSTALLATION HANDBOOK.
- 13.1.1. LIFTING** - IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT A CRANE OF THE CORRECT LIFTING CAPACITY IS AVAILABLE TO HANDLE THE PRECAST CONCRETE UNITS. THIS CAN BE ACCOMPLISHED BY USING THE WEIGHTS GIVEN FOR THE PRECAST CONCRETE COMPONENTS AND BY DETERMINING THE LIFTING REACH FOR EACH CRANE UNIT. SITE CONDITIONS MUST BE CHECKED WELL IN ADVANCE OF SHIPPING TO ENSURE PROPER CRANE LOCATION AND TO AVOID ANY LIFTING RESTRICTIONS. THE LIFT ANCHORS OR HOLES PROVIDED IN EACH UNIT ARE THE ONLY MEANS TO BE USED TO LIFT THE ELEMENTS. THE PRECAST CONCRETE ELEMENTS MUST NOT BE SUPPORTED OR RAISED BY OTHER MEANS THAN THOSE GIVEN IN THE MANUALS AND DRAWINGS WITHOUT WRITTEN APPROVAL FROM CONTECH® ENGINEERED SOLUTIONS.
- 13.1.2. CONSTRUCTION EQUIPMENT WEIGHT RESTRICTIONS** - IN NO CASE SHALL EQUIPMENT OPERATING IN EXCESS OF THE DESIGN LOAD (HS20 OR HS25) BE PERMITTED OVER THE BRIDGE UNITS UNLESS APPROVED BY CONTECH® ENGINEERED SOLUTIONS.
- 13.1.2.1. IN THE IMMEDIATE AREA OF THE BRIDGE UNITS, THE FOLLOWING RESTRICTIONS FOR THE USE OF HEAVY CONSTRUCTION MACHINERY DURING BACKFILLING OPERATIONS APPLY:**
- NO CONSTRUCTION EQUIPMENT SHALL CROSS THE BARE PRECAST CONCRETE BRIDGE UNIT.
  - AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 4" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 10 TONS MAY CROSS THE BRIDGE.
  - AFTER THE COMPACTED FILL LEVEL HAS REACHED A MINIMUM OF 1'-0" OVER THE CROWN OF THE BRIDGE, CONSTRUCTION EQUIPMENT WITH A WEIGHT OF LESS THAN 30 TONS MAY CROSS THE BRIDGE.
  - AFTER THE COMPACTED FILL LEVEL HAS REACHED THE DESIGN COVER, OR 2'-0" MINIMUM, OVER THE CROWN OF THE PRECAST CONCRETE BRIDGE, CONSTRUCTION EQUIPMENT WITHIN THE DESIGN LOAD LIMITS FOR THE ROAD MAY CROSS THE PRECAST CONCRETE BRIDGE.
- 13.2. LEVELING PAD/SHIMS** - THE BRIDGE UNITS AND WINGWALLS SHALL BE SET ON HARDBOARD SHIMS CONFORMING TO ASTM D1037 OR PLASTIC SHIMS (DAYTON SUPERIOR P-50, P-51 OR APPROVED EQUAL) MEASURING 5" x 5", MINIMUM, UNLESS SHOWN OTHERWISE ON THE PLANS. A MINIMUM GAP OF 1/2" SHALL BE PROVIDED BETWEEN THE FOOTING AND THE BOTTOM OF THE BRIDGE'S

- VERTICAL LEGS OR THE BOTTOM OF THE WINGWALL. ALSO, A SUPPLY OF 1/4", 1/2" AND 3/4" THICK HARDBOARD OR PLASTIC SHIMS FOR VARIOUS SHIMMING PURPOSES SHALL BE ON SITE.
- 13.3. PLACEMENT OF BRIDGE UNITS** - THE BRIDGE UNITS SHALL BE PLACED AS SHOWN ON THE ENGINEER'S PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE. THE JOINT WIDTH BETWEEN ADJACENT PRECAST UNITS SHALL NOT EXCEED 1/4".
- 13.4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE STRUCTURE SPAN DURING ALL PHASES OF INSTALLATION.** DUE TO THE ARCH SHAPE, BRIDGE ELEMENTS WILL TEND TO SPREAD UNDER SELF-WEIGHT. IT IS IMPERATIVE THAT ANY LATERAL SPREADING OF THE BRIDGE ELEMENTS BE AVOIDED DURING AND AFTER THEIR PLACEMENT. GENERALLY, HORIZONTAL CABLE TIES OR TIE RODS ARE SHIPPED IN THE LARGER BRIDGE ELEMENTS TO ASSIST IN PREVENTING THIS SPREADING. CABLE TIES/TIE RODS SHALL NOT BE REMOVED UNTIL BRIDGE UNITS ARE GROUTED AND GROUT HAS CURED. IT IS RECOMMENDED THAT TEMPORARY HARDWOOD BLOCKS BE USED IN CONJUNCTION WITH THE CABLE TIES/TIE RODS TO MAINTAIN SPAN. IF, HOWEVER, DUE TO SITE RESTRICTIONS, THESE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO PLACEMENT OF THE BRIDGE ELEMENTS, THE CONTRACTOR MUST NOTIFY CONTECH (MANUFACTURER) AND REQUEST A SUGGESTED INSTALLATION PROCEDURE.
- IN ADDITION, IF THE CABLE TIES/TIE RODS MUST BE REMOVED PRIOR TO SETTING ARCH UNITS, THE FOLLOWING QUALITY CONTROL PROCEDURE MUST BE FOLLOWED:
- 1) FIND "MEASURED SPAN" UPON ARCH UNIT'S DELIVERY TO SITE, PRIOR TO LIFTING FROM TRUCK AND REMOVING CABLE TIES/TIE RODS. "MEASURED SPAN" SHALL BE THE AVERAGE OF (3) SPAN MEASUREMENTS ALONG THE LAY LENGTH OF THE ARCH UNIT.
  - 2) AFTER SETTING OF BRIDGE UNIT ON THE FOUNDATION, VERIFY THE SPAN. THIS "INSTALLED SPAN MEASUREMENT" SHALL NOT EXCEED THE MAXIMUM OF:
    - A) THE NOMINAL SPAN + 1/2" OR
    - B) THE "MEASURED SPAN"
- IF THE "INSTALLED SPAN MEASUREMENT" EXCEEDS THIS AMOUNT, THE ARCH UNIT SHALL BE LIFTED AND RE-SET UNTIL THE "INSTALLED SPAN MEASUREMENT" MEETS THE LIMITS.

- 13.5. PLACEMENT OF WINGWALLS, HEADWALLS AND FOUNDATION UNITS** - THE WINGWALLS, HEADWALLS AND FOUNDATIONS SHALL BE PLACED AS SHOWN ON THE PLAN DRAWINGS. SPECIAL CARE SHALL BE TAKEN IN SETTING THE ELEMENTS TO THE TRUE LINE AND GRADE.
- 13.6. WATERPROOFING/JOINT PROTECTION AND SUBSURFACE DRAINAGE**
- 13.6.1. EXTERNAL PROTECTION OF JOINTS** - THE BUTT JOINT MADE BY TWO ADJOINING BRIDGE UNITS SHALL BE COVERED WITH A 1/8" x 1 1/2" PREFORMED BITUMINOUS JOINT SEALANT AND A MINIMUM OF A 9" WIDE JOINT WRAP. THE SURFACE SHALL BE FREE OF DIRT BEFORE APPLYING THE JOINT MATERIAL. A PRIMER COMPATIBLE WITH THE JOINT WRAP TO BE USED SHALL BE APPLIED FOR A MINIMUM WIDTH OF 9" ON EACH SIDE OF THE JOINT. THE EXTERNAL WRAP SHALL BE CS212 BY CONCRETE SEALANTS INC., EZ-WRAP RUBBER BY PRESS-SEAL GASKET CORPORATION, SEAL WRAP BY MAR MAC MANUFACTURING CO. INC. OR APPROVED EQUAL. THE JOINT SHALL BE COVERED CONTINUOUSLY FROM THE BOTTOM OF ONE BRIDGE SECTION LEG, ACROSS THE TOP OF THE BRIDGE AND TO THE OPPOSITE BRIDGE SECTION LEG. ANY LAPS THAT RESULT IN THE JOINT WRAP SHALL BE A MINIMUM OF 6" LONG WITH THE OVERLAP RUNNING DOWNHILL.
- 13.6.2.** IN ADDITION TO THE JOINTS BETWEEN BRIDGE UNITS, THE JOINT BETWEEN THE END BRIDGE UNIT AND THE HEADWALL SHALL ALSO BE SEALED AS DESCRIBED ABOVE. IF PRECAST WINGWALLS ARE USED, THE JOINT BETWEEN THE END BRIDGE UNIT AND THE WINGWALL SHALL BE SEALED WITH A 2'-0" STRIP OF FILTER FABRIC. ALSO, IF LIFT HOLES ARE FORMED IN THE BRIDGE UNITS, THEY SHALL BE PRIMED AND COVERED WITH A 9" x 9" SQUARE OF JOINT WRAP.
- 13.6.3.** DURING THE BACKFILLING OPERATION, CARE SHALL BE TAKEN TO KEEP THE JOINT WRAP IN ITS PROPER LOCATION OVER THE JOINT.
- 13.6.4.** SUBSOIL DRAINAGE SHALL BE AS DIRECTED BY THE ENGINEER.
- 13.7. GROUTING**
- 13.7.1.** GROUTING SHALL NOT BE PERFORMED WHEN TEMPERATURES ARE EXPECTED TO GO BELOW 35° FOR A PERIOD OF 72 HOURS. FILL THE BRIDGE-FOUNDATION KEYWAY WITH CEMENT GROUT (PORTLAND CEMENT AND WATER OR CEMENT MORTAR COMPOSED OF PORTLAND CEMENT, SAND AND WATER) WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI. VIBRATE AS REQUIRED TO ENSURE THAT THE ENTIRE KEY AROUND THE BRIDGE ELEMENT IS COMPLETELY FILLED. IF BRIDGE ELEMENTS HAVE BEEN SET WITH TEMPORARY TIES (CABLES, BARS, ETC.), GROUT MUST ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 1500 PSI BEFORE TIES MAY BE REMOVED.
- 13.7.2.** ALL GROUT SHALL HAVE A MAXIMUM AGGREGATE SIZE OF 1/4".
- 13.7.3.** LIFTING AND ERECTION ANCHOR RECESSES SHALL BE FILLED WITH GROUT.
- 13.7.4.** AFTER GROUT HAS REACHED ITS DESIGN STRENGTH THE TEMPORARY HARDWOOD WEDGES SHALL BE REMOVED AND THEIR HOLES FILLED WITH GROUT.
- 13.8. BACKFILL**
- 13.8.1.** DO NOT PERFORM BACKFILLING DURING WET OR FREEZING WEATHER.

- 13.8.2.** NO BACKFILL SHALL BE PLACED AGAINST ANY STRUCTURAL ELEMENTS UNTIL THEY HAVE BEEN APPROVED BY THE ENGINEER.
- 13.8.3.** BACKFILL SHALL BE CONSIDERED AS ALL REPLACED EXCAVATION AND NEW EMBANKMENT ADJACENT TO THE PRECAST CONCRETE ELEMENTS. THE PROJECT CONSTRUCTION AND MATERIAL SPECIFICATIONS, WHICH INCLUDE THE SPECIFICATIONS FOR EXCAVATION FOR STRUCTURES AND ROADWAY EXCAVATION AND EMBANKMENT CONSTRUCTION, SHALL APPLY EXCEPT AS MODIFIED IN THIS SECTION.
- 13.8.4. BACKFILL ZONES:**
- IN-SITU SOIL
  - ZONE A: CONSTRUCTED EMBANKMENT OR OVERFILL.
  - ZONE B: AGGREGATE BASE TYPE A FILL THAT IS DIRECTLY ASSOCIATED WITH PRECAST CONCRETE BRIDGE INSTALLATION.
  - ZONE C: 6" T.B.S.C ROAD STRUCTURE.
  - ZONE D: 8" SUBGRADE, METHOD B
- 13.8.5. REQUIRED BACKFILL PROPERTIES**
- 13.8.5.1. IN-SITU SOIL** - NATURAL GROUND IS TO BE SUFFICIENTLY STABLE TO ALLOW EFFECTIVE SUPPORT TO THE PRECAST CONCRETE BRIDGE UNITS. AS A GUIDE, THE EXISTING NATURAL GROUND SHOULD BE OF SIMILAR QUALITY AND DENSITY TO ZONE B MATERIAL FOR MINIMUM LATERAL DIMENSION OF ONE BRIDGE SPAN OUTSIDE OF THE BRIDGE FOOTING.
- 13.8.5.2. ZONE A** - ZONE A REQUIRES FILL MATERIAL WITH SPECIFICATIONS AND COMPACTING PROCEDURES EQUAL TO THAT FOR NORMAL ROAD EMBANKMENTS.
- 13.8.5.3. ZONE B** - GENERALLY, SOILS SHALL BE REASONABLY FREE OF ORGANIC MATTER, AND, NEAR CONCRETE SURFACES, FREE OF STONES LARGER THAN 3" IN DIAMETER SEE CHARTS FOR DETAILED DESCRIPTIONS OF ACCEPTABLE SOILS.
- 13.8.5.4. ZONE C** - ZONE C IS THE ROAD SECTION OF GRAVEL, ASPHALT OR CONCRETE BUILT IN COMPLIANCE WITH LOCAL ENGINEERING PRACTICES.
- 13.8.5.5. GEOTECHNICAL ENGINEER** SHALL REVIEW GRADATIONS OF ALL INTERFACING MATERIALS AND, IF NECESSARY, RECOMMEND GEOTEXTILE FILTER FABRIC (PROVIDED BY CONTRACTOR)

- 13.8.6. PLACING AND COMPACTING BACKFILL**  
DUMPING FOR BACKFILLING IS NOT ALLOWED ANY NEARER THAN 3'-0" FROM THE BRIDGE LEG.

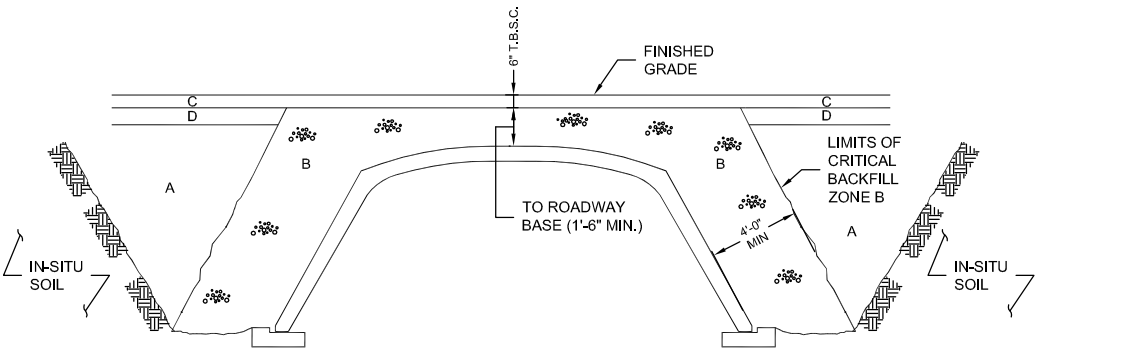
THE FILL MUST BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8". THE MAXIMUM DIFFERENCE IN THE SURFACE LEVELS OF THE FILL ON OPPOSITE SIDES OF THE BRIDGE MUST NOT EXCEED 2'-0".

THE FILL BEHIND WINGWALLS MUST BE PLACED AT THE SAME TIME AS THAT OF THE BRIDGE FILL. IT MUST BE PLACED IN PROGRESSIVELY PLACED HORIZONTAL LAYERS NOT EXCEEDING 8" PER LAYER.

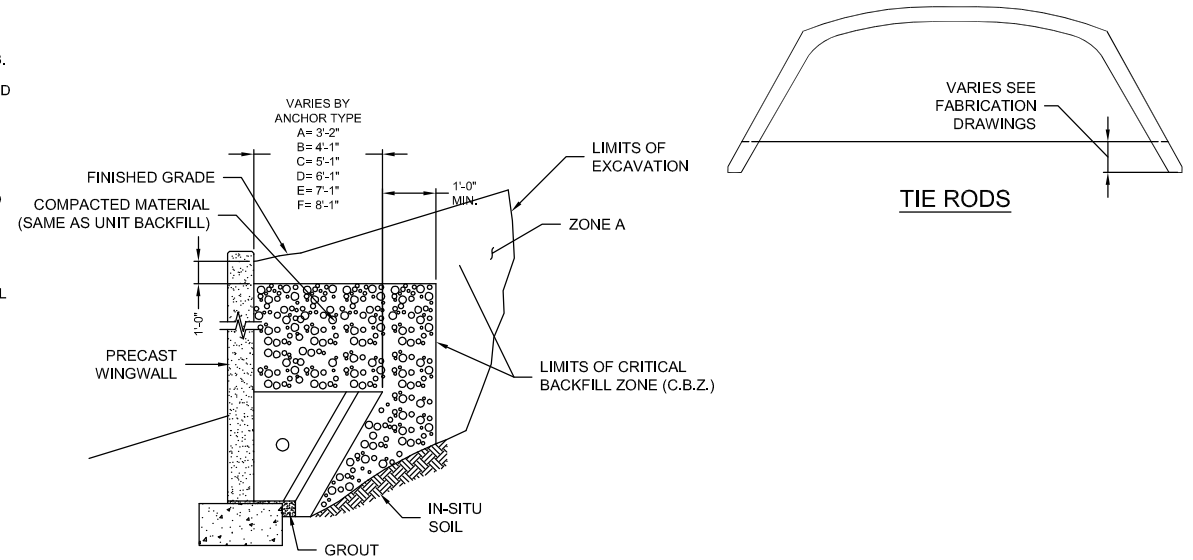
THE BACKFILL OF ZONE B SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% OF THE STANDARD PROCTOR, AS REQUIRED BY AASHTO T-99.

SOIL WITHIN 1'-0" OF CONCRETE SURFACES SHALL BE HAND-COMPACTED. ELSEWHERE, USE OF ROLLERS IS ACCEPTABLE. IF VIBRATING ROLLER-COMPACTORS ARE USED, THEY SHALL NOT BE STARTED OR STOPPED WITHIN ZONE B AND THE VIBRATION FREQUENCY SHOULD BE AT LEAST 30 REVOLUTIONS PER SECOND.

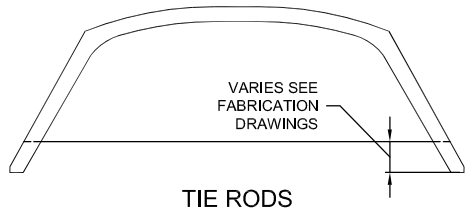
- THE BACKFILL MATERIAL AND COMPACTING BEHIND WINGWALLS SHALL SATISFY THE CRITERIA FOR THE BRIDGE BACKFILL, ZONE B.
- BACKFILL AGAINST A WATERPROOFED SURFACE SHALL BE PLACED CAREFULLY TO AVOID DAMAGE TO THE WATERPROOFING MATERIAL.
- 13.8.7. BRIDGE UNITS**  
FOR FILL HEIGHTS OVER 12 FEET (AS MEASURED FROM TOP CROWN OF BRIDGE TO FINISHED GRADE), NO BACKFILLING MAY BEGIN UNTIL A BACKFILL COMPACTION TESTING PLAN HAS BEEN COORDINATED WITH AND APPROVED BY CONTECH® ENGINEERED SOLUTIONS.
- 13.8.8. WINGWALLS**  
BACKFILL IN FRONT OF WINGWALLS SHALL BE CARRIED TO GROUND LINES SHOWN IN THE PLANS.
- 13.8.9. MONITORING**  
THE CONTRACTOR SHALL CHECK SETTLEMENTS AND HORIZONTAL DISPLACEMENT OF FOUNDATION TO ENSURE THAT THEY ARE WITHIN THE ALLOWABLE LIMIT PROVIDED BY THE ENGINEER. THESE MEASUREMENTS SHOULD GIVE AN INDICATION OF THE SETTLEMENTS AND DEFORMATIONS ALONG THE LENGTH OF THE FOUNDATIONS.
- THE FIRST MEASUREMENT SHOULD TAKE PLACE AFTER THE ERECTION OF ALL PRECAST BRIDGE SYSTEM ELEMENTS, A SECOND AFTER COMPLETION OF BACKFILLING, AND A THIRD BEFORE OPENING OF THE BRIDGE TO TRAFFIC. FURTHER MEASUREMENTS MAY BE MADE ACCORDING TO LOCAL CONDITIONS.



**BACKFILL REQUIREMENTS**



**WALL BACKFILL REQUIREMENTS**



**TIE RODS**

DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION  <b>BRIDGE NOTES</b>
DRAWN	ATD	6/17	
CHECKED	BWF	6/17	
APPROVED	WTM	6/17	
SQUAD	MESHEK		
COUNTY	PAWNEE COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO. B05		

M:\COUNTY\_PAWNEE\13PAW03\_County\_Bridge\_089\DESIGN\DRAWINGS\13PAW03\_FROM\_KELLERT.DWG

# STORM WATER MANAGEMENT PLAN

## SITE DESCRIPTION

PROJECT LIMITS: .04 MILES OF NEW ROADWAY AND NEW BRIDGE OVER UNNAMED CREEK APPROXIMATELY 3.5 MILES NORTH OF THE INTERSECTION OF SH-18 & I-412, AND 0.6 MILES EAST ON COUNTY RD. E0510 IN PAWNEE COUNTY. LIMITS ARE 100' EAST AND WEST OF THE BRIDGE.

PROJECT DESCRIPTION: BRIDGE AND APPROACH PLANS FOR COUNTY ROAD E0510 OVER UNNAMED CREEK. PROJECT REPLACES EXISTING 1-25' AND 1-27' I-BEAM SPANS AT 15° SKEW WITH 55' PRECAST ARCH BRIDGE, 24' CLEAR ROADWAY AT 0° SKEW, AND RECONSTRUCTS 180 LF OF GRAVEL ROADWAY.

### SUGGESTED SEQUENCE OF EROSION CONTROL ACTIVITIES:

1. TEMPORARY EROSION CONTROL.
2. ROADWAY AND BRIDGE REMOVAL.
3. NEW BRIDGE INSTALLATION
4. NEW ROADWAY AND RECONSTRUCTION.
5. PERMANENT EROSION CONTROL.

SOIL TYPE: C

TOTAL AREA OF THE CONSTRUCTION SITE: 0.57 ACRES

ESTIMATED AREA TO BE DISTURBED: 0.29 ACRES

OFFSITE AREA TO BE DISTURBED: (FOR CONTRACTOR USE)

TOTAL IMPERVIOUS AREA PRE-CONSTRUCTION: 0.09 ACRES

TOTAL IMPERVIOUS AREA POST-CONSTRUCTION: 0.18 ACRES

POST-CONSTRUCTION RUNOFF COEFFICIENT OF THE SITE: 0.3

LATITUDE & LONGITUDE OF CENTER OF PROJECT: N36° 16' 31.5", W96° 46' 16.5"

### PROJECT WILL DISCHARGE TO:

NAME OF RECEIVING WATERS: UNNAMED TRIBUTARY OF CAMP CREEK

SENSITIVE WATERS OR WATERSHEDS: YES  NO

303(d) IMPAIRED WATERS: YES  NO

IF YES, LIST IMPAIRMENT:

LOCATED IN A TMDL: YES  NO

LAKE THUNDERBIRD TMDL: YES  NO

MS4 ENTITY YES  NO

IF YES, LOCATION:

### NOTE:

THIS SHEET SHOULD BE USED IN CONJUNCTION WITH A DRAINAGE MAP THAT ILLUSTRATES THE DRAINAGE PATTERNS/PATHWAYS AND RECEIVING WATERS FOR THIS PROJECT. THIS SHEET SHOULD ALSO BE USED WITH THE EROSION CONTROL SUMMARIES, PAY ITEMS, & NOTES.

## EROSION AND SEDIMENT CONTROLS

### SOIL STABILIZATION PRACTICES:

- TEMPORARY SEEDING
- PERMANENT SODDING, SPRIGGING OR SEEDING
- VEGETATIVE MULCHING
- SOIL RETENTION BLANKET
- PRESERVATION OF EXISTING VEGETATION

NOTE: TEMPORARY EROSION CONTROL METHODS MUST BE USED ON ALL DISTURBED AREAS WHERE CONSTRUCTION ACTIVITIES HAVE CEASED FOR OVER 14 DAYS. METHODS USED WILL BE AS SHOWN ON PLANS, OR AS DIRECTED BY THE ENGINEER.

### STRUCTURAL PRACTICES:

- STABILIZED CONSTRUCTION EXIT
- TEMPORARY SILT FENCE
- TEMPORARY SILT DIKES
- TEMPORARY FIBER LOG
- DIVERSION, INTERCEPTOR OR PERIMETER DIKES
- DIVERSION, INTERCEPTOR OR PERIMETER SWALES
- ROCK FILTER DAMS
- TEMPORARY SLOPE DRAIN
- PAVED DITCH W/ DITCH LINER PROTECTION
- TEMPORARY DIVERSION CHANNELS
- TEMPORARY SEDIMENT BASINS
- TEMPORARY SEDIMENT TRAPS
- TEMPORARY SEDIMENT FILTERS
- TEMPORARY SEDIMENT REMOVAL
- RIP RAP
- INLET SEDIMENT FILTER
- TEMPORARY BRUSH SEDIMENT BARRIERS
- SANDBAG BERMS
- TEMPORARY STREAM CROSSINGS

### OFFSITE VEHICLE TRACKING:

- HAUL ROADS DAMPENED FOR DUST CONTROL
- LOADED HAUL TRUCKS TO BE COVERED WITH TARPULIN
- EXCESS DIRT ON ROAD REMOVED DAILY

### NOTES:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THE FOLLOWING:

### MAINTENANCE AND INSPECTION:

ALL EROSION AND SEDIMENT CONTROLS WILL BE MAINTAINED IN GOOD WORKING ORDER FROM THE BEGINNING OF CONSTRUCTION UNTIL AN ACCEPTABLE VEGETATIVE COVER IS ESTABLISHED. INSPECTION BY THE CONTRACTOR AND ANY NECESSARY REPAIRS SHALL BE PERFORMED ONCE EVERY 7 CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCH AS RECORDED BY A NON-FREEZING RAIN GAUGE TO BE LOCATED ON SITE. POTENTIALLY ERODIBLE AREAS, DRAINAGEWAYS, MATERIAL STORAGE, STRUCTURAL DEVICES, CONSTRUCTION ENTRANCES AND EXITS ALONG WITH EROSION AND SEDIMENT CONTROL LOCATIONS ARE EXAMPLES OF SITES THAT NEED TO BE INSPECTED.

### WASTE MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF CONSTRUCTION WASTE MATERIAL IS REQUIRED BY THE CONTRACTOR. MATERIALS INCLUDE STOCKPILES, SURPLUS, DEBRIS AND ALL OTHER BY-PRODUCTS FROM THE CONSTRUCTION PROCESS. PRACTICES INCLUDE DISPOSAL, PROPER MATERIALS HANDLING, SPILL PREVENTION AND CLEANUP MEASURES. CONTROLS AND PRACTICES SHALL MEET THE REQUIREMENTS OF ALL FEDERAL, STATE AND LOCAL AGENCIES.

### HAZARDOUS MATERIALS:

PROPER MANAGEMENT AND DISPOSAL OF HAZARDOUS WASTE MATERIALS IS REQUIRED. THE CONTRACTOR IS RESPONSIBLE FOR FOLLOWING MANUFACTURER'S RECOMMENDATIONS, STATE AND FEDERAL REGULATIONS TO ENSURE CORRECT HANDLING, DISPOSAL, SPILL PREVENTION AND CLEANUP MEASURES. EXAMPLES INCLUDE BUT ARE NOT LIMITED TO: PAINTS, ACIDS, CLEANING SOLVENTS, CHEMICAL ADDITIVES, CONCRETE CURING COMPOUNDS AND CONTAMINATED SOILS.

### GENERAL NOTES:

A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IS REQUIRED TO COMPLY WITH THE OKLAHOMA POLLUTION DISCHARGE ELIMINATION SYSTEM (OPDES) REGULATIONS. THIS PLAN IS INITIATED DURING THE DESIGN PHASE, CONFIRMED IN THE PRE-WORK MEETINGS AND AVAILABLE ON THE JOB SITE ALONG WITH COPIES OF THE NOTICE OF INTENT (NOI) FORM AND PERMIT CERTIFICATE THAT HAVE BEEN FILED WITH THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY (ODEQ). THE PLAN MUST BE KEPT CURRENT WITH UP-TO-DATE AMENDMENTS DURING THE PROGRESSION OF THE PROJECT. ALL CONTRACTOR OFF-SITE OPERATIONS ASSOCIATED WITH THE PROJECT MUST BE DOCUMENTED IN THE SWPPP, I.E., BORROW PITS, WORK ROADS, DISPOSAL SITES, ASPHALT/CONCRETE PLANTS, ETC. THE BASIC GOAL OF STORM WATER MANAGEMENT IS TO IMPROVE WATER QUALITY BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES. RUNOFF FROM CONSTRUCTION SITES HAS A POTENTIAL FOR POLLUTION DUE TO EXPOSED SOILS AND THE PRESENCE OF HAZARDOUS MATERIALS USED IN THE CONSTRUCTION PROCESS. THE PREVENTION OF SOIL EROSION, CONTAINMENT OF HAZARDOUS MATERIALS AND/OR THE INTERCEPTION OF THESE POLLUTANTS BEFORE LEAVING THE CONSTRUCTION SITE ARE THE BEST PRACTICES FOR CONTROLLING STORM WATER POLLUTION.

THE FOLLOWING SECTIONS OF THE 2009 ODOT STANDARD SPECIFICATIONS SHOULD BE NOTED:

- 103.05 BONDING REQUIREMENTS
- 104.10 FINAL CLEANING UP
- 104.12 CONTRACTOR'S RESPONSIBILITY FOR WORK
- 104.13 ENVIRONMENTAL PROTECTION
- 106.08 STORAGE AND HANDLING OF MATERIAL
- 107.01 LAWS, RULES AND REGULATIONS TO BE OBSERVED
- 107.20 STORM WATER MANAGEMENT
  - 220 MANAGEMENT OF EROSION, SEDIMENTATION AND STORM WATER POLLUTION PREVENTION AND CONTROL
  - 221 TEMPORARY SEDIMENT CONTROL

### IN ADDITION:

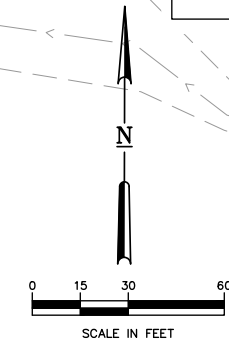
"ODEQ GENERAL PERMIT (OKR10) FOR STORM WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES WITHIN THE STATE OF OKLAHOMA." ODEQ, WATER QUALITY DIVISION, SEPTEMBER 13, 2017.

M:\COUNTY\_PAWNEE\13PAW03 COUNTY BRIDGE 08\9\DESIGN\DRAWINGS\13PAW03\_SF3.DWG

DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION ROADWAY DESIGN DIVISION  <b>STORM WATER MANAGEMENT PLAN</b>
DRAWN	ATD	6/17	
CHECKED	BWF	6/17	
APPROVED	WTM	6/17	
SQUAD	MESHEK		
COUNTY	PAWNEE	COUNTY RD. E0510	STATE JOB NO. JP29930(04) SHEET NO. R01

SE/4 SECTION 21  
T-21-N, R-5-E

**CAUTION**  
UNDERGROUND  
TELEPHONE AT&T  
(405)-348-1844



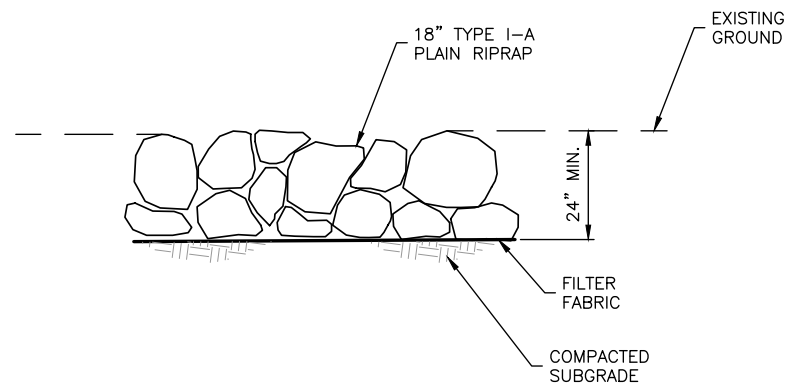
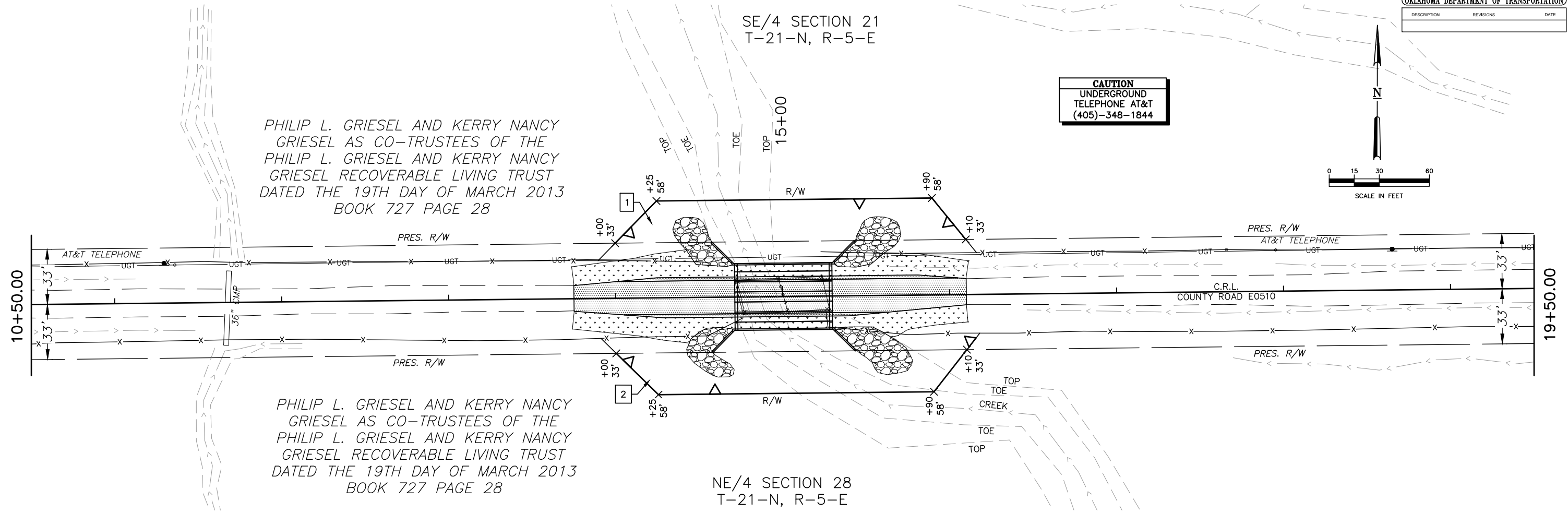
PHILIP L. GRIESEL AND KERRY NANCY  
GRIESEL AS CO-TRUSTEES OF THE  
PHILIP L. GRIESEL AND KERRY NANCY  
GRIESEL RECOVERABLE LIVING TRUST  
DATED THE 19TH DAY OF MARCH 2013  
BOOK 727 PAGE 28

PHILIP L. GRIESEL AND KERRY NANCY  
GRIESEL AS CO-TRUSTEES OF THE  
PHILIP L. GRIESEL AND KERRY NANCY  
GRIESEL RECOVERABLE LIVING TRUST  
DATED THE 19TH DAY OF MARCH 2013  
BOOK 727 PAGE 28

NE/4 SECTION 28  
T-21-N, R-5-E

10+50.00

19+50.00



1 RIPRAP INSTALLATION  
SCALE: NONE

KEY	
XXXXXX	TEMPORARY SILT FENCE
[Pattern]	SOLID SLAB SODDING
[Pattern]	RIPRAP

M:\COUNTY\_PAWNEE\13PAW03\_COUNTY\_BRIDGE\_089\DESIGN\DRAWINGS\13PAW03\_EROSION.DWG

DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION
DRAWN	ATD	6/17	
CHECKED	BWF	6/17	
APPROVED	WTM	6/17	
SQUAD	MESHEK		
COUNTY PAWNEE COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO. R02			<b>EROSION CONTROL DETAIL</b>

DESCRIPTION	REVISIONS	DATE

JIM W. DAY, JR. AND  
HEATHER L. DAY  
WARRANTY DEED  
BOOK 736 PAGE 169

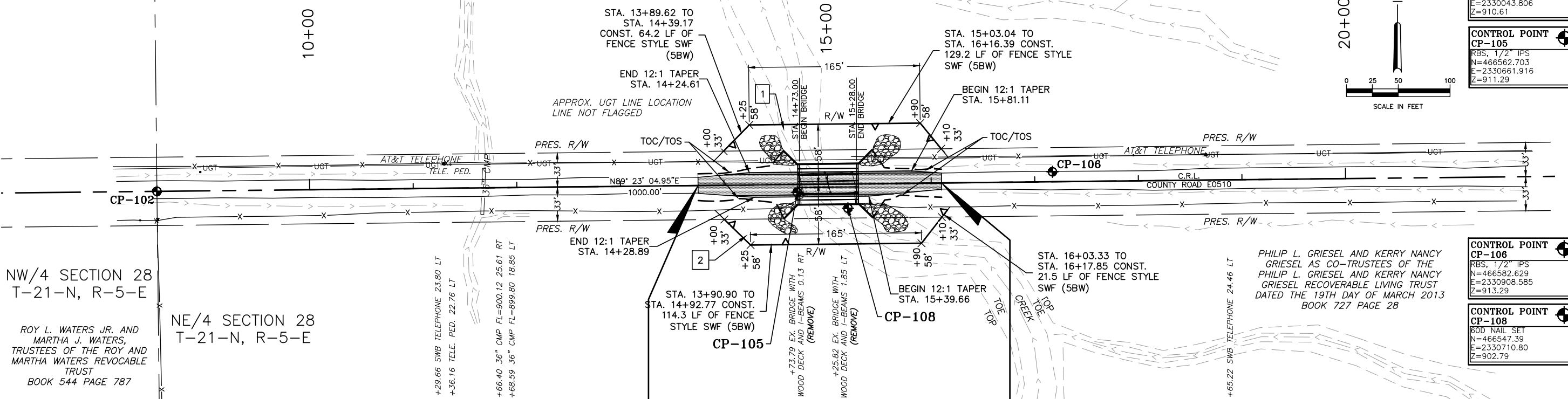
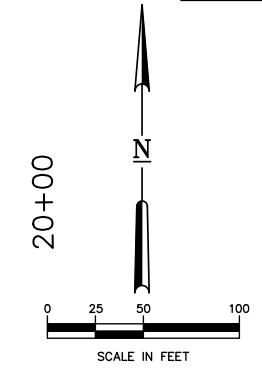
SW/4 SECTION 21 SE/4 SECTION 21  
T-21-N, R-5-E T-21-N, R-5-E

PHILIP L. GRIESEL AND KERRY NANCY  
GRIESEL AS CO-TRUSTEES OF THE  
PHILIP L. GRIESEL AND KERRY NANCY  
GRIESEL RECOVERABLE LIVING TRUST  
DATED THE 19TH DAY OF MARCH 2013  
BOOK 727 PAGE 28

**CAUTION**  
UNDERGROUND  
TELEPHONE AT&T  
(405)-348-1844

**CONTROL POINT**  
CP-102  
FND. 60D NAIL  
N=466563.717  
E=2330043.806  
Z=910.61

**CONTROL POINT**  
CP-105  
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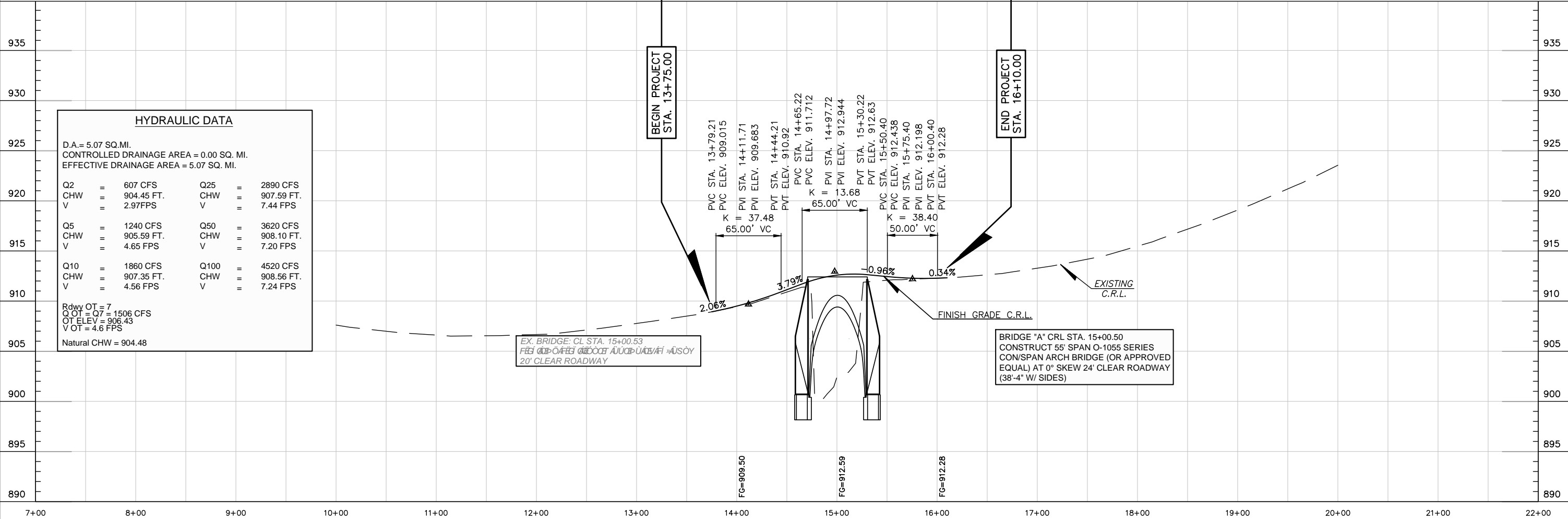
NW/4 SECTION 28  
T-21-N, R-5-E  
ROY L. WATERS JR. AND  
MARTHA J. WATERS,  
TRUSTEES OF THE ROY AND  
MARTHA WATERS REVOCABLE  
TRUST  
BOOK 544 PAGE 787

NE/4 SECTION 28  
T-21-N, R-5-E

**CONTROL POINT**  
CP-106  
FBS, 1/2" IPS  
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Z=913.29

**CONTROL POINT**  
CP-108  
60D NAIL SET  
N=466547.39  
E=2330710.80  
Z=902.79

M:\COUNTY\_PAWNEE\13PAW03\_County\_Bridge\_Design\Drawings\13PAW03\_Plan\_and\_Profile.DWG



**HYDRAULIC DATA**

D.A = 5.07 SQ. MI.  
CONTROLLED DRAINAGE AREA = 0.00 SQ. MI.  
EFFECTIVE DRAINAGE AREA = 5.07 SQ. MI.

Q2	=	607 CFS	Q25	=	2890 CFS
CHW	=	904.45 FT.	CHW	=	907.59 FT.
V	=	2.97 FPS	V	=	7.44 FPS
Q5	=	1240 CFS	Q50	=	3620 CFS
CHW	=	905.59 FT.	CHW	=	908.10 FT.
V	=	4.65 FPS	V	=	7.20 FPS
Q10	=	1860 CFS	Q100	=	4520 CFS
CHW	=	907.35 FT.	CHW	=	908.56 FT.
V	=	4.56 FPS	V	=	7.24 FPS

Rdwy OT = 7  
Q OT = 07 = 1506 CFS  
OT ELEV = 906.43  
V OT = 4.6 FPS  
Natural CHW = 904.48

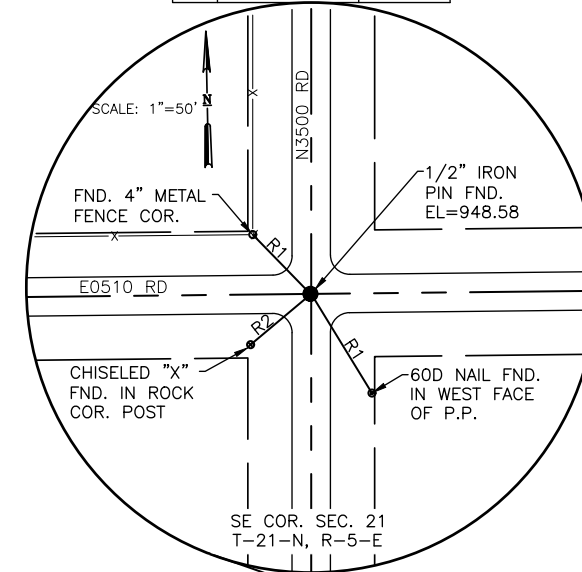
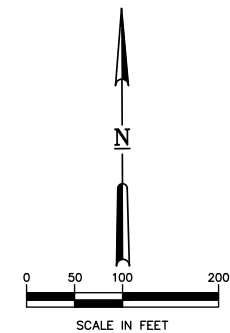
DESCRIPTION	REVISIONS	DATE

SURVEY CONTROL				
POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
CP-101	466592.237	2332699.461	948.58	1/2" IRON PIN FND. SE COR.
CP-102	466563.717	2330043.806	910.61	FOUND 60D NAIL S/4 COR.
CP-104	466566.501	2331910.824	975.16	RBS, 1\2" IPS
CP-105	466562.703	2330661.916	911.29	RBS, 1\2" IPS
CP-106	466582.629	2330908.585	913.29	RBS, 1\2" IPS
CP-107	466606.37	2331909.84	975.36	RBS, 1\2" IPS
CP-108	466547.39	2330710.80	902.79	60D NAIL SET

**LEGEND**  
 CP-10 CONTROL POINT

**CAUTION**  
 UNDERGROUND  
 TELEPHONE AT&T  
 (405)-348-1844

LINE	BEARING	DISTANCE
R1	S 31°27'53" E	60.56'
R2	S 50°04'12" W	41.19'
R3	N 44°13'44" W	43.08'



SE/4 SECTION 21  
 T-21-N, R-5-E

PHILIP L. GRIESEL AND KERRY  
 NANCY GRIESEL AS CO-TRUSTEES  
 OF THE PHILIP L. GRIESEL AND  
 KERRY NANCY GRIESEL  
 RECOVERABLE LIVING TRUST  
 DATED THE 19TH DAY OF MARCH  
 2013 BOOK 727 PAGE 28

SW/4 SECTION 21  
 T-21-N, R-5-E  
 EAST LINE SW/4 SECTION 21  
 WEST LINE SE/4 SECTION 21

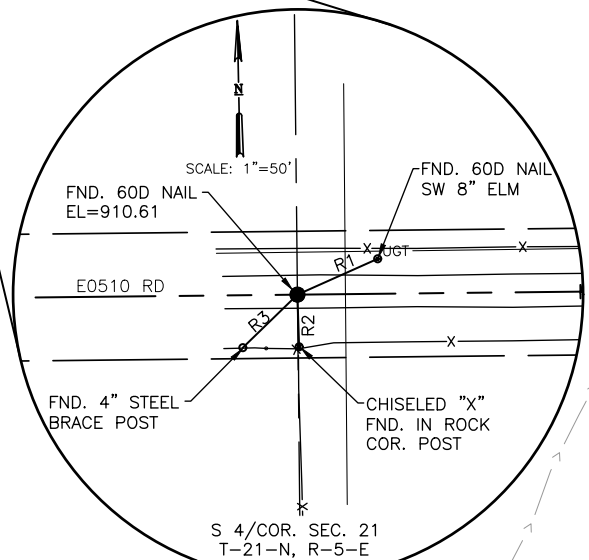
JIM W. DAY, JR. AND  
 HEATHER L. DAY  
 WARRANTY DEED  
 BOOK 736 PAGE 169

BP  
 STA. 10+00.00  
 N: 466565.3001  
 E: 2330191.1981

C.R.L.  
 N89° 23' 05"E  
 1000.00'

EP  
 STA. 20+00.00  
 N: 466576.0387  
 E: 2331191.1405

ROY L. WATERS JR.  
 AND MARTHA J.  
 WATERS,  
 TRUSTEES OF THE  
 ROY AND MARTHA  
 WATERS' REVOCABLE  
 TRUST  
 BOOK 544 PAGE 787

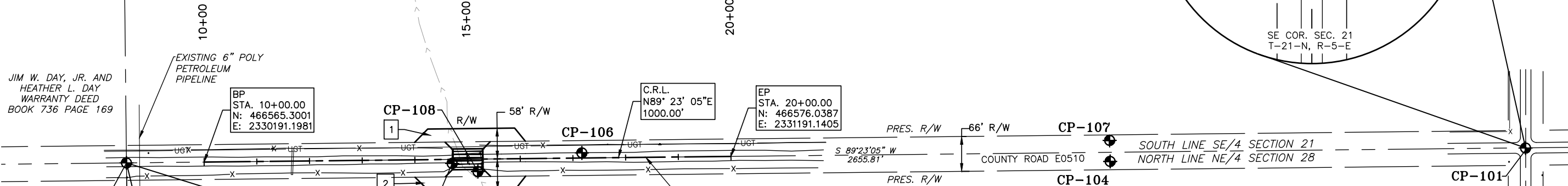


LINE	BEARING	DISTANCE
R1	N 65°55'34" E	45.75'
R2	S 01°46'18" E	27.18'
R3	S 45°51'59" W	39.64'

NE/4 SECTION 28  
 T-21-N, R-5-E

PHILIP L. GRIESEL AND KERRY  
 NANCY GRIESEL AS CO-TRUSTEES  
 OF THE PHILIP L. GRIESEL AND  
 KERRY NANCY GRIESEL  
 RECOVERABLE LIVING TRUST  
 DATED THE 19TH DAY OF MARCH  
 2013 BOOK 727 PAGE 28

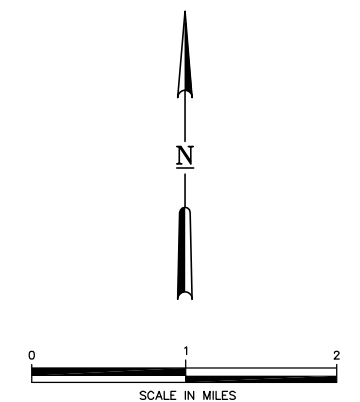
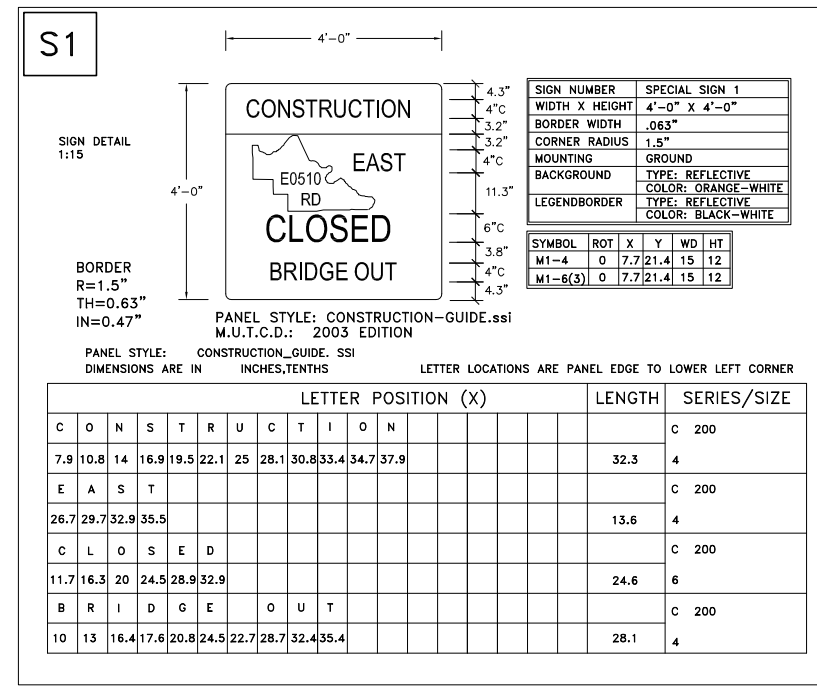
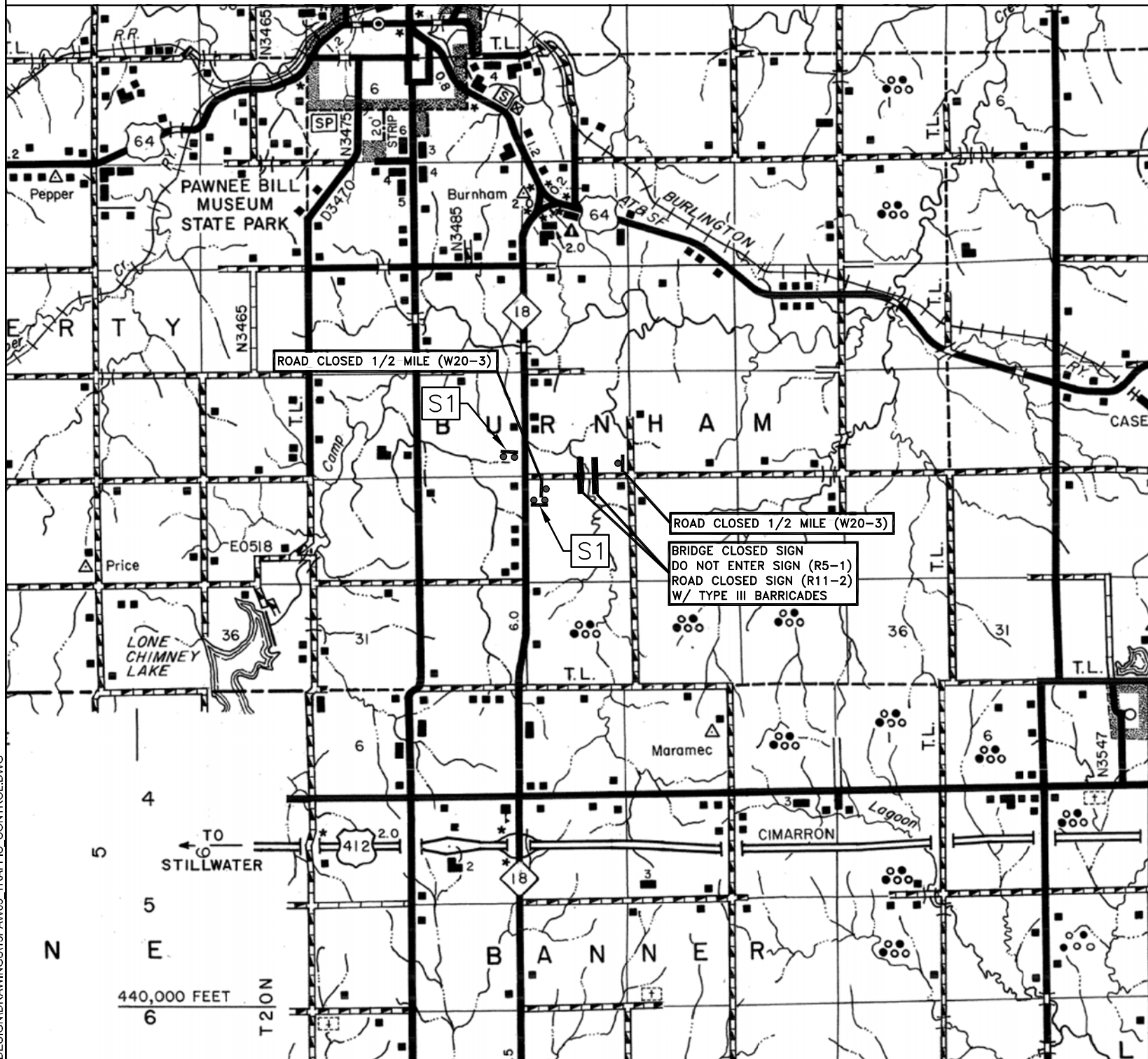
NW/4 SECTION 28  
 T-21-N, R-5-E  
 EAST LINE NW/4 SECTION 28  
 WEST LINE NE/4 SECTION 28



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DESIGN	RJP	6/17	OKLAHOMA DEPARTMENT OF TRANSPORTATION
DRAWN	ATD	6/17	
CHECKED	BWF	6/17	
APPROVED	WTM	6/17	
SQUAD	MESHEK		
COUNTY PAWNEE COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO. S01			

**SURVEY AND  
 ALIGNMENT DATA**

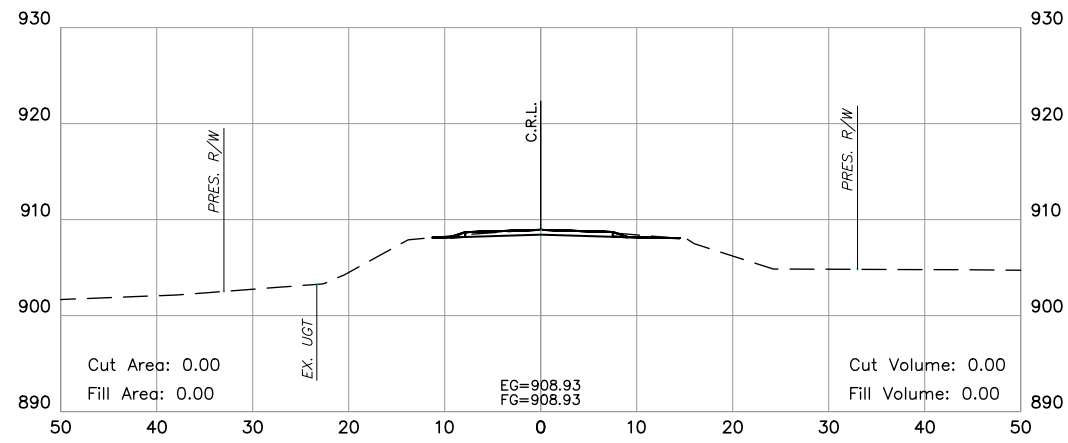


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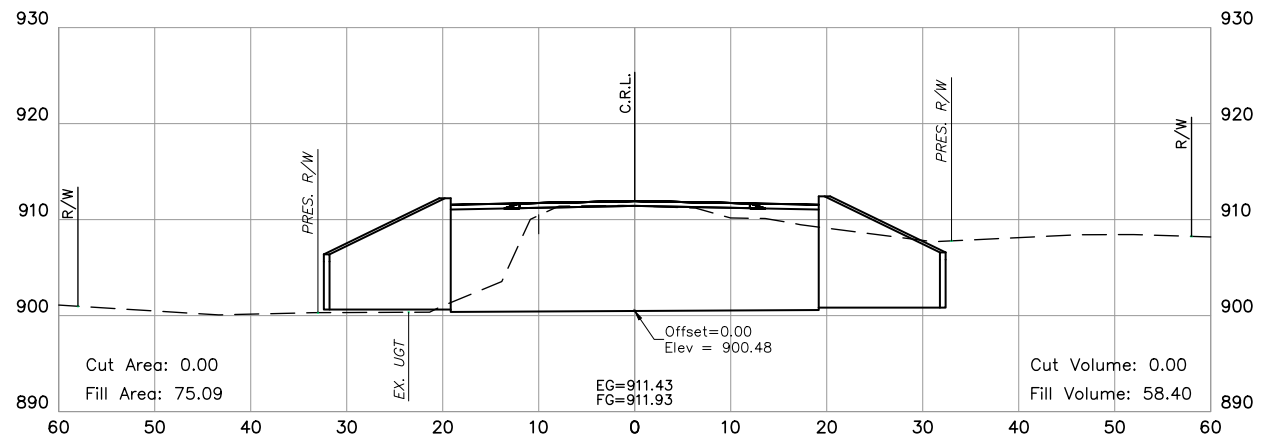
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DRAWN	ATD	6/17	
CHECKED	BWF	6/17	
APPROVED	WTM	6/17	
SQUAD	MESHEK		
COUNTY PAWNEE COUNTY RD. E0510 STATE JOB NO. JP29930(04) SHEET NO. T01			<b>TRAFFIC CONTROL PLAN</b>

END AREAS (SF)

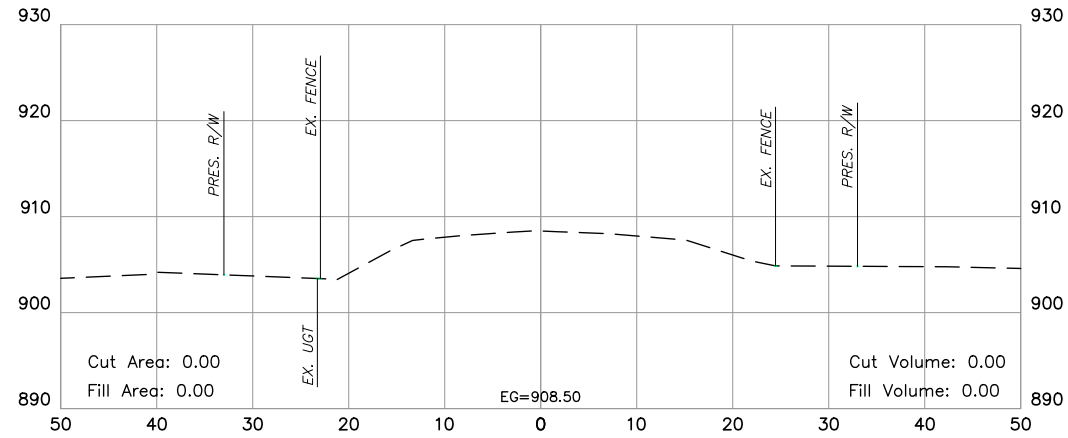
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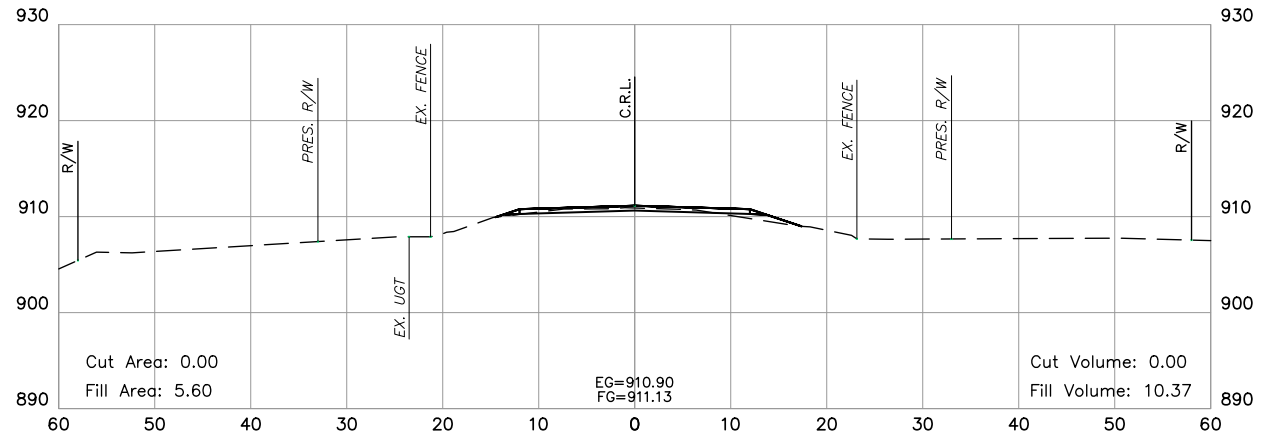
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STA. 13+75.00



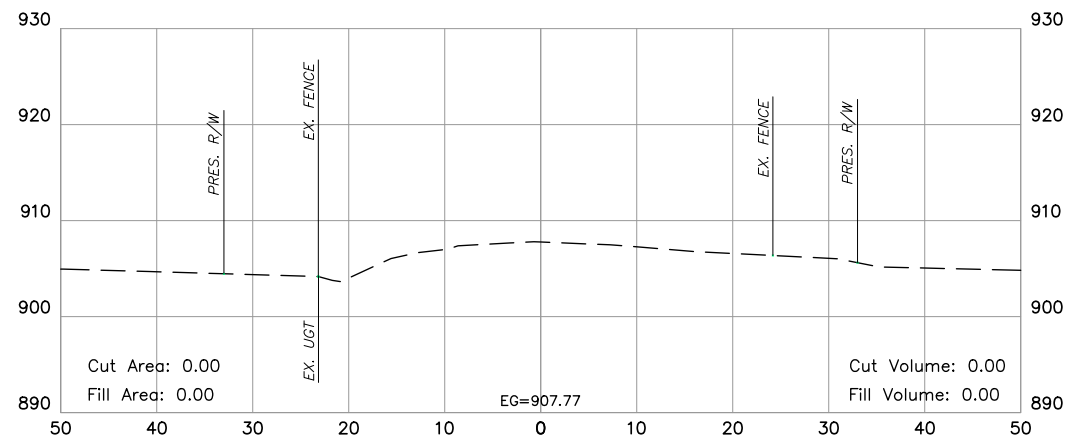
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BEGIN BRIDGE



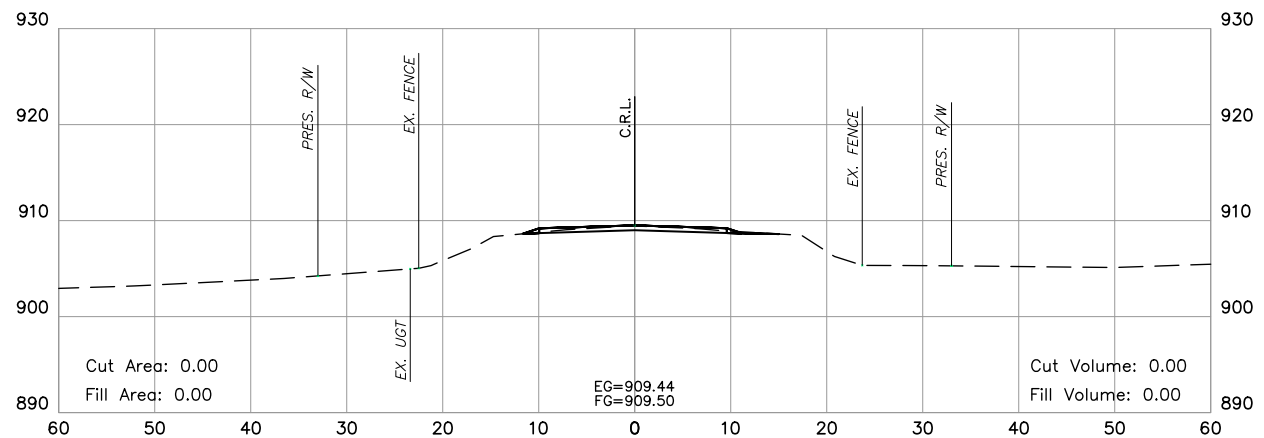
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14+50



13+00

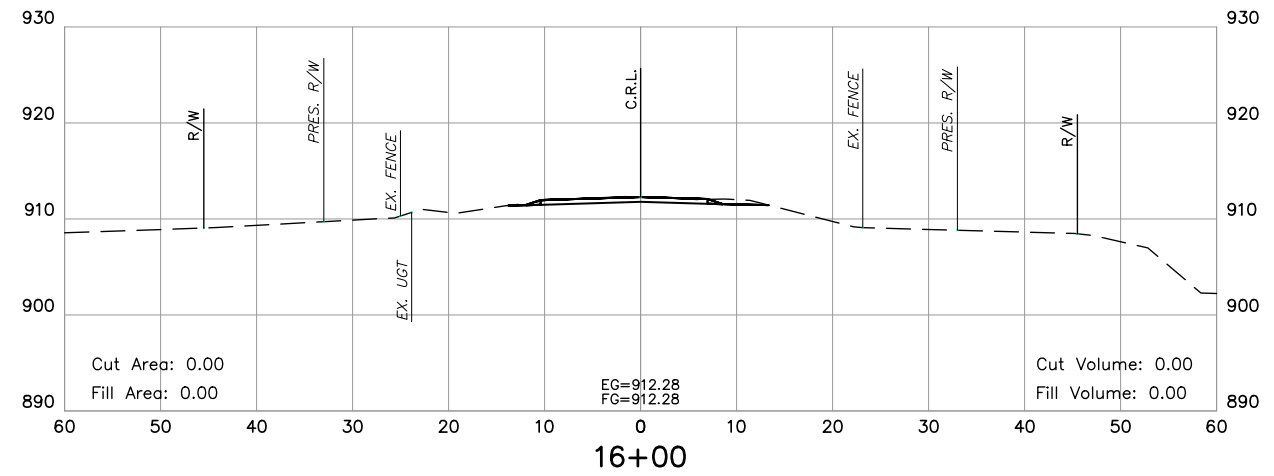
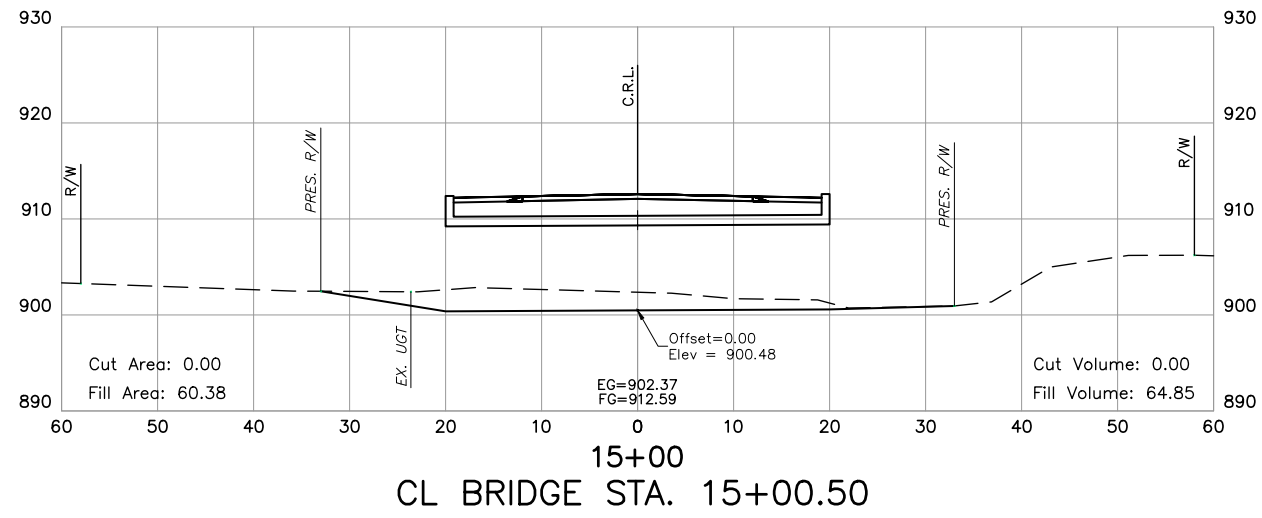
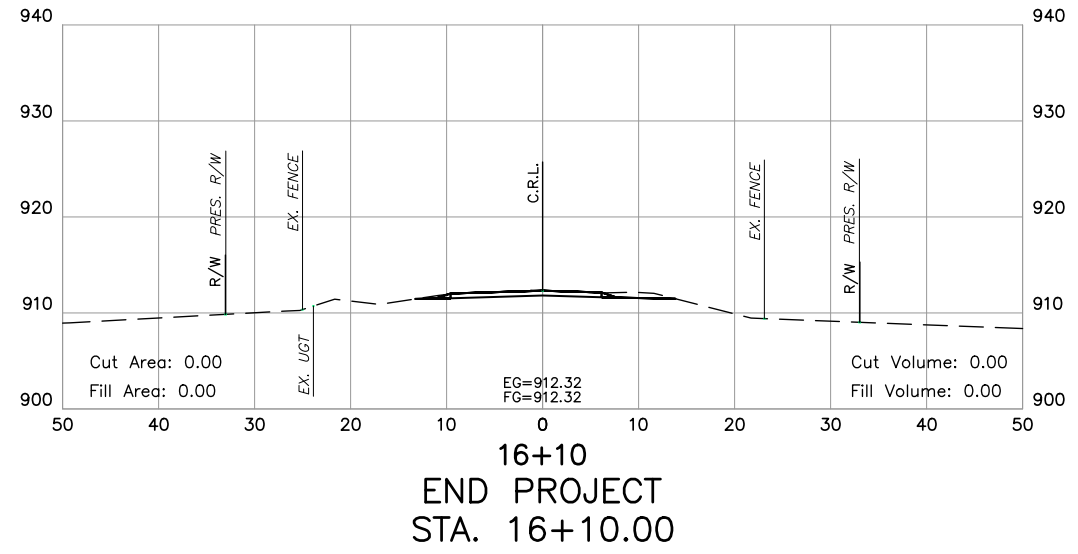
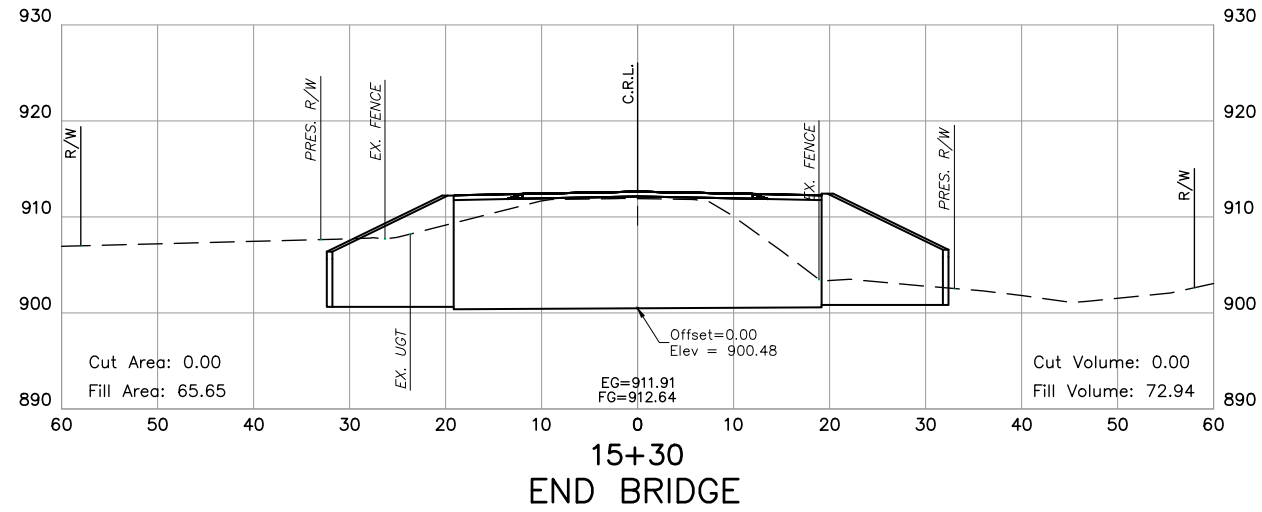
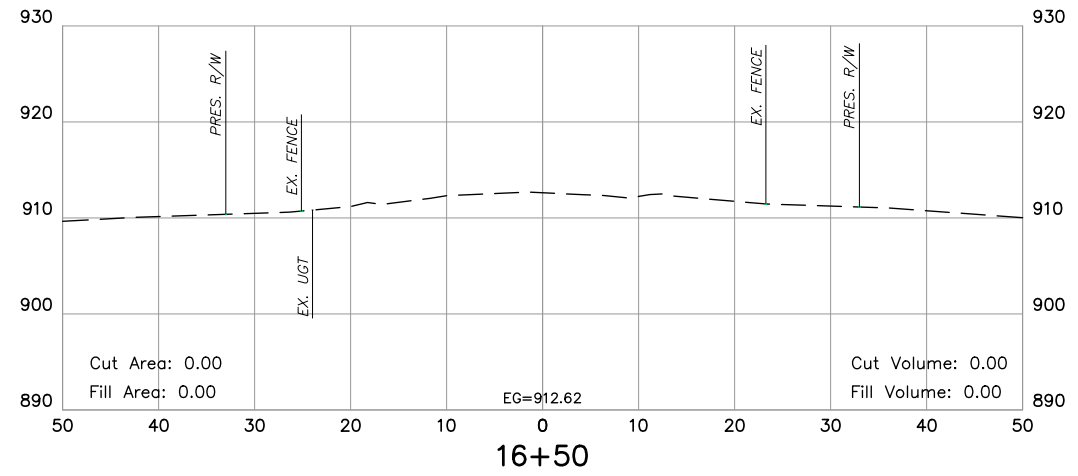
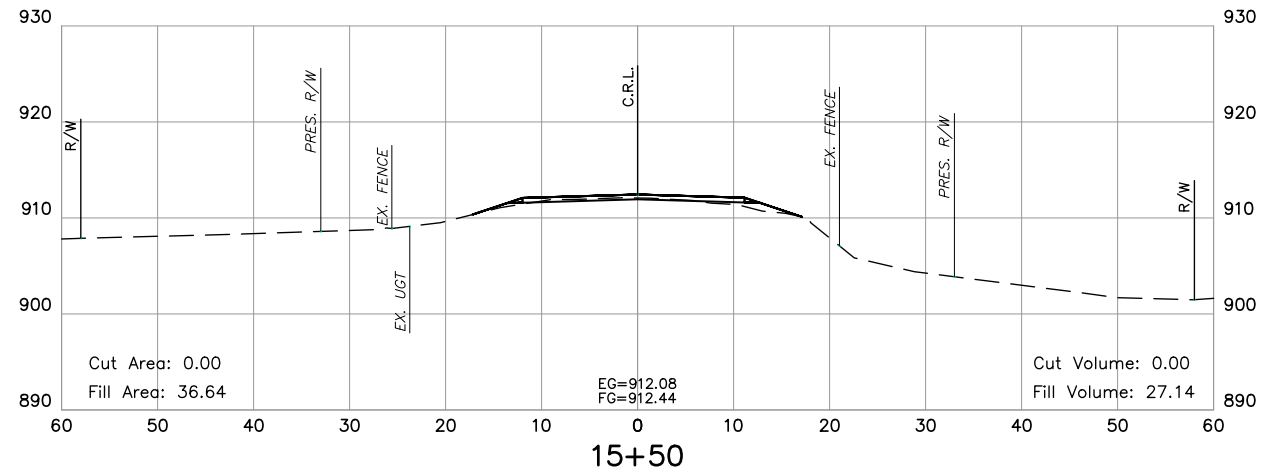


14+00

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END AREAS (SF)

VOLUMES (CY)



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